Maroun Semaan Faculty of
Engineering and Architecture

Introduction to Financial Engineering

ENMG 602

Income Statement Overview [Voice over Slides Video] (Chapter 3, Antle)

The Income Concept

- Net assets (Equities) are the excess of the entities assets over its liabilities,

  NET ASSETS (EQUITIES) = ASSETS – LIABILITIES.

- Net Income (Loss) Increase (decrease) in net assets, resulting from operations, over a period of time.

- Net income excludes capital transactions, like exchanging shares of common stock for cash or paying out dividends.

Income Statement

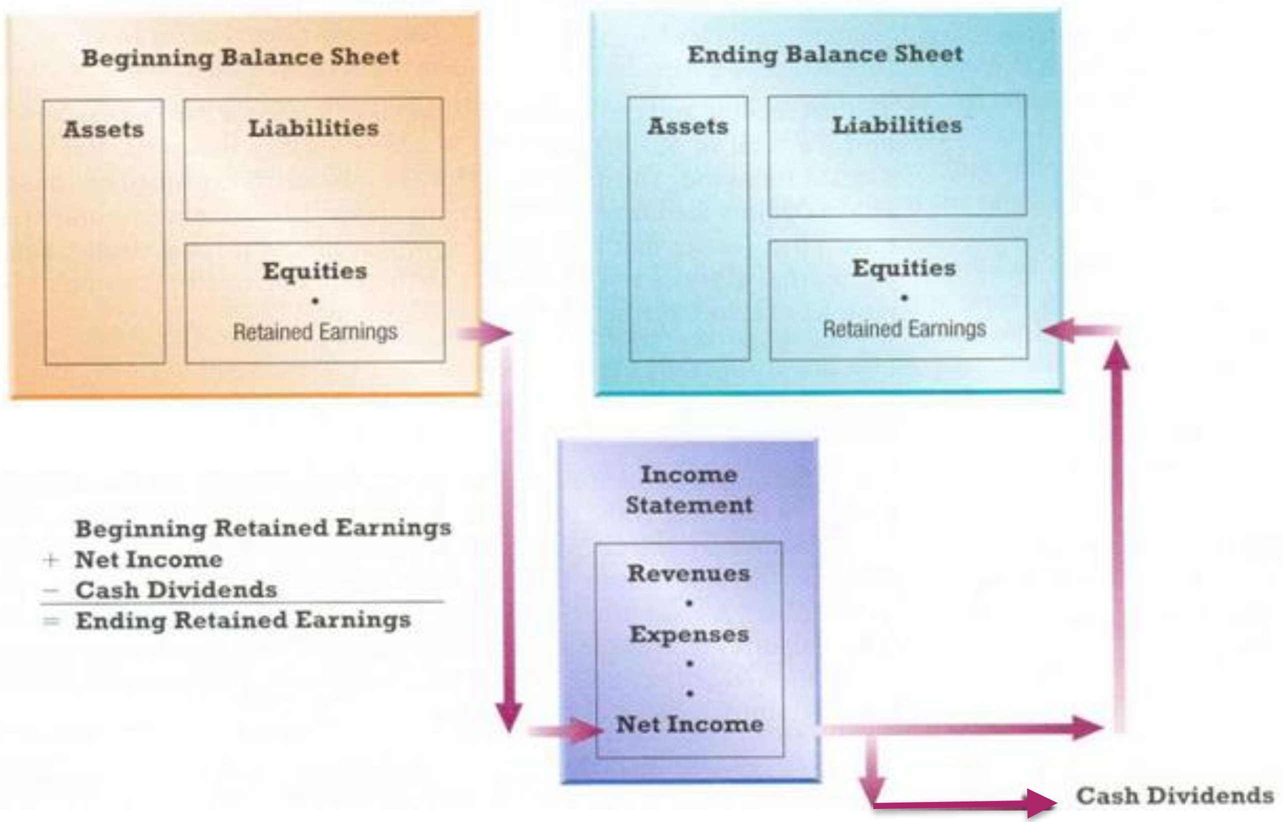
Summarizes all revenues and expenses (and in result net income) for a period, e.g., a month, a quarter, or a year).

