

“Fundamental Analysis for Investors, Managers and Entrepreneurs” B8010

Class meetings: THURSDAYS - Full Term, 9.00 AM to 12.15 PM, ROOM: URIS 140

Shiva Rajgopal, 610 Uris, tel # 206 724 6056, sr3269@gsb.columbia.edu

Course Description and Objectives

Most of the decisions of analysts, consultants, entrepreneurs, investors and managers require us to look ahead and assess an uncertain future. In this class, you will learn a unique approach to decision making that will help you consider the fundamentals of enterprises and how to link these fundamentals to underlying measures, which in turn will help you make better investment or management decisions. Students who have taken this course often comment on how it has transformed their thinking and understanding of companies. It also serves as a useful “capstone” to the MBA program as we draw on what was taught in most core courses.

In developing this line of reasoning and performing the analysis, we consider how to think about a new business as well as a publicly traded company. Having considered the basic building blocks, we next examine how the business resources and activities are translated into financial statements (whether for an early stage or public company) and consider what we learn from financial statements. We consider the extensive information increasingly available from outside sources, including various websites as well as Bloomberg and CapIQ. We also consider how certain accounting measures and practices impact the measures of the key elements of the business.

IMPORTANT: While you will be able to use the approach to analyze a public company for your assignments and final project, you can (and students in the past have) also used private companies ranging from startups to family businesses, or use internal data of public companies or their subsidiaries if you have access to this information.

Focusing on the future, we take **a different approach** to many topics/concepts that are covered in various ways in other financial statement analysis, earnings quality, and security analysis and valuation classes. Many students take this course as well as other seemingly similar courses, and we have *never* received any feedback that the coverage in this course is redundant, irrespective of the other courses taken by students.

We will focus on understanding how entities create or destroy value for various stakeholders and what it would take to change this, how to consider uncertainty more explicitly in plans, and whether this fundamental value is reflected in the price or not (for entities that it applies to).

We will also take some time each week to address any topics that are in the financial press that bear on the subjects and the approach.

Graded Learning

The only way you will internalize the information in the course is by actually preparing a forecast (plan) of the business that allows you to see the impact of different potential outcomes.

In the **assignments**, you will be asked to analyze some of the key aspects (e.g., revenue, labor, etc.) of ANY company of your choosing (following the framework provided in the class) on an individual basis. For each topic area of the assignments, you will also do a base forecast for a minimum of two years into the future. However, feel free to talk with each other or with others to help you maximize your learning.

At the end of the class, the deliverable is a **final project for your chosen company**. However, for the final project, you will make sure all the elements of your semester's work are linked appropriately in your model, and add the extra topics not covered in the assignments (e.g., taxes) plus your own individual perspective on the original forecasts (as explained in text).

Ideally the entity you choose to analyze will be one that you are interested in understanding deeply, e.g. the company (or a company in the industry) you work for/cover (or a customer, client or competitor), your family business, or perhaps a startup that you are developing.

The grades will be based on your engagement in the class, the assignments, and the final deliverable but we have **no exams**.

What you will get out of this

Every student **who puts in effort** should walk away with an approach and concepts that you can use in almost any business or position in which you find yourself. It is usually a fun and stimulating journey for students. At the same time, I want to emphasize that a "30,000" foot perspective does not work in this class. This is a detail-heavy intense experience.

Is financial expertise critical?

The course presumes that you have a solid understanding of the subject matter covered in B6013 and other core courses. We have had many students who have no additional financial accounting or finance backgrounds, and by investing in their learning, they end up with H or even H+ grades. So, while financial analysis expertise may be helpful it is not necessary at all.

High quality investment decisions in the real world are grounded in a lot of detail about the sustainability of the business model. Without careful analysis, we cannot hope to ferret out price moving information that the market has overlooked. Following that objective, this is a detail-heavy class that gets deep into financial and non-financial data to assess the business.

Moreover, forecasting, by definition, is difficult and requires the analyst to (i) be creative and open to various traditional and new data sources, especially with the vast amount of detailed data likely to be available via big data; (ii) be comfortable with uncertainty as the best we can do is come up with a range of forecasted earnings, not an exact number or a “right” answer.

You may want to take the class only if (i) you feel that you can devote enough time to the class assignments and the final project; (ii) you have an appetite for detailed data; and (iii) you believe you will be comfortable with the uncertainty inherent in forecasting.

Required Text and Readings

1. Weekly handouts/posts on Canvas substitute for a course packet
2. There is no required text. Business Planning, Financial Statement Analysis and Valuation texts can be helpful but in certain topics each of them will argue for approaches that are sometimes at odds with what I am teaching.
3. Some of you usually ask for texts you can refer to (note these don't deal with forecasting, so these are references for students who need the comfort of looking back at a text for more the basic/intermediate level concepts):

Basic book Financial and Managerial Accounting for MBAs Hardcover – 2014
by Peter D. Easton, Robert F. Halsey, Mary Lea McAnally, Al L. Hartgraves, and Wayne J. Morse. An older edition is fine.

Intermediate book: Financial Reporting and Analysis, 5th Edition 5th Edition by Lawrence Revsine, Daniel W. Collins, W. Bruce Johnson and H. Fred Mittelstaedt. An older edition works just fine.

4. There will also be additional references provided for those students who want to get more background and a deeper understanding of some of the technical accounting aspects of any topic, but this is **not required**. I am more interested in the willingness to learn and less in prior technical accounting backgrounds. Some of my best students in the past have surprisingly have had nothing more than introductory accounting. But they probably worked the hardest they ever had on this course.

Grading

You have three sets of deliverables with different grading components as follows:

1. In class 1, I would like you to submit your forecast of Home Depot's financial statements for the year ended January 31, 2019 (see detailed assignment

enclosed). We will follow Home Depot throughout the class. Hence, it is useful to start thinking about the company at the beginning. This assignment is mandatory and counts for 10% of your final grade.

2. There will be approximately seven other written assignments during the semester. All these assignments relate to the understanding and forecasting of the specific line items on the income statement and balance sheet for an actual company of your choosing. These assignments will be done by you using the Type B assignment scheme (see below) and cover 50% of the grade.
3. The remaining 40% of your grade will be based on short in-class quizzes based on the material covered in previous classes, your attendance at class in general and my perception of your preparation and understanding of the class.

How are the seven weekly assignments graded?

TAs grade each assignment looking for whether or not the team has satisfactorily covered the checklist we assign for evaluating every important line item on the financial statements: revenue, capacity, labor costs, supply chain and other operating expenses, funding and capital structure and taxation. Note that the taxation assignment is voluntary. I review the TA's grading process and add my own comments.

How is the project related to the company of your own choosing graded?

We get assignments from diverse industries. So the grading scheme for the project is based on individual components of the project. Last year, we graded students' projects on the following 11 categories.

<i>Component</i>
Revenue
Capacity
Labor
Material
Other operating expenses
Funding
Taxes
Linkage of these components
Write up
Valuation
Scenario: bull/bear/base
<i>Total</i>

A few qualitative comments:

- We look for supporting spreadsheets for any of the above modules. Please don't turn in just a text based report. We were looking for p*q*FX times model for revenue and a decomposition of costs into fixed and variable, as will be discussed in class.
- Under the component based grading scheme, excellence in one component cannot completely offset weaknesses in the other components.
- Some of you will take management guidance as a given and that's fine but we want to see what kind of p*q*FX analyses can support that guidance. Failing that, it is hard to know what the management is assuming while giving us the guidance.
- In capacity analysis, we definitely want to see, at a minimum, a discussion of (i) what is the level of PPE the firm expects to need to meet its revenue projections; (ii) operating leases, if any, the capitalization thereof and what that does to capacity and debt; (iii) an aging of PPE, assumptions about age and how depreciation schedules might reflect the aging of PPE (as will be discussed in class).
- In the labor analysis, we look for a p*q analysis relating labor at various levels to their wage rates from Glassdoor or other sources.
- Absent a spreadsheet, it is somewhat hard for us to verify how each of these components articulate with one another into a comprehensive whole. We look for forecasted income statements for two years at a very minimum.
- We like to see a bull/bear/base scenario in the underlying p*q*FX and the fixed/variable cost decomposition to understand how sensitive the valuation is to changes in assumptions.

Company selection

I STRONGLY suggest you pick a relatively simple company that you can handle the analysis for. Unless you have a strong interest in a complex company and have some expertise in how the business is managed, I'd suggest that you stick with a single segment company without a massive international footprint.

Seeking Alpha

In the past, students with outstanding project reports have had their case for shorting or longing a stock accepted for publication at the website "Seeking Alpha"
<http://seekingalpha.com/>. I encourage you to shoot for such a publication at the end of the class. Well written and well analyzed articles get thousands of page views in Seeking Alpha and might represent a credible way to get noticed in the analysis world.

Audits

I do not encourage auditing/observing the class. The only way you learn the material is by actually working through the assignments and quizzes.

TA

The TAs are Venkat Peddireddy (email address is VPeddireddy19@gsb.columbia.edu) and Quinn Wang (KWang21@gsb.columbia.edu).

You can communicate with Venkat/Quinn via email to discuss the course and assignments.
You should also copy me on all correspondence.

Office Hours: By appointment

Relation to the Core:

This course incorporates elements of every core class.

This course adheres to the Columbia Core Culture. Students are expected to be:

Present:

- On time and present for every session
- Attendance tracked

Prepared:

- Complete pre-work needed, expect cold calls
- Bring nameplates and clickers

Participating:

- Constructive participation expected and part of grade
- No electronic devices unless explicitly called for by the instructor (look under “tablets/computers” below)

Code of Conduct: aka our Contract

The value of the course will depend on how much effort you are willing to put in, and on attendance and participation in the lectures and assignments.

You are expected to treat the class as you would your job, i.e., as a business professional, demonstrating mutual respect for each other, and performing as if it is an important business assignment. This means you need to be prepared, be on time, and be attentive during the class.

Tablets/Computers: I am open to letting you use these for access to the class materials or to take notes. BUT if this is abused for personal activities and distracts other students I will change the policy.

Cellphones: All classes in this course have a ‘no cellphone’ policy. In respect to your fellow classmates and myself, please have your phone’s volume and vibration turned off during class and keep your phone in your bag/pocket. We will have one break (10 to 15 minutes) when you can catch up on calls, emails, etc.

If you need to be reachable immediately during class (e.g. your wife is going into labor any minute), please let me know ahead of time.

My commitment to you:

I will give you as much personal attention as feasible to maximize the benefit from your work. A sign-up sheet with tentative meeting times will be put out on the first day of class. You are expected to meet with me at least once during the semester to talk about your final project. As people come in with different expertise, we can (partially) tailor the output to your strengths and expertise. I appreciate constructive feedback during the course to help optimize your learning, but I have to consider the class as a whole, so individual needs are best dealt with by me or Venkat/Quinn one-on-one.

Type	Designation	Discussion of Concepts	Preparation of Submission	Grade
B	Group/Individual	Permitted with designated group*	Individually (No sharing of any portion of the submission.)	Individual

*The designated group is a self-selected study group to be used for the duration of the course.

B 8010: Preliminary Course Outline

Date	Class #	Subject matter	Specific Topics
Jan 31	1	Overview - Approach to Fundamental Analysis of any Business HD FORECAST ASSIGNMENT DUE IDENTIFY COMPANY YOU WANT TO WORK ON	<ul style="list-style-type: none"> • A general framework for understanding and then forecasting a business and its potential value in an uncertain environment • The “Cycle of Life” of a business • Relating this to financial statements, other information and intrinsic value • A critical review of what we see in practice by companies (early stage and established) and analysts
Feb 7 and Feb 14	2 and 3	Understanding Revenue FEB 7: OP FIN CUT and OP CYCLE DUE	<ul style="list-style-type: none"> • Understanding the product or service • To whom, how and where is it being sold • Pricing • What are the market size and the competitive situation? • How is the revenue recognized? • How and when are customers paying?
Feb 21 and 28	4 and 5	Understanding Productive Capacity, R&D and Intangibles. FEB 21: REVENUE ANALYSIS DUE	<ul style="list-style-type: none"> • What property and equipment (including technology) do they need to sustain the revenue and/or grow (match to the revenue expectations)? • How much does this cost and how will it be financed? • Where and How are(/should) the physical and financing needs (be) reflected in the financial statements? • Considering IP and patents, what R&D or other intangibles are needed, how are they “acquired” and paid for, and how are/should they be reported? • How do these all compare to competitors?

Mar 7 and Mar 28	6 and 7	Understanding Human Resources and Labor Costs MAR 7: CAPACITY ANALYSIS DUE	<ul style="list-style-type: none"> • What type of talent do you need to sustain and/or grow the business, how many and where are they located? • What are(/should) they (be) paid? • How are(/should) they (be) compensated Cash vs Benefits (pensions and health/opeb) vs share-based compensation (shares vs employee stock options)? • Where and How is the cost reflected in financial statements?
MARCH 12-15: EXAM PERIOD, NO CLASSES SCHEDULED MARCH 18-22: SPRING BREAK, CLASSES RESTART MAR 25 AT CBS			
Apr 4	8	Understanding Material and other costs LABOR ANALYSIS DUE	<ul style="list-style-type: none"> • What are primary materials/components needed? • How are they sourced (supply chain) and what do they cost? • What are key sales and marketing approaches and costs? • Where and how are these reflected in financial statements?
Apr 11	8-9	Funding, Capital Structure MATERIALS AND OTHER EXP DUE	<ul style="list-style-type: none"> • Funding choices (equity vs debt) for different types of entity (early stage, high growth and steady state; small vs large) • How much and when is funding needed? • How are these reflected in financial statements and performance measures?
Apr 18	10	Funding: Financial Investments, Strategic and M&A and Intangibles from Acquisition	<ul style="list-style-type: none"> • Considering liquidity and financial investments and how they are reflected in financial statements • Impacts of strategic investments, mergers and

		CAP STRUCTURE DUE	<p>acquisitions, and minority stakes.</p> <ul style="list-style-type: none"> • How do we interpret the related growth and acquisition related assets?
Apr 25	11	The Impact and Understanding of Taxation	<ul style="list-style-type: none"> • Tax considerations: what is taxed, where is it taxed, when is it taxed and at what rate? • How is tax reflected in the financial statements and what can we learn from this?
Apr 25	11	Understanding the Basics of Currency Impacts	<ul style="list-style-type: none"> • Transactions vs translation and impact on margins, cash flow, ratios and capital
May 2	12	<p>Catch up, valuation and putting it all together</p> <p>MAY 2: VOLUNTARY TAX ASSIGNMENT DUE</p> <p>MAY 9: FINAL PROJECT DUE</p>	<ul style="list-style-type: none"> • Bringing all the pieces together and relating them to forecasts and valuation analysis • Considering the trade-offs of various valuation approaches for managers and different investors.

