Chapter 7

Funds Analysis, Cash-Flow Analysis, and Financial Planning

Learning Objectives

After studying Chapter 7, you should be able to:

- Explain the difference between the flow of funds (sources and uses of funds) statement and the statement of cash flows -- and understand the benefits of using each.
- Define "funds" and identify sources and uses of funds.
- Create a sources and uses of funds statement, make adjustments, and analyze the final results.
- Describe the purpose and content of the statement of cash flows as well as implications that can be drawn from it.
- Prepare a cash budget from forecasts of sales, receipts, and disbursements -- and know why such a budget should be flexible.
- Develop forecasted balance sheets and income statements.
- Understand the importance of using probabilistic information in forecasting financial statements and evaluating a firm's condition.

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Topics

- Flow of Funds (Sources and Uses) Statement
- Accounting Statement of Cash Flows
- Cash-Flow Forecasting
- Range of Cash-Flow Estimates
- Forecasting Financial Statements

Flow of Funds Statement

A summary of a firm's changes in financial position from one period to another; it is also called a *sources and uses of funds statement* or a *statement of changes in financial position*.

Has been replaced by the cash flow statement (1989) in U.S. audited annual reports.

Why Examine the Flow of Funds Statement

QUESTION?

Why should we bother to understand a Flow of Funds Statement that is no longer required to appear in U.S. audited annual reports?

Why Examine the Flow of Funds Statement

The Flow of Funds Statement:

- Includes important noncash transactions while the cash flow statement does not.
- Is easy to prepare and often preferred by managers for analysis purposes over the more complex cash flow statement.
- Helps you to better understand the cash flow statement, especially if it is prepared under the “indirect method.”

Flow of Funds Statement

What are "funds"?

All of the firm's *investments and claims* against those investments.

Extends beyond just transactions involving cash.

Sources and Uses Statement

The letters labeling the boxes stand for Uses, Sources, Assets, and Liabilities (broadly defined). The pluses (minuses) indicate increases (decreases) in assets or liabilities.

	A	L
S	-	+
U	+	-

BW's Determination of Sources and Uses

Assets	2007	2006	+/-	S/U
Cash and C.E.	$ 90	$ 100	-	S
Acct. Rec.	394	410	-	S
Inventories	696	616	+	U
Prepaid Exp	5	5		--
Accum Tax Prepay	10	9	+	U
Current Assets	$ 1,195	$ 1,140		N/A
Fixed Assets (@Cost)	1030	930		N/A
Less: Acc. Depr.	(329)	(299)		N/A
Net Fix. Assets	$ 701	$ 631	+	U
Investment, LT	50	50		--
Other Assets, LT	223	223		--
Total Assets	$ 2,169	$ 2,044		

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BW's Determination of Sources and Uses

Assets	2007	2006	+/-	S/U
Cash and C.E.	$ 90	$ 100	$10	S
Acct. Rec.	394	410	16	S
Inventories	696	616	80	U
Prepaid Exp	5	5		--
Accum Tax Prepay	10	9	1	U
Current Assets	$ 1,195	$ 1,140		N/A
Fixed Assets (@Cost)	1030	930		N/A
Less: Acc. Depr.	(329)	(299)		N/A
Net Fix. Assets	$ 701	$ 631	70	U
Investment, LT	50	50		--
Other Assets, LT	223	223		--
Total Assets	$ 2,169	$ 2,044		

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BW's Determination of Sources and Uses

Liabilities and Equity	2007	2006	+/-	S/U
Notes Payable	$ 290	$ 295	-	U
Acct. Payable	94	94		--
Accrued Taxes	16	16		--
Other Accrued Liab.	100	100		--
Current Liab.	$ 500	$ 505		N/A
Long-Term Debt	530	453	+	S
Shareholders' Equity				
Com. Stock ($1 par)	200	200		--
Add Pd in Capital	729	729		--
Retained Earnings	210	157	+	S
Total Equity	$ 1,139	$ 1086		N/A
Total Liab/Equity	$ 2,169	$ 2,044		

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BW's Determination of Sources and Uses

Liabilities and Equity	2007	2006	+/-	S/U
Notes Payable	$ 290	$ 295	$ 5	U
Acct. Payable	94	94		--
Accrued Taxes	16	16		--
Other Accrued Liab.	100	100		--
Current Liab.	$ 500	$ 505		N/A
Long-Term Debt	530	453	77	S
Shareholders' Equity				
Com. Stock ($1 par)	200	200		--
Add Pd in Capital	729	729		--
Retained Earnings	210	157	53	S
Total Equity	$ 1,139	$ 1086		N/A
Total Liab/Equity	$ 2,169	$ 2,044		

