

This is How Union Pacific (UNP) Rolls

A look at valuation drivers for the nation's largest railroad

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Key Takeaways

Research by:

• Union Pacific is one-half of a rail duopoly controlling the Western US. The other duopoly partner is Buffett's Burlington Northern Santa Fe.

• We believe that railroads are an instrument of US economic, social, and political policy. Government regulators changed gear in the 1980s and 1990s, moving from strict anti-monopolists to tacit supporters. We believe this support is crucial for UNP and other rail operators to generate their present high level of profits.

• UNP's revenue growth has generally mirrored nominal GDP growth. However, this relationship is masked by the inclusion of fuel surcharges.

- We believe that several of UNP's important cargo lines Coal and "Intermodal" – face secular weakness. Together, these cargoes make up over a third of revenues.
- **Profitability on an OCP basis is higher than many Tech firms.** Government rules create an environment in which our high profitability estimates are likely understated by roughly 20%.
- The firm spends roughly 45% of its profits on expansionary projects. These projects have been successful in allowing UNP's profits to expand at a very rapid rate since the end of the Great Recession.
- This report is not a valuation, but rather an analysis of valuation drivers. We will publish a valuation report and Tear Sheet soon.

Introduction

Railroads were built in the 1800s as what we would term today as "public-private partnerships." The passage of the Sherman Anti-Trust Act in the early XX century was directed at Standard Oil and the railroads, and for a good part of that century, the government kept a close rein on these firms.

However, the environment began to change in the mid-1970s, and railroading was one industry that was materially changed by the deregulation movement of the mid-1990s.

UNP – the largest publically traded US railroad by market capitalization and the railroad with the most miles of track in the US – and its owners have profited handsomely from this change in regulatory environment.

While this report does not place a fair value on UNP, it is an excellent learning example of IOI-style valuations. We spend a lot of time understanding the dynamics of the demand environment and look at profitability from the standpoint of an owner of the firm.

Please contact us with any questions.

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Company Overview

Long considered a crowded, over-regulated, low-return industry, railroads have enjoyed a resurgence over the past two decades thanks to consolidation, track decommissioning, high oil prices, and government support / regulatory leniency. The largest railroad companies – termed Class I Rail Carriers – dropped in number from over 100 in 1960 to just eight today (seven freight haulers and Amtrak) and roughly a half of all owned rail track was decommissioned over this time.¹

Structural factors such as consolidation and track miles are set, but competition from other modes of transportation (which is partially a function of oil prices) is increasing and government policy may change as well. These changes are likely to affect the value of all the Class I firms over time.

A System of Regional Duopolies

A succession of laws was passed designed to revitalize rail transport in the US starting in 1976.

Law	Year	Note		
Railroad Revitalization and Regulatory Reform Act	1976	Railroads were granted the ability to increase rates within a 7% "zone of reasonableness."		
Staggers Rail Act 1		The Interstate Commerce Commission's (ICC) authority over rates was further diminished. Railroads could charge whatever prices they wished, as long as competition existed.		
ICC Termination Act	1995	The ICC, which had been established in 1887, was replaced with the Surface Transportation Board. The STB fell under the Department of Transportation, which, shippers maintain is more interested in transportation policy than anti-trust enforcement.		

These laws and the "free market" approach favored by politicians during the Clinton Administration (recall the repeal of Glass-Stegal also occurred around this time) encouraged consolidation and continued operational rationalization.

The capstone of railroad mergers occurred in 1995-1996, when Burlington Northern merged with Santa Fe and Union Pacific merged with Southern Pacific. These transactions set up the regional duopoly structure we see today. The funneling down to four main freight players in the U.S. starting in the 1960s is shown in the figure below.

¹ <u>The Geography of Transport Systems</u>, Hofstra University. Compiles data from various sources.





Figure 1.Source: Fortune Magazine, Railroads: Cartel or free market success story?