Assignment #	Topic	Due Date
1	<i>Forecast for Home Depot</i>	First class on Jan 31
2	<i>Drawing-describing the “Operating and Funding Cycles of a Business” (small, but investing time in this step will pay off)</i>	Feb 7
3	<i>Revenue analysis and 2-year forecast (large)</i>	Feb 21
4	<i>Capacity analysis and 2-year forecast (large)</i>	Mar 7
5	<i>Labor analysis and 2-year forecast (large)</i>	Apr 4
6	<i>Materials and Other Costs and 2 –year forecast (small)</i>	Apr 11
7	<i>Capital structure analysis and 2-year forecast (small)</i>	Apr 18
7A	<i>Taxation analysis and 2-year forecast (voluntary)</i>	May 2
8	<i>Write-up and Valuation</i>	May 9

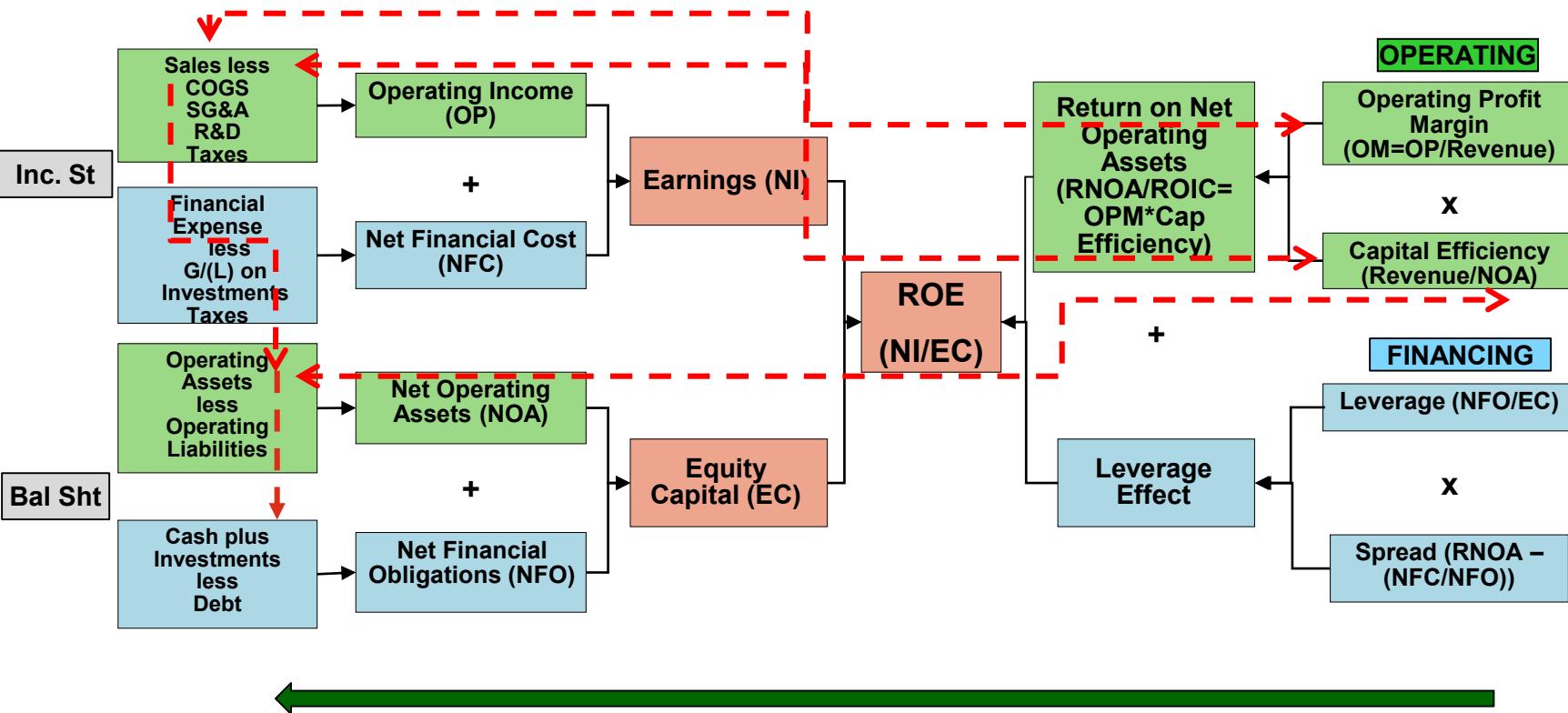
Fundamental Analysis for Investment Management and Entrepreneurship: Revenue - Part 1

Prof. Shiva Rajgopal
2018

Outline

- Complete introductory session
- An introduction to forecasting revenue
- Questions to address when analyzing revenue
- Examples of breaking down the revenue (digging deeper) to facilitate analysis and forecasting
- What can we learn from financials about the current and future revenue

The Basic Connection Between Performance Metrics and Financial Statements: Revenue



Forecasting Revenue/Sales: How do (most) people usually begin?

- Public Companies with historical information
- Private companies with historical information
- Startups/Early stage companies with no history

What do we Need to Consider for Estimating Revenue in Our Restaurant?

Data from the Restaurant Association (includes Institutional Spending)

State Economic Indicators

Projected Percent Change, 2013-2014

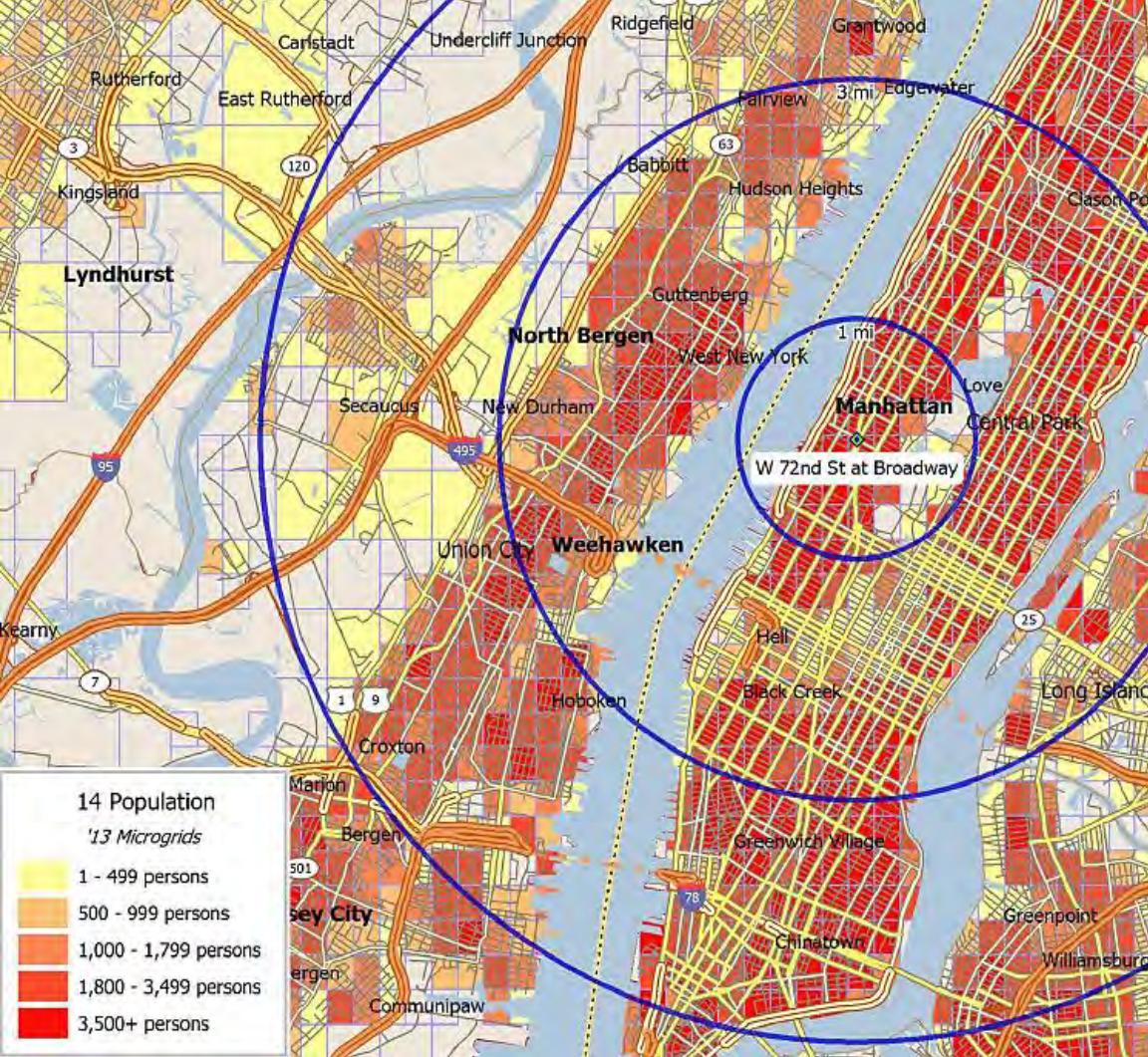
	Total Employment	Real Disposable Personal Income	Total Population	RESTAURANT SALES (\$'000)			
				2013	2014	% Change	
	Alaska	1.3%	2.6%	1.0%	\$1,307,494	\$1,351,948	3.4%
	California	1.8%	3.0%	0.9%	67,127,319	69,711,721	3.9%
	Hawaii	1.6%	2.7%	0.9%	3,703,128	3,831,256	3.5%
	Oregon	1.9%	3.2%	1.2%	6,467,862	6,711,054	3.8%
	Washington	1.8%	3.1%	1.0%	10,848,158	11,201,327	3.3%
	PACIFIC	1.8%	3.0%	1.0%	\$89,453,961	\$92,807,306	3.7%
	New Jersey	1.5%	3.0%	0.3%	\$14,140,058	\$14,585,470	3.2%
	New York	1.2%	3.1%	0.2%	33,447,765	34,635,161	3.6%
	Pennsylvania	1.2%	3.0%	0.1%	17,770,760	18,279,004	2.9%
	MIDDLE ATLANTIC	1.3%	3.1%	0.2%	\$65,358,583	\$67,499,635	3.3%

National Restaurant Association | Restaurant.org/Forecast

A Sample of Breaking this Down to Focus on an Obtainable Market

2014 Market Comparison

		California (State 06, CA)	New York (State 36, NY)
Population	2014	38,439,243	19,114,163
	2019	39,496,452	19,628,001
	2010	37,253,956	19,378,102
Household income	< \$25,000	2,324,016	1,548,960
	\$25,000 - \$49,999	3,029,359	1,758,752
	\$50,000 - \$74,999	2,226,982	1,273,594
	\$75,000 - \$99,999	1,454,172	805,623
	\$100,000+	3,862,173	2,113,151
	Median household income	62,078	58,265
	Average household income	84,560	83,937
Consumer spending (total annual, \$000)		863,995,272	439,012,995
	Housing	287,736,321	160,707,448
	Transportation	116,413,931	52,168,050
	Food at home	69,115,357	35,072,014
	Food away from home	46,952,064	23,954,877
	Life insurance & pensions	96,636,223	47,430,499
	Entertainment	45,579,352	22,854,948
	Healthcare	67,049,626	33,037,146
	Apparel & related services	30,266,289	14,935,461
	Other	105,512,202	52,073,770



More Detail Available To Assess Market More Directly

Population

Scan/US software is used for the production of demographic reports and maps for specific sites, trade areas and markets.

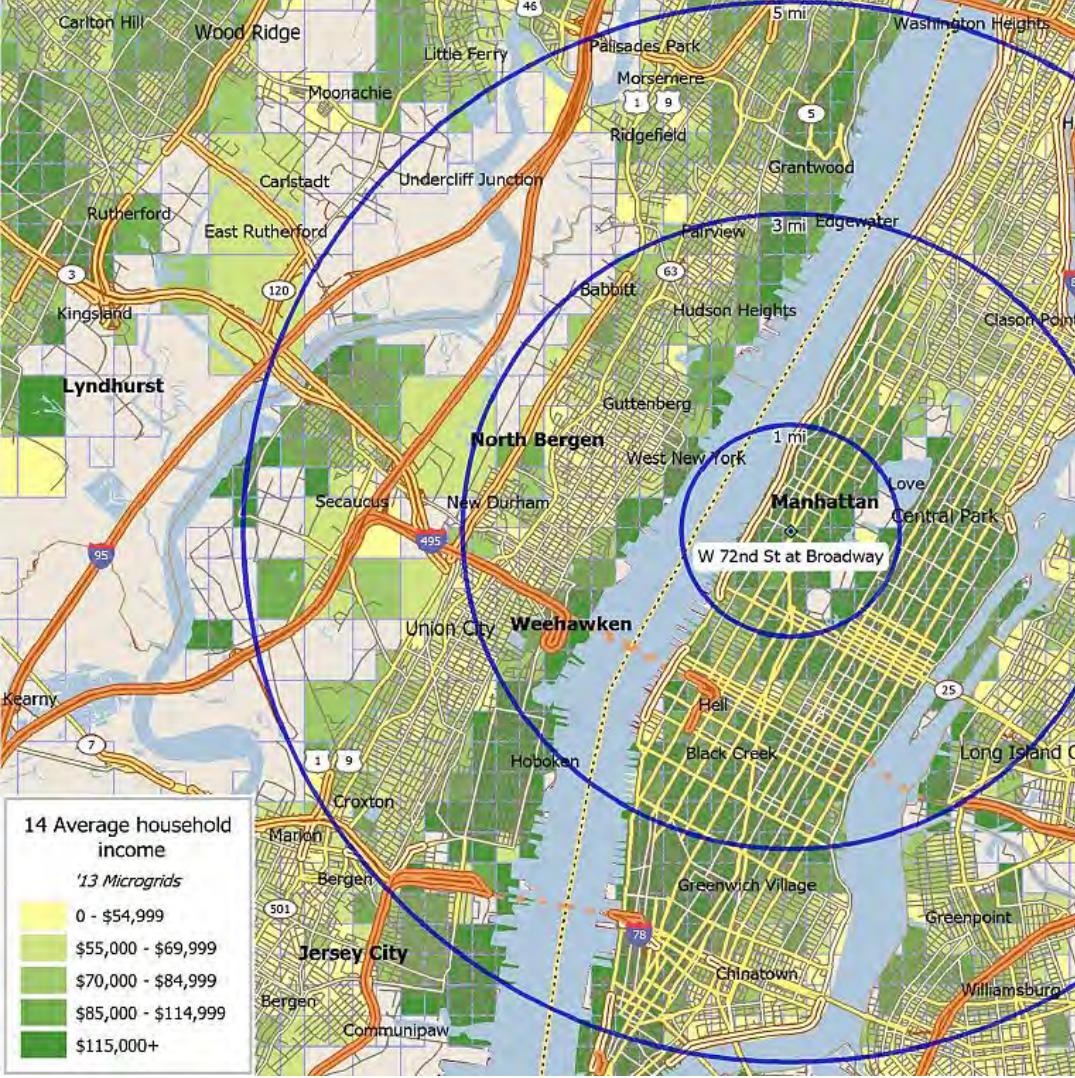


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More Detail Available To Assess Market More Directly

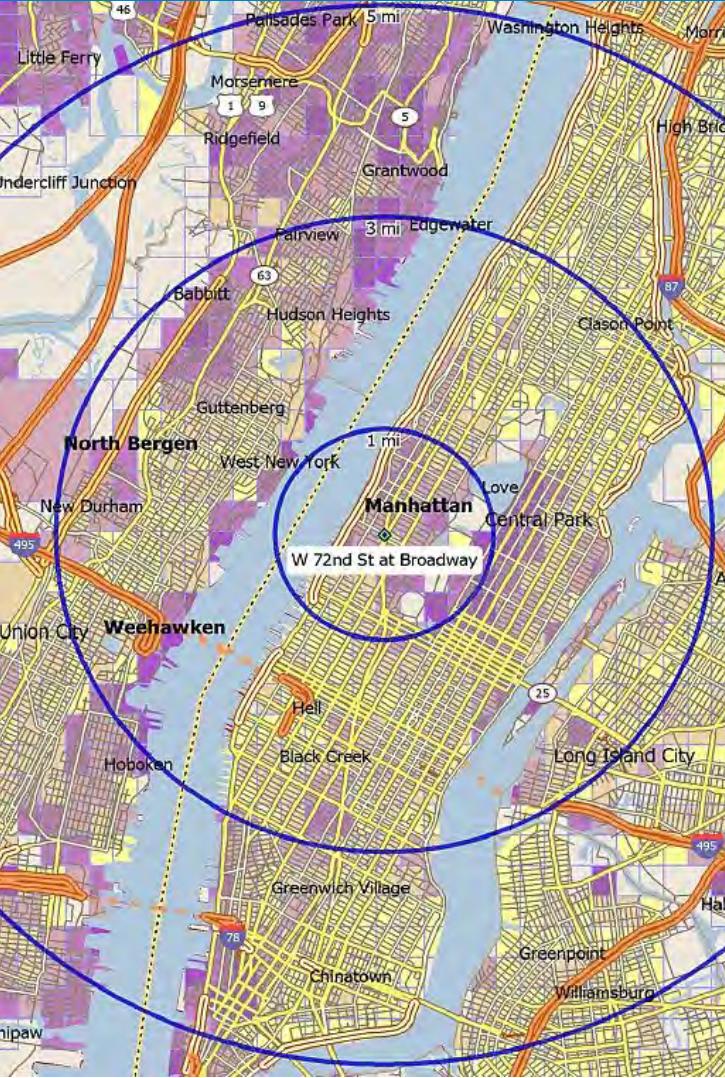
Household Income



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More detail on Actual Spending

Consumer Spending Comparison Report

W 72ND ST AT BROADWAY: NEW YORK,NY 10023:
SITE LOCATED AT 40.77871, 73.98197

	<u>1 MI RING</u>	<u>3 MI RING</u>
Households		
Owner households	87,365	586,488
Renter households	28,543	159,579
Average Household income	\$190,235	\$136,772
Average Annual Household Spending	\$57,747	\$51,575
Average Annual Spending by Category		
Food		
Food at home	\$5,855 10.1%	\$5,867 11.4%
Cereals/bakery products	\$3,267 55.8%	\$3,398 57.9%
Meats/poultry/fish/eggs	\$469 14.4%	\$491 14.4%
Dairy products	\$707 21.6%	\$744 21.9%
Fruits/vegetables	\$365 11.2%	\$375 11.0%
Other food at home	\$660 20.2%	\$676 19.9%
Food away from home	\$1,057 32.3%	\$1,103 32.5%
	\$2,587 44.2%	\$2,469 42.1%
Alcoholic beverages		
	\$493 0.9%	\$462 0.9%

14 Average annual spending
'13 Microgrids

- 0 - \$47,999
- \$48,000 - \$54,999
- \$55,000 - \$61,999
- \$62,000 - \$71,999
- \$72,000+



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How Much Competition is There?