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"Basic" Sources and Uses Statement

SOURCES		
Increase, Retained Earnings	$ 53	
Decrease, Accounts Receivable	16	
Increase, Long-Term Debt	77	
Decrease, Cash + Cash Equivalents	10	
		$156
USES		
Increase, Inventories	$80	
Increase, Accum Tax Prepay	1	
Decrease, Notes Payable	5	
Increase, Net Fixed Assets	70	
		$156

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Adjusting the "Basic" Sources and Uses Statement

The following three slides are Basket Wonders' Balance Sheet and Income Statement that was discussed in Chapter 6.

This information will be needed to adjust the "basic" Sources and Uses Statement.

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Basket Wonders' Balance Sheet (Asset Side)

Basket Wonders Balance Sheet (thousands) Dec. 31, 2007[a]

Cash and C.E.	$ 90
Acct. Rec.[c]	394
Inventories	696
Prepaid Exp[d]	5
Accum Tax Prepay	10
Current Assets[e]	$1,195
Fixed Assets (@Cost)[f]	1030
Less: Acc. Depr.[g]	(329)
Net Fix. Assets	$ 701
Investment, LT	50
Other Assets, LT	223
Total Assets[b]	$2,169

a. How the firm stands on a specific date.
b. What BW owned.
c. Amounts owed by customers.
d. Future expense items already paid.
e. Cash/likely convertible to cash within 1 year.
f. Original amount paid.
g. Acc. deductions for wear and tear.

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Basket Wonders' Balance Sheet (Liability Side)

Basket Wonders Balance Sheet (thousands) Dec. 31, 2007

Notes Payable	$ 290
Acct. Payable[c]	94
Accrued Taxes[d]	16
Other Accrued Liab.[d]	100
Current Liab.[e]	$ 500
Long-Term Debt[f]	530
Shareholders' Equity	
Com. Stock ($1 par)[g]	200
Add Pd in Capital[g]	729
Retained Earnings[h]	210
Total Equity	$1,139
Total Liab/Equity[a,b]	$2,169

a. Note, Assets = Liabilities + Equity.
b. What BW owed and ownership position.
c. Owed to suppliers for goods and services.
d. Unpaid wages, salaries, etc.
e. Debts payable < 1 year.
f. Debts payable > 1 year.
g. Original investment.
h. Earnings reinvested.

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Basket Wonders' Income Statement

Basket Wonders Statement of Earnings (in thousands) for Year Ending 12/31/2007[a]

Net Sales	$	2,211
Cost of Goods Sold[b]		1,599
Gross Profit	$	612
SG&A Expenses[c]		402
EBIT[d]	$	210
Interest Expense[e]		59
EBT[f]	$	151
Income Taxes		60
EAT[g]	$	91
Cash Dividends		38
Increase in RE	$	53

a. Measures profitability over a time period.
b. Received, or receivable, from customers.
c. Sales comm., adv., officer's salaries, etc.
d. Operating income.
e. Cost of borrowed funds.
f. Taxable income.
g. Amount earned for shareholders.

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Adjusting the "Basic" Sources and Uses Statement

Recognize Profits and Dividends

Change in retained earnings is composed of profits and dividends.

Source:	Net Profit	$91
Less Use:	Cash Dividends	38
(Net) Source:	Incr., R.E.	$53

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Adjusting the "Basic" Sources and Uses Statement

Recognize Depreciation and Gross Changes in Fixed Assets

Change in net fixed assets is composed of depreciation and fixed assets.

Source:	Depreciation	$ 30
Less Use:	Add. to F.A.	100
(Net) Use:	Incr., Net F.A.	$ 70

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Sources and Uses Statement (Sources Side)

SOURCES

Funds provided by operations	
Net Profit	$ 91
Depreciation	30
Decrease, Accounts Receivable	16
Increase, Long-Term Debt	77
Decrease, Cash + Cash Equivalents	10
	$224

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Sources and Uses Statement (Uses Side)

USES	
Dividends	$ 38
Additions to fixed assets	100
Increase, Inventories	80
Increase, Accum. Tax Prepay	1
Decrease, Notes Payable	5
	224

Analyzing the Sources and Uses Statement

Sources

Primarily through net profit from operations and long-term debt increases.

