ACCT7106 – Session #13: Recapitulation

Es of

'Intrinsi ue'

Estimation of 'Intrinsic Value'

Development of t nancial Statements

Understanding the firm's financial 'drivers'

Understanding the firm's external environment

Estimation of 'Intrinsic Value'

require: ***CI, g, k, n, BV***

Development of the '*Pro Forma*' Financial Statements

Development of the ‘*Pro Forma*’ Financial Statements

‘*Reformulated*’ Financial Statements

(operating *versus* financing)

‘Reformulated’ B/S		‘Reformula		‘Reformulated’ SCF	
		CI = OL - NFE		***FCF = C + I = E + F***	
OA	FA	***OI from sales***	Core NFE	***Generation***	***Use***
OL	FO	Other OI	Fin OCI	adjusted CFO	Equity flows
NOA	**NFO**	Unusual OI		invest in OA	Debt flows
S/E = NOA – NFO		Op OCI		**C + I**	**E + F**

Development of the '*Pro Forma*' Financial Statements

forecasting exercise

Ratio analysis

Political / Regulatory
Macroeconomic
Industry dynamics

Understanding the firm's financial 'drivers'

Understanding the firm's external environment

forecasting exercise

Macroeconomic factors/external environment

GDP; inflation; exchange rates; interest rates; commodity prices; business cycle; changing demographics; population growth; political, regulatory, and cultural change; technological change

Industry dynamics & competitio

sensitivity to macroeconomic factors
industry prospects
Porter's 5 forces (supplier, buyer, new entrants, substitutes, rivalry)

Firm-specific factors

response to competitive environment
response to macroeconomic factors
strategies (business level; competitive level; corporate level)
resources and capabilities (financial, physical, human, intangible)

financial performance (analysis of financial statements)

Political / Regulatory
Macroeconomic
Industry dynamics

Understanding the firm's external environment

forecasting exercise

Ratio analysis

$ReCI_t$ = (ROCE$_t$ – cost of equity capital) BV_{t-1}

ROCE = RNOA + FLEV {RNOA NBC}

rnover} + {FLEV spread}

RNOA = =

△ S/E = △(sales – △ NFO

Core Sales Profit Margin

Understanding the firm's financial 'drivers'

forecasting exercise

- **Sales forecast**
  - external environment; macroeconomic forecasts; industry dynamics & forecasted changes; firm-specific characteristics
- **Forecast 'Core Operating Income fr**
  - forecast ATO, and NOA implied by foreca
  - revise sales forecast (if necessary) and iterate
  - forecast gross profit margin
  - forecast core operating expenses
  - forecast applicable tax allocation (the 'balance')
- **Forecast 'Core Other OI' and 'Unusual OI'**
- **Calculate OI after tax**
- **Forecast OA and OL to obtain (confirm) NOA**
- **Calculate FCF, ReOI *and* value the *firm***

  (FCF and AE valuation models; WACC)

- **Forecast Comprehensive Income (CI)**
  - forecast FLEV and determine NFO
  - forecast NBC and determine NFE
  - ulate of comprehensive income (CI)
- **ast Shareholders' Equity** S/E = NOA - NFO
- **t Dividends** Div = CI – △S/E ±
- **Forecast Residual Income ReCI**
  - determine 'cost of equity capital' (k_e)
  - calculate ReCI = CI – k_e * BV_{t-1}
- **Select and justify terminal growth rate, g**
- **Valuation (AE and DDM valuation models)**
- **Conduct 'sensitivity analyses'**

Estimation of ‘Intrinsic Value’

Development of t nancial Statements

Understanding the firm’s financial ‘drivers’

Understanding the firm’s external environment

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

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

Industry dynamics ✓

➜ Porter's five forces

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

Forecasts and Valuation

Sessions #7 ➝ #12: Practice Problems & Solutions

Session #7 – Reformulation (4)

- Which of the following is ***NOT*** an objective when reformulating the Statement of Cash Flows?

1) To separate equity and debt financing cash flows

2) To calculate the firm's free cash fl s both generated and used

3) **To ensure that the firm has a positive free cash flo**

4) To separate items within the reported Cash Flow ng section into investments from/to operating assets from those from/to financial assets.

