Back To Basics:
Teaching The Statement Of Cash Flows

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ABSTRACT

A conceptual foundation for the Statement of Cash Flows based on the ten elements of financial statements provides students with a deep understanding of core accounting concepts. Traditional methods of teaching the statement of cash flows tend to focus on statement preparation rules, masking the effect of business events on the change in cash. Accounting majors and non-majors alike both benefit from a clear understanding of the direct relationship between economic events and financial statement elements. This teaching note provides a conceptual illustration of the Statement of Cash Flows based on the ten elements of financial statements. The teaching method used is based on the belief that "keeping it simple" results in deeper understanding. This paper develops an equation for the Statement of Cash Flows directly from the Balance Sheet focusing on ten elements of financial statements. The equation analysis is followed by a flowchart illustrating the process and a simple numeric example.

Keywords: Statement of cash flows; cash flows; financial statement elements

INTRODUCTION

This teaching note illustrates a conceptual approach to teaching the Statement of Cash Flows. The driving force in developing the approach was to "keep it simple" for improved comprehension by students. First, the transformation of the equation for the Balance Sheet into the equation for the Statement of Cash Flows is presented. Second, a flowchart is developed based on the equation for the Statement of Cash Flows. Finally, a numerical example is used to apply this simplified approach. The approach of first using equation analysis, then flowcharting, followed by a numerical example has been effective in improving student comprehension of the Statement of Cash Flows.

CONCEPTUAL FOUNDATION

A conceptual approach employs the basic building blocks of accounting. Those blocks are the two bases of accounting (cash basis vs. accrual basis), the ten elements of financial accounting, the classification system for activities (operating, investing, financing), and the four financial statements (income statement (IS), statement of changes in equity (SCE), balance sheet (BS), and statement of cash flows(SCF).

Accounts can be maintained using two approaches, cash basis and accrual basis. Cash basis means actual cash inflows and outflows. Accrual basis is an extension of the cash basis. Accrual basis means actual cash flows plus promises about cash flows. Three of the four financial statements are generally prepared using accrual basis cash flows (IS, SCE, BS). The SCF is prepared on the cash basis because cash is regarded as the most critical resource for companies.

The ten elements of financial accounting are used to construct financial statements. The ten elements are Revenues (R), Expenses (E), Gains (G), Losses (L), Comprehensive Income (CI), Investments by Owners (IBO), Distributions to Owners (DTO), Assets (A), Liabilities (L), and Equity (E). Everything in financial accounting is based on these ten elements.

The ten elements describe changes in resources and changes in claims on resources across time (temporary elements) and resources and claims on resources at a point in time (permanent elements). R, E, G, L, CI, IBO, and DTO are temporary elements. A, L, and E are permanent elements.

Cash flows originate from operating, investing, and financing activities. Operating activities are transactions involving ongoing operations central to the company (R, E). Activities apart from ongoing central activities (G and L) are investing activities (G and L). Activities involving investments by owners and distributions to owners are called financing activities (IBO, DTO).

Income Statement

The construction of financial statements begins with the Income Statement. The equation for the Income Statements is as follows: R – E + G – L = CI

Statement of Changes in Equity

The SCE tracks changes in E over time. The equation for the SCE is as follows: (Beginning Balance) E + IBO + CI – DTO = (Ending Balance) E

Balance Sheet

The BS is simply a picture of resources and claims on resources at a specific point in time. The difference between Assets and Liabilities is referred to Equity. The equation for the BS is as follows: A - L = E. More commonly written as A = L + E.

Statement of Cash Flows

The resources of a company are called Assets. There are three basic groups of Assets, Cash, Operating Assets, and Investing Assets. Cash is the most critical asset for a company. Inventory (Operating Asset) and Land (Investing Asset) are examples of other types of assets of a company. Claims against Assets are called Liabilities. There are two basic categories of Liabilities, Operating Liabilities (Accounts Payable) and Financing Liabilities (Loans Payable).

The SCF was developed to focus on inflows and outflows on a cash basis. There are five basic cash inflows for a company. The five basic cash inflows are Revenues, Gains, and Investment by Owners, Increases in Operating Liabilities, and Increases in Financing Liabilities. There are also five basic cash outflows for a company. The five basic cash outflows are Expenses, Losses, and Distributions to Owners, Increases in Operating Assets, and Increases in Investing Assets.

