

# Financial Statement Analysis and Forecasting

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Equity Analysis FN 451: Part II Fundamental Analysis

**Course lecturer: Sirinattha Techasiriwan**



# Topics to be Discussed:

- I. Steps in Fundamental Analysis and Company Analysis
- II. Understand Financial Statements
- III. Analysis of Financial Statements
  - I. DuPont Framework
  - II. Interrelationship between Financial Ratios
  - III. Return on invested capital (ROIC)
- IV. Financial Statement Forecasting



# Steps in Fundamental Analysis

Economic, industry, company analysis

- Explore all the **external** factors (economic conditions, government regulations and rules, industry competitive environment) and company's **internal** factors (investment policy, investing policy, competitive strategy, governance, etc. ) **that impact the company**



Financial statement projection

- **Translate those factors into assumptions**
- Link the assumptions into **financial forecast**



Valuation & Sensitivity Analysis

- Translate forecasts into **valuation**
- Sensitivity analysis
- Scenario analysis



$$V_0 = \sum_{t=1}^{\infty} \frac{CF_t}{(1+r)^t}$$

Challenges:

- Defining and forecasting cash flows
- Estimating appropriate discount rate



# Steps in Company Analysis

- Understanding a specific company's business
  - Company's business: products / services, customers, markets
  - Composition / key drivers and growth in sales, composition of cost
  - Management capability, primary strategy, shareholders
  - Sources of competitive advantage, strength and weakness



- Evaluation of operating results (Analysis of Financial Statements)



- Forecasting (Financial Statement Forecasting)



- Valuation



# Understand Financial Statements

## Four types of financial statements



Investment Decisions

Assets

| BALANCE SHEET |             |        |
|---------------|-------------|--------|
| ASSETS        | LIABILITIES | EQUITY |
| CASH          | LOAN        |        |

Financing Decisions

Liabilities + Owners' equity

| BALANCE SHEET |             |        |
|---------------|-------------|--------|
| ASSETS        | LIABILITIES | EQUITY |
| CASH          | LOAN        |        |

Operating Efficiency

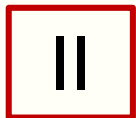
Sales revenue, costs, cash flows

Income Statement



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# The Basic Accounting Statements: The Balance Sheet

## Example:

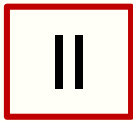
### Statement of Financial Position

| (Bt mn)                        | 2014         |
|--------------------------------|--------------|
| <b><u>Assets</u></b>           |              |
| Cash                           | 21.0         |
| Marketable securities          | 30.0         |
| Account receivables            | 120.0        |
| Inventory                      | 170.0        |
| <b>Total current assets</b>    | <b>341.0</b> |
| Property, plant and equipments | 250.0        |
| <b>Total assets</b>            | <b>591.0</b> |

| (Bt mn)  | 2014         |
|--|--------------|
| <b><u>Liabilities and Shareholders' equity</u></b> |              |
| Short-term debts                                   | 50.0         |
| Account payables                                   | 140.0        |
| Accrued expenses                                   | 15.0         |
| <b>Total current liabilities</b>                   | <b>205.0</b> |
| Long-term debts                                    | 146.0        |
| <b>Total liabilities</b>                           | <b>351.0</b> |
| Paid-up capital (Par Value of Bt1/share)           | 100.0        |
| Share premium                                      | 10.0         |
| Retained earnings                                  | 130.0        |
| <b>Total shareholders' equity</b>                  | <b>240.0</b> |
| <b>Total Liabilities and Shareholders' equity</b>  | <b>591.0</b> |

## Self Study





# The Basic Accounting Statements: Income Statement

Example:

## Statement of Comprehensive Income

| (Bt mn)  | 2014         |
|--|--------------|
| Sales  | 400.0        |
| Cost of Sales                                  | 125.0        |
| <b>Gross Margin</b>                            | <b>275.0</b> |
| Selling and administrative expenses            | 217.0        |
| <b>Earnings before Interest and Tax (EBIT)</b> | <b>58.0</b>  |
| Interest expenses                              | 15.0         |
| <b>Earnings before Tax (EBT)</b>               | <b>43.0</b>  |
| Income Tax                                     | 30.0         |
| <b>Net Profit</b>                              | <b>13.0</b>  |

**Self Study**

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# The Basic Accounting Statements: Statement of Cash Flows

## Summary of cash flow statement

|  |   |
|--|---|
| <b><u>Cash flows from operating activities</u></b> | <b><u>Cash flows from investing activities</u></b>  |
| Profit for the year                                | Interest received                                   |
| Less: Interest income                              | Dividends received                                  |
| Add: Finance costs                                 | Purchase of property, plant and equipment           |
| Less: Dividends income from subsidiaries           | Other investing cash flows                          |
| Add: Depreciation and amortisation                 | <b>Net cash from (used in) investing activities</b> |
| Adjustmentd for other non cash items               |   |
| <b>Gross cash flows</b>                            | <b><u>Cash flows from financing ativities</u></b>   |
| Changes in operating assets and liabilities        | Interest paid                                       |
| <b>Cash generated from operating activities</b>    | Dividends paid to owners of the Company             |
| Other operating cash flows                         | Net new borrowings                                  |
| <b>Net cash from operating activities</b>          | Other financing cash flows                          |
|  | <b>Net cash from (used in) financing activities</b> |
|  |   |
|  | <b>Net increase (decrease) in cash</b>              |

**Self Study**

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# Example: Oishi Group Plc. (OISHI)

## Statement of Financial Position

| Assets                                 | Note  | CONSOLIDATED<br>FINANCIAL STATEMENTS |                      | (in Baht)<br>SEPARATE<br>FINANCIAL STATEMENTS |                      |
|--|-------|--------------------------------------|----------------------|---|----------------------|
|  |       | 31 December                          |                      | 31 December                                   |                      |
|  |       | 2014                                 | 2013                 | 2014  | 2013                 |
| <b>Current assets</b>                  |       |                                      |                      |   |                      |
| Cash and cash equivalents              | 6     | 141,995,990                          | 122,251,278          | 45,606,997                                    | 102,205,888          |
| Current investment                     | 7     | -                                    | 6,500,000            | -   | -                    |
| Trade accounts receivable              | 5, 8  | 511,362,550                          | 542,823,768          | 54,522,407                                    | 71,692,175           |
| Other receivables                      | 5, 9  | 157,393,163                          | 117,207,519          | 57,160,680                                    | 36,337,874           |
| Dividends receivable from a subsidiary | 5     | -                                    | -                    | -   | 419,999,000          |
| Short-term loans to a subsidiary       | 5     | -                                    | -                    | 2,214,000,000                                 | 1,805,000,000        |
| Inventories                            | 10    | 441,919,679                          | 370,922,411          | 73,860,950                                    | 66,289,437           |
| Corporate tax refundable               |       | 6,781,392                            | 16,559,340           | 6,062,257                                     | 7,260,077            |
| Other current assets                   |       | 48,552,926                           | 37,601,797           | 11,305,349                                    | 15,114,653           |
| <b>Total current assets</b>            |       | <b>1,308,005,700</b>                 | <b>1,213,866,113</b> | <b>2,462,518,640</b>                          | <b>2,523,899,104</b> |
| <b>Non-current assets</b>              |       |                                      |                      |   |                      |
| Investments in subsidiaries            | 11    | -                                    | -                    | 669,772,780                                   | 578,396,775          |
| Other long-term investment             | 7     | 3,660,000                            | 3,660,000            | -   | -                    |
| Property, plant and equipment          | 12    | 7,376,017,068                        | 6,144,822,180        | 978,840,410                                   | 1,152,093,705        |
| Intangible assets                      | 13    | 26,691,027                           | 33,794,628           | 15,373,062                                    | 21,987,197           |
| Leasehold rights                       | 14    | 57,682,485                           | 64,954,437           | 32,894,353                                    | 35,352,100           |
| Deferred tax assets                    | 15    | 112,585,551                          | 85,604,844           | 10,918,340                                    | 11,836,679           |
| Other non-current assets               | 5, 16 | 246,907,055                          | 361,069,279          | 195,334,335                                   | 178,232,439          |
| <b>Total non-current assets</b>        |       | <b>7,823,543,186</b>                 | <b>6,693,905,368</b> | <b>1,903,133,280</b>                          | <b>1,977,898,895</b> |
| <b>Total assets</b>                    |       | <b>9,131,548,886</b>                 | <b>7,907,771,481</b> | <b>4,365,651,920</b>                          | <b>4,501,797,999</b> |



