“Fundamental Analysis for Investors, Managers and Entrepreneurs”

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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 differentiated 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 use 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 the public company, Chipotle (following the framework provided in the class) on a group basis. You will work in groups of 2 to 3 (LARGER SIZES WILL NOT BE ACCEPTED). For each topic area of the assignments, you will also prepare 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.

For the final project, you can pick a company of your choosing. However, for the final project, you will individually 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 will 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.

Is financial expertise critical?

The course presumes that you have a solid understanding of the subject matter covered in B6000 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.

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 at odds with what I am teaching.

3. 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.
Grading

There will be approximately 6 written assignments, which will relate to the materials discussed and their application to an actual company (see p 7). These assignments will be done by your group using the Type A assignment scheme (see below) and cover 60% of the grade. 5% of your grade will be based on your attendance at class and your preparation and understanding of the company analysis for your discussions with me, and 35% will be based on the final project, which will also follow Type B in the assignment scheme. A passing grade on the final project is necessary to pass the class.

I do not intend to grade on a curve for this course. I believe in merit-based grades so would be delighted to give everyone an H, but I also give low or failing grades to anyone who does not put in the effort and does not demonstrate an understanding of what we cover.

TA

The TA is Nan Li, his email is NLi18@gsb.columbia.edu. You can communicate with Nan 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 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 calling
- 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. 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 Nan one-on-one.

<table>
<thead>
<tr>
<th>Type</th>
<th>Designation</th>
<th>Discussion of Concepts</th>
<th>Preparation of Submission</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Group/Group</td>
<td>Permitted with designated group*</td>
<td>By the group</td>
<td>Same grade for each member of group</td>
</tr>
<tr>
<td>B</td>
<td>Group/Individual</td>
<td>Permitted with designated group*</td>
<td>Individually (No sharing of any portion of the submission.)</td>
<td>Individual</td>
</tr>
</tbody>
</table>

*The designated group is a self-selected study group to be used for the duration of the course.*
## B 7010: Preliminary Course Outline

<table>
<thead>
<tr>
<th>Class #</th>
<th>Subject matter</th>
<th>Specific Topics</th>
</tr>
</thead>
</table>
| 1       | Overview - Approach to Fundamental Analysis of any Business | - 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 |
| 2 and 3 | Understanding Revenue | - 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? |
| 4 and 5 | Understanding Productive Capacity, R&D and Intangibles. | - 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? |
| 6 and 7 | Understanding Human Resources and Labor Costs | - 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)? |
<table>
<thead>
<tr>
<th>8</th>
<th>Understanding Material and other costs</th>
<th>• Where and how is the cost reflected in financial statements?</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9</td>
<td>Funding, Capital Structure</td>
<td>• Funding choices (equity vs debt) for different types of entity (early stage, high growth and steady state; small vs large)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How much and when is funding needed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How are these reflected in financial statements and performance measures?</td>
</tr>
<tr>
<td>9</td>
<td>Funding: Financial Investments, Strategic and M&amp;A and Intangibles from Acquisition</td>
<td>• Considering liquidity and financial investments and how they are reflected in financial statements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Impacts of strategic investments, mergers and acquisitions, and minority stakes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How do we interpret the related growth and acquisition related assets?</td>
</tr>
<tr>
<td>10</td>
<td>The Impact and Understanding of Taxation</td>
<td>• Tax considerations: what is taxed, where is it taxed, when is it taxed and at what rate?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How is tax reflected in the financial statements and what can we learn from this?</td>
</tr>
<tr>
<td>11</td>
<td>Understanding the Basics of Currency Impacts</td>
<td>• Transactions vs translation and impact on margins, cash flow, ratios and capital</td>
</tr>
<tr>
<td>12</td>
<td>Catch up, valuation and putting it all together</td>
<td>• Bringing all the pieces together and relating them to forecasts and valuation analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Considering the trade-offs of various valuation approaches for managers and different investors.</td>
</tr>
<tr>
<td>Assignment #</td>
<td>Topic</td>
<td>Due Date</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>Drawing-describing the “Operating and Funding Cycles of a Business” (small, but investing time in this step will pay off)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Revenue analysis (large)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Capacity analysis (large)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Labor analysis (large)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Materials and Other Costs (small)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Capital structure analysis (small)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Taxation analysis (voluntary)</td>
<td></td>
</tr>
<tr>
<td>Final project</td>
<td>Additional Scenario of 2 Year Forecast, Write-up and Valuation (Individual)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Assignment 1-7 for Chipotle, final project for a company you choose.
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

- Operating Income (OP)
- Earnings (NI)
- Net Financial Cost (NFC)
- Net Operating Assets (NOA)
- Equity Capital (EC)
- Net Financial Obligations (NFO)
- Operating Profit Margin (OM=OP/Revenue)
- Capital Efficiency (Revenue/NOA)
- Leverage (NFO/EC)
- Spread (RNOA – (NFC/NFO))
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?
## State Economic Indicators

**Projected Percent Change, 2013-2014**

<table>
<thead>
<tr>
<th>State</th>
<th>Total Employment</th>
<th>Real Disposable Personal Income</th>
<th>Total Population</th>
<th>RESTAURANT SALES ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>Alaska</td>
<td>1.3%</td>
<td>2.6%</td>
<td>1.0%</td>
<td>$1,307,494</td>
</tr>
<tr>
<td>California</td>
<td>1.8%</td>
<td>3.0%</td>
<td>0.9%</td>
<td>$67,127,319</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1.6%</td>
<td>2.7%</td>
<td>0.9%</td>
<td>$3,703,128</td>
</tr>
<tr>
<td>Oregon</td>
<td>1.9%</td>
<td>3.2%</td>
<td>1.2%</td>
<td>$6,467,862</td>
</tr>
<tr>
<td>Washington</td>
<td>1.8%</td>
<td>3.1%</td>
<td>1.0%</td>
<td>$10,848,158</td>
</tr>
<tr>
<td>PACIFIC</td>
<td>1.8%</td>
<td>3.0%</td>
<td>1.0%</td>
<td>$89,453,961</td>
</tr>
<tr>
<td>New Jersey</td>
<td>15%</td>
<td>3.0%</td>
<td>0.3%</td>
<td>$14,140,058</td>
</tr>
<tr>
<td>New York</td>
<td>12%</td>
<td>3.1%</td>
<td>0.2%</td>
<td>$33,447,765</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>12%</td>
<td>3.0%</td>
<td>0.1%</td>
<td>$17,770,760</td>
</tr>
<tr>
<td>MIDDLE ATLANTIC</td>
<td>1.3%</td>
<td>3.1%</td>
<td>0.2%</td>
<td>$65,558,583</td>
</tr>
</tbody>
</table>

*National Restaurant Association | Restaurant.org/Forecast*
### 2014 Market Comparison

<table>
<thead>
<tr>
<th></th>
<th>California (State 06, CA)</th>
<th>New York (State 36, NY)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>38,439,243</td>
<td>19,114,163</td>
</tr>
<tr>
<td>2019</td>
<td>39,496,452</td>
<td>19,628,001</td>
</tr>
<tr>
<td>2010</td>
<td>37,253,956</td>
<td>19,378,102</td>
</tr>
<tr>
<td><strong>Household income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $25,000</td>
<td>2,324,016</td>
<td>1,548,960</td>
</tr>
<tr>
<td>$25,000 - $49,999</td>
<td>3,029,359</td>
<td>1,758,752</td>
</tr>
<tr>
<td>$50,000 - $74,999</td>
<td>2,226,982</td>
<td>1,273,594</td>
</tr>
<tr>
<td>$75,000 - $99,999</td>
<td>1,454,172</td>
<td>805,623</td>
</tr>
<tr>
<td>$100,000+</td>
<td>3,862,173</td>
<td>2,113,151</td>
</tr>
<tr>
<td><strong>Median household income</strong></td>
<td>62,078</td>
<td>58,265</td>
</tr>
<tr>
<td><strong>Average household income</strong></td>
<td>84,560</td>
<td>83,937</td>
</tr>
<tr>
<td><strong>Consumer spending (total annual, $000)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>287,736,321</td>
<td>160,707,448</td>
</tr>
<tr>
<td>Transportation</td>
<td>116,413,931</td>
<td>52,168,050</td>
</tr>
<tr>
<td>Food at home</td>
<td>69,115,357</td>
<td>35,072,014</td>
</tr>
<tr>
<td><strong>Food away from home</strong></td>
<td>46,952,064</td>
<td>23,954,877</td>
</tr>
<tr>
<td>Life insurance &amp; pensions</td>
<td>96,636,223</td>
<td>47,430,499</td>
</tr>
<tr>
<td>Entertainment</td>
<td>45,579,352</td>
<td>22,854,948</td>
</tr>
<tr>
<td>Healthcare</td>
<td>67,049,626</td>
<td>33,037,146</td>
</tr>
<tr>
<td>Apparel &amp; related services</td>
<td>30,256,289</td>
<td>14,935,461</td>
</tr>
<tr>
<td>Other</td>
<td>105,512,202</td>
<td>52,073,770</td>
</tr>
</tbody>
</table>
Scan/US software is used for the production of demographic reports and maps for specific sites, trade areas and markets.
More Detail Available To Assess Market More Directly

Household Income
More detail on Actual Spending

### Consumer Spending Comparison Report

<table>
<thead>
<tr>
<th></th>
<th>1 MI RING</th>
<th>3 MI RING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Households</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner households</td>
<td>87,365</td>
<td>586,468</td>
</tr>
<tr>
<td>Renter households</td>
<td>56,022</td>
<td>426,969</td>
</tr>
<tr>
<td><strong>Average Household income</strong></td>
<td>$190,235</td>
<td>$136,772</td>
</tr>
<tr>
<td><strong>Average Annual Household Spending</strong></td>
<td>$57,747</td>
<td>$51,575</td>
</tr>
</tbody>
</table>

### Average Annual Spending by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>1 MI RING</th>
<th>3 MI RING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food at home</td>
<td>$3,267</td>
<td>$3,398</td>
</tr>
<tr>
<td>Cereals/bakery products</td>
<td>$469</td>
<td>$401</td>
</tr>
<tr>
<td>Meats/poultry/fish/eggs</td>
<td>$707</td>
<td>$744</td>
</tr>
<tr>
<td>Dairy products</td>
<td>$385</td>
<td>$375</td>
</tr>
<tr>
<td>Fruits/vegetables</td>
<td>$660</td>
<td>$576</td>
</tr>
<tr>
<td>Other food at home</td>
<td>$1,057</td>
<td>$1,103</td>
</tr>
<tr>
<td><strong>Food away from home</strong></td>
<td>$2,587</td>
<td>$2,469</td>
</tr>
<tr>
<td><strong>Alcoholic beverages</strong></td>
<td>$493</td>
<td>$462</td>
</tr>
</tbody>
</table>

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**Demographic Reports**

Reporting and Mapping Service

**ScanUS**

Professional Market Mapping
### How Much Competition is There?