The objective of reformulating the SCF is not to ensure that the firm has a positive FCF – whether or not its FCF is positive will depend on how cash it generates from operations netted against how much cash it spends investing in operations; not on the reformulation process.

The remaining three statements each express one of the objectives.

- Which of the following statements about a firm's free cash flow (FCF) is ***TRUE***?

1) If a firm's free cash flow (FCF) is negative, it will have funds to invest in financial assets
2) **Uses of free cash flow classified under the 'Debt financing cash flows' include the following: investments in financial cash, interest paid, and interest income.**
3) If a firm's free cash flow (FCF) is negative, it has invested too much in long-term operating assets such as property, plant, and equipment

4) Uses of free cash flow (FCF) classified under the 'Equity financing cash flows' include each of the following: payment of dividen , payment of dividends to preference shareholders, and share repurchas

The three items listed as those included in 'Debt financing cash correct.

The remaining statements are incorrect for the following reasons: a negative FCF arises simply because the firm has invested more in operating assets during the year that it has generated from operating assets, and thus, does not have funds to invest in financial assets; similarly, a negative FCF simply means that the firm will have to raise additional financing in order to invest in L-T operating assets – it does not mean that the firm should not invest or has invested too much; and preference share dividends should appear under Financing and not Equity.

- The reformulated Income Statement for a company with a 30% tax rate is presented below.

Core Operating Income from Sales (before tax)		1,000	
Core Other Operating Income (before tax)	400		
Unusual Operating Income (before tax)	200		
Net Financial Expenses (before tax)			(250)
Profit Before Tax	**1,350**		
Income tax expense	450		

Based on this information, what is the g Income from Sales?

1) 345

2) 270

3) 195

4) 450

*Tax shield from NFE = 0.3 * 250 = 75*
*Tax on Unusual OI = 0.3 * 200 = 60*
Tax on Core Other OI = 0.3 400 = 120*
Tax on Core OI from Sales = 450 + 75 – 60 – 120 = 345

- Condensed versions of the reformulated 2020 and 2019 Balance Sheet and Income Statement for a company which pays no tax are presented below.

Balance Sheet	**2019**	**2020**		**2019**	**2020**
Operating Assets (OA)	250	275	Financial Assets (FA)	12	15
Operating Liabilities (OL)	(70)	(83)	Financial Obligations (FO)	(122)	(132)
			Net Financial Obligations (NFO)	110	117
Net Operating Assets (NOA)	**180**	**192**			
			Shareholders' Equity	**70**	**75**

Income Statement		
Operating Income (after tax)		
Net Financial Expenses (after tax)	(10)	
Comprehensive Income (after tax)	132	

Based on this information, what is company's free cash flow (FCF) for 2020?

1) 144
2) **152**
3) 176
4) 164

FCF = OI - △NOA = 164 – (192 – 180) = 152

Alternatively, FCF = NFE – E – △NFO = 15 + 144 – 7 = 152

where E = △S/E – CI = (75 – 70) – 149 = –144

Session #8 – Earnings Management (4)

➢ Which of the following is ***NOT*** a reason that CFO's identify as a consequence of failing to meet earnings benchmarks?

1) It reduces information risk

2) It creates uncertainty about the firm's future prospects

3) Management will have to take ti business to explain why the benchmarks were missed

4) Missing benchmarks may be suggestive of other prev ified problems

Reducing information risk is a stated reason for voluntarily communicating financial information; it is not a consequence of failing to meet an earnings benchmark.

The remaining three statements describe identified consequences of failing to meet earnings benchmarks.

- Which of the following is ***NOT*** an example of an accounting-based earnings management (EM) strategy?

1) Unusually high (Level 3) fair value estimates

2) Unusually low warranty liability estimates

3) Unusually low cash flow from operations

4) Unusually low deferred revenues

Unusually low CFO is an indication that th s and hence is an example of a real-activities-based EM strategy.

The remaining three statements each describes a strategy that involves "adjusting" or altering an accounting estimate and hence represents an accounting-based EM strategy.

- Which of the following is ***NOT*** an example of a situation where earnings management (EM) is more likely?

1) When the firm is 'in play' as a takeover target

2) The firm has very low positive earnings

3) When there has been a change in t

4) The firm conducts all of its busin

When the firm conducts all of its business with unrelated parties, t re likely to be conducted at fair value and in good faith – thus, there should be a reduced likelihood that the transactions can be used to undertake EM.

