
1% Focus Report: Chipotle Mexican Grill (CMG)

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: Chipotle Mexican Grill (CMG)



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 Section: Growth is Key	2-6
Chipotle is very efficient at converting its revenues to profits and consistent in its margins. The key driver of Chipotle’s value is how robust its revenue growth will be in the future.	
Revenues: Outstanding	7
Helped by capital from McDonald’s and a good product, Chipotle has expanded its domestic footprint quickly.	
Profitability: Excellent	8
A simple menu and a production line designed for efficiency makes Chipotle more profitable than most restaurant chains.	
Investment Level & Efficacy: Owners are Being Cheated	9-11
This company has the potential for much quicker profit growth, but it is spending too much on backdoor compensation of its executives.	
Cash Flow Generation: Could be much Better	12
Owners can expect to lay claim to a nickel of every dollar of revenues. If compensation policy was more rational, this margin would be closer to a dime.	
Valuation: Objective, Data-Driven, and Transparent	13
We offer a valuation range for Chipotle’s shares based on a transparent analysis of cash flows drivers.	
Market Multiples: Mildly Overvalued	14-15
Price-to-sales ratio is giving a stronger sell signal than price-to-book.	
Competitive Summary Tables	16-17
Methodology	18

Focus on Chipotle Mexican Grille (CMG)

Ticker	CMG
Name	Chipotle Mexican Grill Inc
Industry	Restaurants
Market Capitalization	15,638
TTM Sales	3,392
TTM CFO	583
TTM CFO Margin	17%
Mkt Cap / TTM Sales	4.6
Mkt Cap / TTM CFO	26.8
Long-Term Debt	283
Shareholders' Equity	1,538
D/E Ratio	18%
Altman's Z-Score	24.4
Beta	0.6
Return on Equity	0.2%

Chipotle Mexican Grill is not a restaurant chain.

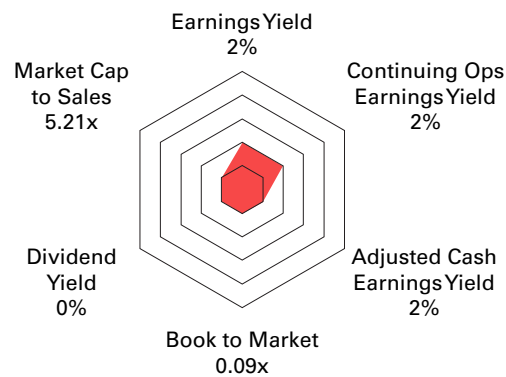
It is a high-speed, high-efficiency machine designed to squeeze every ounce of profit out of 15 feet worth of counter space and a few hundred pounds of fresh meat, vegetables, and tortillas per store per day. This machine works very well. Over the past few years, profit margins have been consistently high—higher than any firm operating wholly-owned chain stores and more than a few operating as a franchisor. Truly, its ability to convert revenues to profits is impressive—almost perfect in fact.

However, the curse of perfection—as this author knows only too well—is that it is hard to measurably improve. If Chipotle wants to increase its profits, then, there is no way for it to do so than to generate more revenues.

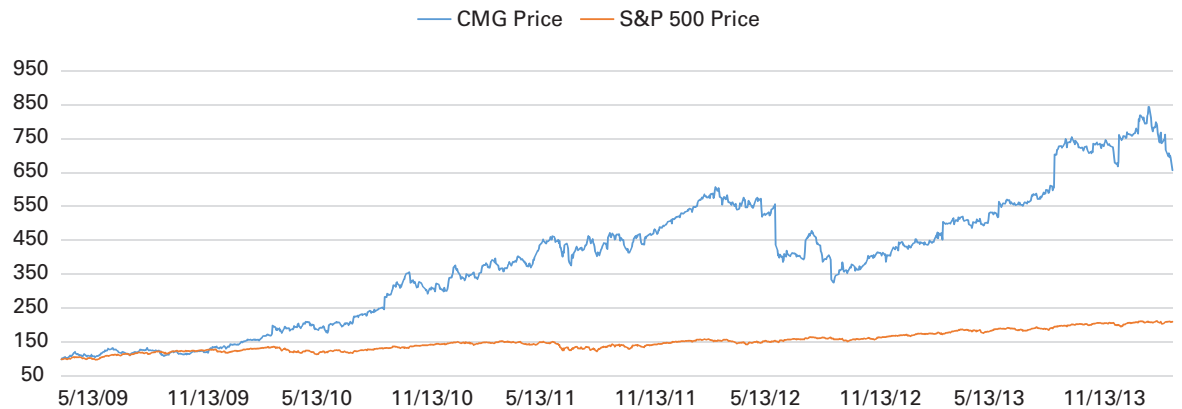
The market is pricing Chipotle as if it will grow forever. How far and how fast can it actually generate more revenues?

[\(continued on next page\)](#)

Value Score Factors



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



How Chipotle can Generate More Revenues

There are only three ways Chipotle can continue to generate the robust revenue growth for which it is famous—sell more burritos at current stores, open more stores to sell burritos, and open new stores to sell something else.

Let's take a look at each of those options and see if we can develop a view as to reasonable limits to Chipotle's future revenue growth.

Sell More Burritos at Current Stores

There are a few pieces of data that the firm... spoon feeds... to the investor community to give it a sense of how effective Chipotle locations are at slinging burritos. My favorite is average annualized sales per restaurant. We graph that quantity, along with the net number of stores added (which we discuss more in the next section) since Chipotle's IPO:

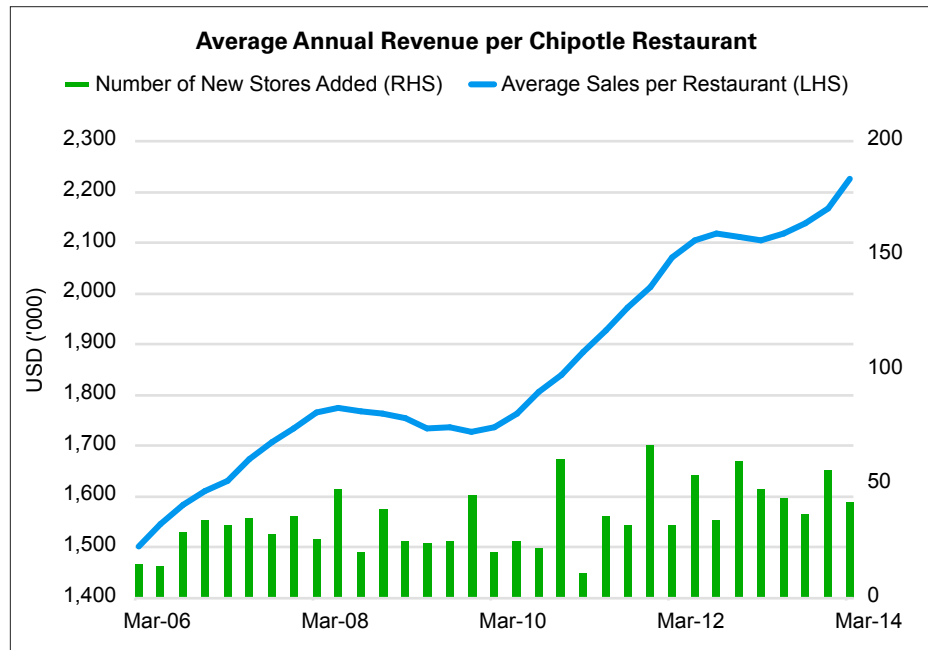


Figure 1. Source: Company Statements, YCharts Research

The average sales trend has been consistently upward with a compound annual growth rate of just over 5%; in the most recent quarter, the figure topped \$2.2 million. In terms of locations, Chipotle now runs about 1,500 of them (from 500 in 2006) and the CEO believes there is room in the marketplace for about 3,000 domestic Chipotle locations all together.