CACI International, Inc.
Consolidated Statements of Operations
(amounts in thousands)

YEAR ENDED JUNE 30,	2001
Revenues	$563,810
Costs and expenses	
Direct costs	$343,992
Indirect costs & selling expenses	168,335
Depreciation & amortization	14,143
Total operating expenses	$526,470
Income from operations	$ 37,340
Interest expense	3,315
Income before income taxes	$ 34,025
Income taxes	13,269
Income from continuing operations	$ 20,756
Discontinued operations:	
Gain on disposal of COMNET products businesses	1,545
Net income	$ 22,301

Relation to the Balance Sheet

The income statement is articulated to the balance sheets at the end and the beginning of the period as follows.



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Revenues & Expenses [Voice over Slides Video] (Chapter 3, Antle)

Revenues

- Revenues are gross increases in net assets resulting from operation over a period.
- An alternate definition is that revenue is the money received in exchange for goods or services provided to customers.
- On the balance sheet, revenues lead to increase in retained earnings (and affect assets or liabilities in a way that maintains the accounting identity).
- A major issue with revenue is *recognition*. That is, when should the recognize revenues in accounting.

Revenues

- **Convention.** Revenue is recognized upon substantial completion of the earnings process, when an exchange has taken place, and the collection amount is reasonably certain.
- For example, a consulting company recognizes revenue when the job is complete and the customer is billed.
- A construction contractor recognizes revenue when a major work package is finished and the owner is billed.

Revenues

Different names may be used for revenue depending on the nature of the entity in question.

- Sales (Turnover). Merchandising entities, e.g., supermarket chains and some manufacturers.
- Sales of Services or Total Billings. Services, e.g., consultancy firms.
- Interest Revenue. Financial institutions that earn revenues from interest on loans, e.g., saving and loans banks.
- Commissions, Asset Management and Portfolio Service Fees. Brokerage firms for financial services fees.
- Premium Revenue. Insurance companies.

Expenses

- Expenses are resources consumed leading to decrease in net assets over a period.
- On the balance sheet, revenues lead to decrease in retained earnings.
- Expenses are usually incurred when revenue is generated.
- Matching is the process of making sure that all costs included in generating revenue are taken as expenses.

Expenses

Examples of expenses include

- Cost of sales. Expense associated with cost of goods.
- Salaries. Wages of employees and management.
- Depreciation. Cost of using long-term assets such as "Property, Plant and Equipment."
- Rent. Cost of renting offices or warehouses.
- Maintenance & Operations. Cost to maintain machine and facilities keep them operational.
- Utilities. Cost of power, phone, internet, etc.

Expenses

- Accounting conventions relating to recognizing expenses are more involved than those pertaining to revenues.
- Some expenses follow earning of revenue, e.g., salaries of staff (remember the matching principal).
- Others follow a systematic process, e.g., depreciation of plant and equipment.
- Rent, insurance, and building costs are called period expenses. They are not directly related to delivering service or product but they are necessary for operations

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Accrual Accounting [Voice over Slides Video] (Chapter 3, Antle)