#### Business Comparison Report

**W 72ND ST AT BROADWAY: NEW YORK, NY 10023**

**SITE LOCATED AT 40.77871, 73.98197**

<table>
<thead>
<tr>
<th>Establishment Type</th>
<th>1 MI RING</th>
<th>3 MI RING</th>
<th>5 MI RING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Establishments</td>
<td>12,590</td>
<td>140,032</td>
<td>208,131</td>
</tr>
<tr>
<td>Establishments by Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>498</td>
<td>8,198</td>
<td>14,611</td>
</tr>
<tr>
<td>Mining</td>
<td>4</td>
<td>71</td>
<td>159</td>
</tr>
<tr>
<td>Construction</td>
<td>28</td>
<td>540</td>
<td>938</td>
</tr>
<tr>
<td>Construction, &lt;10 employees</td>
<td>182</td>
<td>2,958</td>
<td>5,494</td>
</tr>
<tr>
<td>High-tech/research</td>
<td>11</td>
<td>205</td>
<td>313</td>
</tr>
<tr>
<td>Trans/comm/utilities</td>
<td>38</td>
<td>932</td>
<td>1,773</td>
</tr>
<tr>
<td>Wholesale/industrial</td>
<td>99</td>
<td>2,185</td>
<td>3,651</td>
</tr>
<tr>
<td>Warehousing</td>
<td>27</td>
<td>378</td>
<td>774</td>
</tr>
<tr>
<td>General industrial</td>
<td>109</td>
<td>929</td>
<td>1,499</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>234</td>
<td>4,959</td>
<td>6,917</td>
</tr>
<tr>
<td>Heavy manufacturing</td>
<td>2</td>
<td>63</td>
<td>117</td>
</tr>
<tr>
<td>General manufacturing</td>
<td>8</td>
<td>181</td>
<td>362</td>
</tr>
<tr>
<td>Light manufacturing</td>
<td>38</td>
<td>1,027</td>
<td>1,367</td>
</tr>
<tr>
<td>Manufacturing, &lt;10 employees</td>
<td>186</td>
<td>3,688</td>
<td>5,071</td>
</tr>
<tr>
<td>Commercial</td>
<td>3,569</td>
<td>41,682</td>
<td>67,096</td>
</tr>
<tr>
<td>Retail trade</td>
<td>1,409</td>
<td>18,709</td>
<td>29,188</td>
</tr>
<tr>
<td>Restaurants/bars</td>
<td>700</td>
<td>7,193</td>
<td>13,027</td>
</tr>
<tr>
<td>Personal/rental/repair services</td>
<td>767</td>
<td>7,656</td>
<td>12,549</td>
</tr>
<tr>
<td>Automotive repair services</td>
<td>197</td>
<td>1,509</td>
<td>2,364</td>
</tr>
<tr>
<td>Hotels/motels</td>
<td>104</td>
<td>711</td>
<td>930</td>
</tr>
<tr>
<td>Theaters/retail amusements</td>
<td>42</td>
<td>280</td>
<td>420</td>
</tr>
</tbody>
</table>
### Weekly Sales Projection

<table>
<thead>
<tr>
<th></th>
<th># Customers</th>
<th>Covers</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>90</td>
<td>1.0</td>
<td>791</td>
</tr>
<tr>
<td>Lunch</td>
<td>110</td>
<td>1.3</td>
<td>1,511</td>
</tr>
<tr>
<td>Dinner</td>
<td>200</td>
<td></td>
<td>2,303</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>95</td>
<td>1.1</td>
<td>835</td>
</tr>
<tr>
<td>Lunch</td>
<td>110</td>
<td>1.3</td>
<td>1,511</td>
</tr>
<tr>
<td>Dinner</td>
<td>205</td>
<td></td>
<td>2,346</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>100</td>
<td>1.2</td>
<td>879</td>
</tr>
<tr>
<td>Lunch</td>
<td>120</td>
<td>1.4</td>
<td>1,649</td>
</tr>
<tr>
<td>Dinner</td>
<td>220</td>
<td></td>
<td>2,528</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>110</td>
<td>1.3</td>
<td>967</td>
</tr>
<tr>
<td>Lunch</td>
<td>125</td>
<td>1.5</td>
<td>1,718</td>
</tr>
<tr>
<td>Dinner</td>
<td>235</td>
<td></td>
<td>2,684</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>130</td>
<td>1.5</td>
<td>1,143</td>
</tr>
<tr>
<td>Lunch</td>
<td>180</td>
<td>2.1</td>
<td>2,473</td>
</tr>
<tr>
<td>Dinner</td>
<td>310</td>
<td></td>
<td>3,616</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>130</td>
<td>1.5</td>
<td>1,143</td>
</tr>
<tr>
<td>Lunch</td>
<td>180</td>
<td>2.1</td>
<td>2,473</td>
</tr>
<tr>
<td>Dinner</td>
<td>310</td>
<td></td>
<td>3,616</td>
</tr>
<tr>
<td><strong>Sunday</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast</td>
<td>110</td>
<td>1.3</td>
<td>967</td>
</tr>
<tr>
<td>Lunch</td>
<td>125</td>
<td>1.5</td>
<td>1,718</td>
</tr>
<tr>
<td>Dinner</td>
<td>235</td>
<td></td>
<td>2,684</td>
</tr>
<tr>
<td><strong>Weekly Totals</strong></td>
<td>1715</td>
<td>Totals in USD $</td>
<td>19,777</td>
</tr>
</tbody>
</table>

### RECAP: Key Sales Figures

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

\[ 19,777 \times 52 = 1,028,404 \]
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** Start of FYR 14

- Price at 2/4/14: $73
- Value of Base Earnings
- Implied Remaining Growth in Current Price: $22.61 (34%)
- Adjustment to “Current” Price
- Price at 2/4/15 approx. $107
- Price end 12/15 approx. $xx

$43.75 (66%)
[Consensus EPS 3.50/8% required return (cost of equity)]

What kind of performance is necessary to justify this price?
Can (or how can) they sustain current profitability?
What is the source of the future value creation?

Source: S&P Capital IQ

Columbia Business School
Historical Profitability Map for Home Depot and Lowes

Historical performance is clearly in HD’s 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?

<table>
<thead>
<tr>
<th>Company</th>
<th>% Change in Price</th>
<th>% Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Depot</td>
<td>186.0%</td>
<td>221.9%</td>
</tr>
<tr>
<td>Lowes</td>
<td>100.4%</td>
<td>116.6%</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>74.2%</td>
<td></td>
</tr>
</tbody>
</table>

Source: FACTSET data
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

Starting Point: What Drives RNOA?

RNOA

Operating Profit Margin [PM]

Operating Asset Turnover [opATO]

Operating Income

Revenues

Net Operating Assets (NOA)

Revenues

New Products

Existing Products

Channels

Regions

Revenues

Capacity

Marketing

R&D

Labor

Other

Some of the Why!

Required Growth

Fixed Variable

Required Growth

Fixed Variable
Home Depot's 10 Year Sales Growth
Average 2.7%

How Useful are these for a Forecast?

Source: Home Depot Financials, CapitalIQ

Average $72,191
How Useful are these for a Forecast?
Why you need to be careful of time series from data bases

From FactSet

For the Fiscal Period Ending

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail - Home Improvement</td>
<td>-</td>
<td>-</td>
<td>71,101.0</td>
<td>77,019.0</td>
<td>79,022.0</td>
<td>77,349.0</td>
</tr>
<tr>
<td>HD Supply</td>
<td>-</td>
<td>-</td>
<td>2,040.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Corporate</td>
<td>-</td>
<td>-</td>
<td>(47.0)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Home Depot Stores</td>
<td>58,247.0</td>
<td>64,816.0</td>
<td>73,094.0</td>
<td>77,019.0</td>
<td>79,022.0</td>
<td>77,349.0</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>58,247.0</td>
<td>64,816.0</td>
<td>73,094.0</td>
<td>77,019.0</td>
<td>79,022.0</td>
<td>77,349.0</td>
</tr>
</tbody>
</table>

From CapitalIQ

From 2007 10-K
Adj for Disc Ops

| Net sales | 77,349 | 79,022 | 77,019 | 71,100 | 63,560 | 58,247 |
| Net sales increase (%) | (2.1) | 2.6 | 8.3 | 11.7 | 9.3 | 8.8 |

From FactSet

The Home Depot, Inc. (HD) $82.02

Columbia Business School
### Understanding Underlying Growth Rates – Some Basics

<table>
<thead>
<tr>
<th></th>
<th>Reported Revenue</th>
<th>9 month Revenue Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-May</td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td>31-Dec</td>
<td>$13,000</td>
<td>A -13%</td>
</tr>
<tr>
<td>31-Dec</td>
<td>$14,300</td>
<td>B and C -5%</td>
</tr>
<tr>
<td>31-Dec</td>
<td>$15,730</td>
<td>D 5%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Units</th>
<th>9 month Unit Growth</th>
<th>Price</th>
<th>9 month Price Growth</th>
<th>Exchange Rate</th>
<th>% Change in Exch Rate</th>
<th>Reported Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-May</td>
<td>1000</td>
<td>10</td>
<td></td>
<td>1.5</td>
<td></td>
<td>$15,000</td>
</tr>
<tr>
<td>31-Dec</td>
<td>1000</td>
<td>0%</td>
<td>10</td>
<td>0%</td>
<td>1.3</td>
<td>-13% $13,000 A</td>
</tr>
<tr>
<td>31-Dec</td>
<td>1000</td>
<td>0%</td>
<td>11</td>
<td>10%</td>
<td>1.3</td>
<td>-13% $14,300 B</td>
</tr>
<tr>
<td>31-Dec</td>
<td>1100</td>
<td>10%</td>
<td>10</td>
<td>0%</td>
<td>1.3</td>
<td>-13% $14,300 C</td>
</tr>
</tbody>
</table>

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
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.
**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.

