
1% Focus Report: Oracle (ORCL)

YCHARTS

Published December 9, 2013

The 1% Focus Report hones in on the valuation drivers underlying a firm in either the top or bottom Value Score deciles in YCharts' data universe. The report is designed to be a visual form of financial statement analysis, allowing for an analyst or portfolio manager to understand the financial metrics that drive the focus company's valuation.

The Value Score is a quantitative six-factor model designed to separate companies according to their relative (rather than absolute) valuation; companies with a Value Score of 10 (highest) have historically performed much better than the S&P 500 index and those with a Value Score of 1 have historically performed worse.

Director of Research

Erik Kobayashi-Solomon | erik@ycharts.com

Product Inquiries

866 965 7552 | sales@ycharts.com

All information provided herein is for information purposes only and should not be considered as investment advice or a recommendation to purchase or sell any specific security. Security examples featured are samples for presentation purposes and are intended to illustrate how to use YCharts data in the analysis of the valuation of public securities. While the information presented herein is believed to be reliable, no representations or warranty is made concerning the accuracy of any data presented.

Valuation at a Glance

Y-Score



Oracle is rated Neutral on the Value Score quantitative rating system and is in the seventh decile in YCharts’ data universe.
[Note: This is a prototype report. As we productionize this report, we will only publish Focus Reports on companies in either the 10th (most undervalued) or 1st (most overvalued) Value Score deciles.]

Access detailed Pro Ratings
on ycharts.com

Valuation Drivers



Stable Revenues
Oracle’s revenues display remarkable and increasing resiliency in the face of cyclical economic downturns.

Pages 3, 15-17



Robust, Rising Profits
Oracle’s profitability looks to reset higher every time the economy goes into recession.

Pages 4-5



Value-Creative Investment Projects
Oracle went on a buying spree in 2005, but data suggests its acquisitions have been successful in generating cash for its shareholders.

Pages 6-9



Impressive Cash Flow Generation
Oracle’s is consistently generating a high level of cash flows and even three decades into its economic life, is finding ways to expand those cash flows at a double-digit rate.

Page 10

Market Pricing + Competitors



Market Multiples
Two valuation metrics offer roughly the same buy and sell signals for Oracle’s stock.

Pages 11-14

Focus Analysis



Oracle’s Secret
Founder and CEO Larry Ellison said the 2010 acquisition of Sun Microsystems was the most profitable he had ever made. Our analysis of the data backs him up.

Pages 15-17

Overview

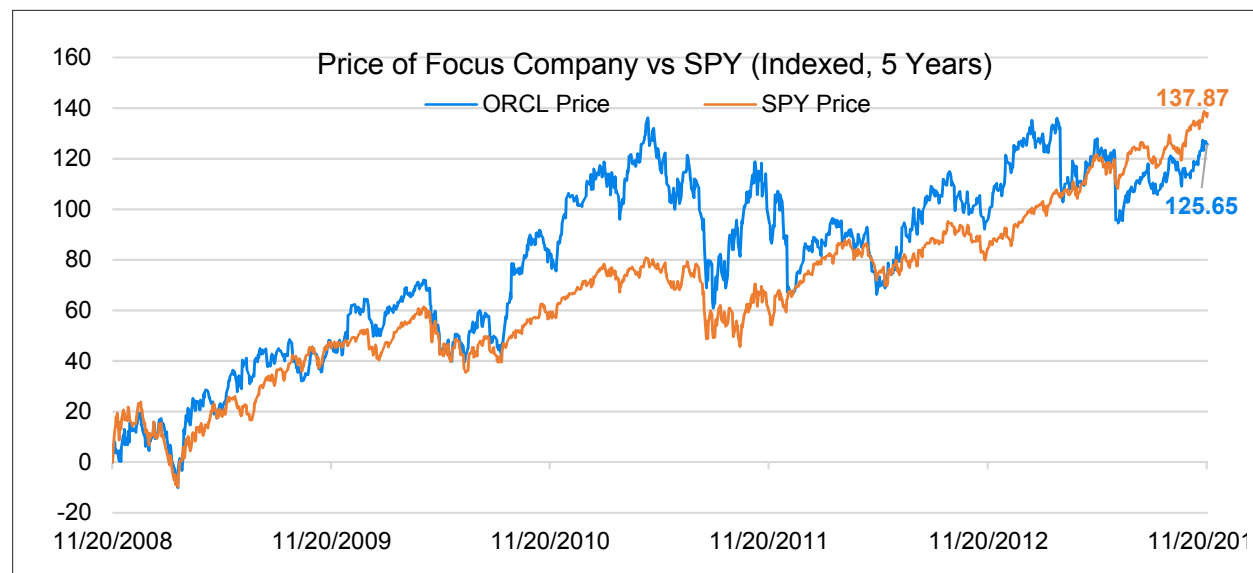
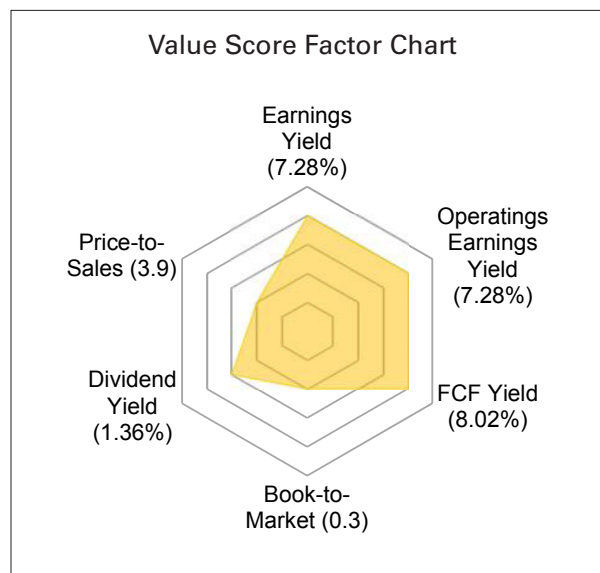
Industry	Software - Infrastructure
Market Capitalization	159.2B
TTM Sales (\$ mm)	37.4B
TTM CFO (\$ mm)	14.9B
TTM CFO Margin	40%
Mkt Cap / TTM Sales	4.3
Mkt Cap / TTM CFO	10.7
Long-Term Debt (\$ mm)	22.6B
Shareholders' Equity (\$ mm)	43.5B
D/E Ratio	52%
Altman's Z-Score	3.9
Beta	1.2
Return on Equity (TTM)	25%

Oracle's (ORCL) business model is best described as a combination of razor company Gillette and implantable pacemaker company Medtronic MDT.

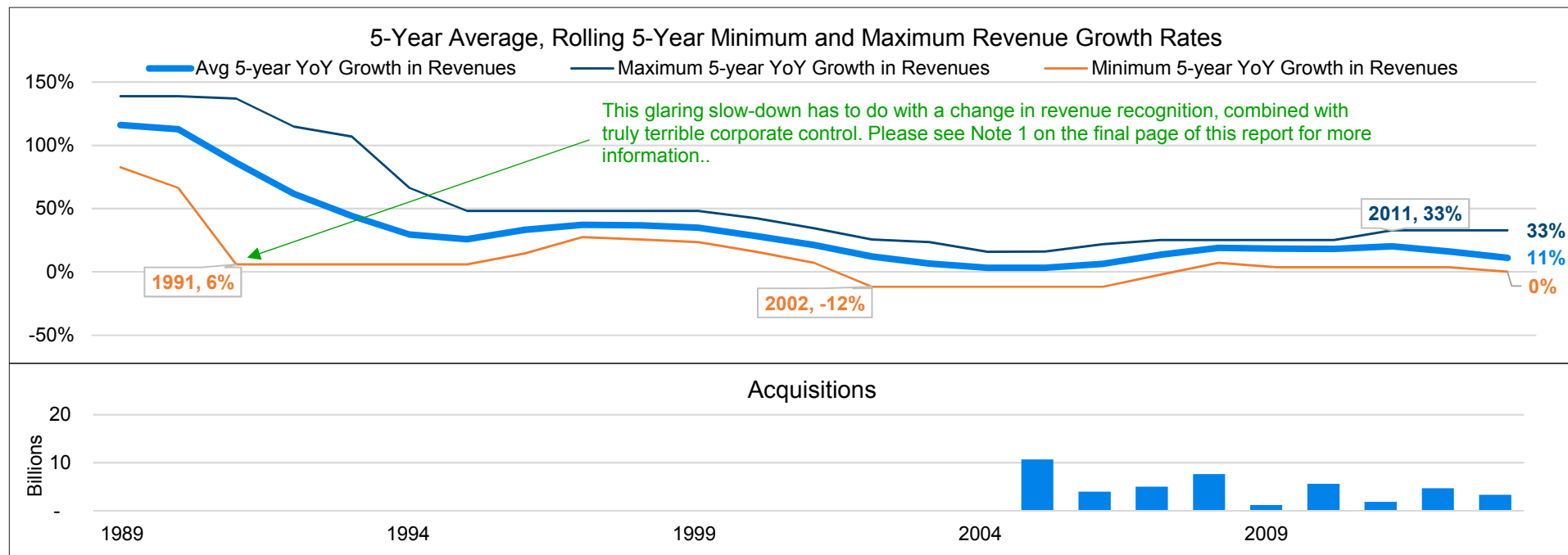
Once a customer buys a Gillette razor, Gillette can count on years of repeated purchases of its high-margin disposable razor heads. Once a Medtronic patient is implanted with a pacemaker, they are virtually certain not to voluntarily replace it when a competitive pacemaker comes to market.

Oracle sells database and infrastructure software to the largest multinationals. Its software is implanted into the heart of clients' business processes, and due to the criticality of these processes, clients are resistant to switch to competitors' offerings (a-la Medtronic). Once its software is in place, Oracle continues to add features so it can sell its clients years of high margin upgrades and improvements (a-la Gillette).

This is a good business model.