Union Pacific and Berkshire Hathaway-owned Burlington Northern Santa Fe control the country west of the Mississippi. CSX and Norfolk Southern control the East as shown in the figure below. (The other three Class I freight haulers – Canadian Pacific, Canadian National, and Kansas City Southern – either run north/south (CN and KCS) and / or are predominantly transporting in Canada. The four companies shown in the figure represent roughly 90% of all US rail business).



Figure 2. Source: Fortune Magazine, Railroads: Cartel or free market success story?

Essentially, this leaves shippers with two competitors per region, but many shippers believe there is collusion between the nominal competitors and the railroads are indeed exempt from certain rules related to monopolies.

Railroad companies argue that they are not monopolies due to the fact that alternate forms of freight transportation exist.² This argument is strongest for areas near coasts or waterways, but try telling a Kansas wheat farmer that he should get his crop to market by barge. Also, due to the much greater efficiency of rail,³ for loads that have a low value-to-weight ratio (e.g., wheat, coal, sand, etc.), there is no realistic alternative choice for shippers. Beginning in the early- to mid-aughts, railroad companies began repricing contracts, which led to significantly increased costs to shippers. We will show the effect of these repricings in the Profitability section below.

Monopoly power and likely tacit government ascent allowed for railroads to aggressively raise prices in the mid-aughts In addition to increasing nominal hauling rates, rail transporters began adding fuel surcharges (discussed in the Revenues section below), other fees (such as for storage), and encouraging shippers to buy their own "rolling stock" (i.e. railcars).⁴ The sum total of these actions has been to increase the cost of rail shipments by hundreds of percent in some cases, and has led to years of legal challenges (which railroads have thus far come out ahead).

Among the complaints of shippers is that the regulatory agency – the Surface Transportation Board – makes it difficult, expensive, and time-consuming to bring rate cases (i.e., disputes regarding the rates being charged by these regulated "utilities") – so much so that it is

² Railroads also point out that unlike trucking companies and barges, which use mainly use infrastructure maintained through public spending, Class I firms must build and maintain their own infrastructure.

³ Hauling freight by rail is hugely more fuel efficient than trucking or (obviously) air – one ton of freight can be hauled 500 miles by rail on one gallon of diesel fuel, for instance.

⁴ The US International Trade Commission mentions in its report <u>Rolling Stock: Locomotives and Rail Cars</u> that there has been a clear trend for Class I railroads to reduce their share of rolling stock, shifting the economic burden of these purchases to shippers and leasing companies.



virtually impossible to do so. Shippers, especially "single-served shippers" (i.e., those served by only one line) complain that consolidation leaves them at the mercy of a tacitly unregulated monopoly power.

Through our research, we believe that there likely is a semi-official, tacit government policy favoring railroads. Especially in an era of increased focus on air quality and of stretched municipal and state budgets, the railroads' ability to transport freight in a fuel-efficient way while, at the same time not depending on public funding for the majority of its transport infrastructure is likely very attractive to the executive branch of government. Individual senators are outraged (especially those whose constituents are disproportionately single-served shippers), but have been unable to pass legislation requiring beefier oversight.

Union Pacific

Union Pacific is the largest publicly traded Class I railroad in the US by market capitalization and by miles of track (32,000+). Its western-states competitor, Burlington Northern Santa Fe (BNSF), was acquired in 2010 by Buffett's Berkshire Hathaway at an <u>implied market</u> <u>capitalization of \$34 billion</u>. UNP's market capitalization at that time was roughly \$30 billion.

BNSF's total miles of track is just under that of UNP's.

Table 1. Source: YCharts (4/21/2016)

Company	Market Cap (\$MM)	Price to Book Value	Dividend Yield (TTM)	Operating Revenue (Annual YoY Growth)	Owners' Cash Profits Margin (TTM)
CSX (CSX)	25,684	2.22	2.6%	-7%	19%
Norfolk Southern (NSC)	24,679	2.02	2.9%	-10%	17%
Union Pacific (UNP)	74,518	3.60	2.5%	-9%	24%

The company does not operate in Canada (BNSF does), nor does it operate in Mexico, but it does have facilities at all six access points on the US-Mexico border.