Uses

Primarily through an increase in inventories and expenditures on capital assets.

Statement of Cash Flows

A summary of a firm's payments during a period of time.

This statement reports cash inflows and outflows based on the firm's

operating activities,

investing activities, and

financing activities.

Statement of Cash Flows

Cash Flow from Operating Activities

Shows impact of transactions not defined as investing or financing activities.

- These cash flows are generally the cash effects of transactions that enter into the determination of net income.

Cash Flow From Operating Activities

Cash Inflows

- From sales of goods or services
- From interest and dividend income

Cash Outflows

- To pay suppliers for inventory
- To pay employees for services
- To pay lenders (interest)
- To pay government for taxes
- To pay other suppliers for other operating expenses

Cash Flow From Operating Activities

It would seem more logical to classify interest and dividend income as an “investing” inflow, while interest paid certainly looks like a “financing” outflow.

But, the U.S. Financial Accounting Standards Board -- by a slim 4 to 3 vote -- classified these items as “operating” flows.

Statement of Cash Flows

Cash Flow from Investing Activities

Shows impact of buying and selling fixed assets and debt or equity securities of other entities.

Cash Flow from Financing Activities

Shows impact of all cash transactions with shareholders and the borrowing and repaying transactions with lenders.

Cash Flow From Investing Activities

Cash Inflows

- From sale of fixed assets (property, plant, equipment)
- From sale of debt or equity securities (other than common equity) of other entities

Cash Outflows

- To acquire fixed assets (property, plant, equipment)
- To purchase debt or equity securities (other than common equity) of other entities

Cash Flow From Financing Activities

Cash Inflows
- From borrowing
- From the sale of the firm's own equity securities

Cash Outflows
- To repay amounts borrowed
- To repurchase the firm's own equity securities
- To pay shareholders dividends

Reporting Operating Activities: Direct Method

- This method combines information from both the Income Statement and the Sources & Uses of Funds statement.
- The result is an accurate indication of exactly what funds were collected in the form of cash, paid in the form of cash, and if the company actually generated cash.

Reporting Operating Activities: Direct Method

- Cash Collections from Sales = Sales – increase (+ decrease) in Accounts Receivable – Bad Debt Expense
- Cash Payments to Suppliers = Cost of Goods Sold + increase (– decrease) in Inventory – increase (+ decrease) in AP
- Cash Payments for Operating Expenses = Total Operating Expense (excluding Bad Debt Exp.) – Other noncash expenses (depreciation/amortization) + increase (– decrease) in Other Accrued Liabilities
- Other Income/Expense = +/ – Other Income/Expense
- Cash Paid for Interest = Interest Expense
- Dividends/Withdrawals = Dividends/Withdrawals Paid + increase (– decrease) in Dividends Payable
- Cash Paid for Taxes = Tax Expense – increase (+ decrease) in Accrued Taxes Payable – decrease (+ increase) in Prepaid Tax

Worksheet for Preparing Operating Activities Section

(a)	Sales	$2,211
+(-)	Decrease (increase) in AR	16
	Cash received from customers	$2,227
(b)	COGS - Depreciation + SGA	$1,971
+(-)	Increase (decrease) in inventory	80
	Cash paid to suppliers and employees	$2,051
(c)	Income taxes (federal / state)	$ 60
+(-)	Incr (Decr) in accum. tax prepay	1
	Taxes paid	$ 61

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Direct Method – Statement of Cash Flows

Cash Flow from Operating Activities

Cash received from customers[a]	$2,227
Cash paid to suppliers and employees[b]	(2,051)
Interest paid	(59)
Taxes paid[c]	(61)
Net cash provided (used) by operating activities	$ 56

[a, b, c] See Worksheet on previous slide for calculation

Reporting Operating Activities: Indirect Method

- Cash flows from Operating Activities are reported by adjusting net income for revenues, expenses, gains, and losses that appear on the income statement but do not have an effect on cash.