# Example: Oishi Group Plc. (OISHI)

## Statement of Financial Position

|  |       | CONSOLIDATED<br>FINANCIAL STATEMENTS |                      | SEPARATE<br>FINANCIAL STATEMENTS |                      |
|--|-------|--------------------------------------|----------------------|----------------------------------|----------------------|
|  |       | 31 December                          |                      | 31 December                      |                      |
|  |       |                                      |                      | (in Baht)                        |                      |
| Liabilities and equity   | Note  | 2014                                 | 2013                 | 2014                             | 2013                 |
| <b>Current liabilities</b>                                     |       |                                      |                      |                                  |                      |
| Short-term loans from financial institutions                   | 17    | 873,000,000                          | 63,000,000           | -                                | -                    |
| Current portion of long-term loan from a financial institution | 17    | 400,000,000                          | -                    | 400,000,000                      | -                    |
| Trade accounts payable   | 5, 18 | 1,179,113,072                        | 1,321,592,899        | 476,469,053                      | 472,934,844          |
| Other payables   | 5, 19 | 909,783,796                          | 692,812,062          | 409,719,036                      | 349,877,139          |
| Accounts payable-asset acquisition                             | 5, 20 | 313,782,555                          | 283,332,636          | 19,415,243                       | 153,683,394          |
| Short-term loans from subsidiaries                             | 5, 17 | -                                    | -                    | 89,000,000                       | 141,000,000          |
| Current portion of finance lease liabilities                   | 17    | 16,753,313                           | -                    | -                                | -                    |
| Income tax payable   |       | 532,451                              | -                    | -                                | -                    |
| Other current liabilities                                      |       | 53,352,006                           | 42,627,824           | 20,823,361                       | 14,236,116           |
| <b>Total current liabilities</b>                               |       | <b>3,746,317,193</b>                 | <b>2,403,365,421</b> | <b>1,415,426,693</b>             | <b>1,131,731,493</b> |
| <b>Non-current liabilities</b>                                 |       |                                      |                      |                                  |                      |
| Long-term loan from a financial institution                    | 17    | 600,000,000                          | 1,000,000,000        | 600,000,000                      | 1,000,000,000        |
| Debentures   | 17    | 1,000,000,000                        | 1,000,000,000        | 1,000,000,000                    | 1,000,000,000        |
| Deferred income  |       | -                                    | 19,935               | -                                | -                    |
| Finance lease liabilities                                      | 17    | 49,833,547                           | -                    | -                                | -                    |
| Employee benefit obligations                                   | 21    | 72,050,509                           | 51,141,062           | 51,616,959                       | 37,173,961           |
| Other non-current liabilities                                  | 22    | 29,147,506                           | 44,817,109           | -                                | -                    |
| <b>Total non-current liabilities</b>                           |       | <b>1,751,031,562</b>                 | <b>2,095,978,106</b> | <b>1,651,616,959</b>             | <b>2,037,173,961</b> |
| <b>Total liabilities</b>                                       |       | <b>5,497,348,755</b>                 | <b>4,499,343,527</b> | <b>3,067,043,652</b>             | <b>3,168,905,454</b> |



# Example: Oishi Group Plc. (OISHI)

## Statement of Financial Position

|   |      | CONSOLIDATED<br>FINANCIAL STATEMENTS |               | SEPARATE<br>FINANCIAL STATEMENTS |               |
|---|------|--------------------------------------|---------------|----------------------------------|---------------|
|   |      | 31 December                          |               | 31 December                      |               |
| Liabilities and equity                          | Note | 2014                                 | 2013          | 2014                             | 2013          |
| <i>Equity</i>                                   |      |                                      |               |                                  |               |
| Share capital:                                  | 23   |                                      |               |                                  |               |
| Authorised share capital                        |      | 375,000,000                          | 375,000,000   | 375,000,000                      | 375,000,000   |
| Issued and paid-up share capital                |      | 375,000,000                          | 375,000,000   | 375,000,000                      | 375,000,000   |
| Premium on ordinary shares                      | 24   | 609,402,184                          | 609,402,184   | 609,402,184                      | 609,402,184   |
| Retained earnings                               |      |                                      |               |                                  |               |
| Appropriated to legal reserve                   | 24   | 37,500,000                           | 37,500,000    | 37,500,000                       | 37,500,000    |
| Unappropriated                                  |      | 2,570,340,984                        | 2,349,668,016 | 276,706,084                      | 310,990,361   |
| Other components of equity                      |      |                                      |               |                                  |               |
| Currency translation differences                |      | (2,173,748)                          | (1,661)       | -                                | -             |
| Revaluation surplus on land                     |      | 36,859,415                           | 36,859,415    | -                                | -             |
| Equity attributable to owners<br>of the Company |      | 3,626,928,835                        | 3,408,427,954 | 1,298,608,268                    | 1,332,892,545 |
| Non-controlling interests                       |      | 7,271,296                            | -             | -                                | -             |
| Total equity                                    |      | 3,634,200,131                        | 3,408,427,954 | 1,298,608,268                    | 1,332,892,545 |
| Total liabilities and equity                    |      | 9,131,548,886                        | 7,907,771,481 | 4,365,651,920                    | 4,501,797,999 |



# Example: Oishi Group Plc. (OISHI)

## Statement of Comprehensive Income

(in Baht)

|   | Note  | CONSOLIDATED<br>FINANCIAL STATEMENTS |                       | SEPARATE<br>FINANCIAL STATEMENTS |                      |
|---|-------|--------------------------------------|-----------------------|----------------------------------|----------------------|
|   |       | For the year ended 31 December       |                       | For the year ended 31 December   |                      |
|   |       | 2014                                 | 2013                  | 2014                             | 2013                 |
| <b>Income</b>                           |       |                                      |                       |                                  |                      |
| Revenue from sale of goods              | 5, 33 | 12,404,500,202                       | 12,208,111,921        | 6,268,947,303                    | 5,994,378,586        |
| Dividend income from subsidiaries       | 5, 11 | -                                    | -                     | 258,319,376                      | 318,489,207          |
| Interest income                         |       | 1,588,193                            | 2,227,774             | 80,916,072                       | 43,377,082           |
| Net gain on foreign exchange            |       | 28,495,825                           | -                     | 109,265                          | -                    |
| Other income                            | 5, 26 | 81,762,365                           | 58,897,896            | 61,394,059                       | 28,546,863           |
| <b>Total income</b>                     |       | <b>12,516,346,585</b>                | <b>12,269,237,591</b> | <b>6,669,686,075</b>             | <b>6,384,791,738</b> |
| <b>Expenses</b>                         |       |                                      |                       |                                  |                      |
| Cost of sale of goods                   | 5, 10 | 8,198,527,235                        | 8,209,096,652         | 3,830,786,593                    | 3,660,694,672        |
| Selling expenses                        | 5, 27 | 1,694,919,326                        | 1,679,218,484         | 772,928,495                      | 794,585,831          |
| Administrative expenses                 | 5, 28 | 2,027,035,884                        | 1,758,334,815         | 1,717,146,882                    | 1,545,553,690        |
| Net loss arising from the flooding      | 3     | -                                    | 99,203,123            | -                                | -                    |
| Net loss on foreign exchange            |       | -                                    | 10,966,114            | -                                | -                    |
| Finance costs                           | 5, 31 | 97,099,595                           | 87,085,084            | 81,662,238                       | 48,649,812           |
| <b>Total expenses</b>                   |       | <b>12,017,582,040</b>                | <b>11,843,904,272</b> | <b>6,402,524,208</b>             | <b>6,049,484,005</b> |
| <b>Profit before income tax expense</b> |       | <b>498,764,545</b>                   | <b>425,333,319</b>    | <b>267,161,867</b>               | <b>335,307,733</b>   |
| Income tax benefit (expense)            | 32    | 21,995,788                           | 30,238,724            | (4,900,548)                      | (4,158,889)          |
| <b>Profit for the year</b>              |       | <b>520,760,333</b>                   | <b>455,572,043</b>    | <b>262,261,319</b>               | <b>331,148,844</b>   |



# Understand Equity Account

| Equity                                     | 2012    | 2013    | 2014    | 2015    |
|--|---------|---------|---------|---------|
| Issued and paid-up share capital           | 375.0   | 375.0   | 375.0   | 375.0   |
| Premium on ordinary shares                 | 609.4   | 609.4   | 609.4   | 609.4   |
| Retained earnings                          | 0.0     | 0.0     | 0.0     | 0.0     |
| Appropriated to legal reserve              | 37.5    | 37.5    | 37.5    | 37.5    |
| Unappropriated                             | 2,062.4 | 2,349.7 | 2,570.3 | 3,007.9 |
| Other components of equity                 | 0.0     | 0.0     | 0.0     | 0.0     |
| Currency translation differences           | 0.0     | 0.0     | 0.0     | -1.7    |
| Revaluation surplus on land                | 36.9    | 36.9    | 34.6    | 36.9    |
| Total equity attributable to owners of the | 3,121.2 | 3,408.4 | 3,626.8 | 4,064.9 |

Change in retained earnings:  
 $Beg_0 + NP_1 - Dividend_1 = End$

**Par value = paid-up capital / Number of paid-up shares**

**Book value (BV) = Total common shareholders' equity  
 (Bt/share) / Number of paid-up common shares**

**Goal: Maximize shareholders' value**

**Share price = Market value of common shares  
 / Number of paid-up common shares**

**P/BV ratio = share price / Book value per share**

\* Market value of common shares is referred to as **market capitalization** of common shares

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# Example: Understand Equity Account

| Bt  | 2014             | 2015             |
|---|------------------|------------------|
| Cash  | 75,000           | 61,000           |
| Account receivables                               | 500,000          | 574,000          |
| Inventories                                       | 620,000          | 690,000          |
| Total current assets                              | 1,195,000        | 1,325,000        |
| Non-current assets                                | 1,230,000        | 1,300,000        |
| <b>Total assets</b>                               | <b>2,425,000</b> | <b>2,625,000</b> |
| Account payable                                   | 250,000          | 270,000          |
| Short-term loans                                  | 500,000          | 580,000          |
| Total current liabilities                         | 750,000          | 850,000          |
| Long-term loans                                   | 1,000,000        | 1,000,000        |
| <b>Total liabilities</b>                          | <b>1,750,000</b> | <b>1,850,000</b> |
| Paid-up capital (25,000 shares)                   | 250,000          | 250,000          |
| Share premium                                     | 25,000           | 25,000           |
| Retained earnings                                 | 400,000          | 500,000          |
| <b>Total shareholders' equity</b>                 | <b>675,000</b>   | <b>775,000</b>   |
| <b>Total liabilities and shareholders' equity</b> | <b>2,425,000</b> | <b>2,625,000</b> |
| Share price                                       |                  | 100              |

1. Calculate par value, book value and P/BV ratio for 2015.

2. Calculate market capitalization at 2015-end.

3. Sales in 2015 was Bt4mn and net profit margin was 7.65%. What was the dividend payment in 2015? (The dividend payment was paid at the end of the year)



# Analysis of Financial Statements

- Analysts analyze financial statements to:
  - evaluate companies' **past trends**;
  - compare the performance with peers to determine **companies' relative competitiveness**;
  - find **relationships** and **key drivers of value**;
  - looks for **warning signs**;

The purpose of company analysis is to decide whether a stock is a good investment. This involves examining a firm's past performance, but more important, its **future prospects**



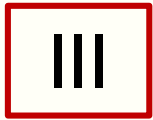
What do analysts look for on financial statements?

