Chapter 2

# Introduction to Financial Statement Analysis

## Answers to Concept Check questions

1. The role of an auditor is to check a firm’s financial statements, ensure they are prepared according to A-IFRS, and provide evidence to support the reliability of the information.
2. The four financial statements that all public companies must produce are:

* Balance Sheet
* Income Statement
* Statement of Cash Flows
* Statement of Changes in Equity

1. Depreciation is designed to capture the reduction in the value of an asset over time as it wears out or becomes obsolete.
2. Some reasons for the difference between the book value and market value of a firm’s assets include the fact that depreciation is an arbitrary process which may not accurately reflect the reduction in the value of an asset, intangible assets, such as goodwill, trademarks and patents which are difficult to accurately value, and various ways in which a firm, as a going concern, can have greater value than the sum of its parts, such as the skills and knowledge of those working for the firm.
3. A high debt-to-equity ratio tells you that the firm is highly leveraged – the proportion of debt is high compared to the equity of the firm. This indicates a high level of financial risk, as well as a high expected return for shareholders.
4. A firm’s enterprise value represents the value of the underlying business assets, unencumbered by debt and separate from any cash or marketable securities. It is equal to the market value of the firm’s shares, plus the value of debt, minus cash and marketable securities. This can be seen as the cost to take over the business.
5. A firm’s earnings measure the profitability (based on accounting profit) of the firm over a given period. It represents what is left out of revenue after deducting all expenses, including non-cash expenses such as depreciation. It measures the increase in the value of the equity of the firm as a result of the firm’s operating activities.
6. Dilution is reduction in Earnings Per Share (EPS) that results in the issue of new shares (e.g. because of options and convertible bonds) because the existing EPS must be spread over a greater number of shares.
7. The DuPont identity allows the financial manager to analyse the components of ROE (i.e. profit margin, asset turnover and the equity multiplier) in order to determine which components have caused the current level of ROE and hence which of these components requires most attention in order to improve ROE.
8. The P/E ratio measures the value of the firm’s equity in proportion to the earnings generated by the firm. Based on an estimate of the typical P/E ratio for an industry, it can be used to determine whether a firm is overvalued or undervalued relative to other firms in the industry.
9. A firm’s net profit does not correspond to cash earned if non-cash items have been used to determine accounting profit, such as accrued income and expenditure, and depreciation.
10. The components of the statement of cash flows are:

* Cash from operating activities
* Cash from investing activities
* Cash from financing activities.

1. Off balance sheet transactions appear in the management discussion and analysis section of a firm’s financial statements.
2. The notes to the financial statements document important accounting assumptions that were used in preparing the financial statements, provide information specific to a firm’s subsidiaries or its separate product lines, show the details of the firm’s share-based compensation plans for employees and the different types of debt the firm has outstanding, and provide details of acquisitions, spin-offs, leases, taxes and risk management activities.
3. Enron increased its reported earnings by selling assets at inflated prices to other firms, together with a promise to buy back those assets at an even higher future price, recording the incoming cash as revenue but hiding the promises to buy the assets back.
4. CLERP 9 is the *Corporate Law Economic Reform Program* *(Audit Reform and Corporate Disclosure) Act 2004*, which addressed deficiencies in the practice of auditing and company financial reporting.

## Answers to Review Questions

1. Firms disclose financial statements to communicate financial information to the investment community.
2. Anyone interested in a firm can look to the financial statements for information. This includes:

* *Shareholders:* checking the profitability and performance of the firm.
* *Lenders:* looking for information about the credit-worthiness of the firm.
* *Suppliers:* will this firm be a dependable customer?
* *Competitors:* seeking sales and profitability of the competition.
* *Management:* how well are we running the firm?

1. The firm’s annual report includes the balance sheet, income statement, statement of cash flows and statement of changes in equity. These statements are verified by independent auditors and signed by the management and directors of the firm.
2. The purpose of the balance sheet is to show the financial position of the firm at a specific point in time.
3. The balance sheet can show how well the firm is managing the assets and financing the operations of the firm.
4. The purpose of the income statement is to report the firm’s revenue, expenses and earnings. It shows the profitability of the firm over a specific period of time.
5. The balance sheet shows the financial situation of a firm at a given point in time, while the income statement shows the financial performance of the firm during the period leading up to the balance sheet date. The statements are linked through the retained earnings account on the balance sheet, which shows the cumulative profits of the firm during its existence.
6. The DuPont Identity takes the return on equity (ROE) and breaks it into three components: net profit margin, asset turnover and asset multiplier. The DuPont Identity equation is below:



The DuPont Identity is useful to managers, as it identifies three drivers that the manager can use to affect ROE.