A big factor of the impressive graph above is actually an artifact that has to do with the lifecycle of a restaurant and an expanding chain. When a new store opens, sales tend to be lower than at maturity. As word of the new restaurant spreads, more people begin to patronize it and sales increase. Eventually, sales growth flattens out if for no other reason than a single restaurant can only serve so many people in a given span of time. Graphically, this lifecycle can be represented in this way:

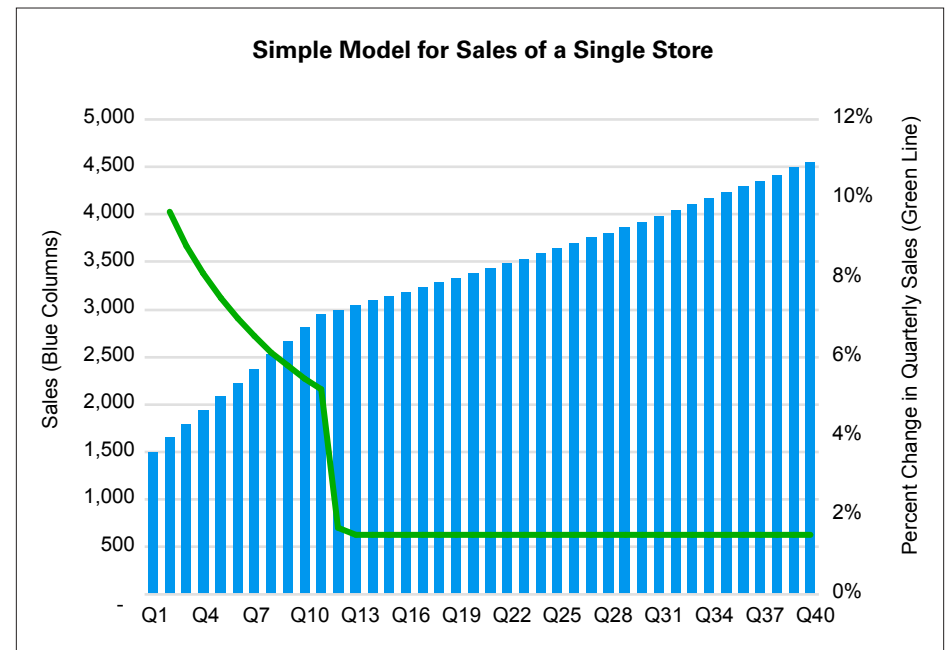


Figure 2. Source: YCharts Research

This simple model says that first quarter sales will annualize to around \$1,500 per year and grow to a maturity sales rate of \$3,000 per year in three years. After this point, we assume that quarterly sales will increase at 1.5%. It is a simple model (which we have built based on statements by Chipotle’s managers and the firm’s financial statements), but conceptually valid.

Chipotle is a growing chain, so the average sales number is affected by the dynamic of adding new locations overlain on this business life cycle dynamic. Extending the above simple model to a 20-store chain, we get the following:

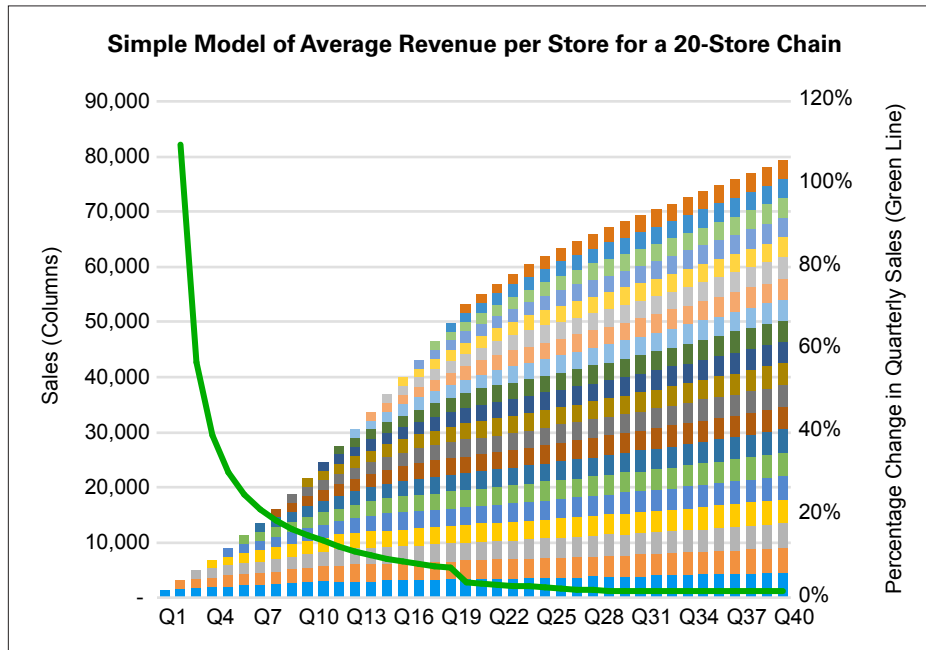


Figure 3. Source: YCharts Research

Here, we can clearly see the effect of more and more locations heading toward maturity—initial growth is rapid, but as all stores in the chain reach maturity, the trajectory slows notably.

Using this same simple model, we have graphed our hypothetical 20-store chain’s average revenue per store (the same statistic as listed in Figure 1):

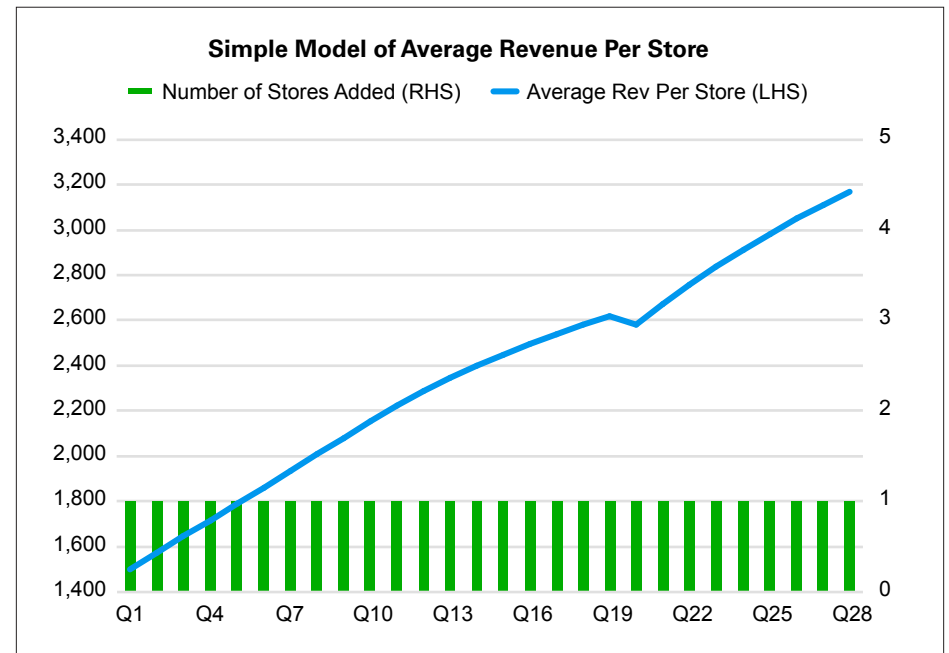


Figure 4. Source: YCharts Research

From this illustration, it should be clear why extrapolating past results might give a misleading impression regarding Chipotle’s revenue growth potential. Chain growth interacts with the single-location maturity cycle to make it seem that each individual store is doing better and better over time, but indeed, this result is partially an artifact of more stores with overlapping maturity cycles.