- Trends (improving vs. decreasing)
- Relative amounts (large vs. small)
- Comparison with previous cycles, and with peers
- Relationships
- Warning signs

Key items: **revenue (top line)**, **net profit (bottom line)**,  
assets, liabilities, equity

Investors generally prefer high **growth** and high **ROE**  
companies with an acceptable level of **risk**.





# Example: Evaluating Trends

## Oishi Group Public Company Limited

| (Bt mn)                    | 2011    | 2012     | 2013     | 2014     | 2015     | % growth YoY |        |       |       | CAGR         | CAGR         |
|----------------------------|---------|----------|----------|----------|----------|--------------|--------|-------|-------|--------------|--------------|
|                            |         |          |          |          |          | 2012         | 2013   | 2014  | 2015  | 2011-15      | 2013-15      |
| Total assets               | 5,718.8 | 7,260.0  | 7,907.8  | 9,131.7  | 9,088.9  | 27.0%        | 8.9%   | 15.5% | -0.5% | 12.3%        | 7.2%         |
| Total liabilities          | 2,814.0 | 4,138.8  | 4,499.3  | 5,497.3  | 5,005.6  | 47.1%        | 8.7%   | 22.2% | -8.9% | 15.5%        | 5.5%         |
| Total equity               | 2,904.8 | 3,121.2  | 3,408.4  | 3,626.8  | 4,064.9  | 7.4%         | 9.2%   | 6.4%  | 12.1% | 8.8%         | 9.2%         |
| Revenue from sale of goods | 9,501.1 | 11,634.4 | 12,208.1 | 12,404.5 | 12,878.8 | 22.5%        | 4.9%   | 1.6%  | 3.8%  | 7.9%         | 2.7%         |
| Profit for the year        | 808.1   | 653.8    | 455.6    | 525.1    | 712.2    | -19.1%       | -30.3% | 15.3% | 35.6% | <b>-3.1%</b> | <b>25.0%</b> |
| ROE                        | 27.82%  | 21.70%   | 13.95%   | 14.93%   | 18.52%   |              |        |       |       |              |              |

$(455.6/808.1)^{(1/2)}-1$        $(712.2/455.6)^{(1/2)}-1$

### กราฟราคาหุ้น OISHI



\*ROE in 2017 is 25%



(Discussion: What is your analysis on the above?)

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# DuPont Framework

- The DuPont system shows the interrelationship between financial ratios.
- DuPont framework determine a firm attempts to **maximize its shareholders' wealth** by decomposing **ROE** into:
  - expense control (operating efficiency in generating profits from sales)
  - asset utilization (operating efficiency in generating sales from assets)
  - debt utilization.

ROA

**ROE = Profit margin x Asset utilization x Equity multiplier**

**ROE = (Net profit/Sales) x (Sales/Total assets) x (Total assets/Common equity)**

**The three components are at the cost of one another.**

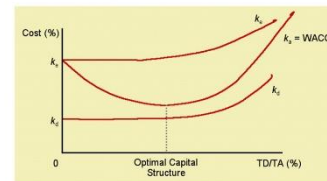


Optimum level of gross profit & operating profit



Optimum level of ROE

The Optimal Capital Structure

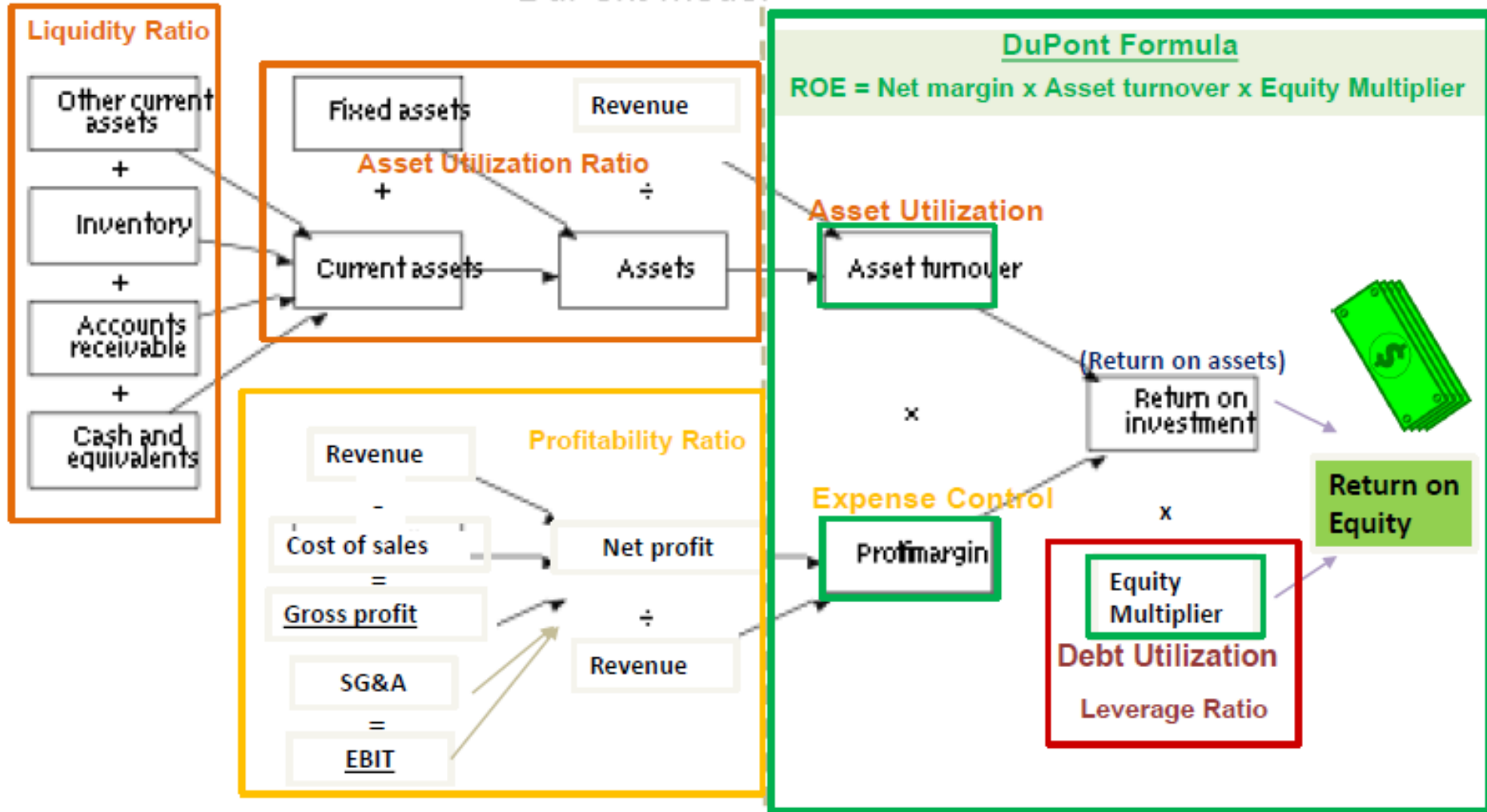


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# DuPont Framework: Interrelationship between Financial Ratios

DuPont Model





# Financial Ratios

- The important categories of financial ratios include:
  - Profitability ratios
    - profitability relative to capital employed
    - profitability relative to sales
  - Activity ratios (asset utilization ratio) measures how efficient a firm utilize its assets
  - Liquidity ratios measures liquidity risk
  - Solvency ratios (debt utilization ratio) measures long-term solvency and default risk



# Financial Ratios Formulas

| Key Financial Ratios  |  |  |
|---|--|--|
| Ratios  | Formulas   | Remarks  |
| อัตราส่วนสภาพคล่อง / ความสามารถในการชำระหนี้ระยะสั้น / การใช้ประโยชน์จากสินทรัพย์ระยะสั้น<br><b>Liquidity Ratio/ Short-Term Solvency Ratios</b> |  | Measuring the firm's exposure to the risk that it will not be able to meet its short-term obligations.   |
| อัตราส่วนหมุนเวียน (Current Ratio)  | Current assets / Current liabilities                 | There is a trade-off between minimizing liquidity risk and tying up more and more cash in net working capital. In fact, a very high current ratio can be indicative of an unhealthy firm that is having problems collecting its receivables or reducing its inventory or both. |
| อัตราส่วนหมุนเวียนเร็ว (Quick Ratio or Acid Test Ratio)   | (Current assets - Inventory) / Current liabilities   |  |
| อัตราส่วนเงินสด (Cash ratio)  | (Cash + Marketable securities) / Current liabilities |  |
| อัตราส่วนการใช้ประโยชน์จากสินทรัพย์<br><b>Asset Turnover / Asset Utilization Ratios</b>   |  |  |
| อัตราส่วนการใช้ประโยชน์จากสินทรัพย์หมุนเวียน  |  | Measuring the efficiency of working capital management.  |
| อัตราหมุนเวียนของลูกหนี้ (Accounts Receivable Turnover)   | Sales/Average accounts receivable                    | Measuring the speed with which the firm turns accounts receivable into cash.   |
| จำนวนวันรับชำระหนี้ (Days Accounts Receivable Outstanding) (a)  | 365/Account receivable turnover                      | Measuring the speed with which the firm turns account payable into working capital.  |
| อัตราหมุนเวียนของสินค้าคงเหลือ (Inventory Turnover)   | Cost of goods sold/Average inventory                 | Measuring the speed with which the firm turns inventory into sales.  |
| จำนวนวันสินค้าอยู่ในคลัง (Days Inventory Held) (b)  | 365/Inventory turnover                               |  |
| อัตราหมุนเวียนของเจ้าหนี้การค้า (Accounts Payable Turnover)   | Purchases/Average accounts payable                   |  |
| จำนวนวันจ่ายชำระเจ้าหนี้ (Days Accounts Payable Outstanding) (c )   | 365/Accounts payable turnover                        |  |
| วงจรเงินสด (Cash Conversion Cycle or Required Financing Period)   | (b) + (a) - (c )                                     | To get an estimate of how much financing the firm needs to raise to fund working capital needs.  |
| อัตราส่วนการใช้ประโยชน์จากสินทรัพย์รวมและสินทรัพย์ถาวร  |  | Measuring the efficiency of total assets and fixed assets management.  |
| อัตราหมุนเวียนของสินทรัพย์รวม (Total Asset Turnover)  | Sales/Average total assets                           |  |
| อัตราส่วนสินทรัพย์รวมต่อยอดขาย (Capital Intensity Ratio)  | Average total assets/Sales                           |  |
| อัตราหมุนเวียนของสินทรัพย์ไม่หมุนเวียน (Non-Current Asset Turnover)   | Sales/Average non-current assets                     |  |