Figure 1 shows the relationship between the elements and operating, investing and financing activities. The elements relate to (map) operating, investing, and financing activities as follows:

Figure 1. Mapping Elements to Operating, Investing, and Financing Activities

Elements	Operating	Investing	Financing
Revenues	√		
Expenses	√		
Gains		√	
Losses		√	
Comprehensive **I**ncome	√	√	
Investment **b**y **O**wners			√
Distributions **t**o **O**wners			√
Assets - Cash	√	√	√
Assets - Operating	√		
Assets - Investing		√	
Liabilities-Operating	√		
Liabilities-Financing			√
Equity	√	√	√

In summary, the equations for the four primary financial statements are:

1.   IS   by definition R-E+G-L= CI
2.   SCE   by definition ΔE =IBO+CI-DTO
3.   BS   by definition A-L=E or most commonly A=L+E
4.   SCF   derived from the BS equation

EQUATION FOR THE STATEMENT OF CASH FLOWS

The equation for the SCF is derived directly from the equation for the balance sheet.

| 1)	The Balance Sheet equation	A $\quad=\quad$ L $\quad+$ E
2)	The focus is on cash. Replace A in the equation with the three basic groups of assets (C + OA + IA)	C + OA + IA $=$ $\quad$ L $\quad+$ E
3)	Replace L in the equation with operating liabilities and financing liabilities (OL + FL)	C + OA + IA $=$ $\quad$ OL $\quad+$ FL $\quad+$ E
4)	Transform the equation so that cash is the only variable on left side by subtracting OA and IA from both sides of the equation.	C $=$ - OA - IA $\quad+$ OL $\quad+$ FL $\quad+$ E
5)	Use Δ to designate changes and apply Δ to the equation.	ΔC = $\quad$ - ΔOA - ΔIA + ΔOL $\quad+ \Delta$FL $\quad+ \Delta$E
6)	Replace ΔE with IBO + CI -DTO.	ΔC = $\quad$ - ΔOA - ΔIA + ΔOL $\quad+ \Delta$FL + $\quad$ IBO + CI - DTO
7)	Transform the equation so that CI is next to the equal sign.	ΔC = CI - ΔOA - ΔIA + ΔOL $\quad+ \Delta$FL + $\quad$ IBO - DTO
8)	Recall CI equals Operating (R - E) plus Investing (G + L). Separate O and I activities by subtracting G and L from CI and adding G and L alongside ΔIA. That gives us: ΔC = CI - G + L - ΔOA + ΔOL - $\quad\quad\quad$ ΔIA + G - L+ $\quad\quad\quad$ ΔFL + IBO - DTO $\quad\quad\quad$ Operating Activities $\quad\quad\quad$ Investing Activities $\quad\quad$ Financing Activities	

Equation 8 focuses on cash flows. Cash is the only variable on the left side of the equation. The Equation also arranges all other variables by type of activity. All operating variables are together, all investing variables are together, and all financing variables are together on the right side of the equation. Thus, Equation 8 is the Statement of Cash Flows.

**DIAGRAM OF THE STATEMENT OF CASH FLOWS**

Equation 8 (above) is referred to as the Indirect Method of Cash Flows. The right side of the equation uses (CI - G + L) as its indirect measure of operating income (R-E). If R-E is used in place of CI - G + L in Equation 8, then the Direct Method of Cash Flows is prepared. The new equation representing the Direct Method is as follows:

ΔC = $\quad\quad$ R - E - ΔOA + ΔOL $\quad\quad$ - ΔIA + G - L + $\quad\quad$ ΔFL + IBO - DTO

$\quad\quad\quad$ Operating Activities $\quad\quad$ Investing Activities $\quad\quad$ Financing Activities

The above equation is developed below. Begin with the familiar balance sheet equation:

C	OA	IA	OL	FL	E
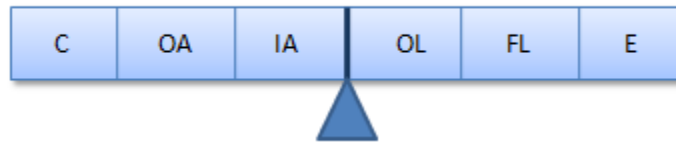
The equation is adjusted to isolate cash on one side:

C	-OA	-IA	OL	FL	E
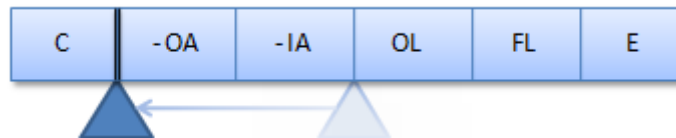
Cash Inflows now include decreases in operating assets, decreases in investing assets, increases in operating liabilities, increases in financing liabilities, and increases in equity including investments by owners, revenues and gains. Likewise, cash outflows include increases in operating assets, increases in investing assets, decreases in operating liabilities, decreases in financing liabilities, and decreases in equity including distributions to owners, expenses and losses.