Accrual Accounting

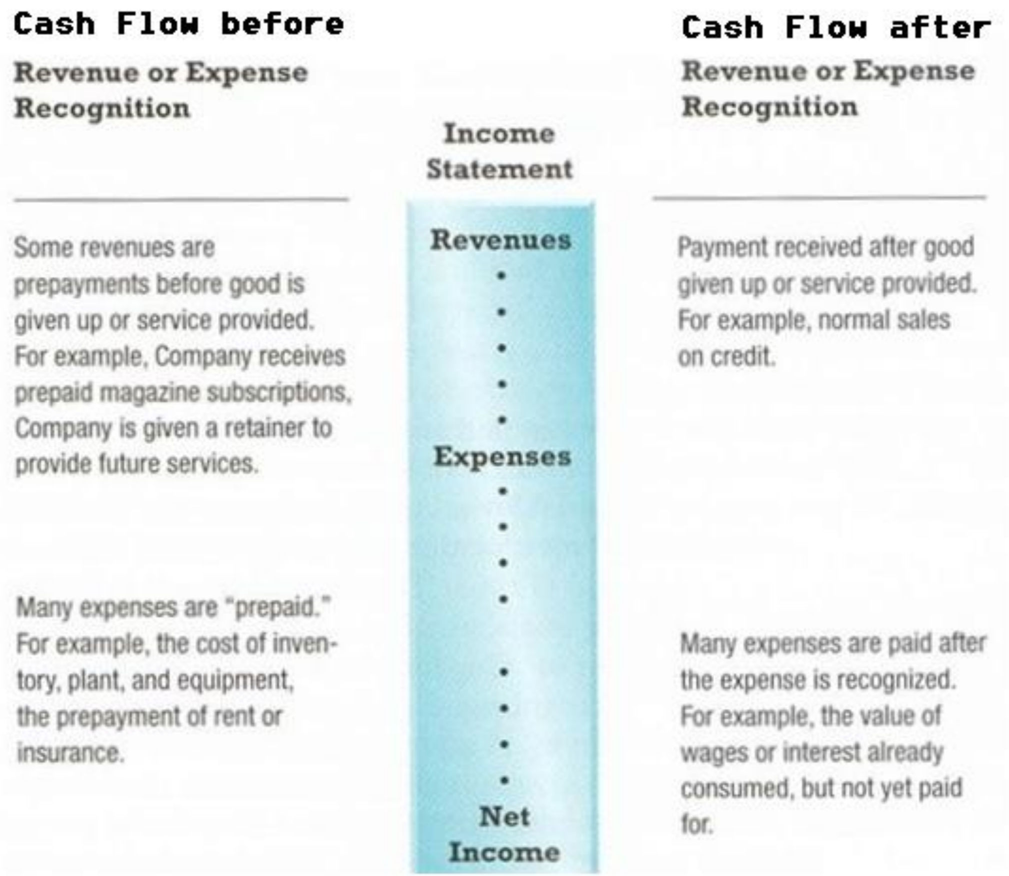
- Conventions for recognizing revenues and expenses contain no mention of cash flows.
- The idea is to define terms that truly measure the results of operations in dollars but are independent of when cash actually flows into the entity.
- This is called accrual accounting.
- In layman terms, accrual accounting implies that the timing of revenues (expenses) is not necessarily the same as that of cash inflows (outflows).

Accrual Accounting

Revenue ≠ Cash Inflow

Expense ≠ Cash Outflow

Accrual Accounting



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Gain and Losses and Temporary T-Accounts [Voice over Slides Video] (Chapter 3, Antle)

Gains and Losses

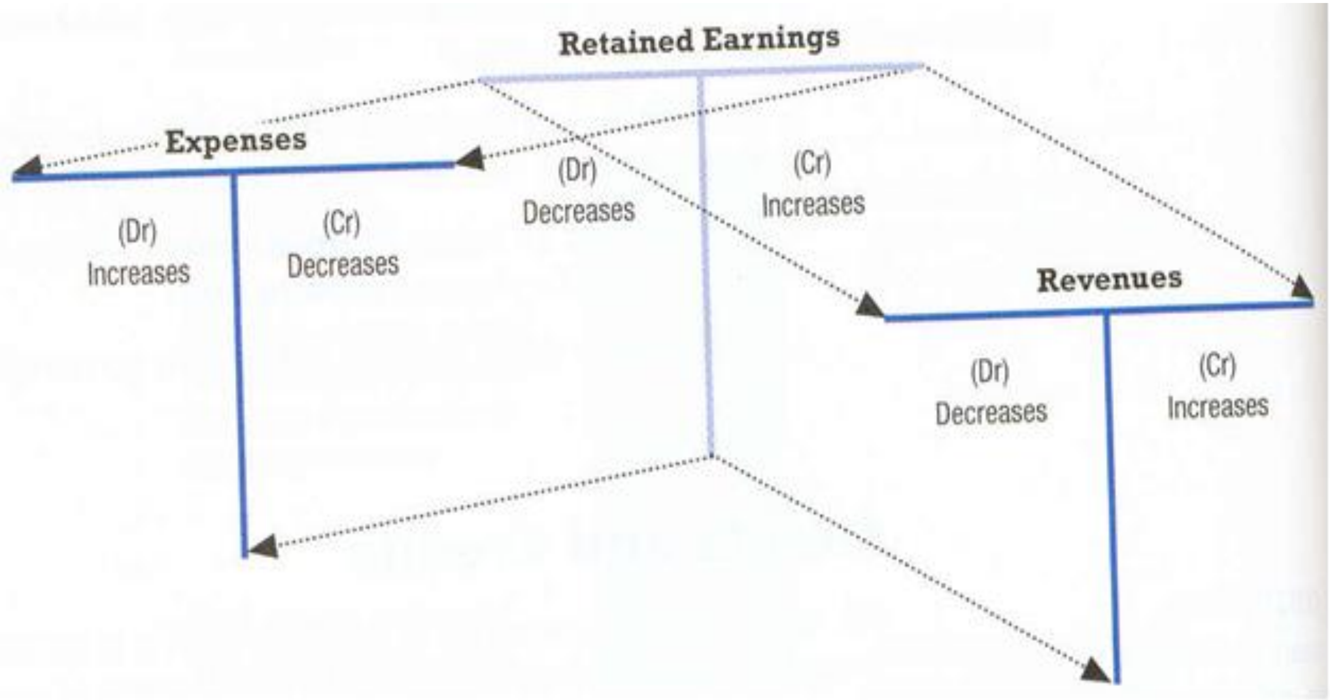
- Usually revenues and expenses resulting from a transaction are shown separately on an income statement (e.g., sales and cost of sales), without mentioning the amount of gain or loss.
- Some items are shown “net” on the income statement.
- An example is sale of equipment. Since selling of assets is not the primary purpose of the business, gain (loss) is reported separately on the income statement.

