
1% Focus Report:

Verizon (VZ)

YCHARTS

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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.

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Valuation at a Glance: **Verizon (VZ)**



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 (VS10) have historically performed much better than the S&P 500 index, and those with a Value Score of 1 (VS1) have historically performed worse.

Learn more by reading the [Value Score Support Page](#) or our separate document "The Big Picture: YCharts Value Score"

Focus Analysis: **Verizon's Jewel**

pp. 2-6

This is an incredibly complex business whose industry has gone through enormous changes over the last 30 years. If Verizon has a jewel, it may well be in a place where no one is looking.

Revenues: **Stable, Growing Demand**

p. 7

Thanks to the two major technological innovations of the 20th century and a few multi-billion dollar acquisitions, Verizon's revenues have risen strongly. Growth rates in the future will likely be more subdued, but that's a good thing.

Profitability: **Superficial Stability**

pp. 8-9

Aggregate profits have been very steady over Verizon's operating history. This superficial stability masks the results of two segments moving in very different directions.

Investment Levels and Efficacy: **Good Efficacy, But it Ain't Been Easy**

pp. 10-12

Since the AT&T vase was broken into pieces in 1984, Verizon has been buying back bits of it and reassembling them. Far more efficacious investments were made in the growing market for wireless calling, and the company's largest single investment in this area will occur this year as it buys out its partner in Verizon Wireless.

Cash Flow Generation: **Stable, though not Spectacular**

p. 13

If the stars align, Verizon's wireline business will contribute enough cash flow in the future to offset increased levels of debt servicing needed for the buy-out of its wireless partner, Vodafone.

Market Pricing and Competitors: **Market Multiples**

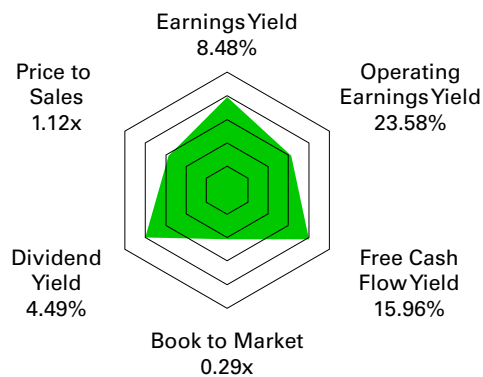
pp. 14-17

It is hard to use multiple analysis for making investment decisions regarding businesses undergoing such large transitions, but there looks to have been at least a fairly efficacious rule of thumb for taking profits over the past few years.

Overview

Ticker	VZ
Name	Verizon Communications Inc
Industry	Telecom Services
Market Capitalization	135,017
TTM Sales	120,550
TTM CFO	38,818
TTM CFO Margin	32%
Mkt Cap / TTM Sales	1.1
Mkt Cap / TTM CFO	3.5
Long-Term Debt	208,212
Shareholders' Equity	38,836
D/E Ratio	536%
Altman's Z-Score	1.4
Beta	0.4
Return on Equity	0.3

Value Score Factors



When one thinks about what disruptive changes a business might face, four possibilities jump to mind:

1. Regulatory Environment
2. Technological Innovation
3. Consumer Demand
4. Raw Material Availability

In the space of 30 years—less than one career’s worth—the telecommunications business has faced the first three of these more or less simultaneously. The chaos that ensued made some very rich, landed others in jail, and enabled the sons and daughters of more than a few graphic artists to attend college thanks to a brisk demand for new corporate logos.

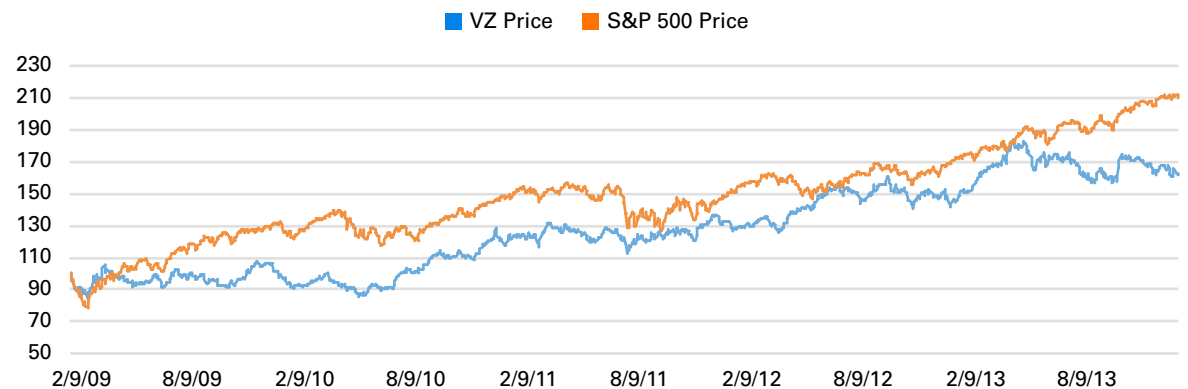
At the start of 2014, the telecoms business looks to be settling into comfortable and understandable patterns after years of riotous free-for-all.

Most people are understandably most excited about the wireless side of Verizon’s business—Verizon Wireless—and much less excited about its old wireline segment. In fact, a prominent investment bank’s equity research analysts recently made a public call for Verizon to divest itself of wireline altogether.

Investment bankers will understandably be interested in any strategy that might generate fees. For investors, we believe the wireline business actually represents the best potential for future upside surprises.

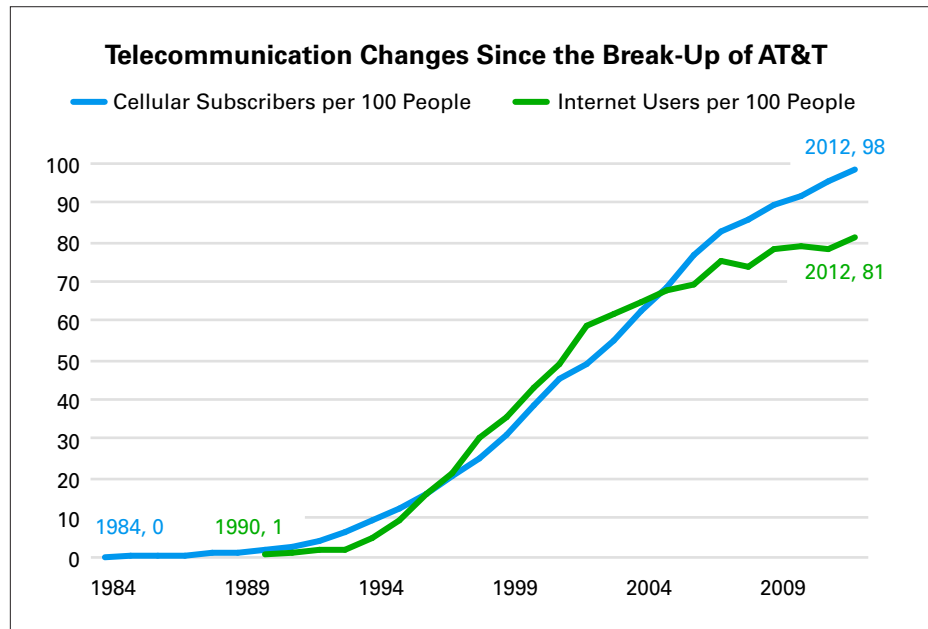
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Price of Focus Company vs S&P 500 (Indexed, 5 Years)



