Financial Ratios

Financial Ratios

Calculated using terms items from Balance Sheet/ Income Statement

Used to evaluate performance / compare valuations

Example

Profit Margin = Net Income / Revenue

	Net Income	Revenue	Profit Margin
Company 1	200	4000	5%
Company 2	400	16000	2.5%

Financial Ratios Application

Insights into a company's financial flexibility

Management's ability to manage efficiently

Changes in Company / Industry over time

Comparability with peers or industry

Financial Ratios

- Activity Ratios
- Liquidity Ratios
- Solvency Ratios
- Profitability Ratios
- Valuation Ratios

Activity Ratio measures how effectively the company performs day-to-day tasks like:

-> Collection of Receivables
-> Inventory Management

Financial Ratios

- Activity Ratios
- **Liquidity Ratios**
- Solvency Ratios
- Profitability Ratios
- Valuation Ratios

Liquidity Ratio measures a company's ability to meet short term obligation

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Financial Ratios

- Activity Ratios
- Liquidity Ratios
- **Solvency Ratios**
- Profitability Ratios
- Valuation Ratios

Solvency Ratio measures a company's ability to meet long term obligations

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Financial Ratios

- Activity Ratios
- Liquidity Ratios
- Solvency Ratios
- **Profitability Ratios**
- Valuation Ratios

Profitability Ratios measure a company's ability to generate profits

Financial Ratios

- Activity Ratios
- Liquidity Ratios
- Solvency Ratios
- Profitability Ratios
- **Valuation Ratios**

Valuation Ratios measures the quantity of asset associated with the company's share

Activity Ratios

Activity Ratios

Asset Utilization Ratio / Operating Efficiency Ratio
How efficiently assets are managed

Activity Ratios	Numerator	Denominator
Inventory Turnover	Cost of Sales or Cost of Goods Sold	Average Inventory
Days of Inventory on Hand (DOH)	Number of days in period	Inventory Turnover
Receivables Turnover	Revenue	Average Receivables
Days of Sales Outstanding (DSO)	Number of days in period	Receivables Turnover
Payables Turnover	Purchases	Average Trade Payables
Number of Days of Payables	Number of days in period	Payables Turnover
Working Capital Turnover	Revenue	Average Working Capital
Fixed Asset Turnover	Revenue	Average Net Fixed Assets
Total Asset Turnover	Revenue	Average Total Assets

Activity Ratios

Use Averages by taking average of
Beginning of the period value & End of the period value

Activity Ratios	Numerator	Denominator
Inventory Turnover	Cost of Sales or Cost of Goods Sold	Average Inventory
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Receivables Turnover	Revenue	Average Receivables
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Payables Turnover	Purchases	Average Trade Payables
Number of Days of Payables	Number of days in period	Payables Turnover
Working Capital Turnover	Revenue	Average Working Capital
Fixed Asset Turnover	Revenue	Average Net Fixed Assets
Total Asset Turnover	Revenue	Average Total Assets

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Activity Ratios – Using Averages

Inventory Turnover =
Cost of Goods Sold / Average Inventory

(Inventory @ Beginning of the Period +
Inventory @ End of the Period)/ 2

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Example

Cost of Goods Sold = 240000
Average Inventory = 10000

Inventory Turnover = 240000/ 10000 or 24

Company is clearing inventory once every 15 days

Days of Inventory on Hand (DoH) = 365/24 or 15.20 Days

Inventory Turnover & DoH

Cost of Goods Sold = 240000
Average Inventory = 10000

Inventory Turnover = 240000/ 10000 or 24

Company is clearing inventory once every 15 days

Days of Inventory on Hand (DoH) = 365/24 or 15.20 Days

Inventory Turnover & DoH

Inventory Turnover =
Cost of Goods Sold / Average Inventory

High inventory turnover relative to industry may indicate:

- Highly effective inventory management OR
- Company not carrying adequate inventory

Slow revenue growth & High Turnover=> Inadequate Inventory!

Activity Ratios
Part 2

Receivables Turnover

Receivables Turnover=
Revenue / Average Receivables

Days of Sales Outstanding=
365/ Receivables Turnover

High Turnover may indicate:
- **Highly efficient credit and collection OR**
- **Credit & Collection policies are too stringent**

Payables Turnover & # of Days Payable

Payables Turnover=
Purchases / Average Payables

Number of Days Payables=
365/ Payables Turnover

Alternate Formula for Purchases:
Cost of Goods Sold + Ending Inventory – Beginning Inventory

Payables Turnover & # of Days Payable

Payables Turnover=
Purchases / Average Payables

High Turnover may indicate:
- **Company not making full use of available credit facilities OR**
- **It may be getting a discount on early payment**

Low Turnover may indicate:
- **Trouble making payments on time OR**
- **Exploitation of lenient supplier terms**