1. The income statement measures the profits of the firm, while the statement of cash flows measures how cash moves in and out of the firm. These are not necessarily the same, as many non-cash flow transactions are included in the income statement (such as depreciation), while other cash flows are not included in the income statement (such as investment in working capital and fixed assets).
2. Yes, a firm with positive net income can run out of cash. A rapidly growing firm which is investing heavily in working capital and property, plant and equipment can have positive net income on the income statement but show negative cash flows from operating and investing activities.
3. Management’s discussion contains their analysis of the performance of the firm and identifies the risks that the business faces. The notes to the financial statements often clarify and augment the information used and reported in the financial statements.
4. Enron utilised off-balance sheet transactions to inflate profits and hide liabilities. HIH Insurance was marginally solvent, due to a range of problems including rapid expansion and unsupervised delegation of authority, but masked its true solvency position with fraudulent reporting.

## Answers to Problems

*Note: All problems in this chapter are available in MyFinanceLab. An asterisk (\*) indicates problems with a higher level of difficulty.*

1. In a firm’s annual report, four financial statements can be found: the balance sheet, the income statement, the statement of cash flows and the statement of changes in equity. Financial statements of public companies are required to be audited by a neutral third party, who checks and ensures that the financial statements are prepared according to relevant accounting standards and that the information contained is reliable.
2. a. Long-term liabilities would decrease by $20 million, and cash would decrease by the same amount. The book value of equity would be unchanged.
3. Inventory would decrease by $5 million, as would the book value of equity.
4. Long-term assets would increase by $10 million, cash would decrease by $5 million, and long-term liabilities would increase by $5 million. There would be no change to the book value of equity.
5. Accounts receivable would decrease by $3 million, as would the book value of equity.
6. This event would not affect the balance sheet.
7. This event would not affect the balance sheet.
8. Global’s book value of equity increased by $1 million from 2014 to 2015. An increase in book value does not necessarily indicate an increase in Global’s share price. The market value of a share does not depend on the historical cost of the firm’s assets, but on investors’ expectation of the firm’s future performance. There are many events that may affect Global’s future profitability, and hence its share price, that do not show up on the balance sheet.
9. a. At the end of the year, Billabong had cash of $297.09 million.
10. Billabong’s total assets were $2,079.87 million.
11. Billabong’s total liabilities were $1,051.30 million.
12. The book value of Billabong’s equity was $1,028.57 million.
13. **Plan:** The problem presents us with some raw financial information for BHP. While useful, this raw financial information is not well suited to support financial analysis of BHP and to answer such questions as: How has the stock market valued BHP? How much debt does BHP use relative to the equity financing that BHP uses? How valuable, in today’s dollars, is BHP?

To answer these and other questions we must compute key ratios and current market values as opposed to historical cost values.

**Execute:**











**Evaluate:** BHP has a market-to-book ratio of 1.51. Over time, equity investors invested $65.8 billion in BHP; today that equity investment is worth $99.2 billion (or 1.51 times more). This indicates that BHP’s management has run the firm well, and equity investors expect strong results in the future.

BHP has a book debt-equity ratio of 0.93. Over time, equity investors invested $65.8 billion in BHP and debt investors invested $61 billion (or 0.93 times of the book value of equity). This would indicate that BHP is not heavily financed with debt. But remember these are book values. In part (a) above, we calculated that BHP’s equity is valued at $99.2 billion in today’s dollars. The market d-e ratio provides a somewhat different picture, where the value of debt is an even smaller proportion of the market value of equity.

BHP has an enterprise value of $155.5 billion. In today’s dollars, investors value the entire company as having this value.

1. 



1. Newcrest’s lower current and quick ratios demonstrate that it has much lower asset liquidity than does St Barbara. This means that in a pinch, Newcrest has less liquidity to draw on than does St Barbara.
2. **Plan:** The table presents raw data about Origin Energy (ORG) and Australian Power and Gas (APK). While useful, this information does not easily tell us how the stock market values each of these firms alone and by comparison. To accomplish this, we will compute the market-to-book ratio of each firm and then compare them.

**Execute:**





b. The market looks more favourably on the outlook of Australian Power and Gas than on Origin Energy.

**Evaluate:** The market looks more favourably on the outlook of Australian Power and Gas than on Origin Energy. For every dollar of equity invested in ORG the market values that dollar today at $1.68 versus $1.93 for a dollar invested in APK. Equity investors are willing to pay relatively more today for shares of APK than for ORG because they expect APK to produce superior performance in the future.

1. a. Billabong’s total revenue for 2012 was $1,448.08 million.



 

 

Both margins decreased compared with the year before, going from positive to negative.

c. The diluted earnings per share (excluding extraordinary items) in 2012 was –1.59 cents. The number of shares used in calculation of diluted EPS was 303.5 million.