Valuation Drivers: Revenues

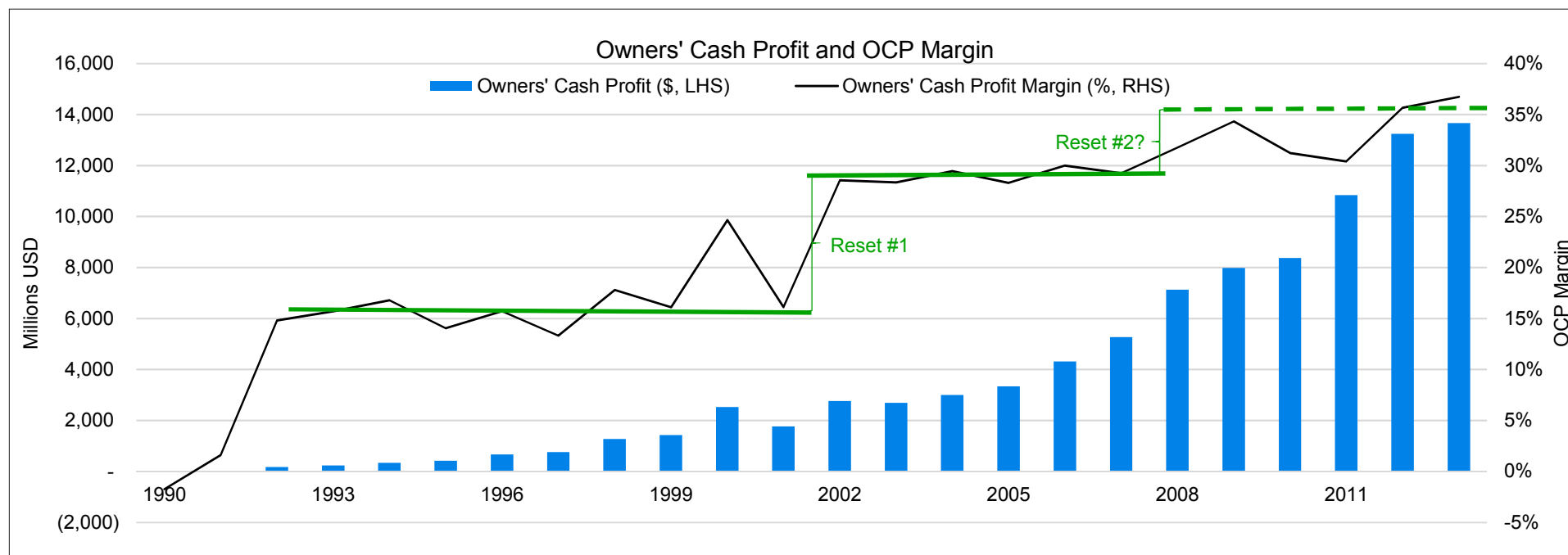


While Oracle's revenue growth has slowed in the last few years due to headwinds caused by OECD economic weakness and the winding down of Sun Micro's legacy hardware business, its five-year average revenue growth is still in the double digit percentage range. Notice also that A) Revenue growth slowed much less in the 2009 recession than it did in the Tech bust recession even though the former was much more severe and widespread, and B) Acquisitions (bottom chart) have not made a huge difference to the top line.

The first point leads us to observe that Oracle's business is becoming less cyclical—we discuss root causes for this stability in the Focus section of this report. Regarding acquisitions, we provide evidence on the next page that Oracle's acquisition strategy has been effective at generating profits even if its effect on growth has been muted.

Each page of the YCharts Focus Report focuses on each of the three fundamental elements that drive company valuations. Revenue growth is the first of these. Please see our detailed notes in the Methodology Section at the end of this report regarding this and the other drivers.

Valuation Drivers: Profitability



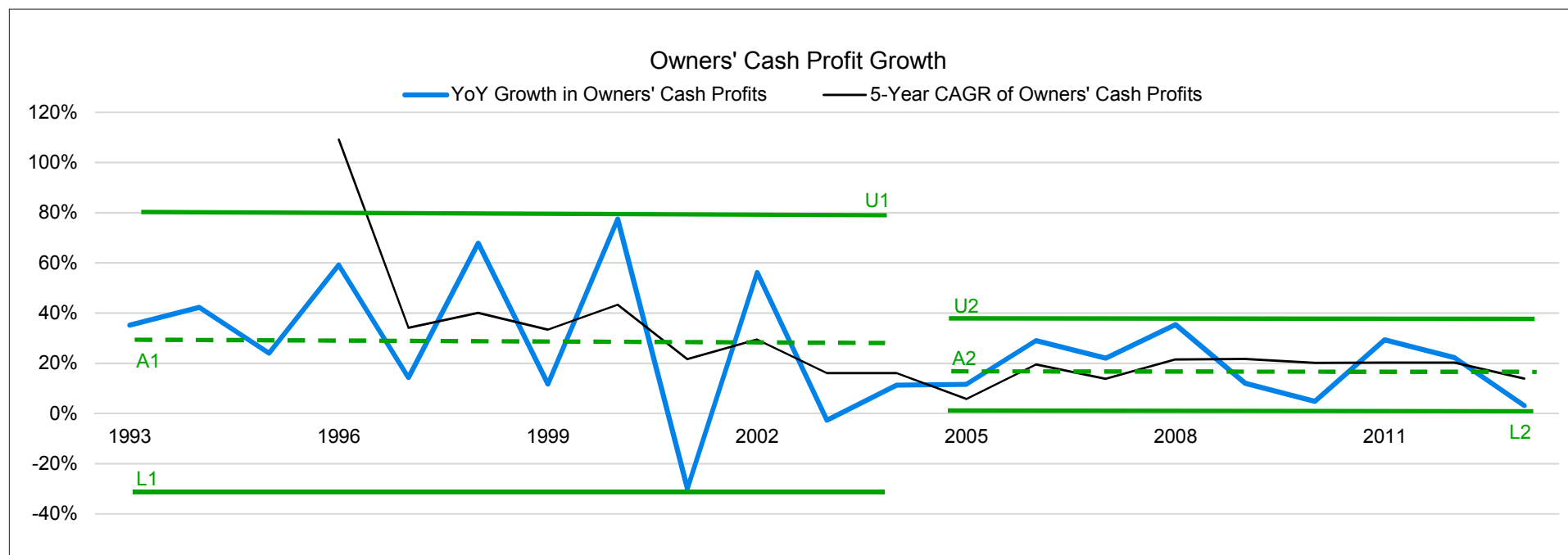
Oracle's profit seems to reset at higher levels simultaneous to general economic downturns. The upward reset from the mid-teens percent profitability level (2000-2002) is clear.

We believe the probable reset starting in 2008-2009 and continuing through today represents the success of Oracle's acquisition policy. This second reset is not as clear due to the economic crisis and its fall-out negatively affecting 2009 and 2010 numbers. However, considering the 35%+ OCP margins in both 2012 and 2013, we believe the reset is for real.

Oracle's acquisition strategy is to buy software companies that sell complementary products, then incorporates the acquired functionality into its main product line. This allows Oracle to offer its clients and prospects products with very rich feature sets. Once clients buy its software, they are locked into Oracle's true profit center—the business of selling software updates. We discuss the evidence for profitability in the key software update segment in the Focus section of this report.

Profitability—which we define as Owners' Cash Profits (OCP)—is the second of three fundamental valuation drivers. OCP is a cash-based measure equivalent to Cash Flow from Operations less a rough estimate of maintenance capital expenditures. Its calculation is an essential intermediary step to calculating Free Cash Flow to Owners. For detailed information regarding both measures, please see the Methodology Section at the end of this report.

Valuation Drivers: Profitability (continued)



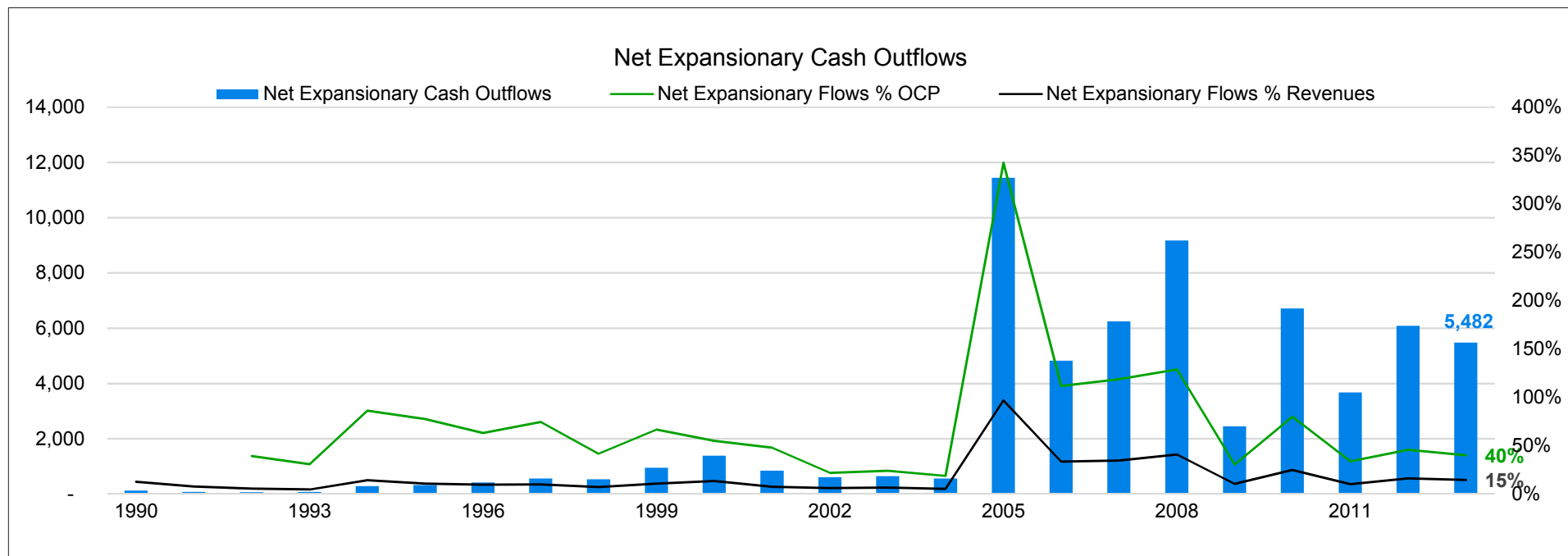
Owners' Cash Profit growth tends to slow as a firm matures if for no other reason than the so-called "law of large numbers." With Oracle, we see average profitability growth in the twelve years starting in 1993 slowing simultaneous to the start of Oracle's acquisition spree (2005—recall the graph on page 2 of this report). The average Year-over-Year (YoY) growth rates for the first period (marked by the dashed A1 line above) is 31% / year in contrast to 19% / year (marked by the dashed A2 line) for the subsequent nine-year period—a drop of roughly one-third.

