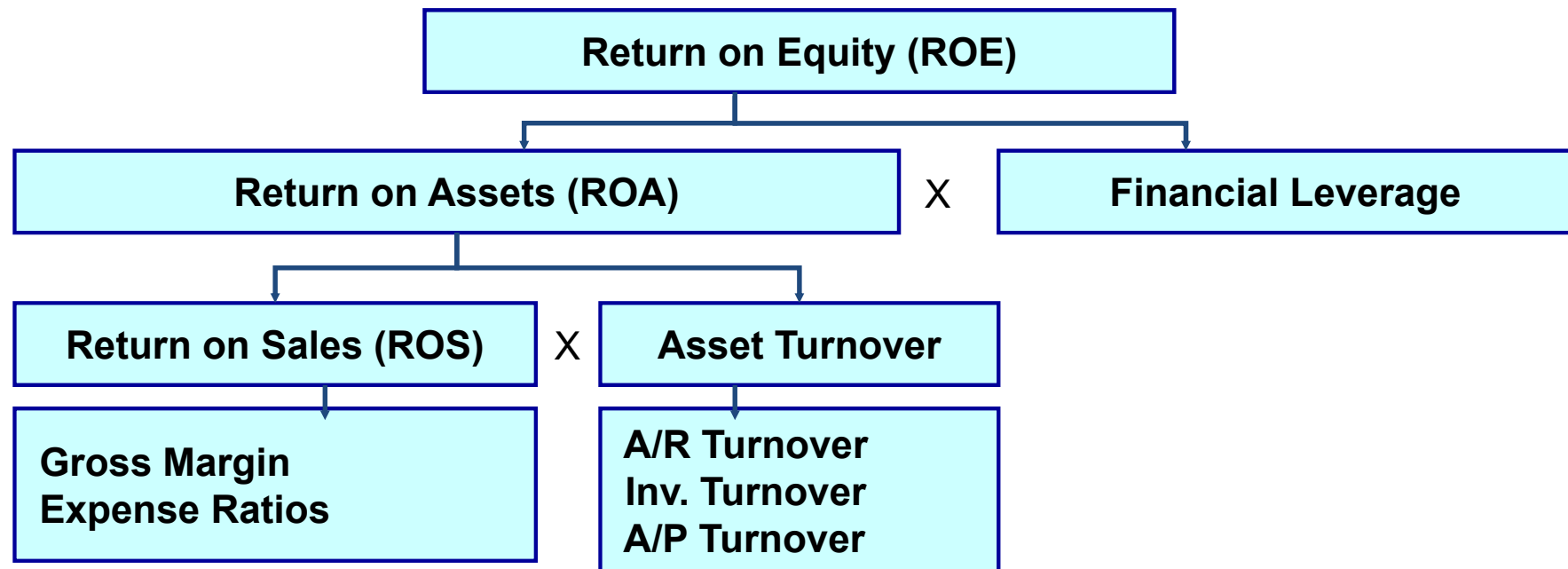


DuPont Ratio Analysis Framework



ROE = Net Income/Sales
= Profitability

x Sales/Assets
x Efficiency

x Assets/Equity
x Leverage

Profit Margin Ratios

- **What are the drivers of profitability?**
 - Use Common Size income statement for most of these
- **Gross Margin = (Sales - Cost of Goods Sold) / Sales**
- **SG&A-to-Sales = SG&A Expense / Sales**
- **Operating Margin = Operating Income / Sales**
- **Interest Expense-to-Sales = Interest Expense / Sales**
- **Effective Tax Rate = Income Taxes / Pre-tax Income**

Key Ratios – Profit Margin Analysis

	12/31/2009	12/31/2010	12/31/2011
Gross margin	13.4%	15.5%	16.3%
SG&A to Sales	5.4%	5.4%	5.4%
Operating Margin	8.0%	10.1%	10.9%
Interest Expense to Sales	2.6%	2.8%	2.6%
Effective Tax Rate	37.8%	40.0%	40.0%

Gross Margin = (Sales - Cost of Goods Sold) / Sales

SG&A as a % of Sales = SG&A Expense / Sales

Operating Margin = Operating Income / Sales

Interest Expense as % of Sales = Interest Expense / Sales

Effective Tax Rate = Income Taxes / Pre-tax Income

Profit Margin Analysis Questions

- **Possible explanations for improvement in gross margin:**

- Reducing production costs while maintaining sales price
 - Did Plainview further automate its production?
- Raising sales price while keeping costs constant
 - Did entry into new markets allow a higher mark-up?