Figure 3. Source: YCharts (4/21/2016)



Revenues

Over the last 10 years, UNP has generally been able to expand its revenues in the mid to high single digit range. When we began analyzing UNP, this relatively brisk revenue growth rate surprised us as we were expecting something closer to GDP growth. The dynamics that contributed to this growth rate are discussed below.



Figure 4. Source: Company Statements, IOI Analysis

Revenue Dynamics

UNP transports various cargoes, and splits out the revenues it generates from each type. Share of revenues and share of carloads are shown in the graphs below.





Figure 5. Source: Company Statements, IOI Analysis

Agricultural

The number of UNP's agricultural carloads have been nearly flat (rolling growth rate of 0.2% from 2000-2015), but revenues have grown at a brisk 5.6% rate. This disconnect is due to repricing of contracts (senators from both Wisconsin and Minnesota have complained about their agricultural manufacturers being taken advantage of as single-served shippers) and fuel surcharges. And for as much as Michal Pollan talks about industrial farming, usually agricultural shippers are smaller businesses, so have less negotiating power when dealing with UNP or the other Class I railroads.

The timing of the drastic repricing is obvious from the chart below.



Figure 6. Source: Company Statements, IOI Analysis



Automotive

Automotive shippers are larger and thus have more negotiating power versus the railroads. In addition, the biggest port for Asian cars – Los Angeles – is a terminal for both UNP and BSNF. These differences lead to a much less shocking comparison between revenue and volume than that which we saw in the Agricultural segment. Carloads have increased at a 1.3% rate over the time pictured (RGR basis) while segment revenues have increased at 5.0%. We think most of the difference is likely due to fuel surcharges.

Note the brisk growth in carloads since 2010 in the graph below. We believe this represents pent-up consumer demand for automobiles in the post-Crisis period.



Chemicals

The degree to which revenues for the transport of chemicals has grown faster than the carloads surprise us.



In the Fortune article mentioned above, we found an interesting quote from a purchasing officer at DuPont which spoke to the pricing dynamic with railroads:



Keith Smith, the chief procurement officer at chemical giant DuPont, says the company used to start contract talks with railroads a year in advance to leave plenty of time for discussion. But after 2004, he says, the railroads were no longer willing to negotiate. "We saw rate increases on average of 100%," says Smith. "At the end of the day, there was less effective competition. That's the bottom line." DuPont says the combination of higher rates and increased fees puts it at a disadvantage to foreign importers, which can cherry-pick ports with access to multiple railroads.

Spot checking chemical prices during the mid-aughts, we think it is possible that railroads priced their transit services opportunistically, working out pricing such that they essentially forced chemical companies into a profit sharing agreement.

Carloads have increased at a 1.1% rate over the time pictured (RGR basis) while segment revenues have increased at 5.4%.

Coal

Most of the coal that UNP carries comes from the Powder River Basin of Wyoming and is destined for domestic coal-fired power plants. Coal is a commodity that – between an increasing political and social emphasis on the clean generation of electric power and recent low natural gas prices – is, we believe, destined to die off over the next 20 years. We can see that this trend looks as if though it has already started:



Figure 9. Source: Company Statements, IOI Analysis

Carloads have decreased at a 1.2% rate over the time pictured (RGR basis) while segment revenues have increased at 2.2%.



Industrials

UNP's industrial freight volumes and revenues rose since the Great Recession, but had been in a decline for several years prior. The company blamed a slowdown in government shipments related to the winding down of the Iraq war and a slowing housing market. Transport of fracking supplies acted as a volume tailwind from the 2010-2014 period and a headwind in 2015.

Carloads have decreased at 0.9% rate over the time pictured (RGR basis) while segment revenues have increased at 4.3%.