Activity Ratios
Part 3: Asset Turnover

Working Capital Turnover

Working Capital = Current Assets – Current Liabilities

Working Capital Turnover = Revenue / Average Working Capital

Example: Working Capital Turnover of 5=>
$5 Revenue requires $1 Working Capital

Higher Working Capital Turnover => Higher Efficiency

Fixed Asset Turnover

Fixed Asset Turnover = Revenue / Average Fixed Assets

High Turnover indicates efficient use of fixed assets

Low Turnover Ratio indicates inefficiency or capital intensive business

Ratio lower for newer companies than matured ones

Total Asset Turnover

Total Asset Turnover = Revenue / Average Total Assets

Total Assets = Fixed Assets + Current Assets

Example: Total Asset Turnover = 1.3
Company generates $1.3 revenue for $1 of average assets

Low Asset Turnover indicates inefficiency or capital intensive business

Liquidity Ratios

Liquidity Ratios

Measures how quickly assets are converted to cash

Ability to pay off short term obligations

Liquidity Management achieved through efficient use of assets Or

By managing structure of liabilities

Liquidity Ratios

Liquidity Ratios	Numerator	Denominator
Current Ratio	Current Assets	Current Liabilities
Quick Ratio	Cash + Short Term Securities + Receivables	Current Liabilities
Cash Ratio	Cash + Short Term Securities	Current Liabilities
Defensive Interval Ratio	Cash + Short Term Securities + Receivables	Daily Cash Expenditure
Additional Liquidity Measure		
Cash Conversion Cycle	DOH + DSO -Number of days of payables	

Current Ratio

Current Ratio = Current Assets/ Current Liablities

Current Ratio of 1 => BV of Current Assets = BV of Current Liabilities

Higher Current Ratio => Greater Liquidity

Lower Current Ratio => Lower Liquidity

Quick Ratio

Quick Ratio =
(Cash + Short Term Securities + Receivables)/ Current Liablities

Higher Quick Ratio => Greater Liquidity

Lower Quick Ratio => Lower Liquidity

Cash Ratio

Cash Ratio =
(Cash + Short Term Securities)/ Current Liablities

Measure of Entity's Liquidity in Crisis

Lower Cash Ratio => Lower Liquidity

Higher Cash Ratio => Higher Liquidity

Defensive Interval Ratio

Defensive Interval Ratio=
(Cash + Short Term Securities + Receivables)/ Daily Cash Expenditure

How long company can pay from expenses from liquid assets

Example : Defensive Interval Ratio of 100
Company can pay operating expenses for 100 days

Higher the number => Higher Liquidity

Cash Conversion Cycle

DOH + DSO – Number of Days Payables

# of days to pay suppliers

Days Sale Outstanding
(Cash Locked in Receivables)

Days Inventory on Hand
(Cash Locked in Inventory)

Solvency Ratios

Solvency Ratios

Solvency Ratios	Numerator	Denominator
Debt Ratios		
Debt to Assets Ratio	Total Debt	Total Assets
Debt to Capital Ratio	Total Debt	Total Debt + Total Equity
Debt to Equity Ratio	Total Debt	Total Equity
Financial Leverage Ratio	Average Total Assets	Average Total Equity
Coverage Ratios		
Interest Coverage	EBIT	Interest Payments
Fixed Charge Coverage	EBIT + Lease Payments	Interest Payments + Lease Payments

Solvency Ratio

Company's ability to fulfill long term obligations

Ability to make interest and principal payments

Measure adequacy of earnings & cash flow to cover interest expense & lease or rental payments

Solvency Ratio Types

Debt Ratios - Focus on Balance Sheet & measures debt vs equity

Coverage Ratios - Focus on Income statement & ability to cover interest payments

Debt to Assets Ratio

Debt to Asset = Total Debt/ Total Assets

Measures % total asset financed by debt

Debt to Asset = 0.5 => 50% assets financed by Debt

Debt to Capital Ratio

Debt to Capital = Total Debt/ Total Capital

Total Capital = Total Debt + Total Equity

Higher Debt to Capital Ratio => Higher Risk & Weaker Solvency

Debt to Equity Ratio

Debt to Equity = Total Debt/ Total Equity Capital

Higher Debt to Equity Ratio => Higher Risk & Weaker Solvency

Financial Leverage Ratio

Financial Leverage = Average Total Assets/ Average Total Equity

Amount of assets supported by $1 of equity

Financial Leverage of 2 => $2 of Assets supported by $1 of equity

Interest Coverage Ratio

Interest Coverage = EBIT/ Interest Payments

Higher Ratio => Greater Solvency

Fixed Charge Coverage Ratio

Fixed Charge Coverage =
(EBIT + Lease Payments)/ (Interest Payments + Lease Payments)