Chipotle clearly has a good business, but its locations must still obey physical laws of time and space. Only a certain number of people can be served at any one location—a quantity that Chipotle terms “throughput.” According to management, the highest throughput locations can serve meals to over 300 customers in an hour—an average of one meal every 11 seconds—and it is hard to believe that a meal could be served much faster than that.

Keeping this fact in mind, realize that most of Chipotle’s business is generated during two fairly short time windows—lunch and dinner. Let’s say that a very busy location will have a throughput of 600 people during both lunch and dinner, for a total daily burrito volume of 1,200. If the average check for a Chipotle is somewhere around \$8, that would mean a single location could generate a daily revenue of \$9,600. Let’s say the location could generate that

daily revenue 360 days out of the year (deducting something for holidays, rainy days, etc.). That calculation brings us to an estimated maximum annual per-store revenue of roughly \$3.5 million—about 50% greater than the present average.

While it is technically possible for each of Chipotle's locations to generate this level of annual revenues, it is difficult to believe that all present Chipotle locations will be able to do this in practice. If we assume that a reasonable upper limit for per-restaurant annual revenues is somewhat less than \$3.5 million and somewhat more than \$2.2 million—say closer to \$3 million—Chipotle's present aggregate revenue capacity for the 1,458 stores that have been open at least a year is \$4.4 billion and for the 1,637 stores open as of the latest quarter is \$4.9 billion. These figures represent a sales increase of 30% and 45% respectively.

A revenue increase of between 30% and 45% would be breathtaking if generated over one year, but keep in mind that this is our approximate total revenue capacity for present Chipotle locations, meaning that once this capacity is reached, growth will be mostly flat, all things held equal. Also keep in mind that we are assuming that all Chipotle locations will eventually operate with nearly the throughput of its most high-traffic super stores.

These numbers may not be exactly right, but it does suggest that Chipotle's present locations are generating a fairly large proportion of their potential revenue, implying there is not a terrific potential for sales growth from existing stores—perhaps high single-digit or low double-digit growth over the next three to five years.

This brings us to the second way Chipotle may be able to boost revenues—by opening more burrito stores.

Open More Burrito Stores

This is a great plan.

Chipotle has terrific, fresh food that represents a healthy (well, *sort-of...*) change from other fast-food choices (like McDonalds [MCD](#)) and more filling and economical than other fast-casual choices (like Panera [PNRA](#)). This author and others in the author's socio-economic cohort can't get enough of Chipotle's sublime foil-wrapped goodness.

Chipotle knows it has a good thing going and is adding enough stores each year to make it 3,000 locations within another five to seven years.

If we build on our earlier calculations, we would have 3,000 locations that are fully mature 10 years from now and each of them is generating an inflation-adjusted \$3 million per store (\$4 million per store assuming a straight 3% inflation increase), we would have aggregate revenues of \$12 billion. This implies a 10-year compound annual growth rate of 13.6%, and we think this is a reasonable expectation for growth, as long as the 3,000 store estimate is valid.

How valid is the 3,000 store estimate?

The big problem with Chipotle, in terms of classic ideas about business strategy and competition, is that the chain has no natural protection for its business (i.e., patents, monopoly access to means of production, etc.). Chipotle has a good idea—limited menu and high throughput, transparent, customized preparation of meals, fresh ingredients, and a minimalist décor in its stores. None of those things are difficult to replicate, and competitors are replicating it every day.

YCharts offices are close to the [Merchandise Mart](#) in Chicago. Alongside high-end architectural products stores and offices, there is a food court with, among other things, a Pret a Manger, a Starbucks [SBUX](#), an Au Bon Pain, and a Dunkin' Donuts [DNKN](#). There is also a "Haba Nero Baja Grill".



Blurry photo courtesy of author. Thanks to the manager of Haba Nero Baja Grill

If Haba Nero (and countless shops like it) was a music download, it would be sued by Sony. Everything about it is the same as Chipotle. The menu consists of Burritos, Burrito Bowls, Tacos, and Salads—same as Chipotle. The ordering process is the same and the throughput, while perhaps not as good as some of Chipotle's legendary 11-second meal super-locations, is about what the author would expect at a "normal" Chipotle restaurant.

Knowing that the Chipotle formula is easy to copy, if I were a Chipotle executive, I would be

trying to figure out how to put a Chipotle location at the number one best location for each area that met my demographic criteria while preserving the customers' quality of experience and Chipotle's brand image.

What is Chipotle doing? Issuing its co-CEOs and other executives tons of stock and soaking up dilutive effects by using owners' money to buy back shares.

Ridiculous.¹

What is the cost to owners of this ill-conceived strategy to enrich the founder (Steve Eills), his childhood friend (Monty Moran), and their inner management circle?

First, there are the direct costs to shareholders, which we estimate have averaged at around \$100 million per year since 2009. (Please see the graphical section of this reports and accompanying notes to understand our calculation.)

However, the direct costs may not be those most deleterious to owners; in our opinion, it is the cost of growth opportunities management is foregoing that really hurts.

We estimate it costs roughly \$300,000 for the construction and outfitting of a new, strip-mall location.² An average of \$100 million per year spent on a backdoor management compensation scheme implies that over 300 stores per year cannot be built. If, in fact, it costs four times our estimated amount—\$1.2 million—for each new store opened, this is still 80 locations that cannot be built.

80 additional new stores a year may not be logistically plausible or strategically wise, but the point is that Chipotle's management compensation policy is, in fact, a bane on Chipotle's growth, not a boon to it.

Every time a Haba Nero or other knock-off springs up, it is essentially revenue growth forever lost to Chipotle owners. Burritos are not lattes; it's not as though most population centers have room for fast casual burrito stands at every street corner.

Let's say that Chipotle's executives are right and there is room for 3,000 locations selling fresh burritos in the US. If 10% of these locations are non-Chipotle restaurants, we end up with a maximum Chipotle store count of 2,700, and an implied maximum growth rate over the next 10 years of around 12.5%.

Even if, for strategic reasons, Chipotle management did not believe it prudent to expand³ so quickly every year, it might use the misspent management compensation to issue dividends (\$3.33 on each [CMG share outstanding](#)⁴) or to buy or build a chain that sold something else.

