Client Focus Report:
Target (TGT)

YCHARTS

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YCharts' Client Focus Reports hone in on the valuation drivers underlying a firm chosen by YCharts Research subscribers. 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: Target (TGT)

VALUE SCORE

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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".

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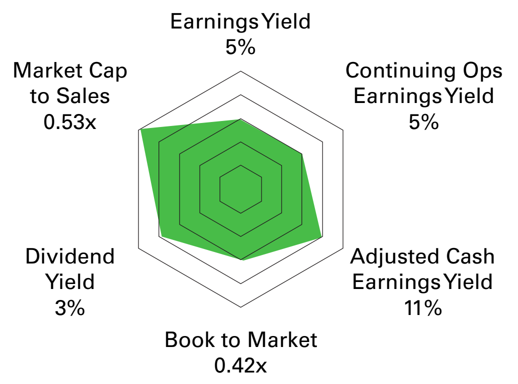
Focus on Target (TGT)

Ticker	TGT
Name	Target Corp
Industry	Discount Stores
Market Capitalization	38,054
TTM Sales	72,940
TTM CFO	3,810
TTM CFO Margin	5%
Mkt Cap / TTM Sales	0.5
Mkt Cap / TTM CFO	10.0
Long-Term Debt	15,516
Shareholders' Equity	16,231
D/E Ratio	96%
Altman's Z-Score	3.2
Beta	0.6
Return on Equity	0.1%

Value Score Factors



The Good, the Bad, and the Ugly

It's been a tough decade for chic discounter Target. A public, acrimonious tussle with hedge fund manager Bill Ackman in 2008, followed close on its heels by the mother of all recessions and more recently by slowing store traffic, a massive credit card data breach scandal, and a botched international expansion.

Yet all that has gone wrong with the company belies all that is right about it. Keep in mind that Target started as just another "five and dime store" back in the 1960s—not unlike the thousands of regional chains operating the same sort of businesses. Target's strategy has been so successful that it has expanded nationwide (though passing up the Green Mountain State for some reason), mopping up its competition as it goes, and not only surviving but thriving in the face of a trend toward the more utilitarian retail model of Wal-Mart WMT and Costco COST.

The further we dug into the company, we found there was a good bit of good, a fair share of bad, and a little slice of ugly all wrapped up under Target's red bow.

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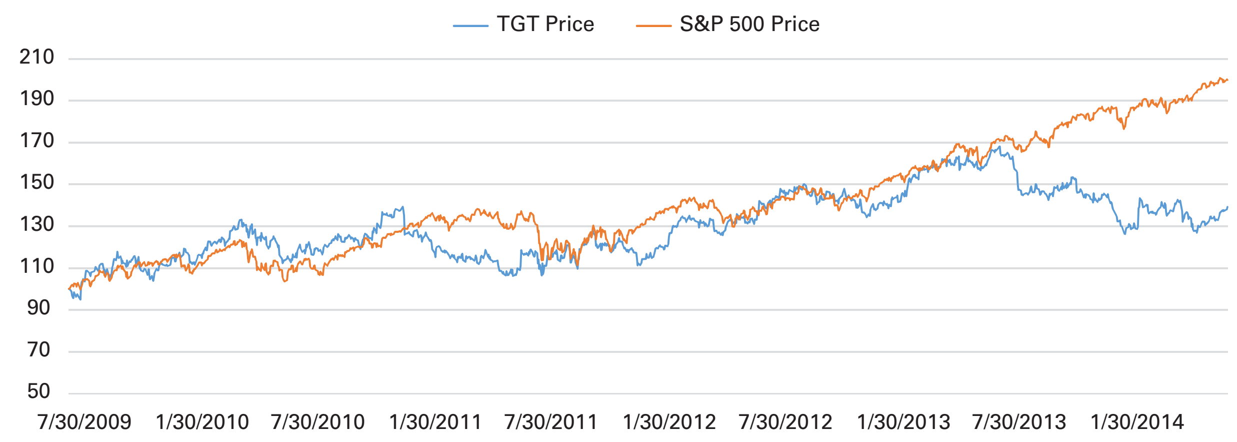
Price of Focus Company vs S&P 500 (Indexed, 5 Years)



The Good

Target's roots are those of a simple neighborhood five and dime store—an outlet for a utilitarian collection of household items that you couldn't find in a hardware or grocery store.

Its closest competitor, Wal-Mart, shares these roots, but is essentially a five and dime on steroids—having refined, perfected, and extended the five and dime business model. Wal-Mart's stores appeal to a demographic one step closer to working class than to the professional class.

Target, in contrast, took the utilitarian five and dime experience and melded it with the ambience of more up-scale department store. A retailer understands that a consumer's decision to shop at its location has as much to do with the shopping experience as it does with the items on the shelves. From its beginning, Target has focused not only on the five and dime pillars of convenient locations and reasonable prices, but on offering chic, differentiated products in well-lit, fashionable store. Its locations appeal to younger customers with a higher average income and education level than Wal-Mart—a demographic one step closer to the professional class than the working class.

Target expanded in its own Midwestern region by building new stores. For expansion on the West and East Coasts, it got its foot in the door by buying a local five and dime chain, rebuilding and rebranding its stores (which were already sited in good, middle-income suburban locations), and building out more stores in nearby areas to solidify its presence in the region. Expansion has slowed since the Great Recession, and for the last few years, the store count is increasing at a rate of about 1% per year.

Rather than spending money on opening new stores, Target has taken the tact of converting its extant general merchandise locations into those with an "expanded food assortment"—basically a full grocery store within the Target store. Figure 1 shows how notable this shift has been in the last three years, especially.