## Self Study

Sirinatta Techasiriwan

สิรินัทธนา เตชะศิริวารณ



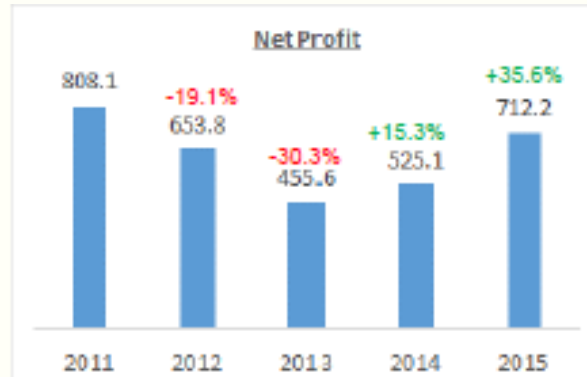
# Financial Ratios Formulas (cont.)

| Key Financial Ratios (cont.)  |   |   |
|---|---|---|
| Ratios  | Formulas  | Remarks   |
| อัตราส่วนอัตราส่วนความมั่นคงทางการเงิน / ความสามารถในการชำระหนี้ระยะยาว<br><b>Leverage Ratio/ Long-Term Solvency Ratios</b> |   | Measuring long-term solvency (a firm's capacity to meet interest and principle payments in the long and default risk (the risk that a fixed obligation will not be met).  |
| <b>Debt Ratio</b>   |   |   |
| อัตราส่วนสินทรัพย์รวมต่อส่วนของผู้ถือหุ้น (Equity Multiplier)   | Total assets/Total equity                         |   |
| อัตราส่วนหนี้สินรวม (Total Debt Ratio)  | Total debts/Total assets                          |   |
| อัตราส่วนหนี้สินต่อทุน (Debt to Equity Ratio)   | Total debts/Total equity                          |   |
| อัตราส่วนหนี้สินระยะยาวต่อเงินทุนระยะยาว (Long-Term Debt to Total Capitalization Ratio)                                     |   |   |
| อัตราส่วนความเป็นเจ้าของ (Proprietary Ratio)  |   |   |
| <b>Interest Coverage Ratio</b>  |   |   |
| อัตราส่วนความสามารถในการจ่ายดอกเบี้ย (Interest Coverage Ratio)  | EBIT / Interest expenses                          | Measuring capacity of the firms to make interest payments from earnings.  |
| อัตราส่วนความสามารถในการทำกำไร<br><b>Profitability Ratios</b>   |   | Measuring the efficiency in generating profits from sales.  |
| <b>Profitability Relative to Sales</b>  |   |   |
| อัตรากำไรขั้นต้น (Gross Profit Margin)  | (Sales - Cost of Sales) / Sales                   |   |
| อัตรากำไรจากการดำเนินงาน (Operating Profit Margin)  | EBIT / Sales                                      |   |
| อัตรากำไรสุทธิ (Net Profit Margin)  | Net profit / Sales                                |   |
| <b>Profitability Relative to Capital Employed</b>   |   |   |
| อัตราผลตอบแทนต่อเงินลงทุน (Return on Investment (ROI) / Return on Assets (ROA))   | Net profit / Total assets                         | Measuring operating efficiency in generating profits from assets, but ignoring how the assets are financed. By dividing by total assets, the ROA does understate the profitability of firms that have substantial current assets. |
| อัตราผลตอบแทนจากการดำเนินงาน (Basic Earning Power (BEP) หรือ Operating Income Return on Investments)                        | EBIT / Total assets                               | Measures profitability from the prospective of the interest-bearing debt investors, equity investors and income tax payment.  |
| อัตราผลตอบแทนต่อเงินลงทุน (Return on Invested Capital (ROIC))   | (EBIT x (1 - Tax rate)) / <b>Invested Capital</b> | Measures profitability from the prospective of the interest-bearing debt and equity investors.  |
| อัตราผลตอบแทนต่อส่วนของผู้ถือหุ้น (Return on Equity (ROE))  | Net profit / Total equity                         | Measures profitability from the prospective of the equity investor.   |





# Example: Finding Relationships



| Measures of Profitability: Profitability Ratios | 2011   | 2012   | 2013   | 2014   | 2015   |
|---|--------|--------|--------|--------|--------|
| Gross profit margin                             | 30.98% | 30.98% | 32.76% | 33.91% | 34.41% |
| Operating profit margin (EBIT margin)           | 9.20%  | 5.79%  | 4.20%  | 4.80%  | 6.31%  |
| Net profit margin                               | 8.51%  | 5.62%  | 3.73%  | 4.23%  | 5.53%  |
| ROE   | 27.82% | 21.70% | 13.95% | 14.93% | 18.52% |

| Asset Efficiency: Asset Turnover Ratios | 2011 | 2012 | 2013  | 2014 | 2015 |
|---|------|------|-------|------|------|
| Total asset turnover                    | 1.66 | 1.79 | 1.61  | 1.46 | 1.41 |
| Non-current asset turnover              | 2.74 | 2.72 | 2.07  | 1.71 | 1.69 |
| Current asset turnover                  | 4.22 | 5.35 | 10.06 | 9.48 | 7.86 |

| (Bt mn)      |         |         |         |         |         | % growth YoY |      |       |       |
|--------------|---------|---------|---------|---------|---------|--------------|------|-------|-------|
|              | 2011    | 2012    | 2013    | 2014    | 2015    | 2012         | 2013 | 2014  | 2015  |
| Total assets | 5,718.8 | 7,260.0 | 7,907.8 | 9,131.7 | 9,088.9 | 27.0%        | 8.9% | 15.5% | -0.5% |

**QUIZ**



**(Discussion: What is your analysis of the above?)**

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# Warning signs!

The following financial statement developments could indicate a company heading for financial problems:

- Inventories and receivables growing faster than sales
- A falling current ratio, caused by current liabilities increasing faster than current assets
- A high and rapidly increasing debt-to-equity ratio, suggesting problems with servicing debt in future
- Cash flow from operations dropping below net income
- Presence of lots of indecipherable off-balance sheet accounts and extraordinary income entries





# Quality of Earnings Examples

| Example   | Potential Interpretation |
|---|--------------------------|
| Firm A recognizes revenue early using bill-and-hold sales | <p>?</p>                 |
| Firm B capitalizes product development expenses           |                          |
| Firm C has large amounts of off-balance-sheet financing   |                          |
| Firm D increases its loan-loss reserves                   |                          |





# The Range of Distinctive Patterns of Financial Ratios in Different Industries

## High Net Margin

- **Health care (>50%)**
- Banks, Financial services & Investment firms (20-40%)
- Green & renewable energy (23-25%)
- Real estate (22-24%)
- **Tobacco (17-18%)**
- **Information services & Internet (16-18%)**
- Utility (16-17%)
- Alcoholic beverage (16-17%)

## High Sales/Capital

- **Health care (3.3)**
- Grocery & Food (3.3)
- Online & Computer service (2.7-2.9)
- Real estate (22-24%)
- Retail Automotive (2.5-2.7)
- Retail Building Supply (2.5-2.6)
- Food wholesaler (2.2-2.3)
- Retail distributor (2.2-2.3)
- Furniture & home furnishing (2.1-2.2)

## High Debt/Capital

- Banks, investment firms, financial services (0.6-0.75)
- Utility (0.65-0.7)
- Retail Automotive (0.55-0.6)
- Airlines (0.55-0.6)
- Green & renewable energy (0.5-0.6)
- Engineering & construction (0.5-0.55)
- Oil & gas, power (0.5-0.55)
- Real estate (0.5-0.55)

Source: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datacurrent.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datacurrent.html)





# The Range of Distinctive Patterns of Financial Ratios in Different Industries (cont.)

## Top ROE Industries (Emerging Market)

|  | High margin | High Turnover | High Debt |
|--|-------------|---------------|-----------|
| Healthcare Information and Technology (78.5%)    | X           | X             |           |
| Tobacco (45.9%)                                  | X           |               |           |
| Information Services, online & internet (20-30%) | X           | X             |           |
| Alcoholic Beverage (17-18%)                      | X           |               |           |
| Grocery and Food (17-18%)                        |             | X             |           |
| Computer Services (17-18%)                       |             | X             |           |
| Furniture & Home Furnishings (16-17%)            |             | X             |           |
| Banks & financial services (13-19%)              | X           |               | X         |
| Rubber & Tires (14-15%)                          |             |               |           |
| Restaurant/Dining (14-15%)                       |             |               |           |
| Drugs (Pharmaceutical) (14-15%)                  |             |               |           |

Source: [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datacurrent.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datacurrent.html)



# Profitability Relative to Capital Employed: Return on invested capital (ROIC)

- **Return on invested capital (ROIC)** measures operating efficiency in generating profits from **capital invested**.

$$\text{ROIC}_1 = [\text{NOPAT}_1] / [\text{Invested Capital}_0]$$

- **Net operating profit after tax (NOPAT)** is the profit to be distributed to investors who contributed the invested capital into the firm and require returns on their funds. Operating income is **before any capital expenses** or financing expenses.
- **Capital invested (invested capital or operating capital)** in a firm includes all capital that have **claims** in the firm's **net operating profit after tax (NOPAT)**.

