

ACCT7106 – Session #10: Ratio Analysis; Forecasting

PART 1 – Background

overarching objective: **Assignment Project Exam Help**

to conduct the fundamental valuation exercise for the purpose of estimating the
‘intrinsic value’ of a firm’s common shares

→ requires an understanding of the firm’s ‘value drivers’

➔ need to accumulate a ‘tool kit’ as the basis for developing the *pro forma*
Financial Statements

\Rightarrow **projected** $\left\{ \begin{array}{l} \text{Balance Sheet (B/S)} \\ \text{Income Statement (I/S)} \\ \text{Statement of Cash Flows (SCF)} \end{array} \right\}$
 over the forecast horizon

\Rightarrow core inputs into the valuation model $\rightarrow x \quad g$
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$$V_0 = \sum_{t=1}^{\infty} \frac{x_t}{(1+k_t)^t} = \sum_{t=1}^n \frac{E(x_t)}{(1+k)^t} + \frac{E(x_n)(1+g)}{k-g} \frac{1}{(1+k)^n}$$

Sessions #3 → #10

Sessions #1 → #3; #11 – #13

STEP 1
Understanding the past

1. Information collection
2. Understanding the business
3. Accounting analysis
4. Financial ratio analysis
5. Cash flow analysis

STEP 2
Forecasting the future

1. Structured forecasting
2. Income Statement forecasts
3. Balance sheet forecasts
4. Cash flow forecasts

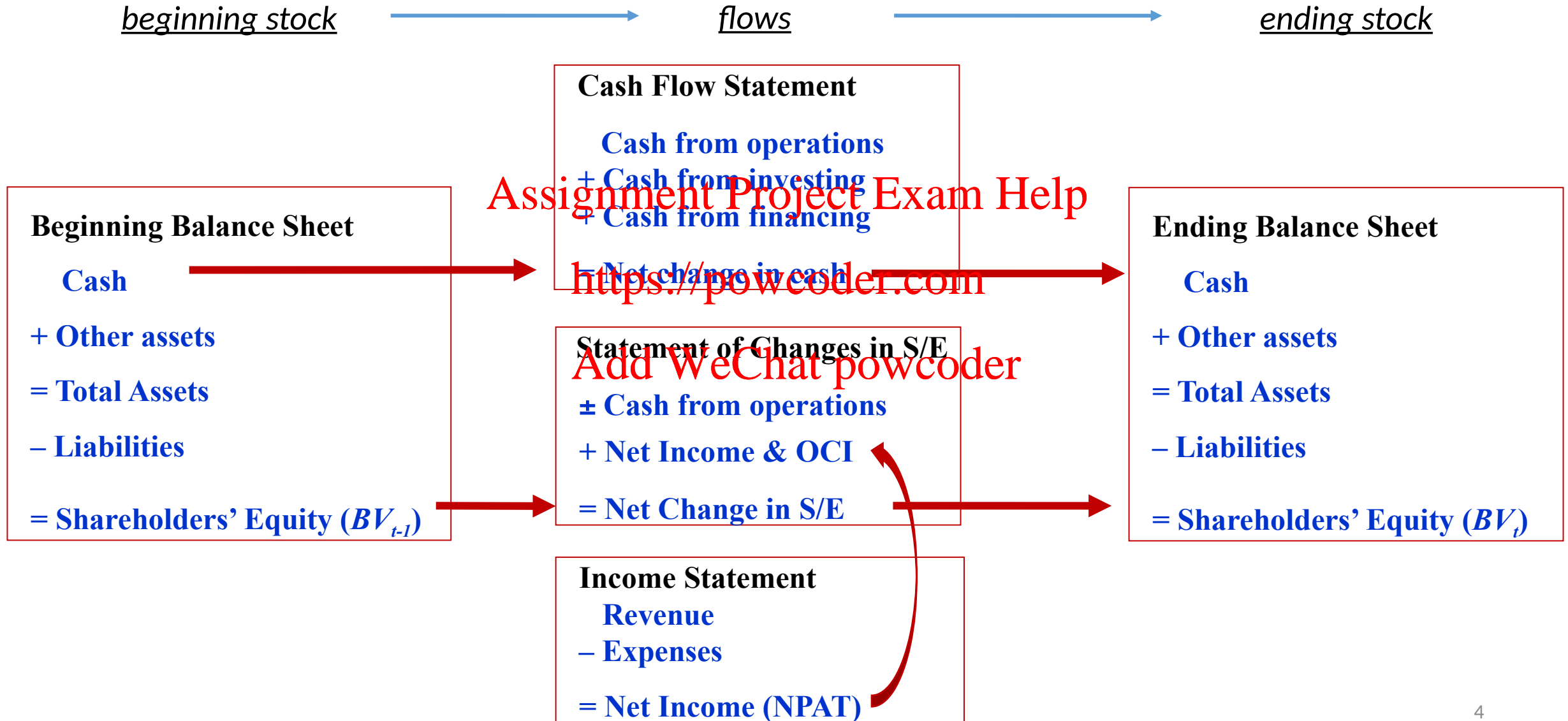
STEP 3
Valuation

1. Cost of capital
2. Valuation models – AE, FCF, D
3. Valuation ratios
4. Complications
 - a. Negative values
 - b. Value creation and destruction

Figure 1.1 Lundholm & Sloan, *Framework for Equity Valuation*

Sessions #10 → #11

‘articulation’ → Financial Statements constitute an **‘integrated system’**



What the reformulation process is **NOT**

- ❑ it does **not** involve adjusting or altering the reported numbers
- ❑ it does **not** involve creating new numbers or erasing numbers

clearly, material errors (whether unintentional or intentional = EM) need to be corrected e.g., restatement of F/S required by the relevant regulatory authority (ASIC, SEC, ...) – but this is not a part of the actual reformulation process

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What the reformulation process **IS**

- ✓ it takes the reported accounting numbers as given (subject to adjustment for errors)
- ✓ it then reclassifies or reorders the various reported accounts to put them into a structure that (hopefully) makes them more informative, and thereby facilitates better forecasts

- **Key Step** separate **operating** items/activities from **financing** items/activities

Why? companies generate value from their operations, not their financial activities

Summary – ‘new’ (reformulated) accounting relations:

☐ Balance Sheet:

$$NOA = NFO + S/E$$

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☐ Income Statement:

$$CI = OI + NFE$$

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(recall: NFE are negative)

☐ Cash Flow Statement:

$$FCF = C + I = F + E$$

☐ Equity Statement:

$$\text{Change in S/E} = CI + E$$

■ Balance Sheet

operating assets (OA)
– operating liabilities (OL)

Net Operating Assets (NOA)

– financial assets (FA)
financial obligations (FO)

Net Financial Obligations (NFO)

$$S/E = NOA - NFO$$

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■ Income Statement

Comprehensive Income (CI) = ~~Add WeChat powcoder~~ ~~Operating Income (OI)~~ – Net Financial Expenses (NFE)

core operating income from sales
core other operating income
unusual operating income
operating OCI

core NFE
financial OCI

Core Operating Income from Sales (before tax)
Core Other Operating Income (before tax)
Unusual Operating Income (before tax)
Core Net Financial Expenses (before tax)
Profit Before Tax (PBT)
Tax Expense
Net Profit After Tax (NPAT)
Other Comprehensive Income
 operating OCI (after tax)
 financing OCI (after tax)
Comprehensive Income



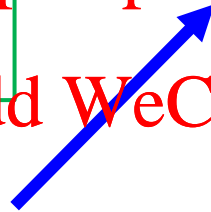
Tax Allocation:

- 1st tax shield from Net Financial Expenses
- 2nd tax on Unusual Operating Income
- 3rd tax on Core Other Operating Income
- ➔ 4th tax on Core Operating Income from Sales

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Operating Income (OI)
 Core Operating Income from Sales (after tax)
 Core Other Operating Income (after tax)
 Unusual Operating Income (after tax)
 Operating OCI (after tax)
Total Operating Income

Net Financial Expenses (NFE)
 Core net financing expense (after tax)
 Financing OCI (after tax)
Total Net Financial Expense

Comprehensive Income

Reformulated Statement of Cash Flows

Adjusted Cash flow from operations

C

Adjusted Cash investment in operating assets

I

Free Cash Flow (FCF)

$C + I$

Generation of FCF
from operating
activities

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Equity financing flows

dividends & share repurchases

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share issuances

(XX)

E

Debt financing flows

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net purchase of financial assets

(XX)

interest on financial assets (after tax)

XX

net issue of debt

XX

interest on debt (after tax)

(XX)

F

Total Financing cash flows

$E + F$

'Uses' of FCF in
financing activities

Reformulated Statement of Changes in Shareholders' Equity

Beginning Book Value of Common Equity

BV_{t-1}

+ Net effect of Transactions with Common Shareholders

+ capital contributions (share issues)

– share repurchases

– cash dividends to common shareholders

= Net cash contributions

+ Effect of operations and non-equity financing

+ Net Income (from the I/S)

+ Other Comprehensive Income (OCI)

– preferred share dividends

= Comprehensive income available to common shareholders

Ending Book Value of Common Equity

BV_t

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PART 2 – Profitability and Leverage (using the Reformulated F/S)

❑ *levered* view → from the perspective of the common shareholder ⇒ **ROCE**

ROCE (return on common equity) =

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return to common shareholder (i.e., return after satisfying debt)
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❑ *unlevered* view → from the perspective of the firm ⇒ **RNOA**

RNOA (return on net operating assets) =

➔ return to the firm (i.e., return on the net assets provided by both debt and equity)

Notes:

- while calculations are frequently based on average figures, the ratios can also be based on year-end or beginning-of-year figures depending upon circumstance

e.g., Coles was owned by Wesfarmers up until 2019 – there are no F/S prior to 2019 and hence 2019 ratios could only be based on year-end figures

with the adoption of AASB16 (leases) in 2020, many of the figures in Coles F/S are non-comparable between 2019 and 2020

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- since ROCE captures the ‘levered view’ whereas RNOA presents the ‘unlevered view’, ‘loosely’ the distinction between ROCE and RNOA is the treatment of financing

⇒ the link between ROCE and RNOA relates to how the firm is financed
(equally, the link between ROOA and RNOA relates to operating leverage)

from Session #2, slides 39 – 42

business risk "The equity risk that comes from the nature of the firm's operating activities"

⇒ in essence, the volatility or variability of the firm's operating income

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further, leverage (both operating and financial) magnify business risk

why? leverage serves to magnify profits in ‘good’ times *and*

leverage serves to magnify losses in ‘bad’ times

financial leverage → use of debt financing with fixed 'interest' payments

$$\text{ROCE} = \text{RNOA} + \text{FLEV} \times \underbrace{(\text{RNOA} - \text{NBC})}_{\text{operating spread}}$$

operating liability leverage → use of operating liabilities (OL) to finance OA

$$\text{RNOA} = \text{ROOA} + \text{OLLEV} \times \underbrace{(\text{ROOA} - \text{STBC})}_{\text{OL spread}}$$