Indirect Method: Adjustments

- (+) Depreciation
- (–) Amortization of Bond Premium (+) Amortization of Bond Discount
- (–) Gain on Sale of Equipment (+) Loss on Sale of Eq.
- (+) Decrease in AR (–) Increase in AR
- (+) Decrease in Inventory (–) Increase in Inventory
- (–) Decrease in AP (+) Increase in AP
- (–) Decrease in Accrued Exp. (+) Increase in Accrued Exp. (+) Decrease in Prepaid Exp. (–) Increase in Prepaid Exp.
- (–) Decrease in Taxes Payable (+) Increase in Taxes Payable

Indirect Method – Statement of Cash Flows

Cash Flow from Operating Activities

Net Income	$ 91
Depreciation	30
Decrease, accounts receivable	16
Increase, inventories	(80)
Increase, accum. tax prepay	(1)
Net cash provided (used) by operating activities	$ 56

Direct/Indirect Method – Statement of Cash Flows

Cash Flow from Investing Activities

Additions to Fixed Assets	$(100)
Net cash provided (used) by investing activities	$(100)

Direct/Indirect Method – Statement of Cash Flows

Cash Flow from Financing Activities

Increase, notes payable	$ (5)
Increase, long-term debt	77
Dividends paid	(38)
Net cash provided (used) by financing activities	$ 34

Direct Method – Statement of Cash Flows

Increase (decrease) in cash and C.E.	$ (10)
Cash and cash equivalents, 2006	100
Cash and cash equivalents, 2007	$ 90
Supplemental cash flow disclosures	
Net Income	$ 91
Depreciation	30
Decrease, accounts receivable	16
Increase, inventories	(80)
Increase, accum. tax prepay	(1)
Net cash provided (used) by operating activities	$ 56

Indirect Method – Statement of Cash Flows

Increase (decrease) in cash and cash equivalents	$ (10)
Cash and cash equivalents, 2006	100
Cash and cash equivalents, 2007	$ 90
Supplemental cash flow disclosures	
Interest paid	$ 59
Taxes paid	60

Cash Flow Forecasting

A Cash Budget is a forecast of a firm's future cash flows arising from collections and disbursements, usually on a monthly basis.

The financial manager is better able to:

- Determine the future cash needs of the firm
- Plan for the financing of these needs
- Exercise control over cash and liquidity of the firm

The Sales Forecast

Internal Sales Forecast

- Sales representatives project sales for the period in question (sales under their control or management).
- Sales projections are screened and consolidated for product lines.
- Product line sales projections are consolidated into a single forecast.

The Sales Forecast

External Sales Forecast

- Economists project overall economic and business trends that will affect the firm.
- Expected market share is projected for current and new product lines.
- Product line sales projections are consolidated into a single forecast.

BW's Cash Flow Forecast

Lisa Miller has finalized a cash flow forecast for the first six months of 2008. Lisa is expecting 90% of monthly sales will be credit sales with 80% of credit sales collected in 30 days, 20% in 60 days, and no "bad debts."

Hint: The cash flow forecast will be used in forecasting the financial statements later in this chapter.

Collections and Other Cash Receipts (Thousands)

SALES	NOV	DEC	JAN	FEB
Credit Sales, 90%	$193	$212	$154	$135
Cash Sales, 10%	21	24	17	15
Total Sales, 100%	$214	$236	$171	$150
CASH COLLECTIONS				
Cash sales, current			$ 17	$ 15
80% of last month's credit sales			169	123
20% of 2-month-old credit sales			39	42
Total sales receipts			$225	$180

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Collections and Other Cash Receipts (Thousands)

SALES	MAR	APR	MAY	JUN
Credit Sales, 90%	$256	$205	$160	$190
Cash Sales, 10%	28	23	18	21
Total Sales, 100%	$284	$228	$178	$211
CASH COLLECTIONS				
Cash sales, current	$ 28	$ 23	$ 18	$ 21
80% of last month's credit sales	108	205	164	128
20% of 2-month-old credit sales	31	27	51	41
Total sales receipts	$167	$255	$233	$190

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Schedule of Projected Cash Disbursements (Thousands)

	DEC	JAN	FEB
Purchases	$ 39	$ 35	$ 64
CASH DISBURSEMENTS FOR PURCHASES AND OPERATING EXPENSES			
100% of last month's purchases		$ 39	$ 35
Wages paid		90	94
Other expenses paid		34	34
Total disbursements (purchases and operating expenses)		$163	$163

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Schedule of Projected Cash Disbursements (Thousands)

	MAR	APR	MAY	JUN
Purchases	$ 53	$ 40	$ 48	$ 50
CASH DISBURSEMENTS FOR PURCHASES AND OPERATING EXPENSES				
100% of last month's purchases	$ 64	$ 53	$ 40	$ 48
Wages paid	111	107	92	92
Other expenses paid	34	34	34	34
Total disbursements (purchases and operating expenses)	$209	$194	$166	$174