W 72ND ST AT BROADWAY: NEW YORK,NY 10023:
SITE LOCATED AT 40.77871, 73.98197

	<u>1 MI RING</u>		<u>3 MI RING</u>		<u>5 MI RING</u>	
Total Establishments	12,590		140,032		208,131	
Establishments by Type						
Industrial	498	4.0%	8,198	5.9%	14,611	7.0%
Mining	4	0.8%	71	0.9%	159	1.1%
Construction	28	5.6%	540	6.6%	938	6.4%
Construction, <10 employees	182	36.5%	2,958	36.1%	5,494	37.6%
High-tech/research	11	2.2%	205	2.5%	313	2.1%
Trans/comm/utilities	38	7.6%	932	11.4%	1,773	12.1%
Wholesale/industrial	99	19.9%	2,185	26.7%	3,661	25.1%
Warehousing	27	5.4%	378	4.6%	774	5.3%
General industrial	109	21.9%	929	11.3%	1,499	10.3%
Manufacturing	234	1.9%	4,959	3.5%	6,917	3.3%
Heavy manufacturing	2	0.9%	63	1.3%	117	1.7%
General manufacturing	8	3.4%	181	3.6%	362	5.2%
Light manufacturing	38	16.2%	1,027	20.7%	1,367	19.8%
Manufacturing, <10 employees	186	79.5%	3,688	74.4%	5,071	73.3%
Commercial	3,569	28.3%	41,682	29.8%	67,096	32.2%
Retail trade	1,409	39.5%	18,709	44.9%	29,188	43.5%
Restaurants/bars	700	19.6%	7,103	17.0%	13,027	19.4%
Personal/rental/repair services	767	21.5%	7,656	18.4%	12,549	18.7%
Automotive repair services	197	5.5%	1,509	3.6%	2,364	3.5%
Hotels/motels	104	2.9%	711	1.7%	930	1.4%
Theaters/retail amusements	42	1.2%	280	0.7%	420	0.6%



Weekly Sales Projection



Estimated Square Feet	3400
Avg Lunch Price	8.79
Avg Dinner Price	13.74
Number of Seats	86

	# Customers	Covers	Food
Monday	Breakfast		
	Lunch	90	1.0
	Dinner	110	1.3
	Daily Totals	200	2,303
Tuesday	Breakfast		
	Lunch	95	1.1
	Dinner	110	1.3
	Daily Totals	205	2,346
Wednesday	Breakfast		
	Lunch	100	1.2
	Dinner	120	1.4
	Daily Totals	220	2,528
Thursday	Breakfast		
	Lunch	110	1.3
	Dinner	125	1.5
	Daily Totals	235	2,684
Friday	Breakfast		
	Lunch	130	1.5
	Dinner	180	2.1
	Daily Totals	310	3,616
Saturday	Breakfast		
	Lunch	130	1.5
	Dinner	180	2.1
	Daily Totals	310	3,616
Sunday	Breakfast		
	Lunch	110	1.3
	Dinner	125	1.5
	Daily Totals	235	2,684
Weekly Totals	1715	Totals in USD \$	19,777

Example from a Business Plan

RECAP: Key Sales Figures

Annual Sales	1,028,422
Average Monthly Sales	85,702
Annual Sales Per Square Foot	302
Annual Sales Per Seat	11,958

$$\$19,777 * 52 = \$1,028,404$$

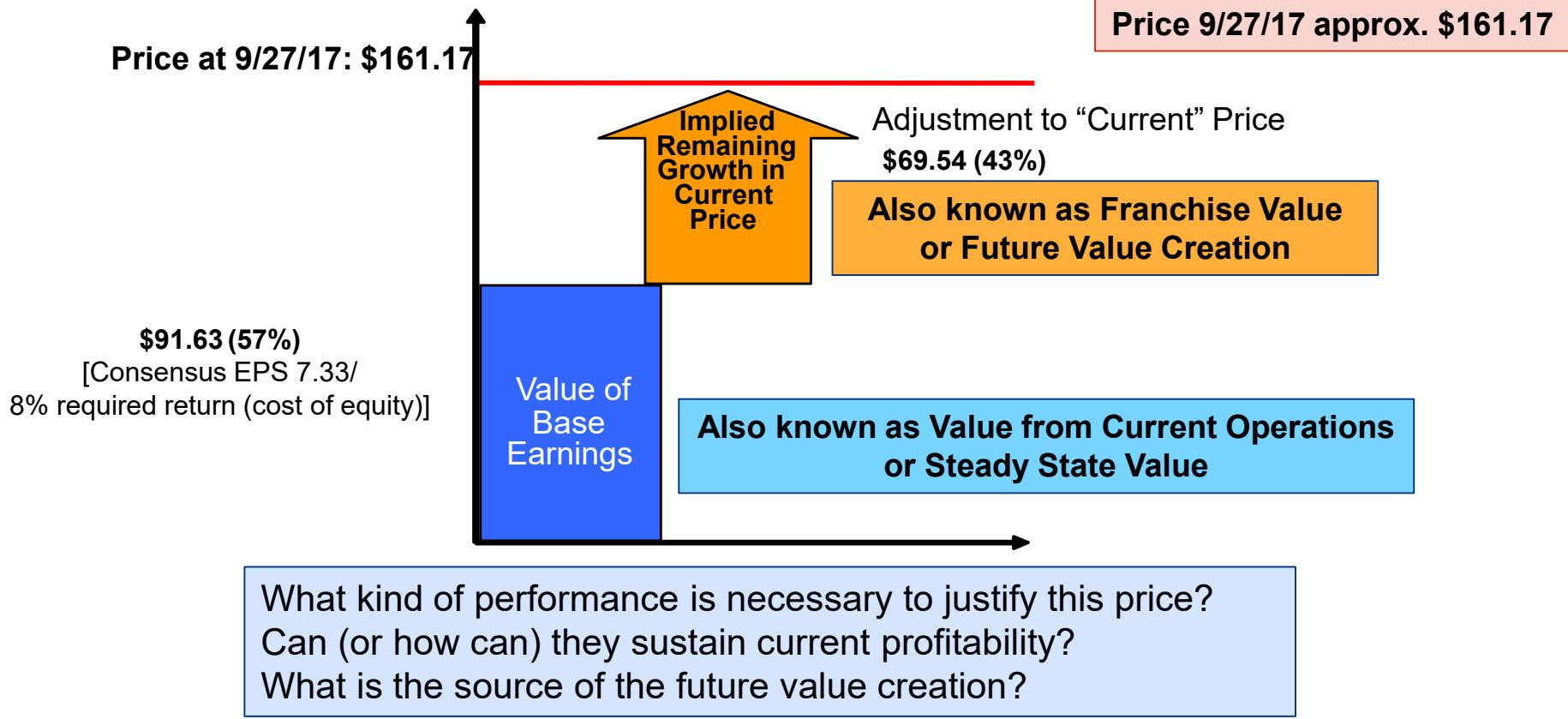
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What do we Need to Consider for Estimating Revenue in Our Restaurant?

TAKEAWAY: The fundamentals underlying revenue are integrated with resources not in \$ but in the underlying components leading to OpM and OpATO changes.

What happens when we move to a large public company?

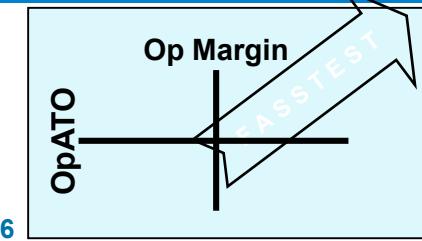
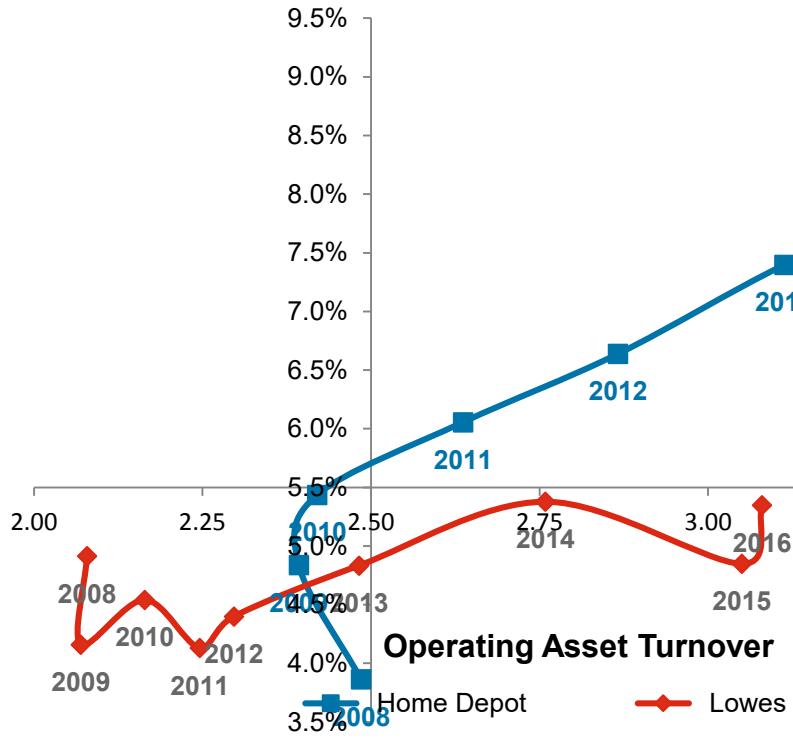
Relating Price to Earnings and Future Growth – Home Depot



Historical Profitability Map for Home Depot and Lowes

Profitability Map, 2008-2016

Operating Margin



Historical performance is clearly in HDs favor. Both companies are on an upward trend profitability at end of fyr 2012. **How did they achieve this and what is the future path?**

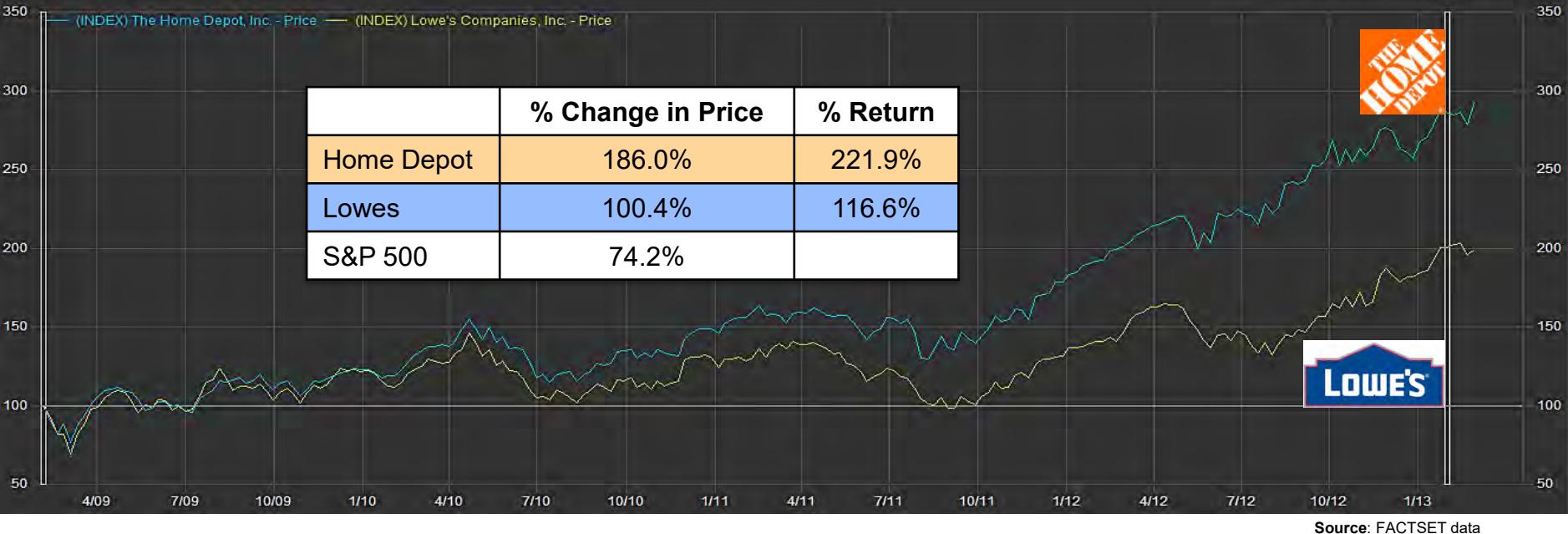
How did the stocks of the two companies perform?

The Home Depot, Inc.	100.00	286.02	186.02
Lowe's Companies, Inc.	100.00	200.42	100.42

The Home Depot, Inc.

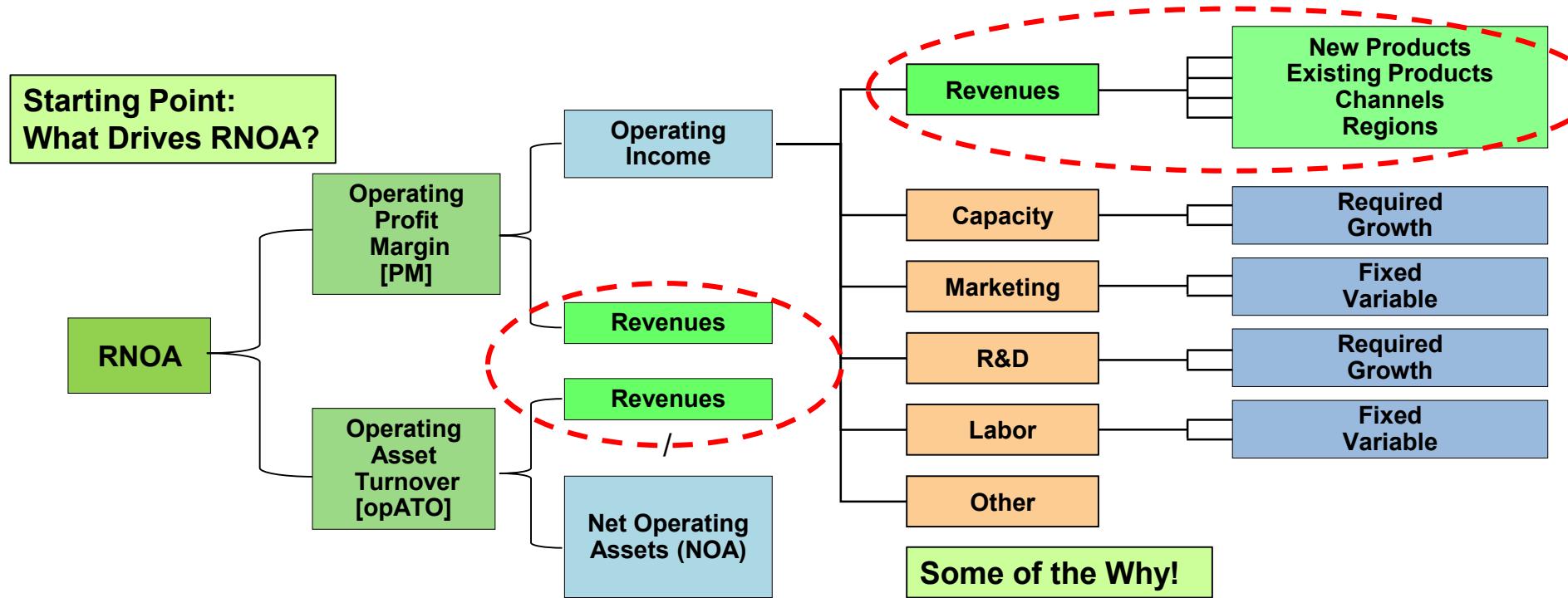
81.57 -0.36 -0.44% 4:00:19 PM VWAP:81.48

High: 69.19 Low: 17.49 Chg: 220.03%



How do we decide where to start?