Focus on Verizon

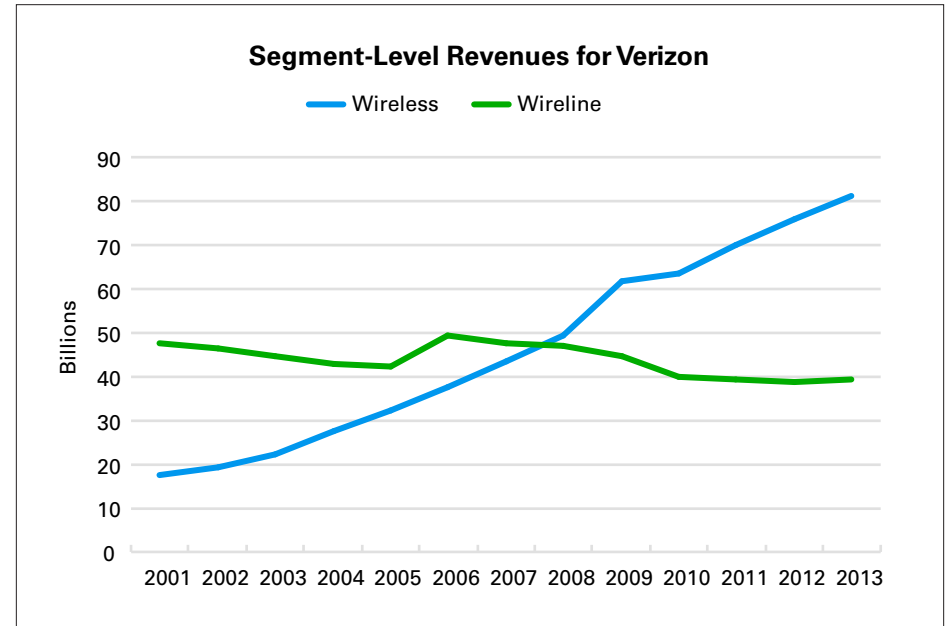
Wireless is by far the sexier of Verizon's two businesses. Its sexiness stems from the fact that it sits at the crossroads of two major technological revolutions, both of which began gaining steam just as AT&T was splitting up: cellular communications and the Internet.



These innovations have breathed a strong gust of wind in the sails of Verizon's wireless business. Phone customers first demanded to speak without the tether of a land line, and once they found out what good fun the Internet could be, began to demand to watch movies, listen to music, and play "Plants vs. Zombies" without them as well.

As much as these technological trends helped Wireless, they hurt Wireline. With the Internet came IP Telephony and start-ups like Vonage VG to provide local and long-distance service at a fraction of the cost of traditional land line phones. CableTV providers figured it out too and began offering both Internet and IP Telephone service as well as TV service with popular 'triple-play' bundles.

Revenue trends for Verizon's two segments show these technological shifts writ large:

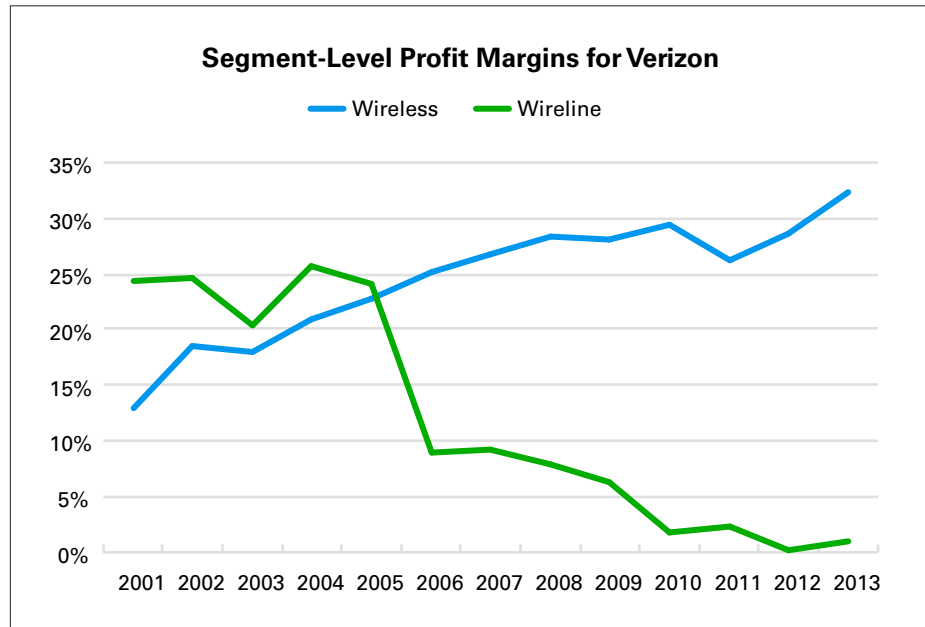


Considering that, even with the 2006 Wireline revenues being boosted by a big acquisition (MCI), the chart still shows two businesses clearly moving in opposite directions.

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Focus on Verizon (continued)

The difference in profitability between the two segments is stark as well.



Considering these charts, it is no wonder why most people are excited about Wireless.

Why You Should Be Excited About WireLINE

The Wireline segment is a terrible chronic underperformer. Indeed, it is a business in the midst of a huge transition and one in which managers have made mistakes in the past (the notable drop in the profit margin chart above corresponds to Verizon’s purchase of MCI, and that kind of margin contraction does not strike me as evidence of a good managerial decision, for instance).

However, recall that while it is hard for an outperformer to surprise on the upside, it is much easier for an underperformer to do so. Let’s take a look at what makes the Wireline business tick and see if there isn’t room for a surprise in there somewhere.

Wireline is comprised of three main offerings:

1. Legacy consumer copper wire phone service
2. Enterprise-level communications hardware and consulting service
3. Fiber optic cable based triple play service

Everyone knows that the legacy phone service is a dying beast; its problems are priced into the stock.