<table>
<thead>
<tr>
<th>Basis for forecasting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
</tr>
<tr>
<td>$15,000</td>
</tr>
</tbody>
</table>

[(1+A)*(1+B)*(1+C)-1]
## A Framework for Analyzing and then Forecasting Revenue

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

Your Business?
- Asset management
- Consulting (services)
- Education
- Media
- Pharma
- Real Estate
- Software
Home Depot’s Basic Operating Cycle

- Stores
- Distribution Center
- Suppliers
- People/Associates
- Marketing
- Customers
  - Do It Yourself (DIY)
  - Professionals
  - Do It for Me (DIFM)
- Credit Financing

- Phone
- Internet
- In Store
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

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.

Is there any way to use these?

Source: Home Depot 10-K and CapitalIQ
# Understand the Product – Where, What & How: Component Data from Financials

## Component Data from Financials

<table>
<thead>
<tr>
<th></th>
<th>Fiscal Year(s)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>$74,754</td>
<td>$70,395</td>
<td>$67,997</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net sales increase (decrease) (%)</strong></td>
<td>6.2</td>
<td>3.5</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### STORE DATA

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of stores</strong></td>
<td>2,256</td>
<td>2,252</td>
<td>2,248</td>
<td></td>
</tr>
<tr>
<td><strong>Square footage at fiscal year-end</strong></td>
<td>235</td>
<td>235</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td><strong>Increase (decrease) in square footage (%)</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td><strong>Average square footage per store (in thousands)</strong></td>
<td>104</td>
<td>104</td>
<td>105</td>
<td></td>
</tr>
</tbody>
</table>

### SELECTED SALES DATA

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Customer Transactions (in millions)</strong></td>
<td>1,364.0</td>
<td>1,317.5</td>
<td>1,305.7</td>
<td>3.5 %</td>
</tr>
<tr>
<td><strong>Average Ticket</strong></td>
<td>$54.89</td>
<td>$53.28</td>
<td>$51.93</td>
<td>3.0 %</td>
</tr>
<tr>
<td><strong>Weighted Average Weekly Sales per Operating Store (in thousands)</strong></td>
<td>$627</td>
<td>$601</td>
<td>$581</td>
<td>4.3 %</td>
</tr>
<tr>
<td><strong>Comparable Store Sales Increase (%)</strong></td>
<td>4.6 %</td>
<td>3.4 %</td>
<td>2.9 %</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Note:** Certain percentages may not sum to totals due to rounding.

---

1. Fiscal years 2012, 2011 and 2010 refer to the fiscal years ended February 3, 2013, January 29, 2012 and January 30, 2011, respectively. Fiscal year 2012 includes 53 weeks; fiscal years 2011 and 2010 include 52 weeks.

2. The 53rd week of fiscal 2012 increased customer transactions by approximately 21 million, positively impacted average ticket by approximately $0.06 and positively impacted weighted average sales per square foot by approximately $5.51.

3. Includes Net Sales at locations open greater than 12 months, including relocated and remodeled stores 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 generally accepted accounting principles. Net Sales for the 53rd week of fiscal 2012 are not included in comparable store sales results for fiscal 2012.

Source: Home Depot 10-K
Customer Service

Our Customers. The Home Depot stores serve three primary customer groups, and we have different customer service approaches to meet their particular needs:

- Do-It-Yourself ("D-I-Y") 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 D-I-Y customers.

- Do-It-For-Me ("D-I-F-M") Customers. These customers are typically home owners who purchase materials themselves and hire third parties to complete the project or installation. Our stores offer a variety of installation services targeted at D-I-F-M customers who select and purchase products and installation of those products from us in the store. Our installation programs include products such as carpeting, flooring, cabinets, countertops and water heaters. In addition, we provide professional installation of a number of products sold through our in-home sales programs, such as roofing, siding, windows, furnaces and central air systems.

- Professional Customers. These customers are primarily professional remodelers, general contractors, repairmen, small business owners and tradesmen. 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. We recognize the unique service needs of the professional customer and use our expertise to facilitate their buying experience.
Where is there room for growth? Industry Percentages

Major market segmentation (2014)

- 38.5% Professionals
- 37.5% Do-it-yourself
- 24.0% Do-it-for-me

Total $158.9bn

SOURCE: WWW.IBISWORLD.COM
Who is Buying and Why/What are they Buying?

HD Customers:

<table>
<thead>
<tr>
<th>Professionals</th>
<th>Do it Yourself</th>
<th>Do it For Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 3-4% Transactions</td>
<td>± 37% Revenue</td>
<td></td>
</tr>
</tbody>
</table>

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

Stores

Place

Size

Distribution Centers

Online Orders

Professionals

Customers:

Number of transactions

Basket/Ticket Size

Product/Service Mix

Do it Yourself

Do it For Me
Setting up the Model (Framework)

<table>
<thead>
<tr>
<th>Stores</th>
<th>Size (ft²)</th>
<th>$ Sales/ft²</th>
<th>Total $ Sales</th>
<th>Number of transactions</th>
<th>Basket/Ticket Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>+</td>
<td>Aggregate</td>
<td>Average?</td>
<td></td>
<td>Aggregate</td>
</tr>
</tbody>
</table>

- **Influencers:**
  - Macro factors
  - Customer Mix
  - Product mix
  - …….
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%.

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.

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.

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.
What Happened to the Exchange Rates in FYR 2013

Canadian Dollar

Mexican Peso
WHERE: Distribution of the Stores – HD vs LOW

HD - The Home Depot, Inc.
Total Store Locations

LOW - Lowe's Companies, Inc.
Total Store Locations

What are some Implications of the Number and Distribution of the Stores?
Locations should be linked to Population + Growth + Weather

- Where is the growth (±) potential and who is there?
What Large Product Mixes – Historical Patterns of HD’s Mix

Revenue by Major Product Group - 2012

- Plumbing, Electrical & Kitchen: 31%
- Hardware & Seasonal: 29%
- Building Materials, Lumber & Millwork: 21%
- Paint & Flooring: 19%

<table>
<thead>
<tr>
<th>Description</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue by Major Product Group</td>
<td>67,997</td>
<td>70,395</td>
<td>74,754</td>
<td>30%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Plumbing, Electrical &amp; Kitchen</td>
<td>20,399</td>
<td>21,470</td>
<td>23,024</td>
<td>30%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Hardware &amp; Seasonal</td>
<td>19,991</td>
<td>20,767</td>
<td>21,978</td>
<td>29%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Building Materials, Lumber &amp; Millwork</td>
<td>14,755</td>
<td>14,853</td>
<td>15,399</td>
<td>22%</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>Paint &amp; Flooring</td>
<td>12,851</td>
<td>13,305</td>
<td>14,353</td>
<td>19%</td>
<td>19%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Source: Bloomberg BI and Company reports

• Taking the detail to the published financials is tricky…
• What else would we want?
• How might we use them?
Where is there room for growth? Industry Product Mix

Products and services segmentation (2014)

- 29% Lumber and other building and structural materials
- 20% Tools, equipment, paint and flooring
- 14% Lawn, garden and farm equipment supplies
- 12% Household appliances, kitchen goods and housewares
- 10% Plumbing fixtures and supplies
- 9% Electrical supplies
- 3% Other
- 3% Hardware

Total $158.9bn

Recent Trend

How would Op. Margins or Op Asset Turnover Vary?

SOURCE: WWW.IBISWORLD.COM
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.

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.
Net Sales of Products Now Provided as Part of Segment Disclosure

Always check for changes in disclosed information

Source: The Home Depot 10-K FYR 2013
### What Can You Learn From the Historical Breakdown of Product Net Sales?