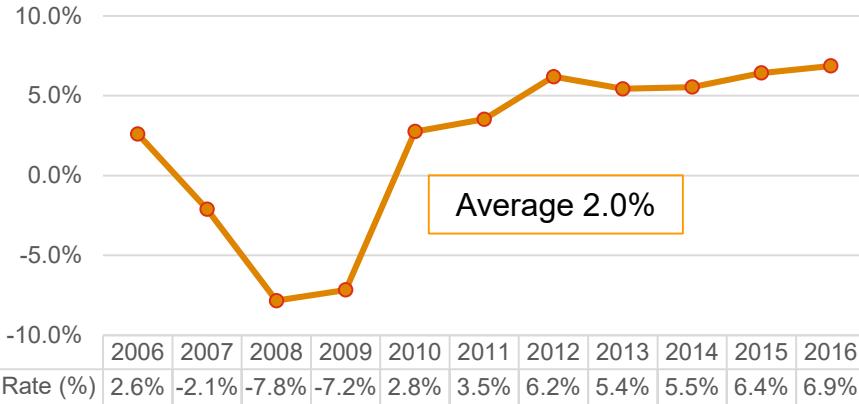
What we Need to Consider to Understand the Business and Forecast: Relating the Profitability Tree to More Detailed Analysis



Home Depot's 10 Year Sales Growth

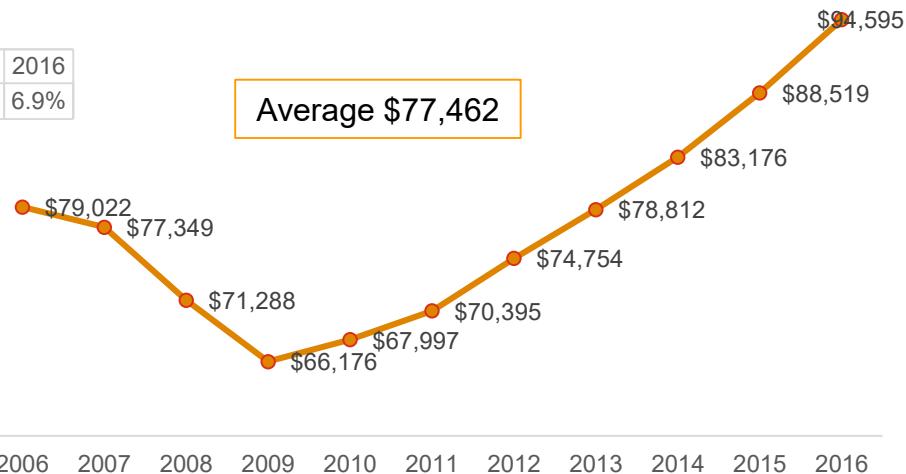


Home Depot Sales Growth Rate



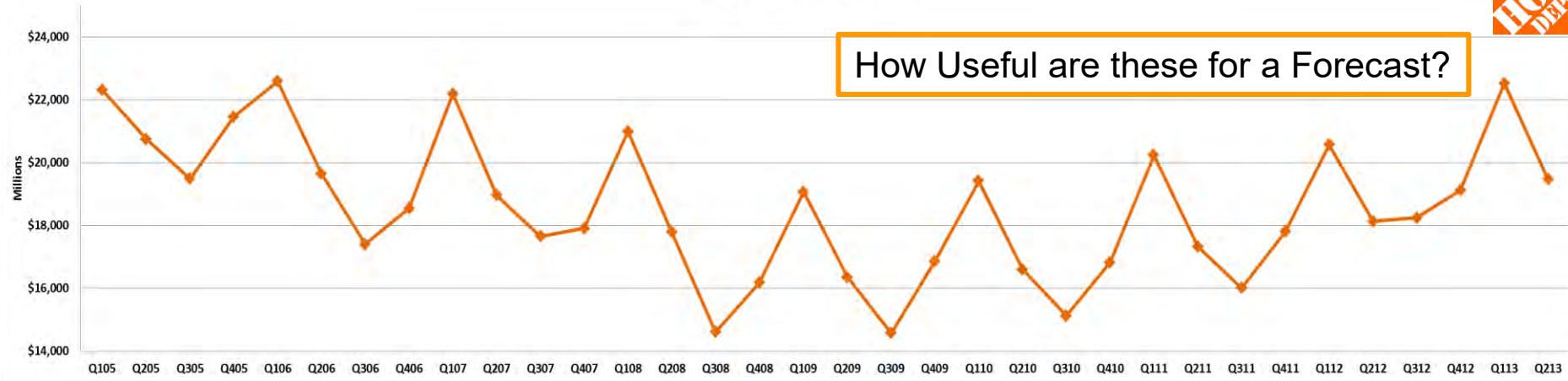
How Useful are these for a Forecast?

Home Depot Sales



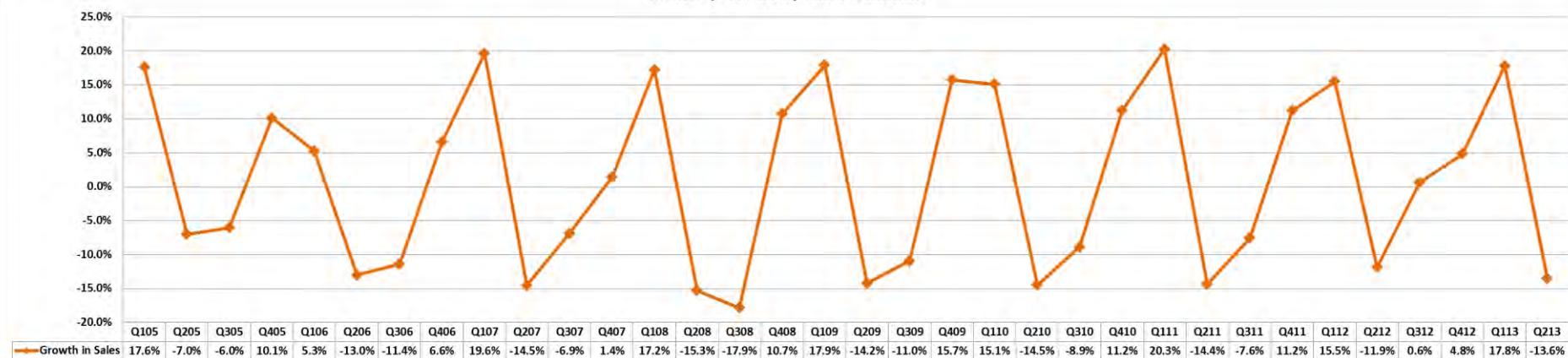
Source: Home Depot Financials, CapitalIQ

Home Depot Quarterly Sales



How Useful are these for a Forecast?

Home Depot Quarterly Sales Growth Rate



Why you need to be careful of time series from data bases



For the Fiscal Period Ending	Reclassified	Reclassified	Reclassified	Reclassified	Reclassified	Reclassified
	12 months					
	Feb-02-2003	Feb-01-2004	Jan-30-2005	Jan-29-2006	Jan-28-2007	Feb-03-2008
Revenues						
Retail - Home Improvement	-	-	71,101.0	77,019.0	79,022.0	77,349.0
HD Supply	From CapitalIQ	-	2,040.0	-	-	-
Corporate	-	-	(47.0)	-	-	-
Home Depot Stores	58,247.0	64,816.0	-	-	-	-
Total Revenues	58,247.0	64,816.0	73,094.0	77,019.0	79,022.0	77,349.0

From 2007 10-K
Adj for Disc Ops

2007⁽¹⁾

2006

2005

2004

2003

2002

STATEMENT OF EARNINGS DATA⁽²⁾

Net sales	\$ 77,349	\$ 79,022	\$ 77,019	\$ 71,100	\$ 63,660	\$ 58,247
Net sales increase (%)	(2.1)	2.6	8.3	11.7	9.3	8.8

FactSet - COLUMBIA_STU 370356C - Personal:Portfolio Management - [Income Statement]

HD-US

Markets Research Portfolio Company Charts Earnings Watchlist Trading Screening Web +

Snapshot News Prices Valuation Estimates Financials Debt Comparison Deals Ownership Events Filings Corp Governance Index Membership Custom +

Key Items Income Statement Balance Sheet Cash Flow Ratios Segments Dupont Analysis Credit Analysis +

HD-US Annual 10 15 20 Restated Original Local Filings Wizard

The Home Depot, Inc. (HD) \$82.02 Next Rpt Date: 25 Feb '14 Key Statistics FactSet Fundamentals

Reverse data presentation Show Sparklines Show Growth and Ratios Compare to S&P 500

Jan '03	Jan '04	Jan '05	Jan '06	Jan '07	Jan '08	
364 Days	364 Days	364 Days	364 Days	364 Days	371 Days	
Sales/Revenue	58,247	64,816	73,094	81,511	79,022	77,349

From FactSet

Understanding Underlying Growth Rates – Some Basics

	Reported Revenue	9 month Revenue Growth
1-May	\$15,000	
31-Dec	\$13,000	A -13%
31-Dec	\$14,300	B and C -5%
31-Dec	\$15,730	D 5%

What is your basic reaction to/
interpretation of these growth rates?

Understanding Revenue Basics

	Units	9 month Unit Growth	Price	9 month Price Growth	Exchange Rate	% Change in Exch Rate	Reported Revenue	
1-May	1000		10		1.5		\$15,000	
31-Dec	1000	0%	10	0%	1.3	-13%	\$13,000	A
31-Dec	1000	0%	11	10%	1.3	-13%	\$14,300	B
31-Dec	1100	10%	10	0%	1.3	-13%	\$14,300	C

How does this change your reaction to/interpretation of these growth rates?
Do the two -5% growth rate cases (B and C) have the same implications for sustainability?

1. Yes
2. No



Understanding Revenue Basics

		9 month Unit		9 month Price	Exchange	% Change in Exch		9 month Revenue
	Units	Growth	Price	Growth	Rate	Rate	Reported Revenue	Growth
1-May	1000		10		1.5		\$15,000	
31-Dec	1000	0%	10	0%	1.3	-13%	\$13,000	-13% A
31-Dec	1000	0%	11	10%	1.3	-13%	\$14,300	-5% B
31-Dec	1100	10%	10	0%	1.3	-13%	\$14,300	-5% C
31-Dec	1100	10%	11	10%	1.3	-13%	\$15,730	5% D

How would you interpret the last case (D) +5% growth rate?

TAKEAWAY: Differentiating volume, unit price and exchange rates is critical to understanding the underlying implications of “growth” and its sustainability

The Basis of ALL Forecasting with Real Fundamental Analysis

Revenues are: Quantity X Price (X FX Rate)

Costs are: ["Fixed" Cost + (Quantity X Variable Cost)] (X FX Rate)

It may seem impossible to get the actual units BUT we **CAN AND MUST** always split any expected change into these components to get a reasonable model of a business even if this is done by splitting the growth rates.

<u>Basis for forecasting</u>					
Period 1 amount	Unit % change [A]	Price % change [B]	Exch Rate % change [C]	Total % change	Period 2 amount
\$15,000	10%	8%	(11%)	5.7%	\$15,860
	Why?	Why?	Why?	$[(1+A)*(1+B)*(1+C)]-1$	

A Framework for Analyzing and then Forecasting Revenue

Issue	Previous	Current	What has changed and why?	What is likely to change and why?	Future Expectations
Understand the Product/Service - What is it? - How is it produced? - Where is it produced?					
Who is buying it (why are they buying it)?					
How is it sold?					
Where is it sold?					
What is pricing?					
How are customers going to pay for it?					
When are they paying for it?					
What is the feasible market size?					
How competitive is the market and how well is entity positioned?					
What macro drivers impact any of these?					
How is the revenue accounted for/reported?					

Understanding is Facilitated with Understanding the Operating Cycle

Understand the Product/Service

- **What is it?**
- **How is it produced?**
- **Where is it produced?**

Who is buying it (why are they buying it)?

How is it sold?

Where is it sold?

What is pricing?

How are customers going to pay for it?

When are they paying for it?

What is the feasible market size?

How competitive is the market and how well is entity positioned?

What macro drivers impact any of these?

How is the revenue accounted for/reported?

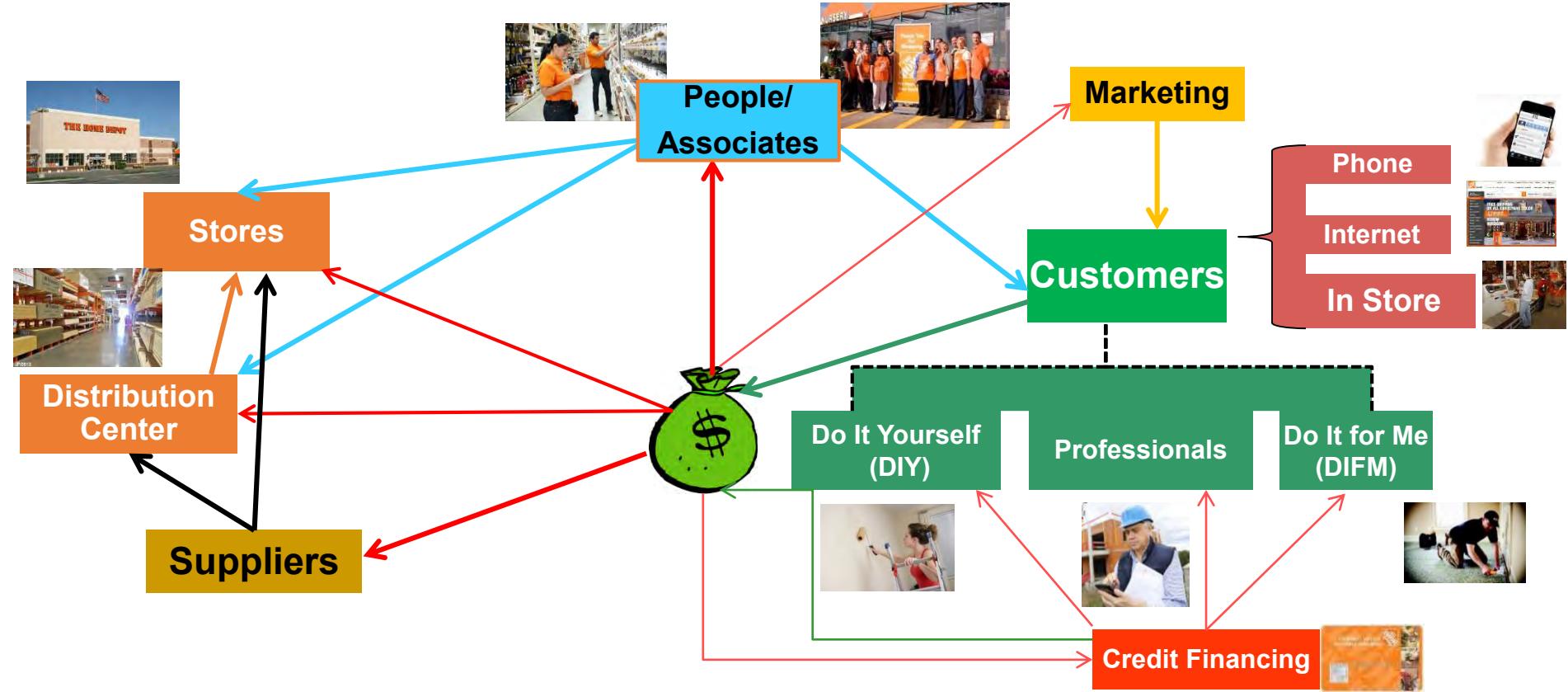


Your Business?