Open More Stores Selling Something Else

Chipotle bought or built a few other chains—one Asian, one soul food—but the aggregate store counts are small. If these work out spectacularly, they will contribute to Chipotle's growth, but not for years. Chipotle was a private company for 13 years and had about 500 locations before going public; revenue that first post-IPO year was \$471 million. That's nothing to sneeze at, but \$471 million is only about 4% of the aggregate revenue figure we calculated above. In short, Chipotle is starting to bump up against the [law of large numbers](#) (the finance version, not the proper statistical one), so it will be harder for it to materially increase its revenues without a very large investment. (This same argument, by the way, applies to Chipotle's overseas strategy. The chain has only a dozen foreign locations, so even if management did want to embark on an aggressive cross-border expansion program, it will take a long time before its revenue contribution becomes material).

Of course one other idea is that Chipotle could use its current locations to sell something slightly different such as breakfast tacos. This may be a way to squeeze a bit more revenue out of its existing store base, but this author cannot help thinking that serving breakfast will...take a bite out of...lunch sales. How many times per day would you eat a Chipotle burrito?

Summing it All Up

Considering the back-of-the-envelope calculations made here, unless the firm can figure out a way to apply the principles of [quantum entanglement](#) to burrito manufacture, it seems hard to imagine Chipotle's revenue growth over the next ten years running too much over the mid-teens percentages. Even this figure represents somewhat of a Goldilocks scenario in our opinion.

What does that mean from a valuation perspective? Keep reading for our take on this question.

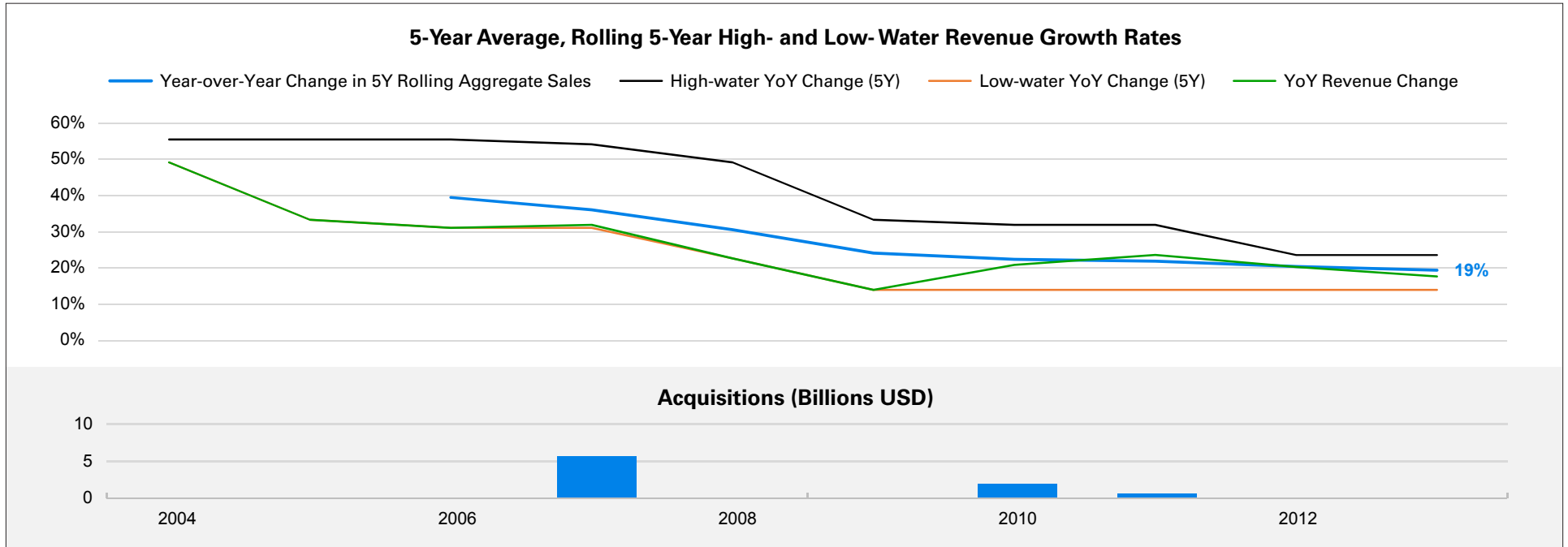
1. The author is [not the only one who thinks so](#).

2. This calculation comes from an analysis of the "Pre-Opening Costs" line item on Chipotle's financial statements and also conversations with an executive at a commercial construction company. The executive, while never having been involved on a job for Chipotle, has built out jobs for similar restaurants and thought the \$300,000 mark was in the right ballpark for construction costs at least.

3. There is a good case to be made that overly-aggressive growth is damaging to a company in the long run.

4. Own three shares, get a free burrito...

Valuation Drivers: Revenues

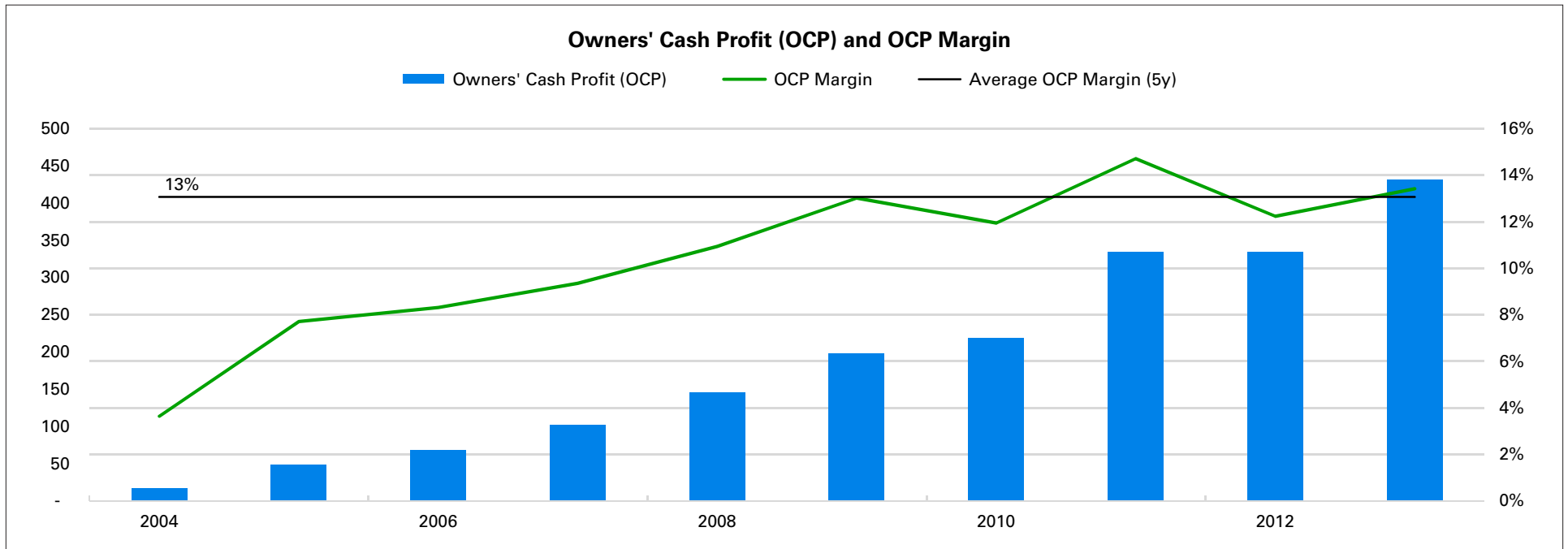


Revenue growth has been brisk at Chipotle, thanks to its innovative, “real food” approach and access to capital funding from a large corporate investor—McDonalds [MCD](#). The Golden Arches generated a return of roughly five times its investment when Chipotle went public in 2006.