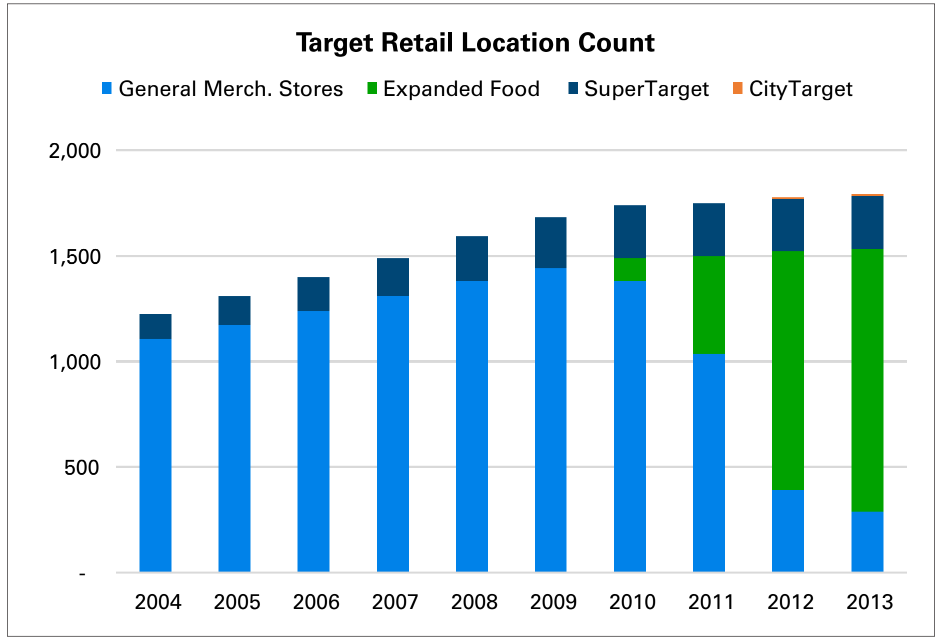


Figure 1. Source: Company Statements, YCharts Research analysis

While revenues and profits per square foot for the grocery areas is not as high as the rest of the store, grocery items bring customers into the stores more often and the more often customers are in the stores, the likelier they are to buy higher margin, non-food items. This is a welcome strategy, especially since the start of the Great Recession, customers tend to visit less often and buy less when they do (discussed under "The Bad" below).

In general, the expanded food assortment stores look to be a smart strategy for the firm; even with uninspiring sales growth, Target has been able to retain higher profit margins than its closest competitors (see also YCharts Competitor Snapshot: Discount Stores).

Despite Target's sensible retailing approach and recent business strategy, there are some headwinds facing the firm. Let's turn to those now.

(continued on next page)

The Bad

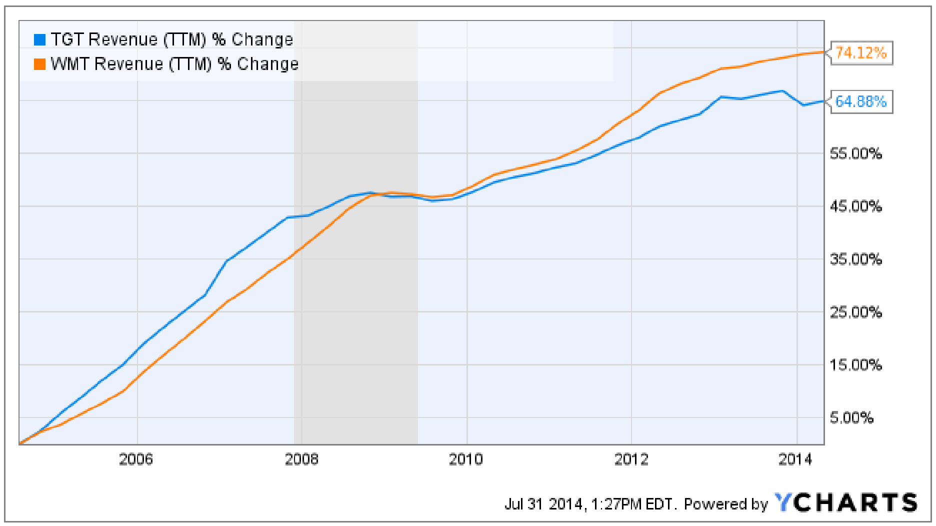
While some may worry about the effect of Internet retailing on Target's sales (the so-called "Bricks versus Clicks" war), a look at the data suggests that this is less of an issue than it is made to be in the press.

In this author's mind, the most troubling headwind facing Target is, in fact, it's the fact that its target demographic's spending power is weakening, perhaps in a more permanent way. In the YCharts Focus Report on clothing retailer Kohl's KSS, we brought up research from the University of New Hampshire Carsey Institute's Kristin Smith showing that since the Great Recession, a greater proportion of household incomes were being generated by female wage-earners.[1]

According to an Ad Age Magazine study, over 60% of Target's customers are women (the majority of which are married) whose typical household income is that between $50,000 and $75,000 per year.

Since the Great Recession, this middle-income group has had a harder time staying in the middle class. Long-term unemployment, underemployment, and personal balance sheet deleveraging are all factors that make it harder for this group to spend as freely as they did before the financial crisis.

This trend suggests that middle-income shoppers might shift their purchasing away from ambiance and toward utility. In fact, a look at the normalized trailing twelve-month revenue trends for Target and utilitarian Wal-Mart bear this hypothesis out.



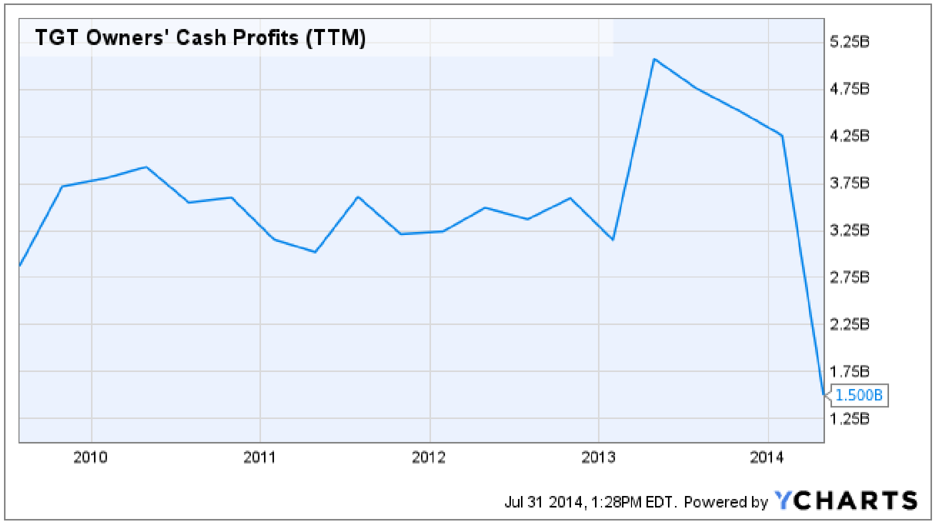
Note that Target revenue growth was strongest in the years leading up to the Great Recession (marked by the gray column), but lagged Wal-Mart's in the years following.