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Schedule of Net Cash Disbursements (Thousands)

	JAN	FEB	MAR
Total disbursements for purchases and operating expenses	$163	$163	$209
Capital expenditures	70	40	0
Dividend payments	0	0	9
Income taxes	25	0	0
Total cash disbursements	$258	$203	$218

Schedule of Net Cash Disbursements (Thousands)

	APR	MAY	JUN
Total disbursements for purchases and operating expenses	$194	$166	$174
Capital expenditures	0	0	0
Dividend payments	0	0	10
Income taxes	25	0	0
Total cash disbursements	$219	$166	$184

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Projected Net Cash Flows and Cash Balances

	JAN	FEB	MAR
Beginning cash balance	$ 90	$ 57	$ 34
Total cash receipts	225	180	167
Total cash disbursements	258	203	218
Net cash flow	$(33)	$(23)	$(51)
Ending cash balance without additional financing	$ 57	$ 34	$(17)

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Projected Net Cash Flows and Cash Balances

	APR	MAY	JUN
Beginning cash balance	$(17)	$ 19	$ 86
Total cash receipts	255	233	190
Total cash disbursements	219	166	184
Net cash flow	$ 36	$ 67	$ 6
Ending cash balance without additional financing	$ 19	$ 86	$ 92

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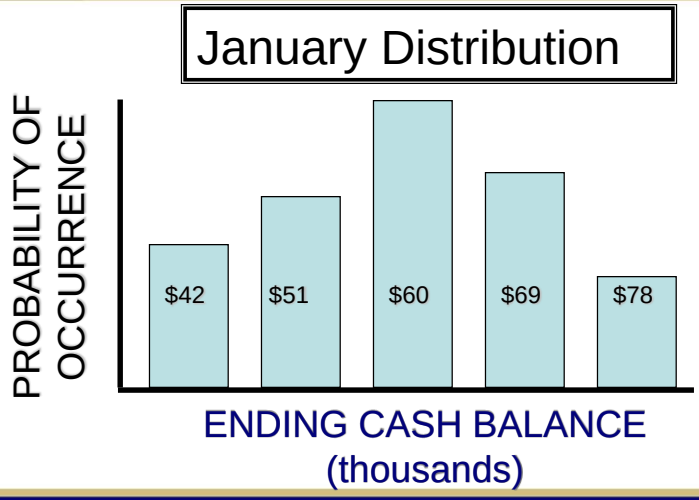
Range of Cash-Flow Estimates

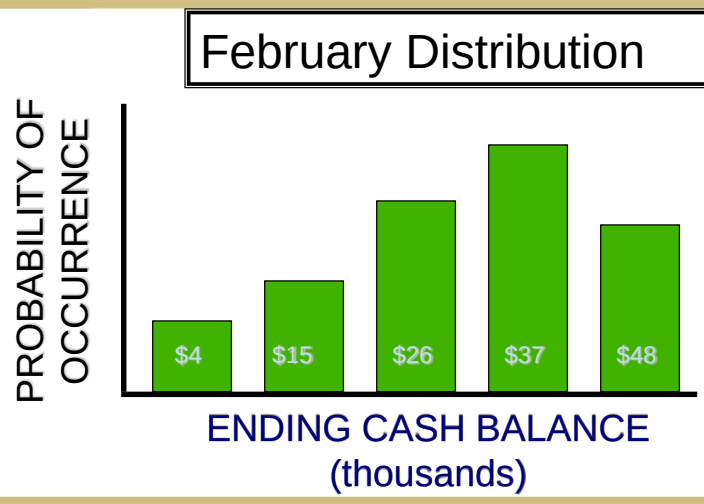
Examine factors that may influence cash receipts such as changes in the state of the economy that influence consumer buying decisions and pricing strategies.

Examine factors that may influence cash disbursements such as changes in the state of the economy that impact operations, capital expenditures, and dividend payments.

Management Uncertainty in Ending Cash Balances



Management Uncertainty in Ending Cash Balances



Summary of the Range of Cash-Flow Estimates

- Allows examination of the relevant factors which may generate uncertainty regarding future cash flows.
- Enables management to better plan for contingencies that will arise than using a single-point estimate of monthly cash flows.

