

Quick Review

Module 1

Accounting equation

$$\text{Investing} = \text{Nonowner Financing} + \text{Owner Financing, or} \\ \text{Assets} = \text{Liabilities} + \text{Equity}$$

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Average Assets}} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average Assets}}$$

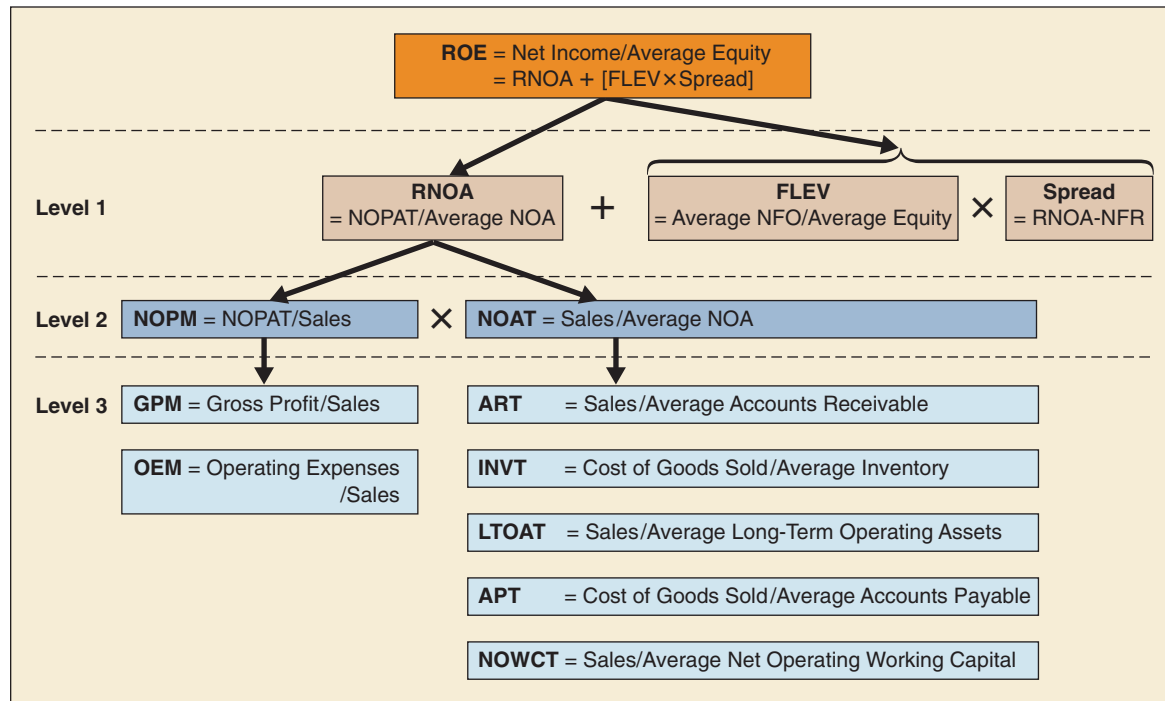
Module 2

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Retained Earnings Reconciliation

$$\begin{aligned} &\text{Beginning retained earnings} \\ &\pm \text{Net income (loss)} \\ &- \text{Dividends} \\ &= \text{Ending retained earnings} \end{aligned}$$

Module 3



$$\text{ROE} = \text{Net Income/Average Equity}$$

$$= \frac{\text{Return from Operating Activities}}{\text{RNOA}} + \frac{\text{Return from Nonoperating Activities}}{\text{(FLEV} \times \text{Spread)}}$$

$$\text{RNOA} = \text{NOPAT/Average NOA}$$

where

NOPAT is net operating profit after tax

NOA is net operating assets

$$\text{Net Operating Assets (NOA)} = \text{Net Financial Obligations (NFO)} + \text{Stockholders' Equity}$$

$$\text{NOPAT} = (\text{Sales} - \text{Operating Expenses}) \times [1 - (\text{Tax Expense/Pretax Income})]$$

Ratio	Definition
ROE: return on equity	Net Income/Average Equity
RNOA: return on net operating assets	NOPAT/Average NOA
NOPAT: net operating profit after tax	Sales and other operating revenues less operating expenses such as cost of sales, taxes, selling, general, and administrative; it excludes nonoperating revenues and expenses such as those from financial assets and liabilities
NOA: net operating assets	Current and long-term operating assets less current and long-term operating liabilities; it excludes investments in securities, short- and long-term interest-bearing debt, and capitalized lease obligations
FLEV: financial leverage	Average NFO/Average Equity
NFO: net financial obligations	Financial (nonoperating) obligations less financial (nonoperating) assets
Spread	RNOA - NFR
NFR: net financial rate	NFE/Average NFO
NFE: net financial expense	NOPAT - Net income; it includes interest expense less revenues from nonoperating assets, net of tax