1. \***Plan:** We are given some data about Global’s financial results in 2014 and its projected results for 2015 (before the changes posed in the question). Global launched a marketing campaign that increased projected sales but also decreased operating margins. We must calculate the effects of these changes on revenues, net profit and share price.

**Execute:**

a. Revenue (2015) = Original projected revenue × (1 + % increase in sales)

= 186.7 × 1.15 = $214.71 million.

EBIT (2015) = Operating margin × Revenue

= 4.50% × 214.71 = $9.66 million.

b. Net profit (2015) = EBIT – Interest expenses – Taxes

= (9.66 – 7.7) × (1 – 0.24) = $1.49 million.





**Evaluate:** The new aggressive marketing campaign succeeded in raising revenue by 15%. Unfortunately, operating margins fell from 5.57% to 4.50%, which reduced EBIT and net profit. As a result, the share price fell from $9.50 to $7.45. The new marketing campaign destroyed shareholder value and is therefore a failure.

1. a. A $10 million operating expense would be immediately expensed, increasing operating expenses by $10 million. This would lead to a reduction in taxes of 30% × $10 million = $3 million. Thus, earnings would decline by 10 – 3 = $7 million. There would be no effect on next year’s earnings.

b. Capital expenses do not affect earnings directly. However, the depreciation of $2 million would appear each year as an operating expense. With a reduction in taxes of $2 million × 30% = $0.6 million, earnings would be lower by $2 million – $0.6 million = $1.4 million for each of the next five years.

1. **Plan:** The table presents raw data about Debt, Equity, Operating Profit and Interest Expense. While useful, this information does not easily tell us how much financial leverage each of these firms has alone and by comparison. It also does not tell us how well each firm is able to support its debt. To accomplish this, we will compute various leverage ratios of each firm and then compare them.

**Execute:**

 

 

 

**Evaluate:** Firm B has a lower coverage ratio and will have slightly more difficulty meeting its debt obligations than Firm A.

1. **Plan:** The table presents raw data about Sales, Accounts Receivable, and Inventory data for Fantastic Furniture and Nick Scali Furniture. While useful, this information does not easily tell us how well each firm is managing its Accounts Receivable and Inventory in general and in comparison with each other. To accomplish this, we will compute the relevant ratios of each firm and then compare them.

**Execute:**









**Evaluate:** Nick Scali Furniture is managing its accounts receivable and inventory more efficiently, as shown by the above ratios. Nick Scali Furniture collects its Accounts Receivable in 2.67 days as opposed to 7.86 days for Fantastic Furniture, and turns over its inventory 3.15 times per year, slightly higher than Fantastic Furniture (3.06 times).

1. \***Plan:** Quisco Systems wishes to acquire a new networking technology and is confronted with a common business problem: whether to develop the technology itself in house or to acquire another company that already has the technology. Quisco must perform a comprehensive analysis of each option, not just comparing internal development costs versus acquisition costs, but considering tax implications as well.

**Execute:**

1. If Quisco develops the product in house, its earnings would fall by $500 × (1 – 0.3) = $350 million. With no change to the number of shares outstanding, its EPS would decrease by $350/6500 =$0.054, to $0.746. (Assume the new product would not change this year’s revenue.)

b. If Quisco acquires the technology for $900 million worth of its shares, it will issue $900/18 = 50 million new shares. Since earnings without this transaction are $0.80 × 6.5 billion = $5.2 billion, its EPS with the purchase is $5.2/6.55 = $0.79.

**Evaluate:** Acquiring the technology would have a smaller impact on earnings. However, this method is not cheaper. Developing it in house is less costly and provides an immediate tax benefit. The earnings impact is not a good measure of the expense. In addition, note that because the acquisition permanently increases the number of shares outstanding, it will reduce Quisco’s earnings per share in future years as well.

1. **Plan:** Assume that a portfolio manager wishes to add some airline shares to the pension plan she is managing. She would like to get a good evaluation of the relative valuations of each airline as a starting point for her investment decision. Her job is to determine the best way to estimate relative values.

**Execute:**

a. Market capitalisation-to-revenue ratio  for American Airlines

 for British Airways

b. EV-to-revenue ratio  for American Airlines

 for British Airways

**Evaluate:** The market capitalisation-to-revenue ratio cannot be meaningfully compared when the firms have different amounts of leverage, as market capitalisation measures only the value of the firm’s equity. American Airlines has proportionately more debt that British Airways, lowering the value of equity as a proportion of revenue (compared to British Airways). The enterprise value-to-revenue ratio is therefore more useful when firm’s leverage is quite different, as it is here. The market capitalisation-to-revenue ratios are very different, but the debt is included in the analysis, the enterprise value-to-revenue ratios are very similar.