Figure 10. Source: Company Statements, IOI Analysis

Intermodal

Shipping containers, which began to be standardized and widely used in the late-1960s and early 1970s revolutionized freight transport. The same steel box can be stacked on ships, moved to a flat-bed train car by crane at a major port, moved by rail across the country, unloaded onto the back of a flat-bed truck at a train terminal, and moved to the nearby Best Buy shipping dock.





Figure 11. Source: Wikipedia

If you refer back to the pie charts in Figure 5 (page 7), you'll notice that while Intermodal shipments only make up one-fifth of revenues, they make up nearly two-fifths of carloads. Intermodal shipments move <u>significantly faster than other cargoes</u> on all carriers' tracks, which is likely at least partially responsible for this discrepancy – the fact that the containers can be stacked and shipped double-decker is also likely a factor.

This is a good business for UNP; its revenue growth post-Crisis was several percentage points higher than that of the other segments combined. Also, as you can see in the figure below, it has good pricing power in this business, so it is likely quite profitable for UNP.



Figure 12. Source: Company Statements, IOI Analysis

However, improvements to the Panama Canal may end up having a knock-on negative effect on this relatively high-growth, presumably high-profitability business.

The Panama Canal is being expanded and improved to permit larger cargo ships and East Coast ports are responding by increasing capacity. This means that some percentage of



the intermodal containers that had been shipped by rail from LA will likely go through the Panama canal and bypass UNP's network altogether.

Progressive Railroading <u>estimates</u> that at present, roughly 65% of imports from China arrive into West Coast ports. At the same time 70% of the population of the US lives east of the Mississippi, so it makes sense that some of the cargo ships that had unloaded in LA will move through to Miami and other East Coast ports.

A back-of-the-envelope estimate suggests that over time, UNP's Intermodal business may fall by roughly one-quarter to one-third of its present levels.

Overall

To sum up what we've seen in these diagrams in tabular form, we have this:

Segment	Volume	Pricing Power	Notes
Agriculture	Stable	High	Captive customers
Automotive	Cyclical	Low	Top of cycle now?
Chemicals	Stable	High	Pricing power depends on chem prices?
Coal	Declining	High	Secular decline
Industrials	Cyclical	Moderate	Resurgence in US manufacturing now?
Intermodal	Declining	Moderate	Panama Canal is an overhang

Table 2. Source: Company Statements, IOI Analysis

One thing that we have not discussed is the effect of fuel surcharges on revenue growth. UNP reports that these surcharges only partially subsidize increasing diesel costs; shippers claim that the surcharges are calculated on the entire shipment price, not only on the fuel costs, and are a sign of its monopolistic power.

Whichever is right doesn't matter as much as what the revenue growth has been once the surcharges are reversed out. Growth over the 1999-2015 period was 3.7% – practically at the same rate as nominal GDP growth during this period suggests that, sensibly, UNP's revenue growth mirrors the growth of economic activity in the US.



Profitability – Owners' Cash Profits⁵

Aggressive pricing brought by near monopolistic power and what we think is the tacit collusion of government regulators has allowed UNP to become phenomenally profitable. We believe the profit margins shown below actually understate UNP's true capacity to generate profits for reasons we discuss below.

If we are correct that UNP is a tool of social policy and is generating profits at the "pleasure of the crown," we should consider how likely it is that this arrangement will continue and for how long.



Figure 13. Source: Company Statements, IOI Analysis

⁵ Please see the Glossary for a detailed explanation of this measure.



Profit Dynamics

Usually, we are suspicious of long historical series of company data; companies buy and sell related businesses, expand into different regions and countries, etc., and these changes make comparability problematic in our opinion. However, in the case of UNP, we believe the comparability issue is lessoned and in fact, think that viewing a longer historical series is helpful in understanding the shocking profitability improvement the company has enjoyed over the past fifteen years.



Figure 14. Source: Company Statements, IOI Analysis

The lower average of the 90s compared to the aughts may be due to the fall seen in 1998. However, by the late aughts, we start seeing the level of profits move up; slowly at first, then strongly – eventually doubling over the period of a few quarters.