→ leverage, both financial (FLEV) and operating liability (OLLEV), magnifies profit (& loss) available to the common shareholder



financial leverage (FLEV)

Example #9-1 profitable firm

Net operating assets (NOA)	28,000
Net financial obligations (NFO)	<u>15,000</u>
Shareholders' Equity (S/E)	13,000
Operating income (OI)	2,000
Net Financial Expense (NFE)	<u>(500)</u>
Comprehensive Income (CI)	1,500

$$\text{RNOA} = 0.0714$$

$$\text{FLEV} = 1.1538$$

$$\text{NBC} = 0.0333$$

$$\begin{aligned}\text{ROCE} &= \text{RNOA} + \text{FLEV} \times (\text{RNOA} - \text{NBC}) \\ &= 0.0714 + 1.1538(0.0714 - 0.0333) = \mathbf{0.1154}\end{aligned}$$

$$\text{ROCE} = = = \mathbf{0.1154}$$

Example #9-2 loss firm

Net operating assets (NOA)	28,000
Net financial obligations (NFO)	<u>15,000</u>
Shareholders' Equity (S/E)	13,000
Operating income (OI)	(1,000)
Net Financial Expense (NFE)	<u>(500)</u>
Comprehensive Income (CI)	(1,500)

$$\text{RNOA} = 0.0357$$

$$\text{FLEV} = 1.1538$$

$$\text{NBC} = 0.0333$$

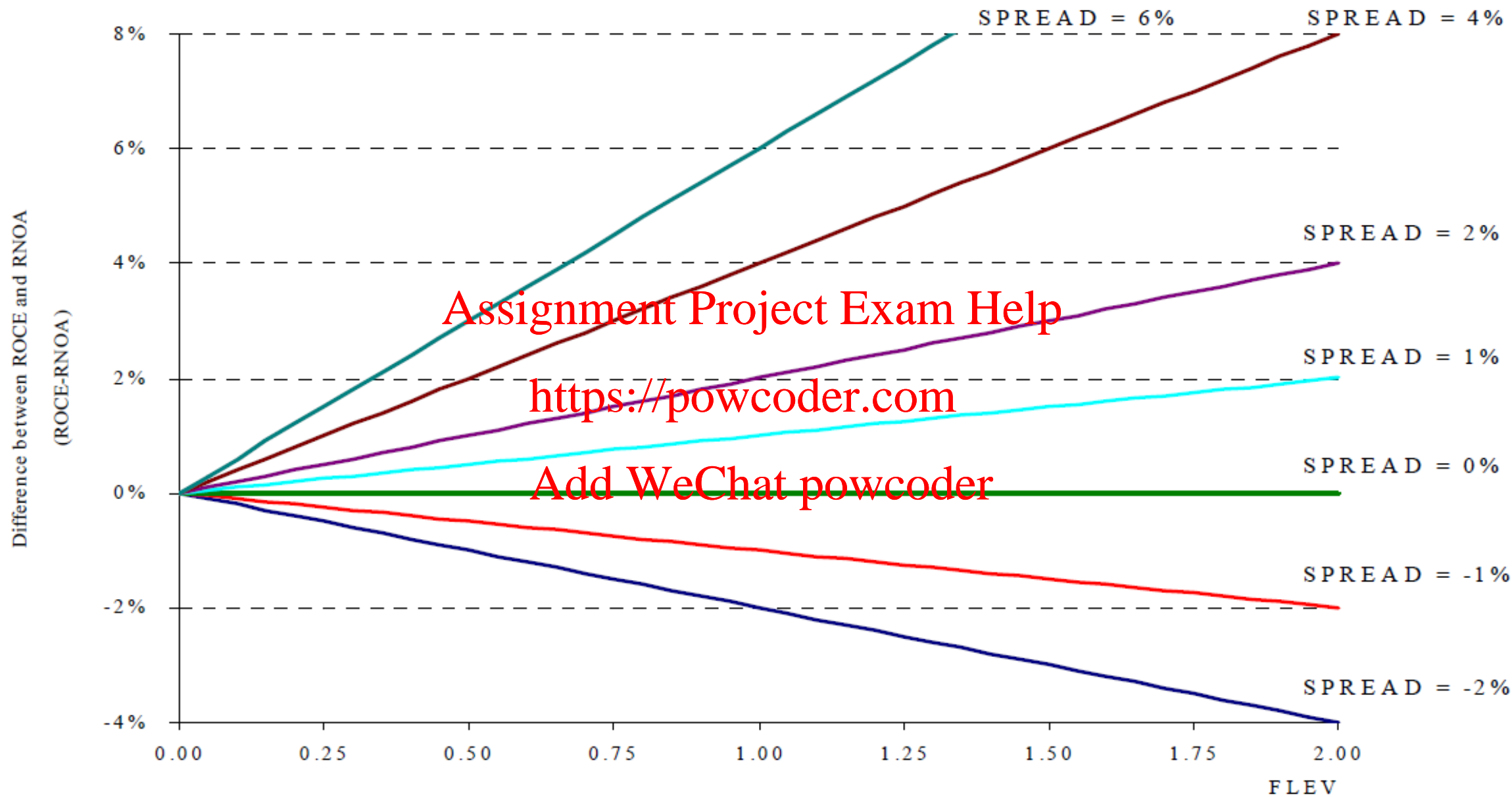
$$\begin{aligned}\text{ROCE} &= \text{RNOA} + \text{FLEV} \times (\text{RNOA} - \text{NBC}) \\ &= 0.0357 + 1.1538(0.0357 - 0.0333) = \mathbf{0.1153}\end{aligned}$$

$$\text{ROCE} = = = \mathbf{0.1154}$$

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$$ROCE = RNOA + [FLEV \times SPREAD]$$

operating liability leverage (OLLEV)

Example #9-6 profitable firm

OA = 40,000	OL = 12,000	NOA = 28,000
FA = 2,000	FO = 17,000	NFO = 15,000
Shareholders' Equity (S/E)		13,000
Operating income (OI)		2,000
Net Financial Expense (NFE)		(500)
Comprehensive Income (CI)		1,500

OLLEV =

assume $STBC = 0.07(1 - 0.3) = 0.049$

→ implicit interest on OL = 12,000 * 0.049 = 588

ROOA = 0.0647

RNOA = ROOA + OOLEV(ROOA - STBC)
= 0.0647 + 0.4286(0.0647 - 0.049) = 0.0714

RNOA = 0.0714

Example #9-7 loss firm

OA = 40,000	OL = 12,000	NOA = 28,000
FA = 2,000	FO = 17,000	NFO = 15,000
Shareholders' Equity (S/E)		13,000
Operating income (OI)		(1,000)
Net Financial Expense (NFE)		(500)
Comprehensive Income (CI)		(1,500)

OLLEV =

assume $STBC = 0.07(1 - 0.3) = 0.049$

→ implicit interest on OL = 12,000 * 0.049 = 588

ROOA =

RNOA = ROOA + OOLEV(ROOA - STBC)
= + 0.4286(- 0.049) =

RNOA = 0.0357

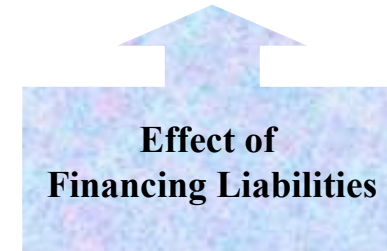
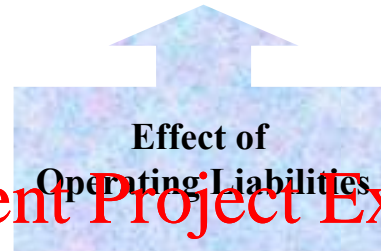
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Summing Financial Leverage and Operating Liability Leverage Effects on ROCE

$$\text{ROCE} = \text{ROOA} + (\text{RNOA} - \text{ROOA}) + (\text{ROCE} - \text{RNOA})$$



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profitable firm (examples #9-1 & #9-6) Add WeChat powcoder

$$0.1154 = 0.0647 + (0.0714 - 0.0647) + (0.1154 - 0.0714)$$

loss firm (examples #9-2 & #9-7)

$$-0.1154 = -0.0103 + (-0.0357 - 0.0103) + (-0.1154 - 0.0357)$$

⇒ clear benefits to the use of leverage for a profitable firm

Why then don't firms use more leverage, both operating and financial?

- ❑ by definition, leverage increases business risk by introducing fixed costs that must be satisfied irrespective of the firm's circumstances (profit or loss)
- ❑ with more debt, the cost of debt and the cost of equity both increase (NFE ↑)
- ❑ ???

➔ in reality, it is highly unlikely that one element can be changed without affecting other elements within the system

PART 3 – ‘DuPont System’ & Reported vs Reformulated

ROCE = RNOA + FLEV {RNOA NBC} *‘first-level’ break down of ROCE*

margin asset turnover Assignment Project Exam Help given RNOA = = profit

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ROCE = {profit margin asset turnover} + {FLEV spread} *‘second-level’ break down of ROCE*

operations

financing

➡ notion of ‘DuPont’ analysis → decomposition of operating profitability

The standard presentation of the 'DuPont System' based on reported accounting numbers is:

$$ROE = ROA \times leverage$$

where $ROA = \text{profit}$

$\text{margin} \times \text{asset turnover}$

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** when employed 'outside' the DuPont system, ROA is more typically measured as:

→ based on the firm's profit after tax (available to all forms of resource providers i.e., debt and equity)

Notes for the 'DuPont System' based on AASB / IFRS financial statements:

- the system is based on NPAT as opposed to Comprehensive Income (CI)
- both operating and financial income are included in income figure (NPAT)
- total assets includes both operating and financial assets

but ... for example, we 'know' that returns on operating assets are quite different from those on financial assets

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In contrast, the 'DuPont System' based on the *reformulated statements* is as follows:

$$\begin{aligned} \text{ROCE} &= \text{RNOA} + \text{leverage} \times \\ &\{ \text{RNOA} - \text{NBC} \} \\ &\text{leverage} \times \{ \text{RNOA} - \\ &\text{NBC} \} \end{aligned}$$

⇒ under both sets of presentations (reported F/S & reformulated F/S)

return to the common shareholder = **return to the firm, adjusted for leverage**

■ **return to the firm: RNOA versus ROA**

expect ROA to be lower than RNOA (1963 – 2010: median RNOA = 10.5%, median ROA = 7.1%)

- ROA includes financial assets (FA) which earn a lower rate of return
- operating liability leverage (OLLEV) is reflected in RNOA but not in ROA

■ **leverage: versus**

expect D/E to be higher than FLEV (1963 – 2010: median D/E = 1.22, median FLEV = 0.43)

