

CHAPTER 4: UNDERSTANDING THE PAST

But history is neither watchmaking nor cabinet construction. It is an endeavour toward better understanding.

Marc Bloch

Whoever wishes to foresee the future must consult the past...

Machiavelli

We can be almost certain of being wrong about the future, if we are wrong about the past.

G. K. Chesterton

The discounted cash flow (DCF) and economic profit frameworks are ways of thinking about the value of a firm. We have seen in Chapter 3 that they are theoretically sound, as they are connected to what equity investors can expect to receive from their equity investments (that is, dividends). Yet capital markets, in which equity investors make new and trade existing equity investments in firms, are different to, say, the Sydney Fish Market. The Sydney Fish Market trades in fish which are delivered to you immediately and fresh. A fish might be swimming in the Pacific Ocean off Sydney's coast one evening, and it may be on a dinner plate in a town house in Sydney's Balmain the next evening. In a fish market, what you see is what you get. You get a fresh fish that is typically consumed quickly. By contrast, a capital market trades in *expectations*. Expectations are people's imaginings about things that have not yet happened.

Indeed, expectations will typically be people's imaginings about things that will never happen; at least not exactly as people might think they will happen. Equity investment in a firm involves predicting the future. An equity interest in a firm is not like buying a dead fish in the Sydney Fish Market. Firms are alive, and we are buying outcomes of their future business activity. However, to predict the future we need to start with the past. Machiavelli is a well-known Italian from the late 15th and early 16th century who is probably most famous for his book *The Prince*, which provides pragmatic advice to leaders on managing the political process (that is, on obtaining and maintaining power). He understood the importance of consulting the past as the basis for being able to foresee the future. The English writer G. K. Chesterton pointed out that if we fail to understand the past, indeed if we are wrong about the past, we are unlikely to be able to predict the future very well.

This chapter is about understanding the past of a firm. This can give us insights to better predict a firm's future. We are going to use a firm's financial statements (along with other information) to help us understand the past. To do this as efficiently as possible we are going to restate a firm's financial statements. This is to help us clearly identify the accounting drivers of a firm's economic profit and cash flows, including clearly separating a firm's operating and financial activities. After we have restated the financial statements of a few firms, it can become a mechanical process, although as many

found when studying ACCT11059 *Accounting, Learning & Online Communication*, we may find the first time we restate a firm's financial statements to be somewhat frustrating and time-consuming.

Hopefully, this time in our unit you will find restating your firm's financial statements a much more straightforward task, as you should now have a better understanding of what each item in your firm's accounts are and their accounting treatments. Remember the words about history from Marc Bloch, a French historian who was shot by the Gestapo during the German occupation of France in World War II for his involvement in the French Resistance and for his Jewish ancestry. Like reviewing history, restating a firm's financial statements is an "endeavour toward better understanding". It is not simply a task of putting together the financial statements in a different way, like putting together the parts of a watch or constructing a cabinet from various pieces of wood. It is a task we can do to make it easier for us to begin to understand a firm's past.

We will then look at how we can analyse a key aspect of economic profit and cash flows, return on equity (ROE), by breaking it into bits: leverage, profitability and efficiency. We will see how we can connect the accounting 'drivers' of a firm's ROE with its economic and business drivers. This analysis is anything but mechanical; it requires us to engage with a firm's economic and business realities and is a subtle, creative and active endeavour. In this chapter, we will gain some insights into how we can use a firm's financial statements to help us gain an understanding of a firm's past. Yet a firm's past is a trip already taken by equity investors. No one ever got rich simply by analysing the past. *No one*. Equity interests in firms involve us trading in expectations of an uncertain future. Yet, as Machiavelli said 500 years ago, "whoever wishes to foresee the future must consult the past ..." In this chapter, we will do just that: consult the past.

4.1 Abnormal Earnings and Restating Financial Statements

The most efficient way to ensure the key accounting drivers of economic profit and cash flows are appropriately identified is to restate a firm's financial statements in a way that ensures all earnings are included and that the operating and financial activities of a firm are clearly separated. In this section, we will look at Abnormal earnings and why it is important to consider all the earnings of a firm when considering its value. We also review our understanding of the operating and financial activities of our firms. In Section 4.2, we will look at how best to restate the Balance sheet (or Statement of financial position) and the Income statement (or Statement of financial performance). We will not restate the Statement of changes in equity nor the Statement of cash flows.

Accounting drivers

Abnormal earnings (AE) is an accounting measure of 'value add' to equity investors. Another term for Abnormal earnings is residual earnings, being the earnings we have left after the normal, or required, return to investors is deducted. In our unit, we will use the term Abnormal earnings rather than residual earnings. Both terms mean the same thing.

We can express Abnormal earnings (AE) as follows:

$$AE = [ROE - (r_E - 1)] \times BV$$

where the 'drivers' of Abnormal earnings are:

- Return on equity (ROE);
- Required rate of return on equity ($r_E - 1$); and
- Book value of ordinary shareholders' equity (BV).