- Asset management
- Consulting (services)
- Education
- Media
- Pharma
- Real Estate
- Software

REMINDER: Key objective is to understand sustainability and growth

Home Depot's Basic Operating Cycle



Summary of the Steps in Beginning to Build Revenue Forecasts

- Understand the product/service in the specific business
- Focus on the key drivers/factors of revenue and revenue change, IDENTIFY “UNITS” to focus on
- Utilize as much disaggregation as you can get that makes a material difference: reports and presentations to investors are often good indicators for this it is okay to iterate over time
- Consider macro- and addressable market issues and trends
- Try not to overcomplicate the model, allow it to be built top down and bottom up
- Don’t forget the competition
- Always consider changes in volumes and price (and currencies) including any interdependency
- Don’t assume precision, test out alternative scenarios
- Is your scenario feasible (capacity, inventory, cash available to fund growth)
- Consider the balance sheet and cash flow aspects too....

Understand the Product/Service – What: Product Descriptions May be Available

Company Summary

- Tear sheet
- Corporate Timeline
- Long Business Description
- Products
- Competitors
- Industry Classifications
- Offices
- Analyst Coverage
- Corporate Governance

People

- Professionals
- Board Members
- Committees
- Compensation

Financials/Valuation

- Key Stats
- Income Statement
- Balance Sheet
- Cash Flow
- Multiples
- Capitalization
- Capital Structure Summary
- Capital Structure Details
- Ratios
- Supplemental
- Industry Specific
- Pension/OPEB Segments

Estimates

- CIQ Estimates

Peer Analysis

- Quick Comps
- Credit Health Panel

Charting

- Chart Builder
- Annotated Stock Chart

Fixed Income

- Summary
- Credit Ratings
- Securities Summary
- Credit Default Swaps

Short Interest

Equity Listings

Transactions

- M&A/Private Placements
- Public Offerings
- Takeover Defenses
- Transaction Advisors

Business Relationships

- Customers
- Suppliers
- Strategic Alliances
- Auditors

Investors

- Private Ownership
- Public Ownership
- Investor Activism

News, Events & Filings

- News
- Events Calendar
- Transcripts
- Surveillance
- Filings & Annual Reports
- Key Documents
- Key Developments

Investments

Products

S&P CapitalIQ

Product Name	Company
Bowls	US Home Systems Inc.
Cabinet Doors	US Home Systems Inc.
Cabinets	US Home Systems Inc.
Commodes	US Home Systems Inc.
Credit Cards	The Home Depot, Inc. (NYSE:HD)
Distribution of Faucets	US Home Systems Inc.
Drawer Boxes	US Home Systems Inc.
Drawer Fronts	US Home Systems Inc.
Equipment Rental Services (Future)	The Home Depot, Inc. (NYSE:HD)
Garage and Closet Organization Systems	US Home Systems Inc.
Installation Services	The Home Depot, Inc. (NYSE:HD)
Installation Services	US Home Systems Inc.
Laminate Countertops	US Home Systems Inc.
Lazy Susans	US Home Systems Inc.
Matching Valances	US Home Systems Inc.
Molding Products	US Home Systems Inc.
Online Local Search Solutions	Red Beacon, Inc.
Sales of Acrylic Tub Liners	US Home Systems Inc.
Sales of Aerators and Toilets	The Home Depot, Inc. (NYSE:HD)
Sales of Bath Fixtures	The Home Depot, Inc. (NYSE:HD)
Sales of Blinds	The Home Depot, Inc. (NYSE:HD)
Sales of Cabinetry Products	The Home Depot, Inc. (NYSE:HD)
Sales of Carpeting Products	The Home Depot, Inc. (NYSE:HD)
Sales of Decking Products	The Home Depot, Inc. (NYSE:HD)
Sales of Dehumidifiers	The Home Depot, Inc. (NYSE:HD)
Sales of Dishwashers	The Home Depot, Inc. (NYSE:HD)
Sales of Door Locks	The Home Depot, Inc. (NYSE:HD)
Sales of Fans	The Home Depot, Inc. (NYSE:HD)
Sales of Fasteners	The Home Depot, Inc. (NYSE:HD)
Sales of Faucets	The Home Depot, Inc. (NYSE:HD)
Sales of Flooring Products	The Home Depot, Inc. (NYSE:HD)
Sales of Furnace and Central Air Systems	The Home Depot, Inc. (NYSE:HD)
Sales of Garden Products	The Home Depot, Inc. (NYSE:HD)
Sales of Generators	The Home Depot, Inc. (NYSE:HD)
Sales of Hand Tools	The Home Depot, Inc. (NYSE:HD)
Sales of Hardware	US Home Systems Inc.
Sales of Infrared Grills	The Home Depot, Inc. (NYSE:HD)
Sales of Lawn Care Products	The Home Depot, Inc. (NYSE:HD)
Sales of Lighting Products	The Home Depot, Inc. (NYSE:HD)

Our Products. Our product portfolio strategy is aimed at delivering innovation, assortment and value. A typical The Home Depot **store** stocks approximately **30,000 to 40,000 products** during the year, including both national brand name and proprietary items. We also offer over **600,000 products** through our Home Depot and Home Decorators Collection **websites**.

Product Category	January 31, 2016	
	Net Sales	% of Net Sales
Indoor Garden	\$ 8,298	9.4%
Paint	7,465	8.4
Kitchen and Bath	6,874	7.8
Outdoor Garden	6,565	7.4
Appliances	6,534	7.4
Building Materials	6,396	7.2
Plumbing	6,346	7.2
Lumber	6,278	7.1
Flooring	6,194	7.0
Tools	6,060	6.8
Electrical	5,833	6.6
Hardware	5,296	6.0
Millwork	4,924	5.6
Décor	2,757	3.1
Lighting	2,699	3.0
Total	\$ 88,519	100.0%

Is there any way to use these?

Source: Home Depot 10-K and CapitalIQ

© Harris and Rajgopal

Understand the Product – Where, What & How: Component Data from Financials



$2278 * 52 \text{ weeks} * \$X = \$94,595; X = \798

amounts in millions, except where noted

STATEMENT OF EARNINGS DATA

Net sales

STORE DATA

Number of stores

Square footage at fiscal year-end

Average square footage per store (in thousands)

STORE SALES AND OTHER DATA

Comparable store sales increase (%)⁽³⁾⁽⁴⁾

Sales per square foot (\$)⁽⁴⁾

Number of customer transactions⁽⁴⁾

Average ticket (\$)⁽⁴⁾

Number of associates at fiscal year-end (in thousands)

	2016	2015	2014	2013	2012 ⁽¹⁾
Net sales	\$ 94,595	\$ 88,519	\$ 83,176	\$ 78,812	\$ 74,754
Number of stores	2,278	2,274	2,269	2,263	2,256
Square footage at fiscal year-end	237	237	236	236	235
Average square footage per store (in thousands)	104	104	104	104	104
Comparable store sales increase (%) ⁽³⁾⁽⁴⁾	5.6	5.6	5.3	6.8	4.6
Sales per square foot (\$) ⁽⁴⁾	391	371	352	334	319
Number of customer transactions ⁽⁴⁾	1,544	1,501	1,442	1,391	1,364
Average ticket (\$) ⁽⁴⁾	60.35	58.77	57.87	56.78	54.89
Number of associates at fiscal year-end (in thousands)	406	385	371	365	340

$$1,544 * \$60.35 = \$93,180$$

$$237 * \$391 = \$92,667$$

- (1) Fiscal year 2012 includes 53 weeks; all other fiscal years reported include 52 weeks.
- (2) In fiscal 2016, the Company adopted ASU No. 2015-03, "Interest-Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs" and ASU No. 2015-17, "Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes". The adoptions of ASU No. 2015-03 and ASU No. 2015-17 have been applied retrospectively. See Note 2 to the Consolidated Financial Statements included in Item 8, "Financial Statements and Supplementary Data".
- (3) Includes Net Sales at locations open greater than 12 months, including relocated and remodeled stores and online sales, and excluding closed stores. Retail stores become comparable on the Monday following their 365th day of operation. Comparable store sales is intended only as supplemental information and is not a substitute for Net Sales or Net Earnings presented in accordance with U.S. generally accepted accounting principles. Net Sales for the 53rd week of fiscal 2012 are not included in comparable store sales results for fiscal 2012.
- (4) These amounts do not include results for Interline, which was acquired in the third quarter of fiscal 2015.

What components would you use in your forecasting?

Source: Home Depot 10-K

WHO? - The Financial Statements (MD&A) Gives a Guide on Customers

Our Customers. We serve three primary customer groups, and we have different approaches to meet their particular needs:

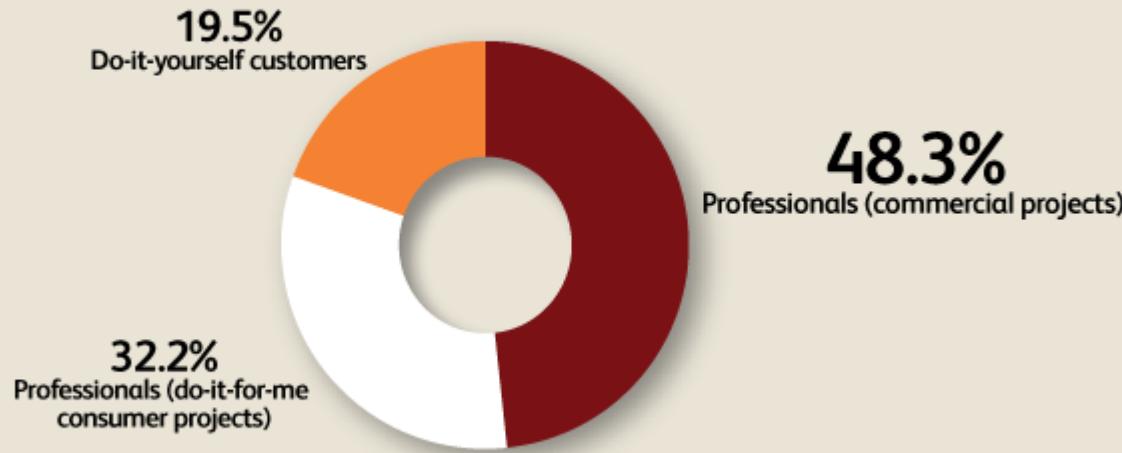
- **Do-It-Yourself ("DIY") Customers.** These customers are typically home owners who purchase products and complete their own projects and installations. Our associates assist these customers with specific product and installation questions both in our stores and through online resources and other media designed to provide product and project knowledge. We also offer a variety of clinics and workshops both to impart this knowledge and to build an emotional connection with our DIY customers.
- **Do-It-For-Me ("DIFM") Customers.** These customers are typically home owners who purchase materials and hire third parties to complete the project or installation. Our stores offer a variety of installation services targeted at DIFM customers who purchase products and installation of those products from us in our stores, online or in their homes through in-home consultations. Our installation programs include many categories, such as flooring, cabinets, countertops, water heaters and sheds. In addition, we provide third-party professional installation in a number of categories sold through our in-home sales programs, such as roofing, siding, windows, cabinet refacing, furnaces and central air systems. This customer group is growing due to changing demographics, which we believe will increase demand for our installation services. Further, our focus on serving the professional customers, or "Pros", who perform these services for our DIFM customers will help us drive higher product sales.
- **Professional Customers.** These customers are primarily professional renovators/remodelers, general contractors, repairmen, installers, small business owners and tradesmen. With our acquisition of Interline Brands, Inc. ("Interline") in August 2015, we expanded our service to the maintenance, repair and operations ("MRO") Pro. We recognize the unique service needs of the Pro customer and use our expertise to facilitate their buying experience. We offer a variety of special programs to these customers, including delivery and will-call services, dedicated staff, expanded credit programs, designated parking spaces close to store entrances and bulk pricing programs for both online and in-store purchases. In addition, we maintain a loyalty program, Pro Xtra, that provides our Pros with discounts on useful business services, exclusive product offers and a purchase tracking tool to enable receipt lookup

Source: Home Depot 10-K

Where is there room for growth? Industry Percentages

Recent
Trend

Major market segmentation (2017)



Total \$176.3bn

SOURCE: WWW.IBISWORLD.COM

<http://clients1.ibisworld.com/reports/us/industry/productsandmarkets.aspx?indid=1031>

SOURCE: WWW.IBISWORLD.COM

Where is there room for growth? HD's guidance

Target Market Opportunity

\$550B Addressable U.S. Market



Sources: 2014 HIRI Reference Guide; 2015 Harvard University "Emerging Trends in the Remodeling Market"; NAICS; and external market analysis

16



How would Op.
Margins or Op
Asset Turnover
Vary?

Who is Buying and Why/What are they Buying?

HD Customers:

Professionals

± 3-4% Transactions
± 37% Revenue

Do it Yourself

Do it For Me

- **How Does this Impact What they Buy and the Price they Are Willing to Pay?**
- What will drive increase in customers and different types?
 - Macro factors
 - Firm-specific
 - Region Specific
 - Seasonal

Interline acquisition to address Pros market

**Caution:
Interline not
part of same
store sales
yet**

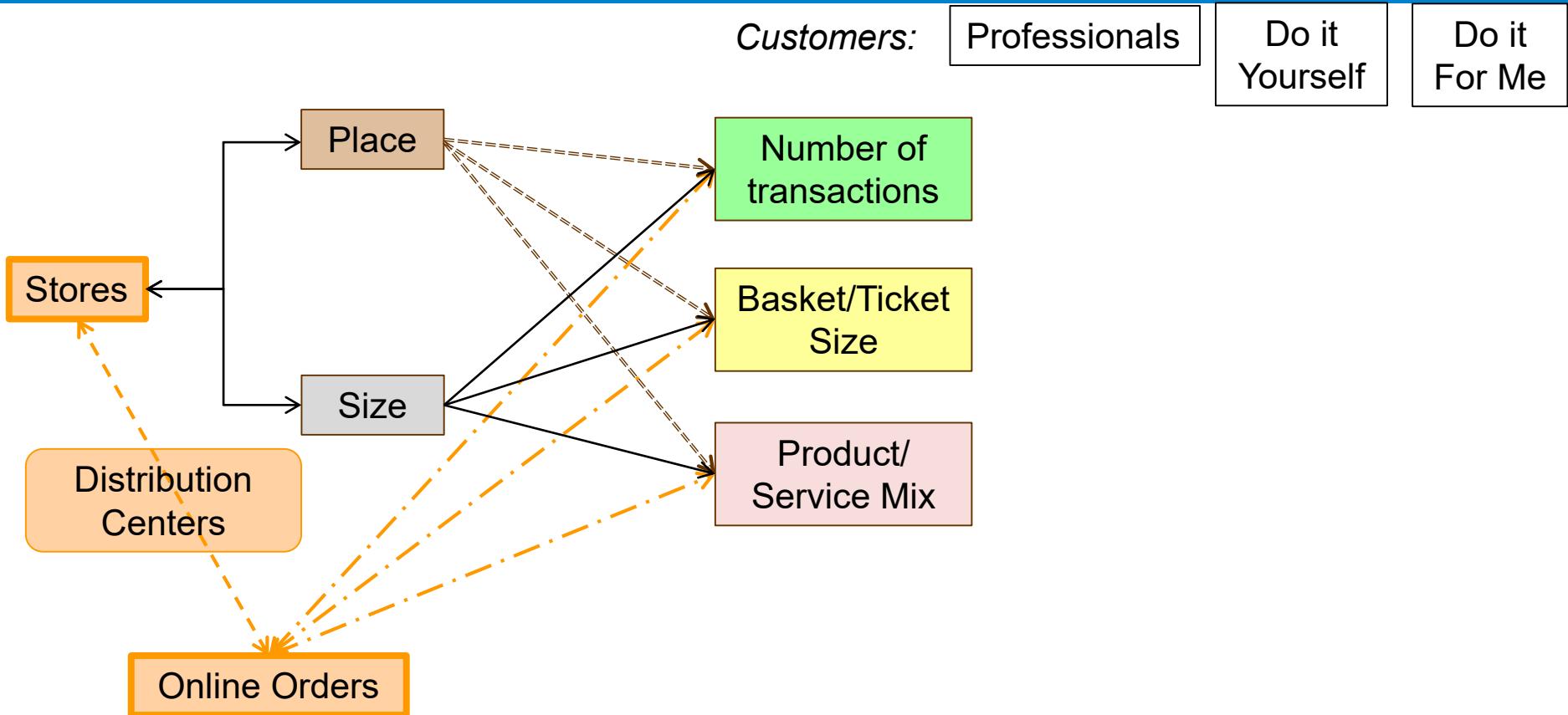
With our acquisition of Interline Brands, Inc. ("Interline") in August 2015, we established a platform in the maintenance, repair and operations ("MRO") market where we serve primarily institutional customers (such as educational and healthcare institutions), hospitality businesses, and national apartment complexes. We also gained additional competencies relevant to our large professional customers, including outside sales and account management, expanded assortment of product, expanded financing options and last mile delivery capabilities.

