FN 201 Business Finance

Solution to Midterm Exercise 2/2013

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Question 1 (20 Points)

Winnie Corporation, a major producer in automobile industry, had key financial statements as the attached tables. In 2012, the company paid dividends of $18,000. Also, it issued $150,000 in bonds, and purchased machine, some equipment, and other fixed asset for cash. Based on information attached, please help Winnie Corporation to form the statement of cash flows by identifying cash flows from operating, investing, and financing activities.

Balance Sheet

Assets		**Dec 31, 2012**	**Dec 31, 2011**
Cash		$37,000	$49,000
Accounts Receivable		$26,000	$36,000
Prepaid Expenses		$6,000	$0
Machine		$70,000	$0
Equipment	$68,000		$0
Accumulated Depreciation	$10,000	$58,000	$0
Other fixed assets	$200,000		$0
Accumulated Depreciation	$11,000	$189,000	$0
Total Assets		$386,000	$85,000
Liabilities and Stockholder Equity			
Accounts Payable		$40,000	$5,000
Bonds Payable		$150,000	$0
Common Stock		$60,000	$60,000
Retained Earnings		$136,000	$20,000
Total Liabilities and Stockholder Equity		$386,000	$85,000

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Question 1 (continued)

Income Statement as Dec 31, 2012

Revenue		$492,000
Operating Expenses	$269,000	
Depreciation	$21,000	$290,000
Income before Income Taxes		**$202,000**
Income Tax Expense		$68,000
Net Income		**$134,000**

ANSWER

Statement of Cash Flows

Cash Flow from Operating Activities		
Net Income		$134,000
Adjustments to reconcile net income to net cash		
Accts Receivable decrease	$10,000	
Prepaid Expense increase	($6,000)	
Accts Payable Increase	$35,000	
Depreciation	$21,000	
		$60,000
Net cash provided from Operating Activities		**$194,000**
Investing Activities		
Land Purchase	($70,000)	
Building Purchase	($200,000)	
Equipment Purchase	($68,000)	**($338,000)**
Financing Activities		
Dividend payment to shareholders	($18,000)	
Issuance of Bonds Payable	$150,000	**$132,000**
Net Decrease in Cash		**($12,000)**
Cash Jan 1, 1996		$49,000
Cash Dec 31, 1996		$37,000

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Question 2 (30 Points)

The financial statements of Win Hom Industries for the year ended December 31, 2013, follow.

Win Hom Industries' Income Statement
for the Year Ended December 31, 2013

Sale revenue	160,000
Less: Cost of goods sold	106,000
Gross profit	**54,000**
Less Operating expenses	
Selling expense	16,000
General and administrative expenses	10,000
Lease expense	1,000
Depreciation expense	10,000
Total operating expense	37,000
Operating profits	**17,000**
Less: Interest expense	6,100
Net profits before taxes	**10,900**
Less: Taxes	4,360
Net profit after taxes	**6,540**

Win Hom Industries' Balance Sheet
December 31, 2013

Assets	
Cash	500
Marketable securities	1,000
Account receivable	25,000
Inventories	45,500
Total current assets	**72000**
Land	26,000
Buildings and equipment	90,000
Less: Accumulated depreciation	38,000
Net fixed assets	**78,000**
Total assets	**150,000**
Liabilities and Stockholders' Equity	
Account payable	22,000
Notes payable	47,000
Total current liabilities	**69,000**
Long-term debt	22,950
Common stock [a]	31,500
Retained earnings	26,550
Total liabilities and stockholders' equity	**150,000**

[a] The firm's 3,000 outstanding shares of common stocks closed 2013 at a price of $25 per share.

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Question 2 (continued)

2.1 With the company's corporate tax at 40%, calculate the following measures of shareholders' wealth and provide the meaning. (10 Points)

A) Market Value Added (MVA) and Market-to-Book ratio

ANSWER

MV = 3,000 x 25 = 75,000
BV = 31,500 + 26,550 = 58,050

Hence, MVA = **16,950**
M/B ratio = **1.29199**

B) Economic Value Added (EVA)

ANSWER

If further assume that cost of capital = 10%, then

EVA = EBITx(1- tax rate) – (cost of capital)x(capital)
= 17,000x(1 – 40%) – (10%)x(22,950 + 58,050)
= 10,200 – 8,100
= **2,100**

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Question 2 (continued)

2.2 Use the preceding financial statements to complete the following table. Assume that the industry averages given in the table are applicable for both 2012 and 2013. (10 Points)

Ratio	**Industry average**	**Actual 2012**	**Actual 2013**
Current ratio	1.80	1.84	**1.04348**
Quick ratio	0.70	0.78	**0.3841**
Inventory turnover [a]	2.50	2.59	**2.3297**
Average collection period [a]	37 days	36 days	**56.25 days**
Debt ratio	65%	67%	**61.30%**
Time interest earned ratio	3.80	4.00	**2.7869**
Gross profit margin	38%	40%	**33.75%**
Net profit margin	3.50%	3.60%	**4.0875%**
Return on total assets	4.00%	4.00%	**4.36%**
Return on common equity	9.50%	8.00%	**11.26615%**

[a] Based on a 360-day year.

2.3 Summarize the company's overall financial condition, comparing with its own performance and industry average, as related to liquidity, activity, debt, and profitability. (10 Points)

ANSWER

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Question 3 (20 Points)

Maggie Inc. turns over its inventory 6 times each year; it has an average collection period of 45 days and an average payment period of 30 days. The firm's annual operating-cycle investment is $3 million. Assume a 360-day year.