Revenues and Expenses Accounts - Debit and Credit

- Revenues and expenses over a period are collected in T-accounts similar to assets and liabilities.
- However these are temporary accounts because they pertain to a given period (the period of the income statements).
- Once the accounting period is over, these accounts should be closed (i.e., have balance set to zero).

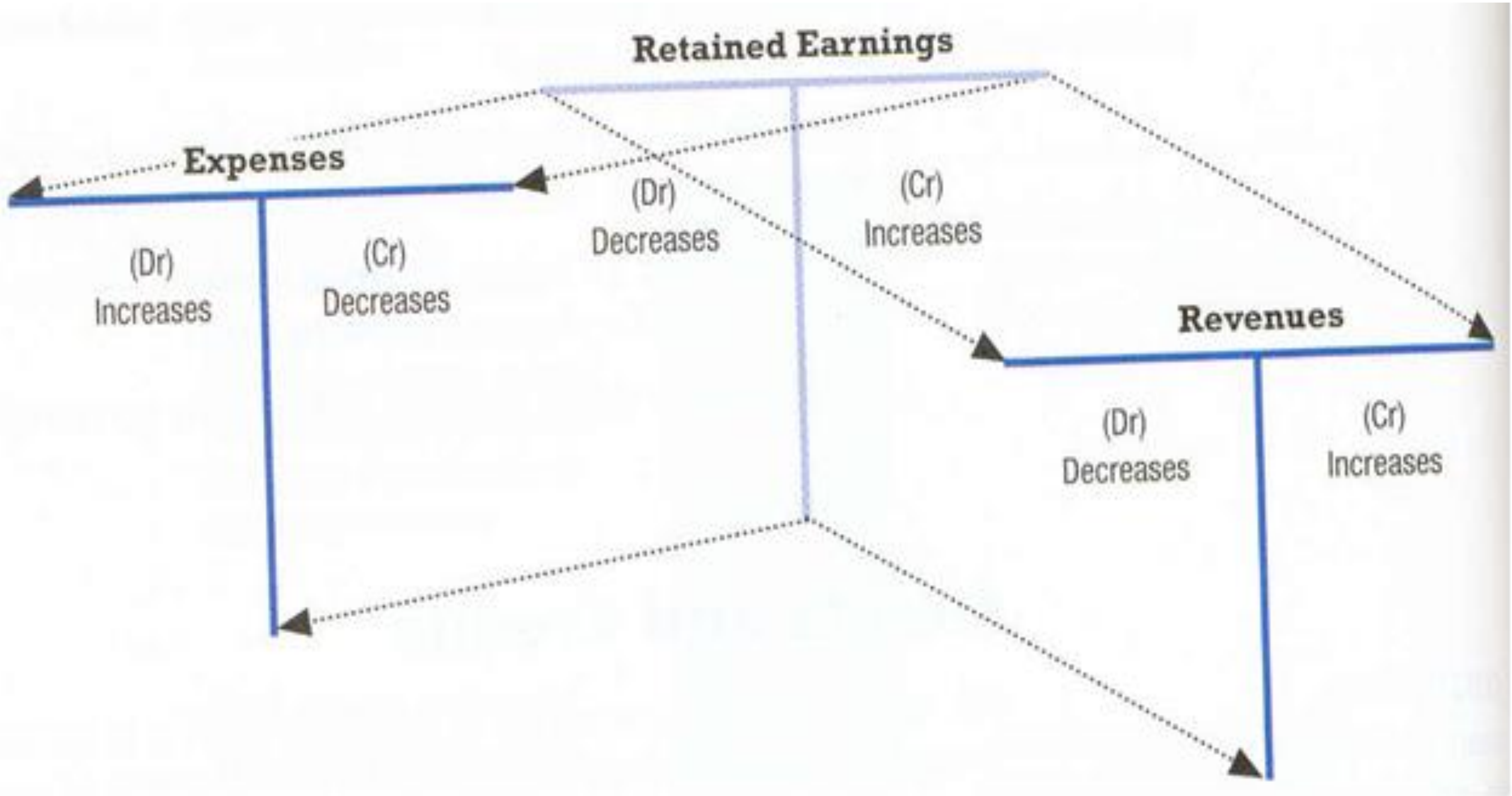
Temporary T-Accounts

- In order to generate the income statement, the idea is to debit and credit temporary revenues and expenses accounts instead of retained earnings.
- Then, at the end of the period the balance of these accounts is transferred to retained earnings



Temporary T-Accounts

- Therefore, the following convention is adopted
  - Debits increase expenses and decrease revenues.
  - Credits decrease expenses and increase revenues.



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Websell Journal Entries and Temporary T-Accounts [Voice over Slides Video] (Chapter 3, Antle)

Websell Journal Entries

- Suppose Websell engaged in the following transaction.
- (13) On February 5, 2004, Websell completes a consulting engagement and bill the client for $3 K.
- This transaction will debit the “accounts receivable” (asset) account and credit the (temporary) “consulting revenue” account.

Account Receivable 3

Consulting Revenue 3

Websell Journal Entries

- (15) On April 1, 2004, Websell enters into an agreement to provide a service later in the future and receives $65 immediately as a prepayment.
- This transaction will debit the "cash" (asset) account and credit the (liability) "revenue received in advance" account.