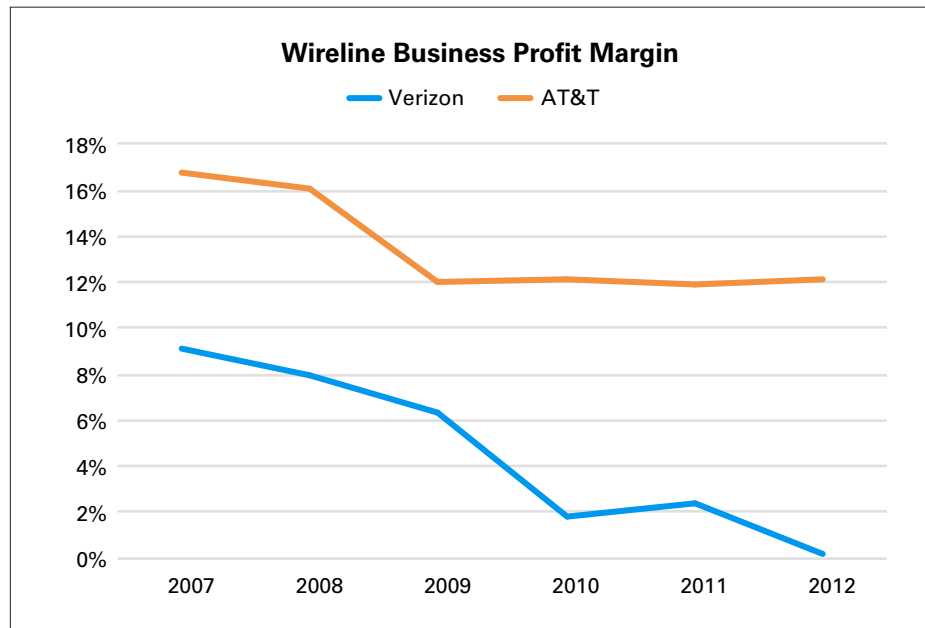
Verizon’s fiber optic triple play business (FiOS) is mainly geographically concentrated in its historical stronghold of the high-density population corridor between New York and Washington D.C., but it is promising and has been gathering steam. In what must feel very good to Verizon managers from a schadenfreude perspective, anecdotal reports suggest FiOS is winning customers back from the East Coast’s powerhouse cable provider Comcast [CMCSA](#). This business may not be big enough to move the revenue needle in the short-term, but it is arguably providing some cushion from the disappearance of the copper wire consumer business in Verizon’s core market.

The Enterprise business—what used to be MCI—is meant to compete against AT&T’s enterprise service. The traditional centerpiece of this service—providing copper wire connections to businesses—has been going the same way as the consumer copper wire business for the same reasons. However, this dying part of the business is being replaced by cloud services, Ethernet connectivity, VPN networks, and the like. This is fundamentally not a bad business and Verizon is the second largest player in it behind AT&T and far ahead of some also-rans.

[...continued on the next page](#)

Focus on Verizon (continued)

Consider the following chart:



AT&T's does not separate out its business in the same way as Verizon, so focusing in on a comparison of profitability of just the enterprise business was not possible. However, the fact that AT&T has generated fairly healthy profits in what is virtually the same wireline business as Verizon's should catch the attention of a potential investor in Verizon. AT&T may have some structural advantages in the provision of these kinds of services, but from our research, there does not seem to be any good reason why Verizon should not be able to raise its wireline profit level closer to that of AT&T.

The data in the above chart end in 2012, but the 2013 financial statements recently released by Verizon shows a slight upward trend in both wireline revenue growth and profitability. Verizon has been spending to build this business and this may represent a hidden jewel that most investors are ignoring because they are so caught up with the potential for Wireless.

The Potential for Wireless

On one hand, from the first chart in this Focus Article, we know that the penetration rate for cell phones is very high—virtually one for every man, woman and child in the United States—suggesting there is not a large untapped reservoir of new clients. Also, according to a recent survey, smartphone penetration is high—in the 60% range—suggesting there is not much more room for telephone companies to increase revenues by selling more data to their present subscriber bases.

On the other hand, I know from personal experience that even as a confirmed Luddite who only bought his first smartphone last year, I am starting to feel constrained by the limited amount of data on my present mobile plan and am in the midst of figuring out I can arrange to send Verizon a bigger check every month. I do not think I am the only one in this boat.

Whether Verizon's Wireless business grows at an average rate closer to 3% per annum over the next few years or at one closer to 6% per annum is difficult or impossible to know, and hinges on how fiercely the smaller players in this maturing oligopoly compete on the basis of price and on how keen customers are to paying for more wireless data.

Both revenue growth scenarios are possible and there are armies of well-paid professionals spending a good bit of time trying to figure that question and ones like it out.

With the wireless part of the business picked over by the analytical community—who have undoubtedly hired professional statisticians to do in-depth studies of ARPU (“average revenue per user”) growth rates and legal scholars to opine on the future of “Net Neutrality”—it is doubtful that present stock prices do not reflect the financial industry's best thinking on the future of the wireless business.

We believe that the very fact so many people are concentrated on the wireless business—a situation made more acute after the announcement that Verizon would spend \$130 billion to acquire Vodafone's VOD stake in Verizon Wireless—makes it likely they are spending too little attention on the possibility of a turnaround in the long-underperforming Wireline group.

Wireless has provided a huge boost to Verizon's business over the last 15 years and has enabled the company to maintain decent overall profitability even though the Wireline segment's profits were plummeting. However, at present, the wireless business is more mature and its potential better understood by the market. As such, if Verizon holds a surprise, we believe it is likely to emerge from the Wireline segment.

[...continued on the next page](#)

Focus on Verizon (continued)

Clarity out of Chaos

Since the breakup of AT&T, an investor interested in the telecoms space needed a good understanding of competing communications technologies to keep up with the rapidly changing environment, as well as a frequently-updated cheat sheet to keep track of the revolving door of failed companies, new business combinations, and jailed executives.

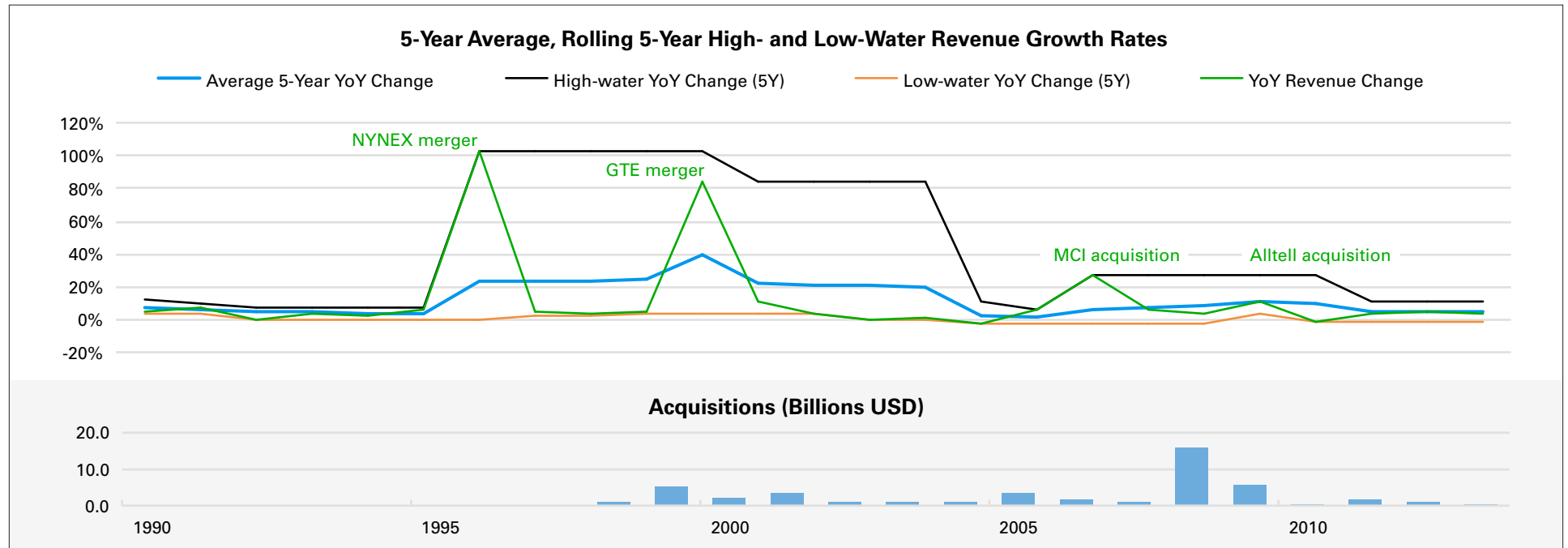
At present, though, with the growing dominance of Verizon in the wireless arena and its respectable position in the market for enterprise wireline products and services, the industry is starting to take clearer shape.