=> Search for confirming or disconfirming evidence of these explanations

=> Ask management to explain the source of the dramatic improvement in product mark-up

Asset Turnover Analysis

- Although Asset Turnover ratio was steady over the period, looking at the detailed components of the ratio may provide further insight into how Plainview managed its remarkable turn-around
- For example, dramatic increases in Sales are often accompanied by
 - Lower Inventory levels
 - Production can barely keep up with sales
 - Higher Accounts Receivable levels
 - Company has to extend credit to riskier customers to fuel sales growth

Asset Turnover Ratios

- How many times per year do we cycle through accounts?
 - Example: Inventory Turnover of 8 means that we build and sell Inventory 8 times per year, on average.
- **Accounts Receivable Turnover = Sales / Average A/R**
- **Inventory Turnover = Cost of Goods Sold / Average Inventory**
- **Accounts Payable Turnover = Purchases / Average Accounts Payable**
 - (Purchases = Ending Inventory + COGS – Beginning Inventory)
- **Fixed Asset Turnover = Sales / Avg. Net PP&E**

Key Ratios – Asset Turnover Analysis

	12/31/2009	12/31/2010	12/31/2011
Accounts Receivables Turnover	6.1	8.4	8.3
Inventory Turnover	4.5	4.2	3.5
Accounts Payable Turnover	6.6	12.3	11.0
Fixed asset turnover	3.3	3.1	3.1

Accounts Receivables Turnover = Sales / Avg. Accounts Receivable

Inventory Turnover = Cost of Goods Sold / Avg. Inventory

Accounts Payable Turnover = Purchases / Avg. Accounts Payable

(Purchases = Ending Inventory + COGS – Beginning Inventory)

Fixed Asset Turnover = Sales / Avg. Net Property, Plant and Equipment

Days Outstanding Ratios

- How many days, on average, are accounts outstanding?
 - Example: Days Inventory of 45 means that it takes 45 days, on average, from the time we start building Inventory until we sell it
- Days Receivable (Sales) Outstanding = $365 / \text{A/R Turnover}$
- Days Inventory = $365 / \text{Inventory Turnover}$
- Days Payable = $365 / \text{A/P Turnover}$
- Net Trade Cycle = Days Receivable + Days Inventory - Days Payable
 - Net Trade Cycle represents the gap between cash outflows and cash inflows that we have to bridge with short-term borrowing

Key Ratios – Asset Turnover Analysis

	12/31/2009	12/31/2010	12/31/2011
Days Receivables	60.3	43.4	44.1
Days Inventory	81.7	86.6	105.1
Days Payable	55.1	29.7	33.2
Net Trade Cycle	86.9	100.3	116.0