- D/E includes operating liabilities which create operating liability leverage (OLLEV) and financial liabilities which create financial leverage (FLEV)
- D/E excludes/ignores financial assets as an offset to financial liabilities

return to the firm: RNOA versus ROA

Penman Table 12.1

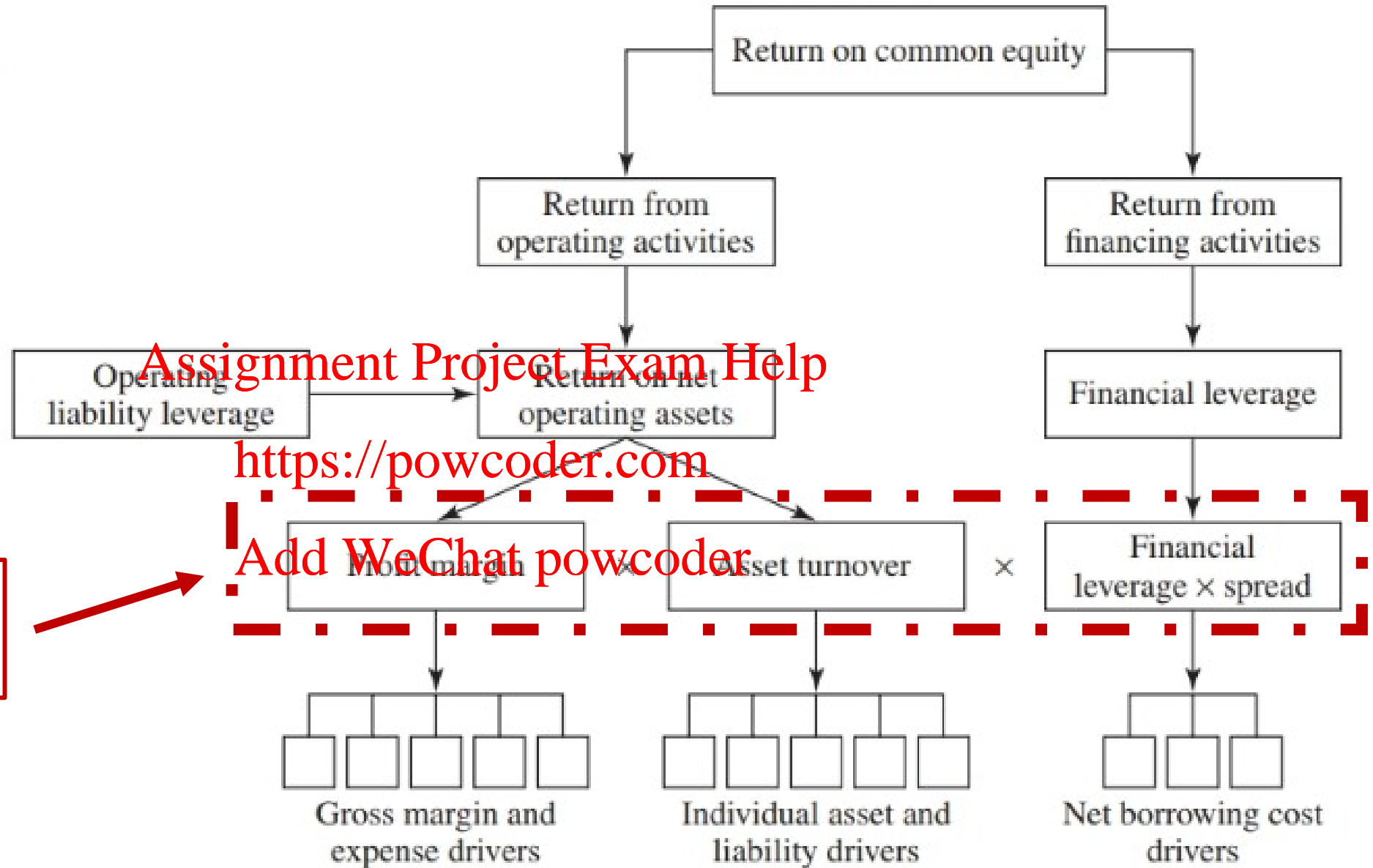
- the biggest differences between *RNOA* and *ROA* are for firms with the biggest investment in FA and the highest OLLEV

e.g., Microsoft

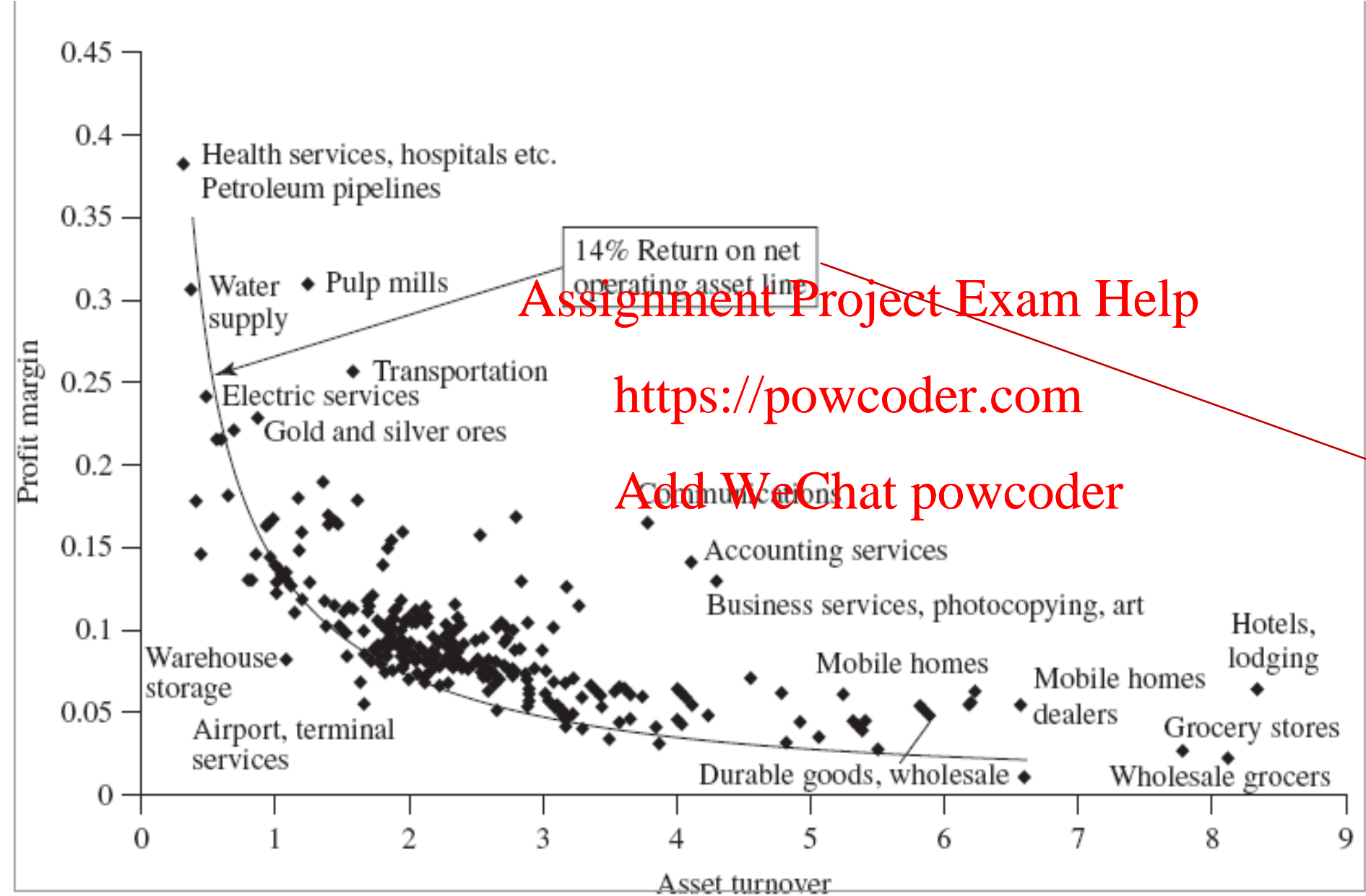
Industry and Firm	RNOA, %	ROA, %	Operating Liability Leverage (OLLEV)	Financial Assets/ Total Assets, %
Biotech				
Genentech, Inc.	40.4%	20.9%	0.44	30.2%
Amgen, Inc.	15.3	9.9	0.25	19.6
High-tech				
Microsoft Corp.	134.3	21.2	2.86	43.4
Oracle Corp.	27.8	14.1	0.59	23.0
Cisco Systems, Inc.	49.1	14.8	1.02	41.4
Retailers				
Wal-Mart Stores, Inc.	14.4	8.9	0.50	4.2
The Gap, Inc.	25.5	11.1	1.12	27.9
Oil producers and refiners				
ExxonMobil Corp.	41.4	17.7	0.95	14.6
Chevron Corp.	26.0	13.4	0.82	6.9
Nike and General Mills				
Nike, Inc.	35.0	16.5	0.65	23.6
General Mills, Inc.	15.1	8.5	0.44	2.5

FIGURE 12.1 The Analysis of Profitability

The breakdown of return on common equity (ROCE) into its drivers.



Penman Figure 12.3 Profit Margin and Asset Turnover Combinations by Industry, 1963-2000



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Note - a given RNOA (e.g., 14%) can be achieved from various combinations of PM and ATO

Penman Table 12.2

- median values for ratios underlying profitability by Industry, 1963-2000
- median ROCE = 12.2%
- median RNOA = 10.3%
- 'pipelines' vs 'food stores'
 - both have RNOA = 12%
 - Pipelines low ATO, high PM
 - Food stores high ATO, low PM
 - pipelines have higher FLEV
→ higher ROCE

	ROCE(%)	FLEV	OLLEV	RNOA(%)	PM(%)	ATO
Pipelines	17.1	1.093	0.154	12.0	27.8	0.40
Tobacco	15.8	0.307	0.272	14.0	9.3	1.70
Restaurants	15.6	0.313	0.306	14.2	5.0	2.83
Printing and publishing	14.6	0.154	0.374	13.6	6.5	2.20
Business services	14.6	0.056	0.488	13.5	5.2	2.95
Chemicals	14.3	0.198	0.352	13.4	7.1	1.91
Food stores	13.8	0.364	0.559	12.0	1.7	7.39
Trucking	13.8	0.641	0.419	10.1	3.8	2.88
Food products	13.7	0.414	0.350	12.1	4.4	2.74
Communications	13.4	0.743	0.284	9.1	12.5	0.76
General stores	13.2	0.389	0.457	11.3	3.5	3.55
Petroleum refining	12.6	0.359	0.487	11.2	6.0	1.96
Transportation equipment	12.5	0.369	0.422	11.2	4.5	2.47
Airlines	12.4	0.841	0.516	9.0	4.3	1.99
Utilities	12.4	1.434	0.272	8.2	14.5	0.59
Wholesalers, non-durable goods	12.2	0.584	0.461	10.2	2.3	3.72
Paper products	11.8	0.436	0.296	10.2	5.9	1.74
Lumber	11.7	0.312	0.384	10.4	4.0	2.60
Apparel	11.6	0.408	0.317	10.1	4.0	2.55
Hotels	11.5	1.054	0.201	8.5	8.2	1.04
Shipping	11.4	0.793	0.205	9.1	12.6	0.61
Amusements and recreation	11.4	0.598	0.203	10.1	9.5	1.10
Building and construction	11.4	0.439	0.409	10.6	4.5	2.06
Wholesalers, durable goods	11.2	0.448	0.354	9.9	3.4	2.84
Textiles	10.4	0.423	0.266	9.3	4.3	2.09
Primary metals	9.9	0.424	0.338	9.4	5.0	1.80
Oil and gas extraction	9.1	0.395	0.263	8.3	13.0	0.57
Railroads	7.3	0.556	0.362	7.1	9.7	0.78