Softbank's acquisition of Sprint in 2013 and its expressed interest in #4 player T-Mobile [TMUS](#) would complete the transformation of the wireless business to a classical three-party oligopoly. Verizon as the largest player is arguably in the best position were this last round of consolidation to occur.

The enterprise networking business is already a pretty safe duopoly and Verizon is working on strengthening its position there in sensible ways. The legacy phone business has its issues, but they are well-understood, and the new FiOS business shows some promise.

Thanks to the last 30 years of the closest thing to a riot there is in the financial world, this industry is a bear to sort out, and there are still some uncertainties regarding how things will end up. However, while it is not as stable an industry as in the 1970s, clarity is beginning to return to the chaos of the telecoms space and it appears that Verizon is well positioned to succeed.

Valuation Drivers: Revenues



Setting aside the boosts and drops due to acquisitions and divestitures, Verizon’s organic revenue growth has been consistently in the 3-6% range.

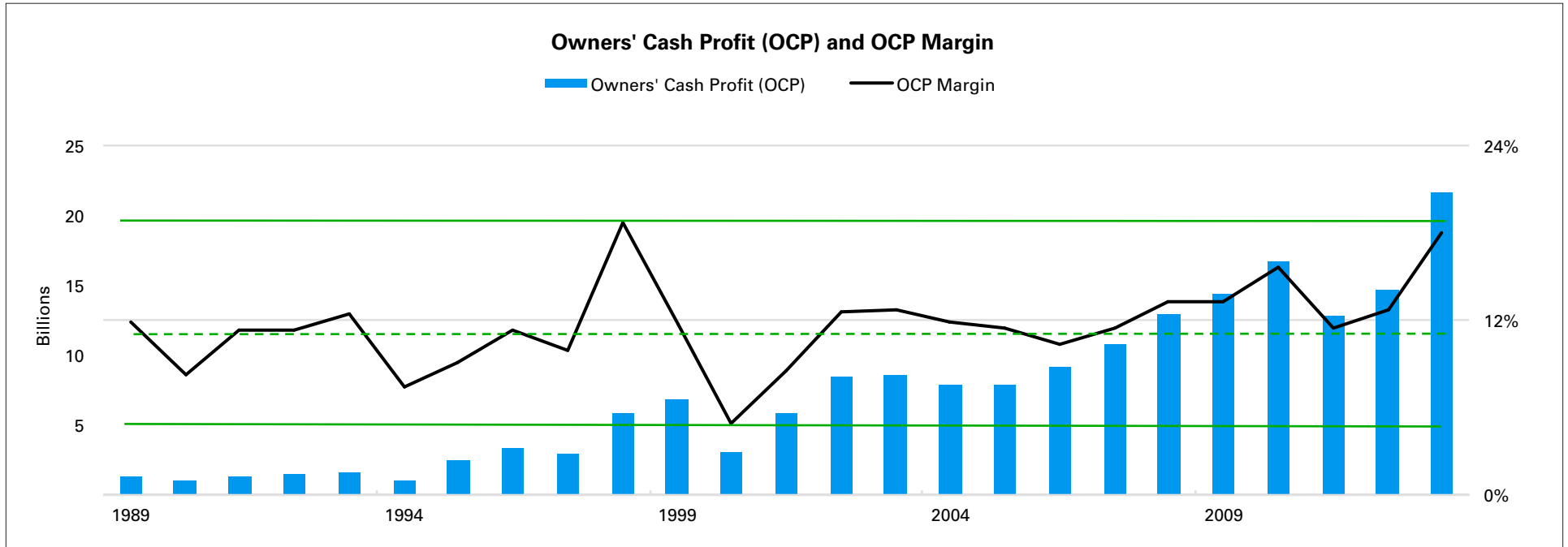
The acquisitions are a sign of how large of a transition is occurring in Verizon’s business over this period as mentioned in the Focus Section. A list of the effects of each of these mergers is as follows:

- NYNEX (1995): Solidifies regional position on the East Coast
- GTE (1999): Extends reach to the U.S. West and Midwest and capabilities in mobile and data transfer
- Vodafone VOD Joint Venture (1999): Creates the largest mobile phone service in the U.S.
- MCI (2006): Cements its role as a major provider of the Internet backbone
- Alltel (2009): Boosts its mobile subscriber numbers once again

This flurry of acquisitions and divestments hints at an industry in the throes of fundamental structural changes. The upcoming acquisition of Vodafone’s share of Verizon Wireless will likely complete the lion’s share of Verizon’s business expansion. After that, we would expect the firm to increasingly attempt to divest what remains of its short-haul local phone business to the extent possible given regulatory constraints and its limited commercial attractiveness.