Cash 65

Revenue Received in Advance 65

Webscell Journal Entries

- (16) On May 15, 2004, Websell completes the service, receives the $65 K and bills the customer additional $55 K.
- This transaction will debit “revenue received in advance” (liability) and “accounts receivable” (asset) and credit the (temporary) “consulting revenue” account.

Revenue Received in Advanced 65

Accounts Receivable 55

    Consulting Revenue 120

Websell Journal Entries

- (17) During the 6-month period to June 30, 2004, Websell paid wages of $377 K.
- This transaction will debit the “wages expense” (temporary) account and credit “cash” (asset).

Wages Expense 377

Cash 377

Websell Permanent T-Accounts

ASSETS

Cash

	Dr.	Cr.	
(1)	1,000	300	(3)
(2)	2,000	75	(4)
(15)	65	1	(6)
(19)	762	2	(7)
(20)	620	50	(8)
(22)	48	40	(9)
		100	(10)
		15	(11)
		1,200	(14)
		377	(17)
		38	(18)
		62	(21)
	2,235		

Accounts Receivable

	Dr.	Cr.	
(13)	3	48	(22)
(16)	55		
	10		

Supplies

	Dr.	Cr.	
(5)	2		
	2		

Prepaid Insurance

	Dr.	Cr.	
(11)	15		
	15		

Prepaid Rent

	Dr.	Cr.	
(4)	75		
	75		

Prepaid Telephone

	Dr.	Cr.	
(7)	2		
	2		

Copyright Permissions

	Dr.	Cr.	
(10)	100		
	100		

Software

	Dr.	Cr.	
(8)	50		
	50		

Equipment

	Dr.	Cr.	
(3)	300		
	300		

Internet Access Rights

	Dr.	Cr.	
(9)	40		
	40		

Web Site

	Dr.	Cr.	
(14)	1,200		
	1,200		

LIABILITIES

Accounts Payable

	Dr.	Cr.	
(6)	1	2	(5)
		1	

Revenue Rec'd in Advance

	Dr.	Cr.	
(16)	65	65	(15)
		0	

Bonds Payable

	Dr.	Cr.	
		2,000	(2)
		2,000	

EQUITY

Common Stock

	Dr.	Cr.	
		1,000	(1)
		1,000	

Retained Earnings

	Dr.	Cr.	