You will see we express the Required rate of return as $(\rho_E - 1)$. We do this because, by convention, we usually express ρ_E as one plus the required rate of return. For example, if the Required rate of return is 10%, we would express ρ_E as 1.10. To get is back to 10%, we deduct 1 in our formula. In 2018, Ryman Healthcare provided a ROE of 21.4%. This compared to an estimate of its required rate of return on equity ($\rho_E - 1$) of 9.4%. The Book value of Ryman Healthcare's ordinary shareholders' equity at 31 March 2017 was \$1,652.1m and this had increased to \$1,940.5m by 31 March 2018. If we use an average of Ryman Healthcare's opening and closing Book value (BV) as an appropriate BV figure, we can calculate Ryman Healthcare's Abnormal earnings (AE) in 2018 to be \$215.6 million, as follows:

$$\begin{aligned} \text{AE} &= [\text{ROE} - (\rho_E - 1)] \times \text{BV} \\ &= (21.4\% - 9.4\%) \times (\$1,940.5\text{m} + \$1,652.1\text{m})/2 \\ &= 12.0\% \times 1,796.3 \\ &= \$215.6 \text{ million.} \end{aligned}$$

Ryman Healthcare's ROE in 2018 was calculated as:

$$\begin{aligned} \text{ROE} &= \text{CI}^*/\text{BV} = \$384.4\text{m}/[(\$1,940.5\text{m} + \$1,652.1\text{m})/2] \\ &= \$384.4\text{m}/\$1,796.3\text{m} \\ &= 21.4\% \end{aligned}$$

* CI = Comprehensive income (includes all earnings of Ryman Healthcare after interest and tax)

Ryman Healthcare has 500 million shares on issue, so Abnormal earnings of \$213.7 million represent about 42.7 cents per share. This is not a bad amount of Abnormal earnings to provide shareholders, given shares in Ryman Healthcare listed on the New Zealand Stock Exchange in mid-1999 at 27 cents per share (after adjusting for a 5:1 share split in January 2007; the actual share price on listing was \$1.35). Equity investors who acquired shares in Ryman Healthcare when it floated in mid-1999 (which included my wife and three children) achieved Abnormal earnings in 2018 (that is, earnings greater than required to compensate them normally for the capital they had invested) of over 1.5 times their original investment. Do this consistently over many years, and you will get rich – very rich.

A summary Consolidated income statement for Ryman Healthcare for the year ended 31 March 2018 is included as Table 4.1. We can see from Table 4.1 that Ryman Healthcare's Profit for the year was \$388.2 million. Yet in the calculation of ROE for Ryman Healthcare above, we used Comprehensive income (CI) of \$384.4 million. To see how this earnings figure was calculated we need to have a look at Ryman Healthcare's Statement of comprehensive income for the year ended 31 March 2018 (see Table 4.2). In this statement, we will see an item "Revaluation of property, plant and equipment (unrealised)". If we look at footnote 1(e) in Ryman Healthcare's 2018 Annual Report we will see that Property, plant and equipment comprises care facilities; corporate assets and land; and care facilities under development. These assets are revalued regularly using independent valuers. Any revaluation amounts are not included in Ryman Healthcare's Consolidated income statement but are transferred directly to Ryman Healthcare's Asset revaluation reserve as part of its equity.

The rise in the property values of Ryman Healthcare's care facilities (nursing homes and hospitals), corporate assets (head office assets) and retirement villages under development can be an important part of the added value it provides to its equity investors. This was not the case in 2018, as there were no revaluations completed in 2018 (although there were substantial revaluations in 2017). We include Other comprehensive income in our figure for Total comprehensive income (CI). We do this to include

all of Ryman Healthcare’s earnings, or added value to equity investors, so as not to omit a part of the value of an equity interest in Ryman Healthcare.

Table 4-1: Ryman Healthcare Income Statement for years ended 31 March

	2018		2017	
	\$m	\$m	\$m	\$m
Revenue				
Care fees	270.5		227.4	
Management fees	70.1		61.0	
Interest received	0.4		0.5	
Other income	1.5		0.3	
Total revenue		342.5		289.2
Fair value movement investment properties ¹		351.5		325.0
Total income		694.0		614.2
Operating expenses	(268.0)		(225.6)	
Depreciation expense	(20.6)		(14.9)	
Finance costs	(16.6)		(10.7)	
Total expenses		(305.2)		(251.2)
Profit before income tax		388.8		363.0
Income tax expense		(0.6)		(6.3)
Profit for the year		388.2		356.7

Source: Ryman Healthcare 2018 Annual Report.

Table 4-2: Ryman Healthcare Comprehensive Income Statement for years ended 31 March

	2018		2017	
	\$m	\$m	\$m	\$m
Profit for the year		388.2		356.7
Fair-value movement of interest rate swaps	(0.7)		1.8	
Movement in def. tax related to int. rate swaps	0.2		(0.5)	
Gains on hedge on foreign-owned sub net assets	2.2		1.1	
(Loss) on translation of foreign operations	(5.5)		(1.4)	
Revaluation property, plant & equipment (unrealised)	0.0		56.5	
Other comprehensive income		(3.8)		57.5
Total comprehensive income (CI)		384.4		414.2

Source: Ryman Healthcare 2018 Annual Report.