The real question, regarding how quickly Chipotle will be able to grow in the future, is covered in depth in the Focus Section of this report.

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

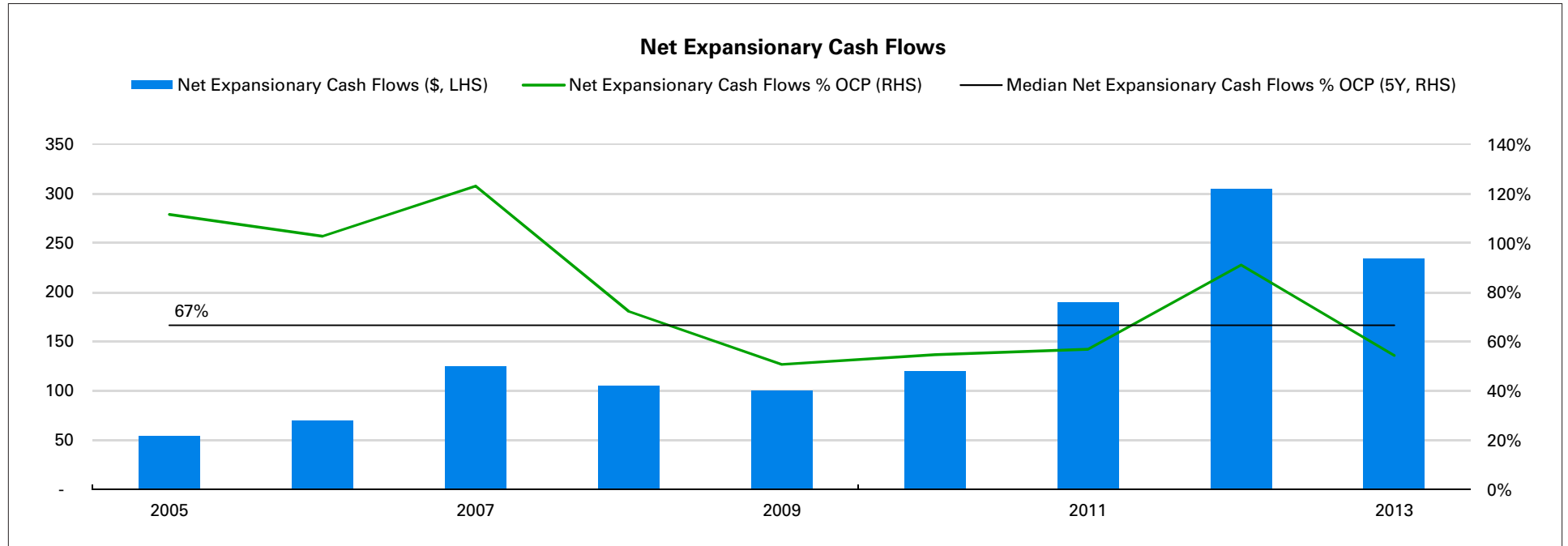


If you are an owner of a fast food or fast casual restaurant—whether it is Chipotle, Panera [PNRA](#), McDonalds, or Starbucks [SBUX](#)—you can expect anywhere from \$0.10 to \$0.20 of cash profit from each dollar of sales. Chipotle’s profit margins—consistently in the mid-teen percentage range—are good, especially considering that it operates on a chain, rather than a franchise model. Its profitability has a lot to do with the simplicity of its menu and its ability to increase “throughput”—the number of customers served over a given time period—while keeping essentially a flat cost structure.

At present, General and Administrative (G&A) expenses are running at roughly 7% of sales; however, these are the kinds of expenses that benefit from economies of scale, and it is not hard to imagine absolute G&A expenses flattening out over time, leading to more margin expansion.

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.

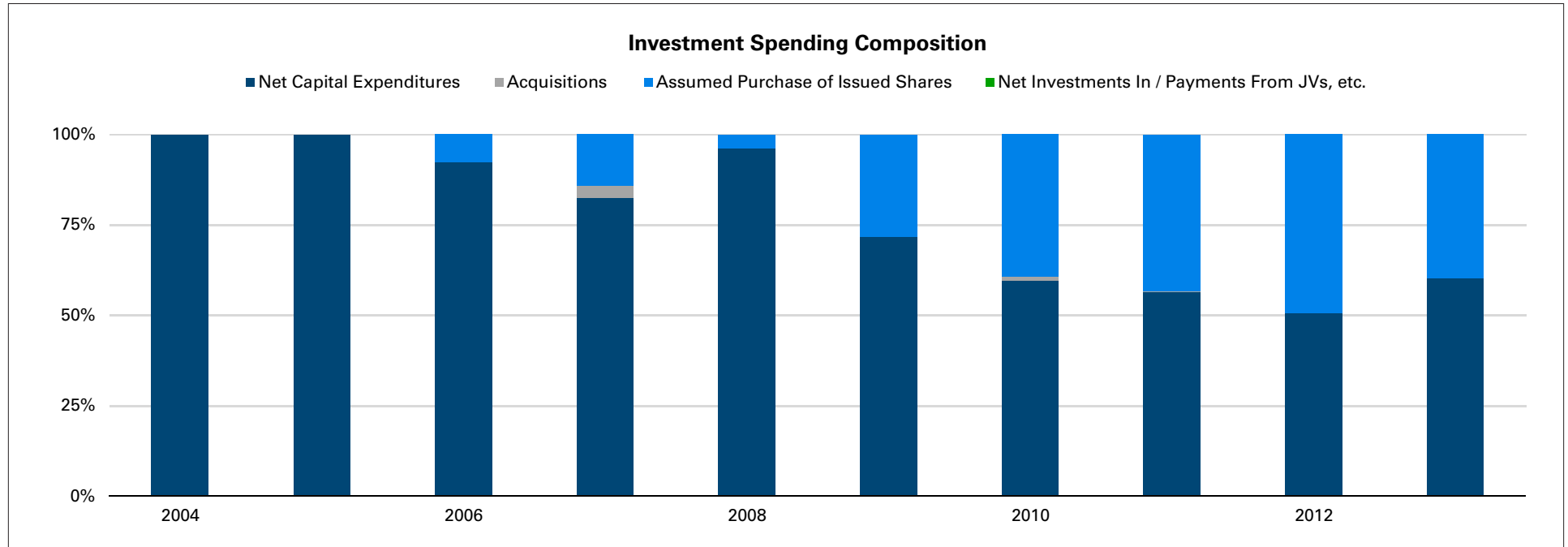
Valuation Drivers: Investment Level



Chipotle spends roughly two-thirds of its owners' profits on expansionary projects. While this does not strike us as unnatural for a quickly growing firm like Chipotle, the way it is spending its owners' profits shocked us. See our commentary on the following page.