Distinguishing Operating and Nonoperating Assets and Liabilities

Typical GAAP Balance Sheet [Nonoperating (Financial) Items Highlighted]	
Current assets	Current liabilities
Cash and cash equivalents	Short-term notes and interest payable
Short-term investments	Accounts payable
Accounts receivable	Accrued liabilities
Inventories	Deferred income tax liabilities
Prepaid expenses	Current maturities of long-term debt
Deferred income tax assets	
Long-term assets	Long-term liabilities
Long-term investments in securities	Bonds and notes payable
Property, plant & equipment, net	Capitalized lease obligations
Natural resources	Pension and other postretirement liabilities
Equity method investments	Deferred income tax liabilities
Intangible assets	
Deferred income tax assets	Minority interest
Capitalized lease assets	
Other long-term assets	Total stockholders' equity

Simplified Operating and Nonoperating Balance Sheet

	Assets	Liabilities
Net Operating Assets (NOA) <small>(Assets – Liabilities)</small>	Current Operating Assets Long-Term Operating Assets	Current Operating Liabilities Long-Term Operating Liabilities
Net Financial Obligations (NFO) <small>(Liabilities – Assets)</small>	Financial Assets <small>(Nonoperating)</small>	Financial Obligations <small>(Nonoperating)</small>
Equity (NOA-NFO)		Equity Stockholders' Equity
	Total Assets	Total Liabilities and Equity

Distinguishing Operating, Nonoperating, Core, and Transitory Income

	Core	Transitory
Operating	Sales; cost of goods sold; selling, general and administrative expenses; research and advertising expenses; income taxes	Gains and losses on sales of operating assets; operating asset write-downs; nonrecurring restructuring accruals
Nonoperating	Interest revenues and expenses; dividend revenues; hedging gains and losses	Debt retirement gains and losses; gains and losses on discontinued operations

$$RNOA = NOPAT / \text{Average Net Operating Assets} = \underbrace{NOPAT / \text{Sales}}_{\text{Margin}} \times \underbrace{\text{Sales} / \text{Average Net Operating Assets}}_{\text{Turnover}}$$

Net Operating Profit Margin Analysis

Gross Profit Margin (GPM) = Gross Profit/Sales
 Operating Expense Margin (OEM) = Operating Expenses/Sales

Net Operating Asset Turnover Analysis

Net Operating Asset Turnover (NOAT) = Sales/Average Net Operating Assets
 Accounts Receivable Turnover (ART) = Sales/Average Accounts Receivable
 Average Collection Period = Accounts Receivable/Average Daily Sales
 Inventory Turnover (INVT) = Cost of Goods Sold/Average Inventory
 Average Inventory Days Outstanding = Inventory/Average Daily Cost of Goods Sold
 Long-Term Operating Asset Turnover (LTOAT) = Sales/Average Long-Term Operating Assets
 Accounts Payable Turnover (APT) = Cost of Goods Sold/Average Accounts Payable
 Net Operating Working Capital Turnover (NOWCT) = Net Sales/Average Net Operating Working Capital

$$\text{Average Cash Cycle} = \text{Average Collection Period} + \frac{\text{Modified Average Inventory Days Outstanding}}{\text{Modified Average Payable Days Outstanding}}$$

Liquidity and Solvency Analysis

Current Ratio = Current Assets/Current Liabilities
 Quick Ratio = (Cash + Marketable Securities + Accounts Receivables)/Current Liabilities
 Debt-to-Equity = Total Liabilities/Stockholders' Equity
 Long-Term Debt-to-Equity = Long-Term Debt/Stockholders' Equity

Times Interest Earned = Earnings before Interest and Taxes/Interest Expense

Operating Cash Flow to Liabilities = Net Cash Flow from Operations/Total Liabilities

Common Size Analysis

$$\text{Common-Size Percent (\%)} = (\text{Analysis Period Amount}/\text{Base Period Amount}) \times 100$$

Module 4

Revenue recognition criterias: Revenue must be (1) **realized or realizable**, and (2) **earned**