Each page of the YCharts Focus Report focuses on a piece 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

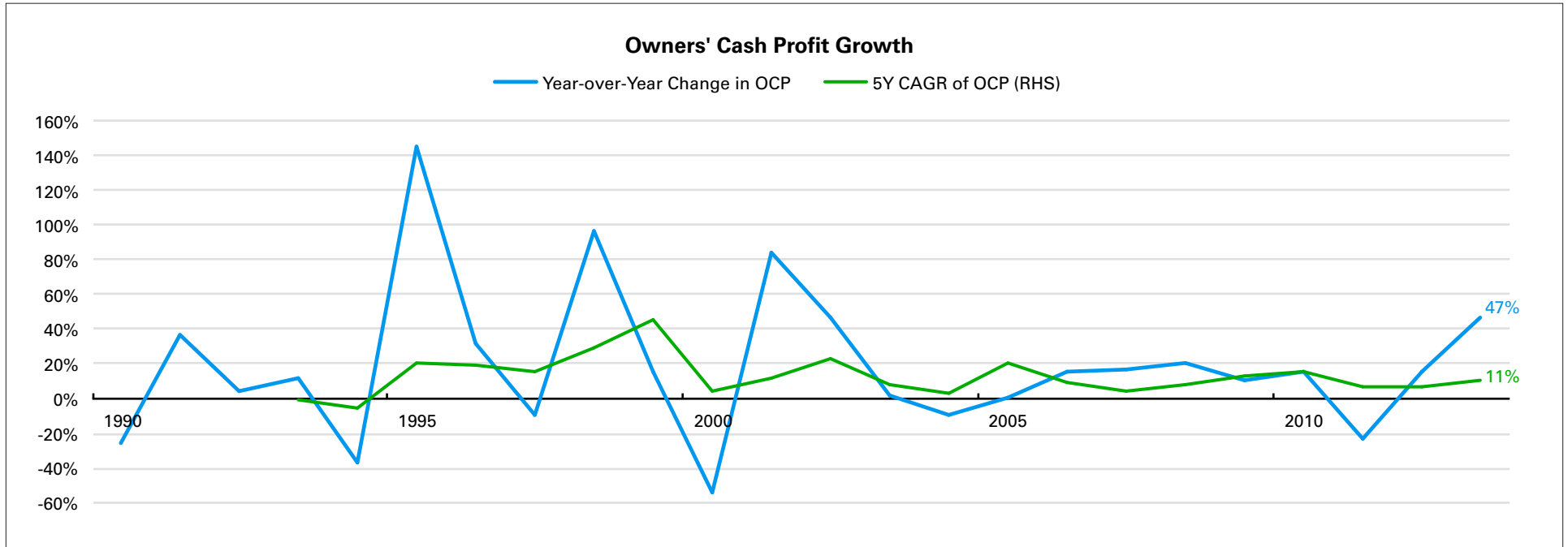


The consistent profitability profile masks the huge changes in Verizon’s business as the firm shifted from a protected monopoly provider of local phone service to an unregulated provider of mobile telephony. The slight rise in OCP margin over the past few years hints at the Wireless division’s growing influence.

Recall from the Focus Section that typical operating profit margins on the Wireless side range between 25% and 35%. With the growing proportion of Verizon’s revenues generated by the Wireless segment, we expect OCP to permanently reset at a higher level in the future.

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.

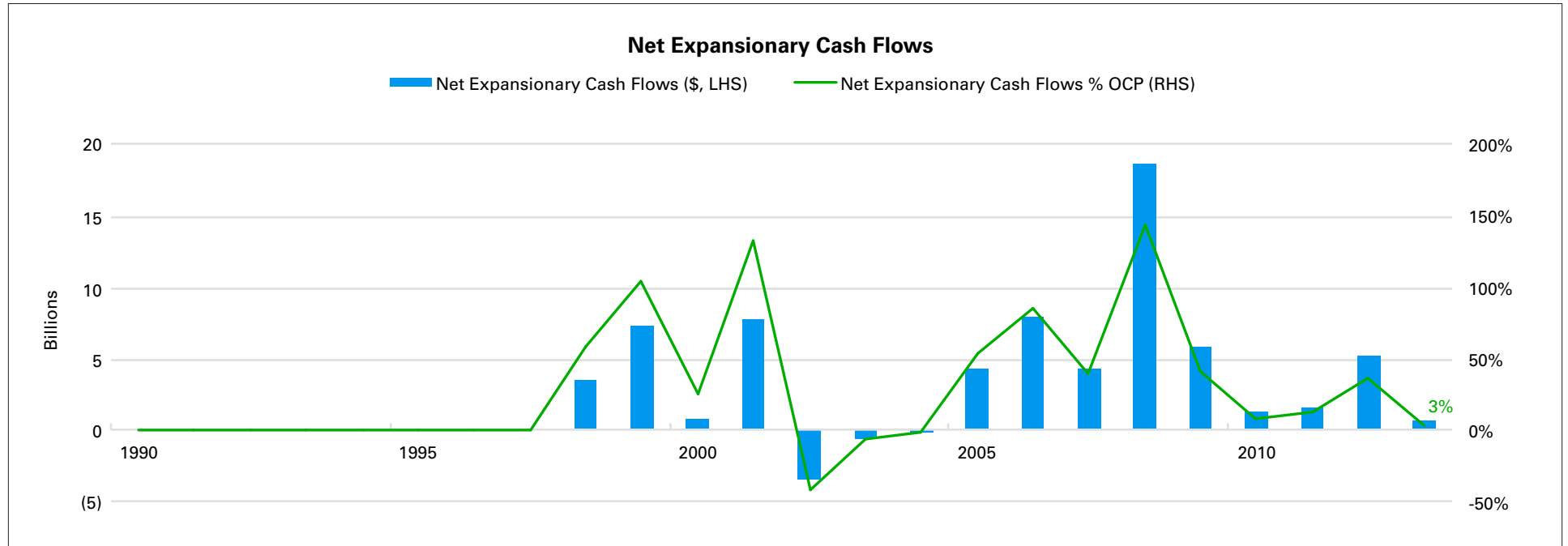
Valuation Drivers: Profitability (continued)



The volatile 1-year change in OCP is most noticeable in the early part of this series as Verizon swallowed up several large competitors, but the 5-year CAGR line is arguably the more important one at which to look. Its stability over the last few years speaks to the inexorable trend toward the market for mobile telephony moving toward a comfortable oligopolistic structure.