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Penman E12.7

Using **average** B/S amounts, calculate

- RNOA and NBC
- FLEV
- Show that the financing leverage equation explaining ROCE holds
- Calculate profit margin and asset turnover (ATO) for 2007
- Show $RNOA = PM \times ATO$
- Calculate the gross margin ratio, the operating profit margin ratio, and the operating profit margin from sales ratio

Here is a reformulated income statement for the Coca-Cola Company for 2007 (in millions):

Sales	\$28,857
Cost of sales	10,406
Gross margin	18,451
Advertising expenses	2,800
General and administrative expenses	8,145
Other expenses (net)	81
Operating income from sales (before tax)	7,425
Tax	1,972
Operating income from sales (after tax)	5,453
Equity income from bottling subsidiaries (after tax)	668
Operating income	6,121
Net financial expense (after tax)	140
Earnings	\$ 5,981

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Summary balance sheets for 2007 and 2006 are as follows (in millions):

	2007	2006
Net operating assets	\$26,858	\$18,952
Net financial obligations	5,114	2,032
Common shareholders' equity	\$21,744	\$16,920

$$\text{RNOA} = 0.2672$$

$$\text{NBC} = 0.0392$$

$$\text{FLEV} = 0.1848$$

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$$\text{ROCE} = \text{RNOA} + \text{FLEV} \times (\text{RNOA} - \text{NBC}) = 0.2672 + 0.1848(0.2672 - 0.0392) = 0.3093$$

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$$\text{ROCE} = \quad = \quad = 0.3094$$

$$\text{RNOA} = 0.2672$$

$$\text{ATO} =$$

$$\text{operating profit margin} = 0.2121$$

$$\text{RNOA} = \text{PM} \times \text{ATO} = 0.2121 \times 0.2599 = 0.0551$$

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$$\text{gross profit margin} = 0.6394$$

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$$\text{operating profit margin from sales} = 0.1890$$

$$\text{operating profit margin} = 0.2121$$

PART 4 – Deeper Insights into Profitability

$$\text{ROCE} = \text{RNOA} + \text{FLEV} \{ \text{RNOA} - \text{NBC} \}$$

where

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RNOA = profit margin

asset turnover

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both profit margin and asset turnover can be broken down further into their underlying components to gain deeper insights into the ‘drivers’ of profitability

disaggregation of 'profit margin'

$$OI = \{sales - COGS\}$$


*- [administrative expenses + other operating expenses + depreciation expense]
+ other operating income + unusual operating income
- tax expense*

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⇒ profit margin

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- - - + + -

Note – there is no 'right' or 'wrong' level of disaggregation – it could, for example, also be done by 'product' and/or 'line of business' and/or further disaggregation of Other and Unusual OI whatever provides the greatest insights into the drivers of profitability

disaggregation of 'total asset turnover'

$$\text{NOA} = \{\text{operating cash} + \text{receivables} + \text{inventory} + \text{property \& plant}\} \\ - [\text{accounts payable} + \text{accrued liabilities}]$$

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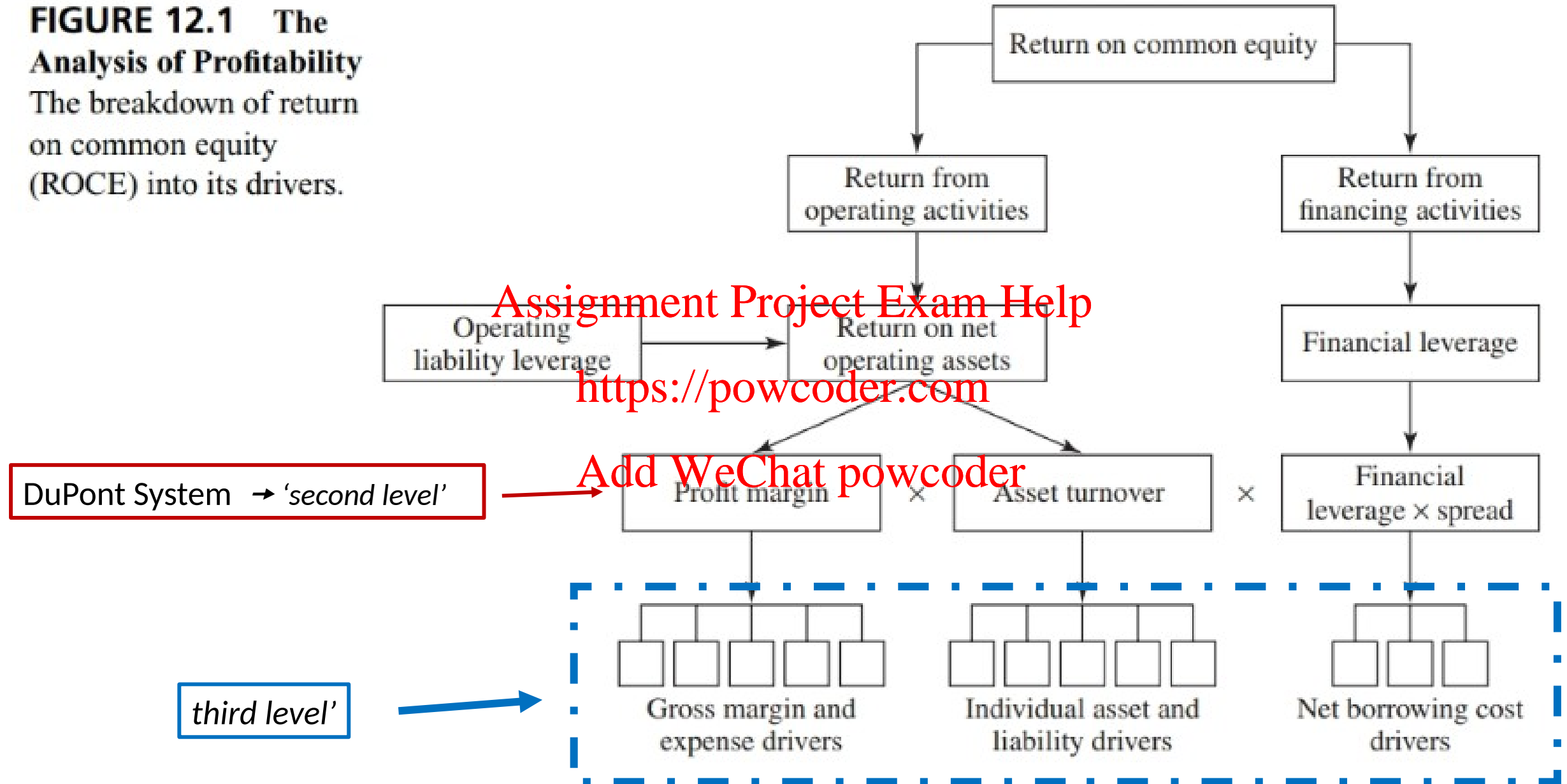
asset turnover =

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⇒ + + + - -

FIGURE 12.1 The Analysis of Profitability
The breakdown of return on common equity (ROCE) into its drivers.



Penman Table 12.3

- Second and third level breakdown

Nike & General Mills,
2009 – 2010

	Nike		General Mills	
	2010	2009	2010	2009
Second Level				
RNOA	30.6%	28.4%	10.1%	4.1%
Profit margin	9.54%	8.99%	7.95%	3.41%
Asset turnover	<u>3.21</u>	<u>3.16</u>	<u>1.27</u>	<u>1.19</u>
Third Level				
Profit margin drivers (%)				
Gross margin ratio	46.3	44.9	39.7	35.6
Administrative expense ratio	(20.9)	(19.8)	(14.3)	(13.7)
Advertising expense ratio	(12.4)	(12.3)	(6.1)	(5.0)
Other expense ratio	<u>(0.3)</u>	<u>(0.3)</u>	<u>(1.5)</u>	<u>(1.4)</u>
Sales PM before tax	13.3	13.3	17.8	15.5
Tax expense ratio	(3.2)	(3.6)	(6.3)	(5.8)
Sales PM	<u>10.1</u>	<u>9.7</u>	<u>11.5</u>	<u>9.8</u>
Other items PM	<u>(0.5)</u>	<u>9.5</u>	<u>(3.6)</u>	<u>7.9</u>
Asset turnover drivers (inverse)				
Cash turnover	0.005	0.005	0.004	0.004
Accounts receivable turnover	0.146	0.148	0.066	0.069
Inventory turnover	0.116	0.125	0.090	0.093
Prepayment turnover	0.043	0.036	0.029	0.033
PPE turnover	0.102	0.101	0.208	0.209
Goodwill and intangibles turnover	0.036	0.048	0.700	0.715
Other asset turnover	<u>0.060</u>	<u>0.050</u>	<u>0.058</u>	<u>0.091</u>
Operating asset turnover	0.506	0.512	1.157	1.212
Accounts payable turnover	(0.056)	(0.057)	(0.056)	(0.059)
Accrued expenses turnover	(0.090)	(0.090)	—	—
Taxes payable turnover	(0.004)	(0.005)	—	—
Other liability turnover	<u>(0.045)</u>	<u>0.311</u>	<u>(0.314)</u>	<u>0.839</u>

Note: Columns may not add precisely due to rounding error.

second level $RNOA = \text{profit margin} \times \text{asset turnover}$

	Nike		General Mills	
	2010	2009	2010	2009
Second Level				
RNOA	30.6%	28.4%	10.1%	4.1%
Profit margin	9.54%	8.99%	7.95%	3.41%
Asset turnover	3.21	3.16	1.27	1.19

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profit margin ATO 30.623 ✓ 28.408 ✓ 10.096 ✓ 4.058 ✓

third level profit margin

	Nike		General Mills	
	2010	2009	2010	2009
Second Level				
RNOA	30.6%	28.4%	10.1%	4.1%
Profit margin	9.54%	8.99%	7.95%	3.41%
Asset turnover	<u>1.27</u>	<u>1.19</u>	<u>1.27</u>	<u>1.19</u>

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Profit margin drivers (%)				
Gross margin ratio	46.3	44.9	39.7	35.6
Administrative expense ratio	(20.9)	(19.8)	(14.3)	(13.7)
Advertising expense ratio	(12.4)	(12.3)	(6.1)	(5.0)
Other expense ratio	0.3	0.5	(1.5)	(1.4)
Sales PM before tax	13.3	13.3	17.8	15.5
Tax expense ratio	(3.2)	(3.6)	(6.3)	(5.8)
Sales PM	10.0	9.7	11.5	9.8
Other items PM	(0.5)	(0.7)	(3.6)	(6.4)

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Actual net (rounding!)