Websell Temporary T-Accounts

REVENUES

Software Sales—Web Site

Dr.	Cr.	
	762	(19)
	762	

Software Sales—Retail

Dr.	Cr.	
	620	(20)
	620	

Consulting Revenue

Dr.	Cr.	
	3	(13)
	120	(16)
	123	

EXPENSES

Wages Expense

	Dr.	Cr.
(17)	377	
	377	

Commission Expense

	Dr.	Cr.
(21)	62	
	62	

Mktg. & Distribut. Exp.

	Dr.	Cr.
(18)	38	
	38	

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Adjustments
[Voice over Slides Video]
(Chapter 3, Antle)

The Process of Adjusting

- Companies are on a calendar or fiscal year, but business transactions can cut across two years.
- Therefore, adjusting entries are needed to ensure revenue recognition and matching principles are followed.
- Adjusting is a difficult process because it is not triggered by transactions.
- One needs to search for what adjustments are needed at the end of an accounting period.

The Process of Adjusting

- Every adjusting entry will affect an income statement account and a balance sheet account (except the cash account).
- For example, suppose Websell wants to develop an income statement for the six-month period ending June 30. Recall that Websell has prepaid rent for $75 K for the whole year.
- Then, on June 30, half of this prepaid rent has been utilized. So, Websell needs to make the following adjustment.

Rent Expense 37.5

    Prepaid Rent 37.5

The Process of Adjusting

- Another adjustment should be done for supplies. If on June 30, only $500 worth of supplies remain out of the original $2,000, then the following adjustment is needed.

Miscellaneous Expenses 1.5

Supplies 1.5

Different Types of Adjustments

- **Prepaid Expense.** Similar to the rent and supplies example above.
- **Unearned Revenue.** When a payment is received in advance, and counted as a liability, then this should be adjusted at the time the income statement is prepared (e.g. debit cash and credit the rent liability for the rent expense in the elapsed time).
- E.g., if a $1,000 payment is received in advance for a service, and counted as a liability.
- Then, this should be adjusted at the time the income statement is prepared if 1/2 of the service is completed at that time as follows,

Unearned revenue $500

Service revenue $500

Different Types of Adjustments

- Accrued Revenues. These are revenues that are earned in a period but are not recorded or received.
- E.g., if a company charges customers when a job is complete, and at the end of the accounting period, the job is only 1/3 complete.
- E.g., if a company bought a 2-year, 5% coupon (interest) par bond for $10,000 on June 30 with annual coupon payments.
- Then, on Dec 31 the following adjustment is done

Interest receivable $250

Interest revenue $250

Different Types of Adjustments

- **Accrued Expenses.** These are expenses that are incurred in a period but are not recorded or received.
- E.g., if a worker is paid at the end of the week and the accounting period ends in the middle of the week.
- E.g., for the company that issued the 2-year, 5% par bond on June 30, the following adjustment is done

Interest expense \$250

Interest payable \$250

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Closing the Temporary Accounts and Ratios
[Voice over Slides Video]
(Chapter 3, Antle)

Closing the Temporary Accounts and Preparing the Statements

- Once all transactions have been accounted for in a period and necessary adjustments have been done, the income statement is prepared based on the adjusted balances of revenues and expenses reports.
- Then, the temporary revenues and expenses reports are closed. This is done by crediting "retained earnings" the revenues balance and debiting it the expenses balance.
- The income statement and balance sheet can then be prepared (see text for details).

Websell Income Statement

Websell, Inc.
Income Statement for the Six Months Ended June 30, 2004
(amounts in thousands)

REVENUES	
Software sales—Web	$ 762.0
Software sales—retail	620.0
Consulting revenues	123.0
Total revenues	$1,505.0
EXPENSES	
Wages	$ 410.0
Amortization	127.5
Commissions	62.0
Interest	60.0
Marketing & distribution	38.0
Rent	37.5
Depreciation	30.0
Insurance	7.5
Miscellaneous	2.5
Total expenses	$ 775.0
Net Income	$ 730.0

Analysis Based on Income Statement

- Profitability / efficiency ratios measure the income or operating success of a company for a given period of time.
- The return on sales ratio measures the percentage of each dollar of sales that results in net income. It is defined as

$$\frac{\text{Net Income}}{\text{Net Sales}}$$

- The return on assets ratio reveals the amount of net income generated by each dollar invested. It is defined as

$$\frac{\text{Net income}}{\text{Avg. assets}}$$

- Average assets equals total assets at the beginning of the year plus total assets at the end of the year divided by 2.