However, concomitant with the slowdown in the growth rate is a material increase in its stability. Visually, observe the sudden tightening of the upper and lower limits in period 2 compared to period 1. Numerically, the range for period 1 is 351% of the average growth and contains two negative values; in contrast, the range for period 2 is half that—171%—and contains no negative values.

Greater stability in cash flows implies lower valuation risk, all other factors held equal. As such, while an investor might prefer faster growth rates, increasing profit growth stability can be considered a real benefit in the sense that it allows an investor to increase his or her conviction in a given investment.

The largest proportion of a company's overall valuation is related to the projected growth rate of future free cash flows. Because free cash flows are a portion of OCP, it is vitally important to understand growth of OCP in order to develop a rational view of future free cash flows. For more information, please see the Methodology Section at the end of this report.

Valuation Drivers: Investment Level

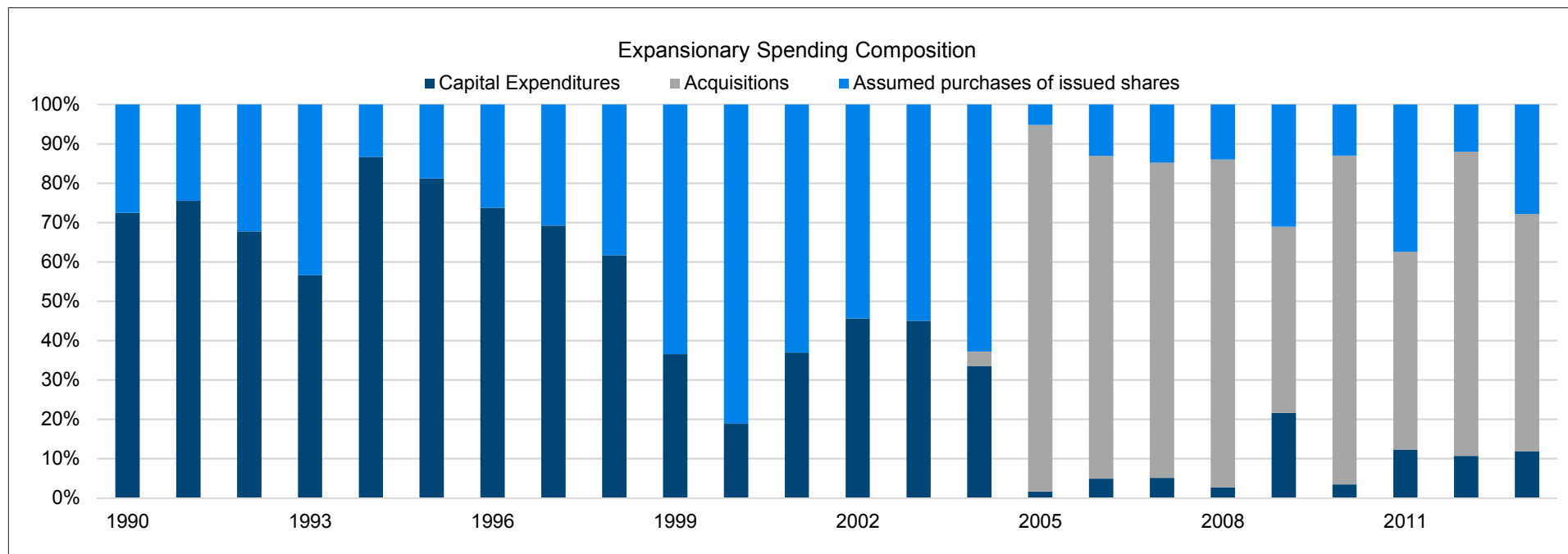


While the absolute level of expansionary spending jumped materially in 2005, the relative spending as a proportion of both revenues and economic profit in 2013 is not terribly different from expansionary spending in the preceding decade (average 9% of revenues and 53% of OCP through 1994-2004 vs. 15% and 40% in 2013).

The \$10 billion 2005 acquisition of PeopleSoft was transformative for Oracle. Previous to that time, Oracle had been known as a database company (i.e., the electronic “containers” that hold data); PeopleSoft was a producer of application software (i.e., the programs employees use to capture or enter data that will be stored in a database). After the PeopleSoft acquisition and subsequent purchases of application software providers Siebel (2006), Hyperion (2007), and BEA (2008), Oracle became a major player in the field of enterprise application software. Oracle’s 2010 acquisition of computer / server maker, Sun Microsystems extended its product footprint into hardware. While this acquisition was derided by some in the investment world, we believe it has had an extremely beneficial effect on the company’s profitability. We discuss the possible reasons for this in the Focus section of this report.

Expansionary spending is defined as all net cash outflows above what is necessary to maintain the firm as a going concern. In short, it is all capital spending above and beyond maintenance capex. From an owner’s perspective, it is the portion of owners’ cash profits a management team invests to generate excess growth of revenues and / or profits in the future. Please see details regarding the components of this measure and its rationale in the Methodology Section.

Valuation Drivers: Investment Level (continued)

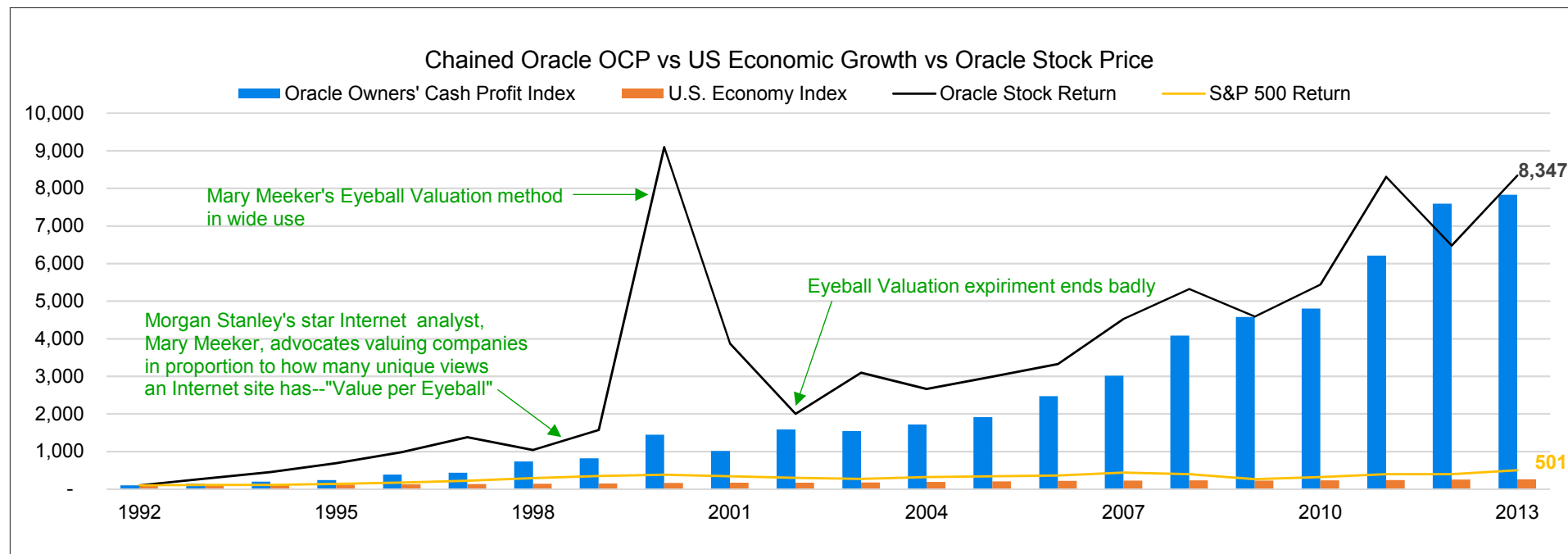


This chart provides a graphic illustration of a company's shift from mainly investing in internal growth opportunities (dark blue bars) to mainly investing in external ones (gray bars).

Oracle worked for roughly the first twenty years of its existence on increasing the functionality and user acceptance of its database products. It began its foray into developing application software internally in the late 1990s. However, considering that the firm ended up buying PeopleSoft a few years' later, we can presume that management decided that it was easier and quicker to develop a presence in application software by buying existing competitors rather than building it from scratch. Existing competitors have well-established client bases to whom Oracle's primary database products could also be sold.

The inclusion of "Assumed purchase of issued shares" in the Expansionary Spending category is explained fully in the Methodology Section at the end of this report.

Valuation Drivers: Investment Efficacy



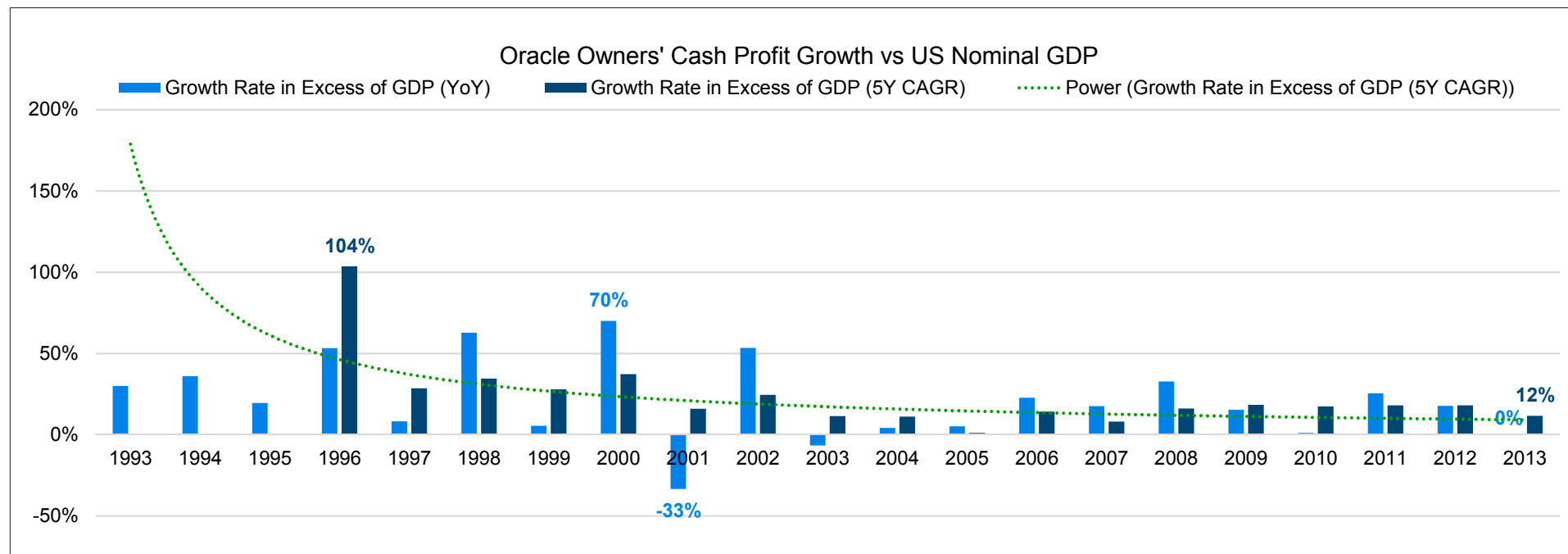
This chart is a testament to the power and effectiveness of profitability-based valuation methods over long time periods. The blue columns are the compounded value of the owners' cash profits generated by Oracle, indexed to the value of 100 in 1992. The black line is the wealth an investor in Oracle in 1992 who spent exactly \$100 on the firm's stock would have over time. Note how closely correlated—setting aside an unfortunate three years' worth of irrational exuberance during the Internet Boom/Bust—the height of the blue bars is to the value represented by the black line.