Each of the remaining three statements identify situations where EM has been identified as being more likely.

- Which of the following statements about earnings management is ***NOT*** true?

1) If accruals are overstated by earnings management this year, they will be understated in some future period or periods

2) **An unusual decrease in the provision for employee benefits is a red flag that the company might be overstating its operating assets to increase earnings**

3) An unusual increase in inventorie [illegible] y might be overstating its operating assets to increase earnings

4) An unusual increase in net operating assets is a red f [illegible] mpany might be managing its operating accruals in order to increase earnings.

The provision for employee benefits is an operating liability account, not an operating asset account.

The remaining three statements are true.

Session #9 – Financial Statement Analysis (7)

- At the end of its fiscal year, a company has a quick ratio of 0.6, a current ratio of 0.8, and the balance of its current asset accounts is \$3 million. Its sales for the year were \$15 million and the associated cost of goods sold (COGS) is equal to 60% of sales. What is the company's inventory turnover ratio based on average-of-year values, if its beginning inventory balance was \$2 million?

1) 4.50
2) **6.55**
3) 7.50
4) 9.45

From the CR, CL = 3 / 0.8 = \$3.75 million

From the quick ratio 0.60 = (3 –ending inventory) / 3.75 ending inventory = \$0.75 million

Inventory turnover ratio = COGS / ave inv = 0.6(15) / [(2 + 0.75)/2] = 9 / 1.375 = 6.55

➢ Your firm received a $1 million purchase order on the last day of its fiscal year, which it immediately filled with $600,000 of inventory. The customer paid $250,000 in cash and you firm invoiced the customer for the balance. Based on this information, which of the following statements is ***TRUE***?

1) The firm's current ratio will remain unchanged

2) The firm's current ratio will increase

3) The firm's current ratio will decr

4) The firm's quick ratio will decrea

CA increased by $400,000 (cash up 250; A/R up 750; and inventory down 600);

CL unchanged

→ *CR increased*

- Which of the following would typically lead to an increase in a firm's current ratio?

  1) The sale of inventory

  2) The purchase of additional inventory for cash

  3) Taking out a bank loan to pay suppliers

  4) A customer paying an outstanding

Assuming that the inventory has been sold a he case), the CA balance will increase while the CL balance will remain the same – thus, the CR will i

The CR will not change under the remaining three alternatives: the purchase of inventory for cash means that there is an equal (offsetting) increase (inventory) and decrease (cash) in CA accounts; taking out the bank loan means that there is an equal increase (loan) and decrease in CL (accounts payable) accounts; and a customer paying a bill means that there is an equal increase (cash) and decrease (accounts receivable) in CA accounts

- The following financial information is drawn from General Mills reformulated 2010 financial statements:

Net Operating Assets (NOA)	11,632
Net Financial Obligations (NFO)	6,099
Operating Income (OI) (after tax)	1,177
Net Financial Expenses (NFE) (after tax)	251

Based on this information and using end-of-year figures, what is General Mill's return on common equity (ROCE) for 2010?

1) 0.213

2) 0.101

3) 0.167

4) 0.041

ROCE = RNOA + FLEV(RNOA – NBC) = 0.1012 + 1.1023(0.1012 – 0.0412) = 0.1674

S/E = NOA – NFO = 11,632 – 6,099 = 5,533

RNOA = OI / NOA = 1,177 / 11,632 = 0.1012

FLEV = NFO / S/E = 6,099 / 5,533 = 1.1023

NBC = NFE / NFO = 251 / 6,099 = 0.0412

➢ GL Ltd. is a manufacturer of small appliances. Following is a condensed AASB/IFRS Income Statement for the most recently completed fiscal period:

Sales	$1,500,000
Cost of Goods Sold	(600,000)
Gross Profit	900,000
Rental Income	50,000
Interest Expense	(125,000)
Depreciation	(275,000)
Net Profit before Tax	
Income Tax Expense (30%)	
Net Profit After Tax (NPAT)	38

Based on this information, what is GL's times-interest-ea its operating profit margin (after tax)?