Even Target has slowed the pace at which it is opening new stores in the U.S., it did recently embark on an international expansion. This international expansion, it turns out, has contributed to the second mark in the "Bad" column for the firm.

While it seems laughable, Target attempted just about the simplest international expansion option available—moving into Canada—and still managed to botch that somehow.

While the idea to move into the Canadian market is a sensible one (other U.S. competitors like Wal-Mart have been there for years), Target's execution on the plan fell down at almost every turn. It bought out the leases of a Canadian retailer—over 120 locations in all—paying nearly $2 billion in the process. Unfortunately, though, the retailer whose leases it bought was more closely positioned to a Dollar General DG than to a Target, so many of the locations were ill-suited to Target's target demographic. In addition, poor logistical planning combined with surprisingly unanticipated regulatory hurdles regarding packaging, food quality standards, and the like, contributed to shelves being bare too often and prices being perceived as too high.

Target's costs for its Canadian operations soared, and the retailer's TTM profits took an enormous hit as a result.



1. Smith and her colleague Andrew Schaefer have published an updated study that shows this trend toward family reliance on female breadwinners continues still—five years after the National Bureau of Economic Research's announcement that the Great Recession had ended.

Of course some of this drop is associated with remediation of the credit card data breach problem (discussed under "The Ugly" below), but even if the breach would not have occurred, Target management would be receiving a thrashing for the Canadian misadventure.

One last mark under the "Bad" column deals with the corporate culture at Target. Time and time again while researching Target, this author has found instances where Target's institutional conservatism has put it a step or two behind competitors and the market as a whole. For example, it has been slow to embrace Internet retailing compared to its competitors, slow to look north of the border for revenue growth[2], slow to get rid of its credit card operations, and slow to incorporate grocery items into its retailing strategy.

Despite what many hedge fund owners seem to think, retailing is no simple thing. A retailer that fails to keep up with changes in the way its customers like to shop or the items its customers want to buy is going to suffer. The fact that retailers, once established, control a certain territory by virtue of their location means that retailers are less likely to suffer precipitous drops in revenue or profitability like a consumer products company might. However, as we have seen in the case of Sears Holdings SHLD and JC Penney JCP, eventually, the results look similarly ugly.

The Ugly

There is no other way to say it. Target's data breach—occurring and announced at the absolute worst possible time of the year for a retailer—was a self-inflicted wound.

The attack was a simple, ham fisted one; Target's security system in fact was alerted to the breach, but for whatever reason, nothing was done internally until the federal authorities notified Target that it had a problem on its hand.

The CEO resigned over the mistake. In this author's view, some portion of his previous compensation should be disgorged as well.

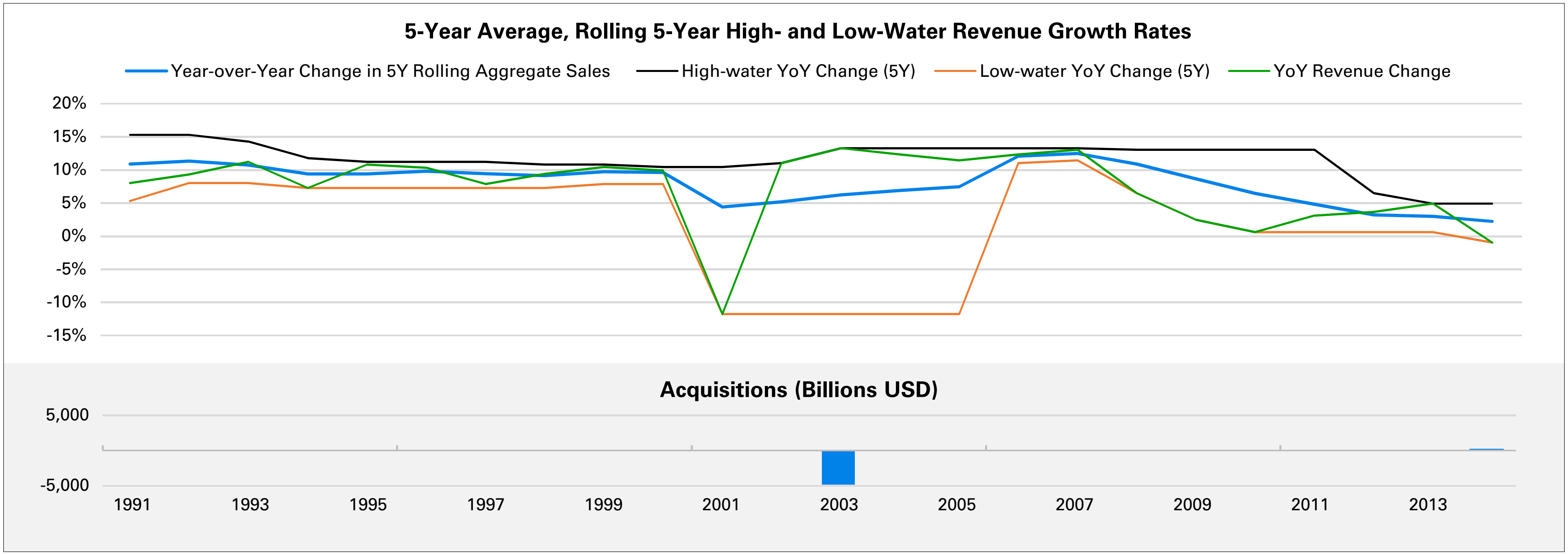
The head of data security resigned over the mistake. In this author's view, whatever bonuses she had received during her tenure as head of data should certainly be disgorged.

Institutional Shareholder Services, a company that advises institutional shareholders on governance risk and guides them on proxy votes has recommended that seven out of 10 of Target's present board members be voted out. This author cannot agree more.

2. This is despite the fact that Target is based in Minnesota, so all of its stores in the south and west of the U.S. are geographically more distant than its new Canadian stores.

Corporations can and do overcome severe reputational blows. Johnson & Johnson's handling of the 1982 Tylenol poisoning spree comes to mind. Target's steps to install smart-chip enabled card readers in all of its stores is a good first step. Whether Target's apparently insular and conservative culture will allow it to continue to make the changes necessary to regain its consumers' trust and excite them enough to come back to the stores, only time will tell.