What's more, we believe that the profitability shown here is actually understated due to a special law designed to stimulate weak growth called "bonus depreciation."

Depreciation is a non-cash charge that allows companies to reduce taxable income when making capital expenditures. The idea is that when a company buys a machine for \$100 that will last 10 years, it will need to set aside \$10 per year to buy another piece of equipment when the first piece wears out. This \$10 per year is the non-cash cost of depreciation. This non-cash costs lowers pre-tax income, so the company's tax burden is lowered.

In times of economic weakness, Congress enacts stimulus spending laws designed to provide incentives for companies to spend on capital projects. Starting in the early 2000s, Congress passed laws allowing for companies to charge "bonus depreciation."

For instance, under a bonus depreciation regime, a company buying a 10-year, \$100 piece of equipment might be able to charge \$50 or even the full \$100 of depreciation in the year it buys that equipment.

This added charge pulls down pre-tax income. In a sense, the government is subsidizing the purchase of the equipment.

Bonus Depreciation is not effective as a stimulus measure, but it is making railroads as rich as Croesus. Congress has allowed the railroads to enjoy this bonus depreciation rule for most of the last 15 years even though numerous experts have said that <u>bonus depreciation does not</u> <u>stimulate capital spending</u>.

IOI calculates profitability using a measure called Owners' Cash Profits (OCP) which is Cash Flow from Operations adjusted for an estimate of required maintenance capital expenditures. For an estimate of maintenance capital expenditures, we generally use an



depreciation adjusted for inflation. Since the amount of depreciation is overstated from "bonus depreciation", our estimates of profitability are understated.

Our back-of-the-envelope calculations suggest that OCP margin would likely be about 20% higher were bonus depreciation not charged. That would put OCP margin at around the 30% level – not too much different from database giant Oracle and much better than its tech competitor, IBM.



Investment Spending and Free Cash Flow to Owners⁶

Over the past few years, UNP has spent around 45% of our estimate of Owners' Cash Profits on Expansionary Spending. Deducting this spending from profits, we find Free Cash Flow to Owners margin is generally in the low double-digit percentages.

The investment spending UNP has undertaken has enabled profit growth that is much faster than the economy at large over the last few years. Indeed, efficiency and safety is improving as a result of UNP's investments.



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⁶ Please see the Glossary for a detailed explanation of this measure.



Glossary

Here, we discuss IOI's proprietary measurements of Owners' Cash Profits (OCP), Expansionary Cash Flows, and Free Cash Flow to Owners (FCFO).

Owners' Cash Profits (OCP)

This is a measure of profitability similar to Buffett's Shareholder Earnings.

Given the emphasis we have placed on the importance of cash and the flow of cash, it makes sense that we will find most of the information essential to valuing a company by analyzing the Statement of Cash Flows (SCF).

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

OCP = CFO - Maintenance Capex

Maintenance Capex = [(1+inflation rate assumption) × Depreciation Expense]

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

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

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

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

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

The main point is that depreciation is about the best estimate we can get for the amount of capital expenses needed to maintain the business as a going concern. Keeping in mind that all of what we are dealing with when analyzing companies are estimates and that no one will ever know exactly how much money is needed for maintenance capex at a given



company ahead of time, the estimate we are using seems plausible and directionally right. That's good enough.

Expansionary Cash Flow

The proportion of excess profits a company invests in order to enjoy greater than trend growth in the future.

Because the purpose of these investments is to expand either the revenues or profits of at a faster rate than the economy in which it operates, we call these investments "Expansionary Cash Flows." We start with OCP and define Expansionary Cash Flows like this:

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

Because we are adding back cash received from JVs, asset sales, and the like, we qualify this term further as "Net Expansionary Cash Flows."