Moral of the story? Over the long term, a firm is worth roughly the amount of cash profit it can generate on behalf of its owners.

If the firm's management had had fewer compelling investment opportunities, Oracle's growth would certainly not have been as notable as it has. Note the comparison between the wealth generated on behalf of Oracle shareholders and that generated if one could invest directly in the growth of the US economy. This comparison is discussed in more detail on the following page.

The last valuation driver is how effectively a company is investing excess profits—what we call "Investment Efficacy." The benchmark we use to determine investment success is growth of OCP vis-à-vis growth in nominal US Gross Domestic Product (GDP). Rationale for the use of GDP as a benchmark and a full explanation of our use of Investment Efficacy, please see the Methodology Section at the end of this report.

Valuation Drivers: Investment Efficacy (continued)



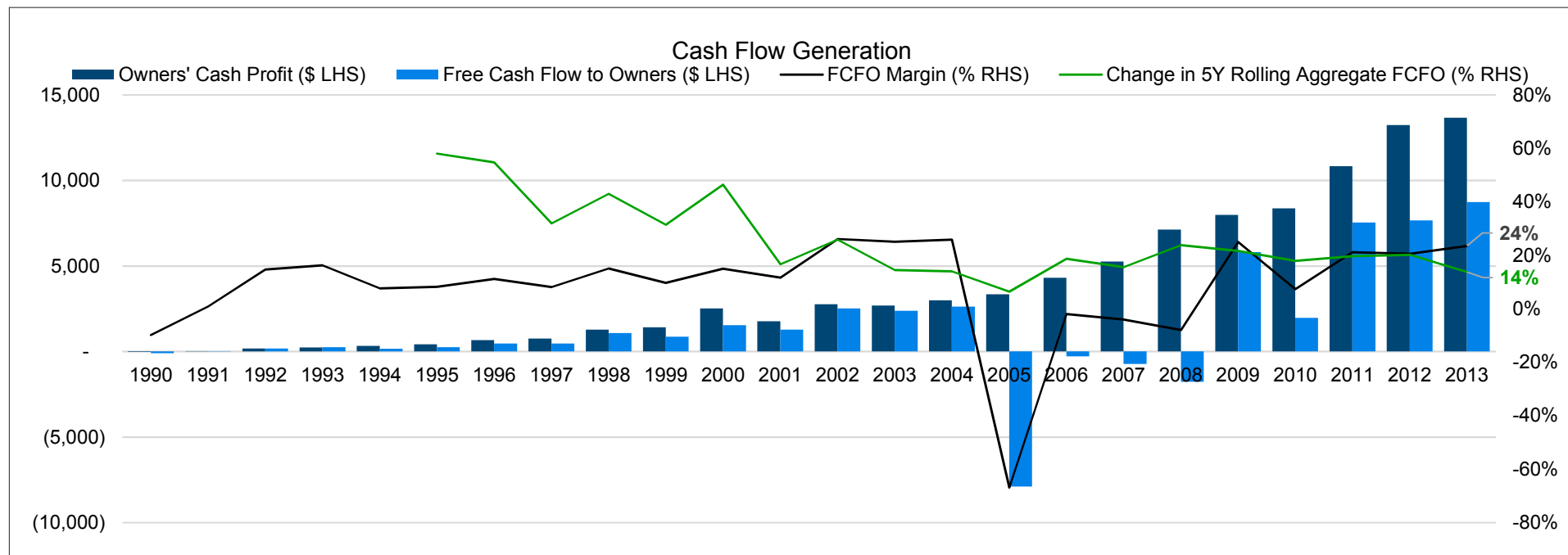
Light blue bars above represent yearly values, so their height naturally fluctuates more than the dark bars, which representing the five-year compound annual growth rate (CAGR).

Note that even 36 years after its 1977 foundation, Oracle is still able to generate double-digit compound growth in OCP. This is a testament to the surfeit of investment opportunities to this company—a first-mover in the world of relational databases—and to the management's effectiveness in selecting areas in which to invest.

Recently, the trend in the application software industry has been in "Cloud-based" solutions such as those offered by salesforce.com CRM and Oracle has just signed a partnership agreement with that company. We discuss the relative merits of cloud-based software versus Oracle's offering in the section entitled What About "the Cloud?" later in this report. We also would not be surprised if Oracle were to make an offer to acquire a major cloud provider in the next few years, and believe salesforce.com may in fact be a leading acquisition candidate.

This chart compares a company's growth in owners' cash profits to the nominal growth in the US economy over the same period. "Nominal" in this case means the growth in both activity (real GDP) and prices (inflation) in the economy. Please see the Methodology Section for more information regarding nominal GDP as a benchmark for corporate growth rates and determinations of company value.

Cash Flow Generation

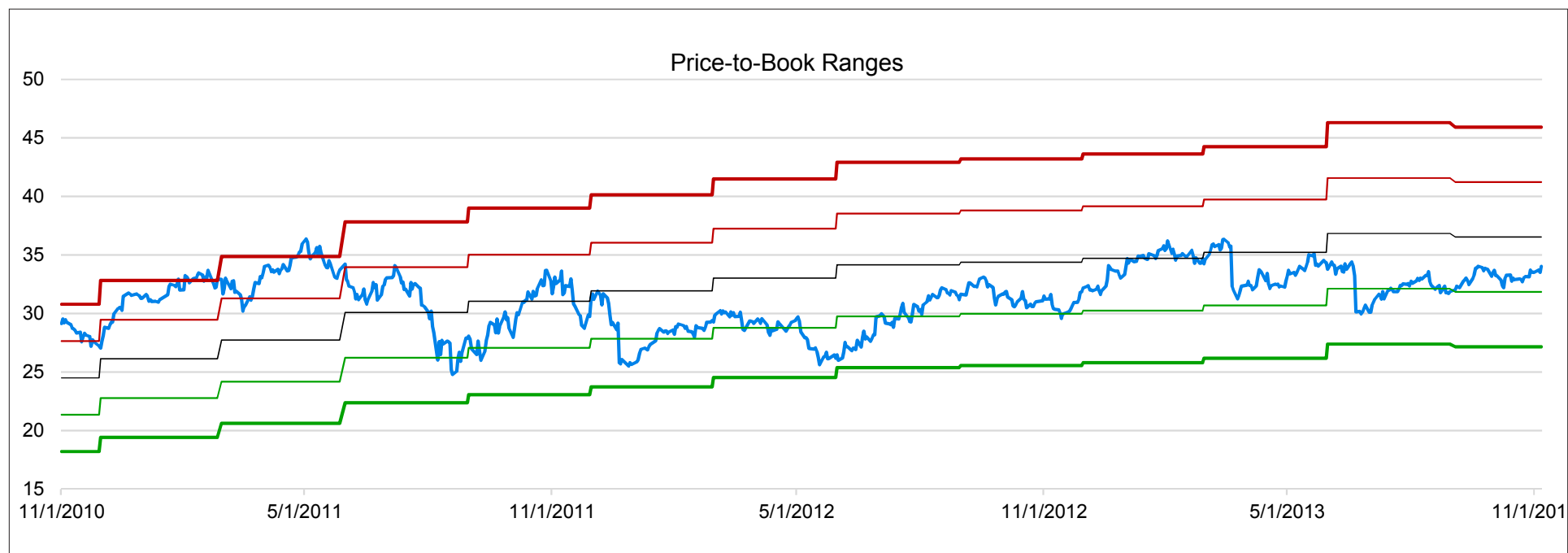


Dark blue columns representing OCP will always be higher than the light blue columns representing Free Cash Flow to Owners (FCFO) as long as the company is spending money on expansionary capital products.

Note that Oracle has been able to consistently generate roughly 20% of FCFO per each dollar of revenues—a very impressive level. However, more impressive is the fact that the growth of the rolling five-year aggregate amount of FCFO generated has maintained growth in the mid-teens percentages, even over two downturns ('01 and '08).

This chart shows two proprietary measures—OCP and FCFO. Please see the Methodology Section for more information regarding our definitions of these measures and their impact on valuation.