Another engine of growth for our business is the Pro customer, as Pro sales once again outpaced DIY sales in the quarter. We recognize that Pro customers have needs that go beyond our traditional in-store offerings, and we believe that the work we are doing to strengthen our sales support, assortment and fulfillment for this customer base continues to resonate. For example, our in-store tool rental business helps our Pros more effectively run their business. In many cases, a partnership with The Home Depot can translate into business for our Pros as we can connect them with our do-it-for-me customers through our Pro refill platform. We continue to see significant opportunity to help our Pros manage and grow their business while driving higher product pull-through and strengthening our relationship with our do-it-for-me customer.

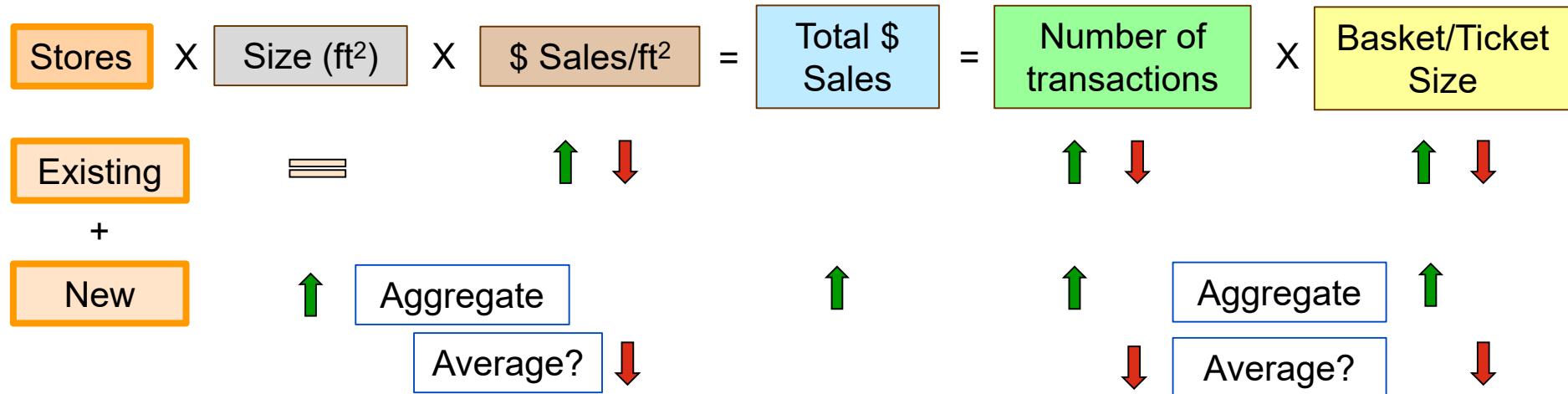
Another component of our overall Pro strategy centers on Interline for the MRO customer. Use case 1, the rollout of Interline's catalog of products to Home Depot stores is now live in over 1,500 U.S. stores. We continue to roll out use case 2, which enables Interline customers to shop Home Depot stores using a swipe card that is linked to their Interline account. Interline sales growth outpaced the company average in the quarter, and we remain very excited about the opportunity that Interline provides.

**HD – Q1 2017 Home Depot Earnings Call
EVENT DATE/TIME: MAY 16, 2017 09:00 AM EST**

Some Drivers of Revenue for Home Depot (and many retail businesses)



Setting up the Model (Framework)



Influencers:

- Macro factors
- Customer Mix
- Product mix
-

Geography (where), Product Categories (what) and Customers (who) Drive the Business

Frank Blake - *The Home Depot, Inc. - Chairman, CEO*

Home Depot Q3 Transcript of Investor Call & 3Q10-Q

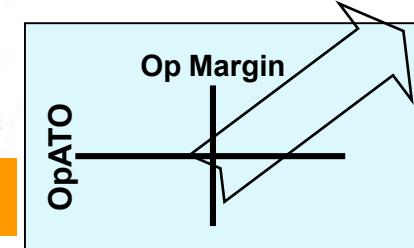
Thank you, Diane, and good morning, everyone. Sales for the third quarter were \$19.5 billion, up 7.4% from last year. Comp sales were positive 7.4% and our diluted earnings per share were \$0.95. Our U.S. stores had a positive comp of 8.2%. ? 42

From a geographic perspective, sales were strong across the U.S. All of our U.S. regions posted positive comps in the quarter, as did 39 of our top 40 markets. The only exception was New Orleans, which anniversaried the impact of Hurricane Isaac from last year. Our Mid-south, Southeast, and Pacific North regions had our strongest comp performance with double-digit gains. ? 43

During the quarter, we saw strong growth in both transactions and ticket. We have now had ten consecutive quarters of transaction and ticket growth, which we view as an encouraging sign of the balance in the growth of our business. We were also able to achieve operational improvement across key elements of our business, with improvement in inventory turns, shrink performance and continued expense leverage.

On merchandising, as Craig will detail, the core categories of the store were solid and we saw strength in larger-ticket categories, such as appliances and countertops. Project-based categories, such as tile and vanities, performed well, and our services business grew double digits. ? 44

The recovery of our Pro business continues. In the third quarter, our Pro business grew at a slightly faster pace than our Consumer business. In addition to sales from our Pro customers, we also tracked whether we are drawing an increased number of Pros. We household our customer data, looking at unique customers and account numbers, and we have seen a steady year-over-year increase in the Pro segment. ?



WHERE: Distribution of the Stores – HD vs LOW

U.S. Store Count by State



STORES BY STATE AND PROVINCE

(As of January 29, 2016)

LOWE'S HOME IMPROVEMENT STORES

Alabama	39	Massachusetts	27	Texas	141
Alaska	5	Michigan	47	Utah	16
Arizona	32	Minnesota	11	Vermont	2
Arkansas	20	Mississippi	24	Virginia	67
California	111	Missouri	48	Washington	36
Colorado	29	Montana	5	West Virginia	18
Connecticut	17	Nebraska	5	Wisconsin	8
Delaware	10	Nevada	17	Wyoming	1
District of Columbia	1	New Hampshire	13	Total U.S. Stores	1,725
Florida	121	New Jersey	40		
Georgia	63	New Mexico	14	Alberta	7
Hawaii	4	New York	70	British Columbia	1
Idaho	8	North Carolina	112	Ontario	32
Illinois	37	North Dakota	3	Saskatchewan	2
Indiana	44	Ohio	83	Total CAN Stores	42
Iowa	11	Oklahoma	29		
Kansas	11	Oregon	14	Sinaloa	1
Kentucky	42	Pennsylvania	82	Sonora	1
Louisiana	31	Rhode Island	5	Coahuila	1
Maine	11	South Carolina	49	Chihuahua	1
Maryland	28	South Dakota	3	Nuevo León	6
		Tennessee	60	Total MX Stores	10

Total Lowe's Home Improvement Stores

ORCHARD SUPPLY HARDWARE STORES

California •
Oregon •

Total Orchard Supply Hardware Stores

Total Lowe's Companies, Inc. Stores

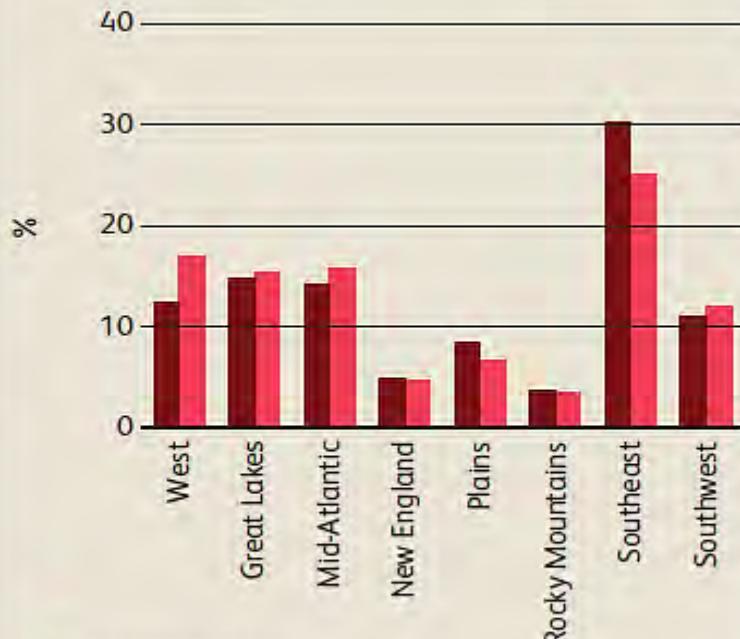


Sales by region?

What are some Implications of the Number and Distribution of the Stores?

Locations should be linked to Population + Growth + Weather

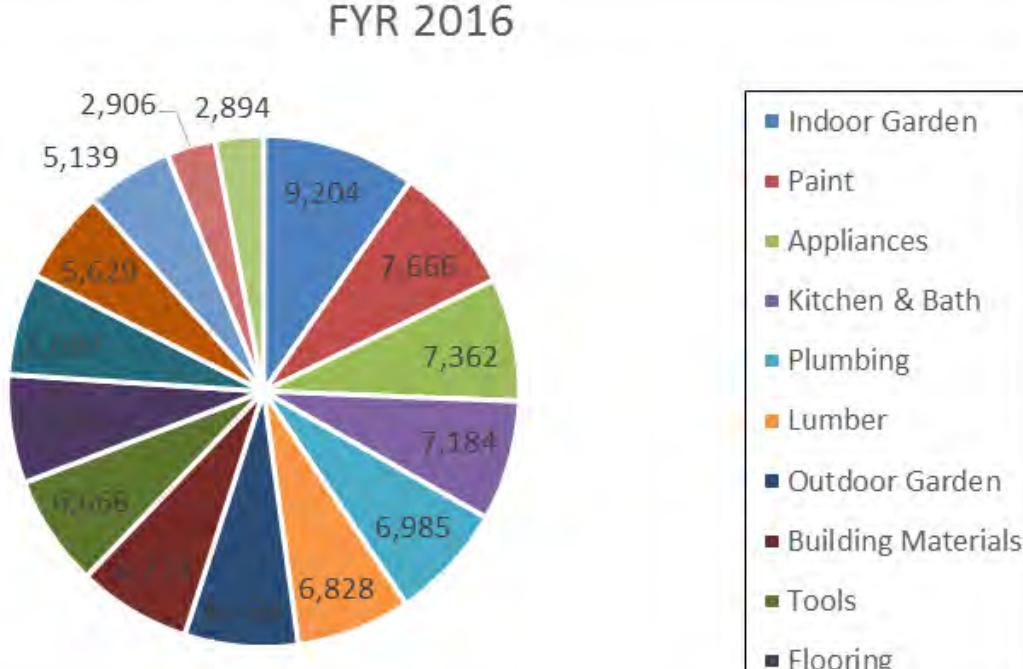
Distribution of establishments vs. population



- Where is the growth (\pm) potential and who is there?



Net Sales of Products Now Provided as Part of Segment Disclosure



Always check for changes in disclosed information

What Can You Learn From the Historical Breakdown of Product Net Sales?

Product Category	Fiscal Year Ended					
	January 29, 2017		January 31, 2016		February 1, 2015	
	Net Sales	% of Net Sales	Net Sales	% of Net Sales	Net Sales	% of Net Sales
Indoor Garden	\$ 9,204	9.7%	\$ 8,227	9.3%	\$ 7,486	9.0%
Paint	7,666	8.1	7,497	8.5	7,342	8.8
Appliances	7,362	7.8	6,539	7.4	5,718	6.9
Kitchen and Bath	7,184	7.6	6,909	7.8	6,639	8.0
Plumbing	6,985	7.4	6,364	7.2	5,755	6.9
Lumber	6,828	7.2	6,284	7.1	6,054	7.3
Outdoor Garden	6,789	7.2	6,505	7.3	6,319	7.6
Building Materials	6,774	7.2	6,416	7.2	6,068	7.3
Tools	6,668	7.0	6,060	6.8	5,388	6.5
Flooring	6,477	6.8	6,215	7.0	6,011	7.2
Electrical	6,090	6.4	5,837	6.6	5,656	6.8
Hardware	5,629	6.0	5,296	6.0	4,975	6.0
Millwork	5,139	5.4	4,937	5.6	4,707	5.7
Décor	2,906	3.1	2,730	3.1	2,554	3.1
Lighting	2,894	3.1	2,703	3.1	2,504	3.0
Total	\$ 94,595	100.0%	\$ 88,519	100.0%	\$ 83,176	100.0%

Product Categories and Customers Drive the Business

Craig Menear - *The Home Depot, Inc. - EVP of Merchandising*

Home Depot Q3 Transcript of Investor Call & 3Q10-Q

All merchandising departments posted positive comps. Kitchens, lighting, decor, lumber, electrical, indoor garden, paint and bath were above the company average. Millwork, flooring, plumbing, outdoor garden, building materials, hardware and tools performed positively, but were below the company average.

In the core of the store, maintenance and repair categories saw continued positive comp performance in products like ladders, light bulbs, air circulation, wiring devices, pipes and fittings, fasteners and builders' hardware. There was also strength in decor, with comps above the company average in categories such as lighting, countertops, floor and wall tile, window coverings, faucets, vanities, fixtures and special-order carpet. As Frank mentioned, Pro customer sales continue to gain strength, and while Pros shop across the store, we saw double-digit comp growth in categories such as gypsum, concrete, pressure-treated lumber and moldings.



Mild weather throughout much of the quarter and across the country continued to drive sales in our exterior project categories. For example, sales in exterior stains and water sealers, pressure washers and exterior paint all posted comps above the company average.

Relevant information is provided about what you can choose to consider

Key is always to ask what it says about growth and sustainability

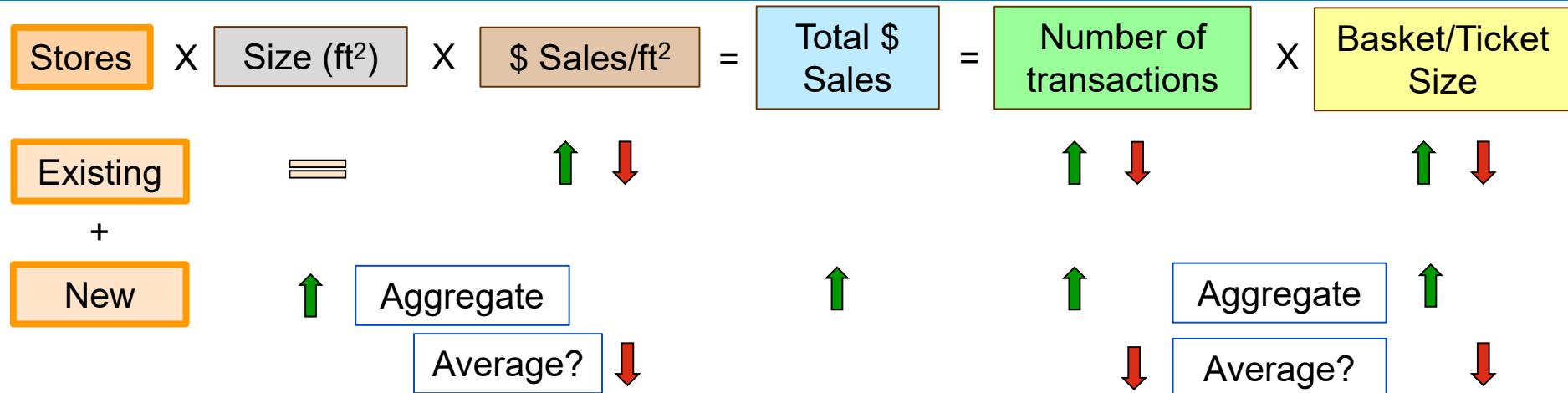


Total transactions grew by 4%, while average ticket increased 3.2% for the quarter. Our average ticket increase was positively impacted somewhat by commodity price inflation from products such as lumber and copper. The total impact to comp growth from commodity inflation was approximately 45 basis points.