Forecasting Financial Statements

Expected future financial statements based on conditions that management *expects* to exist and actions it expects to take.

Considerations

(1) Forecasted Income Statement

(2) Forecasted Balance Sheet

Forecasting BW's Income Statement

Lisa Miller is forecasting the income statement for 2008. She estimates that sales for the 6 months ended June 30 will be $1,222,000. COGS are estimated from the *average* of years 2005 through 2007. Selling, general, and administrative costs are forecasted at $34,000 per month, while the income tax rate is assumed equal to 40%. Cash dividends and interest expenses are expected to remain constant.

Basket Wonders' Forecasted Income Statement

Basket Wonders Forecasted Statement of Earnings (in thousands) for Six Months Ending June 30, 2008

Net Sales[a]	$ 1,222
Cost of Goods Sold[b]	865
Gross Profit	$ 357
SG&A Expenses[c]	204
EBIT	$ 153
Interest Expense[d]	29
EBT	$ 124
Income Taxes	50
EAT	$ 74
Cash Dividends[e]	19
Increase in RE	$ 55

a. *From sales budget.*
b. *Average of 68.7, 71.3, and 72.3% multiplied by net sales.*
c. *$34,000 x 6 months.*
d. *Assumed to be $29,000.*
e. *Did not change. Six (6) months of dividends = (.5)($38,000) = $19,000.*

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Basket Wonders' Balance Sheet (Asset Side)

Forecasted Balance Sheet (thousands) June 30, 2008

Cash and C.E.[a]	$ 92
Acct. Rec.[b]	222
Inventories[c]	692
Prepaid Exp	5
Accum Tax Prepay	10
Current Assets	$1,021
Fixed Assets (@Cost)	1,140
Less: Acc. Depr.	(386)
Net Fix. Assets[d]	$ 742
Investment, LT	50
Other Assets, LT	223
Total Assets	$2,036

a. *From Cash Flow Forecast.*
b. *100% June, 20% May.*
c. *Inv Turnover = 2.5/yr.*
d. *Capital expenditure of $110,000 and depreciation of $69,000.*

ASSUMPTIONS

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Basket Wonders' Balance Sheet (Liability Side)

Forecasted Balance Sheet (thousands) June 30, 2008

Notes Payable[a]	$ 226
Acct. Payable[b]	50
Accrued Taxes [c]	16
Other Accrued Liab. [d]	20
Current Liab.	$ 312
Long-Term Debt	530
Shareholders' Equity	
Com. Stock ($1 par)	200
Add Pd in Capital	729
Retained Earnings [e]	265
Total Equity	$1,194
Total Liab/Equity	$2,036

a. *Previous balance less amount paid down.*
b. *100% of June purchases.*
c. *No net change in accruals.*
d. *Decrease in unpaid wages, salaries, etc.*
e. *Increase in retained earnings (See 7-57).*

ASSUMPTIONS

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Sustainable Growth Modeling Steady-State Model

A/S = Total-Assets-to-Sales Ratio
NP/S = Net Profits / Sales (Net Profit Margin)
b = Retention rate of earnings
D/Eq = Debt-to-Equity Ratio
S_0 = Most recent Annual Sales
ΔS = Sales Changes from S_0

Δ Assets = Δ Retained Earnings + Δ Debt

$$\Delta S\left(\frac{A}{S}\right) = b\left(\frac{NP}{S}\right)(S_0 + \Delta S) + \left[b\left(\frac{NP}{S}\right)(S_0 + \Delta S)\right]\frac{D}{Eq} \quad [7A.1]$$

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Sustainable Growth Modeling Steady-State Model

Sustainable Growth Rate (SGR)

$$\frac{\Delta S}{S} = SGR = \frac{b(\frac{NP}{S})(1+\frac{D}{Eq})}{(\frac{A}{S}) - \left[b(\frac{NP}{S})(1+\frac{D}{Eq})\right]} = \frac{b(\frac{NP}{Eq})}{1-b(\frac{NP}{Eq})}$$

[7A.2]

Sustainable Growth Modeling Under Changing Assumptions

Sustainable Growth Rate (SGR)

$$SGR = \frac{(Eq_0 + \Delta Eq - Div)(1+\frac{D}{Eq})(\frac{S}{A})}{1-\left[(\frac{NP}{S})(1+\frac{D}{Eq})(\frac{S}{A})\right]}\left(\frac{1}{S_0}\right) - 1$$

[7A.3]