9.6✓

9✓

7.9✓

3.3✓

third level
asset turnover

	Nike		General Mills	
	2010	2009	2010	2009
Second Level				
RNOA	30.6%	28.4%	10.1%	4.1%
Profit margin	9.54%	8.99%	7.95%	3.41%
Asset turnover	<u>3.21</u>	<u>3.16</u>	<u>1.27</u>	<u>1.19</u>

Asset turnover drivers (inverse)							
Cash turnover	0.005	0.005	0.004	0.004			
Accounts receivable turnover	0.146	0.148	0.066	0.069			
Inventory turnover	0.116	0.125	0.090	0.093			
Prepayment turnover	0.043	0.036	0.029	0.033			
PPE turnover	0.102	0.101	0.208	0.209			
Goodwill and intangibles turnover	0.036	0.048	0.700	0.715			
Other asset turnover	<u>0.060</u>	<u>0.050</u>	<u>0.038</u>	<u>0.091</u>			
Operating asset turnover	0.506	0.512	1.157	1.212			
Accounts payable turnover	(0.056)	(0.057)	(0.056)	(0.059)			
Accrued expenses turnover	(0.090)	(0.090)	—	—			
Taxes payable turnover	(0.004)	(0.005)	—	—			
Other liability turnover	<u>(0.045)</u>	<u>0.311</u>	<u>(0.044)</u>	<u>0.316</u>	<u>0.787</u>	<u>(0.314)</u>	<u>0.839</u>

Actual net (rounding!)

0.313✓

0.317✓

0.785✓

0.841✓

Inverse = ATO

3.195

3.155

1.274

1.189

Summary:

Nike

	RNOA	Profit Margin	Asset Turnover
2010	30.6%	9.54%	3.21
2009	28.4%	8.99%	3.16
	↑ 2.2%	↑ 0.55%	↑ 0.05

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General Mills

	RNOA	Profit Margin	Asset Turnover
2010	10.1%	7.95%	1.27
2009	4.1%	3.41%	1.19
	↑ 6.0%	↑ 4.54%	↑ 0.08

⇒ for both firms, increase in RNOA largely through an increased profit margin

Further applications / insights illustrated

1. If Nike could increase its Accounts Receivable turnover from 6.85 to General Mill's level of 15.15 while maintaining the current level of sales and all else remaining unchanged, how would its RNOA change?

2010: $= 0.146$ \rightarrow A/R turnover = 6.85 =

new: A/R turnover = 15.15 \rightarrow = 0.066

based on figures provided $= 0.311$ ATO = 3.21

revised $0.311 - (0.146 - 0.066) = 0.231 \rightarrow$ ATO = 4.33

\Rightarrow RNOA = 0.954 \rightarrow 41.3% (up from 30.6%)

1. If Nike could increase its Accounts Receivable turnover from 6.85 to General Mill's level of 15.15 while maintaining the current level of sales and all else remaining unchanged, how would its RNOA change?

→ RNOA = 0.954 → 41.3% (up from 30.6%)

feasible / realistic ?

current collection period = $365 / 6.85 = 53.3$ days revised = $365 / 15.15 = 24.1$ days

→ more stringent credit terms

⇒ would expect sales ↓ or sales discounts ↑ (gross margin ↓)

bad debt expense ↓ → A/R ↑ → A/R turnover ↓

→ unlikely that A/R turnover can be changed in isolation

(and if feasible, why hasn't the change already been made?)

2. If Nike's gross margin ratio dropped from 46.3% to 44.9% because of increased production costs, what would happen to its RNOA given a tax rate of 36.3%?

Gross Margin ↓ 1.4% pre-tax → $(1 - 0.363) = 0.89\%$ ↓ post tax

→ Profit Margin ↓ 0.89%

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$\Delta \text{RNOA} = -0.89 \times 3.16 = -2.8 \rightarrow \text{RNOA} \downarrow 2.8\%$

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again, is it likely that only one account is affected in isolation?

Increased production costs \Rightarrow accounts payable ↑ ??

inventory ↑ ??

ultimately sales price ↑ and sales ↓ ??

???

PART 5 – Coles

- 2020 ratios based on reformulated F/S and year-end B/S figures (given AASB 16)
- **1st step** (slides #45 - #47)
 - financial leverage equation $ROCE = RNOA + FLEV \times (RNOA - NBC)$
 - DuPont System $RNOA = PM \times ATC$
 - operating liability leverage equation $RNOA = ROOA + OLLEV \times (ROOA - STBC)$
- **2nd step – profit margin drivers** (slide #48)
- **3rd step – asset turnover drivers** (slide #49)

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Coles Reformulated Income Statement		2020
Sales Revenue		37,408
Cost of sales		<u>(28,043)</u>
Gross Margin		9,365
Administrative expenses		<u>(8,122)</u>
Core Income from Sales (before tax)		1,243
Tax expense		<u>(318.2)</u>
Core Income from Sales (after tax)		924.8
Core Other Operating Income (after tax)	$(376 + 108 - 6 - 143.4)$	334.6
Core Unusual Operating Income (after tax)	$(41 - 12.3)$	<u>28.7</u>
Operating Income after Tax		1,288.1
Financing costs		
Core NFE (after tax)	310.1	
Financing OCI (after tax)	12	<u>(322.1)</u>
Total Comprehensive Income		966

Coles Reformulated B/S	2020
Operating Assets	
cash & cash equivalents	187
receivables	434
inventories	2,166
assets held for resale	75
other assets	190
property, plant & equipment	4,127
right-of-use assets	7,660
intangible assets	1,577
deferred tax assets	849
equity accounted investments	217
Total Operating Assets (OA)	17,502
Operating Liabilities	
trade payables	3,737
provisions	1,333
other	<u>227</u>
Total Operating Liabilities (OL)	5,297
Net Operating Assets (NOA)	12,205

	2020
Financial Assets	
financial cash	805
income tax receivable	<u>42</u>
Total Financial Assets (FA)	847
Financial Obligations	
interest-bearing liabilities	1,354
provisions	---
lease liabilities	<u>9,083</u>
Total Financial Obligations (FO)	10,437
Net Financial Obligations (NFO)	9,590
Shareholders' Equity	
contributed equity	1,611
reserves	43
retained earnings	<u>961</u>
Total Equity	2,615

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$$\text{RNOA} = 0.1055$$

$$\text{NBC} = 0.0336$$

$$\text{FLEV} = 3.6673$$

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$$\text{ROCE} = \text{RNOA} + \text{FLEV} \times (\text{RNOA} - \text{NBC}) = 0.1055 + 3.6673(0.1055 - 0.0336) = 0.3694$$

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$$\text{ROCE} = \quad = \quad = 0.3694$$

$$\text{RNOA} = 0.1055$$

$$\text{ATO} = 0650$$

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$$\text{operating profit margin} = 0.0344$$

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$$\text{RNOA} = \text{PM} \times \text{ATO} = 0.0344 \times 3.0650 = 0.1054$$

$$\text{OLLEV} = 0.4340$$

assume after-tax STBC = 0.025

$$\text{Implicit interest on OL} = 5,297 @ 0.025 = 132.425$$

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$$\text{ROOA} = 0.0812$$

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$$\text{RNOA} = \text{ROOA} + \text{OLLEV} \times (\text{ROOA} - \text{STBC}) = 0.0812 + 0.4340 (0.0812 - 0.025) = 0.1056$$

$$\text{RNOA} = 0.1055$$

Profit Margin Drivers			% of sales
Sales Revenue		37,408	1.0000
Cost of sales		<u>(28,043)</u>	<u>(0.7497)</u>
Gross Margin		9,365	0.2503
Administrative expenses		<u>(8,122)</u>	(0.2171)
Core Income from Sales (before tax)		1,243	0.0332
Tax expense		<u>(318.2)</u>	(0.0085)
Core Income from Sales (after tax)		924.8	0.0247
Core Other Operating Income (after tax)		334.6	0.0089
Core Unusual Operating Income (after tax)		<u>28.7</u>	0.0008
Operating Income after Tax		1,288.1	0.0344
Financing costs			
Core NFE (after tax)	310.1		(0.0083)
Financing OCI (after tax)	12	<u>(322.1)</u>	(0.0003)
Total Comprehensive Income		966	0.0258

Asset Turnover Drivers		turnover = sales / item	inverse = item / sales
Operating Assets			
cash & cash equivalents	187	200.043	0.0050
receivables	434	86.194	0.0116
inventories	2,166	17.271	0.0579
assets held for resale	75	498.773	0.0020
other assets	190	196.884	0.0051
property, plant & equipment	4,127	9.064	0.1103
right-of-use assets	7,660	4.884	0.2048
intangible assets	1,597	23.424	0.0427
deferred tax assets	849	44.061	0.0227
equity accounted investments	<u>21</u>	172.387	0.0058
Total Operating Assets (OA)	17,502	2.137	0.4679
Operating Liabilities			
trade payables	3,737	10.010	0.0999
provisions	1,333	28.063	0.0356
other	<u>227</u>	164.793	0.0061
Total Operating Liabilities (OL)	5,297	7.062	0.1416
Net Operating Assets (NOA)	12,205	3.065	0.3263

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Aside: Microsoft Corporation, 2003

NOA	12,829	OI	6,277
<u>NFA</u>	<u>36,906</u>	<u>NFI</u>	<u>1,548</u>
S/E	49,735	CI	7,825

Why is ROCE < RNOA

NOA earn 48.93%

NFA earn 4.19%

→ investments in NFA reduces the shareholders' rate of return

RNOA = 0.4893

FLEV = -0.7421

RNFA = 0.0419

ROCE = = = 0.1573

$$\text{ROCE} = \text{RNOA} + \text{FLEV} \times (\text{RNOA} - \text{NBC}) = 0.4893 - 0.7421(0.4893 - 0.0419) = 0.1573$$

What if Microsoft paid a special dividend of \$33 billion (as it did in 2004) by selling financial assets?