Higher Ratio => Greater Solvency

Profitability Ratios

Profitability Ratios

Profitability Ratios	Numerator	Denominator
	Profitability Ratios	
Gross Profit Margin	Gross Profit	Revenue
Operating Profit Margin	Operating Income	Revenue
Pre Tax Margin	EBT	Revenue
Net Profit Margin	Net Income	Revenue
	Return on Investment	
Operating ROA	Operating Income	Average Total Assets
ROA	Net Income	Average Total Assets
Return on Total Capital	EBIT	Short & Long Term Debt & Equity
ROE	Net Income	Average Total Equity
Return on Common Equity	Net Income – Preferred Dividends	Average Common Equity

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Profitability Ratios

Income Statement
Revenue
Less Cost of Goods Sold
Gross Profit
Less Operating Expenses
Operating Profit
Less Interest Expense
Earnings Before Tax
Less Tax Expenses
Net Profit

Gross Profit Margin = Gross Profit / Revenue

How good the company is in producing and selling products

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Profitability Ratios

Income Statement
Revenue
Less Cost of Goods Sold
Gross Profit
Less Operating Expenses
Operating Profit
Less Interest Expense
Earnings Before Tax
Less Tax Expenses
Net Profit

Operating Profit Margin =
Operating Profit / Revenue

Accounts for indirect expenses
& administrative overheads

Profitability Ratios

Income Statement
Revenue
Less Cost of Goods Sold
Gross Profit
Less Operating Expenses
Operating Profit
Less Interest Expense
Earnings Before Tax
Less Tax Expenses
Net Profit

Reflects effect of leverage

Pre-Tax Margin =
Earnings before Tax / Revenue

Profitability Ratios

Income Statement
Revenue
Less Cost of Goods Sold
Gross Profit
Less Operating Expenses
Operating Profit
Less Interest Expense
Earnings Before Tax
Less Tax Expenses
Net Profit

Reflects overall profitability after accounting for all expenses including recurring & non-recurring expenses

Net Profit Margin = Net Profit/ Revenue

Return on Investment Ratios

Return on Investment		
Operating ROA	Operating Income	Average Total Assets
ROA	Net Income	Average Total Assets
Return on Total Capital	EBIT	Short & Long Term Debt & Equity
Return on Common Equity	Net Income – Preferred Dividends	Average Common Equity

RoA measures the return earned by a company on its assets

Higher the ratio more the income is generated by a given level of assets

Return on Investment Ratios

Return on Investment		
Operating ROA	Operating Income	Average Total Assets
ROA	Net Income	Average Total Assets
Return on Total Capital	EBIT	Short & Long Term Debt & Equity
Return on Common Equity	Net Income – Preferred Dividends	Average Common Equity

Return on Total Capital measures the profits a company earns on all of the capital

Return on Investment Ratios

Return on Investment		
Operating ROA	Operating Income	Average Total Assets
ROA	Net Income	Average Total Assets
Return on Total Capital	EBIT	Short & Long Term Debt & Equity
Return on Common Equity	Net Income – Preferred Dividends	Average Common Equity

Return on Common Equity measures returns earned by a company on its equity capital

Valuation Ratios

Valuation Ratios

Valuation Ratios	Numerator	Denominator
P/E	Price Per Share	Earnings Per Share
P/CF	Price Per Share	Cash Flow Per Share
P/S	Price Per Share	Sales Per Share
P/BV	Price Per Share	Book Value Per Share

Price to Earnings – How much you pay per $ of earnings

Sensitive to non-recurring items that may affect earnings

Valuation Ratios

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P/E	Price Per Share	Earnings Per Share
P/CF	Price Per Share	Cash Flow Per Share
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Price to Cash Flow used when you are not sure of quality of earnings

Valuation Ratios

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P/E	Price Per Share	Earnings Per Share
P/CF	Price Per Share	Cash Flow Per Share
P/S	Price Per Share	Sales Per Share
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Price to Sales useful if the company doesn't have positive net income
(e.g. new business)

Valuation Ratios

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P/CF	Price Per Share	Cash Flow Per Share
P/S	Price Per Share	Sales Per Share
P/BV	Price Per Share	Book Value Per Share

Price to Book Value compares stock's price to it's book value
Higher P/BV => Market willing to pay premium => Higher likelihood of disappointment

1< P/BV <2 may not necessarily indicate overvalued company

Valuation Ratios

Valuation Ratios	Numerator	Denominator
P/E	Price Per Share	Earnings Per Share
P/CF	Price Per Share	Cash Flow Per Share
P/S	Price Per Share	Sales Per Share
P/BV	Price Per Share	Book Value Per Share

P/BV = 1 => Market paying $1 for $1 of company's assets
P/BV < 1 =>Market paying < $1 for $1 of company's assets