1) Its times-interest-earned ratio is 4.400 and its operating profit margin is 0.315

2) Its times-interest-earned ratio is 4.400 and its operating profit margin is 0.450

3) Its times-interest-earned ratio is 5.400 and its operating profit margin is 0.450

4) Its times-interest-earned ratio is 5.400 and its operating profit margin is 0.315

times-interest-earned ratio = (900,000 + 50,000 – 275,000) /125,000 = 5.400

operating profit margin (after tax) = [(900,000 + 50,000 – 275,000) – 202,500] / 1,500,000 = 0.315

tax shield on NFE = 0.30(125,00) = 37,500 → tax expense on Operating Income = 165,000 + 37,500 = 202,500

- The following turnover ratios for individual operating assets and operating liabilities have been calculated using end-of-year figures based on Trail Inc.'s reported 2020 Balance Sheet:

Cash turnover	6.0
Accounts receivable turnover	4.0
Inventory turnover	3.0
Property, plant & equipment turnover	2.0
Accounts payable turnover	7.5
Provisions turnover	3.0

Based on this information, what is Trail's asset turnover ratio (= sales / NOA)?

1) 25.500

2) 1.277

3) 0.583

4) 0.800

+ + + – –

= + + + – –

= + + + – – = 0.7833 → *asset turnover = 1/0.7833 = 1.2766*

- The following financial information is drawn from Crazy Horse Inc.'s reformulated 2019 financial statements:

Operating Assets (NOA)	10,000
Operating Liabilities (OL)	7,000
Operating Income (OI) (after tax)	1,800
Net Financial Expenses (NFE) (after tax)	150
Stated short-term borrowing rate	6%
Tax rate	30%

Based on this information and using neral Mill's return on net operating assets (RNOA) for 2010?

1) 0.209
2) 0.698
3) **0.600**
4) 0.042

RNOA = ROOA + OLLEV(ROOA – STBC) = 0.2094 + 2.3333(0.2094 – 0.042) = 0.600

NOA = 10,000 – 7,000 = 3,000   *OLLEV = OL / NOA = 7,000 / 3,000 = 2.3333*   *STBC = 0.06(1 – 0.3) = 0.042*

*ROOA = (OI + implicit interest) / OA = (1,800 + 0.042*7,000) / 10,000 = 0.2094*

Session #10 – Financial Statement Analysis; Forecasting (5)

➢ Which of the following ratios is ***NOT*** in the 'DuPont System'?

1) Operating profit margin

2) Asset turnover

3) Current ratio

4) Financial Leverage

The 'DuPont System' relates to the decomposition of ROCE as display nancial leverage equation'. The components are the operating profit margin, asset turnover, and financial leverage.

The current ratio is a measure of liquidity; it is not a part of the 'financial leverage equation'.

- Which of the following changes will lead to an ***increase*** in ROCE for a profitable company?

1) An increase in Shareholders' Equity (S/E), all else remaining unchanged

2) A decrease in the amount of long-term debt outstanding, all else remaining unchanged

3) A decrease in the corporate tax rate, all else remaining unchanged

4) A decrease in operating income (after tax), all else remaining unchanged

A decrease in the corporate tax rate with all in an increase in OI and thereby an increase in CI. Since ROCE = CI ÷ S/E, this will result in an increase in ROC

All other changes lead to a decrease in ROCE for the following rea

an increase in S/E with no change in CI leads to a decrease because ROCE = CI ÷ S/E;

a decrease in the amount of L-T debt means that NFO is smaller and hence FLEV is lower – from the financial leverage equation, a lower FLEV with all else unchanged means that ROCE will decrease;

a decrease in OI with no other change means that CI will decrease and hence ROCE will decrease.

- Which of the following calculations is correct if sales are \$5,600, operating profit after tax is \$2,090, the tax rate is 30%, there are no 'other comprehensive income' items, net financial obligations (NFO) are \$30,900 and shareholders' equity (S/E) is \$16,500?

1) operating profit margin = 0.358
2) asset turnover = 0.156
3) financial leverage = 1.572
4) **ROCE = 0.127**

Operating profit margin =

Asset turnover =

FLEV =

ROCE =

- Which of the statements about the forecasting exercise is ***TRUE***?