Valuation Drivers: Revenues

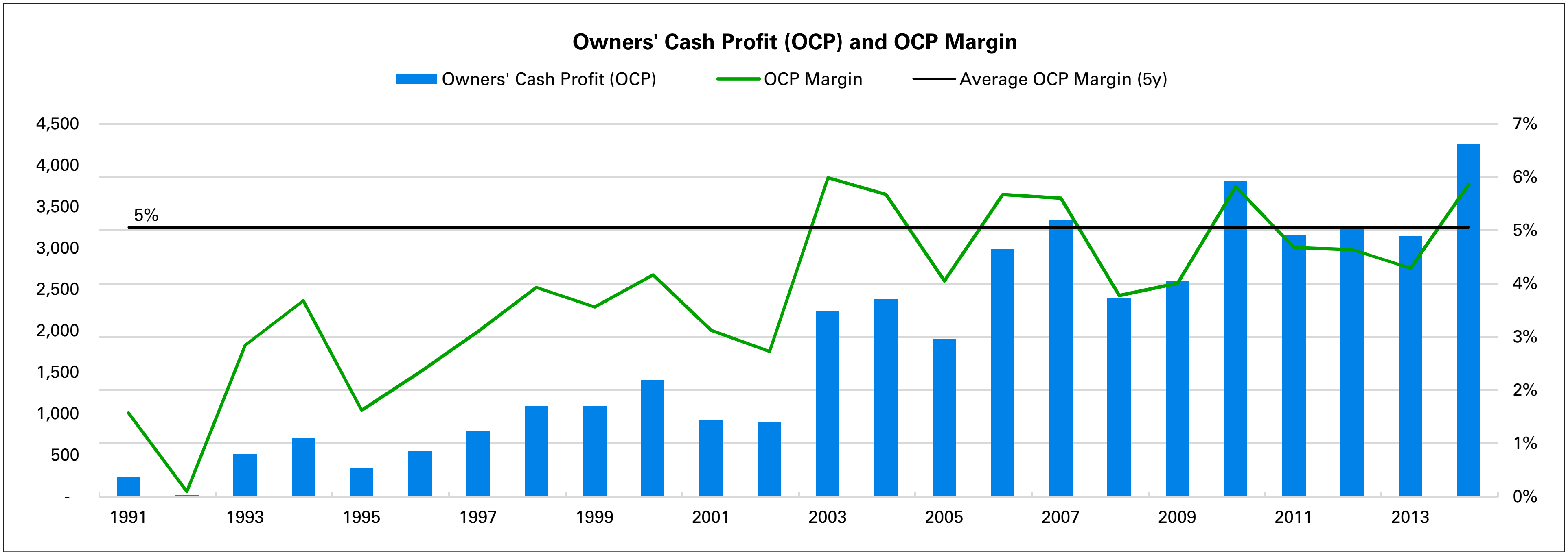


The big drop in 2001 is an artifact of the data. Note the large divestment in 2003—this is Target's sale of both Mervyn's and Marshall Field's department store chains. Target restated its revenue data the required three years before the divestment, making 2001 revenues look like they have fallen off a cliff.

Until the onset of the Great Recession, Target had consistently increased its store count by about 7% per year. This new store growth plus strong same-store sales growth meant that Target has enjoyed revenue growth near the 10% level for years. However, as post-recession economic weakness caused middle-income customers to spend less and Target store openings slowed to about 1% per year, revenue growth has slowed. Target is trying to pull customers in for groceries and expanding into Canada to boost growth now.

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

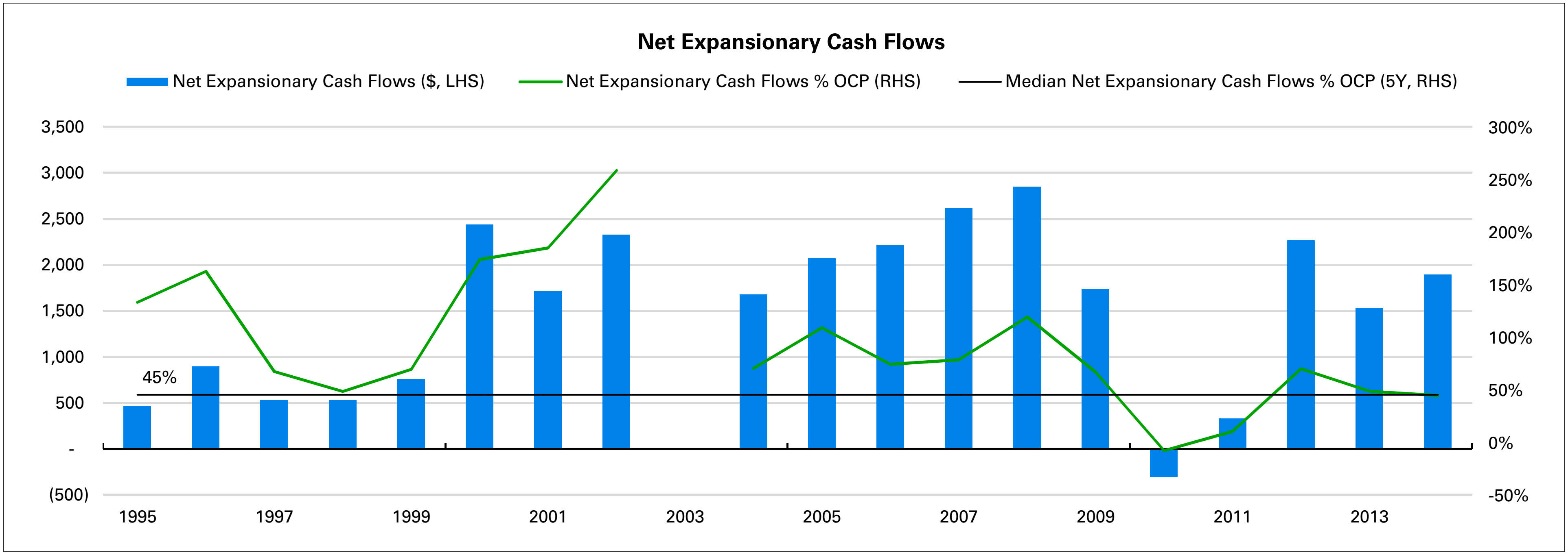


The notable increase in profit margin in the fiscal year 2014 may surprise you considering the data breach during the 2013 holiday season (FY2014 contains most of calendar 2013 and one month of 2014). This boost is due to working capital freed up after the sale of Target's credit card operations early in FY14.