Transactions for tickets under \$50, representing approximately 20% of our U.S. sales, were up 3.1% for the third quarter. Transactions for tickets over \$900, also represented in approximately 20% of our U.S. sales, were up 10.3% in the third quarter. The drivers behind the increase in big-ticket purchases were continued strength in our Pro business, appliances, HVAC, countertops and in-stock kitchens.



Relating the Information to the Model (Framework)



What should be impacted?

WHO: Greater Sales Originating Online

Interconnecting Retail. A typical The Home Depot store stocks approximately 30,000 to 40,000 products during the year, including both national brand name and proprietary items. To enhance our merchandising capabilities, we continued to make improvements to our information technology tools in fiscal 2015 to better understand our customers, provide more localized assortments to fit customer demand and optimize space to dedicate the right square footage to the right products in the right location. We also continued to use the resources of BlackLocus, Inc., a data analytics and pricing firm we acquired in fiscal 2012, to help us make focused merchandising decisions based on large, complex data sets.

Our online product offerings complement our stores by serving as an extended aisle, and we offer a significantly broader product assortment through our Home Depot, Home Decorators Collection and Blinds.com websites. We continue to enhance our websites and mobile experience by improving navigation and search functionalities to allow customers to more easily find and purchase an expanded array of products and provide our customers with flexibility and convenience for their purchases, for example, through our BOPIS, BOSS, BORIS and BODFS programs. In addition, we invest in content, such as videos, room scenes, buying guides and how-to information, and we routinely assess our online assortment to balance choice with curation so that we provide value to our customers. As a result of these efforts, in fiscal 2015 we enhanced the customer experience and saw increased traffic to our websites, improved online sales conversion rates, and a larger percentage of orders being picked up in our stores. For fiscal 2015, we had over 1.4 billion visits to our online properties; sales from our online channels increased over 25% compared to fiscal 2014; and over 40% of our online orders were picked up in a store.

WHO: Greater Sales Originating Online can drive/distort Sales/ft²

Interconnected Retail – Where Online Increases Traffic and Conversion in Stores, and Stores Do the Same for Online



	2012 ¹⁾	2013F	% change
In-Store Sales (billions)	\$71.8	~\$76.3	~6%
Online Sales (billions) ²⁾	\$1.8	~\$2.7	~50%
Total	\$73.6	~\$79.0	~7%
Square Feet (millions)	235	236	~0.4%
Sales / Square Feet	\$313	~\$335	~7%

In store gains smaller:
 $71.8/235 = \$306$ to
 $76.3/236 = \$326$ or
5.5%. Online masks offline

Differentiate New and Existing Stores

Driving Productivity Without Adding Square Footage

Why is this somewhat misleading?

1) Based on fiscal 2012 52-WK year; 2) Consists of Net Sales generated online through the Home Depot and Home Decorators Collection websites for products delivered to customer locations or picked up in stores through our Buy Online Pick up In Store (BOPIS) and Buy Online Ship to Store (BOSS) programs.

What Really Changed and What Does it Mean for Future?

SELECTED SALES DATA⁽²⁾

Number of Customer Transactions (in millions)	1,544.0	1,500.8	1,441.6
Average Ticket	\$ 60.35	\$ 58.77	\$ 57.87
Sales per Square Foot	\$ 390.78	\$ 370.55	\$ 352.22
Comparable Store Sales Increase (%) ⁽³⁾	5.6%	5.6%	5.3%
Online Sales (% of Net Sales) ⁽⁴⁾	5.9%	5.3%	4.5%

Source: Home Depot FYR 2016 10-K

Online Sales: Countering Amazon: 1 of 2

Michael Lasser - UBS - Analyst

Okay. And then my follow-up question is on the e-comm business. Obviously, you're doing really well through that channel. To what extent is it validating that consumers increasingly want to buy the home improvement products through the online channel and subsequently, going to expose you to greater and greater levels of competition?

Craig Menear - The Home Depot, Inc. - Chairman, CEO & President

I mean, I think the interesting thing for us is over 45% of our orders on homedepot.com, the customer's actually choosing to pick up into our stores. So they're finding it incredibly convenient to blend the channels and utilize all the assets that we have.

Michael Lasser - UBS - Analyst

Is that percentage changing at all, Craig? I think you mentioned that it's 50% in the past.

Craig Menear - The Home Depot, Inc. - Chairman, CEO & President

It's been growing over the past 12 months.

Kevin Hofmann – The Home Depot – CMO and President of Online

And then, Brian, from just a sales perspective, certainly, we see strength across the store. Our bath business has been doing very well. Our flooring business has been doing very well. Plumbing, power tools, all doing very well. And not to ignore the core building materials products, we see great visit traction of Pros shopping online looking for inventory levels, looking at pricing. And that's been working very, very well for us as well.

Online Sales: Countering Amazon: 2 of 2

Carol Tomé - *The Home Depot, Inc. - EVP, Corporate Services & CFO*

And just a couple numbers. Matt, if I could add a couple of numbers. The visits were up 15% year-on-year. Our conversion rate increased 13 basis points year-on-year. So if your visits are up and your conversion is up, your sales are going to grow. And a lot of that is because of the site experience improvements that Kevin and his team has made.

Matt Fassler - *Goldman Sachs - Analyst*

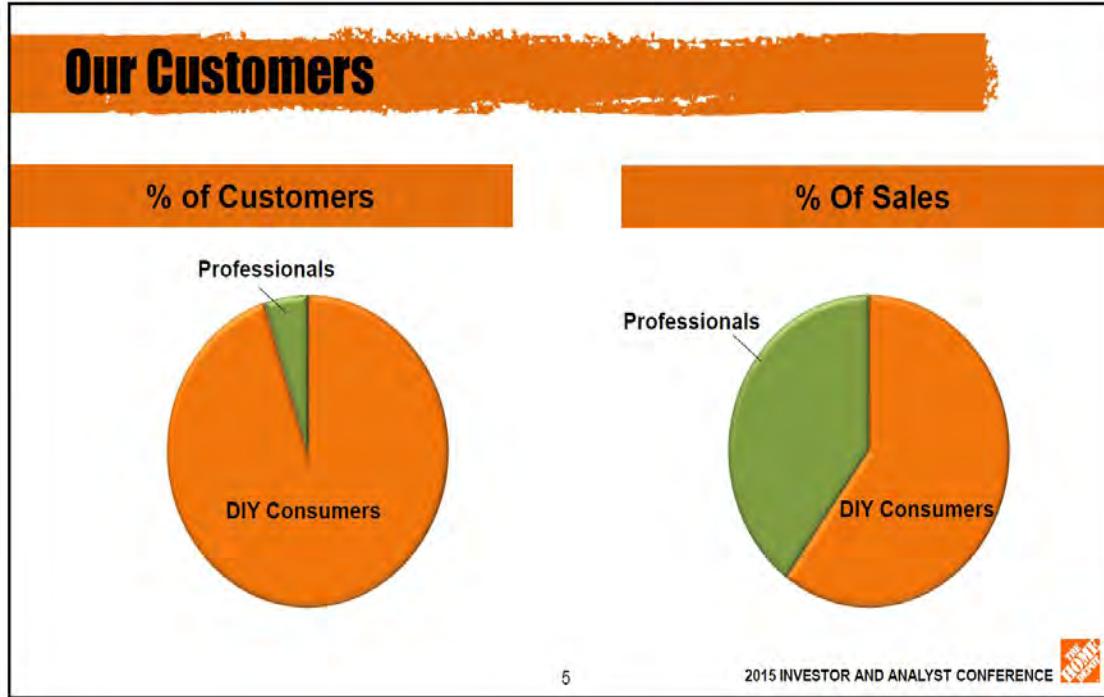
That's terrific. If we think about that, I'm sure you have data on customer age. And you can probably tell from the kind of products that they're purchasing and the kind of products they're engaging in. If you think about online transaction, is there a sign that the millennial customer is disproportionately patronizing the enterprise online? Or is it more evenly distributed across age groups?

Craig Menear - *The Home Depot, Inc. - Chairman, CEO & President*

We actually see it more evenly distributed.

HD – Q1 2017 Home Depot Earnings Call
EVENT DATE/TIME: MAY 16, 2017 09:00 AM EST

WHO: Pros most profitable



PROFESSIONAL
MARKET CAN GET
AMAZONED AWAY?

What tier of
professional is
attracted here?

Wallet share of the
professional?

HD should find top
100K professionals
and treat them like
gods. 90 day credit!

Understanding is Facilitated with Understanding the Operating Cycle

Understand the Product/Service

- What is it?
- How is it produced?
- Where is it produced?

Who is buying it (why are they buying it)?

How is it sold?

Where is it sold?

What is pricing?

How are customers going to pay for it?

When are they paying for it?

What is the feasible market size?

How competitive is the market and how well is entity positioned?

What macro drivers impact any of these?

How is the revenue accounted for/reported?



How do we consider these in building a forecast or business plan?

Outline

- Vendor Financing i.e. Use of Credit and its Implications
- Example of how fundamental analysis has helped highlight issues before they were “priced in”?
- Some Revenue Recognition perspectives
- Some revenue related earnings quality ratios to consider

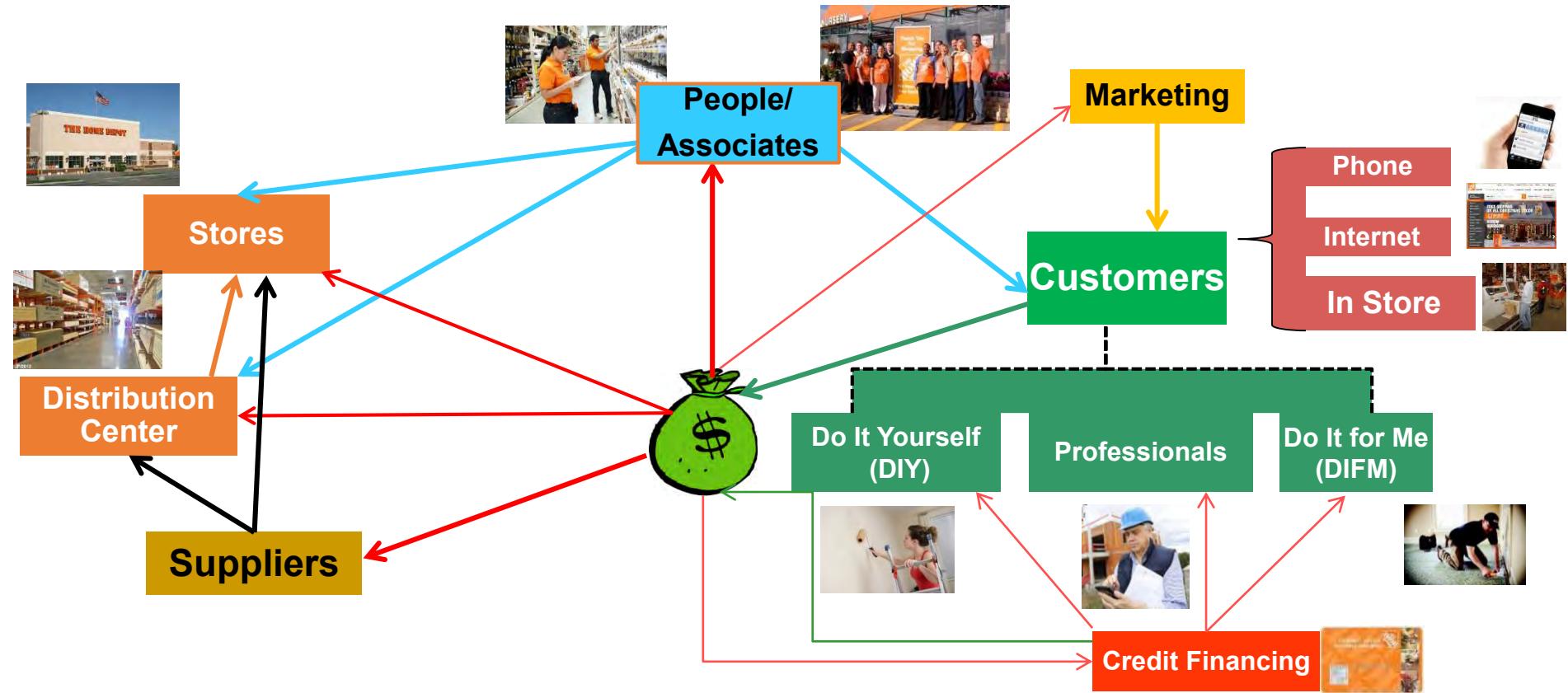
Financing Customers: An Overview of Types, Opportunities and Risks

<u>Types of Financing of Revenue</u>	<u>Where is the Opportunity/Risk?</u>
Financing <ul style="list-style-type: none">– Discounting/Incentives– Extended terms– Taking on High Credit Risk– Commitments– Fair value changes	<ul style="list-style-type: none">– Good practice vs. “stuffing the channel”– Taking market share or increasing risk– Counterparties and collateral– Creating and bringing forward revenue– How useful are “prices” from markets vs. models
Bundling of Products/ Services/Financing	<ul style="list-style-type: none">– When do you recognize and how much do you allocate to each part?– Backlog/timing of long dated portions

Key questions:Financing Customers

- How are sales and/or customers financed? Are terms competitive?
- Does the company provide any guarantees or commitments to its customers?
- Is financing being used to sell marginal products or to marginal customer?
- When is cash actually received?
- Are Days Sales Outstanding (DSOs) consistent with past trends and present competitive setting?
- Is the recognition of charge-offs and provisions consistent with pattern of expected risk and trends of the underlying receivables?
- Does the company report deferred revenues? How are these earned out, and does the model reflect this? Are annual changes consistent with cash flows?

How and When are Customers Paying?



What the Financial Statements Tell Us About Customer Financing



amounts in millions, except share and per share data

**January 29,
2017**

**January 31,
2016**

ASSETS

Current Assets:

Cash and Cash Equivalents	\$ 2,538	\$ 2,216
Receivables, net	2,029	1,890
Merchandise Inventories	12,549	11,809
Other Current Assets	608	569
Total Current Assets	17,724	16,484

Accounts Receivable

The Company has agreements with third-party service providers who directly extend credit to customers, manage the Company's private label credit card program ("PLCC program") and own the related receivables. The Company evaluated the third-party entities holding the receivables under the program and concluded that they should not be consolidated by the Company. The agreement with the primary third-party service provider for the Company's PLCC program expires in 2028, with the Company having the option, but no obligation, to purchase the receivables at the end of the agreement. The deferred interest charges incurred by the Company for its deferred financing programs offered to its customers are included in Cost of Sales. The interchange fees charged to the Company for the customers' use of the cards and any profit sharing with the third-party service providers are included in Selling, General and Administrative expenses ("SG&A"). The sum of these three components is referred to by the Company as "the cost of credit" of the PLCC program.

In addition, certain subsidiaries of the Company, including Interline Brands, Inc. ("Interline"), extend credit directly to customers in the ordinary course of business. The receivables due from customers were \$216 million and \$253 million as of January 29, 2017 and January 31, 2016, respectively. The Company's valuation reserve related to accounts receivable was not material to the Consolidated Financial Statements of the Company as of the end of fiscal 2016 or 2015.

Performance of the credit portfolio not owned by HD



Daniel Thomas Binder - Jefferies LLC

Great. And then as – for my follow-up question, a separate topic on credit. I know you don't own your credit portfolio, but just wondering if you can provide us with some color on how that portfolio is doing, if there's an increase in lending, willingness to lend, delinquencies, write-offs, things of that nature.

Carol B. Tomé - The Home Depot, Inc.

Yeah, thanks very much. So, you're right, we don't own our credit portfolio, but we do have visibility into the portfolio. It's a very healthy portfolio with an average net receivable of \$12.6 billion. As we look inside the portfolio, we see that it's performing nicely. Our loss rates are up slightly year-on-year, but they're considerably under the historical average. The historical average, just to put in perspective, is 4.3%.

In terms of approvals for customers applying for our private label credit card, we see on the consumer side that 73% of all applications are being approved with a FICO of around 750. So, we write a pretty high quality here. On the pro side, 72% of all applications are being approved, and for the pro, that line is around \$6,700. So, hopefully that's helpful.

Implicit recourse?