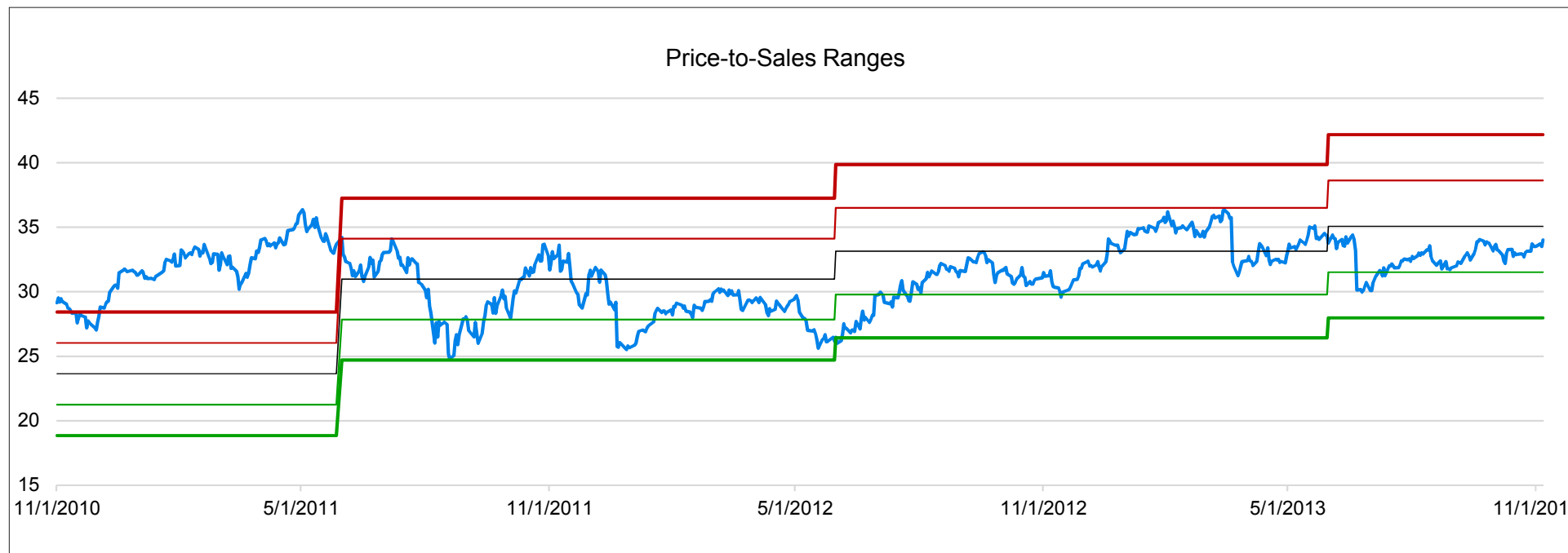
Market Multiples: Price to Book Ranges



Buying at around two standard deviations below Oracle's average Price-to-Book ratio and selling at the average would have been a successful investment paradigm over the past few years. At present, this multiples-based buy-sell range works out to roughly \$27-\$36 per share. Please compare this to the Price-to-Sales ratio range listed on the following page.

Valuation multiples can be used to triangulate attractive buy and sell levels for a company, but are best used in conjunction with profit-based valuation methods. Please see the Methodology Section for more information regarding the strengths and weaknesses of multiples analysis

Market Multiples: Price to Sales Ranges



Buying when the Price-to-Sales ratio is 2 standard deviations below the average and selling at one standard deviation above the average would also have been a viable investment paradigm over the past few years. At present, this would yield a buy-sell range of \$28-\$39—roughly the same as the range derived from the Price-to-Book ratio (see previous page).

Valuation multiples can be used to triangulate attractive buy and sell levels for a company, but are best used in conjunction with profit-based valuation methods. Please see the Methodology Section for more information regarding the strengths and weaknesses of multiples analysis.

Competitive Summary

Fundamental Data

Ticker	Name	Market Cap	Net Income (a)	Pretax Income (b)	EBIT (c)	Sales (d)	Assets (e)	Equity (f)
MSFT	Microsoft Corporation	309.5B	22.6B	27.9B	28.4B	80.4B	142.3B	81.6B
SAP	Sap AG	96.9B	4.1B	5.5B	5.7B	22.0B	37.1B	20.1B
IBM	International Business Machines Corp	201.1B	16.1B	20.4B	20.8B	101.4B	117.8B	19.9B
CSCO	Cisco Systems Inc	114.3B	9.9B	11.1B	11.7B	48.8B	100.7B	58.9B
CRM	Salesforce.com, Inc.	32.0B	-0.1B	-0.3B	-0.2B	3.8B	8.1B	2.9B
ORCL	Oracle Corporation	158.4B	11.1B	13.9B	14.7B	37.4B	86.4B	43.5B

DuPont Analysis

Ticker	Name	Tax Burden (a / b)	Interest Burden (b / c)	EBIT Margin (c / d)	Asset Turn (d / e)	ROA (c / e)	Leverage (e / f)	ROE (a / f)
MSFT	Microsoft Corporation	0.81	0.98	35%	0.57	20%	1.74	28%
SAP	Sap AG	0.75	0.96	26%	0.59	15%	1.85	20%
IBM	International Business Machines Corp	0.79	0.98	21%	0.86	18%	5.92	81%
CSCO	Cisco Systems Inc	0.89	0.95	24%	0.48	12%	1.71	17%
CRM	Salesforce.com, Inc.	0.33	1.50	-5%	0.47	-2%	2.79	-3%
ORCL	Oracle Corporation	0.80	0.95	39%	0.43	17%	1.99	26%

All "flow" numbers represent trailing twelve-month (TTM) quantities.

Competitive Summary (continued)

Cash Flow Measures

Ticker	Name	Dep / Amort	Change in NWC	CFO	CFO Margin	FCF	FCF Margin	Dividend Yield
MSFT	Microsoft Corporation	4.0B	-1.4B	28.6B	36%	23.7B	29%	3.0%
SAP	Sap AG	1.3B	-0.1B	5.2B	24%	4.4B	20%	1.0%
IBM	International Business Machines Corp	4.6B	-4.7B	17.3B	17%	13.7B	14%	2.1%
CSCO	Cisco Systems Inc	2.3B	0.0B	13.1B	27%	11.9B	24%	3.2%
CRM	Salesforce.com, Inc.	0.3B	0.1B	0.9B	24%	0.6B	16%	0.0%
ORCL	Oracle Corporation	2.9B	0.0B	14.8B	40%	14.2B	38%	1.4%

Multiples and Misc.

Ticker	Name	PS Ratio	PB Ratio	EV / EBITDA	P/E Ratio	P/FCF	Altman Z-Score	Beta
MSFT	Microsoft Corporation	3.9	3.8	7.5	13.8	13.2	4.6	0.96
SAP	Sap AG	4.4	4.8	14.9	23.6	21.9	5.0	1.12
IBM	International Business Machines Corp	2.0	10.1	10.1	12.8	15.1	4.2	0.55
CSCO	Cisco Systems Inc	2.3	1.9	6.4	11.6	9.7	3.6	1.25
CRM	Salesforce.com, Inc.	8.5	11.0	286.0	NA	52.9	3.8	1.14
ORCL	Oracle Corporation	4.4	3.6	8.3	15.0	11.7	3.9	1.19

All "flow" numbers represent trailing twelve-month (TTM) quantities.

Focus on Oracle

The Best of Two Worlds

Oracle's ORCL business model is best described as a combination of razor company Gillette and implantable pacemaker company Medtronic MDT.

Once a customer buys a Gillette razor, Gillette can count on years of repeated purchases of its high-margin disposable razor heads. Once a Medtronic patient is implanted with a pacemaker, they are virtually certain not to voluntarily replace it when a competitive pacemaker comes to market.

Oracle sells database and infrastructure software to the largest multinationals. Its software is implanted into the heart of clients' business processes, and due to the criticality of these processes, clients are resistant to switch to competitors' offerings (a-la Medtronic). Once its software is in place, Oracle continues to add features so it can sell its clients years of high margin upgrades and improvements (a-la Gillette).

This is a good business model.

It's All About the Updates

Oracle's software business—which in 2013 comprised 86% of revenues and 93% of operating profits—is split between three segments: new software, software updates, and services. Revenue growth in each of these segments over the last twelve years is shown in Figure 1.

Note that the new software and services segments (blue-shaded lines) experience periodic year-over-year declines that correspond to troughs in the broader economy.

In contrast, note that software updates segment revenues do not once decline over this period, despite the occurrence of two severe economic downturns. It is not impossible for software update revenues to fall, but due to the nature of this business, it is mathematically difficult for it to do so.

It is surely not an accident that the most stable of Oracle's segments—software updates—makes up the largest proportion of firm revenues and is by far the most profitable on an operating basis (88% margins vs. an average 31% for all other segments).

In a real sense, all of Oracle's other business segments function as the wide mouth of a funnel that channels its clients into the single most profitable and stable business in Oracle's portfolio—that of providing software updates.

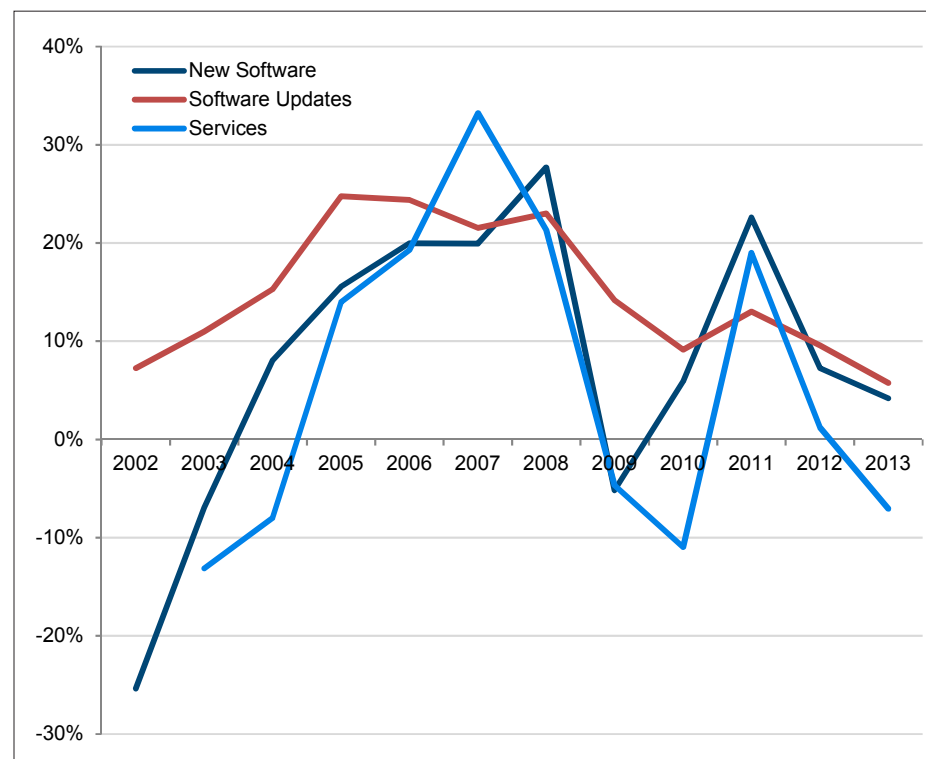


Figure 1. Oracle Software Segments Revenue Growth

Source: Company Statements

Focus on Oracle (continued)

What About Hardware?

Some critics complain that the hardware business Oracle acquired when it bought Sun Micro in 2010 has hurt Oracle's financial performance. However, a careful analysis shows that operating leverage in Oracle's key software updates segment has grown markedly since the Sun acquisition (2010 is removed for clarity—the timing of the Sun acquisition caused a misleading data artifact).