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

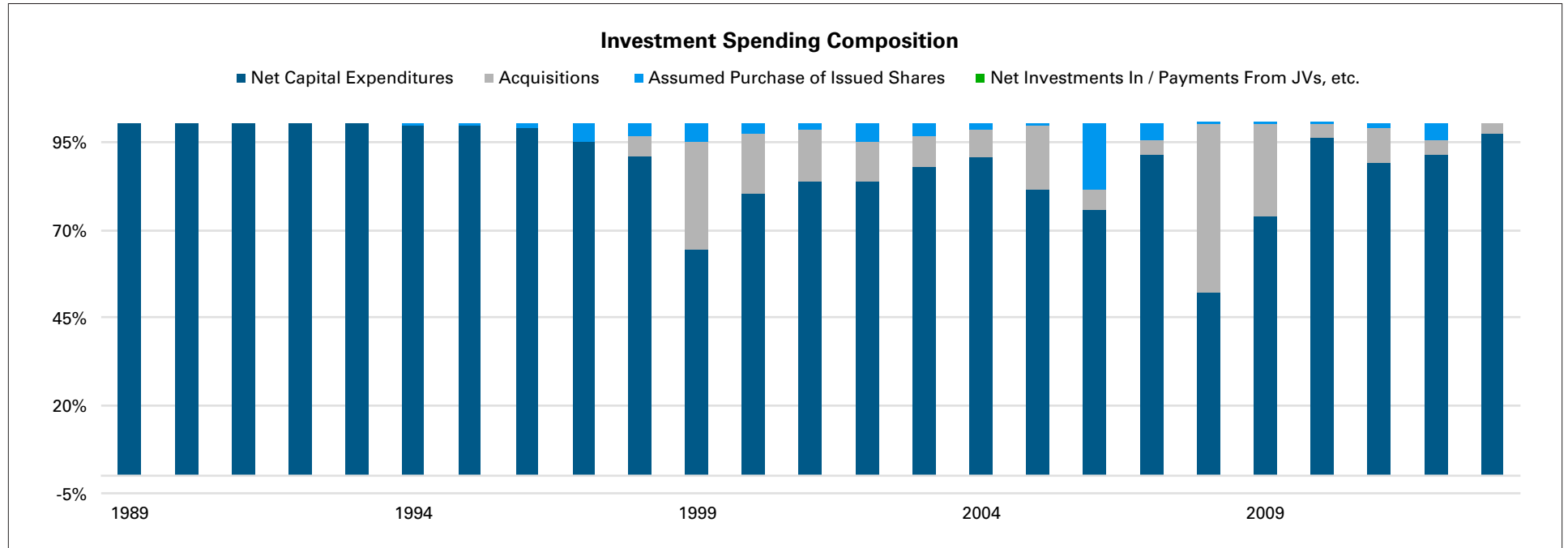


The most prominent peak represents the acquisition of Alltel in 2009. Alltel was taken private in an LBO in the summer of 2007—just at the peak of mortgage-fueled insanity—by GS Investment Partners (an affiliate of the Vampire Squid itself) and TPG Capital. The institutional investors could not be plied with Verizon shares, apparently, as the cash component of the Alltel acquisition was much higher than that of earlier acquisitions (the original NYNEX / Bell Atlantic merger was executed as a Pooling of Interests, an accounting treatment covered in detail in the YCharts 1% Report on ExxonMobil).

The last segment details available as this report was written were those for fiscal year 2012. At that time, the Wireless division was spending roughly two-fifths of its operating profits on capital expenditures and the Wireline division was spending roughly 16% of its revenues (Wireline profitability was near zero). Depreciation and Amortization as a percent of sales on the Wireline side is consistently greater than Capex as a percent of sales, suggesting that Verizon is underpending on capital improvements in this segment. Capex and acquisitions continue for the enterprise and FiOS parts of wireline, which likely means the firm is choosing to cut back on spending to support its copper wire consumer phone network.

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.

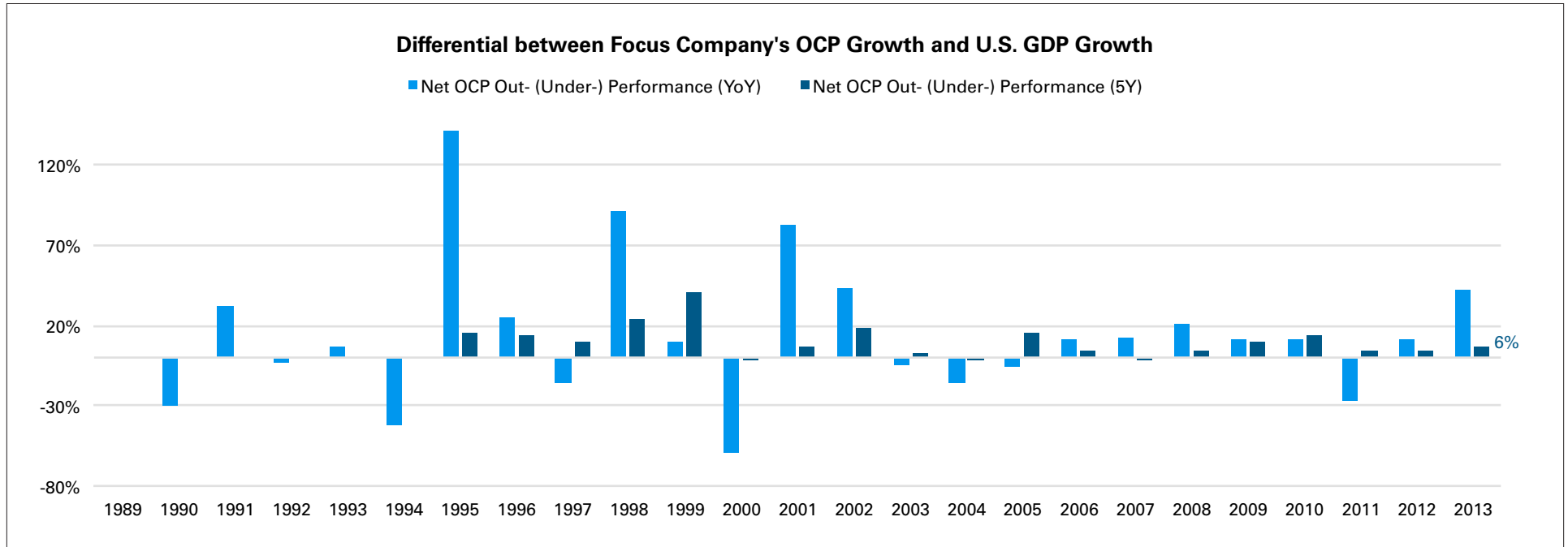
Valuation Drivers: Investment Level (continued)



The largest and arguably most important investment cannot be shown on this chart since it has not taken place yet—the buyout of Vodafone’s share of Verizon Wireless, scheduled to close in 2014. This acquisition will be made using about \$60 billion in cash—roughly the last four years’ worth of OCP—and another \$60 billion in Verizon shares. Verizon had 109 million treasury shares, worth about \$5 billion as at the close of 2012, and with an aggregate market capitalization of \$133 billion, the remaining \$55 billion of share value represents a dilution of around 40%.

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.