We found in YCharts Competitor Snapshot: Discount Stores that Target generates higher profit margins than its largest competitors, Wal-Mart and Costco. This profitability is due to Target's relative balance toward the chic in cheap chic.

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.

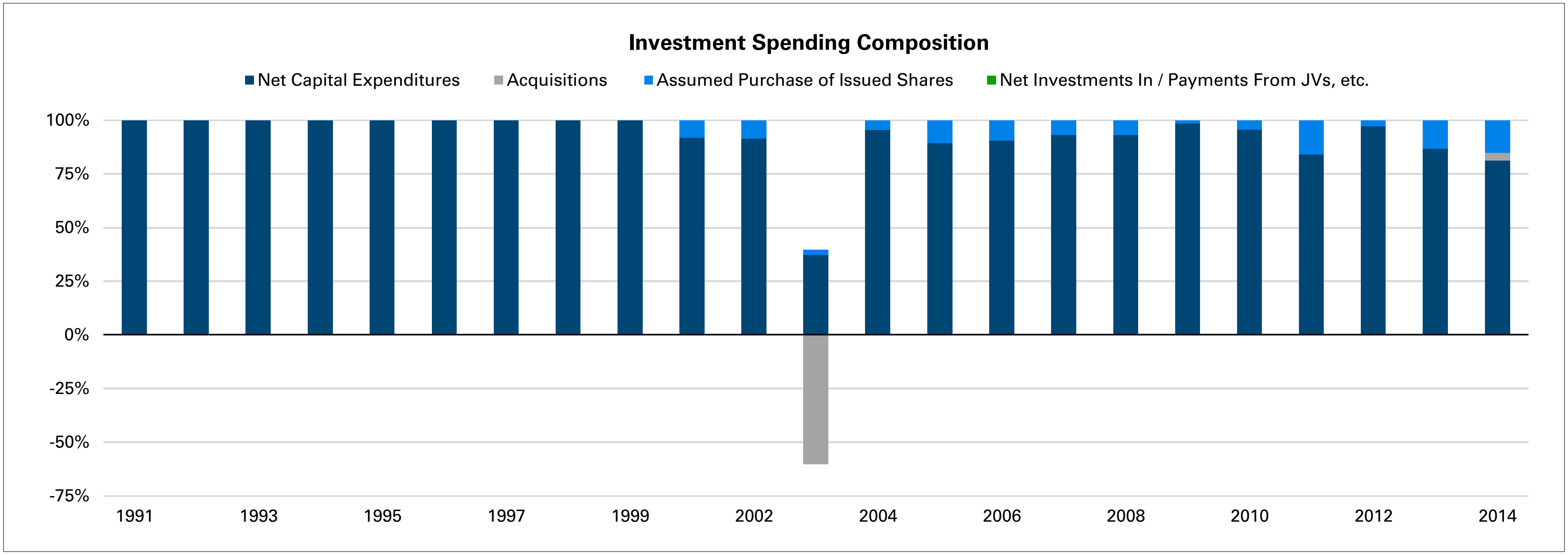
Valuation Drivers: Investment Level



Note that due to the large divestment in 2003, we have removed those data from this chart to improve clarity. Investment levels were very high for years—hovering in the 75% of OCP level—until the Great Recession. Target's conservatism has served it well in this case, as it is working on pulling customers into its existing stores rather than spending a lot of owner capital to build new ones.

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

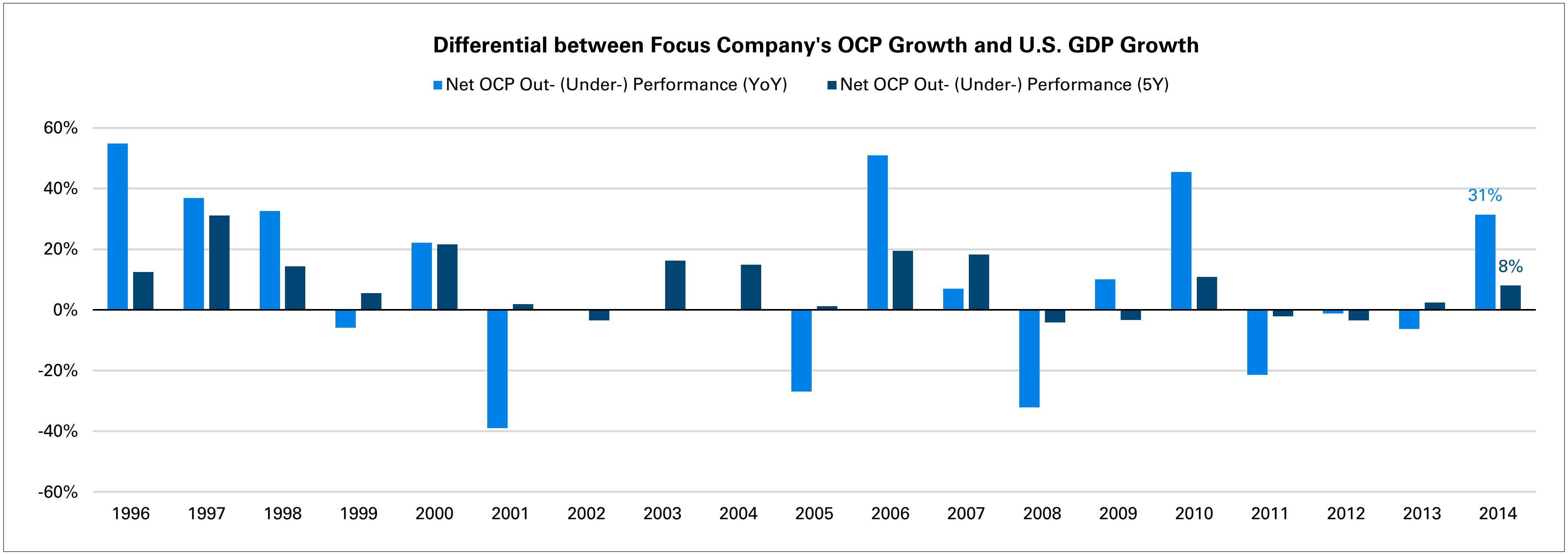
Valuation Drivers: Investment Level (continued)



This is a pretty simple story. Most money is spent on building new stores and redecorating old ones. The company issues shares as a method of back-door compensation, but one would be hard pressed to find a modern U.S. company that does not. The big negative value in 2003, is the divestment mentioned in the Revenues section above.