Operating leverage represents the ability for a firm to increase its profits at a faster rate than it increases its revenues.

Figure 2 shows that, thanks to bundling of hardware with software and an effective monetization of Sun's Java programming language, Oracle is able to generate more software update profits for each dollar of segment revenues since the Sun acquisition.

On the basis of this evidence, we tend to believe that Oracle CEO, Larry Ellison, was not just grandstanding when he said that buying Sun was the most profitable acquisition he had ever made.

What About "The Cloud"

Many investing and software industry pundits have gone on record in saying that the recent trend toward cloud computing signals the death of Oracle's business model.

Enterprise clients, they contend, will switch to the more flexible, quickly implemented solutions offered by cloud computing vendors such as salesforce.com.

Indeed, cloud-based software firms' solutions are much easier to implement than the integrated and highly-customized solutions offered by companies such as Oracle and its closest competitor, SAP AG [SAP](#). They also do not require clients to pay for additional updates or service; this is an especially attractive option for smaller firms.

In a cloud-based software model, a customer pays a fee that allows access to the software for a specific amount of time, including access to all software upgrades and product support.

There are attractive elements to the cloud business model from both an owner and a client's perspective, but the model is as complementary to Oracle's as it is competitive.

If Oracle's software products are like pacemakers, cloud-based solutions are more like

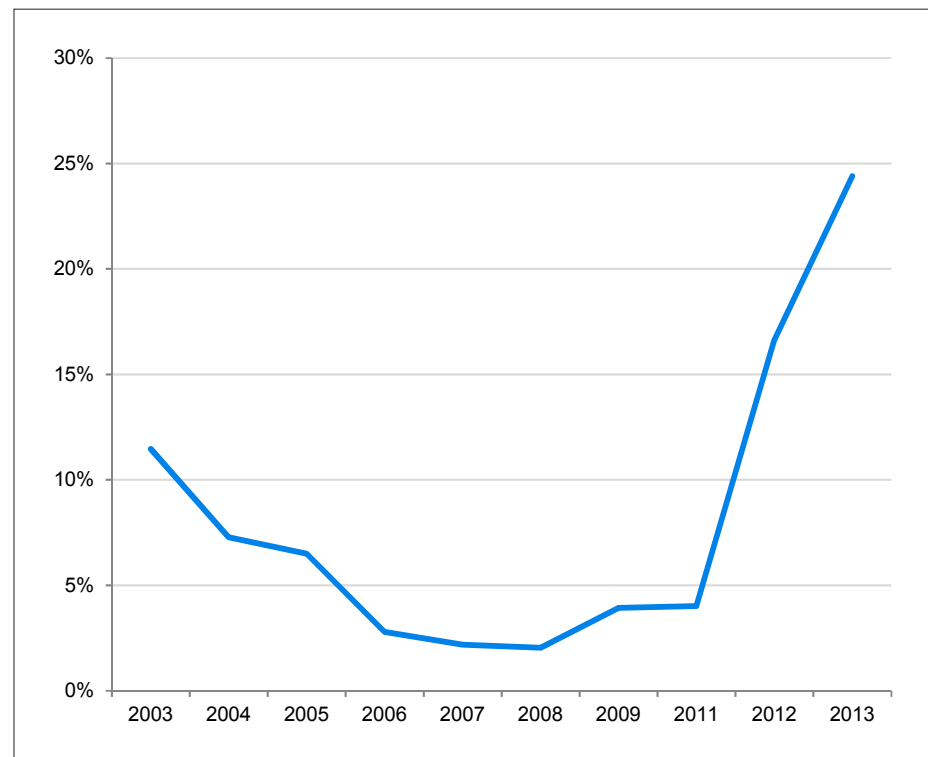


Figure 2. Operating Leverage for Oracle's Software Update Segment

Source: Company Statements

Focus on Oracle (continued)

wristwatches. Both are mechanical devices that help the user, but the criticality of the two cannot be compared. One cloud-based system can be fairly easily substituted for another, and in fact, technical salespeople at competing cloud vendors will promise clients an easy, pain-free transition if they switch.

Oracle's software can most definitely not be switched out easily—it becomes an integral part of a company's business processes, so the switching costs to the client are enormous. Oracle's installed user base is an extremely secure fortress protecting against competitors, in other words.

That said, for less critical processes or for those with a lower degree of integration with other firm systems (e.g., a customer relationship management application), cloud solutions are attractive. This is the reason that salesforce.com and other cloud vendors' growth has been so rapid in the recent past.

The fact that Oracle's software and cloud-based software is so complementary is the main reason we believe there is a good chance Oracle will make an acquisition of a major cloud-based software provider within the near term.

Just like its acquisitions of PeopleSoft and Sun, a cloud provider's business would complement and extend Oracle's competitive strengths and allow Oracle to build an even more dominant industry position.

It is telling that Oracle and salesforce.com have recently announced an agreement by which salesforce.com will use Oracle databases and technology in its cloud implementation. In our view, this could be a first step towards a closer business alliance.

NOTES

1. Revenue recognition is difficult for software firms, especially when they provide both products (which can be recognized immediately) and services related to those products (which must be recognized ratably). That said, by the following account given by the NY Times in Sept. 1993, Oracle's problems were less those of accounting niceties and more those of overly aggressive sales practices and insufficient controls.

"Without admitting wrongdoing, Oracle agreed yesterday to pay a Federal fine of \$100,000 to settle a complaint by the Securities and Exchange Commission accusing the company of numerous accounting irregularities in the late 1980's and early in this decade...

"The lapses outlined [in the SEC complaint] included steps that one forensic accountant said were 'unbelievably blatant' -- billing for services never performed, double-billing some customers and failing to deduct sales when equipment was returned...

"In February, Oracle agreed to pay about \$24 million to settle shareholder lawsuits arising from the plunges in its stock that occurred in 1990 and 1991 after Oracle restated its profits."

While this episode does not show Oracle in the best light, considering that the events mentioned occurred many years ago and have not reoccurred, and that they took place fairly early on in the firm's history, leads us to believe that it was in fact a one-off event.

Methodology

Introduction

This report covers three topics: Valuation, Market Pricing, and Competition.

Valuation

The majority of YCharts' 1% Focus Reports deal with valuation. Our base assumption is that the value of a firm is proportional to the cash that flows to its owners over its economic life. Considering this definition, there are only four factors that drive the valuation of any firm:

- | | |
|--------------------------|-------------------------------|
| 1. Revenue Growth | Affects short-term results |
| 2. Profitability | Affects short-term results |
| 3. "Investment Efficacy" | Affects medium-term growth |
| 4. Balance Sheet Effects | Hidden assets and liabilities |

Market Pricing and Competition

A portion of the YCharts 1% Focus Reports deal with market perception of value and operational comparisons to the focus firm's competitors.

The long-term value of a firm sometimes deviates from its publicly-traded price. To provide an aid in triangulating the present market price of a stock to its long-run value, YCharts' 1% Focus Reports provide information about market multiples over recent history as well as summary information about the Focus company's competitors.

Valuation Drivers

What is the value of an asset?

Let's start with a simple asset: a hammer. One can buy a good, sturdy hammer on the Home Depot [HD](#) website for roughly \$30.

The price of that hammer is fixed, but its value depends on how it is used. A good carpenter would use that hammer to generate revenues.

If those revenues generate profits over and above his cost of living, he can generate some savings.

With enough savings, the carpenter may be able to invest in better equipment that will allow him to generate revenues more quickly or to become more efficient at covering his living and business expenses.

The value of the hammer could, in the right hands, be worth much more than its \$30 price.

No matter how complex an asset is—whether it has no moving parts like a hammer, thousands of moving parts like a machine, or thousands of patents like a modern tech company—the essence of valuation does not change.

Focus reports aim to uncover the drivers of value common to all companies and all assets. To have value, an asset must be able to generate revenues greater than costs incurred. The profits from this process can either be distributed to owners or re-invested in the business. If profits are re-invested successfully, the company will grow at a good clip into the future. If profits grow at a good clip into the future, more cash inflows will accrue to owners.

The Focus Report whittles down on each level of this process to bring readers to a modified form of Free Cash Flow to Equity that we call "Free Cash Flow to Owners (FCFO)." Please

Focus reports aim to uncover the drivers of value common to all companies and all assets... Our base assumption is that the value of a firm is proportional to the cash that flows to its owners over its economic life.

find detailed explanations of each valuation driver and the resultant valuation measure in the below sections.

Benjamin Graham once observed that over the short term, the market was a voting machine but over the long term, it was a weighing machine. The goal of YCharts' 1% Focus Reports is to highlight the "weight" of a firm.

Reading through, please keep the sage advice of Warren Buffett in mind: "It's better to be approximately right than precisely wrong." It is in this spirit that we have designed this report.

Revenue Growth

The road to value starts with revenues. Our carpenter's hammer is only a novelty purchase if he cannot use that hammer to generate revenues.

Revenue growth is constrained by both supply and demand factors.

After a hurricane, the carpenter's skills are going to be in great demand. His revenues will increase because he can charge more for his services¹, but his capacity to generate revenues is limited by his small capital base—one hammer. This is an example of how supply factors can limit revenue growth and is typical for a small firm operating in a robust demand environment.

The carpenter may be able to get outside funding to increase the size and / or efficiency of his capital base and in so doing, will realize fewer supply-side constraints to revenue growth. However, after the initial post-storm building boom, the carpenter's business is likely to face more demand constraints to revenue growth than supply-side ones. Demand for his services from local homeowners is simply not as strong after most people's houses are repaired.

Public companies also reach the point at which their revenues cease to be supply-constrained and are begins to be demand-constrained.

This is what Nike's [NIKE](#) Phil Knight said about his company's transition from supply- to demand-constraint in a 1992 Harvard Business Review article²:

The road to value starts with revenues... Revenue growth is constrained by both supply and demand factors.

[HBR:] "When did your thinking [about business strategy] change?"

[Bill Knight:] "When the formulas that got Nike up to \$1 billion in sales—being good at innovation and production and being able to sign great athletes—stopped working and... Reebok came out of nowhere to dominate the aerobics market."

Nike's ability to supply products to consumers was not a constraint to its revenue growth. Rather, demand for a competitor's products cut into demand for Nike's, and this dynamic constrained revenue growth.

In a demand-constrained environment, our carpenter might decide to spend more on advertising to win more clients (which affects profitability—our next valuation driver), or might

choose to acquire a similar business with a well-defined client base of its own. For instance, our carpenter might take out a loan or use his business's excess profits to buy a wholesale building products distributor.