Are short-term debts included in invested capital?

THINK!

$$\text{ROIC}_1 = [\text{EBIT}_1 (1 - \text{tax rate}_1)] / [\text{BV of interest-bearing liabilities}_0 + \text{BV of equity}_0 - \text{Excess Cash}_0]$$

Financing approach

$$\text{ROIC}_1 = [\text{EBIT}_1 (1 - \text{tax rate}_1)] / [\text{Total assets}_0 - \text{Excess Cash}_0 - \text{BV of Non-interest-bearing liabilities}_0]$$

Operating approach

\* The book value (BV) of invested capital can be measured **at the beginning of the period** or as an **average of beginning and ending values**.



# Financial Statement Forecasting

- Financial projection model contains forecasts of a company's **balance sheet, income statement, and cash flows statement**, in order to determine **future profitability and financial status**.
- The **more confident** the investor is **about the estimated inputs (assumptions)** used in financial projection model, the **more likely the investor is to take an investment position** in the stock that is identified overvalued or undervalued.
- Analysts also consider the sensitivity of a model value to each of its inputs or assumptions.



## Key assumptions:

- Macro assumptions that *impacts the firm's businesses*
- **Key drivers of revenues**
- **Key determinations of fixed costs**
- **Key determinations of variable costs**
- Expansion plan and **CAPEX**
- **Financing plans** and interest on debts
- Tax rate
- Extraordinary items

### Company business

- Company's products / services, customers / markets
- Composition / key drivers and growth in sales, composition of cost
- Company's structure (subsidiaries, affiliates)

### Company strategy

- Management capability, primary strategy, shareholders, corporate governance
- Sources of competitive advantage, strength and weakness

### Recent developments

- Recent developments, expansions, new products



# Key assumptions

- Focus on the ones that give major impacts on businesses
- Ignore minor ones



# Example: Key Business Drivers I (KBANK)



ธนาคารกสิกรไทย  
开泰银行 KASIKORNBANK



## 2017 Financial Targets

| Consolidated                | 2016 Actual | 2016 Targets  | 2017 Targets | Notes   |
|-----------------------------|-------------|---------------|--------------|---|
| ROE                         | 13.23%      | N/A           | N/A          |   |
| ROA                         | 1.49%       | N/A           | N/A          |   |
| NIM                         | 3.52%       | 3.3-3.5%      | 3.3-3.5%     | Ranking maintained among large commercial banks (Page 52)   |
| Loan Growth                 | 5.45% YoY   | 6-7%          | 4-6%         | Decent and sustainable loan growth; in line with economic growth; subject to the success of government measures (Page 9 and 60-63)                                    |
| Non-Interest Income Growth* | 1.96% YoY   | Up to 10%     | Up to 5%     | Sensible growth from fee-driven businesses, reflects large base effect; in line with the economy and uncertainty factors, e.g. national e-payment (Page 10 and 54-58) |
| Non-Interest Income Ratio   | 41.54%      | About 40%     | About 40%    |   |
| Cost to Income Ratio**      | 41.63%      | 45.0 – 47.0%  | Mid-40s      | Focus on cost management under pressure from income slowdown (Page 12)  |
| Credit Cost per year (bps)  | 204 bps     | Up to 190 bps | 200-225 bps  | NPL ratio will start to fall in 4Q16; stabilize and move in a narrow range in 2017; credit cost will lag the NPL movement, and peak in 2017                           |
| NPL Ratio (Gross)***        | 3.32%       | 3.5-3.6%      | 3.3-3.4%     | (Page 11, 42 and 64-65)   |

Note: \* Non-Interest Income Includes Net Premium Earned - net (Net Premium Earned less Underwriting Expenses) from Muang Thai Life Assurance PCL (MTL); KBank has a 38.25% economic interest in MTL; on the consolidated basis, Bancassurance fees are not included in net fee income, due to the elimination of inter-company transactions (the accounting treatment from the Muang Thai Group Holding consolidation); Non-Interest Income = Total Operating Income - net less Interest Income - net

\*\* Cost to Income Ratio = Total Other Operating Expenses to Total Operating Income - net (Total Operating Income less Underwriting Expenses)

\*\*\* NPL Ratio (Gross) = NPL (gross) to total loans; NPL (gross) used in the calculation are loans to general customers and loans to financial institutions that are non-performing loans; total loans used in the calculation are loans to general customers and loans to financial institutions

Source: Investor Presentation as of 4Q16, February 2017

บริการลูกค้าประทับใจ

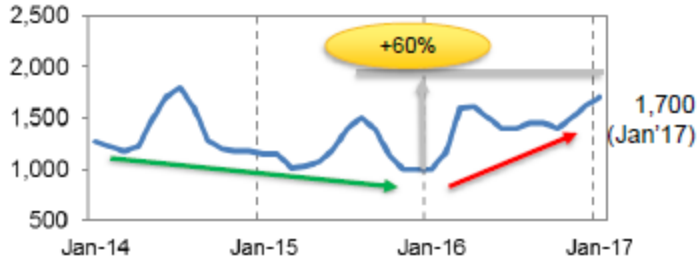


# Example: Key Business Drivers II

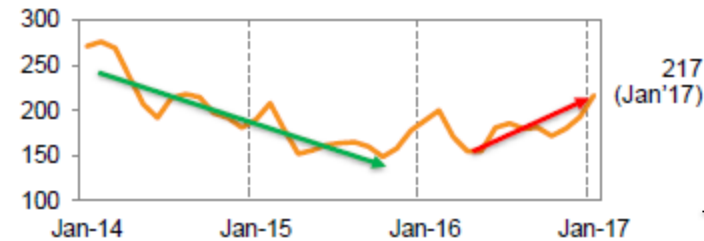
## (TUF) (cont.)

### 2017 Guidance

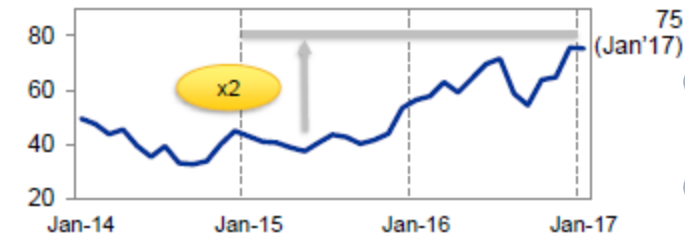
Skipjack tuna raw material prices (USD/ton)



White shrimp raw material prices (THB/kg. of 60 pcs./kg)



Salmon raw material prices (NOK/kg)



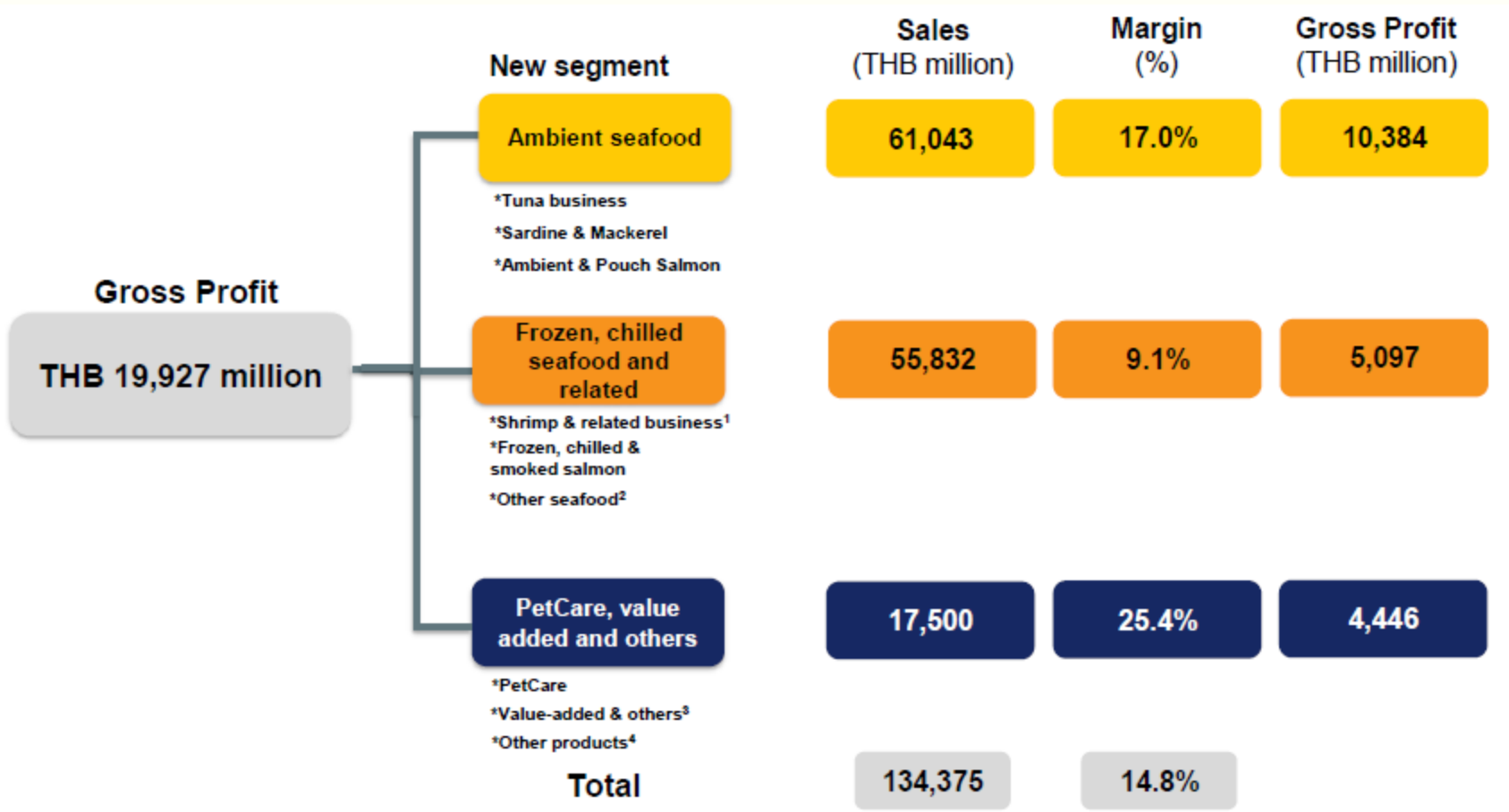
Source: FY2016 Results Presentation, February 2017