3.1 Calculate firm's operating cycle, cash conversion cycle, its daily cash operating expenditure, and the amount of resources needed to support its cash conversion cycle. (10 Points)

ANSWER

Inventory days = 360 / 6 = 60 days

Collection period = 45 days

Hence, operating cycle = 105 days

Daily cash for operating = 3,000,000 / 105 = **28,571.42875**

Cash conversion period = 105 – 30 days = **75 days**

The amount of resources to support cash cycle:

= 28,571.42875 x 75

= 2,142,857.143

3.2 Discuss the importance of the cash conversion cycle and possible management that might be able to reduce the cash conversion cycle. (10 Points)

ANSWER

The importance of cash conversion cycle

= Cash conversion cycle reflects minimum cash to be required and tied up in net operating working capital. Rather than using the reserved cash for other investment, company has to maintain it and thus incur opportunity cost of carrying its working capital.

Possible management to reduce cash conversion cycle:

= Necessary management to speed up collection period and inventory conversion (inventory days), and to have longer payable deferral (accounts payable) days.

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Question 4 (20 Points)

On March 1, 2012, MAMA Corporation purchased $100,000 worth of inventory on credit with terms of 1/20, net/60. In the past, MAMA has always followed the policy of making payment 1 month (30 days) after the goods are purchased.

If MAMA were to take advantage of the discount and pay the bill on March 20 rather than on March 30, the firm would have to borrow the necessary funds for the 10 extra days. National's borrowing terms with a local bank are estimated to be at 9 percent (annual rate), with a 15 percent compensating balance for the term of the loan.

MAMA feels that it makes little sense to take out a 9 percent loan with a compensating balance of 15 percent in order to save 1 percent on its $100,000 by paying the account 10 days earlier than it had planned.

4.1 Calculate the opportunity cost rate of foregoing cash discount if MAMA follows the traditional payment policy (payment is made on the 30th day)? (7 Points)

ANSWER

Opportunity cost

$$= \frac{1}{99} \times \frac{365}{(Actual\ payment\ -\ discount\ period)} = \frac{1}{99} \times \frac{365}{(30-20)}$$

$$= 36.8687\%$$

4.2 If MAMA rejects such traditional payment policy, what will be the true interest cost rate of borrowing the necessary funds for the 10 extra days? (8 Points)

ANSWER

Necessary fund to borrow = $100,000x(1 – 1%) = 99,000

Compensating balance at 15%, thus total loan to borrow:

= 99,000/(1 – 15%) = 116,470.5882

Cost of borrowing at 9% = 9%x(116,470.5882) = 10,482.35294

Usable fund = 99,000

Thus, actual interest cost rate = 10,482.35294 / 99,000

= 10.58824%

4.3 Would it be to MAMA's advantage to take 1 percent discount by paying the bill 10 days earlier than usual? Why? (5 Points)

ANSWER

MAMA better take 1 percent discount. If it does not take, this will lead to substantial opportunity cost of foregoing, which is much higher than interest rate from borrow necessary fund.

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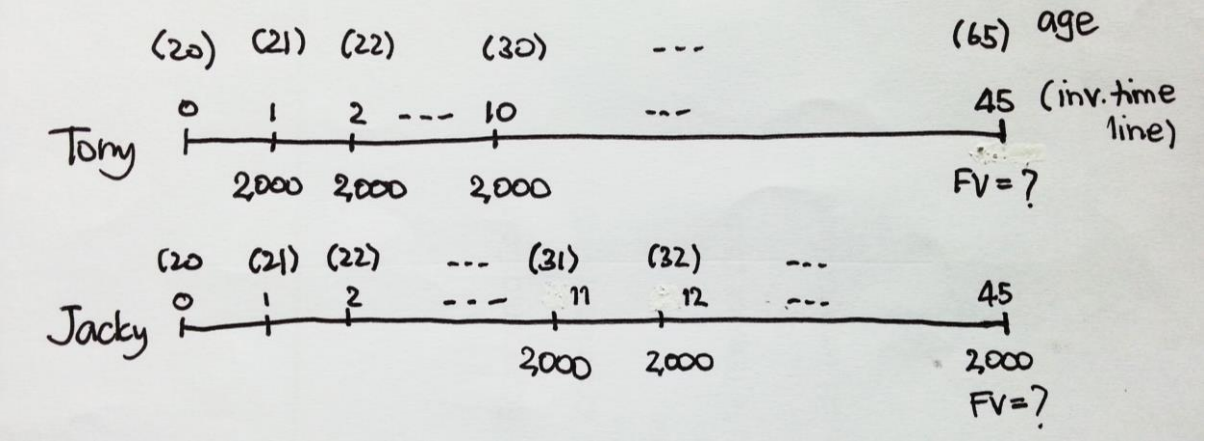
Question 5 (20 Points)

Tony has decided to start saving for his retirement. Beginning on his twenty-first birthday, Tony plans to invest $2,000 each birthday into a savings investment earning a 7 percent compound annual rate of interest. He will continue this savings program for a total of 10 years and then stop making payments. But his savings will continue to compound at 7 percent for 35 more years, until Tony retires at age 65.

Jacky also plans to invest $2,000 a year, on each birthday, at 7 percent, and will do so for a total of 35 years. However, he will not begin his contributions until his thirty-first birthday.

5.1 Draw the investment time lines of Tony's and Jacky's plans. (5 Points)

ANSWER



5.2 How much will Tony's and Jacky's savings programs be worth at the retirement age of 65? (10 Points)

ANSWER

Tony's FV = 2,000 x ($FVIFA_{7\%, 10 \text{ years}}$) x ($FVIF_{7\%, 35 \text{ years}}$)

= 295,026.864

Jakky's FV = 2,000 x ($FVIF_{7\%, 35 \text{ years}}$)

= 276,480

5.3 Who is better off financially at retirement, and by how much? (5 Points)

ANSWER

Tony has more saving from his program, which is higher than Jakky's

= 295,026.864 – 276,480

= 18,546.864