This strategy, sometimes referred to as "buying revenues" is, of course, common in the world of listed companies as well. And while some investors look down on these kinds of transactions, as long as the company is not overpaying for its acquisitions, acquiring a new revenue stream by buying a business is as "valid" a strategy as acquiring a new revenue stream by building it.

Phil Knight's comments regarding Nike's purchase of casual shoe company Cole-Haas in the same HBR article quoted above are telling:

"We bought the brand knowing its potential... We could have created a brand and got it up to \$60 million in sales, which is where Cole-Haas was when we bought it, but it would have taken millions of dollars and a minimum of five years."

It should be obvious from this discussion that revenue growth is inextricably linked with capital expenditures and other "expansionary outflows"—such as acquisitions—which is why Focus Reports show revenue growth overlaid with the amount of money spent on acquisitions.

We will look more at how to assess whether acquisitions and other expansionary cash flows are good for owners or not when we look at Investment Efficacy.

For now, let us turn to the second driver of value: profitability.

Profitability

Most of the measures of profitability drawn from Income Statements and widely used on The Street have little meaning to our carpenter and his business. He cares about how much cash his business generates in a year, not how the rarified, polite fictions embodied in Generally Accepted Accounting Principles (GAAP) rules view his growing firm's profitability.

Investors would do well to look at investing from a cash perspective as well since cash is the single accounting line item with the least amount of "fiction" in it. Cash balances are easy for auditors to count and verify and, unless you are living in a hyperinflationary economy, the purchasing power of cash is well-defined and stable.

1 Revenues are proportional to price and volume. In this instance, volume is fixed, but price rises for an overall rise in sales level.

2 Willigan, G. E. (1992, July-Aug). High Performance Marketing: An Interview with Nike's Phil Knight. HBR, 93-101.

It is for this reason that our view of profitability is based on a line item on the Statement of Cash Flows rather than on the Income Statement. Namely, we base our measurement of profit on Cash Flow for Operations.

In terms of Financial Statement accounts, the specific calculations we use are:

	Cash Flow from Operations (CFO)
Less	Estimate of Maintenance Capital Expenditures
Equals	"Owners' Cash Profits (OCP)"

CFO is self-explanatory, but "Estimate of Maintenance Capital Expenditures" deserves explanation.

Revenue growth is inextricably linked with capital expenditures and other "expansionary outflows"—such as acquisitions...

In order for our carpenter to maintain his company as a viable economic entity, he must make sure the tools his employees use and the warehouse in which he keeps his supplies are maintained at a level at which they can continue to generate revenues.

Using only cash-based CFO as a measure of profitability—which is, in fact, one step better than relying on a figure like the widely-misused "EBITDA"—would vastly overstate a firm's profitability. CFO overstates profitability because it does not reflect any future payments that must be made for maintenance of revenue-producing capital goods.

Like our carpenter, we as analysts cannot be sure of what cash will be required to maintain a business's capacity to continue generating revenues. Cognizant of the fundamental uncertainties involved, and in keeping with our attempt to be "approximately right rather than precisely wrong," we estimate the required amount of maintenance capital expenditures to be Depreciation Expense adjusted for inflation.³

The amount of cash a company generates from its operations less the amount of cash it will probably need to spend to maintain its operations in the future is our preferred measure of profitability. Once we calculate this measure—that we call "Owners' Cash Profits (OCP)"—we are one step closer to the Free Cash Flow to Owners measure needed for valuation. The next step in the process is to see how much cash the firm is spending in excess of maintenance levels to expand the business at a faster rate—what we term "Expansionary Cash Flows."

Expansionary Cash Flows and Investment Efficacy

Our carpenter started the year with an empty bank account and, after paying himself and his employees a salary, paying for supplies and inventories, paying interest on any loans taken out, setting aside money for taxes and equipment maintenance, and doing all the other things necessary to keep his business going, he has a nicely positive balance at his local bank branch.

What does he do with those excess profits? The answer to that question will necessarily determine the future of the firm.

Our carpenter has two choices:

1. Reinvest left over profits in the business
2. Pay himself—the owner—a bonus out of profits

If he invests in projects that bring him greater revenues (geographic or business line expansion) or helps his company convert revenues to profit more efficiently, his future profits will be boosted. If he invests in projects that fail to increase revenues, or in those that increase revenues in an uneconomic way—meaning profits drop even as revenues increase—his future profits will dip.

If he pays himself a bonus out of profits, but otherwise runs his firm efficiently, his company's profits will likely continue growing "organically" from periodic price rises and new customers learning about his services; however, profits will not grow as quickly or reach as high a level if he were actively and successfully investing in the business.⁴

Since our base assumption is that the value of a company is proportional to the cash it generates on behalf of its owners it is obvious that profit growth will have a huge impact on valuation.

Before discussing how to measure and assess "expansionary" investment cash flows, let us look more closely at growth rates.

3 As a wonkish aside, we are trying to isolate the amount of cash that will be necessary to maintain the basic operations of the company, so we exclude any Amortization charges related to bond discounts, intangibles, etc. if these are split out in the company's financial statements.

4 The one other possible use of excess profits is what we consider "wasting" it. For example, one of the first mortgage brokers to go bankrupt in 2007 was one that had spent its excess profits on building a new headquarters building with an atrium entrance featuring a waterfall decorated with a tile mosaic portrait of the founder behind it. This mortgage broker went the way of all firms that consistently waste resources...

There is virtually no limit to our carpenter's business's early growth. If his services and products are compelling, and solve problems other carpentry services and products do not, his company will expand locally, regionally, nationally, and globally—limited only by his access to capital to fund the expansion. Think of Google **GOOG** as an example—its products were so compelling that it went from little more than a graduate school science experiment to one of the largest, most profitable corporations on earth in a decade and a half—despite two downturns of various severity in the interim.

However, if our carpenter is as successful as Google, eventually, he will have soaked up all available demand for carpentry services and squeezed every bit of efficiency out of his operations as possible. At this point, his company's profit growth will slow.

The easiest and most powerful method we have found to analyze a company is to conceive of its future growth as being bucketed into three separate stages: near-, medium-, and long-term.

Near-term, growth of profits will vary according to dynamics related to the competitive environment. To put it in the context of our carpenter—how many people need carpentry services and how many other carpenters are there in the area.

Medium-term, growth of profits will depend on the success, failure, or absence of expansionary projects and organic growth in the core business. For our carpenter, this means whether or not his purchase of the distributor is successful or if he plays it safe and uses excess profits to take a Caribbean cruise.

Long term, a large firm's growth is constrained ultimately by how fast the economy at large can grow. For most carpenters, this relates to the growth of new home construction and home remodeling in their local areas.

These stages and the value generated in each can be represented graphically, as we see in Figure 1 to the right. Here, we are assuming the company's growth will fluctuate in the near term based on our projections of its revenue and profitability (marked by "Explicit forecast" in this diagram), that it will grow quickly for five years in Stage 2 based on assumed success of its investments, and that after its high-growth period, it will grow at a more or less constant rate equal to nominal GDP after that.

Note that even though future cash flows keep growing at a constant rate into the future, because the present value of those far-distant future cash flows is low⁵, their discounted value approaches an asymptote at around \$1,200.

It is obvious that if we are to assess the value of the Stage 2, high-growth period, we must

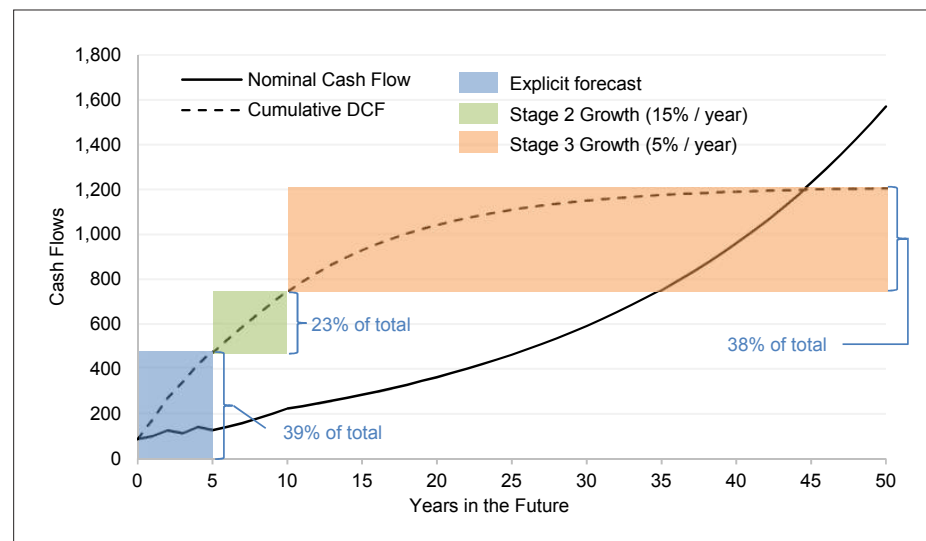


Figure 1.

first find a way to quantify how much of the owners' profits the firm is spending on expansionary investments.

Measuring Expansionary Cash Flows

People normally think of business reinvestment in terms of capital expenditures. Indeed, this is a valid way to think about investments for manufacturers in a fairly stable competitive environment (like our carpenter).

However, in these days of globalization and rapid technological innovation, we believe "Capex" fails to cover all the cash outflows made by large firms to expand their businesses at a rate faster than the economy at large.

Once these outflows are taken into account, any cash left over is free to be distributed to owners. It is this "Free Cash Flow to Owners (FCFO)" to which we assume companies' values are proportional.

⁵ Due to the theory of time value of money (TVM).

The formula we use to calculate investments and FCFO is:

	Owners' Cash Profits
Less	Capital Expenditures over and above Maintenance Needs
Plus	Cash Inflow from Asset Sales and Disposals
Less	Cash Loaned to JVs, Software development, etc.
Less	"Mandatory" Stock Buybacks
Equals	"Free Cash Flow to Owners (FCFO)"

All line items between OCP and FCFO are what we consider as Expansionary Cash Flows.

Recalling that our estimate of economic profit already has an estimate of maintenance capital expenses calculated in it, we can see that the first three lines above are simply the standard definition of Free Cash Flow to Equity Holders (FCFE); namely $FCFE = OCF$ less net spending on PP&E.

Let us look at the other lines, one by one.