As we noted above, one item in Ryman Healthcare's Other comprehensive income is Revaluation of Property, plant and equipment (unrealised). This item is zero in 2018; however, it was a major item (\$56.5m) in Other comprehensive income in 2017. In ACCT11081 *Introductory Financial Accounting*, we looked at how to account for Property, plant and equipment. See these three short videos to review how we do this:

- Property, plant and equipment – what it is and how we turn it into an expense (depreciation)
- More Property, plant and equipment – the two ways we value Property, plant and equipment after we initially record it at cost: the cost model or revaluation model
- Even more Property, plant and equipment – how we value it using the revaluation model

If a firm uses the revaluation model to value some or all of its Property, plant and equipment then it will revalue these items to fair value periodically. How often it does these revaluations is a question of judgement by the firm. Ryman Healthcare uses the revaluation model for two classes of its Property, plant and equipment: Freehold land and Buildings. The rest of its Property, plant and equipment it values using the cost model. The key point here is that if we are to value a firm based on its earnings, we need to ensure we are including in our calculations all of its earnings (including Other comprehensive income), otherwise we will be omitting some of the firm's value in our analysis. The most efficient way to ensure we get all the accounting numbers for earnings (and for other aspects of a firm's performance) in a form to support our analysis is to restate the financial statements.

Restating the financial statements is a technical task that with practice can be done relatively quickly and easily, although there are a few 'traps' we need to be careful to avoid. Remember, the purpose of restating the financial statements is to make our task of analysing the drivers of Abnormal earnings more efficient. Restating the financial statements is essentially a task we do to save time and effort. As we said earlier, when you do your very first restatement of a firm's financial statements you may find

it a slow and frustrating task. As we saw when we studied ACCT11059 *Accounting, Learning & Online Communication*, there are no short-cuts to doing it yourself and 'learning by doing'. However, you should find it a lot easier to restate a firm's financial statements in our unit this time, having done it previously in ACCT11059; and you should also know a lot more about each of the items in a firm's financial accounts from your study of Accounting at university. You should find restating your firm's financial statements a lot quicker, easier and be reasonably mechanical this time around, if you have been learning about accounting 'for real' throughout your degree; and not 'rote-learning and forgetting'. Studying our capstone unit, ACCT13017 *Financial Statement Analysis*, is a great opportunity to review how much you have learnt (and perhaps not learnt) about accounting and business during your degree.

Statement of changes in equity

The Statement of changes in equity shows how a firm's Income statement and Balance sheet inter-connect. The 'bottom-line' (or summary measure) of the Income statement is net profit after tax. The 'bottom line' (or summary measure) of the Balance sheet is the book value of ordinary shareholders' equity. The opening book value of ordinary shareholders' equity for a period (which is, of course, the closing book value of ordinary shareholders' equity from the previous period) plus the earnings for a period (from the Income statement and Comprehensive income statement) should equal the closing book value of ordinary shareholders' equity (after allowing for any cash flows between a firm and its equity investors, for example dividends paid to equity investors and any share issues or share buy-backs). We will not restate the Statement of changes in equity (nor the Cash flow statement). Let us now consider a way of thinking about a firm which clearly separates a firm's operating and financial activities.

A conceptual view of a firm

... showing what *doesn't* matter can also show, by implication, what *does*.