<table>
<thead>
<tr>
<th>Product Category</th>
<th>February 1, 2015</th>
<th>February 2, 2014</th>
<th>February 3, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net Sales</td>
<td>% of Net Sales</td>
<td>Net Sales</td>
</tr>
<tr>
<td>Kitchen</td>
<td>$8,403</td>
<td>10.1%</td>
<td>$7,978</td>
</tr>
<tr>
<td>Indoor Garden</td>
<td>7,550</td>
<td>9.1%</td>
<td>7,176</td>
</tr>
<tr>
<td>Paint</td>
<td>7,300</td>
<td>8.8%</td>
<td>7,026</td>
</tr>
<tr>
<td>Outdoor Garden</td>
<td>6,394</td>
<td>7.7%</td>
<td>6,154</td>
</tr>
<tr>
<td>Building Materials</td>
<td>6,055</td>
<td>7.3%</td>
<td>5,729</td>
</tr>
<tr>
<td>Lumber</td>
<td>6,050</td>
<td>7.3%</td>
<td>5,814</td>
</tr>
<tr>
<td>Flooring</td>
<td>5,986</td>
<td>7.2%</td>
<td>5,734</td>
</tr>
<tr>
<td>Plumbing</td>
<td>5,740</td>
<td>6.9%</td>
<td>5,437</td>
</tr>
<tr>
<td>Electrical</td>
<td>5,648</td>
<td>6.8%</td>
<td>5,360</td>
</tr>
<tr>
<td>Tools</td>
<td>5,384</td>
<td>6.5%</td>
<td>4,876</td>
</tr>
<tr>
<td>Hardware</td>
<td>4,974</td>
<td>6.0%</td>
<td>4,718</td>
</tr>
<tr>
<td>Millwork</td>
<td>4,694</td>
<td>5.6%</td>
<td>4,386</td>
</tr>
<tr>
<td>Bath</td>
<td>3,923</td>
<td>4.7%</td>
<td>3,706</td>
</tr>
<tr>
<td>Décor</td>
<td>2,576</td>
<td>3.1%</td>
<td>2,346</td>
</tr>
<tr>
<td>Lighting</td>
<td>2,499</td>
<td>3.0%</td>
<td>2,372</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$83,176</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>$78,812</strong></td>
</tr>
</tbody>
</table>

Source: The Home Depot 10-K FY 2013
Relating the Information to the Model (Framework)

Stores X Size (ft\(^2\)) X $ Sales/ft\(^2\) = Total $ Sales = Number of transactions X Basket/Ticket Size

Existing

+

New

Aggregate

Average?

Aggregate

Average?

What should be impacted?
## New Trends: Implications of Updated Data _What it is and How we Might Use it_

- [wsj.com/us-retail-sales/](wsj.com/us-retail-sales/)

### Table: Retail Sales Figures Jan 14 2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>444</td>
<td>Retail &amp; food services, total</td>
<td>5,271,229</td>
<td>4.0</td>
<td>506,251</td>
<td>442,348</td>
<td>429,124</td>
<td>483,162</td>
<td>429,408</td>
<td>442,931</td>
<td>447,121</td>
</tr>
<tr>
<td></td>
<td>Total (excl. motor vehicle &amp; parts)</td>
<td>4,213,570</td>
<td>3.0</td>
<td>415,412</td>
<td>360,526</td>
<td>354,841</td>
<td>462,594</td>
<td>351,825</td>
<td>351,856</td>
<td>355,424</td>
</tr>
<tr>
<td>4441</td>
<td>Retail</td>
<td>4,700,478</td>
<td>3.8</td>
<td>455,441</td>
<td>395,135</td>
<td>392,522</td>
<td>437,087</td>
<td>384,546</td>
<td>393,319</td>
<td>397,860</td>
</tr>
<tr>
<td></td>
<td>Building material &amp; garden eq. &amp; supplies dealers</td>
<td>328,017</td>
<td>5.0</td>
<td>24,848</td>
<td>26,077</td>
<td>28,588</td>
<td>23,158</td>
<td>24,693</td>
<td>27,517</td>
<td>28,050</td>
</tr>
<tr>
<td>4441</td>
<td>Building mat. &amp; sup. dealers</td>
<td>(*)</td>
<td>(*)</td>
<td>(*)</td>
<td>21,920</td>
<td>24,369</td>
<td>19,213</td>
<td>21,019</td>
<td>(*)</td>
<td>23,294</td>
</tr>
<tr>
<td>T22</td>
<td>Food services &amp; drinking places</td>
<td>570,751</td>
<td>5.8</td>
<td>43,811</td>
<td>47,213</td>
<td>49,602</td>
<td>46,075</td>
<td>44,862</td>
<td>49,012</td>
<td>49,231</td>
</tr>
</tbody>
</table>

(*) Advance estimates are not available for this kind of business.  
(NA) Not available  
(a) Advance estimate  
(p) Preliminary estimate  
(r) Revised estimate  

**Why did the stock market react so negatively to this news?**

Source: WSJ and Monthly Census Retail Sales Figures Jan 14 2015
Stores Confront New World of Reduced Shopper Traffic

E-Commerce Not Only Siphons Off Sales, but Changes Shopping Habits

By SHELLY BANJO and DREW FITZGERALD

What is the implication of this, i.e. how could you use it in looking ahead as a manager or investor?

Permanent Slowdown?

Total retail foot traffic for November and December

<table>
<thead>
<tr>
<th>Year</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>40 billion</td>
</tr>
<tr>
<td>2011</td>
<td>20 billion</td>
</tr>
<tr>
<td>2012</td>
<td>17.6 billion</td>
</tr>
<tr>
<td>2013</td>
<td>14.2 billion</td>
</tr>
</tbody>
</table>

Amount of new retail space opened annually

<table>
<thead>
<tr>
<th>Year</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>300 million</td>
</tr>
<tr>
<td>2011</td>
<td>200 million</td>
</tr>
<tr>
<td>2012</td>
<td>100 million</td>
</tr>
<tr>
<td>2013</td>
<td>43.8 million</td>
</tr>
</tbody>
</table>

Note: Traffic data is collected from 60,000 traffic-tracking devices installed at malls and large retailers. Retail space is reported for 54 of the largest U.S. markets.

Sources: ShopperTrak (visits); CoStar Group (square footage)
**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

<table>
<thead>
<tr>
<th></th>
<th>2012¹)</th>
<th>2013F</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Store Sales (billions)</td>
<td>$71.8</td>
<td>~$76.3</td>
<td>~6%</td>
</tr>
<tr>
<td>Online Sales (billions)²)</td>
<td>$1.8</td>
<td>~$2.7</td>
<td>~50%</td>
</tr>
<tr>
<td>Total</td>
<td>$73.6</td>
<td>~$79.0</td>
<td>~7%</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Feet (millions)</td>
<td>235</td>
<td>236</td>
<td>~0.4%</td>
</tr>
<tr>
<td>Sales / Square Feet</td>
<td>$313</td>
<td>~$335</td>
<td>~7%</td>
</tr>
</tbody>
</table>

Differentiate New and Existing Stores

Driving Productivity Without Adding Square Footage

Why is this somewhat misleading?

1) Based on fiscal 2012 52-Week 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 (BOST) programs.

2013 INVESTOR AND ANALYST CONFERENCE
What Really Changed in FYR 2013 and What Does it Mean for Future?

<table>
<thead>
<tr>
<th>SELECTED SALES DATA</th>
<th>Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>Number of Customer Transactions (in millions)</td>
<td>1,390.6</td>
</tr>
<tr>
<td>Average Ticket</td>
<td>$ 56.78</td>
</tr>
<tr>
<td>Sales per Square Foot</td>
<td>$ 334.35</td>
</tr>
<tr>
<td>Comparable Store Sales Increase (%)</td>
<td>6.8%</td>
</tr>
<tr>
<td>Online Sales (% of Net Sales)</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Management Analyst and Investor Day was just before year end
New CEO and communication channels seemed to have changed

Source: Home Depot FYR 2013 10-K
Understanding is Facilitated with Understanding the Operating Cycle

<table>
<thead>
<tr>
<th>Understand the Product/Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>- What is it?</td>
</tr>
<tr>
<td>- How is it produced?</td>
</tr>
<tr>
<td>- Where is it produced?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who is buying it (why are they buying it)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is it sold?</td>
</tr>
<tr>
<td>Where is it sold?</td>
</tr>
<tr>
<td>What is pricing?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How are customers going to pay for it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>When are they paying for it?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What is the feasible market size?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How competitive is the market and how well is entity positioned?</td>
</tr>
<tr>
<td>What macro drivers impact any of these?</td>
</tr>
<tr>
<td>How is the revenue accounted for/reported?</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Types of Financing of Revenue</th>
<th>Where is the Opportunity/Risk?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing</td>
<td></td>
</tr>
<tr>
<td>– Discounting/Incentives</td>
<td>– Good practice vs. “stuffing the channel”</td>
</tr>
<tr>
<td>– Extended terms</td>
<td>– Taking market share or increasing risk</td>
</tr>
<tr>
<td>– Taking on High Credit Risk</td>
<td>– Counterparties and collateral</td>
</tr>
<tr>
<td>– Commitments</td>
<td>– Creating and bringing forward revenue</td>
</tr>
<tr>
<td>– Fair value changes</td>
<td>– How useful are “prices” from markets vs. models</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bundling of Products/ Services/Financing</th>
<th>Where is the Opportunity/Risk?</th>
</tr>
</thead>
<tbody>
<tr>
<td>– When do you recognize and how much do you allocate to each part?</td>
<td></td>
</tr>
<tr>
<td>– Backlog/timing of long dated portions</td>
<td></td>
</tr>
</tbody>
</table>
Key Questions to Ask When Analyzing Revenue-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?

Stores → Distribution Center → Suppliers → People/Associates → Customers

Marketing → Phone | Internet | In Store

Do It Yourself (DIY) → Professionals → Do It for Me (DIFM)

Credit Financing
What the Financial Statements Tell Us About Customer Financing

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>February 1, 2015</th>
<th>February 2, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and Cash Equivalents</td>
<td>$ 1,723</td>
<td>$ 1,929</td>
</tr>
<tr>
<td>Receivables, net</td>
<td>1,484</td>
<td>1,398</td>
</tr>
<tr>
<td>Merchandise Inventories</td>
<td>11,079</td>
<td>11,057</td>
</tr>
<tr>
<td>Other Current Assets</td>
<td>1,016</td>
<td>895</td>
</tr>
<tr>
<td>Total Current Assets</td>
<td>15,302</td>
<td>15,279</td>
</tr>
</tbody>
</table>

**Accounts Receivable**

The Company has an agreement with a third-party service provider who directly extends credit to customers, manages the Company’s private label credit card program and owns 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 third-party service provider expires in 2018, 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 provider are included in Selling, General and Administrative expenses (“SG&A”). The sum of the three is referred to by the Company as “the cost of credit” of the private label credit card program.