NOA	12,829
NFA	<u>3,906</u>
S/E	16,735

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new FLEV = -0.233 <https://powcoder.com>

ROCE = 0.4893% - 0.233(0.4893 - 0.0419) = 0.3849

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PART 6 – Forecasting & Valuation

Objective of the forecasting exercise

- to develop objective and realistic expectations of future value-relevant payoffs

How to achieve this?

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- develop *pro forma* F/S containing unbiased predictions of the firm's future operating, investing, and financing activities → should be neither conservative nor optimistic
- *pro forma* F/S should be comprehensive → need to consider the growth rate for each item, not just assume items will grow at a constant rate with sales
- need to make consistent assumptions and maintain the relation between items in the *pro forma* F/S (i.e., the F/S represent an integrated system, both reported and *pro forma*)
- use external information to ensure that assumptions are realistic

Steps comprising the Forecasting Exercise

Income Statement:

- Step 1: Forecast Sales
- Step 2: Forecast Core OI from Sales (before tax)
- Step 3: Forecast Core Other OI (before tax)
- Step 4: Calculate OI (before tax)
- Step 5: Forecast Income Tax Expense attributable to OI
- Step 6: Calculate OI (after tax)

Balance Sheet:

- Step 7: Forecast OA and OL to obtain a forecast of NOA

Unlevered Valuation → valuing the firm

- Step 8: Calculate RNOA, FCF and residual operating income (ReOI)
- Step 9: Estimate the DCF and ReOI models with assumed terminal growth rate and firm's weighted average cost of capital (WACC) → overall value of the firm
- Step 10: Forecast Leverage and NFE (after tax)
- Step 11: Calculate $CI = OI \text{ (after tax)} - NFE \text{ (after tax)}$ & $CSE = NOA - NFO$
- Step 12: Forecast Dividends ($div = CI - \Delta S/E \pm NCC$)

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Levered Valuation → valuing common equity (value of common shares)

- Step 13: Calculate RI (residual income or abnormal earnings)
- Step 14: Estimate the DDM and RI models with assumed terminal growth rate (g) and cost of equity capital (k) → value of the firm to the common shareholder

Implementing the forecasting steps

- be aware that the steps are integrated and interdependent
- the amounts in each of the *pro forma* F/S need to agree with each other – be aware of the interrelations between the financial statements
- need some flexible accounts that expand or decrease in response to changes in activities; working through the *pro forma* F/S results in a circularity which in turn may result in the need for more than one iteration of the accounts
- quality of forecast financial information is a direct function of the quality of forecast assumptions
- sensitivity analysis should be conducted on the *pro forma* statements

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Step 1: Forecast Sales

sales 'drive' the system !!

- ✓ the sales forecast is the starting point and typically requires the greatest attention during the forecasting process [Assignment Project Exam Help](https://powcoder.com)
- ✓ a consideration of historical sales growth rates can be a **starting** point *BUT* need to develop a thorough understanding of the business and its environment to make meaningful sales forecasts <https://powcoder.com>
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 - ➔ the firm's business strategy
 - the market for the firm's products
 - the firm's marketing plan
 - how the broader economic factors and the industry dynamics affect the business

1. the firm's business strategy *e.g.*,

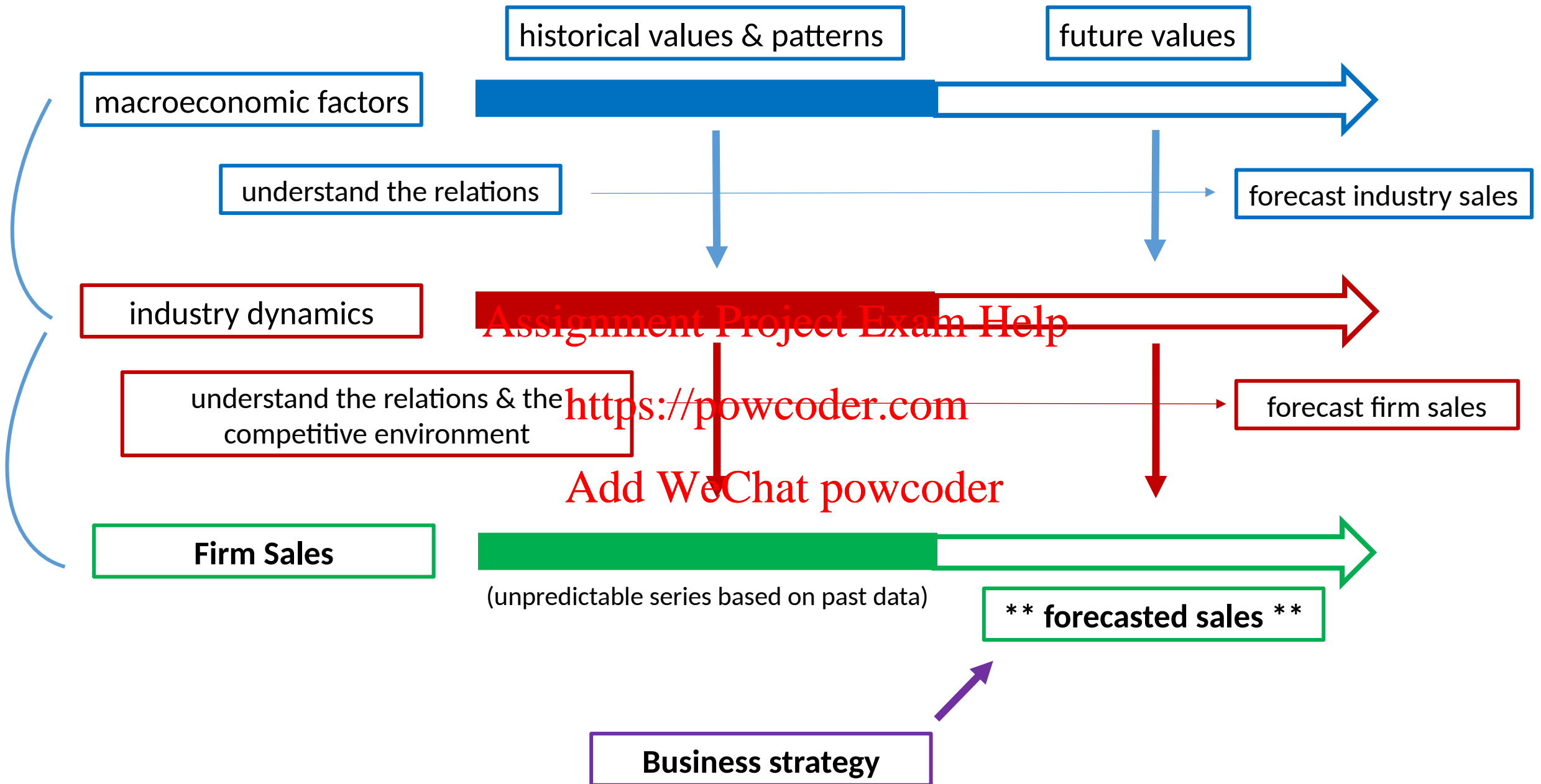
- what lines of business is the firm likely to be in?
- is the firm likely to develop new products?
- what stage in their 'lifecycle' are the firm's products at?
- what is the firm's acquisition and takeover strategy?

2. the market for the firm's products *e.g.*,

- is consumer behaviour likely to change, and if so how?
- what is the 'elasticity of demand' for the firm's products?
- are new products likely to emerge that could displace the firm's current product line?
- are substitute products a material threat?

3. The firm's marketing plan *e.g.*,

- is the market for the firm's products expanding, or are new markets opening up?
- what is the firm's pricing strategy (cost leadership; differentiation; focus)?
- what is the firm's advertising strategy?
- does the firm have, or can it develop and maintain brand names (or other intangibles)?



‘end product’ ⇒ forecast of future sales

considerations / constraints include –

- ☐ ‘regression to mean’ phenomenon
- ☐ appropriate forecast horizon
- ☐ appropriate ‘terminal growth rate’
- ☐ sustainable growth rate

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1) 'regression to mean' phenomenon

- ❑ company performance tends to be 'mean-reverting'
 - companies with above average performance tend to experience a decline in profitability/growth
 - companies with below average performance tend to experience an improvement
- ❑ mean-reversion suggests that most companies eventually reach a **steady state** where their sales growth, RNOA, and other performance measures 'flatten out'

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❑ why does mean reversion happen?

The answer can be seen through the lens of 'Porter's five forces' coupled with opportunity

- *threat of new entrants*: competitors enter markets that are profitable and exit markets that are unprofitable
- *power of suppliers*: suppliers might consolidate or find new markets for their products, and so become more powerful
- *threat of substitutes*: high profits encourage the invention of substitute products (e.g., Skype versus long-distance telephone calls)
- companies tend to run out of growth opportunities as they mature e.g., Walmart

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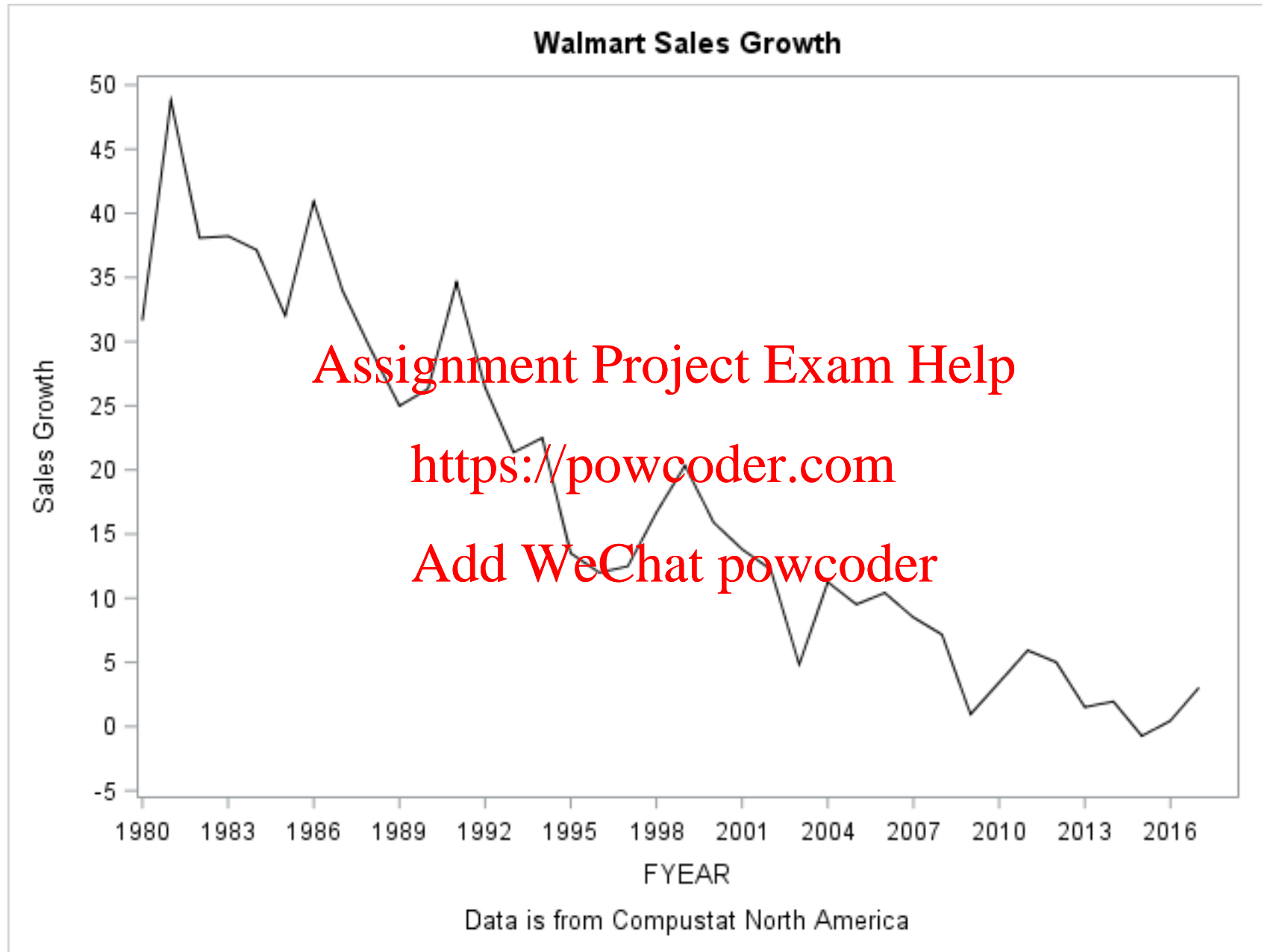