| FY 2017                 |  |
|-------------------------|--|
| Sales                   | THB 150bn ( +15% YoY)                                  |
| GPM                     | 15-16% due to recovery of raw material price situation |
| SG&A                    | 10%  |
| Effective interest rate | No material change from 2016                           |
| Effective tax rate      | 15%  |
| CAPEX                   | Approx. THB 4.8bn                                      |
| Dividend policy         | At least 50% dividend payout                           |

| Category                        | Highlight  |
|---------------------------------|--|
| ① Operation improvement         | Continue to profitably grow market share in European ambient markets<br>Improved profitability of the tuna business (COSI and Private Label business)<br>MerAlliance salmon business improvement |
| ② M&A / Post Merger Integration | Successfully drive growth from investment in Red Lobster<br>Improved business integration and collaboration globally<br>Divest the loss-making fishing fleet business by 1H17                    |
| ③ New Businesses                | Develop King Oscar as a global brand and grow related business<br>Launch Tuna Oil business (Marine Ingredients)<br>Accelerate Global Foodservice and Emerging Markets initiatives                |
| ④ Innovation                    | Accelerate Gii commercialization, both on new products and processes initiatives   |
| ⑤ Sustainability                | 'Sea Change' and Tuna Commitment sustainability programs<br>Demonstrate leading capabilities in responsible sourcing and fair labor  |



# Example: Key Business Drivers II (TUF) (cont.)



Remark: <sup>1</sup>Shrimp & related business includes frozen shrimp, lobster, shrimp feed and value-added shrimp  
<sup>2</sup>Other seafood includes frozen cephalopod, crab, scallop, shellfish and other fish  
<sup>3</sup>Value-added business includes ready-to-eat products, maguro & cephalopod sashimi, local products, bakery products and snack  
<sup>4</sup>Other products include scrap, fishery and others



Source: FY2016 Results Presentation, February 2017



# How to make assumptions?

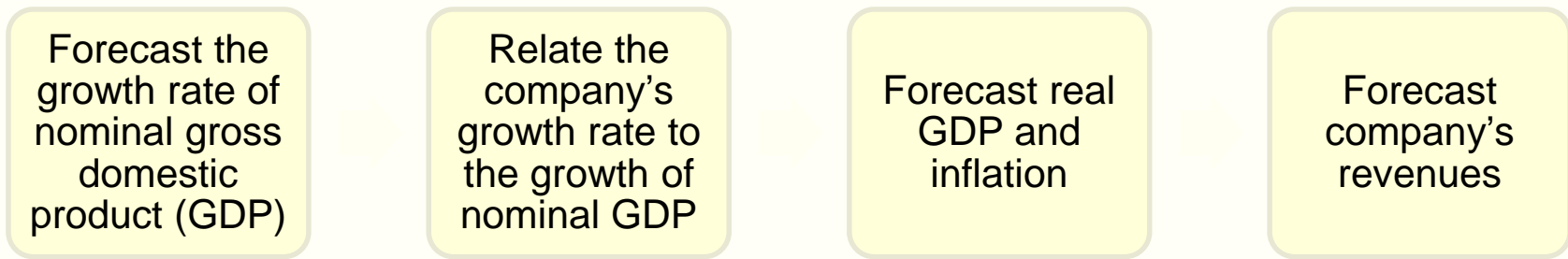
- Repeat historical patterns only if there are no fundamental changes
- Accompany **fundamental change** into assumptions and forecasts.....



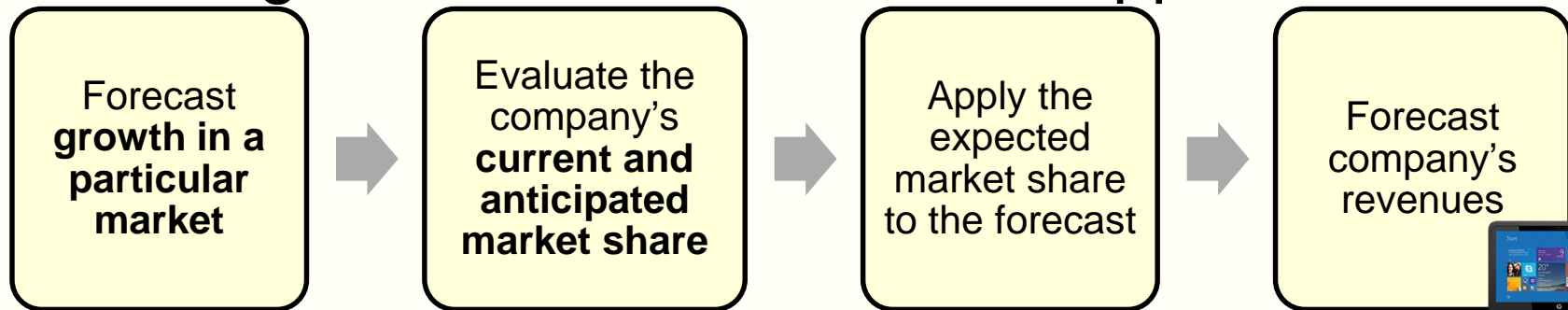
# IV Steps in Financial Statement Forecasting

## Forecasting REVENUE

### “Growth relative to GDP growth” approach



### “Market growth and market share” approach



# IV Steps in Financial Statement Forecasting (cont.)

## Forecasting COSTS

- Cost of goods sold: focus on gross margins
- Generally forecasted as a **percentage of sales and can be broken down by product line or segment**
- Consider a company's hedging activity that may affect costs of raw materials
- Compare with competitors' gross margins.

Selling, general, and administrative (SG&A) expenses: focus on type of expense

- Some SG&A expenses vary with cost of goods sold, whereas other SG&A expenses are relatively **fixed** (e.g., overhead)
- Benchmarking against competitors may be useful

Nonoperating costs: depends on the type of cost

- **Interest income varies with cash and investments, whereas interest expense varies with debt**
- Taxes are affected by the jurisdiction and the type of business



# IV Steps in Financial Statement Forecasting (cont.)

- **BALANCE SHEET modeling** is the process of forecasting a company's balance sheet based on the following:

- **Items that vary with revenues** (e.g., accounts receivable)

- Items that are the result of **investment** (e.g., gross plant, property, and equipment)

- Items that flow **from the income statement** (e.g., retained earnings)

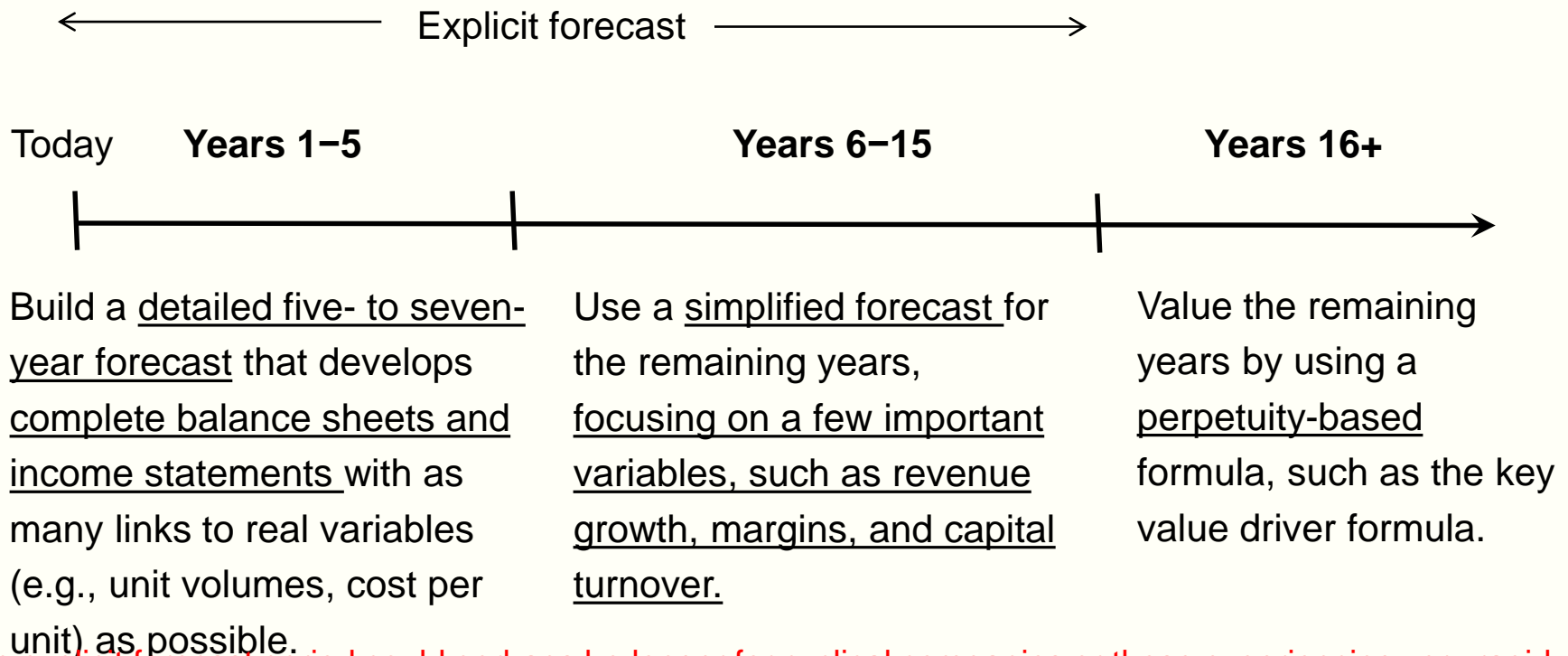
- Items that are the result of **financing decisions** (e.g., trade credits, borrowings, and capital increase)

- Items affected by the level of revenues can often be forecasted by using historical or projected efficiency (e.g., turnover) ratios.
- Forecasts of long-term assets are a function of forecasted capital expenditures and depreciation. Capital expenditures include
  - **maintenance capital expenditures**, needed to sustain the business, and
  - **growth capital expenditures**, needed to expand the business.