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

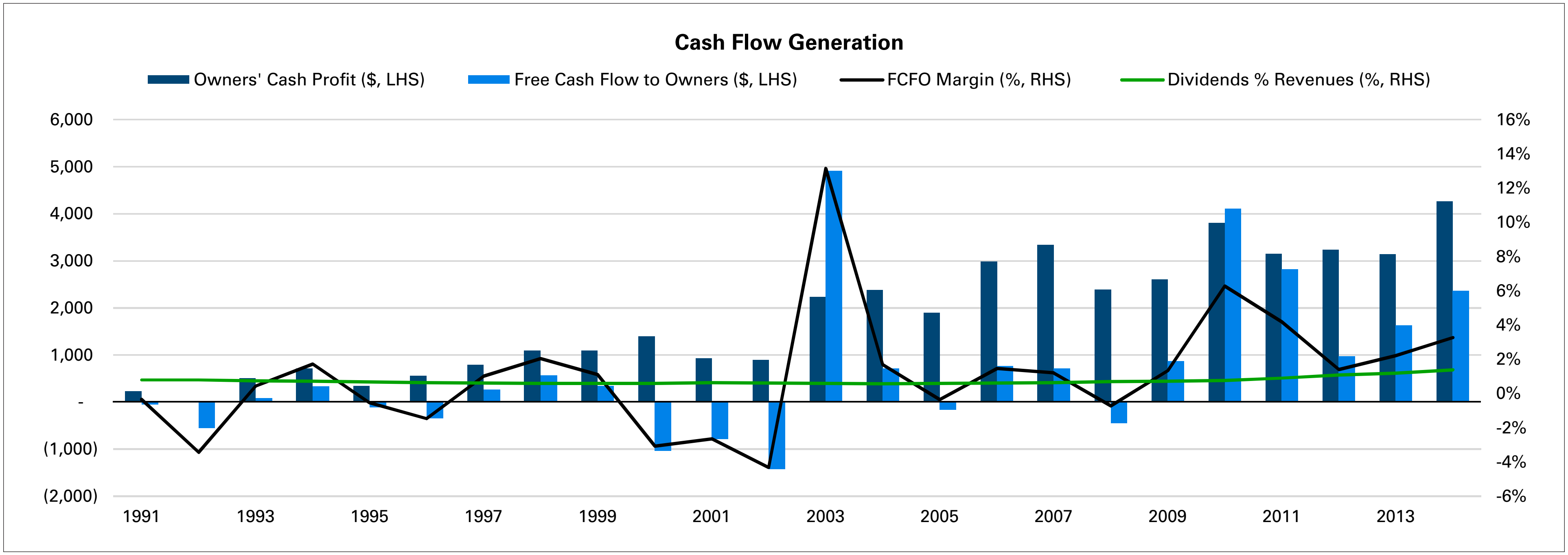


The notable profit growth outperformance shown in 2014 is an artifact of the data. Target sold its credit card operations in FY2014 and this freed up a great deal of working capital; it is this effect that you are seeing in the graph.

Since just before the onset of the Great Recession, Target has struggled to keep its owners' profits growing as fast as the economy at large. In our opinion, Target's OCP growth will only be able to outpace U.S. economic expansion when and if Target can boost its revenue growth again. In the U.S. there seem to be structural constraints to its doing so—as middle income families continue to be financially stretched—so Target has embarked upon an international expansion. The Canadian foray has, however, been extremely costly and will end up putting a serious crimp on profit growth over the next year. Added to this jump in costs are costs associated with remediation of its data security set up.

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

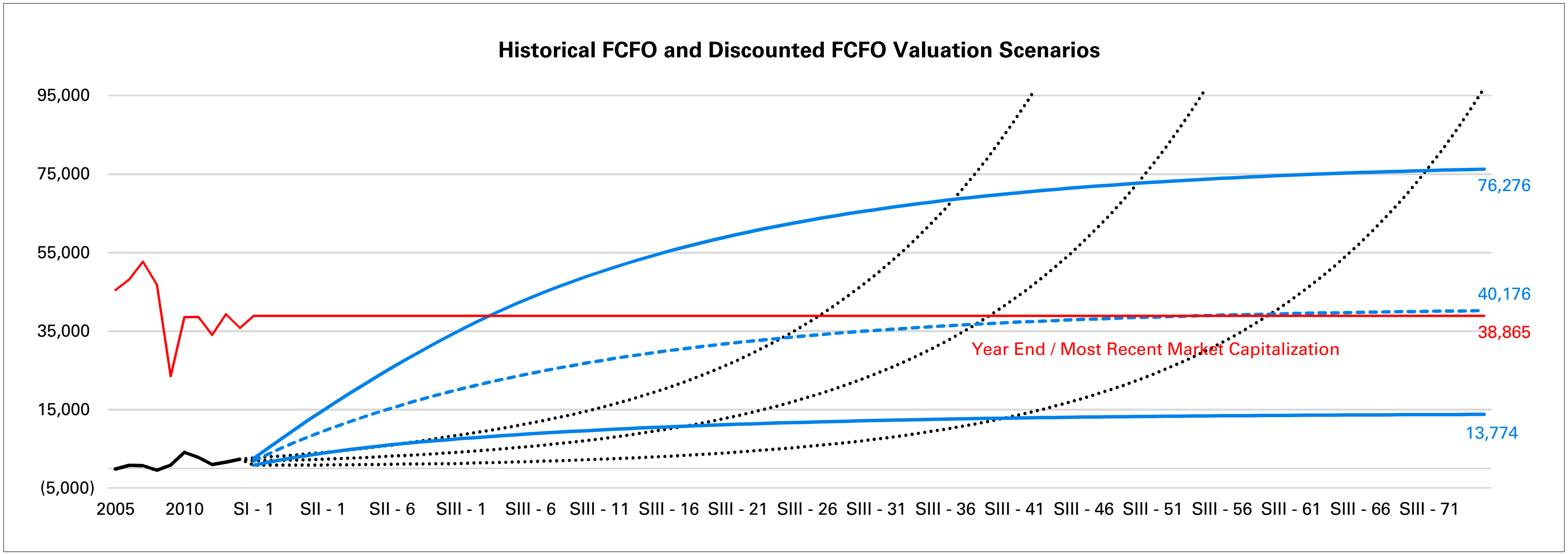


In good times, Target owners can expect to lay claim to about $0.02 of every dollar of revenues. As we saw in a previous chart, during some years in the past, expansionary cash outflows have been at 100% of OCP or above, implying negative FCFO margins.