1) The appropriate forecast horizon will typically be shorter for a firm in a mature industry than for a firm in an emerging industry sector

2) The 'regression to the mean' phenomenon confirms that poor performing firms will not survive in the longer term

3) When a company has reached its 'steady state' growth rate, its operating profit margin will grow at the terminal growth rate

4) The sustainable growth rate, g*, i the firm can achieve if it is able to issue new debt and/or new equity.

Given the stability of a mature industry, the appropriate forecas pically be relatively short whereas for an emerging industry sector, its initial growth rates will tend to be relatively high and hence the time horizon until steady state is reached is likely to be longer.

The remaining statements are incorrect for the following reasons: the 'regression to the mean' phenomenon indicates that firms with above average performance will experience a decline in performance and companies with below average performance will experience an improvement, not that the latter will cease to operate; when a company reaches a steady state growth rate, its margin will remain constant rather than growing; and the sustainable growth rate is the growth rate that the firm can support through internally generated funds without accessing the capital markets.

- Which of the statements arising from a 'third level' break down of ROCE is ***NOT*** true?

1) An increase in Accounts Receivable turnover will result in an increase in ROCE, assuming all else remains unchanged

2) **A reduction in the Accounts Payable balance will result in an increase in ROCE, assuming all else remains unchanged**

3) A reduction in production costs wi … , assuming all else remains unchanged

4) A decrease in the inventory bal … in ROCE, assuming all else remains unchanged.

A reduction in the A/P balance will result in a higher A/P turnover and hence a lower total asset turnover. This effect can be seen by considering the inverse of the A/P turnover which will be smaller; since the inverse of the asset turnover is increased when the inverse of an expense item is decreased, the asset turnover will be lower. With a lower asset turnover and all else unchanged, ROCE will decrease, not increase.

All remaining statements are true.

Session #11 – Forecasting and Valuation (5)

- Which of the following statements about the process of forecasting a firm's pro forma Financial Statements is ***NOT*** true?

1) The focus of the forecasting process should be on the firm's sustainable (core) earnings

2) **A firm's core sales profit margin the level of its investment in net operating assets**

3) The extent to which a firm's operating costs are fixe mine its core sales profit margin

4) A firm's core sales profit margin captures its ability t rating profits from sales

A firm's core sales profit margin relates only one component of its operating income, its 'core operating from sales', to its investment in NOA, and not its total operating income. The remaining three statements are true.

- Which of the following factors does ***NOT*** influence the extent to which Shareholders' Equity (S/E) grows?

  1) The growth rate in the firm's sales

  2) A change in the firm's degree of financial leverage

  3) A change in the firm's investment in net operating assets (NOA)

  4) A change in the cost of the firm's rowing cost)

While a change in the firm's NBC will affect its profitability as mea it does not directly affect the extent to which S/E changes.

△ S/E = △ NOA – △ NFO *where* *NOA = sales* *thus* ***△ S/E = △(sales – △ NFO***

- You have been provided the following actual financial information from the reformulated 2020 financial statements of Castlegar Ltd. and forecasts of the same figures for 2021

	2020 Actual	**2021 E**
Sales revenue	37,408	38,776
Operating Income (OI) (after tax)	1,288	1,362
Net Operating Assets (NOA)	12,205	13,102

Based on these actual and forecasted values, which of the following statements is ***TRUE***?

1) Both the firm's operating profit marg sted to increase

2) Both the firm's operating profit marg to decrease

3) The firm's operating profit margin is forecasted to incr et turnover to decrease

4) The firm's operating profit margin is forecasted to decrease and its asset turnover to increase

Operating profit margin: *2020* *1,288 / 37,408 = 0.0344* *2021* *1,362 / 38,776 = 0.0351*

Asset turnover *2020* *37,408 / 12,205 = 3.065* *2021* *38,776 / 13,102 = 2.960*

- Based on the reformulated financial statements for its most recently completed fiscal year (2020), a firm has net operating assets (NOA) of $250,000 and net financial obligations (NFO) of $175,000.

  As an analyst, you have already forecasted a 8% growth in the firm's shareholders' equity. You are now trying to decide how to forecast the firm's net financial obligations (NFO) and then its net financing expenses (NFE) for 2021. While you are comfortable with your forecast of the firm's net borrowing costs (NBC) of 4% after tax, you are uncertain about how best to forecast the firm's net financial obligations (NFO).