Balance Sheet Effects of Euro Strengthening versus the Dollar

Currency	Assets	=	Liabilities	+	Equity
\$US weakens	Increase	=	Increase	+	Increase
\$US strengthens	Decrease	=	Decrease	+	Decrease

$$\text{Tax Expense} = \text{Taxes Paid} \pm \text{Changes in Deferred Tax Assets and Liabilities}$$

$$\text{Gain or Loss on Asset Sale} = \text{Asset Sale Proceeds} - \text{Asset Book Value}$$

Income Items Categorized by Core versus Transitory and Operating versus Nonoperating

	Core	Transitory
Operating	<ul style="list-style-type: none"> Revenues Cost of goods sold Selling, general and administrative expense Footnoted employee stock option expense Severance cost portion of pension expense Gains and losses from hedging of foreign currencies and commodities 	<ul style="list-style-type: none"> Restructuring costs (unless recurring) Asset write-downs Goodwill impairment expense Gains and losses from asset sales Merger and acquisition expense, including purchased research and development expense Litigation settlements and insurance proceeds Extraordinary items tied to operations
Nonoperating	<ul style="list-style-type: none"> Interest revenue and expense Dividend revenue Interest, expected return, and amortization portions of pension expense Unrealized gains and losses from income on investments categorized as trading securities Gains and losses from hedging related to interest costs 	<ul style="list-style-type: none"> Gains and losses on sales of investments, excluding "trading securities" Income and losses on discontinued operations and gains and losses on disposal of discontinued operations Extraordinary items not tied to operations (gains and losses on early debt retirement)

Module 5

Reconciliation of Allowance for Uncollectible Accounts

Beginning allowance for uncollectible accounts
Add: Provision for uncollectible accounts
Less: Write-offs of accounts receivable
Ending allowance for uncollectible accounts

Accounts receivable (gross)
Less: Allowance for uncollectible accounts
Accounts receivable (net)

Cost of Goods Sold Computation

Beginning inventory (prior period balance sheet)
+ Inventory purchases and/or production
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Cost of goods available for sale
- Ending inventory (current period balance sheet)
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Cost of goods sold (current income statement)

Components of Depreciation Expense Computation:

1. **Useful life.** Period of time over which the asset is expected to generate cash inflows
2. **Salvage value.** Expected disposal amount for the asset at the end of its useful life
3. **Depreciation rate.** An estimate of how the asset will be used up over its useful life

Depreciation Expense = Depreciation Base × Depreciation Rate

Straight-line Depreciation

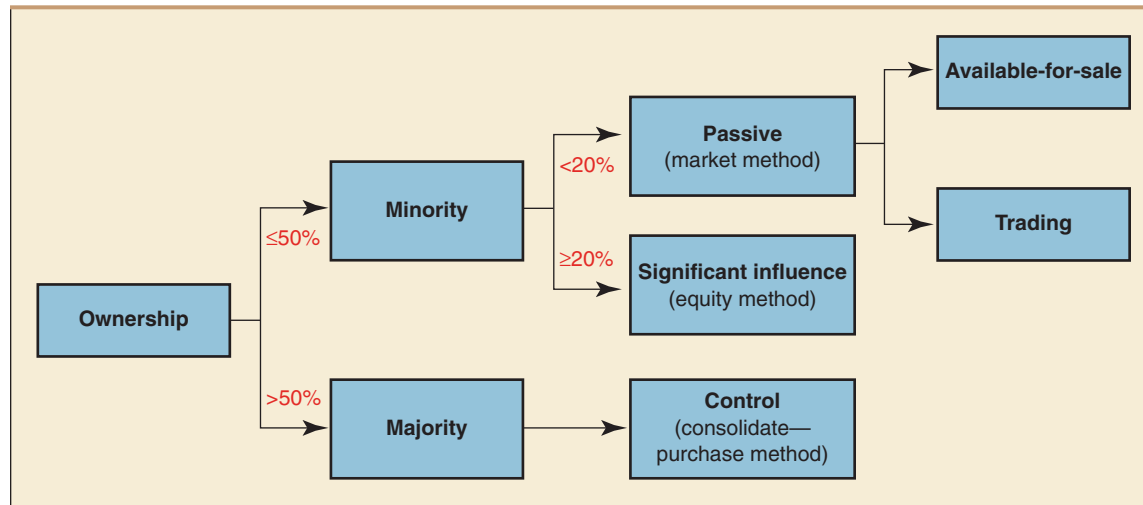
Depreciation Base	Depreciation Rate
Cost – Salvage value	1/Estimated useful life

Double-Declining Balance Depreciation

Depreciation Base	Depreciation Rate
Net Book Value = Cost – Accumulated Depreciation	2 × SL rate