↑C	↓OA	↓IA	↑OL	↑FL	↑E

↓C	↑OA	↑IA	↓OL	↓FL	↓E
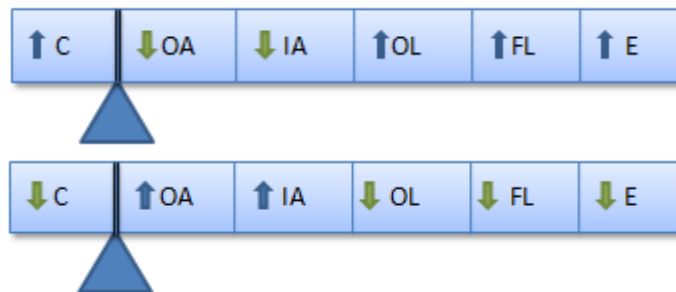
SIMPLE NUMERICAL EXAMPLE

The following example shows preparation of all four financial statements for CA Company. CA Company was formed on January 1, 2010. CA has a single shareholder. CA uses accrual accounting. Transactions for the first year of CA Company are as follows:

IBO	1.	Sold common stock for $20 to one shareholder.
FL	2.	Borrowed $60 from the bank. The bank requires payment of the loan in 2 years.
OA OL	3.	Bought $25 of inventory (OA). CA paid $15 cash and promised to pay the remaining $10 (OL).
OA, R, E, OL	4.	Sold $10 of the inventory for a price of $30. Collected $20 cash, $10 cash yet to be collected.
IA	5.	Bought a parcel of land for $60 cash.
G	6.	Sold 1/3 of the land for $40 cash. This resulted in a gain of $20.
L	7.	Sold another 1/3 of the land for $15 cash. This resulted in a loss of $5.
DTO	8.	CA closed at noon on December 31, 2009. The Board of Directors met, declared, and paid a $25 cash dividend to the common stockholder.

First, compute the ending cash balance.

Beginning Balance + Additions + Withdrawals = Ending Balance

0 + 20 + 60 - 15 + 20 - 60 + 40 + 15 - 25 = 55

Second, construct the Income Statement.

CA Company
Income Statement
For the Year Ended December 31, 2010

		Accrual Basis
R	Sale of Inventory	$ + 30
E	Less Cost of Inventory Sold	- 10
G	Gain on Sale of Land (40 – 20)	+ 20
L	Less Loss on Sale of Land (15 - 20)	- 5
CI	Comprehensive Income	$ 35

Third, construct the Statement of Changes in Equity.

CA Company
Statement of Changes in Equity
For the Year Ended December 31, 2010

		Accrual Basis
	Beginning Balance Equity	$ 0
IBO	Add: Investment by Owners	+ 20
CI	Add: Comprehensive Income	+ 35
DTO	Less: Distributions to Owners	- 25
	Ending Balance Equity	$ 30

Fourth, construct the Balance Sheet.

CA Company
Balance Sheet
December 31, 2010

	Assets	1/1/2010	12/31/2010	Δ
	Cash	$0	$55	$ + 55
OA	Accounts Receivable	0	10	+ 10
OA	Inventory	0	15	+ 15
IA	Land	0	20	+ 20
	Total Assets	$0	$100	$ + 100
	Liabilities & Equities			
OL	Accounts Payable	$0	$10	$ + 10
FL	Bank Loan	0	60	+ 60
IBO	Common Stock	0	20	+ 20
E	Retained Earnings ($35-25)	0	10	+ 10
	Total L& E	$0	$100	$ +100

Finally, prepare the Statement of Cash Flows using Equation 8 from above:

$$\Delta C = CI - G + L - \Delta OA + \Delta 0L - \Delta IA + G - L + \Delta FL + IBO - DTO$$

55 = 35 - 20 + 5   - 25   + 10   - 20 + 20 - 5   + 60   + 20   - 25

CA Company
Statement of Cash Flows (Indirect Method)
For the Year Ended December 31, 2010

Operating Activities			
+ CI	Comprehensive Income	$ +	35
- G	Less Gains	-	20
+ L	Add Losses	+	5
- ΔOA	Change in Accounts Receivable	-	10
- ΔOA	Change in Inventory	-	15
+ ΔOL	Change in Operating Liabilities	+	10
	Cash from Operating Activities	+	5
Investing Activities			
- ΔIA	Change in Investing Assets	-	20
+ G	Add Gains	+	20
- L	Less Losses	-	5
	Cash from Investing Activities	-	5
Financing Activities			
+ ΔFL	Bank Loan	+	60
+ IBO	Investments by Owners	+	20
- DTO	Distributions to Owners	-	25
	Cash from Financing Activities	+	55
	Increase in Cash	+	55
	Beginning Cash Balance		0
	Ending Cash Balance	$ +	55

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