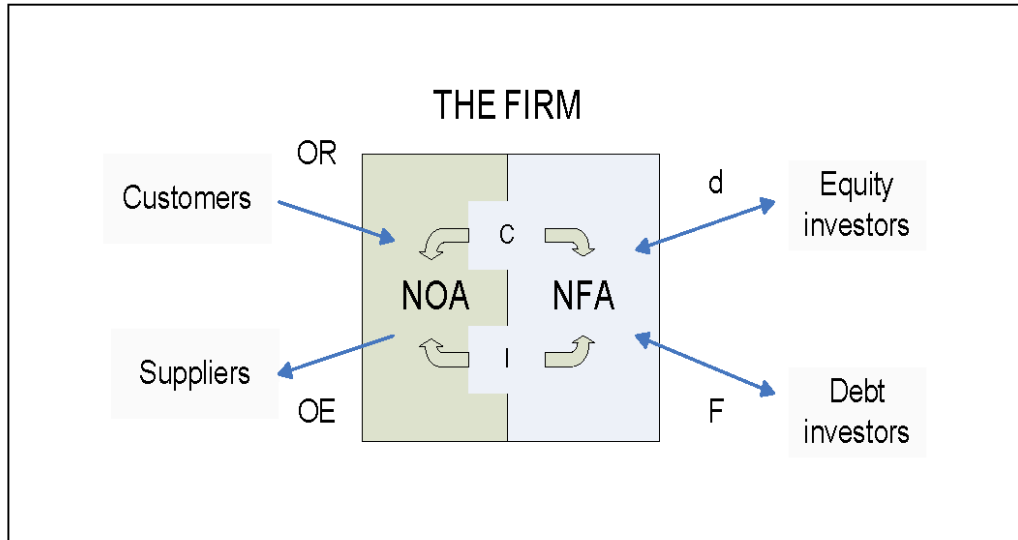
Merton Miller²

As we saw in ACCT11059 *Accounting, Learning & Online Communication*, a powerful way of viewing a firm is to clearly separate its operating and financial activities. This view of the firm is set out in Figure 4.1. The operating activities of a firm are its interactions with the product and input markets, with its customers and suppliers. These are shown on the left-hand side of Figure 4.1. These include decisions about which operating assets to acquire or sell, what agreements to enter with employees, suppliers and customers, as well as various other activities to add value to the inputs a firm acquires from suppliers. The financial activities of a firm are its interactions with the capital markets, with equity and debt investors. These are shown on the right-hand side of Figure 4.1. These include decisions about the financial structure of a firm (how much of a firm's operations to fund with debt or equity) and matters such as dividend policy (how much of a firm's earnings to retain within a firm and how much to pay in dividends to equity investors).

We can see the firm as comprising Net operating assets (NOA) and Net financial assets (NFA). NOA are those assets (net of liabilities) that are used to produce products and services for customers in the product markets and earn Operating revenue (OR) for the firm. NOA are also used to acquire inputs for a firm's operations from suppliers in the input markets and incur Operating expenses (OE). The difference between OR and OE is Operating income (OI). Net financial assets (NFA) are those assets (net of liabilities) that are used to store value and are not used in the operations of a firm. If a firm's

financial obligations exceed its financial assets, its NFA will be negative, or, in other words, it will have Net financial obligations (NFO) rather than NFA. This is usually the case for most firms. NFA (or NFO) involve interactions with the debt and equity capital markets, namely net cash flows with equity investors (dividend payments, share issues and share buybacks) (d) and with debt investors (net interest payments and the repayment and issue of debt) (F).

Figure 4-1: View of a firm: Operating and financial activities



This view of a firm clearly separates its operating and financial activities

Source: This figure is based on a chart for all stocks and flows for a firm in Penman S.H, *Financial Statement Analysis and Security Valuation*³

The transfers within a firm between its NOA and NFA are its Free cash flow (FCF), namely its Cash flow from operations (C) less its net cash investment in NOA (I). A firm's FCF comes from its Operating income (OI) less any increase in its Net operating assets (ΔNOA). A firm's FCF less any increase in Net financial assets (ΔNFA) plus Net financial income (earned on its Net financial assets) equals the net dividends (dividends plus share buybacks less share issues) paid to equity investors (d). Another way of saying this, is that a firm's FCF is either used to increase its NFA (for example, by repaying some debt), to pay interest on debt (negative NFI) or to pay cash to equity investors (d). In this way, FCF is a transfer of value between a firm's operating and financing activities. These relationships can be expressed as $\text{FCF} = \text{OI} - \Delta\text{NOA}$, which indicates the *source* of free cash flow. They can also be expressed as $\text{FCF} = \Delta\text{NFA} - \text{NFI} + d$ (i.e. $\text{FCF} = F + d$, where $F = \Delta\text{NFA} - \text{NFI}$), which indicates the *application* of free cash flow, or in other words where free cash flow *goes*.

It seems clear that the operating activities of a firm can affect its value; but what about its financial activities? The Modigliani-Miller theorems form a central part of modern finance theory as they address the question whether a firm's financial activities can affect the value of a firm. These theorems suggest situations where a firm's financial activities do not affect a firm's value one way or the other.

... with well-functioning markets (and neutral taxes) and rational investors, who can 'undo' the corporate financial structure by holding positive or negative amounts of debt, the market value of the firm – debt plus equity – *depends only on the income stream generated by its assets*. It follows, in particular, that the value of a firm should

not be affected by the share of debt in its financial structure or by what will be done with the returns – paid out as dividends or reinvested (profitably)

Franco Modigliani (my emphasis)⁴

If the operation of our capital markets is largely efficient, then it generally would not be possible to add value to equity investors through decisions by a firm about how to finance its activities through debt or equity. If our debt markets are largely efficient, it would suggest that equity investors in a firm can usually replicate the financial structure of a firm, for example by borrowing against their equity investments in a firm on the same terms as a firm could borrow. If equity investors could borrow on the same terms as a firm, what value to equity investors would there be from a firm increasing or reducing its borrowings relative to the level of its equity? It would also suggest that equity investors are indifferent to whether they are paid dividends or receive a capital gain on the value of their equity investments in a firm. It would also suggest that tax rates are the same for a firm and all its equity investors.

Although we live in a world of less than ‘perfect’ capital markets, the debt markets in many developed countries are often quite close to being efficient. This means it can be difficult for a firm to add much value to its equity investors by way of its financial activities. Rather, it is through its operating activities that a firm primarily adds value. For this reason, there can be considerable value in clearly separating a firm’s operating activities from its financial activities to help focus our analysis on those areas where a firm has the greatest potential to add value to equity investors. We will see in Chapter 6 the considerable benefits of focusing our analysis on the operating activities of a firm, or in other words on the enterprise rather than on the equity of a firm.