Module 6

Intercompany Investment Diagram



Investment Type, Accounting Treatment, and Financial Statement Effects

Accounting		Balance Sheet Effects	Income Statement Effects	Cash Flow Effects
Passive	Market method	Investment account is reported at current market value	Dividends and capital gains affect income Interim changes in market value may or may not affect income depending on classification	Dividend and sale proceeds are cash inflows Purchases are cash outflows
Significant influence	Equity method	Investment account equals percent owned of investee company's equity*	Dividends reduce investment account Investor reports income equal to percent owned of investee income Capital gains are income	Dividend and sale proceeds are cash inflows Purchases are cash outflows
Control	Consolidation	Balance sheets of investor and investee are combined	Income statements of investor and investee are combined (and sale of investee yields capital gain or loss)	Cash flows of investor and investee are combined (and sale/purchase of investee yields cash inflow/outflow)

*Investments are often acquired at purchase prices in excess of book value (on average, market prices are 1.5 times book value for public companies). In this case the investment account exceeds the proportionate ownership of the investee's equity. We discuss this later in the module.

Accounting Treatment for Available-for-Sale and for Trading Investments

Investment Classification	Reporting of Market Value Changes	Reporting Dividends Received and Gains and Losses on Sale
Available-for-Sale (AFS)	Market value changes bypass the income statement and are reported directly in <i>other comprehensive income</i> (OCI) of equity	Reported as <i>other income</i> in income statement
Trading (T)	Market value changes are reported in the income statement as unrealized gains or losses; impacts equity via retained earnings	Same as above

Equity Method Accounting Summarized as follows:

- Investments are initially recorded at their purchase cost.
- Dividends received are treated as a recovery of the investment and, thus, reduce the investment balance (dividends are *not* reported as income as with passive investments).
- The investor reports income equal to its percentage share of the reported income of the investee; the investment account is increased by that income or decreased by its share of any loss.
- The investment is *not* reported at market value as passive market investments are.

Module 7

Coupon (contract or stated) rate The coupon rate of interest is stated in the bond contract. It is used to compute the dollar amount of (semiannual) interest payments that are paid to bondholders during the life of the bond issue.

Market (yield) rate This is the interest rate that investors expect to earn on the investment for this debt security. This rate is used to price the bond issue.

Market value of bond = percent value of interest payments plus present value of principle payment(s)

Coupon Rate, Market Rate, and Bond Pricing

Coupon rate > market rate	→	Bond sells at a premium (above face amount)
Coupon rate = market rate	→	Bond sells at par (at face amount)
Coupon rate < market rate	→	Bond sells at a discount (below face amount)

Cash interest paid		Cash interest paid
+ <u>Amortization of discount</u>	or	- <u>Amortization of premium</u>
Bond interest expense		Bond interest expense

Gain or Loss on Bond Repurchase = Bonds Payable, Net – Repurchase Payment

Module 8

Components of Stockholders' Equity:

- Contributed capital: common stock, preferred stock, additional paid-in capital, treasury stock, minority interest
- Earned capital: retained earnings, accumulated other comprehensive income (AOCI)

Stock Issuance:

- Common stock is increased by number of shares issued × par value
- Additional paid-in capital is increased for the balance of the issue price

Treasury Stock:

- Record at purchase cost
- When reissued, treasury stock is reduced by the cost of the shares reissued and the balance is reflected as an increase in additional paid-in capital

Dividends and Splits:

- Cash: reduce retained earnings by the cash dividends paid
- Stock (small): reduce retained earnings by the market value of the shares distributed and increase common stock and additional paid-in capital by the market value of the shares issued
- Stock (large): reduce retained earnings by the par value of the shares issued and increase common stock by the same amount (no increase in additional paid-in capital)
- Split: no accounting entry (adjust number of shares outstanding and their par value, if any)

Components of Comprehensive Income:

- Currency translation adjustment
- Unrealized gains and losses on available-for-sale securities
- Minimum pension liability adjustment
- Unrealized gains and losses on certain derivatives

Module 9

Financial Statement Effects of Lease Methods for the Lessee

Lease Type	Assets	Liabilities	Expenses	Cash Flows
Capital	Lease asset reported	Lease liability reported	Depreciation and interest	Same—per lease contract
Operating	Lease asset not reported	Lease liability not reported	Rent expense	