In addition, certain subsidiaries of the Company extend credit directly to customers in the ordinary course of business. The receivables due from customers were $68 million and $57 million as of February 1, 2015 and February 2, 2014, 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 2014 or 2013.

We help our DIY, DIFM and professional customers finance their projects by offering private label credit products in our stores through third-party credit providers. In fiscal 2014, our customers opened approximately 2.9 million new The Home Depot private label credit accounts, and at fiscal year end the total number of The Home Depot active account holders was
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 DSO Description

### Exhibit 4

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

<table>
<thead>
<tr>
<th>Basic Measure</th>
<th>What Can It Show?</th>
<th>When Is It Good News?</th>
<th>When Is It a Concern?</th>
<th>Some Questions to Ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days Sales Outstanding (DSO)</td>
<td>Credit terms for customers.</td>
<td>Reduced or low DSO (without slowing revenue) indicate efficient working capital management and increase the likelihood of sustainable revenues from strong demand. A rise in DSO can be positive if it relates to a surge in demand or a large contract from introduction of new product.</td>
<td>A sudden rise in DSO can be a sign of &quot;channel stuffing&quot; that indicates unsustainable revenues. 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.</td>
<td>Have any receivables been discounted/factored or securitized? If so, consider DSO after adding these back. Are changes in DSO in-line with those of competitors? Is change in DSO affected by a change in product or geographic mix? Can period-end changes be explained by legitimate new business/contracts? How are DSO affected by acquisitions/dispositions of other businesses? Are DSO affected by a shift between current and long-term receivables?</td>
</tr>
</tbody>
</table>
## Analyzing and Forecasting Receivables

### Exhibit 5

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

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

Columbia Business School
## Analyzing Receivables and Provisions: Loan Loss Reserve Ratio

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

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

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

Cash flow from Operations and Day Sales Outstanding potentially distorted by sales of receivables
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**
Addressable Market for Home Improvement

Outlook for the Home Improvement Products Market

- The major home center companies saw an acceleration of sales growth in the second quarter. Although other channels of distribution for home improvement products have not matched their near double-digit growth, we have revised our overall market size forecast for the year upward. We expect total home improvement product sales to increase 5.4% in 2013 to $293 billion. Consumer Market sales are expected to increase by 5.2% and Professional Market sales by 5.7%.

- With housing market activity and real income growth now on a slightly higher trajectory in our macroeconomic forecast, we have also boosted projected growth rates for home improvement product sales over the next two years. We expect growth averaging 6.9% in 2014-2015, with a slight deceleration in the following three years as the housing market cycle runs its course.

- With recent revisions in the Census Bureau source data for our market size estimates, we now show stronger growth of home improvement product sales in 2011 and slightly slower growth in 2012 (increases of 4.5% and 5.0%, respectively, while previous estimates showed growth rates of 3.2% and 5.4%).

Growth rates of Total Home Improvement market size for the current year and 5-year forecast periods are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Billion Dollars</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>293.0</td>
<td>5.4</td>
</tr>
<tr>
<td>2014</td>
<td>312.9</td>
<td>6.8</td>
</tr>
<tr>
<td>2015</td>
<td>334.9</td>
<td>7.0</td>
</tr>
<tr>
<td>2016</td>
<td>351.8</td>
<td>5.0</td>
</tr>
<tr>
<td>2017</td>
<td>367.7</td>
<td>4.5</td>
</tr>
<tr>
<td>2018</td>
<td>383.7</td>
<td>4.3</td>
</tr>
</tbody>
</table>
A View of Total Addressable Market

What will impact the serviceable addressable and obtainable market?

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($m)</th>
<th>Industry Value Added ($m)</th>
<th>Priv. spending on home improv. ($b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>148,407.4</td>
<td>27,067.3</td>
<td>209.0</td>
</tr>
<tr>
<td>2006</td>
<td>163,316.2</td>
<td>32,062.6</td>
<td>201.8</td>
</tr>
<tr>
<td>2007</td>
<td>151,726.3</td>
<td>30,417.9</td>
<td>190.0</td>
</tr>
<tr>
<td>2008</td>
<td>144,391.3</td>
<td>26,797.0</td>
<td>171.8</td>
</tr>
<tr>
<td>2009</td>
<td>135,241.0</td>
<td>26,775.9</td>
<td>166.0</td>
</tr>
<tr>
<td>2010</td>
<td>138,418.0</td>
<td>27,806.0</td>
<td>161.6</td>
</tr>
<tr>
<td>2011</td>
<td>143,186.9</td>
<td>28,957.5</td>
<td>160.5</td>
</tr>
<tr>
<td>2012</td>
<td>148,958.4</td>
<td>31,521.2</td>
<td>164.6</td>
</tr>
<tr>
<td>2013</td>
<td>155,707.2</td>
<td>35,489.7</td>
<td>163.8</td>
</tr>
<tr>
<td>2014</td>
<td>158,852.3</td>
<td>36,059.5</td>
<td>170.0</td>
</tr>
<tr>
<td>2015</td>
<td>168,534.5</td>
<td>37,941.8</td>
<td>181.9</td>
</tr>
<tr>
<td>2016</td>
<td>174,811.3</td>
<td>39,888.7</td>
<td>191.0</td>
</tr>
<tr>
<td>2017</td>
<td>181,546.9</td>
<td>41,515.6</td>
<td>200.1</td>
</tr>
<tr>
<td>2018</td>
<td>188,169.4</td>
<td>43,745.8</td>
<td>207.9</td>
</tr>
<tr>
<td>2019</td>
<td>193,868.5</td>
<td>44,858.1</td>
<td>217.4</td>
</tr>
</tbody>
</table>
What is the Current (and Future?) Market Share?

Home Improvement STORES

Major players
(Market share)

- Lowe's Companies Inc. 33.8%
- Menard Inc. 5.0%
- Home Depot Inc. 46.7%

14.5% Other

Barriers to Entry checklist

- 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?
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
How will GDP and PFRI changes have an impact on a forecast?

**Note**
- Some companies tell us what they are thinking
- The sources for US (and some other countries) are public documents
- Other sources do exist and are increasingly easily found on the internet.
Macro: New Demand and Housing Prices

- Which customers/products are impacted by new housing?
- Why do home prices and rates matter?
- How will you use these?
Credit Matters Especially for Bigger Ticket Spending i.e., second order macro

Good News

U.S. Lending Standards Still Tight

Net % of Banks Tightening Standards

Risk to future

Note: Will also impact the borrowing by customers more directly

GSEs Currently Provide Almost All Liquidity in the Mortgage Market

Source: Securities Industry and Financial Markets Association (SIFMA)

Source: Federal Reserve Board Desk Loan Officer Survey
From high level housing we move to Home Improvement itself……

- How will you use this?
- Would you expect this pattern to change? Why?
Demographics Impact Consumer Expenditure

Exhibit 13: Spending Power per $100 of Consumer Expenditures

35-64 Year Olds Comprise 61% of Consumer Expenditures

What do you expect in the future? How does this impact Home Improvement?

Source: Haver Analytics, Morgan Stanley Research

Simeon Gutman, Hardline/Discount Retail | June 23, 2014
Exhibit 14: PCE Spending by Age Cohort

What do you expect in the future?

Source: Haver Analytics, Morgan Stanley Research Simeon Gutman, Hardline/Discount Retail | June 23, 2014