FIGURE 16.2
Driver Patterns for
Sales Growth Rates,
Changes in Core
Sales Profit Margins,
and Changes in Asset
Turnovers, NYSE and
AMEX Firms,
1964–1999

Source: D. Nissim and S. Penman, "Ratio Analysis and Equity Valuation: From Research to Practice," *Review of Accounting Studies*, March 2001, pp. 109–154. Based on Standard & Poor's COMPUSTAT data.

(a) Sales growth rates. Sales growth tends to fade quickly: Firms with high sales growth currently (in the upper groups) have lower sales growth subsequently; firms with low current sales growth (in the lower groups) have higher sales growth subsequently.

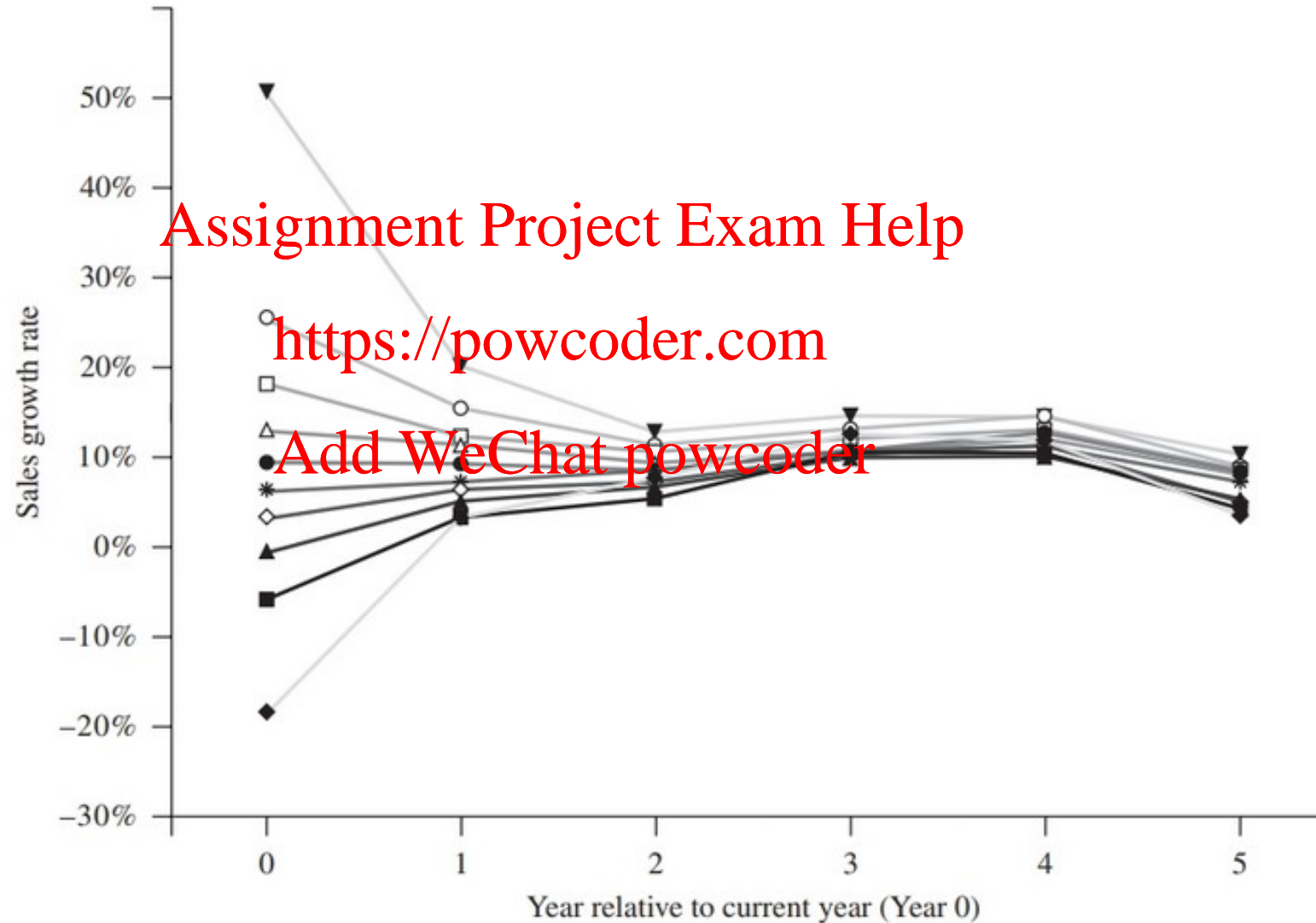
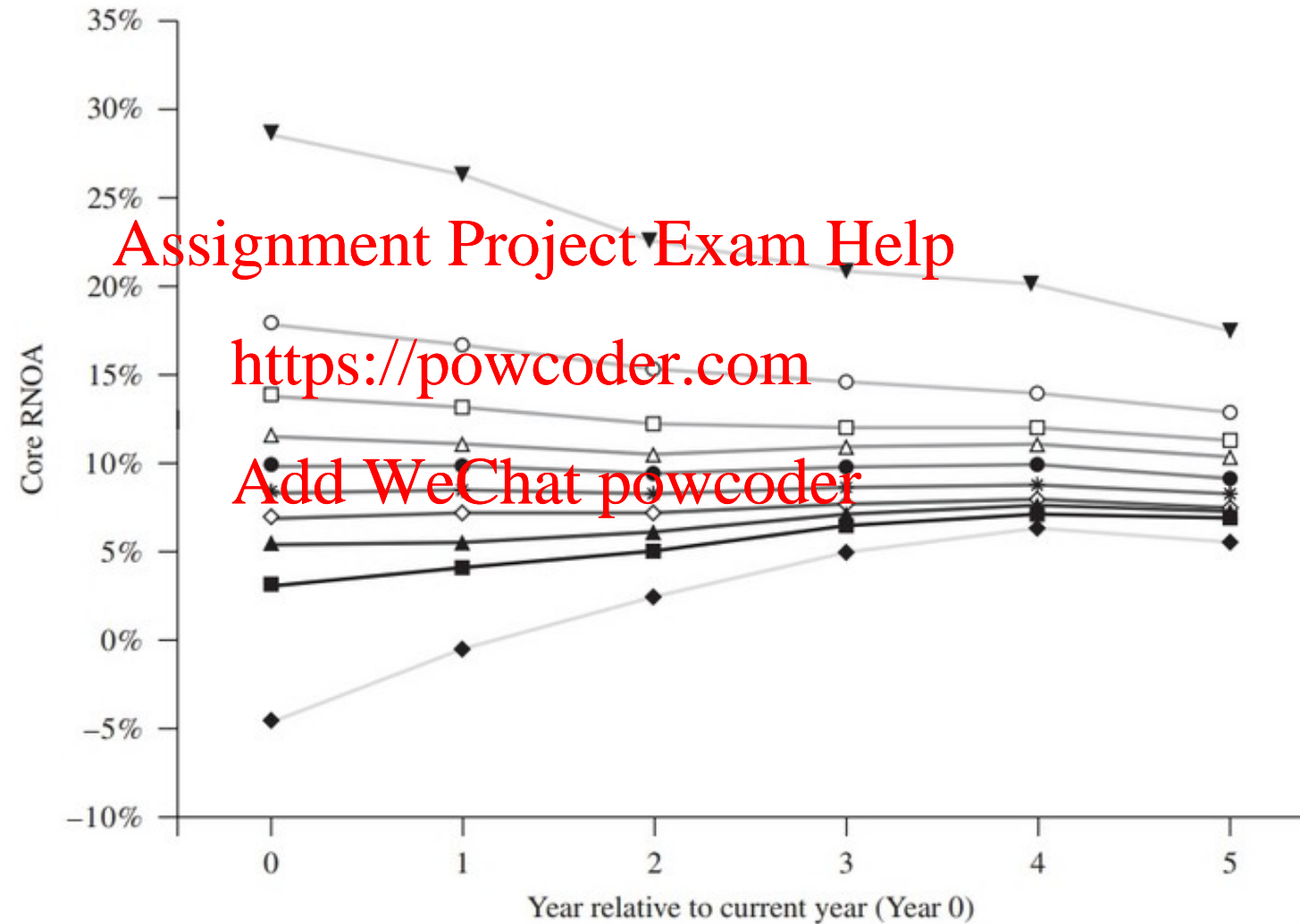


FIGURE 16.1
Driver Patterns for
Core RNOA, Core
Other Income, and
Unusual Operating
Items, NYSE and
AMEX Firms,
1964–1999

The patterns trace the median drivers over five years for 10 groups formed for different levels of the drivers in Year 0. Firms in the upper groups have high drivers in the current year (Year 0) and firms in the lower groups have low drivers in the current year.

Source: D. Nissim and S. Penman, "Ratio Analysis and Equity Valuation: From Research to Practice," *Review of Accounting Studies*, March 2001, pp. 109–154. Based on Standard & Poor's COMPUSTAT data.

(a) Core RNOA. Firms with high core RNOA currently (in the upper groups) tend to have declining profitability in the future; firms with low core RNOA (in the lower groups) tend to have increasing profitability in the future.