In this section, we considered Abnormal earnings as a measure of ‘value add’ and why it is important to consider all the earnings of a firm when considering its value. We also reviewed our understanding of the operating and financial activities of our firms and have been reminded that a powerful way of viewing a firm is to clearly separate its operating and financial activities. In the next section, we will see how we can restate a firm’s Balance sheet (or Statement of financial position) to clearly separate a firm’s operating and financial assets and liabilities. We will also see how we can restate a firm’s Income statement (or Statement of financial performance) to clearly separate operating and financial revenue and expenses.

4.2 Restate Two Financial Statements

The two financial statements we will restate are the Balance sheet (or Statement of financial position) and the Income statement (or Statement of financial performance). This section will review how we do this.

Balance sheet

To help separate the operating and financial assets and liabilities of a firm we restate a firm’s Balance sheet. A Balance sheet normally shows all the assets of a firm categorised as either current or non-current assets; and all the liabilities of a firm as either current or non-current liabilities. This way of categorising the assets and liabilities of a firm can be traced to the influence of the banking sector in the early development of financial statements. It facilitates an assessment of the long-term and short-term liquidity of a firm. It does not help us to view a firm from the point of view of equity investors, and to clearly distinguish between the operating and financial activities of a firm.

Our purpose in restating the Balance Sheet is to clearly separate operating and financial assets and operating and financial liabilities and to clearly identify Net operating assets (NOA) and Net financial assets (NFA), or, more commonly, Net financial obligations (NFO). You can see in Table 4-3 below how I have allocated assets and liabilities to operating and financial in Ryman Healthcare's consolidated Balance sheet by placing an O or F next to each item of assets and liabilities. You will see we do not allocate equity items to operating and financial. Ryman Healthcare's consolidated Balance sheet and its restated consolidated Balance sheet are shown below in Tables 4.4 and 4.5 respectively.

Table 4-3: Allocating Assets and Liabilities to Operating and Financial

Consolidated balance sheet				
At 31 March 2018				
		Notes	2018	2017
			\$000	\$000
Assets				
Trade and other receivables	O	5	357,483	256,614
Advances to employees	D	24	5,836	4,884
Property, plant and equipment	O	6	1,014,514	1,013,547
Investment properties	O	7	4,398,304	3,661,445
Intangible assets	O		20,713	8,329
Total assets			5,796,850	4,944,819
Equity				
Issued capital		13	33,290	33,290
Asset revaluation reserve		14	233,319	233,319
Interest-rate swap reserve		14	(5,913)	(5,391)
Foreign-currency translation reserve		14	(2,243)	1,066
Treasury stock		14, 24	(22,497)	(20,540)
Retained earnings		14	1,704,563	1,410,347
Total equity			1,940,519	1,652,091
Liabilities				
Trade and other payables	O	9	98,308	149,855
Employee entitlements	O	10	20,237	16,167
Revenue in advance	O		51,955	44,702
Interest-rate swaps	O	18	8,212	7,488
Refundable accommodation deposits	O		30,757	28,473
Bank loans (secured)	O	11	1,060,493	837,520
Occupancy advances (non-interest bearing)	O	12	2,514,683	2,137,274
Deferred tax liability (net)	O	4	71,686	71,249
Total liabilities			3,856,331	3,292,728
Total equity and liabilities			5,796,850	4,944,819
Net tangible assets				
Basic and diluted (cents per share)		13	388.1	330.4

Source: Ryman Healthcare 2018 Annual Report

Table 4-4: Ryman Healthcare Balance Sheet as at 31 March

	2018	2017
	\$m	\$m
Assets		
Trade & other receivables	357.5	256.6
Advances to employees	5.8	4.9
Property, plant & equipment	1,014.5	1,013.5
Investment properties	4,398.3	3,661.4
Intangible assets	20.7	8.3
Total Assets	5,796.8	4,944.8
Liabilities		
Trade & other payables	98.3	149.9
Employee entitlements	20.2	16.2
Revenue in advance	51.9	44.7
Interest-rate swaps	8.2	7.5
Refundable accommodation deposits	30.8	28.5
Bank loans (secured)	1,060.5	837.5
Occupancy advances	2,514.7	2,137.3
Deferred tax liability (net)	71.7	71.2
Total Liabilities	3,856.3	3,292.7
Equity		
Issued capital	33.3	33.3
Asset revaluation reserve	233.3	233.3
Interest-rate swap reserve	(5.9)	(5.4)
Foreign-currency translation reserve	(2.2)	1.1
Treasury stock	(22.5)	(20.5)
Retained earnings	1,704.5	1,410.3
Total Equity	1,904.5	1,652.1
Total Equity and Liabilities	5,796.9	4,944.8