Split differs too
## Average Annual Expenditures By Age Category for 2013

<table>
<thead>
<tr>
<th>Item</th>
<th>Aggregate</th>
<th>Under 25 years</th>
<th>25-34 years</th>
<th>35-44 years</th>
<th>45-54 years</th>
<th>55-64 years</th>
<th>65 years and older</th>
<th>65-74 years</th>
<th>75 years and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of consumer units (in thousands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income after taxes</td>
<td>125,670</td>
<td>8,275</td>
<td>20,707</td>
<td>21,257</td>
<td>24,501</td>
<td>22,887</td>
<td>28,042</td>
<td>16,024</td>
<td>12,018</td>
</tr>
<tr>
<td>Average number in consumer unit:</td>
<td>56,352</td>
<td>26,559</td>
<td>53,178</td>
<td>69,152</td>
<td>68,048</td>
<td>63,312</td>
<td>41,885</td>
<td>48,742</td>
<td>32,744</td>
</tr>
<tr>
<td>People</td>
<td>2.5</td>
<td>2.0</td>
<td>2.8</td>
<td>3.4</td>
<td>2.7</td>
<td>2.1</td>
<td>1.8</td>
<td>1.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Vehicles</td>
<td>1.9</td>
<td>1.1</td>
<td>1.6</td>
<td>2.0</td>
<td>2.2</td>
<td>2.2</td>
<td>1.6</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Annual aggregate expenditures</td>
<td>$6,420,909</td>
<td>3.9</td>
<td>15.6</td>
<td>19.5</td>
<td>23.2</td>
<td>19.8</td>
<td>18.0</td>
<td>11.6</td>
<td>6.5</td>
</tr>
<tr>
<td>Food</td>
<td>829,220</td>
<td>4.6</td>
<td>15.7</td>
<td>20.6</td>
<td>23.6</td>
<td>18.1</td>
<td>17.4</td>
<td>11.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Food at home</td>
<td>499,500</td>
<td>4.2</td>
<td>15.0</td>
<td>20.0</td>
<td>23.3</td>
<td>19.0</td>
<td>18.5</td>
<td>11.6</td>
<td>7.0</td>
</tr>
<tr>
<td>Food away from home</td>
<td>329,720</td>
<td>5.2</td>
<td>16.8</td>
<td>21.4</td>
<td>24.0</td>
<td>16.9</td>
<td>15.7</td>
<td>10.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Alcoholic beverages</td>
<td>55,838</td>
<td>5.5</td>
<td>18.3</td>
<td>17.1</td>
<td>24.1</td>
<td>18.7</td>
<td>16.3</td>
<td>11.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Housing</td>
<td>2,154,893</td>
<td>4.0</td>
<td>16.5</td>
<td>20.4</td>
<td>21.6</td>
<td>19.0</td>
<td>18.5</td>
<td>11.6</td>
<td>6.9</td>
</tr>
<tr>
<td>Owned dwellings</td>
<td>767,621</td>
<td>1.1</td>
<td>12.3</td>
<td>22.1</td>
<td>23.5</td>
<td>21.7</td>
<td>19.3</td>
<td>12.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Mortgage interest and charges</td>
<td>386,864</td>
<td>1.0</td>
<td>15.3</td>
<td>27.9</td>
<td>25.0</td>
<td>19.5</td>
<td>11.3</td>
<td>9.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Property taxes</td>
<td>232,237</td>
<td>1.4</td>
<td>9.1</td>
<td>18.0</td>
<td>23.0</td>
<td>23.5</td>
<td>24.9</td>
<td>15.2</td>
<td>9.7</td>
</tr>
<tr>
<td>Maintenance, repairs, insurance, other expenses</td>
<td>148,521</td>
<td>.8</td>
<td>9.4</td>
<td>13.4</td>
<td>20.6</td>
<td>24.4</td>
<td>31.3</td>
<td>17.7</td>
<td>13.6</td>
</tr>
<tr>
<td>Rented dwellings</td>
<td>417,678</td>
<td>11.3</td>
<td>29.2</td>
<td>19.5</td>
<td>17.2</td>
<td>10.6</td>
<td>12.1</td>
<td>5.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Household operations</td>
<td>143,783</td>
<td>2.5</td>
<td>20.2</td>
<td>23.8</td>
<td>17.4</td>
<td>16.5</td>
<td>19.6</td>
<td>11.0</td>
<td>8.7</td>
</tr>
<tr>
<td>Personal services</td>
<td>46,265</td>
<td>2.4</td>
<td>37.0</td>
<td>37.9</td>
<td>8.6</td>
<td>5.3</td>
<td>5.3</td>
<td>2.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Other household expenses</td>
<td>97,517</td>
<td>2.5</td>
<td>12.3</td>
<td>17.2</td>
<td>21.6</td>
<td>21.7</td>
<td>24.7</td>
<td>14.8</td>
<td>9.9</td>
</tr>
<tr>
<td>Household furnishings and equipment</td>
<td>193,695</td>
<td>3.6</td>
<td>15.1</td>
<td>19.5</td>
<td>22.2</td>
<td>21.2</td>
<td>18.5</td>
<td>13.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Household textiles</td>
<td>12,238</td>
<td>3.7</td>
<td>11.7</td>
<td>19.0</td>
<td>23.6</td>
<td>18.3</td>
<td>23.7</td>
<td>17.1</td>
<td>6.6</td>
</tr>
<tr>
<td>Furniture</td>
<td>48,061</td>
<td>4.4</td>
<td>18.1</td>
<td>19.9</td>
<td>20.3</td>
<td>22.0</td>
<td>15.2</td>
<td>10.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Floor coverings</td>
<td>2,523</td>
<td>1.9</td>
<td>17.7</td>
<td>14.2</td>
<td>17.0</td>
<td>30.6</td>
<td>18.6</td>
<td>18.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Major appliances</td>
<td>26,906</td>
<td>2.9</td>
<td>12.8</td>
<td>21.2</td>
<td>22.9</td>
<td>21.2</td>
<td>19.0</td>
<td>13.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Small appliances, miscellaneous housewares</td>
<td>12,618</td>
<td>5.5</td>
<td>14.2</td>
<td>17.3</td>
<td>22.9</td>
<td>21.2</td>
<td>19.0</td>
<td>11.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Miscellaneous household equipment</td>
<td>91,348</td>
<td>3.1</td>
<td>14.8</td>
<td>19.2</td>
<td>22.8</td>
<td>20.9</td>
<td>19.2</td>
<td>13.9</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics
### Average Annual Expenditures By Income Category for 2013

<table>
<thead>
<tr>
<th>Item</th>
<th>Aggregate</th>
<th>Less than $5,000</th>
<th>$5,000 to $9,999</th>
<th>$10,000 to $14,999</th>
<th>$15,000 to $19,999</th>
<th>$20,000 to $29,999</th>
<th>$30,000 to $39,999</th>
<th>$40,000 to $49,999</th>
<th>$50,000 to $69,999</th>
<th>$70,000 and more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of consumer units (in thousands)</td>
<td>125,670</td>
<td>5,675</td>
<td>5,686</td>
<td>8,751</td>
<td>8,261</td>
<td>14,750</td>
<td>13,031</td>
<td>11,179</td>
<td>17,887</td>
<td>40,451</td>
</tr>
<tr>
<td>Income after taxes</td>
<td>56,352</td>
<td>565</td>
<td>8,339</td>
<td>13,352</td>
<td>18,203</td>
<td>25,631</td>
<td>34,196</td>
<td>42,571</td>
<td>54,713</td>
<td>110,894</td>
</tr>
<tr>
<td>Age of reference person</td>
<td>50.1</td>
<td>46.2</td>
<td>47.5</td>
<td>54.5</td>
<td>56.2</td>
<td>50.7</td>
<td>48.5</td>
<td>48.5</td>
<td>48.6</td>
<td></td>
</tr>
<tr>
<td>Average number in consumer unit:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People</td>
<td>2.5</td>
<td>1.7</td>
<td>1.7</td>
<td>1.8</td>
<td>2.2</td>
<td>2.3</td>
<td>2.5</td>
<td>2.7</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>1.9</td>
<td>0.9</td>
<td>0.8</td>
<td>1.0</td>
<td>1.1</td>
<td>1.4</td>
<td>1.6</td>
<td>1.9</td>
<td>2.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Annual aggregate expenditures</td>
<td>$6,420,909</td>
<td>1.9</td>
<td>1.7</td>
<td>2.9</td>
<td>3.4</td>
<td>7.6</td>
<td>7.5</td>
<td>7.3</td>
<td>14.1</td>
<td>53.7</td>
</tr>
<tr>
<td>Food</td>
<td>829,220</td>
<td>2.0</td>
<td>1.8</td>
<td>3.2</td>
<td>4.5</td>
<td>9.0</td>
<td>8.7</td>
<td>7.8</td>
<td>14.4</td>
<td>48.5</td>
</tr>
<tr>
<td>Food at home</td>
<td>499,500</td>
<td>2.2</td>
<td>2.1</td>
<td>3.6</td>
<td>5.4</td>
<td>10.2</td>
<td>9.3</td>
<td>8.3</td>
<td>14.3</td>
<td>44.6</td>
</tr>
<tr>
<td>Food away from home</td>
<td>329,220</td>
<td>1.8</td>
<td>1.5</td>
<td>2.7</td>
<td>3.1</td>
<td>7.1</td>
<td>7.7</td>
<td>7.1</td>
<td>14.5</td>
<td>54.4</td>
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<tr>
<td>Alcoholic beverages</td>
<td>55,838</td>
<td>1.7</td>
<td>1.1</td>
<td>2.0</td>
<td>3.2</td>
<td>7.8</td>
<td>7.6</td>
<td>7.3</td>
<td>13.8</td>
<td>55.6</td>
</tr>
<tr>
<td>Housing</td>
<td>2,154,893</td>
<td>2.5</td>
<td>2.1</td>
<td>3.5</td>
<td>3.9</td>
<td>8.1</td>
<td>7.9</td>
<td>7.7</td>
<td>14.1</td>
<td>50.2</td>
</tr>
<tr>
<td>Owned dwellings</td>
<td>767,621</td>
<td>1.6</td>
<td>0.9</td>
<td>1.9</td>
<td>2.5</td>
<td>5.6</td>
<td>5.6</td>
<td>6.4</td>
<td>13.1</td>
<td>62.4</td>
</tr>
<tr>
<td>Mortgage interest and charges</td>
<td>386,864</td>
<td>1.2</td>
<td>0.7</td>
<td>1.4</td>
<td>1.6</td>
<td>4.1</td>
<td>5.0</td>
<td>6.1</td>
<td>13.3</td>
<td>66.6</td>
</tr>
<tr>
<td>Property taxes</td>
<td>232,237</td>
<td>1.8</td>
<td>1.0</td>
<td>2.5</td>
<td>3.2</td>
<td>6.9</td>
<td>6.2</td>
<td>5.9</td>
<td>13.1</td>
<td>59.4</td>
</tr>
<tr>
<td>Maintenance, repairs, insurance, other exp.</td>
<td>148,521</td>
<td>2.2</td>
<td>1.1</td>
<td>2.5</td>
<td>3.5</td>
<td>7.6</td>
<td>6.4</td>
<td>8.1</td>
<td>12.6</td>
<td>56.2</td>
</tr>
<tr>
<td>Rented dwellings</td>
<td>417,678</td>
<td>5.0</td>
<td>4.9</td>
<td>7.5</td>
<td>6.8</td>
<td>13.1</td>
<td>12.2</td>
<td>10.8</td>
<td>15.5</td>
<td>24.2</td>
</tr>
<tr>
<td>Household furnishings and equipment</td>
<td>193,695</td>
<td>1.8</td>
<td>1.4</td>
<td>2.3</td>
<td>2.7</td>
<td>6.4</td>
<td>7.5</td>
<td>6.6</td>
<td>14.1</td>
<td>57.2</td>
</tr>
<tr>
<td>Household textiles</td>
<td>12,238</td>
<td>1.5</td>
<td>2.1</td>
<td>3.0</td>
<td>5.0</td>
<td>10.0</td>
<td>7.4</td>
<td>6.8</td>
<td>11.6</td>
<td>52.5</td>
</tr>
<tr>
<td>Furniture</td>
<td>48,061</td>
<td>1.9</td>
<td>1.3</td>
<td>2.3</td>
<td>1.8</td>
<td>6.2</td>
<td>6.6</td>
<td>6.3</td>
<td>13.0</td>
<td>60.6</td>
</tr>
<tr>
<td>Floor coverings</td>
<td>2,323</td>
<td>2.8</td>
<td>1.7</td>
<td>1.6</td>
<td>b/ 3.2</td>
<td>4.7</td>
<td>10.4</td>
<td>6.1</td>
<td>9.1</td>
<td>63.4</td>
</tr>
<tr>
<td>Major appliances</td>
<td>26,906</td>
<td>2.7</td>
<td>1.2</td>
<td>1.9</td>
<td>2.5</td>
<td>5.4</td>
<td>6.3</td>
<td>6.1</td>
<td>16.1</td>
<td>57.7</td>
</tr>
<tr>
<td>Small appliances, miscellaneous housewares</td>
<td>12,618</td>
<td>1.8</td>
<td>1.6</td>
<td>4.0</td>
<td>3.6</td>
<td>8.5</td>
<td>6.9</td>
<td>7.7</td>
<td>14.6</td>
<td>51.3</td>
</tr>
<tr>
<td>Miscellaneous household equipment</td>
<td>91,348</td>
<td>1.6</td>
<td>1.5</td>
<td>2.1</td>
<td>2.9</td>
<td>6.0</td>
<td>8.2</td>
<td>6.7</td>
<td>14.6</td>
<td>56.4</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics
Takeaway: If you are considering the drivers of aggregate demand for products GDP is not enough, you need to consider the explicit links to your (the company’s) demographics and spending patterns.
Looking for more specific indicators:
Aged Housing and Turnover can lead to more Home Improvement