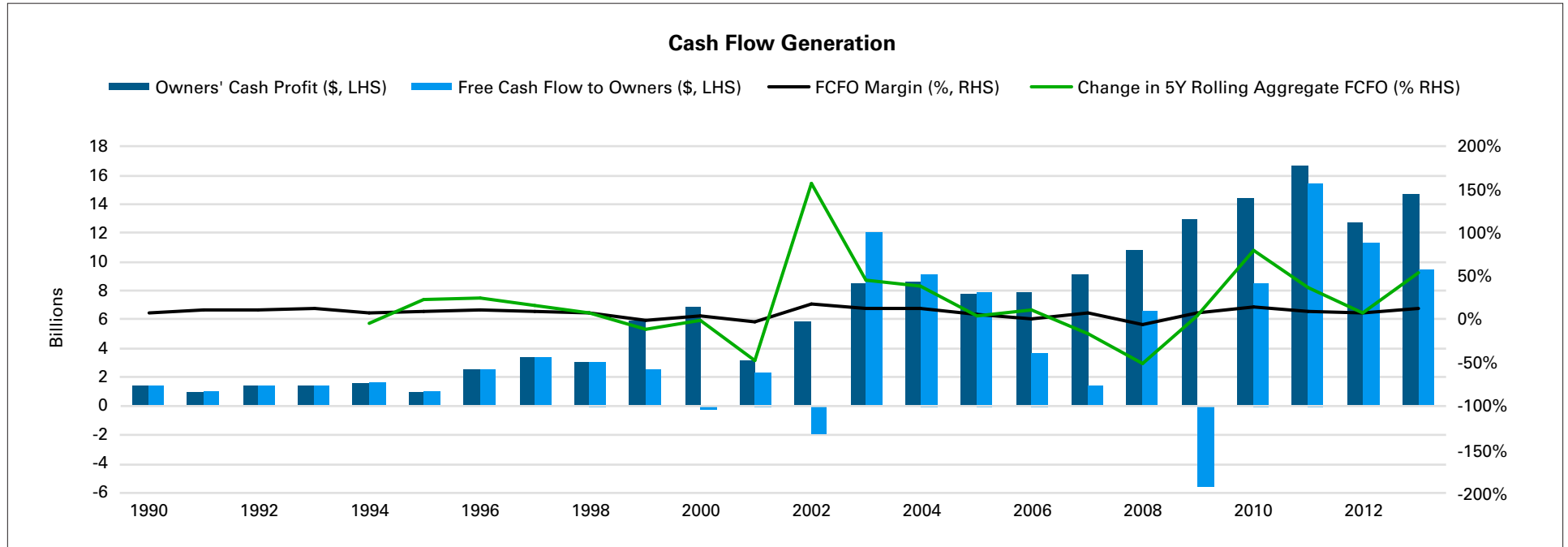
Valuation Drivers: Investment Efficacy



The relative outperformance of the 5-year CAGR of Verizon’s OCP versus the 5-year CAGR of U.S. GDP has slowed to the mid-single digit range as at the end of 2013. The acquisition of Vodafone’s stake in Verizon Wireless will not increase OCP or growth rate because Verizon Wireless is treated as a consolidated subsidiary (i.e., Vodafone’s share of OCP is shown in the historical OCP number). The potential for Verizon’s OCP to continue to grow at higher than nominal GDP is fairly good, not the least because of the potential for margin expansion on the Wireline side.

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.

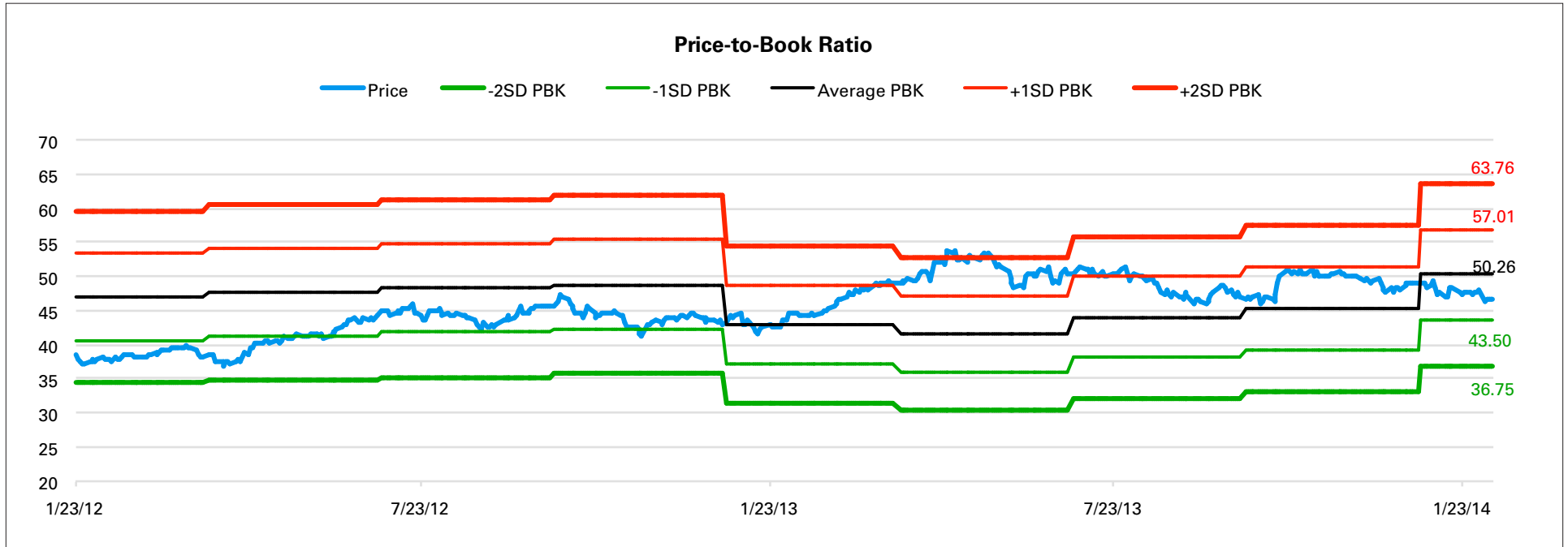
Cash Flow Generation



Over time, Verizon’s FCFO margins have averaged 8%, but they have dipped to the 7% over the past decade due to the numerous acquisitions. If Verizon is successful in minimizing its wireline footprint, or at least minimizing the capital expenditures associated with this footprint, its FCFO margin may be able to drift up over time. This positive trend may be partially offset by cash needed to be spent to service the roughly doubled debt load that Verizon will issue to buy out Vodafone’s stake in Verizon Wireless.

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.