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)

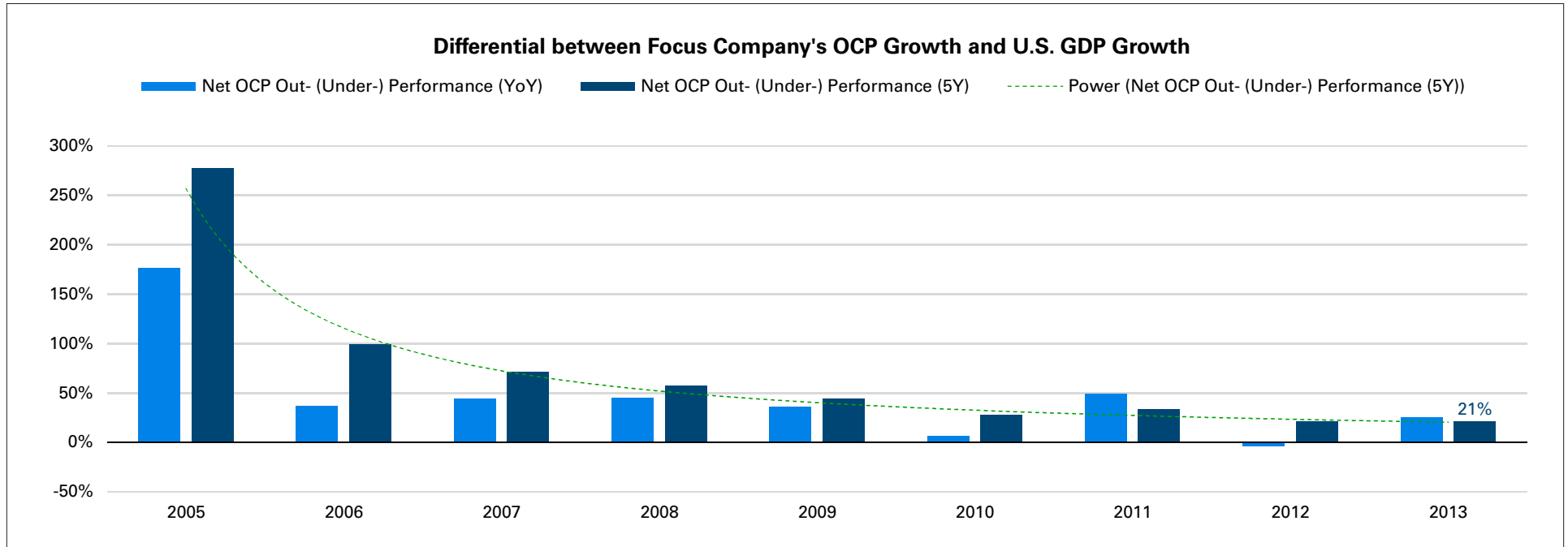


Chipotle’s revenue and profit growth is tied to the number of stores it opens, so it is only sensible that it spends a big chunk of its owners’ profits on buying furniture and equipment for its new stores. However, we estimate that another other huge chunk of investment spending—roughly one-third to one-half of its expansionary flows over the past few years—is its cash cost of employee stock issuance. Since 2009, Chipotle has issued nearly half a million shares a year to its management. In order to offset some of this dilution, (in order to keep boosting EPS), it must buy those shares back. We consider money spent on anti-dilutionary buybacks an investment, but believe that the efficacy of these investments is especially poor in Chipotle’s case.

Chipotle is a rapidly growing chain that is clearly “supply constrained” (see the methodology section for a full discussion). As such, owners would be better served if the company spent profits on expanding its business. Instead, a large portion of its owners’ profits are spent in enriching a few people in Chipotle’s C-suite. [Chipotle’s co-CEOs received compensation of \\$58 million](#) in 2013; an eyebrow-raising sum considering that Lloyd Blankfein—CEO of the [vampire squid](#) itself—made “only” \$23 million.

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

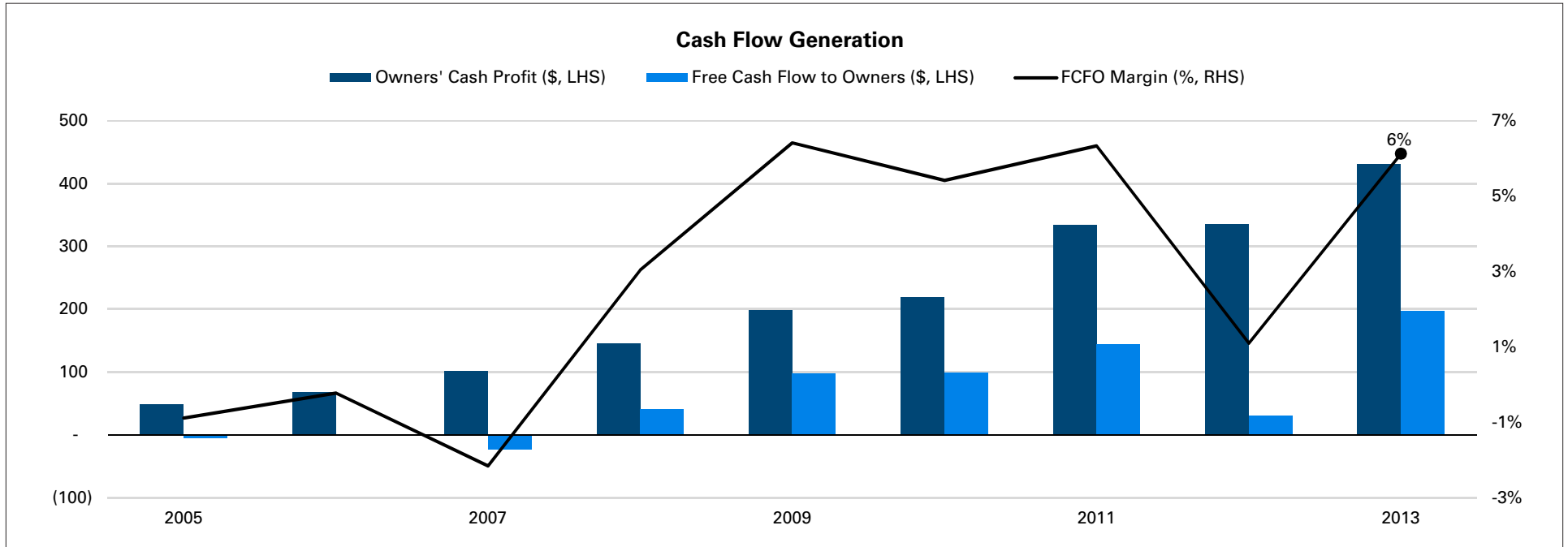


Chipotle has a great, simple product that appeals to consumers by giving them a relatively healthy alternative to fast food. It has created its own niche in the fast casual dining space, and it has been rewarded by growth in owners' profits much faster than growth in nominal GDP.

However, as pointed out in the previous slide, growth could be even better were it not paying its executives a king's ransom. Deducting anti-dilutionary stock buyback spending from OCP rather than from Free Cash Flow from Owners (FCFO), our preferred 5-year OCP performance would drop from the present 21% to 17% in the most recent year and recent performance in general would seem much less impressive than is shown here. We estimate that over half a billion dollars has gone to line managers' pockets instead of boosting owner wealth.