- Which customers/products are impacted by remodeled housing?
- Maintenance of all buildings is required
- How will you use these, what is biggest impact?
- What other Real Estate trends might matter?
Management are giving us some indication on the Impact of Replacement Takeaway:

**Consolidated Sales are Reaching 2006 Peak, but Opportunities are Abundant**

Our U.S. Classes Haven’t Fully Recovered

<table>
<thead>
<tr>
<th>Products</th>
<th>2006 Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpets</td>
<td>92%</td>
</tr>
<tr>
<td>Hand Tools</td>
<td>91%</td>
</tr>
<tr>
<td>Wire</td>
<td>87%</td>
</tr>
<tr>
<td>Pressure Treated Wood</td>
<td>85%</td>
</tr>
<tr>
<td>Concrete</td>
<td>85%</td>
</tr>
<tr>
<td>Exterior Doors</td>
<td>80%</td>
</tr>
<tr>
<td>Dimensional Lumber</td>
<td>79%</td>
</tr>
<tr>
<td>Molding</td>
<td>75%</td>
</tr>
<tr>
<td>Gypsum</td>
<td>74%</td>
</tr>
<tr>
<td>Windows</td>
<td>60%</td>
</tr>
<tr>
<td>Special Order Kitchen</td>
<td>57%</td>
</tr>
</tbody>
</table>

Replacement Needs are Increasing

$ Spend per HH by House Age

<table>
<thead>
<tr>
<th>Years</th>
<th>Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>670</td>
</tr>
<tr>
<td>20</td>
<td>735</td>
</tr>
<tr>
<td>30</td>
<td>741</td>
</tr>
<tr>
<td>40</td>
<td>725</td>
</tr>
<tr>
<td>50</td>
<td>700</td>
</tr>
<tr>
<td>60</td>
<td>689</td>
</tr>
</tbody>
</table>

Takeaway:
Demand for Products will be impacted by where the spending occurs and when. But still need to consider: Is there income to spend in this area?
## Our Framework Supports Stage 2 Housing Recovery

### Company Inputs

<table>
<thead>
<tr>
<th>Sector</th>
<th>Macro Inputs</th>
<th>Company Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### MACRO INPUTS

<table>
<thead>
<tr>
<th>HH Demand</th>
<th>3 years of pent-up demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordability / Interest Rates</td>
<td>40-yr high, 40-yr low</td>
</tr>
<tr>
<td>Rental Rates / Vacancies</td>
<td>Climbing / dropping fast</td>
</tr>
<tr>
<td>Financing / Credit</td>
<td>Very tight</td>
</tr>
</tbody>
</table>

#### HOUSING OUTPUTS

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Improving, but still 2-4 years of shadow inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>Bottomed, sign of recovery</td>
</tr>
<tr>
<td>Prices</td>
<td>Flat to small decreases nationally</td>
</tr>
<tr>
<td>Starts</td>
<td>Bottomed, sign of recovery</td>
</tr>
<tr>
<td>Remodeling / Repair</td>
<td>Recovering</td>
</tr>
</tbody>
</table>

### As of June 2012 Investor Conference

#### Stage 1 - Workout 2012 - 2014

- Begins to absorb vacant homes at a faster rate – possibly through rentals
- Remains high / low
- Spurs HH demand (but activity constrained by credit)
- Spurs investor demands for SF homes (for rental)
- Spurs HH demand (but activity constrained by credit)

#### Stage 2 - Recovery

**Moderate**

- Recovers to ~1.1 million per year
- Spurs turnover as credit loosens gradually
- Steady
- Loosens gradually

**Sharp**

- Recovers to ~1.4 million per year
- Spingshoss turnover as credit loosens quickly
- Steady
- Loosens quickly

### Stage 3 - Stability

- Steady at ~1.1 million per year
- At Historical averages
- Steady
- Steady; home equity withdrawal return

Source: BEA, NAR, U.S. Census Bureau, S&P Case-Shiller, Moody’s Analytics, NAHB, Freddie Mac, Federal Reserve, CoreLogic, JCHS
Connecting sales growth to drivers and Macro Factors

- Provides some variables to consider and monitor
- Gives you some indication on management’s understanding of their own business.

Our Sales Growth Model is Imperfect but Directionally Correct

<table>
<thead>
<tr>
<th>Comp Estimation</th>
<th>2011</th>
<th>2012</th>
<th>2013F</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Real GDP Estimate</td>
<td>1.8%</td>
<td>2.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>+ Home Price’s Impact to Comp</td>
<td>0.0%</td>
<td>1.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>+ Turnover Impact to Comp</td>
<td>0.1%</td>
<td>0.5%</td>
<td>0.7%</td>
</tr>
<tr>
<td>+ Contribution from New Household Formation</td>
<td>0.6%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>+ Other</td>
<td>NA</td>
<td>NA</td>
<td>2.3%</td>
</tr>
<tr>
<td>Predicted U.S. Store Comp</td>
<td>~2.5%</td>
<td>~4.6%</td>
<td>~7.0%</td>
</tr>
<tr>
<td>U.S. Actual / Forecasted Comp</td>
<td>3.1%</td>
<td>4.9%</td>
<td>~7.0%</td>
</tr>
</tbody>
</table>

1) Other includes contribution from appliances and commodity prices
Home Improvement Leading Indicator (HILI) from One Analyst 6-14

Exhibit 5: HILI Points to a Deceleration in HI Retail Sales, though Still Positive

Based on Change in:
- Home Prices
- Existing Home Sales
- ISM Survey
- 30-yr mortgage rate
- HI Retail Sales

How would you use this type of indicator?

Source: US Census Bureau, National Association of Realtors, Institute of Supply Management, Federal Reserve Board, Morgan Stanley Research
Public Sources are Available to Assess Future Macro.....

Leading Indicator of Remodeling Activity – Third Quarter 2013

Homeowner Improvements
Four-Quarter Moving Totals
Billions of $

- US Census Bureau
- LIRA

Note: The third quarter 2013 estimate is calculated using preliminary Census Bureau data and LIRA projections. Source: Joint Center for Housing Studies of Harvard University.

Company Inputs
Triangulate and Question
Your Insight & intuition
Sector/Macro Inputs
How Would you Use the Macro and Addressable Market in the Model?

Stores \times \text{Size (ft}^2\text{)} \times \text{$ Sales/ft}^2\text{) = Total $ Sales = Number of transactions} \times \text{Basket/Ticket Size}

Existing 

\text{Aggregate} \\
\text{Average?}

New 

\text{Aggregate} \\
\text{Average?}
Some Key Takeaways

- As any business decision requires us to make some forecast (even if it is: can the current earned income be sustained?) we need to understand the business at a sufficient level to be able to bound some future outcomes or accept that we are just playing games.
- To do this the best starting point is to understand the operating cycle and then identify the key drivers of revenue (and costs)…..using and triangulating among company (internal or external) information, sector/macro data and your own analysis/intuition.
- Always consider how and why volume, price and potentially exchange rates are changing….there is always some unit(s) that can be identified for you to work with.
- Designing the model should allow you to link to other key elements.
- **Deciding what level of data or breakdown to work with is an issue and you should be guided by what data is available,** how easily you can integrate it into the analysis and most critically if it will inform you about, meaningful shifts or changes in the revenue (or costs) driving margins, operating asset efficiency etc. [This lets you get a level of comfort with the uncertainty]
### Detailed Data Available from BI – Broader Macro Data

#### U.S. Housing Market Indicators:
- **PRPI % of GDP**: 3.2, 2.6, 2.3, 2.3, 2.5
- **Private Residential Fixed Investment**: 433.7, 384.3, 382.439
- **GDP**: 15,470.7, 15,052.4, 14,779.4