Source: Ryman Healthcare 2018 Annual Report

Table 4-5: Ryman Healthcare RESTATED Balance Sheet as at 31 March

	2018	2017
	\$m	\$m
<i>Operating Assets</i>		
Trade & other receivables	357.5	256.6
Advances to employees	5.8	4.9
Property, plant & equipment	1,014.5	1,013.5
Investment properties	4,398.3	3,661.4
Intangible assets	20.7	8.3
Total Operating Assets (OA)	5,796.8	4,944.8
<i>Operating Liabilities</i>		
Trade & other payables	98.3	149.9
Employee entitlements	20.2	16.2
Revenue in advance	51.9	44.7
Refundable accommodation deposits	30.8	28.5
Occupancy advances	2,514.7	2,137.3
Deferred tax liability (net)	71.7	71.2
Total Operating Liabilities (OL)	2,787.6	2,447.7
Net Operating Assets (NOA)	3,009.2	2,497.1
<i>Financial Obligations</i>		
Interest-rate swaps	8.2	7.5
Bank loans (secured)	1,060.5	837.5
Total Financial Obligations (FO)	1,068.7	845.0
<i>Financial Assets</i>		
Total Financial Assets (FA)	0.0	0.0
Net Financial Obligations (NFO)	1,068.7	845.0
<i>Equity</i>		
Share capital	33.3	33.3
Asset revaluation reserve	233.3	233.3
Interest-rate swap reserve	(5.9)	(5.4)
Foreign-currency translation reserve	(2.2)	1.1
Treasury stock	(22.5)	(20.5)
Retained earnings	1,704.5	1,410.3
Total Equity	1,940.5	1,652.1
Total NFO + Equity	3,009.2	2,497.1

As can be seen from Table 4.5, the various assets and liabilities from Ryman Healthcare's consolidated Balance sheet have been allocated between operating and financial activities. If we have a clear idea of the difference between a firm's operating and financial activities, this is in practice a reasonably straightforward exercise. Usually we can readily identify whether each asset and liability in a firm's financial statements is an operating or financial item. However, cash can pose difficulties. A firm needs some cash to conduct its operations. It will never be possible for a firm to exactly match its cash outflows (such as, cash payments to suppliers) with its cash inflows (such as, cash receipts from customers). For example, a firm may need to pay its suppliers on a Monday, and cash receipts may not come from customers until Wednesday that week. A firm will need some cash (either actual cash, for example in cash registers, or cash balances in the bank) or an overdraft facility with a bank to help the firm to manage the cash outflows and inflows of its normal business operations.

A firm could also hold cash balances in the bank as a store of value that is not needed in the actual operations of the firm. In such cases, it would be a financial asset. Typically, it is not clear from a firm's financial statements how much of any cash balances are needed in the operations of a firm (and are operating assets; or operating liabilities, if it is a bank overdraft) and how much of any cash balances are financial assets. Where a firm has a relatively low level of cash balances, my advice is to include these cash balances as an operating asset and assume they are needed to conduct a firm's operations. What amounts to a 'relatively low level of cash' would depend on the nature of the firm's activities, but typically up to about 0.5% or 1% of sales might be an appropriate level of cash for a business to hold for the purposes of conducting its operations. Where a firm has a more significant level of cash balances (say, more than about 0.5% or 1% of sales), my advice would be to allocate an amount to operating assets (say, up to about 0.5% or 1% of sales) and allocate the balance to financial assets.

In summary, to restate a firm's Balance sheet we go through each item of assets and liabilities and allocate them as being either operating or financial. This is generally straightforward, as we usually have sufficient information in a firm's financial statements to do this. The only difficulty that usually arises is in relation to cash. We will usually need to make some assumptions about how to best allocate a firm's cash balances (or overdraft facility) between a firm's operating and financial activities. Once we have restated a firm's Balance sheet, we will have clearly identified its Net operating assets (NOA) and Net financial obligations (NFO) or Net financial assets (NFA). For example, we can see from Table 4.5 above that Ryman Healthcare (as at 31 March 2018) had NOA of \$3,009.2 million and NFO of \$1,068.7 million.

Income statement

Our purpose in restating the Income statement is to clearly separate operating and financial revenue and expenses and to clearly identify Operating income after tax (OI) and Net financial expenses (or Net financial income) after tax (NFE or NFI). Ryman Healthcare's consolidated Income statement and consolidated Statement of comprehensive income are shown in Tables 4.1 and 4.2 above. Ryman Healthcare's restated Income statement is shown in Table 4.6 below. You can see in Table 4.7 below how I have allocated revenue and expenses to operating and financial in Ryman Healthcare's consolidated Income statement and consolidated Statement of comprehensive income by placing an O or F next to each item of revenue, expenses and other comprehensive income.