Our carpenter might decide to expand his distribution business by opening a new branch in

In these days of globalization and rapid technological innovation, we believe "Capex" fails to cover all the cash outflows made by large firms to expand their businesses at a rate faster than the economy at large.

the neighboring state. In order to run this business effectively, he forms a joint venture (JV) with a local businessperson and provides capital to that JV. Clearly, this is a cash outflow made with the purpose of expanding the carpenter's business. It might be a stretch to imagine, but perhaps our tech-savvy carpenter sees the opportunity to hire a programmer to write some inventory management software that will make his business more efficient. Because an increase in efficiency implies a greater amount of future profits being realized, we should also count this sort of investment as an expansionary cash outflow unavailable to distribution to owners.

While these measures are pretty straight-forward, the "Mandatory" Stock Buybacks line item requires a bit more commentary.

Over the past 20 years, companies have increasingly turned to stock buyback programs to

"return value to shareholders." Management teams are supported by academicians, who have proved through elegant mathematical reasoning that since managers have inside information about the future prospects of the firm, their purchases of stock on behalf of shareholders must always be value creative.

Indeed, to the extent that stock repurchases increase the proportional stake of an owner in the company, they can, in a certain sense, be thought of as value creative. However, one dirty little secret about stock buybacks is that in most cases, a material proportion of buybacks are going not to increase present owners' proportional stake, but rather to soak up dilution caused by management's granting its employees stocks as a part of their compensation package.⁶

By using equity grants as a form of worker compensation, upper management is essentially funding a portion of its operating costs through dilutive stock issuance. By buying back those shares, it is using cash flow that would otherwise become shareholder wealth to obfuscate this compensation scheme and keep earnings per share (EPS) from falling or stagnating.

It would be nice if we could tie this phenomenon to something a small businessperson like a carpenter might do. However, this is an "innovation" that most small businesspeople do not use for one obvious reason: Owners of a closely-held company would likely not see any sense in doing it. A large corporation can get away with it because, frankly, many of its owners are not paying close enough attention.⁷

It is a toss-up as to whether this spending on anti-dilutive stock buybacks should be treated as a deduction from owners' cash profits or a reduction of FCFO. Because the stock grants

⁶There are other dirty little secrets that are well-documented, such as the fact that management teams, which are allegedly super-investors in their own company's stock given their insider information, still tend to purchase more shares when the stock price is relatively high, and less when the stock price is low. While it is impossible to deny that an increase in proportional share of the company is good for shareholders, it is hard to believe that managements consistently do a good job of investing in their own company's stock.

⁷There may indeed be some cases in which a small businessperson, in the attempt to conserve cash in the short term, would compensate a lawyer or accountant by promising a share of the business's future profits. It would also be likely that a small businessperson in this situation would attempt to pay off the professional fees in cash as soon as he had cash to cancel the ownership claim. But the thought that a small businessperson would attempt to obfuscate this transaction when presenting financial results to his partners is hard to imagine.

are given as a way to meet operating costs, it could be counted as the former. However, one could make the argument that granting shares in lieu of cash encourages employees to work hard and creatively in order to generate superlative growth.

In the end, though, the difference is academic since the result is the same—a reduction in the cash flow available to be distributed to owners. We calculate the cash outflow associated with these anti-dilutionary purchases as the number of shares issued multiplied by the average share price during the year.

Now that we have an “approximately accurate” view of how much the firm is spending to boost its future growth, the next task is to find an objective measure of how effective its investment strategy is.

Estimating Investment Efficacy

Assessing the success of a professional money manager, it is typical to measure the degree to which the manager’s investments over- or under-performed some benchmark over time. Warren Buffett’s investments have consistently outperformed those of the S&P by a wide margin over an extended period of time, so we recognize Buffett as a great investor. Surely, companies that invest in expansionary projects can also be assessed relative to success vis-à-vis some benchmark.

Assessing the success of a professional money manager, it is typical to measure the degree to which the manager’s investments over- or under-performed some benchmark over time... Surely, companies that invest in expansionary projects can also be assessed relative to success vis-à-vis some benchmark.

Thinking back to our prior discussion of growth stages, it is obvious that long-term, a company cannot grow faster than nominal GDP. It makes sense then, to use nominal GDP as a benchmark for growth during the high-growth, “Stage II” period.

Now, we have a benchmark, but against which quantity—growth of OCP or growth of FCFO—should we compare it?

Our preference is to compare growth of Owners’ Cash Profits to nominal GDP for the following reason:

FCFO is a quantity that is influenced by other investment decisions, so the number tends to be very noisy. For example, let’s say our carpenter invests 10% of his cash profits in a new piece of equipment at the end of year 1; this equipment improves his workers’ efficiency so much that he is able to generate a huge amount of excess profits over the next year. He has such a surfeit of cash at the end of year 2, that he decides to make a stretch purchase of a new distributor and spends 100% of his cash profits on it. It is clear that the year 1 investment was good for his company, but if one looked at it in terms of the FCFO in year 2—which is \$0, because he spent 100% of Owners’ Cash Profits on the distributor—it would look like a terrible investment.

Note also that business investments often take several years before their full impact on cash profits are felt. As such, we consider investment efficacy as a valuation factor that influences medium-term growth rates.

By benchmarking growth in Owners’ Cash Profits to nominal GDP, we are implicitly making the assumption that, at the end of the company’s high-growth period, the managers will be sage enough to return profits to owners rather than embarking on value-destroying investment projects. Depending on the firm and the industry, this might be a pretty big assumption to make, but investors are suspicious of management teams’ ability to act as sage stewards of owner capital can lower their “high-growth” growth projections to compensate.

A firm that has plenty of good investment opportunities—say one that is a leader in an emerging industry—and is skillful at choosing the best ones in which to invest, will be able to grow at a rate much higher than nominal GDP for a long time (e.g., 10 or 15 years after the initial 5-year “explicit” Stage I period).

A firm that has middling investment opportunities may be able to grow faster than GDP, but not significantly and not for as long. A company with a mature business in a stable competitive environment will return most of its cash profits directly to owners, so should be able to grow at about the rate of GDP—maybe a few points higher one year and a few lower the next.

Looking at growth stages from this perspective and tying value creation to each growth stage in this way makes it much easier to come to an objective opinion regarding the company’s value.

After understanding the level of investment spending and its efficacy, we turn to the value created or destroyed by “hidden” assets and liabilities—Balance Sheet Effects.

Balance Sheet Effects

Let’s say our carpenter, after becoming very successful in his own trade and as a distributor, decides to expand into the taxi business. He buys two used cars for \$20,000 each as his

primary operating assets for this, the newest division of his burgeoning economic empire. The cars are used, so he decides to clean them out before putting them into service.

While he is cleaning out the first car, he finds a tightly-wrapped brown package in the spare tire well and, upon opening it, is surprised to find that the package conceals a large quantity of illicit drugs. Reporting his find to the police, the police impound the car as evidence and tell him they cannot give him an estimate of when it will be returned.

In the parlance of accountants, our carpenter's operational asset has become impaired by a non-operational contingency. In plain terms, he can't use his car to make money. Since revenues will decline, the value of his new taxi cab division has necessarily declined.

A firm that has plenty of good investment opportunities—say one that is a leader in an emerging industry—and is skillful at choosing the best ones in which to invest, will be able to grow at a rate much higher than nominal GDP for a long time...

Disappointed about the indefinite loss of one car, he grudgingly starts cleaning out the second one. As he is vacuuming between the seats, he finds a lottery ticket. He goes to claim the lottery ticket and finds it is worth \$500,000.

In the parlance of accountants, his operational asset has had a material upward revaluation. In plain terms, his new taxi cab division is his company's newest unexpected rain maker. The after-tax winnings from the lottery ticket are pure, unanticipated profit for his taxi division and hugely increase its value and the value of the firm.

Unlike the drivers of valuation mentioned earlier, these "balance sheet effects"—the hidden assets and liabilities controlled by a firm—are difficult to find with data alone. Instead, it usually requires an in-depth understanding of the company, accounting rules, and, in some cases, legal matters (think Enron or Lehman Brothers).

Because balance sheet effects are difficult or impossible to find by looking only at reported financial data, YCharts Focus Reports cannot directly highlight these drivers of value. However, the long history of data we display and the clear manner in which we do it should point the curious and intelligent investor to areas in which to investigate further and uncover them themselves.

Historical Multiples

See also the notes on YCharts' site entitled Valuations from Historical Multiples.

While the drivers to corporate valuation are as listed above, the inherent imprecision of attempting to forecast economic outcomes for as complex an entity as a modern multinational firm means that it is helpful to use alternate metrics to triangulate our intrinsic value calculations.

One oft-used method for both screening a large universe of stocks for attractive investment opportunities and triangulating intrinsic value calculations is what is known as the historical or market multiple. Common examples include the price-to-earnings (P/E) ratio, price-to-sales ratio (PSR), and the like.

The idea behind multiples is that the price per unit of some financial statement quantity should, in general be relatively constant, or at least that it should return to normalized levels over time.

There is academic evidence of the success of at least one of these multiples (Price-to-Book ratio), but attempting to use historical multiples as a sole tool to value equities is a method fraught with conceptual difficulties.

The most important thing to realize about market multiples is that differences in capital structure, business model, geographical exposure, and other factors can make the direct comparison of multiples across companies difficult.

In order to compare one company to another on an apples-to-apples basis, one must factor in operational and capital structure differences; this often requires a great deal of detailed information about the company and a firm understanding of arcane accounting rules and concepts.

Even comparing a single company's multiples versus previous historical periods is difficult, since companies often change their capital structures over time, buy and sell off divisions, and the like.

In general, it is important to realize that unlike physical constants, there is no rule that a certain company's multiple cannot fall below a certain level. Apples fall to the earth at 32 feet / sec², neglecting wind resistance. Stocks conform to no such physical constants.

LEGAL NOTICE

YCharts does not act in the capacity of a Registered Investment Advisor. As such, all information provided herein is for information purposes only and should not be considered as investment advice or a recommendation to purchase or sell any specific security. Security examples featured are samples for presentation purposes and are intended to illustrate how to use YCharts data in the analysis of the valuation of public securities. While the information presented herein is believed to be reliable, no representations or warranty is made concerning the accuracy of any data presented.

DISCLOSURE

Erik Kobayashi-Solomon is the beneficial owner of Oracle stock and holds a bullish position in Oracle stock options. YCharts undertakes no responsibility to update our clients regarding changes in the existence or size of Mr. Kobayashi-Solomon's investment position in Oracle's stock or options in the future.