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

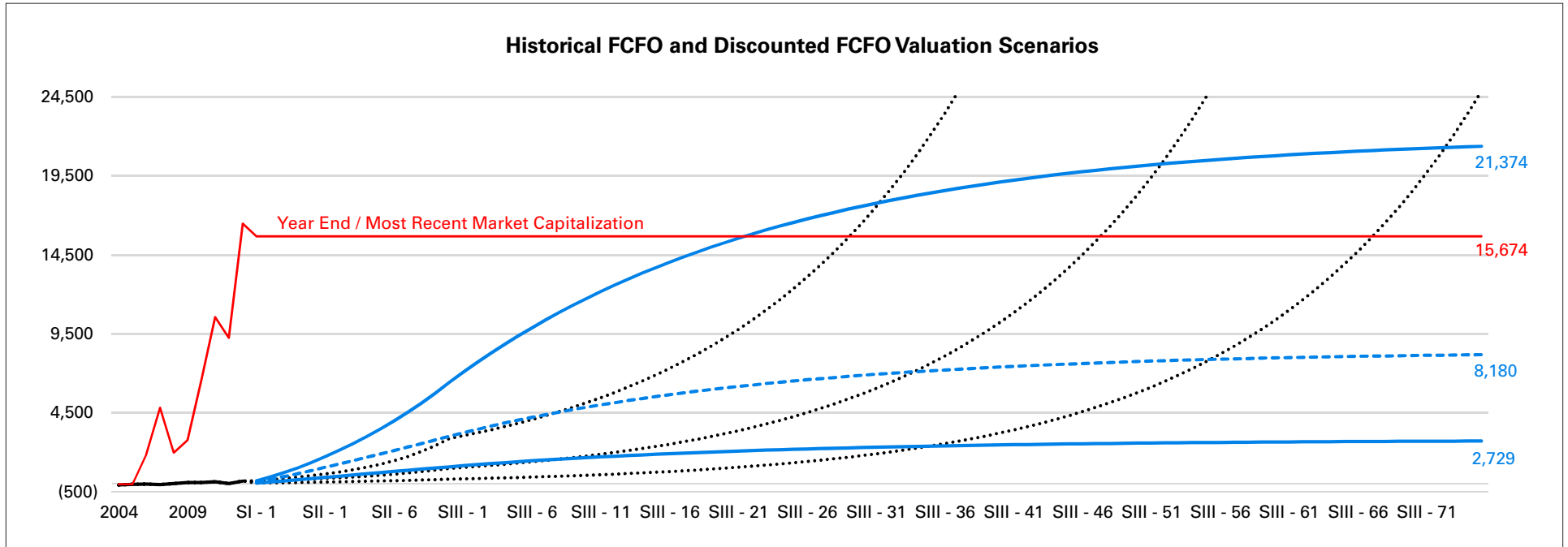


Once expansionary spending is deducted from Owners' Cash Profits, an owner of Chipotle can expect to have claim to roughly a nickel for every dollar of revenues. The average FCFO margin is brought down by a massive anti-dilutionary purchase of shares in 2012.

Standard FCF margins—which do not take the cash effect of anti-dilutive share purchases into account—average on the order of 10% of revenues.

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.

Valuation



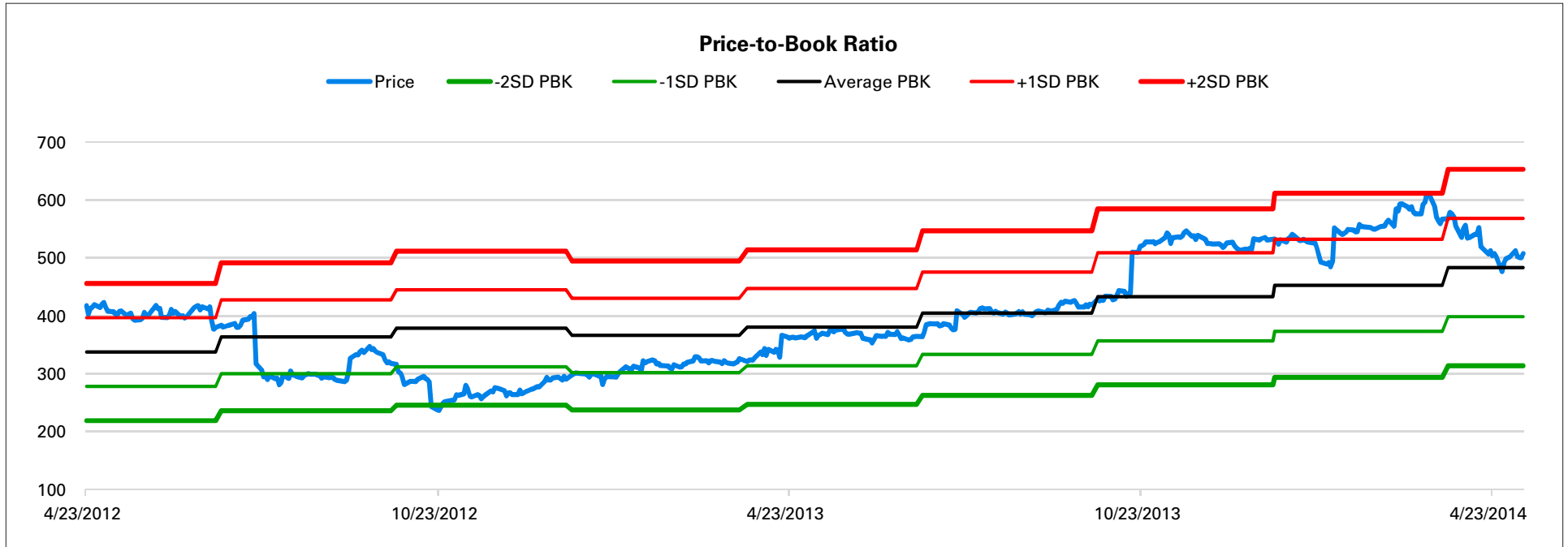
We used the following inputs to generate our valuation range.

	Likely	Worst	Best
Revenue Growth	20%	15%	25%
OCP Margin	12%	10%	15%
Expansionary % OCP	67%	81%	63%
Medium-term Growth (10-year)	12%	10%	18%
Stage III Assumed Growth			6%
Discount Rate			10%

This diagram shows best-, worst-, and median-case scenarios of projected future free cash flows to owners (black dotted lines) as well as the aggregate present value of those flows (blue lines, median-case shown with a blue dashed line). The time frame used is 85 years, broken into three stages (marked SI-SIII). For more information about discounted cash flow analysis, please see the Methodology Section at the end of this document.

Note that for this young company, we are using a 10-year medium term growth period, rather than our usual 5-year period. With the assumptions above, we calculated a fair value range for the firm of \$88-\$688 with a median case valuation of \$263 / share. The median case valuation implies nearly a 50% drop from recent market prices.