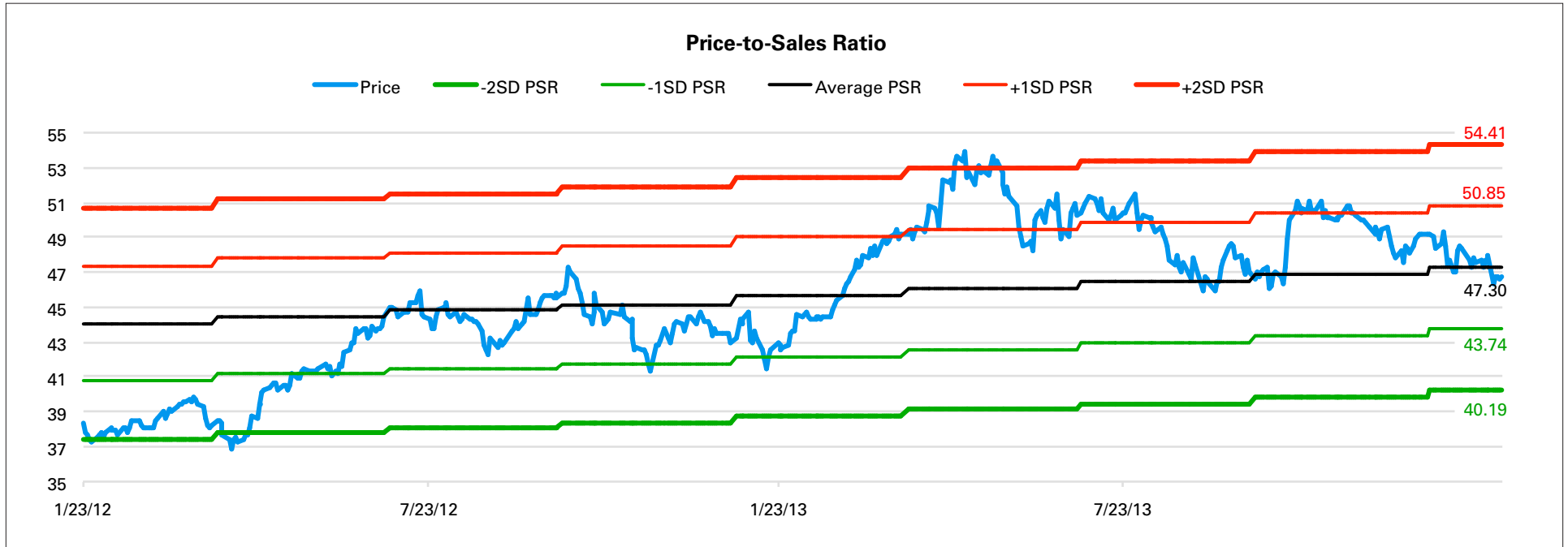
Market Multiples: Price to Book Ranges



There does not appear to be a reliable buy signal when looking at Price-to-Book, but selling at two standard deviations above the average would have worked as a profit taking signal.

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



For Price-to-Sales, buying at one standard deviation below and selling at two standard deviations above would have been a good strategy over the past few years. Obviously, the sell signal is again clearer than the buy signal.

Please see note on previous page about market multiples.

Competitive Summary

Fundamental Data

Ticker	Name	Market Cap	Net Income (a)	Pretax Income (b)	EBIT (c)	Sales (d)	Assets (e)	Equity (f)
USM	United States Cellular Corporation	3.6B	0.1B	0.2B	0.3B	4.1B	6.3B	3.4B
TMUS	T-Mobile US Inc	24.1B	7.7B	7.7B	8.2B	4.5B	45.8B	12.4B
S	Sprint Corp	30.7B	-4.3B	-4.0B	-2.3B	34.4B	88.0B	26.5B
T	AT&T Inc	173.9B	18.2B	27.8B	31.7B	128.8B	277.8B	91.0B
VZ	Verizon Communications Inc	135.5B	11.5B	29.3B	31.9B	120.6B	274.1B	38.8B

DuPont Analysis

Ticker	Name	Tax Burden (a / b)	Interest Burden (b / c)	EBIT Margin (c / d)	Asset Turn (d / e)	ROA (a / e)	Leverage (e / f)	ROE (a / f)
USM	United States Cellular Corporation	0.50	0.67	7%	0.65	5%	1.85	3%
TMUS	T-Mobile US Inc	1.00	0.94	182%	0.10	18%	3.69	62%
S	Sprint Corp	1.08	1.74	-7%	0.39	-3%	3.32	-16%
T	AT&T Inc	0.65	0.88	25%	0.46	11%	3.05	20%
VZ	Verizon Communications Inc	0.39	0.92	26%	0.44	12%	7.06	30%

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

Competitive Summary (continued)

Cash Flow Measures

Ticker	Name	Dep / Amort	Change in NWC	TTM CFO	TTM CFO Margin	TTM FCF	FCF Margin	Dividend Yield
USM	United States Cellular Corporation	0.6B	-0.1B	0.6B	15%	-0.2B	-5%	0.0%
TMUS	T-Mobile US Inc	0.7B	N/A	1.0B	22%	-0.6B	-13%	0.0%
S	Sprint Corp	6.5B	-0.5B	0.9B	3%	-2.5B	-7%	0.0%
T	AT&T Inc	18.4B	-1.1B	34.8B	27%	13.6B	11%	5.6%
VZ	Verizon Communications Inc	16.6B	0.0B	38.8B	32%	21.6B	18%	4.5%

Multiples and Misc.

Ticker	Name	PS Ratio	PB Ratio	EV / EBITDA	P/E Ratio	P/FCF	Altman Z-Score	Beta
USM	United States Cellular Corporation	0.9	1.1	36.0	36.4	N/A	2.1	0.77
TMUS	T-Mobile US Inc	2.0	1.9	3.6	1.0	N/A	0.4	0.97
S	Sprint Corp	0.7	1.2	15.2	N/A	N/A	0.6	N/A
T	AT&T Inc	1.4	1.9	4.8	9.7	13.1	1.5	0.48
VZ	Verizon Communications Inc	1.1	3.5	4.7	11.8	6.3	1.4	0.42

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

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-Haan 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-Haan 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

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

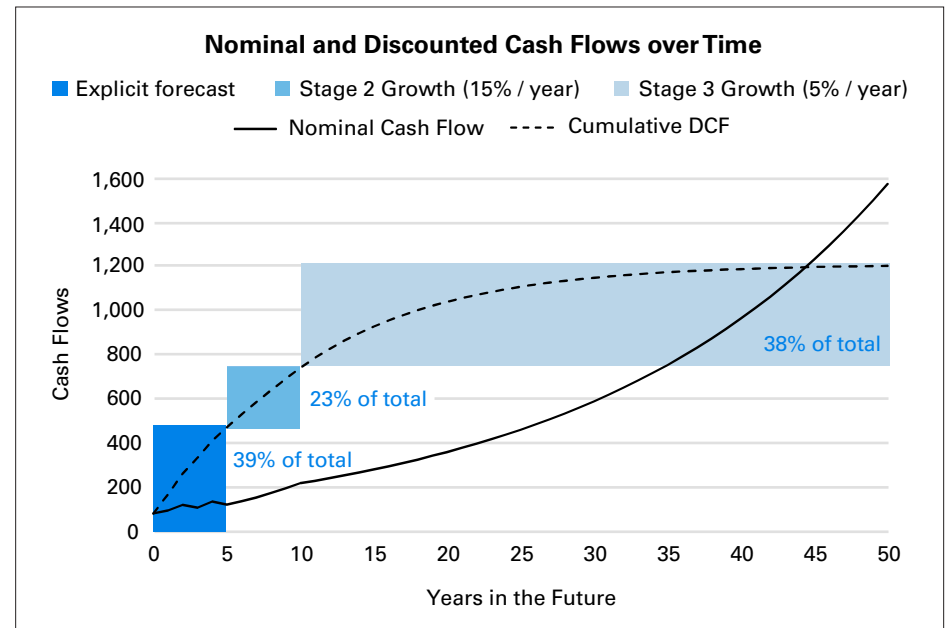


Figure 1.

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.

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.

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