The big rise in FCFO margin in FY2010 has to do with the firm not building as much inventory (which boosts operational cash flows) and a simultaneous slowdown in the number of new stores it was building—all as a response to the onset of the Great Recession.

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



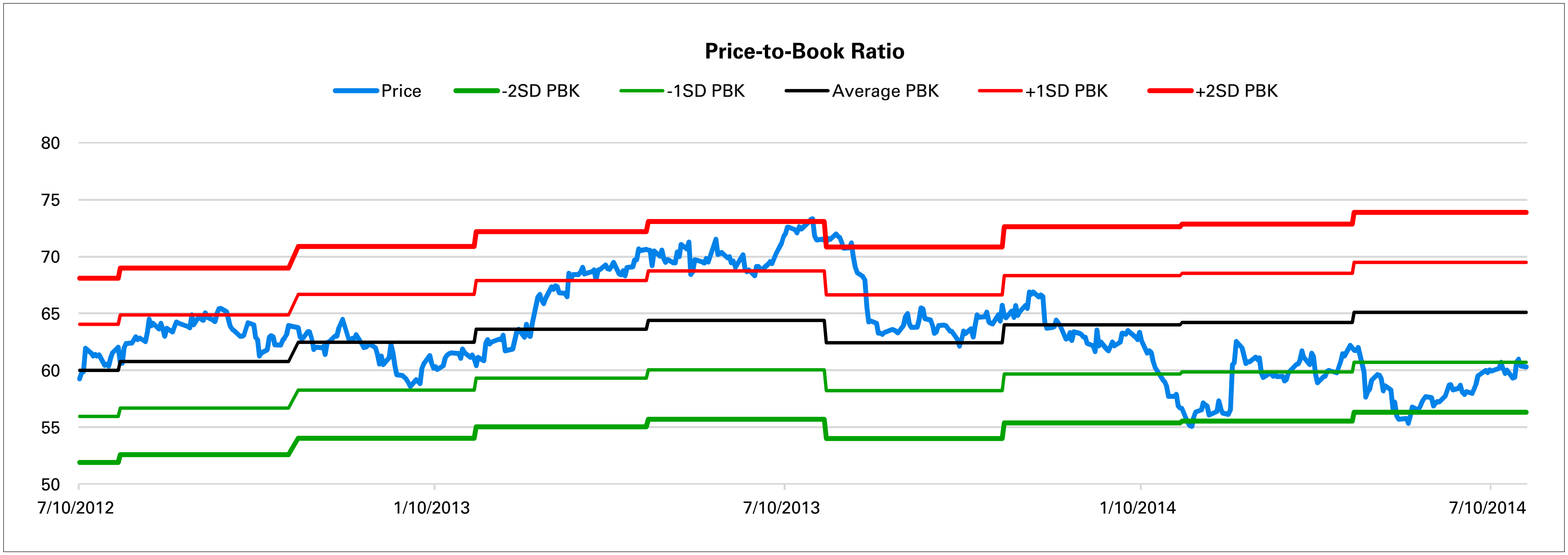
We used the following inputs to generate our valuation range.

	Likely	Worst	Best
Revenue Growth	3%	0%	9%
OCP Margin	5%	3%	5%
Expansionary % OCP	45%	60%	32%
Medium-term Growth (10-year)	6%	4%	8%
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.

With the assumptions above, we calculated a fair value range for the firm of $22-$120 with a median case valuation of $63 / share. The median case valuation is about what the shares are trading for right now and the downside looks definitely unappealing to this investor.

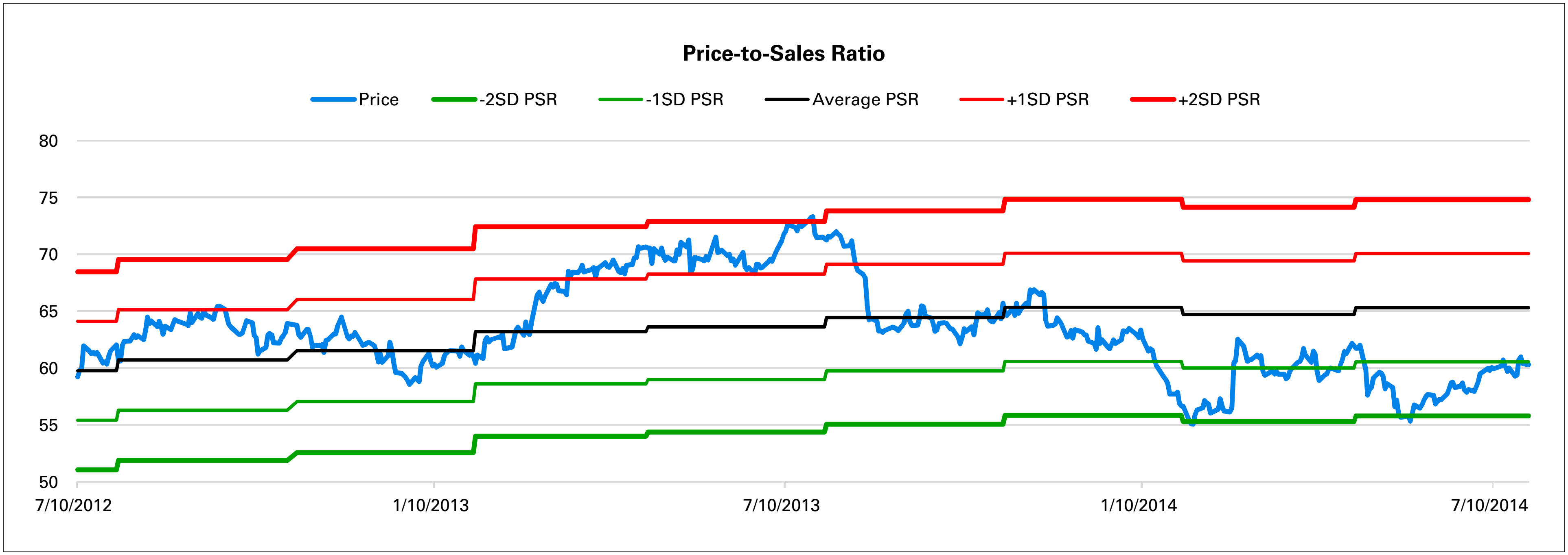
Market Multiples: Price to Book Ranges



Because of the influx of cash related to the sale of the credit card business, price-to-book for Target looks attractive at present levels. Considering the operating environment, we believe this ratio is not particularly informative at present.