Financial Statement Effects of Defined Benefit Plans

Balance Sheet			Income Statement	
Cash + Noncash Assets	= Liabilities	+ Contributed Capital + Retained Earnings	Revenues	– Expenses
	Pension Obligation			– Service Cost Interest Cost
	– Pension Investments		Investment Returns	
	Net Pension Liability	Net Pension Cost		

Beginning balance of pension obligation
+ Service cost
+ Interest cost
– Benefits paid to retirees
= Ending balance of pension obligation

Beginning balance of pension investment account
+ Actual returns on invested assets
+ Company contributions to pension plan assets
– Benefits paid to retirees
= Ending balance of pension investment account

Funded status = Fair market value of pension investments – Pension obligation

Pension Liability Recognized on Balance Sheet

Funded status at end of year
± Unrecognized net actuarial loss
± Unrecognized prior service cost
= Accrued benefit liability

Pension Expense Recognized on Income Statement

Service cost
+ Interest cost
– Expected return on pension plan investments
± Amortization of deferred losses (gains)
= Pension expense

Module 10

Common Income Statement Adjustments

1. Separate core (persistent) and transitory items—examples:
 - a. Gains and losses relating to
 - (1) Asset sales on long-term assets and investments
 - (2) Asset write-downs of long-term assets and inventories
 - (3) Stock issuances by subsidiaries
 - (4) Debt retirements
 - b. Transitory items reported after income from continued operations
 - (1) Discontinued operations
 - (2) Extraordinary items
 - (3) Changes in accounting principles
 - c. Restructuring expenses
 - d. Merger costs
 - e. LIFO liquidation gains
 - f. Liability accruals deemed excessive
 - g. Gains and losses from changes in deferred tax valuation allowance
2. Separate operating and nonoperating items—examples:
 - a. Treating interest revenue and expense, and investment gains and losses, as nonoperating
 - b. Treating pension service cost as operating, and pension interest costs and expected returns as nonoperating
 - c. Treating debt retirement gains and losses as nonoperating
 - d. Treating income and losses from discontinued operations as nonoperating
 - e. Treating short-term fluctuations in tax expense as nonoperating
3. Include expenses not reflected in net income—examples:
 - a. Employee stock option expense
 - b. Inadequate reserves for bad debts or asset impairment
 - c. Reductions in R&D, advertising, and other discretionary expenses that were made to achieve short-term income targets

Common Balance Sheet Adjustments

1. Separate nonoperating assets and liabilities—examples:
 - a. Eliminate assets and liabilities from discontinued operations
 - b. Write-down impaired assets and/or goodwill
2. Include operating assets and liabilities not reflected in balance sheet—examples:
 - a. Capitalize assets and liabilities from operating leases
 - b. Consolidate off-balance-sheet investments
 - (1) Equity method investments
 - (2) Variable interest entities (VIEs)
 - c. Accrue understated liabilities and assets

Common Statement of Cash Flow Adjustments

1. Adjust operating cash flows for nonoperating items—examples:
 - a. Adjust discretionary costs (advertising, R&D, maintenance) to normal, expected levels
 - b. Adjust current operating assets (receivables, inventory) to normal, expected levels
 - c. Adjust current operating liabilities (payables, accruals) to normal, expected levels
2. Adjust cash flows for transitory items—examples:
 - a. Separate (exclude) operating cash flows from tax benefits due to exercise of employee stock options
3. Review assignment of cash flows and reassign them, if necessary, to operating, investing, or financing sections—examples:
 - a. Separate and reassign operating cash inflows from asset securitization to financing section
 - b. Separate and reassign operating cash flows from discontinued operations to investing section

Forecasting Using Turnover Rates

$$\text{Forecasted Year-End Account Balance} = \frac{\text{Forecasted Sales (or COGS)}}{\text{Estimated Turnover Rate}}$$

Module 11

Discounted Cash Flow (DCF) Model

$$\text{Firm Value} = \text{Present Value of Expected Free Cash Flows to Firm}$$

$$\text{FCFF} = \text{NOPAT} - \text{Increase in NOA}$$

where

NOPAT = Net operating profit after tax

NOA = Net operating assets

Residual Operating Income (ROPI) Model

$$\text{Firm Value} = \text{NOA} + \text{Present Value of Expected ROPI}$$

where

NOA = Net operating assets

ROPI = Residual operating income

$$\text{ROPI} = \text{NOPAT} - \underbrace{(\text{NOA}_{\text{Beg}} \times r_w)}_{\text{Expected NOPAT}}$$

where

NOA_{Beg} = Net operating assets at beginning (*Beg*) of period

r_w = Weighted average cost of capital (WACC)