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

Fiscal Year Ending	2009	2010	2011	2012	2013
Estimated Growth Capex	(258)	77	(71)	(147)	(88)
(Acquisitions)	(1,159)	(5,606)	(1,847)	(4,702)	(3,305)
(Investments in) Payments from JVs, etc.	-	-	-	-	-
(Antidilutionary Share Buybacks)	(1,464)	(1,422)	(2,311)	(1,274)	(2,780)
Issuance of common stock	954	984	1,768	830	1,591
Asset Sales & Disposals	-	-	105	-	-
Net Expansionary Cash In- (Out-) Flows	(1,927)	(5,967)	(2,356)	(5,293)	(4,581)

Estimated Growth Capex

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

The first line in our calculation of Expansionary Cash Flows is simply the amount of money spent on PP&E less the amount of money we have already estimated as necessary for



maintenance capex. Usually, PP&E will be greater than inflation-adjusted Depreciation, but in the case of Oracle, we can see that this is not always the case—note the cash inflow of \$77 in 2010 associated with expansionary capex. This simply means that the company has temporarily "underinvested" in maintenance capex. For a company like Oracle, which mainly derives revenues from its intellectual property rather than from manufacturing and selling physical goods, this is not strange. For a manufacturing company, though, if one sees that one's estimates for maintenance capex are consistently higher than the amount the company is actually spending on PP&E, one needs to do some further investigation to figure out why. The company might be outsourcing more of its manufacturing—which is not necessarily a bad thing—but the company might also simply be underspending on maintaining its productive assets—which is always a bad thing.

Acquisitions

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

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

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

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

Antidilutionary Share Buybacks

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

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

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

Enter the corporate hobby of stock repurchases.

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

Management teams proudly announce their enormous buyback plans knowing that these massive purchases will swamp the millions of dollars here and there spent to 1) obfuscate



the mediocre results of a prior acquisition and / or 2) hide the true extent of stock issuance as a form of employee compensation.

Stock buybacks use owners' cash in order to boost EPS. It is for this reason that, in most cases, we consider all the stock issued by a company for acquisitions or compensation schemes in a given year as having to be bought back at the average price of shares that year. For instance, the \$1,464 million spent by Oracle in 2009 is a result of its purchasing 81 million shares at an average price of just over \$18 per share. This is partially offset by cash received for selling shares (employees pay the company to exercise stock option grants) and by a tax benefit related to those transactions. So, continuing with our 2009 example, the company received \$954 million related to stock issuance which partially offset our estimate for the cash outflow associated with buying those shares back detailed above. The net effect was a cash outflow of \$510 million that year.

Fiscal Year Ending	2009	2010	2011	2012	2013
(Antidilutionary Share Buybacks)	(1,464)	(1,422)	(2,311)	(1,274)	(2,780)
Issuance of common stock	954	984	1,768	830	1,591

Cash Received From (Paid To) JVs, Internal Software Development, etc.Of course, this is only an estimate of the true value of the cash expended on antidilutionary stock buybacks, but even though it is a fiction, it is a useful one and likely directionally right in terms of the absolute amount spent.

Investing in JVs does not represent a huge part of the company in this example's business strategy, but it can be for some firms. For instance, NAND Flash memory producer SanDisk (SNDK) forms JVs with Japanese chipmaker Toshiba and both firms contribute capital to these JVs. The JVs purpose is to build (enormously expensive) chip fabrication facilities, produce chips, and sell them to the owners of the JVs (i.e., SanDisk and Toshiba) at the cost of production. The JVs pay interest to the parent companies, and if there are any excess profits, those profits are divided proportionally between the parents as dividends.

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

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

Cash Inflow from Asset Sales

Clearly, any cash that flows in from a company's sale of equipment, a division, or a property should be treated as a source of cash that can be used to buy new assets. Oracle, being an asset-lite company, does not have much in the way of asset sales or disposal of divisions, but you can see that in 2011, it sold something worth \$105 that we have counted as a net inflow against growth capex that year.

Free Cash Flow to Owners (FCFO)

Free Cash Flow to Owners is IOI's preferred metric for estimating the value of companies and their stocks.

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

FCFO = OCP – Net Expansionary Cash Flows