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



Again, price-to-sales looks misleadingly attractive at present.

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)
WMT	Wal-Mart Stores Inc	238.1B	15.8B	24.4B	26.7B	477.3B	202.7B	73.1B
COST	Costco Wholesale Corp	51.6B	2.0B	3.1B	3.2B	109.6B	32.7B	11.8B
DG	Dollar General Corp	16.9B	1.0B	1.6B	1.7B	17.8B	10.6B	4.8B
DLTR	Dollar Tree Stores Inc	11.4B	0.6B	1.0B	1.0B	8.0B	3.0B	1.3B
FDO	Family Dollar Stores Inc	8.5B	0.4B	0.5B	0.6B	10.4B	4.0B	1.7B
TGT	Target Corp	38.1B	1.9B	3.0B	3.6B	72.9B	44.0B	16.5B

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)
WMT	Wal-Mart Stores Inc	0.65	0.91	6%	2.35	8%	2.77	22%
COST	Costco Wholesale Corp	0.65	0.97	3%	3.35	6%	2.77	17%
DG	Dollar General Corp	0.63	0.94	10%	1.68	9%	2.21	21%
DLTR	Dollar Tree Stores Inc	0.60	1.00	13%	2.67	20%	2.31	46%
FDO	Family Dollar Stores Inc	0.80	0.83	6%	2.60	10%	2.35	24%
TGT	Target Corp	0.63	0.83	5%	1.66	4%	2.67	12%

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
WMT	Wal-Mart Stores Inc	8.9B	-2.4B	24.3B	5%	12.0B	3%	2.6%
COST	Costco Wholesale Corp	0.9B	0.4B	3.7B	3%	1.6B	1%	1.2%
DG	Dollar General Corp	0.3B	0.0B	1.3B	7%	0.8B	4%	0.0%
DLTR	Dollar Tree Stores Inc	0.2B	0.0B	0.9B	11%	0.6B	8%	0.0%
FDO	Family Dollar Stores Inc	0.2B	-0.2B	0.4B	4%	-0.1B	-1%	1.7%
TGT	Target Corp	2.2B	-0.2B	3.8B	5%	0.7B	1%	3.5%

Multiples and Misc.

Ticker	Name	PS Ratio	PB Ratio	EV / EBITDA	P/E Ratio	P/FCF	Altman Z-Score	Beta
WMT	Wal-Mart Stores Inc	0.5	3.3	8.3	15.2	20.1	4.4	0.44
COST	Costco Wholesale Corp	0.5	4.4	11.9	26.3	33.1	5.5	0.57
DG	Dollar General Corp	1.0	3.5	9.8	17.3	21.1	4.4	0.25
DLTR	Dollar Tree Stores Inc	1.5	8.7	10.0	19.5	21.0	NA	0.35
FDO	Family Dollar Stores Inc	0.8	5.1	11.1	24.4	-	5.7	0.39
TGT	Target Corp	0.5	2.3	8.9	20.3	55.1	3.2	0.61

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

> *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.*

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 services[1], 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 NKE Phil Knight said about his company's transition from supply- to demand-constraint in a 1992 Harvard Business Review article[2]:

> *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.

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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.

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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 low[5], 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 first find a way to quantify how much of the owners' profits the firm is spending on expansionary investments.

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

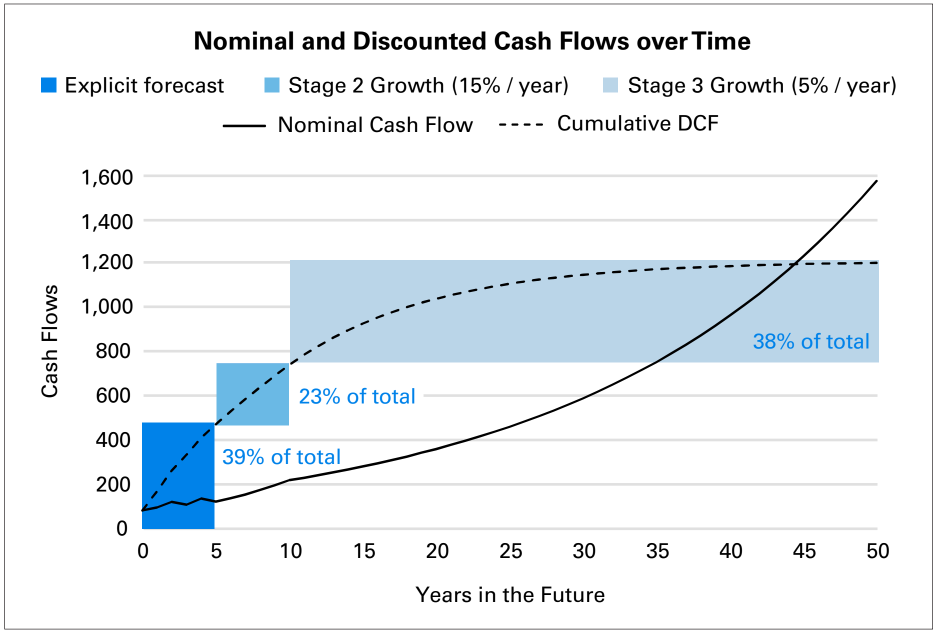

Figure 1.

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 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.

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.

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

6 There 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.

7 There 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 that 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 / sec^2, neglecting wind resistance. Stocks conform to no such physical constants.

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