#### Housing Turnover (%):
- **Home Sales**: 5,364, 5,296, 4,711, 4,596.4
- **Housing Units**: 132,845, 132,573, 132,223, 131,892

#### Home Prices & Affordability
- **CoreLogic HPI**
  - 1 Month: -0.9, -1.0, -0.9
  - 3 Month: 1.0, 0.0, -3.0
  - 6 Month: 6.6, 1.6, -3.0
  - 12 Month: 12.5, 8.8, -2.9
- **CoreLogic HPI (YoY)**
  - 12.5, 8.8, -2.9
- **Case-Shiller 20 City Composite**
  - Atlanta, GA: 165.9, 146.1, 136.6, 142.4
  - Boston, MA: 166.4, 153.8, 148.5, 152.8
  - Charlotte, NC: 125.5, 115.1, 109.1, 112.4
  - Chicago, IL: 132.8, 112.0, 110.3, 117.8

---

**Columbia Business School**
### Home Improvement Stores Dashboard (BI HOMCN)

**View**: 2013 2012 2011 2010 2009

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Home Improvement Expenditures</td>
<td>274,409</td>
<td>261,538</td>
<td>247,845</td>
<td>236,769</td>
<td>224,100</td>
</tr>
<tr>
<td>Household Maintenance</td>
<td>64,811</td>
<td>64,633</td>
<td>62,224</td>
<td>59,126</td>
<td>58,749</td>
</tr>
<tr>
<td>Lighting/Clocks</td>
<td>51,545</td>
<td>45,000</td>
<td>40,233</td>
<td>36,353</td>
<td>31,805</td>
</tr>
<tr>
<td>Appliances</td>
<td>49,694</td>
<td>45,106</td>
<td>45,809</td>
<td>44,393</td>
<td>41,976</td>
</tr>
<tr>
<td>Flowers/Potted Plants</td>
<td>26,386</td>
<td>28,587</td>
<td>26,041</td>
<td>26,857</td>
<td>25,566</td>
</tr>
<tr>
<td>Floor Coverings</td>
<td>25,831</td>
<td>23,978</td>
<td>21,014</td>
<td>19,108</td>
<td>18,760</td>
</tr>
<tr>
<td>House Tools</td>
<td>20,237</td>
<td>19,753</td>
<td>19,205</td>
<td>18,754</td>
<td>17,565</td>
</tr>
<tr>
<td>Hardware</td>
<td>16,288</td>
<td>15,958</td>
<td>15,556</td>
<td>15,307</td>
<td>14,378</td>
</tr>
<tr>
<td>Window Coverings</td>
<td>15,672</td>
<td>14,725</td>
<td>14,112</td>
<td>13,424</td>
<td>12,034</td>
</tr>
<tr>
<td>Outdoor Equipment</td>
<td>3,955</td>
<td>3,798</td>
<td>3,651</td>
<td>3,447</td>
<td>3,187</td>
</tr>
</tbody>
</table>

**Source**: Bureau of Economic Analysis

<table>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Construction Spending</td>
<td>345,520</td>
<td>296,167</td>
<td>246,601</td>
<td>229,256</td>
<td>245,465</td>
</tr>
<tr>
<td>Single Family</td>
<td>174,757</td>
<td>149,400</td>
<td>113,141</td>
<td>106,962</td>
<td>112,847</td>
</tr>
<tr>
<td>Improvements</td>
<td>135,544</td>
<td>120,795</td>
<td>116,476</td>
<td>108,618</td>
<td>114,002</td>
</tr>
<tr>
<td>Multi Family</td>
<td>35,237</td>
<td>27,972</td>
<td>16,984</td>
<td>13,678</td>
<td>18,616</td>
</tr>
</tbody>
</table>

**Source**: Census Bureau

- Retail Store PPI's
- Housing CPI
- Discover US Spending Monitor

**Note**: Detailed data available from BI – Industry Macro Data.
Detailed Data Available from BI – Industry Measures
### Detailed Data Available from BI – Company Measures: Stores

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Depot Inc/The</td>
<td>540,000.0</td>
<td>492,000.0</td>
<td>482,000.0</td>
<td>483,000.0</td>
<td>486,000.0</td>
</tr>
<tr>
<td>Lowe's Cos Inc</td>
<td>160,000.0</td>
<td>161,000.0</td>
<td>161,000.0</td>
<td>166,000.0</td>
<td>164,000.0</td>
</tr>
<tr>
<td><strong>Unit Analysis (Qtr &amp; Annual)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of Locations (Units)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Depot Inc</td>
<td>5,474.0</td>
<td>5,345.0</td>
<td>5,221.0</td>
<td>5,070.0</td>
<td>4,928.0</td>
</tr>
<tr>
<td>Lowe's Cos Inc</td>
<td>2,256.0</td>
<td>2,252.0</td>
<td>2,246.0</td>
<td>2,244.0</td>
<td>2,274.0</td>
</tr>
<tr>
<td>Tractor Supply</td>
<td>1,754.0</td>
<td>1,745.0</td>
<td>1,749.0</td>
<td>1,710.0</td>
<td>1,649.0</td>
</tr>
<tr>
<td>Lumber Liquidators</td>
<td>1,176.0</td>
<td>1,085.0</td>
<td>1,086.0</td>
<td>930.0</td>
<td>855.0</td>
</tr>
<tr>
<td><strong>Sales per Store ($ mn)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Depot Inc</td>
<td>24.3</td>
<td>16.7</td>
<td>16.3</td>
<td>16.1</td>
<td>17.3</td>
</tr>
<tr>
<td>Lowe's Cos Inc</td>
<td>33.2</td>
<td>31.3</td>
<td>30.3</td>
<td>29.3</td>
<td>31.6</td>
</tr>
<tr>
<td>Tractor Supply</td>
<td>28.9</td>
<td>28.7</td>
<td>28.2</td>
<td>28.1</td>
<td>30.3</td>
</tr>
<tr>
<td>Lumber Liquidators</td>
<td>4.1</td>
<td>4.1</td>
<td>3.8</td>
<td>3.6</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>Inventory per Store ($ mn)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Depot Inc</td>
<td>6.0</td>
<td>2.7</td>
<td>4.6</td>
<td>2.7</td>
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</table>

Columbia Business School
Detailed Data Available from BI – Company Measures: More details

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• The goal of any predictive model is to capture as much signal as possible and as little noise as possible. Striking the right balance is not always so easy, and our ability to do so will be dictated by the strength of the theory and the quality and quantity of the data.

• In economic forecasting, the data is very poor and the theory is weak, hence Armstrong’s argument that “the more complex you make the model the worse the forecast gets.”…… I would urge caution against reducing the forecasting process to a series of bumper-sticker slogans. Heuristics like Occam’s razor (“other things being equal, a simpler explanation is better than a more complex one”) sound sexy, but they are hard to apply. We have seen cases, as in the SIR models used to forecast disease outbreaks, where the assumptions of a model are simple and elegant—but where they are much too naïve to provide for very skillful forecasts……

• An admonition like “The more complex you make the model the worse the forecast gets” is equivalent to saying “Never add too much salt to the recipe.” How much complexity—how much salt—did you begin with? If you want to get good at forecasting, you’ll need to immerse yourself in the craft and trust your own taste buds. (p. 388-9)


TAKEAWAY: Knowing how much is enough detail depends on the business and your experience/understanding…by using the “Model” of the profitability tree you can work back to more detail asking how likely it is to make a difference.
Risk Reward Chart for HD

Key Risks
- Recent housing macro improvements were temporary and weather driven, and housing prices and turnover begin to slow again.
- Supply chain efficiencies become more muted.

Potential Catalysts
- While HD already maintains a small exposure to Canada, Mexico, and China—further expansion in international territories could provide a source of stronger than expected growth.

The Home Depot, Inc.
Despite Stellar Comps, No Party ing Like its 1999
Morgan Stanley Research
August 21, 2013  D. Gober and team
Home Depot: Strong Buy, Base $90

'06-09 Pain Brings Long-Term Gain: EBIT Potential 13%+

Scenario Analysis: Margin Recovery on Ticket / Traffic Is The Key to Breakout

<table>
<thead>
<tr>
<th>Bull Case - $115</th>
<th>Base Case - $90</th>
<th>Bear Case - $70</th>
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<tbody>
<tr>
<td>20x Bull Case 2015e EPS of $5.75</td>
<td>17x Base Case 2015e EPS of $5.25</td>
<td>15x Bear Case 2015e EPS of $4.65</td>
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</table>

Home Mindset Goes From Expense to Investment. GDP hits 4% and HI demand surges in '14-15. HD sales/ft pushes close to $400/ft and the high velocity store based pushes margins to 14%. FCF surges north of $10B in '15 as the multiple reflects the stability of operations and highly cash generative nature of the business.

Building It Back, One Brick At A Time. HD compo 5% in '14-15 and productivity hits $365/ft. Consumers spend on maintenance, but ticket increasingly drives the comp. Ticket drives SG&A leverage, pushing EBIT margins past 13.0% in '15. The multiple runs at 17x as $5.25 of 2015 EPS is realistic and FCF is greater than EPS.

Lack of Credit Keeps Ticket From Breakout Recovery. Without credit to fund remodel spend, ticket fails to fully inflect. Comps stabilize at 2%. EBIT steadies at 12.2%. The P/E multiple drops to 15x as EPS growth slows. Strong FCF yield of 7.5% and dividend of 2.5% provide support at in the low $70s.
Data Sources to Consider

- Capital IQ from Standard and Poors (you have an account or can get one)
- Bloomberg especially BI (Bloomberg Industries) research
- Ibisworld.com in Library System
- Thomson One in Library system (includes analysts’ reports) also Factset
- Company websites
- Industry specific sources that can often be found in references on analyst reports or via normal web search
- Industry Studies Abound