# The Length and Detail of the Forecast

- A good forecast model is broken into three time periods:



An explicit forecast period could perhaps be longer for cyclical companies or those experiencing very rapid growth.



# The Length and Detail of the Forecast

- The explicit forecast period must be long enough for the company to reach a steady state, defined by the following characteristics:
  - The company grows at a constant rate and reinvests a constant proportion of its operating profits into the business each year.
  - The company earns a constant rate of return on both existing capital and new capital invested.
- Using a short explicit forecast period, such as five years, typically results in a significant undervaluation of a company or requires heroic long-term growth assumptions in the continuing value.



## A well-structured spreadsheet model

- Separates raw inputs from computations. User input and market data are collected in only a few places.
  - Denote user input and market data each in a different color for easy spotting.
  - Unless specified as user input, numbers should never be hard-coded into a formula.
- Flexible enough to handle multiple scenarios
- Easy to become engrossed in the details of individual line items, but must place the aggregate result in the proper context
  - You can do much more to improve your valuation through a careful analysis of whether your forecast of future ROIC is consistent with the company's ability to compete than by engrossing in too much details.
- Develop an explicit forecast for a number of years and then to value the remaining years by using perpetuity formula



# Components of a Good Model

- Many spreadsheet designs are possible. In the valuation example from the preceding slide, the workbook contains seven worksheets:
  1. Raw historical data from company financials.
  2. Integrated financials based on raw data.
  3. Historical analysis and forecast ratios.
  4. Market data and WACC analysis.
  5. Reorganized financial statements (into NOPLAT and invested capital).
  6. ROIC and free cash flow (FCF) using reorganized financials.
  7. Valuation summary, including enterprise discounted cash flow (DCF), economic profit, and equity valuation computations.