  One approach you are considering is to forecast an increase in net financial obligations equal to your forecast of the growth in the firm's property, plant & equipment (p,p&e) of 2.5% because these assets are leased and the lease obligation will be recorded as a NFO. Thus, from this perspective, NFOs should grow at the same rate as p,p&e.

  The other possible approach that you are considering is to base your forecast of the firm's net financial obligations on your forecast of the firm's degree of financial leverage (FLEV). Here, you believe that the firm is at its optimal capital structure and as such, FLEV will remain constant.

  Based on this information, which approach to (NFO) will lead to a higher net financing expense (NFE), the approach based on the growth rate in p,p&e of 2.5%, or sed on the assumption that FLEV will remain constant?

1) The approach based on the 2.5% growth rate in p,p&e will lead to a h
2) **The approach based on a constant FLEV will lead to a higher NFE**
3) The two approaches will lead to the same NFO and hence the same NFE
4) It is not possible to determine which approach will result in a higher NFE based on the information provided

Given NOA = 250,0000 and NFO = 175,000 S/E = 75,000 and FLEV = 175,000 / 75,000 = 2.333

2021 NFO based on 2.5% growth NFO = 1.025 (175,000) = 179,375

*based on constant FLEV NFO = 2.333 * S/E*

2021 S/E = 1.08(250,000 – 175,000) = 81,000 NFO = 2.333(81) = 189,000*

- You have been provided the following actual financial information from the reformulated financial statements of Mission Beach Ltd. for the years 2019 and 2020, and then a set of forecasted financial information for the three period, 2021 – 2023

	2020 Actual	2019 Actual
Net Operating Assets (NOA)	7,750	7,500
Net Financial Obligations (NFO)	1,750	1,750

	2021 E	2022 E	2023 E
Sales forecasts	10,000	10,500	11,000
Operating profit margin		0.20	0.20
Asset turnover		1.25	1.25
Net Financing Expenses (after ta		175	175

Using the Abnormal Earnings (Residual Income) valua hat is the intrinsic value of a common share of Mission Beach Ltd. based on the forecasts above if the appropriate cost of equity capital is 7.5%, net financial obligations (NFO) remain unchanged from their value in 2020, there are no Other Comprehensive Income (OCI) items, Mission Beach has 1,000 common shares outstanding, and abnormal earnings are forecasted to grow at 2% after 2023?

1) $26.55
2) **$32.55**
3) $33.32
4) $34.23

Sample calculations:

2021E *Operation profit = 0.2 * 10,000 = 2,000* *CI = 2,000 – 175 = 1,825*

NOA = 10,000 / 1.25 = 8,000 *S/E = 8,000 – 1,750 = 6,250*

*ReCI = 1,825 – 0..075 * 6,000 = 1,375*

$$V_0 = 6{,}000 + \frac{1{,}375.00}{(1.075)} + \frac{1{,}456.25}{(1.075)^2} + \frac{1{,}526.25}{(1.075)^3} + \frac{1{,}526.25(1.02)}{(0.075-0.02)}\left(\frac{1}{(1.075)^3}\right) = 32{,}552.19$$

$$P_0 = 32{,}552.19 \,/\, 1{,}000 = \$32.55$$

Note: calculations are facilitated by developing an Excel spreadsheet along the following lines:

	2020 A	______	______	______		
sales						
PM						
Operating Profit		2,000.00	2,100.00	2,200.00		
NFE		175.00	175.00			
CI		1,825.00	1,925.00			
Asset turnover		1.25	1.25			
NOA	7,750	8000	8400	8800		
NFO	1,750	1750	1750	1750		
S/E	6,000	6250	6650	7050	**TV**	
ReCI		1375	1456.25	1526.25	28305.00	
discount rate	0.0750	1.0750	1.1556	1.2423	1.2423	**V**
PV		1,279.07	1,260.14	1,228.57	22,784.41	26,552.19
						6,000.00
						32,552.19
						32.55

Session #12 – Forecasting and Valuation (5)

➢ Based on its reformulated Financial Statements for the fiscal year 2020, WaveJumper (WJ) Inc. had net operating assets (NOA) of $100,000, net financial obligations (NFO) of $25,000, and sales revenue of $200,000. An analyst has recently made the following forecasts for the 3-year period 2021 – 2023:

	2021 E	2022 E	2023 E
Sales growth forecasts	5%	5%	5%
Operating profit margin	0.25	0.25	0.25
Asset turnover	2.0	2.0	2.0

Based on these forecasts and using the income) valuation model, the analyst then valued WJ's 200,000 common s e cost of capital (WACC) of 6% and assuming that residual operating income would grow at 3

You have now had the chance to examine the analyst's forecasts and agree with all of them except the operating profit margin forecasts which you believe should be 20% and not 25%. Based on this one difference in forecasts, how much would your estimate of the intrinsic value of a common share of WJ differ from the analyst's estimate?

1) lower by $1.82 ($6.60 versus $8.42)

2) lower by $0.20

3) higher by $1.82

4) the estimates will be the same

Analyst's forecasts

		2021 E	2022 E	2023 E		
sales growth		0.0500	0.0500	0.0500		
sales	200,000	210,000.00	220,500.00	231,525.00		
PM		0.25	0.25	0.25		
Operating Profit		52,500.00	55,125.00	57,881.25		
Asset turnover		2	2	2		
NOA	100,0			5762.5	TV	
ReOI				[illegible]	1760141.25	
discount rate	0.0600	1.0600	1.	10	1.1910	V
PV		43,867.92	43,	.13	1,477,848.53	1,608,214.67
					+ NOA_{2020}	100,000.00
Value of the Firm						1,708,214.67
					- NFO_{2020}	-25,000
Total value of equity						1,683,214.67
Price						**8.42**

Your forecasts (changing PM to 0.20 from 0.25 and leaving all else unchanged) ***P = 6.60***

- Which of the following factors typically will ***NOT*** influence the magnitude of the price-earnings (P/E) ratio?

1) a permanent change in earnings

2) the firm's business risk

3) the anticipated growth in the firm's future earnings

4) the firm's choice of accounting poli

In an efficient market, a permanent change in earnings should aff nings figure and the share price in the same direction and proportionately. As such, the P/E should not b ming all else held constant).

The remaining factors each influence the firm's P/E: higher risk results in a lower P/E, higher growth results in a higher P/E, and choice of a more conservative accounting policy results in a higher P/E ratio.

- Which of the following statements about the price-earnings (P/E) and market-to-book (M/B) ratios is ***TRUE***?

1) If a firm has a high (above normal) P/E and a high (above normal) M/B, its future abnormal earnings are expected to be constant
2) If a firm has a high (above normal) P/E and a low (below normal) M/B, its abnormal earnings are expected to decrease

3) If a firm has a low (below normal al) M/B, its future abnormal earnings are expected to be constant

4) **If a firm has a high (above normal) P/E and a low (below its future abnormal earnings are expected to increase**

A high M/B ratio indicates positive abnormal earnings while a high P/E ratio indicates positive growth in abnormal earnings (AE are increasing, not remaining constant).

Conversely, a low M/B ratio indicates low or even negative AE and a low P/E ratio indicates that the firm's AE are decreasing (not remaining constant).

- An analyst has provided you with the following actual and forecasted financial information for Ferny Ltd.:

	2020 Actual	2021 E	2022 E
Sales	$500,000	$550,000,000	$575,000,000
Operating profit margin	20%	20%	20%
Net Operating Assets (NOA)	200,000	220,000	230,000
Asset turnover	2.5	2.5	2.5
Net Financial Obligations (NFO)	125,000	130,000	135,000

The analyst has also provided the following additional information:

- the forecasted growth rate in residual comprehensive income (CI) after 2022 is 2%
- the firm's net borrowing cost (NBC) aft
- the firm's cost of equity capital is 6%
- the firm has no other comprehensive income (OCI) items

Having received the analyst's report, you are now trying to d er the estimate of the intrinsic value of Ferny's common equity is more sensitive to a 0.5% decrease in the terminal growth rate (g) to 1.5% or a 1% decrease in the operating profit margin (PM) to 19%. Based on the information provided, which of the following statements is ***TRUE***?