Table 4-6 Ryman Healthcare RESTATED Income Statement for years ended 31 March

	2018		2017	
	\$m	\$m	\$m	\$m
Operating revenue				
Care fees	270.5		227.4	
Management fees	70.1		61.0	
Other income	1.5		0.3	
Total operating revenue		342.1		288.7
Fair value movement of investment properties		351.5		325.0
Total operating income		693.6		613.7
Operating expenses	(268.0)		(225.6)	
Depreciation expense	(20.6)		(14.9)	
Total operating expenses		(288.6)		(240.5)
Operating profit before income tax		405.0		373.2
Tax expense				
Tax reported	(0.6)		(6.3)	
Tax benefit*	(4.5)		(2.9)	
Tax expense		(5.1)		(9.2)
Other operating comprehensive income				
Gains on hedge on foreign-owned sub net assets	2.2		1.1	
(Loss) on translation of foreign operations	(5.5)		(1.4)	
Reval'n property, plant & equipment (unrealised)	0.0		56.5	
Total other operating comprehensive income		(3.3)		56.2
Comprehensive operating income after tax (OI)		396.6		420.2
Net financial expenses (NFE)				
Financial expenses (FE)	(16.6)		(10.7)	
Financial income (FI)	0.4		0.5	
Net financial expenses before tax	(16.2)		(10.2)	
Tax benefit *	4.5		2.9	
		(11.7)		(7.3)
Other financial comprehensive income				
Fair-value movement of interest-rate swaps	(0.7)		1.8	
Movement in def. tax related to int. rate swaps	0.2		(0.5)	
Net financial expense after tax (NFE)		(12.2)		(6.0)
Comprehensive income (CI)		384.4		414.2

* Tax benefit = 16.2 x 28% (2018); 10.2 x 28% (2017)

Table 4-7: Allocating Revenue, Expenses and Other Comprehensive Income to Operating and Financial

Consolidated income statement			
For the year ended 31 March 2018			
	Notes	2018	2017
		\$000	\$000
Care fees		270,483	227,391
Management fees		70,087	60,988
Interest received		441	456
Other income		1,528	355
Total revenue		342,539	289,190
Fair-value movement of investment properties	7	351,514	324,966
Total income		694,053	614,156
Operating expenses	1	(268,040)	(225,573)
Depreciation and amortisation expense	2	(20,580)	(14,934)
Finance costs	3	(16,577)	(10,660)
Total expenses		(305,197)	(251,167)
Profit before income tax		388,856	362,989
Income-tax expense	4	(640)	(6,295)
Profit for the year		388,216	356,694
Earnings per share			
Basic and diluted (cents per share)	13	77.6	71.3

Consolidated statement of comprehensive income			
For the year ended 31 March 2018			
	Notes	2018	2017
		\$000	\$000
Profit for the year		388,216	356,694
<i>Items that may be reclassified subsequently to profit or loss</i>			
Fair-value movement and reclassification of interest-rate swaps	14	(725)	1,790
Movement in deferred tax related to interest-rate swaps	14	203	(601)
Gains on hedge of foreign-owned subsidiary net assets	14	2,193	1,102
(Loss) on translation of foreign operations	14	(5,502)	(1,392)
		(3,831)	999
<i>Items that will not be reclassified subsequently to profit or loss</i>			
Revaluation of property, plant and equipment (unrealised)	6, 14	-	56,513
		-	56,513
Other comprehensive income		(3,831)	57,512
Total comprehensive income		384,385	414,206

Source: Ryman Healthcare 2018 Annual Report

A firm will report one figure for its Tax expense in its Income statement. Tax is a real expense of a business, in the same way as any other expense such as salaries, rent or fuel for the corporate jet. In Australia (and in many other countries) Interest expense is generally tax deductible for firms. A firm's financial activities, such as its level of borrowings, will influence its Interest expense and its Tax expense. For example, increasing a firm's Interest expense will reduce its Tax expense. This means a firm's Tax expense will be affected not only by its operating activities but also by its financial activities. To clearly separate a firm's operating and financial activities in its financial statements we need to allocate tax to a firm's operating and financial activities. To do this we need to:

- Calculate the Tax benefit (or 'tax shield') to the firm of its interest expense, as follows:
Tax Benefit = Net Interest Expense x t
where,
Net Interest Expense = interest paid – interest received
t = tax rate of the firm
(the corporate tax rate in Australia is 30% for larger companies and in New Zealand is 28%).
- Add the firm's Tax benefit to its reported Tax expense and deduct this total amount from a firm's Operating Income (OI). This will give a firm's OI after tax, without including the impact on its Tax expense of any level of debt financing. In other words, it will be its OI after tax as if the firm had no borrowings and had no reduction in its Tax expense (or 'tax shield') from the tax deductibility of its interest expense.
- Add the firm's Tax benefit to its Net financial expenses (NFE). This will give a firm's NFE after tax, after attributing to its financial activities the Tax benefit of these activities. In this way, the Tax benefit will reduce NFE after tax compared to NFE before tax.

The steps to restating a firm's Income statement (and Statement of comprehensive income) are:

- Go through each item of revenue, expense and other comprehensive income and allocate them between operating and financial activities. This is usually straightforward, as we typically have sufficient information in a firm's financial statements to do this allocation.
- Allocate tax to the operating and financial components of the Income statement.
- Calculate both a firm's Operating income (OI) and its Net financial expenses (NFE) on an after-tax basis.