Days Receivables = $365 * (\text{Avg. Accounts Receivable} / \text{Sales})$

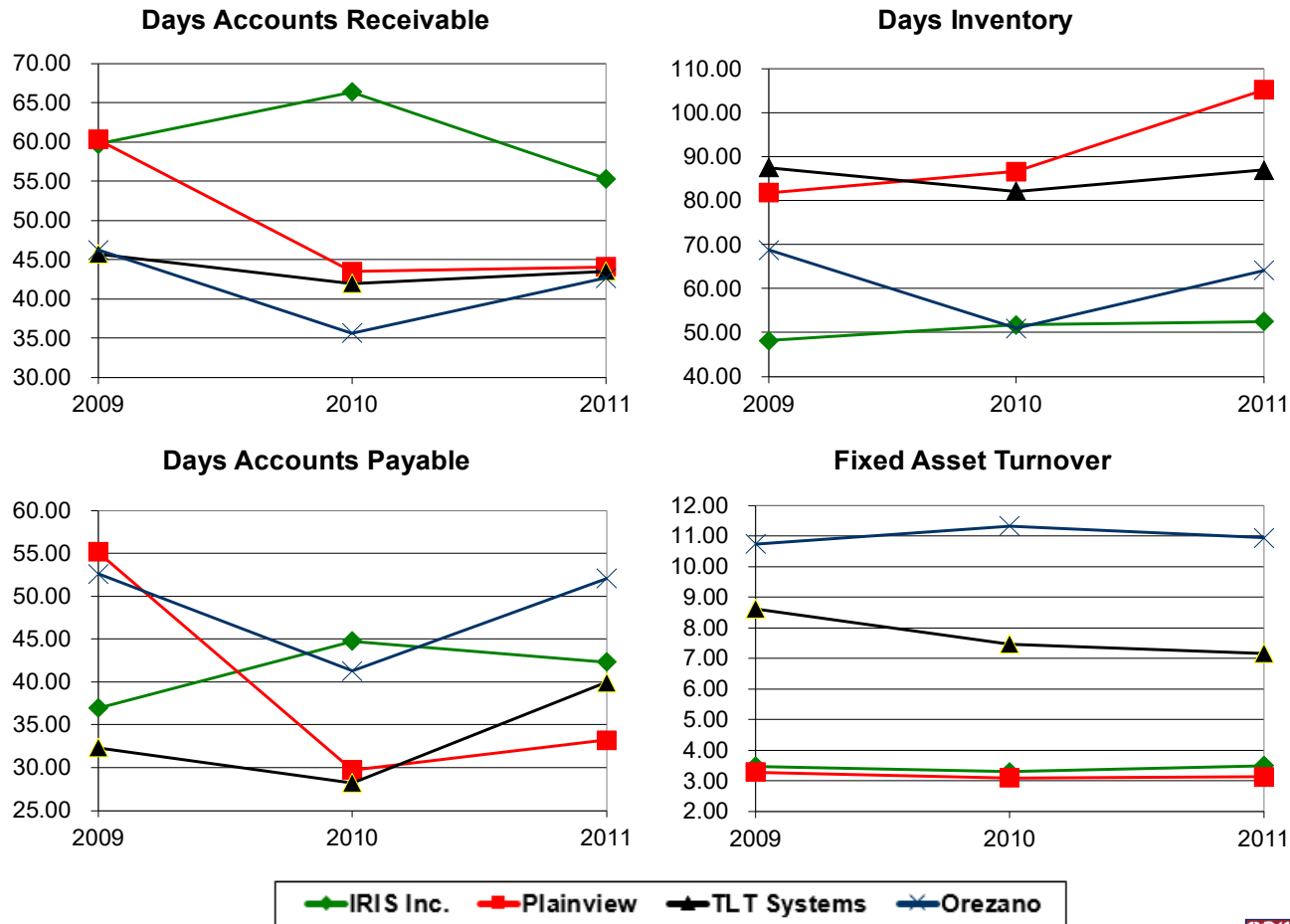
Days Inventory = $365 * (\text{Avg. Inventory} / \text{Cost of Goods Sold})$

Days Payable = $365 * (\text{Avg. Accounts Payable} / \text{Purchases})$

(Purchases = Ending Inventory + COGS – Beginning Inventory)

Net Trade Cycle = Days Receivable + Days Inventory - Days Payable

Cross-Sectional Comparisons – Asset Turnover



Conclusions from the DuPont Ratio Analysis

- Overall, ratio analysis suggests:
 - Entry into new markets produces higher-margin sales with faster collections, but longer production times
 - But, how can they do this with 40%+ sales growth?
 - And why do they have volatile cash flows from operations?