PART 7 – Forecasting (cont)

2) appropriate forecast horizon

- ❑ usual approach - sales are forecasted for a finite period at which point a 'steady state growth rate' is established
- ❑ the question that arises is around how long the forecast horizon be
 - usually forecast out as many years as the estimates are reliable – stop once the point where can't estimate better than assuming stable growth is reached
- ❑ the forecast horizon is also the period during which the firm has a competitive advantage i.e., the period over which the abnormal returns are positive.
- ❑ stable growth achieved when:
 - constant sales growth rate
 - margins constant – this means that expenses grow at the same constant rate as sales
 - turnover ratios constant
 - financial leverage ratios constant

- ❑ business/industry life cycle will likely impact on forecast horizon.
 - mature industry – shorter forecast horizon since growth more likely to be stable
 - high growth firms – forecast horizon likely to be longer as less likely that the above factors will be constant
 - *sales growth* – affected by industry wide growth as well as firm's growth in market share; also affected by macroeconomic factors
 - *profit margin* – results from the firm's competitive advantage
 - *turnover* – tend to be fairly stable over time; rapidly growing firms may have increasing turnover ratios due to economies of scale
 - *leverage* – unlikely to influence forecast horizon
- ➔ ideally, would like to make year-by-year forecasts until the company reaches a steady state, at which point the company's sales growth rate should approximate the 'terminal growth rate' (g) – however, there is also the question of 'practicality'

To illustrate the importance of forecasting to the point of 'steady state', consider the following forecasted data for a 'hypothetical' company

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Sales	1,000	1,300	1,625	2,035.5	2,420.3	2,774.4
%△ Sales		30.00%	27.08%	23.21%	18.91%	14.63%
OI	600.0	764.4	951.9	1,149.5	1,339.4	1,504.7
margin	60.00%	58.80%	57.62%	56.47%	55.34%	54.24%
NOA	400.0	520.6	660.8	814.2	968.1	1,109.8
%△ NOA		30.00%	27.08%	23.21%	18.91%	14.63%
ReOI		724.4	899.9	1,083.4	1,258.0	1,407.9
%△ ReOI			24.23%	20.38%	16.12%	11.91%
FCF		644.4	811.1	996.1	1,185.5	1,363.1
%△ FCF			25.88%	22.80%	19.02%	14.98%

Assume that a “sensible” terminal growth rate for both ReOI and FCF is 3%, and the company’s WACC is 10%

Implications of using a 5-year forecast horizon

- growth in ReOI drops abruptly from 11.91% in year 5 to 3% in year 6
- growth in FCF drops abruptly from 14.98% in year 5 to 3% in year 6
- using the FCF valuation model, $V = \$16,114.2$
- using the ReOI valuation model, $V = \$17,212.8$
 - the undesirable outcome of different valuation estimates

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Alternatively, if the forecast horizon is extended to the point where sales, OI, and NOA are growing at (approximately) the terminal growth rate – here for illustrative purposes, 10 years

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sales	1,000	1,300	1,625	2,035.5	2,420.3	2,774.4	3,072.8	3,303.6	3,468.2	3,577.1	3,684.4
%△ Sales		30.00%	27.08%	23.21%	18.91%	14.63%	10.75%	7.51%	4.98%	3.14%	3.00%
OI	600.0	764.4	951.9	1,149.5	1,339.4	1,504.7	1,633.2	1,720.7	1,770.3	1,789.4	1,842.2
margin	60.00%	58.80%	57.62%	56.47%	55.34%	54.24%	53.15%	52.09%	51.05%	50.02%	50.00%
NOA	400.0	520.0	660.8	814.2	968.1	1,109.8	1,229.1	1,321.4	1,387.3	1,430.8	1,473.8
%△ NOA		30.00%	27.08%	23.21%	18.91%	14.63%	10.75%	7.51%	4.98%	3.14%	3.00%
ReOI		724.4	899.9	1,083.4	1,258.0	1,407.9	1,522.2	1,597.8	1,638.2	1,650.7	1,699.1
%△ ReOI			24.23%	20.38%	16.12%	11.91%	8.12%	4.97%	2.53%	0.76%	2.93%
FCF		644.4	811.1	996.1	1,185.5	1,363.1	1,513.8	1,628.4	1,704.5	1,745.9	1,799.3
%△ FCF			25.88%	22.80%	19.02%	14.98%	11.06%	7.57%	4.67%	2.43%	3.06%

⇒ by year 10, growth rates in sales, OI, and NOA (and thereby ReOI and FCF) have systematically converged to the ‘terminal growth’ rate

the valuation estimate is the same based on both models (\$17,787.3)

the valuation estimate is higher than based on only 5 years of forecasts → missed value by not forecasting long enough

⇒ In the ideal, it is desirable to forecast on a year-by-year basis until the steady state growth rate has been reached ... **BUT** ... again there is the mitigating factor of ‘practicality’

finally and to re-iterate, both macroeconomic factors and industry dynamics have an important role in the process of forecasting sales

Industry growth

- key determinant in forecast horizon
- attempt to identify variables that predict industry sales
- industry data needs to be predictable
- need strong links to the firm’s sales
- factors include demographic trends, nominal GDP growth, competition, market share

Competitive advantage

- often a factor that is over-estimated
- rare to have indefinitely sustainable competitive advantage (monopoly)

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3) appropriate 'terminal growth rate'

- ❑ sales growth – terminal growth rate cannot exceed long-run expected economy-wide growth rate (e.g., nominal GDP growth)
 - if terminal growth rate $>$ economy-wide growth rate, company will outgrow economy
 - if the terminal growth rate $<$ economy-wide growth rate, company will shrink
 - often safe to assume that the company will continue to grow at the long-term economy-wide growth rate (but not always) \Rightarrow need to justify assumed g
- ❑ guidelines for margins, turnover, and leverage are not as obvious – however, their relations with *ROCE* provides a useful basis for assumptions
 - remember, *ROCE* is mean reverting (as is *RNOA*); thus, it is reasonable to assume that *ROCE* will move towards the cost of equity capital over time
 - if a firm is operating in a long-run competitive equilibrium and there is a relatively close link between *ROCE* and economic rate of return, the terminal *ROCE* growth rate should equal the cost of equity capital

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4) sustainable growth rate, g^*

the sustainable growth rate indicates the maximum rate at which a firm can grow without additional external financing, given its current level of profitability and dividend policy

$g^* = \text{ROCE} \times \text{earnings retention rate}$

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$= \{(\text{profit margin} \times \text{asset turnover}) + \text{FLEV} (\text{RNOA} - \text{NBC})\} \times \text{earnings retention rate}$
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\Rightarrow the rate at which the firm can “safely” grow without changing any of these factors
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i.e., if the firm wishes to grow at a rate exceeding g^* then it must either turn to external financial markets for additional support, or generate/retain more internally (improved profit margin, improved asset turnover, and/or reduce payout ratio)

HOWEVER

- the profit margin may be relatively inflexible
- dividend policy is typically viewed as “sticky”

⇒ may only have asset turnover and leverage (use of additional debt or equity financing) as the available ways in which to support growth in excess of g^*

Thus, if a firm's forecasted sales growth rate **exceeds** its sustainable growth rate (g^*), it is useful to try and understand how the additional growth will be financed

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- ❑ one possibility is through increased future profitability; however, if the increased profitability is not achieved, the growth plans may be curtailed
- ❑ alternatively, the additional growth may be financed externally through new debt and/or equity; this also introduces uncertainty because advance planning is required and capital markets must be receptive to the firm's growth plans
- ❑ a final option is for the firm to cut its dividend payout ratio; however, given that average dividend payout ratios are close to zero for growth firms, this final option is often not available

$$g^* = \{(\text{profit margin} \times \text{asset turnover}) + \text{FLEV} (\text{RNOA} - \text{NBC})\} \times \text{earnings retention rate}$$

Note, the sustainable growth rate also provides a crude starting point for a growth estimate i.e., assuming the firm pays out the same proportion of profits each year, dividends and earnings will both grow by the following rate (all else held equal including feasibility):

$$g = \text{RR} \times \text{ROCE} \quad \text{where RR} = \text{retention rate and ROE} = \text{return on equity}$$

Based on the reformulated F/S, the most common measure for the payout ratio is:

$$\text{comprehensive dividend payout ratio} = \frac{E}{CI}$$

E = net transactions with shareholders (see reformulated Statement of Cash Flows or Statement of Changes in Shareholders' Equity)

CI = comprehensive income

note – requires $CI > 0$ (a profitable firm)

Coles 2020

sales	37,408	dividends	873
OI	1,288.1	repurchases	17
CI	966	share-based exp	<u>(13)</u>
NOA	12,205	E	<u>877</u>

$$\text{RNOA} = 0.1055$$

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$$\text{ATO} = 0.650$$

$$\text{operating PM} = 0.0344$$

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$$\text{payout ratio} = 0.9079 \rightarrow \text{retention rate} = (1 - 0.9079) = 0.0921$$

$$\text{sustainable growth rate } g^* = 0.3694 \times 0.0921 = 0.0340$$

Coles 2020

sustainable growth rate $g^* = 0.3694 \times 0.0921 = 0.0340$

sales 2019 38,176

2020 37,408

→

sales growth = 0.0201

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⇒ actual sales growth $< g^*$ ⇒ generation of surplus cash during period
(from reformulated SCF, FCF = 2,185)

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→ can retain 'surplus cash' for future investment, or return to resource providers
(debt and equity)

from the reformulated Statement of Cash Flows

F = (1,308) including net repayment of borrowings = 106 million

E = (877) including repurchase of shares = 17 million

from the reformulated Balance Sheet, 'financing cash' increased by \$56 million

PART 8 – Summary

overarching objective:

to conduct fundamental value for the purpose of estimating the ‘intrinsic value’ of a firm’s common shares

→ requires an understanding of the firm’s ‘value drivers’

→ need to accumulate a ‘tool kit’ as the basis for developing the *pro forma Financial Statements*

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STEP 1 Understanding the past

1. Information collection
2. Understanding the business
3. Accounting analysis
4. Financial ratio analysis
5. Cash flow analysis



STEP 2 Forecasting the future

1. Structured forecasting
2. Income Statement forecasts
3. Balance sheet forecasts
4. Cash flow forecasts



STEP 3 Valuation

1. Cost of capital
2. Valuation models – AE, FCF, D
3. Valuation ratios
4. Complications
 - a. Negative values
 - b. Value creation and destruction

external environment ✓

- economic prospects
- macroeconomic factors
- socio-cultural forces
- political / regulatory

Analysis of Financial Statements ✓

- understanding current F/S
- re-formulating the F/S
- accounting quality
- ratio analysis

Industry dynamics ✓

→ Porter's five forces

(suppliers, buyers, new entrants, substitutes, rivalry)

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- analysts' reports
- management forecasts
- financial press
- ???