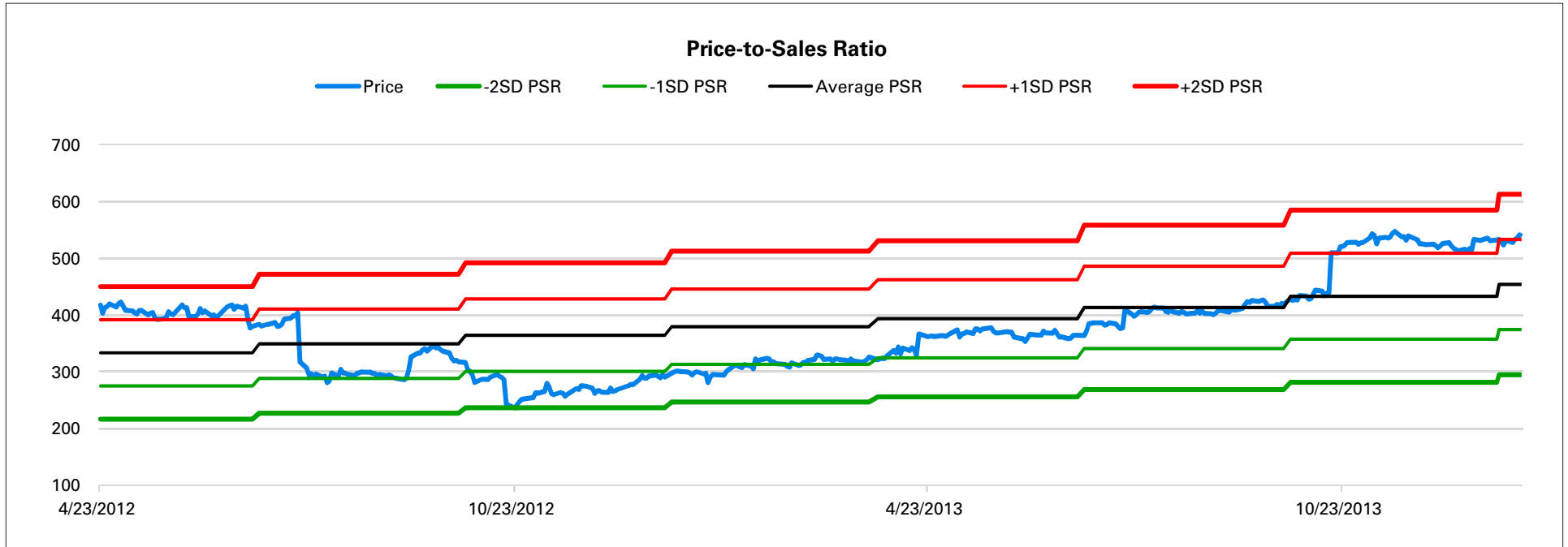
Market Multiples: Price to Book Ranges



Chipotle does not seem particularly overvalued on a price-to-book basis. Using history as a guide, buying Chipotle when it trades for two standard deviations below its average price-to-book ratio would seem a sensible, non-valuation based investment approach.

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



Chipotle's rice-to-sales ratio makes the firm appear slightly more overvalued. Again, buying at two standard deviations below average price-to-sales seems a viable strategy.

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)
SBUX	Starbucks Corp	53.5B	0.2B	0.0B	0.1B	15.7B	10.1B	4.9B
PNRA	Panera Bread Co Inc	4.3B	0.2B	0.3B	0.3B	2.4B	1.1B	0.7B
BWLD	Buffalo Wild Wings Inc	2.7B	0.1B	0.1B	0.1B	1.3B	0.7B	0.5B
MCD	McDonald's Corp	101.9B	5.5B	8.2B	8.7B	28.2B	36.4B	16.1B
YUM	Yum Brands Inc	33.8B	1.2B	1.6B	1.9B	13.3B	8.7B	2.3B
CMG	Chipotle Mexican Grill Inc	15.6B	0.3B	0.6B	0.5B	3.4B	2.2B	1.6B

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)
SBUX	Starbucks Corp	NA	-	1%	1.55	2%	2.06	4%
PNRA	Panera Bread Co Inc	0.67	1.00	13%	2.18	18%	1.57	29%
BWLD	Buffalo Wild Wings Inc	1.00	1.00	8%	1.86	14%	1.40	20%
MCD	McDonald's Corp	0.67	0.94	31%	0.77	15%	2.26	34%
YUM	Yum Brands Inc	0.75	0.84	14%	1.53	14%	3.78	52%
CMG	Chipotle Mexican Grill Inc	0.50	1.20	15%	1.55	14%	1.38	19%

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
SBUX	Starbucks Corp	0.7B	-2.2B	0.6B	4%	-0.6B	-4%	0.0%
PNRA	Panera Bread Co Inc	0.1B	0.0B	0.3B	13%	0.1B	4%	0.0%
BWLD	Buffalo Wild Wings Inc	0.1B	0.0B	0.2B	15%	0.1B	8%	0.0%
MCD	McDonald's Corp	1.6B	0.1B	7.3B	26%	4.6B	16%	0.0%
YUM	Yum Brands Inc	0.7B	0.0B	2.3B	17%	1.3B	10%	0.0%
CMG	Chipotle Mexican Grill Inc	0.1B	0.1B	0.6B	18%	0.4B	12%	0.0%

Multiples and Misc.

Ticker	Name	PS Ratio	PB Ratio	EV / EBITDA	P/E Ratio	P/FCF	Altman Z-Score	Beta
SBUX	Starbucks Corp	3.5	10.8	70.1	389.5	NA	8.8	1.03
PNRA	Panera Bread Co Inc	1.8	6.1	10.2	23.0	32.9	11.4	0.74
BWLD	Buffalo Wild Wings Inc	2.0	5.4	12.7	32.1	38.5	11.8	0.95
MCD	McDonald's Corp	3.7	6.3	11.0	18.7	22.5	6.1	0.32
YUM	Yum Brands Inc	2.6	14.9	13.6	30.4	26.5	5.7	0.73
CMG	Chipotle Mexican Grill Inc	4.6	9.5	23.4	47.2	42.3	24.4	0.63

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).

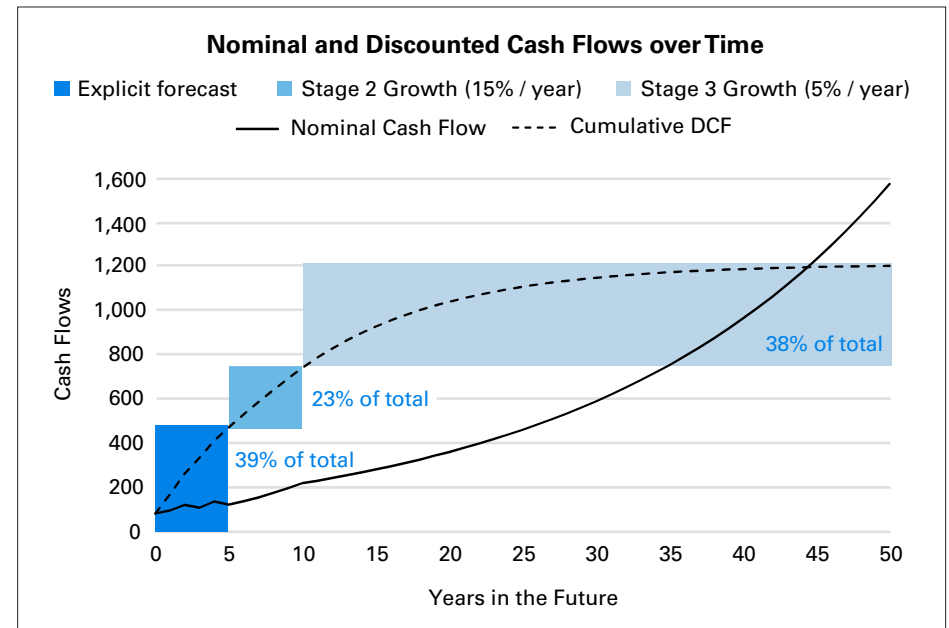


Figure 1.

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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