1) **The estimated intrinsic value is more sensitive to the decrease in g than to the decrease in the PM**
2) The estimated intrinsic value is more sensitive to the decrease in the PM argin than to the decrease in g
3) There is no difference in the sensitivity of the estimated intrinsic value to the changes in g and the PM
4) The estimated intrinsic value is not sensitive to changes in either g or the PM

Based on the forecasted figures, the intrinsic value of Ferny's common equity is $2,660,240 (see below)
If the terminal growth rate is reduced to 1.5% (all else held constant), the intrinsic value drops to $2,383,640
If alternatively the operating profit margin is reduced to 19% (all else held constant), value drops to $2,519,430
Thus, the estimated intrinsic value is more sensitive to a decrease in g than a decrease in PM

		2021 E	**2022 E**		
sales growth		0	0		
sales	500.00	550.00	575.00		
PM	0.20	0.20	0.20		
Operating Profit	100.00				
NFE	3.75				
CI	96.25	106.10	110.95		
Asset turnover	2.5	2.5	2.5		
NOA	200	220	230		
NFO	125	130	135		
S/E	75	90	95	**TV**	
ReCI		101.6	105.55	2691.53	
discount rate	0.0600	1.0600	1.1236	1.1236	**V**
PV		95.85	93.94	2,395.45	2,585.24
					75.00
					2,660.24

- An analyst has provided you with the following actual and forecasted financial information for White Rock Inc.:

	2020 Actual	2021 E	2022 E
Sales	$25,000,000	$30,000,000	$35,000,000
Operating profit margin	20%	20%	20%
Asset turnover	2.0	2.0	2.0
Net Operating Assets (NOA)	12,500,000	15,000,000	17,500,000

As confirmed by their forecasts, while the analyst believes that the firm's sales will grow, they also believe that its operating profit margin and asset turnover will remain constant.

Having received the analyst's report, you have now conducted your own investigation into the financial prospects of White Rock Inc. While you agree with the owth rate in residual operating income of 4% after 2022 and that the required rate o s 8%, you do not agree with either their forecasted operating profit margin or asset turnover figures. Bas investigation, you believe that White Rock's operating profit margin will be slightly higher at 21% in 022, but that its asset turnover will be somewhat lower at 1.8 in both years. Given this information, which of the following statements is ***TRUE***?

1) Your estimate of the intrinsic value of White Rock's common shares will be lower than the analyst's estimate

2) Your estimate of the intrinsic value of White Rock's common shares will be the same as the analyst's estimate

3) **Your estimate of the intrinsic value of White Rock's common shares will be higher than the analyst's estimate**

4) Based on the information provided, it is not possible to determine whether your estimate or the analyst's estimate of the intrinsic value of White Rock's common shares will be higher

Based on the Excel spreadsheet below, based on their forecasts, the analyst has estimated the intrinsic value of the firm to be $151,388,889. When the analyst's forecasts for the operating profit margin and ATO are replaced with your estimates, the intrinsic value of the firm is higher at $156,682,099. Since the intrinsic value of the firm's equity is determined by subtracting off the value of the firm's 2020 actual NFO, both you and the analyst will make the same adjustment and hence your estimate of intrinsic value of White Rock's common shares will also be higher than the analyst's estimate. The increase in profit margin more than offsets the decrease in the asset turnover.

Analyst's estimate of the firm's intrinsic value

		2021 E	2022 E		
sales growth		0	0		
sales	25,000.00	30,000.00	35,000.00		
PM	0.20	0.20	0.20		
Operating Profit	5,000.00	6,000.00	7,000.00		
Asset turnover	2	2	2		
NOA	12,500	15000	17500		
ReOI		5000	5800	150800.00	
discount rate	0.0800	1.0800	1.1664	1.1664	V
PV		4,629.63	4,972.57	129,286.69	138,888.89
					12,500.00
					151,388.89

Your estimate of the firm's intrinsic value

		2021 E	2022 E		
		0	0		
	25,000.00	30,000.00	35,000.00		
	.20	0.21	0.21		
	[illegible]	6,300.00	7,350.00		
	2	1.8	1.8		
NOA	12,500	16666.6667	19444.4444		
ReOI		5300	6016.66667	156433.33	
discount rate	0.0800	1.0800	1.1664	1.1664	V
PV		4,907.41	5,158.32	134,116.37	144,182.10
					12,500.00
					156,682.10