1. \* **Plan:** The Reject Shop’s management uses the well-known DuPont identity to measure ROE and the components of ROE. Management wants to know how much of an increase in asset turnover would be needed to raise ROE by a percentage point.

**Execute:**

a. The Reject Shop’s net profit margin 

 

b.  

c. For ROE to increase to 33.0%, the necessary asset turnover is given by:



**Evaluate**: The Reject Shop’s current ROE is 32.0% with an asset turnover of 3.49 times. To raise ROE to 33.0%, The Reject Shop would have to increase its asset turnover to 3.60 times.

1. **Plan:** HB Hi-Fi hires a new financial analyst who used to work for The Reject Shop. The analyst would like to perform the same type of DuPont analysis on JB Hi-Fi that was used at The Reject Shop.

**Execute:**

a. JB Hi-Fi’s net profit margin 

 

1. 

 (Difference due to rounding)

**Evaluate:** JB Hi-Fi has a higher ROE than The Reject Shop. This is because, even though JB Hi-Fi has a lower net profit margin, it has a higher asset turnover and a considerably higher asset multiplier.

1. a. Net cash provided by operating activities was $78.89 million in 2012.

b. Depreciation expenses were $40.43 million.

c. Net cash invested in new fixed assets was $40.38 million and net cash invested in capital expenditures was $55.53 million.

d. The net result from financing activities was negative $41.09 million. This means that Billabong paid out cash through financing activities, primarily through debt reduction.

1. a. Heinz’s cumulative earnings over these four quarters was $918.268 million. Its cumulative cash flows from operating activities was $1,185.746 million ($1.19 billion).

b. Fraction of cash from operating activities used for investment over the four quarters:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 29-Oct  2008 | 30-Jul  2008 | 30-Apr  2008 | 30-Jan  2008 | 4 Quarters |
| Operating Activities | 227,502 | –13,935 | 717,635 | 254,534 | 1,185,736 |
| Investing Activities | –196,952 | –35,437 | –251,331 | –96,848 | –580,568 |
| CFI/CFO | 86.57% | –254.30% | 35.02% | 38.05% | 48.96% |

c. Fraction of cash from operating activities used for financing over the four quarters:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 29-Oct  2008 | 30-Jul  2008 | 30-Apr  2008 | 30-Jan  2008 | 4 Quarters |
| Operating Activities | 227,502 | –13,935 | 717,635 | 254,534 | 1,185,736 |
| Financing Activities | 462,718 | –13,357 | –526,189 | –96,044 | –172,872 |
| CFF/CFO | –203.39% | –95.85% | 79.32% | 37.73% | 14.58% |

1. **Plan:** Even a relatively simple transaction such as receiving an order to sell merchandise on credit and shipping the order promptly creates a series of changes within the firm. Map out the changes that would occur to a firm that engages in a relatively simple business transaction.

**Execute:**

a. Revenue: increases by $5 million.

b. Earnings: increase by $3 million.

c. Receivables: increase by $4 million.

d. Inventory: decreases by $2 million.

e. Cash: increases by $3 million (earnings) – $4 million (receivables)  
+ $2 million (inventory) = $1 million (cash).

**Evaluate:** We can see that even a relatively simple credit sale has impacts on Revenue, Earnings, Accounts Receivable, Inventory and eventually Cash.

1. **Plan:** Nokela Industries plans to purchase a capital asset. In this case, it is a $40 million cyclo-converter. Any time a firm acquires a capital asset it is permitted to depreciate the asset for tax purposes. This has Depreciation Expense, Tax Expense and Cash Flow effects that must be understood and analysed.

**Execute:**

a. Earnings for the next four years would have to deduct the depreciation expense. After taxes, this would lead to a decline of $10 million × (1 – 0.3) = $7 million each year for the next four years.

b. Cash flow for the next four years: less $37 million (–7 + 10 – 40) this year, and add $3 million (–7 + 10) for the three following years.

**Evaluate:** For the next four years, the investment in the cyclo-converter will increase Nokela’s depreciation expense by $10 million and will reduce after-tax earnings by $7 million per year. Depreciation expense is a non-cash expense (it is an accrual which recognises that the value of the asset, which has already been paid for, is declining in value) which the firm does not have to pay out. Since every dollar of depreciation expense lowers Nokela’s taxable income by a dollar, its tax savings therefore are 30 cents on the dollar. The $10 million in depreciation expense in the next four years will lower Nokela’s tax bill by $3 million ($10 million × 0.3) per year.

1. a. PricewaterhouseCoopers audited these financial statements.

b. Billabong’s Chief Executive Officer and Chief Financial Officer certified the financial statements.