Customer Financing: Deferred Revenue



**THE HOME DEPOT, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS**

amounts in millions, except share and per share data

LIABILITIES AND STOCKHOLDERS' EQUITY

Current Liabilities:

	<u>January 29, 2017</u>	<u>January 31, 2016</u>	Deferred revenue up 7%. Why?
LIABILITIES AND STOCKHOLDERS' EQUITY			
Current Liabilities:			
Short-Term Debt	\$ 710	\$ 350	
Accounts Payable	7,000	6,565	
Accrued Salaries and Related Expenses	1,484	1,515	
Sales Taxes Payable	508	476	
Deferred Revenue	1,669	1,566	
Income Taxes Payable	25	34	
Current Installments of Long-Term Debt	542	77	
Other Accrued Expenses	2,195	1,941	
Total Current Liabilities	14,133	12,524	

Revenues

We recognize revenue, net of estimated returns and sales tax, at the time the customer takes possession of merchandise or receives services. We estimate the liability for sales returns based on our historical return levels. We believe that our estimate for sales returns is an accurate reflection of future returns. We have never recorded a significant adjustment to our estimated liability for sales returns. However, if these estimates are significantly below the actual amounts, our sales could be adversely impacted. When we receive payment from customers before the customer has taken possession of the merchandise or the service has been performed, the amount received is recorded as Deferred Revenue in the accompanying Consolidated Balance Sheets until the sale or service is complete. We also record Deferred Revenue for the sale of gift cards and recognize this revenue upon the redemption of gift cards in Net Sales.

Customer Financing: Deferred Revenue



Michael Lasser - UBS - Analyst

So deferred revenue was bigger this quarter than it's been in the past, recognize that next quarter. To what degree is that a leading indicator of the business given the nature of the sales that are in that number?

Carol Tomé - The Home Depot, Inc. - EVP, Corporate Services & CFO

Yes, there were 3 big drivers of the deferred revenue growth year-on-year. One, you've heard commentary about our dot-com sales growth, up 23% year-on-year. Not all of those sales are completed at the time of -- that we take the tender. Our dot-com sales now make up 6.6% of our total sales. We also saw growth in our services business. Our services business grew faster than our company average, and Ted called out flooring as an example. Those are the 2 biggest drivers of the deferred sales increase.

How do we typically think about and forecast receivables?
What are the implications for cash usage and needs?

- Restaurants?
- Airlines?
- Banks?
- Energy and Utilities?
- Food and Beverage Producers?
- Hospitals and Medical Practitioners?
- Pharmaceutical manufacturers?
- Real Estate Owners/Managers?
- Retailers?
- Software and SaaS sellers?

Analyzing and Forecasting Receivables

Exhibit 5

The Apples-to-Apples Earnings Monitor — The Measures and Where to Find Them

Basic Measure	Calculation	Potential Complications to Watch For	Where to Find the Information
Days Sales Outstanding (DSO)	$\left(\frac{\text{Trade Receivables}}{\text{Revenues}} \right) * \text{Number of Days in Period}$ <p>Make sure aligned with the receivables</p>	<p>Discounted/factored or securitized receivables should be added back.</p> <p>Split between long- and short-term receivables.</p> <p>Receivables relating to deferred revenue should be excluded (and often already are).</p> <p>Impact of currencies as receivables and revenues are measured at different rates.</p>	<p>Receivables are on the balance sheet (can be current or long term).</p> <p>Revenues are in the income statement.</p> <p>Securitized receivables are sometimes disclosed in the liquidity section of Management's Discussion and Analysis of operations (MD&A).</p>

Analyzing and Forecasting Receivables DSO description

Exhibit 4

The Apples-to-Apples Earnings Monitor — What the Measures Mean

Basic Measure	What Can It Show?	When Is It Good News?	When Is It a Concern?	Some Questions to Ask
Days Sales Outstanding (DSO)	<p>Credit terms for customers.</p> <p>End-of-period acceleration of sales, or “channel stuffing.”</p> <p>Potential risks of bad debts.</p>	<p>Reduced or low DSO (without slowing revenue) indicate efficient working capital management and increase the likelihood of sustainable revenues from strong demand.</p> <p>A rise in DSO can be positive if it relates to a surge in demand or a large contract from introduction of new product.</p>	<p>A sudden rise in DSO can be a sign of “channel stuffing” that indicates unsustainable revenues.</p> <p>A broad rise in DSO can indicate extended credit terms that may result from increasing competition or lower-quality customers, increasing the risk of unsustainable revenue.</p>	<p>Have any receivables been discounted/factored or securitized? If so, consider DSO after adding these back.</p> <p>Are changes in DSO in-line with those of competitors?</p> <p>Is change in DSO affected by a change in product or geographic mix?</p> <p>Can period-end changes be explained by legitimate new business/contracts?</p> <p>How are DSO affected by acquisitions/dispositions of other businesses?</p> <p>Are DSO affected by a shift between current and long-term receivables?</p>

Analyzing Receivables and Provisions: Loan Loss Reserve Ratio

Exhibit 4 (continued)

The Apples-to-Apples Earnings Monitor — What the Measures Mean

Basic Measure	What Can It Show?	When Is It Good News? 	When Is It a Concern? 	Some Questions to Ask
Loan Loss Reserves Ratio (LLRR)	<p>Proportion of receivables or loans that will not be realized with cash.</p> <p>Conservatism of management and their credit policies.</p>	<p>A low (decreasing) ratio can mean that there is a tight credit policy and revenues are likely to lead to cash receipts.</p> <p>A high (increasing) ratio can indicate that there is only a small chance of a future charge from non-payments.</p>	<p>A low (decreasing) ratio can mean that past earnings have been overstated as expenses are too low.</p> <p>A high (increasing) ratio may indicate poor credit analysis and sales are being created by too-lenient credit terms that cannot be sustained over time.</p>	<p>How does the LLRR compare to sector norms and risk/return relationships?</p> <p>Given the macro indicators, is the LLRR reasonable?</p> <p>Is the LLRR consistent with changes in the customer or product mix?</p> <p>Have there been any significant write-offs that explain a change in the LLRR?</p> <p>Has the company changed its credit policies and is this reflected in the change in LLRR?</p> <p>Are the DSO and LLRR sending consistent messages?</p> <p>How does the annual level of LLR compare to the actual bad debt expense each year? If it is consistently low (high), future earnings will be negatively (positively) affected.</p>

Well-Known Problems that Could Have Been “Avoided” in 1997-2002

- **Xerox - Residual values in sales financing, R&D, joint venture**
- **Asia Pulp and Paper - Related Party Transactions, Capitalized Interest, FX**
- **Enron - Profitability, related party transactions, mark-to-market, FX, SPE**
- **Qwest - Revenues, pensions, capitalized expenses, business combinations**
- **Ford - Related credit company, securitization, loan loss reserves**
- **Flextronics - Acquisitions, share based payments, ROIC**
- **Tyco - Acquisitions, restructuring charges, margins, securitization, ROIC**

TAKEAWAY: There are many cases where relating the fundamentals to what is being reported is not reflected in market prices: including understanding revenue growth....

An Example of How DSOs can be Distorted

Extract from Tyco Cash Flow from Operations 10K F2001

TYCO INDUSTRIAL			
FOR THE YEAR ENDED SEPTEMBER 30,			
	2001	2000	1999
Net income	\$ 3,970.6	\$ 4,519.9	\$ 1,022.0
Provisions for losses on accounts receivable, inventory and credit losses	593.5	354.3	211.5
Other non-cash items	81.8	60.0	26.6
Changes in assets and liabilities, net of the effects of acquisitions and divestitures:			
Accounts receivable	(434.1)	(992.4)	(796.0)
Proceeds from accounts receivable sale	490.6	100.0	50.0
Inventories	(678.8)	(850.0)	(124.4)
Other assets	121.2	129.1	488.1
Accounts payable, accrued expenses and other liabilities	269.9	(551.1)	496.8
Income taxes	370.7	896.4	(10.2)
Other	(94.2)	128.4	(96.1)

Cash flow from Operations and Day Sales Outstanding potentially distorted by sales of receivables

Securitization of Receivables – Tyco FYR 9/2001

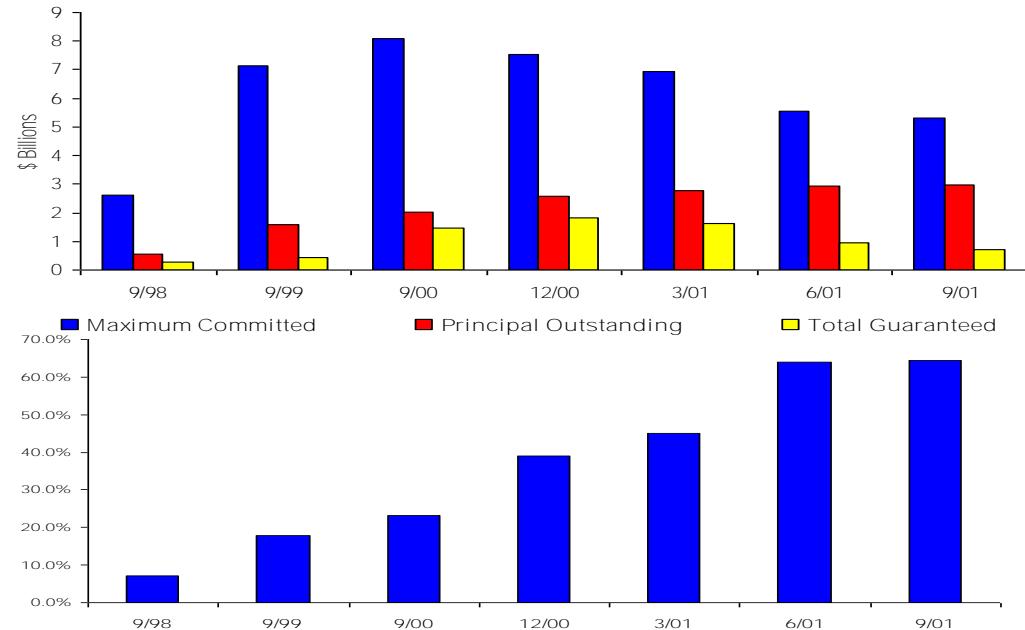
• In September 2001, TIG entered into a separate agreement to sell a defined pool of trade accounts receivable from time to time to a financial institution in Europe. The availability under this program is \$175.0 million. **TIG sold certain accounts receivable under this program for net proceeds of \$160.0 million**, which is net of a discount of \$1.4 million.

Also in September 2001, Tyco Industrial sold certain accounts receivable to Tyco Capital for net proceeds of approximately \$297.8 million, which is net of a discount of \$4.3 million. This sale is eliminated as an intercompany transaction in Tyco's Consolidated Financial Statements.

- Why are these done in September?
- What is the economic benefit (business purpose) of securitization with a captive finance company?

Vendor Financing - Lucent

Customer Financing



Principal Outstanding/ Accounts Receivable

Questions to Ask:

- Commitments are used to facilitate revenues but can be at a future cost.
- Commitments can create liquidity problems at the worst time.

Questions we Need to Consider - Macro aspects

Understand the Product/Service

- What is it?
- How is it produced?
- Where is it produced?

Who is buying it (why are they buying it)?

How is it sold?

Where is it sold?

What is pricing?

How are customers going to pay for it?

When are they paying for it?

What is the feasible market size?

How competitive is the market and how well is entity positioned?

What macro drivers impact any of these?

How is the revenue accounted for/reported?



REMINDER: Key objective is to understand sustainability and growth

Where is there room for growth? HD's guidance

Target Market Opportunity

\$550B Addressable U.S. Market



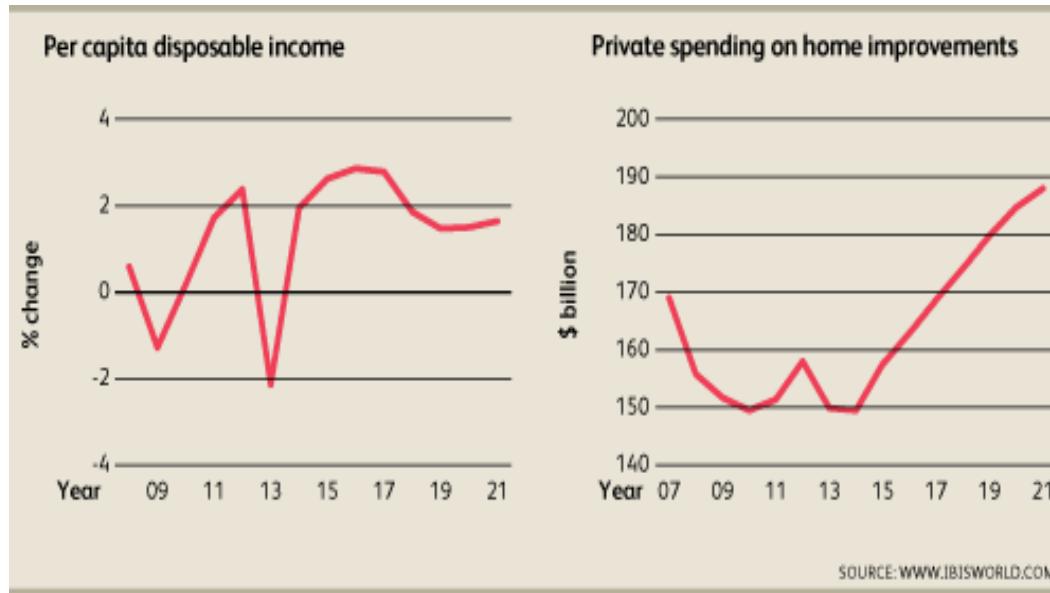
Sources: 2014 HIRI Reference Guide; 2015 Harvard University "Emerging Trends in the Remodeling Market"; NAICS; and external market analysis

16



How would Op.
Margins or Op
Asset Turnover
Vary?

A View of Total Addressable Market



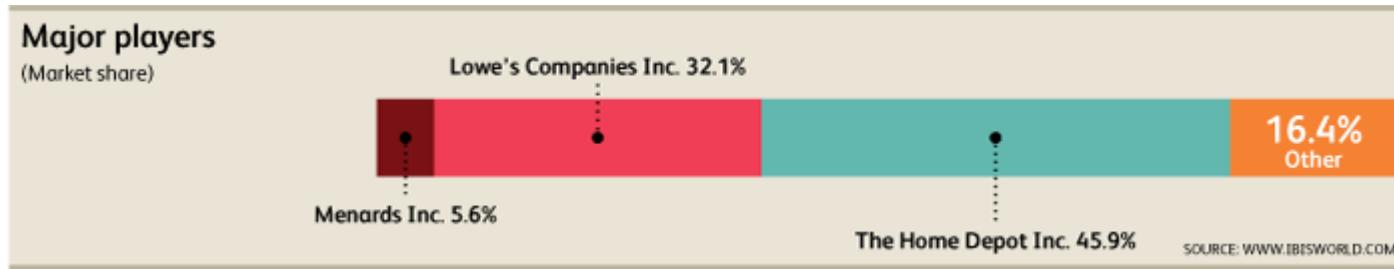
Industry Data

	Revenue (\$m)	Industry Value Added (\$m)	Pvt. spending on home improvements (\$b)
2007	153,862.5	30,450.4	192.7
2008	143,808.9	28,093.5	174.2
2009	126,723.9	25,741.4	168.3
2010	127,537.8	26,546.9	163.9
2011	132,115.2	26,645.2	162.6
2012	138,469.5	29,112.9	166.6
2013	147,221.2	30,907.5	155.6
2014	151,787.9	33,001.3	152.6
2015	158,170.4	34,841.2	159.8
2016	164,127.2	36,535.1	162.9
2017	168,396.1	36,926.0	168.7
2018	172,609.4	38,058.6	174.1
2019	178,608.9	39,397.6	179.8
2020	183,915.5	40,851.7	184.7
2021	188,139.9	41,877.9	188.0

What will impact the serviceable addressable and obtainable market?

What is the Current (and Future?) Market Share?

Home Improvement STORES



Barriers to Entry checklist

	Level
Competition	Medium
Concentration	High
Life Cycle Stage	Mature
Capital Intensity	Low
Technology Change	Low
Regulation & Policy	Light
Industry Assistance	None

?

What influences market share and competitive landscape?

SOURCE: WWW.IBISWORLD.COM

To Develop Our Understanding of the Addressable
Market and Market Share to Build Forecasts We Need to
Look to the Factors That Drive These *Including Macro*