Data generally flows in one direction

| Enterprise DCF Valuation Summary |                             |                       |                       | Economic Profit Valuation Summary |                       |        |                  |
|----------------------------------|-----------------------------|-----------------------|-----------------------|-----------------------------------|-----------------------|--------|------------------|
| Year                             | Free cash flow (\$ million) | Present value at 8.5% | Present value at 8.5% | Year                              | Present value at 8.5% | NOPLAT | Invested capital |
| 2008                             | 1,004                       | 0.822                 | 824.5                 | 2008                              | 17,278                | 1.7%   | 8,506            |
| 2009                             | 1,264                       | 0.850                 | 1,074.5               | 2009                              | 24,127                | 1.8%   | 11,911           |
| 2010                             | 1,521                       | 0.878                 | 1,331.5               | 2010                              | 31,076                | 1.9%   | 15,461           |
| 2011                             | 1,784                       | 0.906                 | 1,614.5               | 2011                              | 38,025                | 2.0%   | 19,011           |
| 2012                             | 2,051                       | 0.933                 | 1,914.5               | 2012                              | 45,074                | 2.1%   | 22,561           |
| 2013                             | 2,324                       | 0.960                 | 2,224.5               | 2013                              | 52,123                | 2.2%   | 26,111           |
| 2014                             | 2,604                       | 0.987                 | 2,564.5               | 2014                              | 59,172                | 2.3%   | 29,661           |
| 2015                             | 2,894                       | 1.014                 | 2,924.5               | 2015                              | 66,221                | 2.4%   | 33,211           |
| 2016                             | 3,194                       | 1.041                 | 3,314.5               | 2016                              | 73,270                | 2.5%   | 36,761           |
| 2017                             | 3,504                       | 1.068                 | 3,724.5               | 2017                              | 80,319                | 2.6%   | 40,311           |
| 2018                             | 3,824                       | 1.095                 | 4,154.5               | 2018                              | 87,368                | 2.7%   | 43,861           |
| 2019                             | 4,154                       | 1.122                 | 4,604.5               | 2019                              | 94,417                | 2.8%   | 47,411           |
| 2020                             | 4,504                       | 1.149                 | 5,074.5               | 2020                              | 101,466               | 2.9%   | 50,961           |
| 2021                             | 4,874                       | 1.176                 | 5,564.5               | 2021                              | 108,515               | 3.0%   | 54,511           |
| 2022                             | 5,264                       | 1.203                 | 6,074.5               | 2022                              | 115,564               | 3.1%   | 58,061           |
| 2023                             | 5,674                       | 1.230                 | 6,604.5               | 2023                              | 122,613               | 3.2%   | 61,611           |
| 2024                             | 6,104                       | 1.257                 | 7,154.5               | 2024                              | 129,662               | 3.3%   | 65,161           |
| 2025                             | 6,554                       | 1.284                 | 7,724.5               | 2025                              | 136,711               | 3.4%   | 68,711           |
| 2026                             | 7,024                       | 1.311                 | 8,314.5               | 2026                              | 143,760               | 3.5%   | 72,261           |
| 2027                             | 7,514                       | 1.338                 | 8,924.5               | 2027                              | 150,809               | 3.6%   | 75,811           |
| 2028                             | 8,024                       | 1.365                 | 9,554.5               | 2028                              | 157,858               | 3.7%   | 79,361           |
| 2029                             | 8,554                       | 1.392                 | 10,204.5              | 2029                              | 164,907               | 3.8%   | 82,911           |
| 2030                             | 9,104                       | 1.419                 | 10,874.5              | 2030                              | 171,956               | 3.9%   | 86,461           |
| 2031                             | 9,674                       | 1.446                 | 11,564.5              | 2031                              | 179,005               | 4.0%   | 90,011           |
| 2032                             | 10,264                      | 1.473                 | 12,274.5              | 2032                              | 186,054               | 4.1%   | 93,561           |
| 2033                             | 10,884                      | 1.500                 | 13,004.5              | 2033                              | 193,103               | 4.2%   | 97,111           |
| 2034                             | 11,524                      | 1.527                 | 13,754.5              | 2034                              | 200,152               | 4.3%   | 100,661          |
| 2035                             | 12,194                      | 1.554                 | 14,524.5              | 2035                              | 207,201               | 4.4%   | 104,211          |
| 2036                             | 12,894                      | 1.581                 | 15,314.5              | 2036                              | 214,250               | 4.5%   | 107,761          |
| 2037                             | 13,624                      | 1.608                 | 16,124.5              | 2037                              | 221,299               | 4.6%   | 111,311          |
| 2038                             | 14,384                      | 1.635                 | 16,954.5              | 2038                              | 228,348               | 4.7%   | 114,861          |
| 2039                             | 15,174                      | 1.662                 | 17,804.5              | 2039                              | 235,397               | 4.8%   | 118,411          |
| 2040                             | 16,004                      | 1.689                 | 18,674.5              | 2040                              | 242,446               | 4.9%   | 121,961          |
| 2041                             | 16,874                      | 1.716                 | 19,564.5              | 2041                              | 249,495               | 5.0%   | 125,511          |
| 2042                             | 17,784                      | 1.743                 | 20,474.5              | 2042                              | 256,544               | 5.1%   | 129,061          |
| 2043                             | 18,724                      | 1.770                 | 21,404.5              | 2043                              | 263,593               | 5.2%   | 132,611          |
| 2044                             | 19,704                      | 1.797                 | 22,354.5              | 2044                              | 270,642               | 5.3%   | 136,161          |
| 2045                             | 20,724                      | 1.824                 | 23,324.5              | 2045                              | 277,691               | 5.4%   | 139,711          |
| 2046                             | 21,784                      | 1.851                 | 24,314.5              | 2046                              | 284,740               | 5.5%   | 143,261          |
| 2047                             | 22,884                      | 1.878                 | 25,324.5              | 2047                              | 291,789               | 5.6%   | 146,811          |
| 2048                             | 24,024                      | 1.905                 | 26,354.5              | 2048                              | 298,838               | 5.7%   | 150,361          |
| 2049                             | 25,204                      | 1.932                 | 27,404.5              | 2049                              | 305,887               | 5.8%   | 153,911          |
| 2050                             | 26,424                      | 1.959                 | 28,474.5              | 2050                              | 312,936               | 5.9%   | 157,461          |
| 2051                             | 27,684                      | 1.986                 | 29,564.5              | 2051                              | 320,000               | 6.0%   | 161,011          |
| 2052                             | 29,004                      | 2.013                 | 30,674.5              | 2052                              | 327,059               | 6.1%   | 164,561          |
| 2053                             | 30,374                      | 2.040                 | 31,804.5              | 2053                              | 334,118               | 6.2%   | 168,111          |
| 2054                             | 31,794                      | 2.067                 | 32,954.5              | 2054                              | 341,177               | 6.3%   | 171,661          |
| 2055                             | 33,264                      | 2.094                 | 34,124.5              | 2055                              | 348,236               | 6.4%   | 175,211          |
| 2056                             | 34,784                      | 2.121                 | 35,314.5              | 2056                              | 355,295               | 6.5%   | 178,761          |
| 2057                             | 36,354                      | 2.148                 | 36,524.5              | 2057                              | 362,354               | 6.6%   | 182,311          |
| 2058                             | 37,974                      | 2.175                 | 37,754.5              | 2058                              | 369,413               | 6.7%   | 185,861          |
| 2059                             | 39,644                      | 2.202                 | 39,004.5              | 2059                              | 376,472               | 6.8%   | 189,411          |
| 2060                             | 41,364                      | 2.229                 | 40,274.5              | 2060                              | 383,531               | 6.9%   | 192,961          |
| 2061                             | 43,134                      | 2.256                 | 41,564.5              | 2061                              | 390,590               | 7.0%   | 196,511          |
| 2062                             | 44,954                      | 2.283                 | 42,874.5              | 2062                              | 397,649               | 7.1%   | 200,061          |
| 2063                             | 46,824                      | 2.310                 | 44,204.5              | 2063                              | 404,708               | 7.2%   | 203,611          |
| 2064                             | 48,744                      | 2.337                 | 45,554.5              | 2064                              | 411,767               | 7.3%   | 207,161          |
| 2065                             | 50,714                      | 2.364                 | 46,924.5              | 2065                              | 418,826               | 7.4%   | 210,711          |
| 2066                             | 52,734                      | 2.391                 | 48,314.5              | 2066                              | 425,885               | 7.5%   | 214,261          |
| 2067                             | 54,804                      | 2.418                 | 49,724.5              | 2067                              | 432,944               | 7.6%   | 217,811          |
| 2068                             | 56,924                      | 2.445                 | 51,154.5              | 2068                              | 440,003               | 7.7%   | 221,361          |
| 2069                             | 59,094                      | 2.472                 | 52,604.5              | 2069                              | 447,062               | 7.8%   | 224,911          |
| 2070                             | 61,314                      | 2.500                 | 54,074.5              | 2070                              | 454,121               | 7.9%   | 228,461          |
| 2071                             | 63,584                      | 2.527                 | 55,564.5              | 2071                              | 461,180               | 8.0%   | 232,011          |
| 2072                             | 65,904                      | 2.554                 | 57,074.5              | 2072                              | 468,239               | 8.1%   | 235,561          |
| 2073                             | 68,274                      | 2.581                 | 58,604.5              | 2073                              | 475,298               | 8.2%   | 239,111          |
| 2074                             | 70,694                      | 2.608                 | 60,154.5              | 2074                              | 482,357               | 8.3%   | 242,661          |
| 2075                             | 73,164                      | 2.635                 | 61,724.5              | 2075                              | 489,416               | 8.4%   | 246,211          |
| 2076                             | 75,684                      | 2.662                 | 63,314.5              | 2076                              | 496,475               | 8.5%   | 249,761          |
| 2077                             | 78,254                      | 2.689                 | 64,924.5              | 2077                              | 503,534               | 8.6%   | 253,311          |
| 2078                             | 80,874                      | 2.716                 | 66,554.5              | 2078                              | 510,593               | 8.7%   | 256,861          |
| 2079                             | 83,544                      | 2.743                 | 68,204.5              | 2079                              | 517,652               | 8.8%   | 260,411          |
| 2080                             | 86,264                      | 2.770                 | 69,874.5              | 2080                              | 524,711               | 8.9%   | 263,961          |
| 2081                             | 89,034                      | 2.797                 | 71,564.5              | 2081                              | 531,770               | 9.0%   | 267,511          |
| 2082                             | 91,854                      | 2.824                 | 73,274.5              | 2082                              | 538,829               | 9.1%   | 271,061          |
| 2083                             | 94,724                      | 2.851                 | 75,004.5              | 2083                              | 545,888               | 9.2%   | 274,611          |
| 2084                             | 97,644                      | 2.878                 | 76,754.5              | 2084                              | 552,947               | 9.3%   | 278,161          |
| 2085                             | 100,614                     | 2.905                 | 78,524.5              | 2085                              | 560,006               | 9.4%   | 281,711          |
| 2086                             | 103,634                     | 2.932                 | 80,314.5              | 2086                              | 567,065               | 9.5%   | 285,261          |
| 2087                             | 106,704                     | 2.959                 | 82,124.5              | 2087                              | 574,124               | 9.6%   | 288,811          |
| 2088                             | 109,824                     | 2.986                 | 83,954.5              | 2088                              | 581,183               | 9.7%   | 292,361          |
| 2089                             | 112,994                     | 3.013                 | 85,804.5              | 2089                              | 588,242               | 9.8%   | 295,911          |
| 2090                             | 116,214                     | 3.040                 | 87,674.5              | 2090                              | 595,301               | 9.9%   | 299,461          |
| 2091                             | 119,484                     | 3.067                 | 89,564.5              | 2091                              | 602,360               | 10.0%  | 303,011          |
| 2092                             | 122,804                     | 3.094                 | 91,474.5              | 2092                              | 609,419               | 10.1%  | 306,561          |
| 2093                             | 126,174                     | 3.121                 | 93,404.5              | 2093                              | 616,478               | 10.2%  | 310,111          |
| 2094                             | 129,594                     | 3.148                 | 95,354.5              | 2094                              | 623,537               | 10.3%  | 313,661          |
| 2095                             | 133,064                     | 3.175                 | 97,324.5              | 2095                              | 630,596               | 10.4%  | 317,211          |
| 2096                             | 136,584                     | 3.202                 | 99,314.5              | 2096                              | 637,655               | 10.5%  | 320,761          |
| 2097                             | 140,154                     | 3.229                 | 101,324.5             | 2097                              | 644,714               | 10.6%  | 324,311          |
| 2098                             | 143,774                     | 3.256                 | 103,354.5             | 2098                              | 651,773               | 10.7%  | 327,861          |
| 2099                             | 147,444                     | 3.283                 | 105,404.5             | 2099                              | 658,832               | 10.8%  | 331,411          |
| 2100                             | 151,164                     | 3.310                 | 107,474.5             | 2100                              | 665,891               | 10.9%  | 334,961          |
| 2101                             | 154,934                     | 3.337                 | 109,564.5             | 2101                              | 672,950               | 11.0%  | 338,511          |
| 2102                             | 158,754                     | 3.364                 | 111,674.5             | 2102                              | 680,009               | 11.1%  | 342,061          |
| 2103                             | 162,624                     | 3.391                 | 113,804.5             | 2103                              | 687,068               | 11.2%  | 345,611          |
| 2104                             | 166,544                     | 3.418                 | 115,954.5             | 2104                              | 694,127               | 11.3%  | 349,161          |
| 2105                             | 170,514                     | 3.445                 | 118,124.5             | 2105                              | 701,186               | 11.4%  | 352,711          |
| 2106                             | 174,534                     | 3.472                 | 120,314.5             | 2106                              | 708,245               | 11.5%  | 356,261          |
| 2107                             | 178,604                     | 3.500                 | 122,524.5             | 2107                              | 715,304               | 11.6%  | 359,811          |
| 2108                             | 182,724                     | 3.527                 | 124,754.5             | 2108                              | 722,363               | 11.7%  | 363,361          |
| 2109                             | 186,894                     | 3.554                 | 127,004.5             | 2109                              | 729,422               | 11.8%  | 366,911          |
| 2110                             | 191,114                     | 3.581                 | 129,274.5             | 2110                              | 736,481               | 11.9%  | 370,461          |
| 2111                             | 195,384                     | 3.608                 | 131,564.5             | 2111                              | 743,540               | 12.0%  | 374,011          |
| 2112                             | 199,704                     | 3.635                 | 133,874.5             | 2112                              | 750,599               | 12.1%  | 377,561          |
| 2113                             | 204,074                     | 3.662                 | 136,204.5             | 2113                              | 757,658               | 12.2%  | 381,111          |
| 2114                             | 208,494                     | 3.689                 | 138,554.5             | 2114                              | 764,717               | 12.3%  | 384,661          |
| 2115                             | 212,964                     | 3.716                 | 140,924.5             | 2115                              | 771,776               | 12.4%  | 388,211          |
| 2116                             | 217,484                     | 3.743                 | 143,314.5             | 2116                              | 778,835               | 12.5%  | 391,761          |
| 2117                             | 222,054                     | 3.770                 | 145,724.5             | 2117                              | 785,894               | 12.6%  | 395,311          |
| 2118                             | 226,674                     | 3.797                 | 148,154.5             | 2118                              | 792,953               | 12.7%  | 398,861          |
| 2119                             | 231,344                     | 3.824                 | 150,604.5             | 2119                              | 800,012               | 12.8%  | 402,411          |
| 2120                             | 236,064                     | 3.851                 | 153,074.5             | 2120                              | 807,071               | 12.9%  | 405,961          |
| 2121                             | 240,834                     | 3.878                 | 155,564.5             | 2121                              | 814,130               | 13.0%  | 409,511          |
| 2122                             | 245,654                     | 3.905                 | 158,074.5             | 2122                              | 821,189               | 13.1%  | 413,061          |
| 2123                             | 250,524                     | 3.932                 | 160,604.5             | 2123                              | 828,248               | 13.2%  | 416,611          |
| 2124                             | 255,444                     | 3.959                 | 163,154.5             | 2124                              | 835,307               | 13.3%  | 420,161          |
| 2125                             | 260,414                     | 3.986                 | 165,724.5             | 2125                              | 842,366               | 13.4%  | 423,711          |
| 2126                             | 265,434                     | 4.013                 | 168,314.5             | 2126                              | 849,425               | 13.5%  | 427,261          |
| 2127                             | 270,504                     | 4.040                 | 170,924.5             | 2127                              |                       |        |                  |

# Assignments:

Damodaran, A., 2012, Investment Valuation: Tools and Techniques for Determining the Value of any Asset, 3rd Edition

- Read chapter 3 - Understanding Financial Statements (pages 27-52)

GROUP WORK: OISHI's Financial Statement Analysis