I have carried out these steps for Ryman Healthcare in Table 4.6 above, calculating a Comprehensive operating income after tax (OI) of \$396.6 million, a Net financial expense after tax (NFE) of \$12.2 million and a Comprehensive income (CI) of \$384.4 million.

We have reviewed how to restate a firm's financial statements to clearly identify its comprehensive earnings after tax and its book value of ordinary shareholders' equity (BV). It also clearly separates the operating and financial activities of a firm. Along with an estimate of a firm's cost of capital (which we will discuss in Chapter 7), we are able to readily calculate a firm's past Abnormal earnings. We also have the financial statements in a form that will assist us to identify the drivers, or reasons, why a firm has been able to generate Abnormal earnings in the past. In other words, we are ready to start analysing the financial statements by 'breaking things into bits'.

4.3 Analyse ROE: Leverage and Profitability

One of the accounting 'drivers' of Abnormal earnings is Return on equity (ROE). We now look at how we can analyse a firm's ROE by breaking it into three bits: leverage, profitability and efficiency. In this section, we will focus on leverage and profitability.

Breaking things into bits

Analysis involves breaking things into bits. Particularly when he was a child, my younger son was often curious about how different things worked. How does a keyboard work, or an old record player, or a watch, or a computer, or the dumb-waiter in our house, or an old clock-radio? He could not tell by looking at something from the outside. So he would take it apart and pull it to bits. Although he could often find it more challenging to put things back together again, breaking things into bits gave him some insights into how things worked. It is the same way with financial statements. Are you curious about how a firm works? You can gain useful insights into how a firm works not by physically breaking a firm into bits, but by breaking its financial statements into bits. This analysis can give us insights into how a firm is, or is not, 'adding value' to equity investors.

We start with Abnormal earnings (AE). As we have seen, $AE = [ROE - (\rho_E - 1)] \times BV$. Another way of saying this is that AE is driven by three things: Return on equity (ROE), cost of equity capital (ρ_E), and the book value of ordinary shareholders' equity (BV). In this section, we will start to analyse ROE by lifting the 'bonnet' on the financial statements and taking them apart. The 'instruction manual' on how to analyse, or take apart, ROE is shown in Figure 4.2 below. There are three aspects to this analysis: leverage, profitability and efficiency. If you remember anything from our unit, remember Figure 4.2. In many ways, it is at the heart of what we do in financial statement analysis.

Leverage

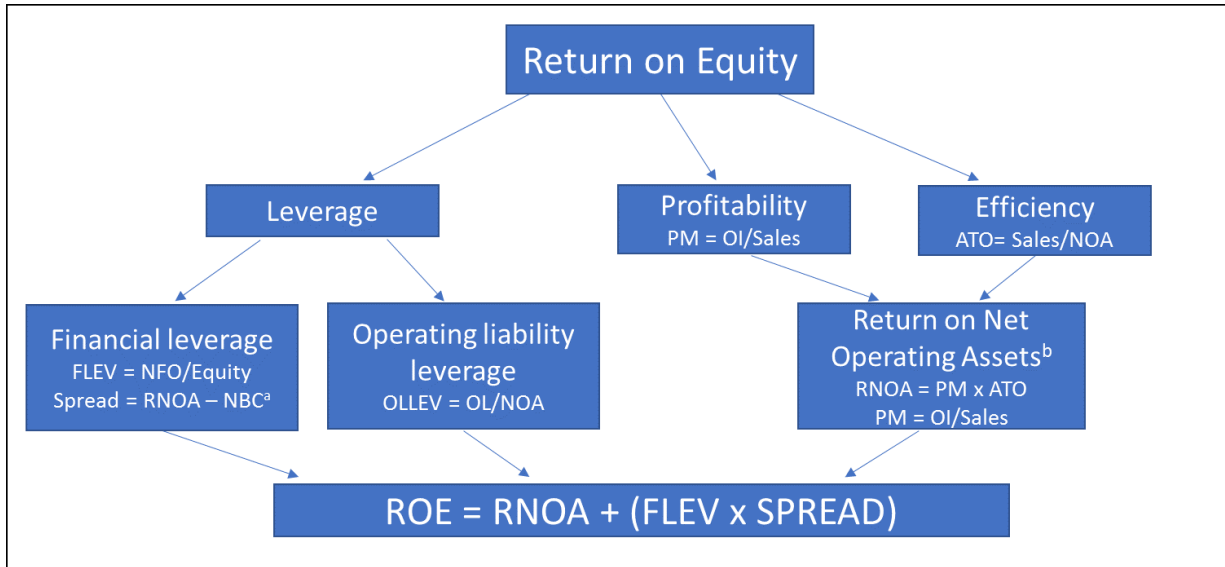
I grew up in Sydney and spent 13 years as a student in the New South Wales school system in Australia. I attended five schools in Sydney: Clemton Park Public School, Burwood Public School, Enfield Public School, Strathfield South Public School and Newington College. I had some great teachers at various times and learnt quite a few useful skills, including 'reading, writing and arithmetic'. The single most important thing I learnt was in one of my Science classes in high school at Newington College. We learnt about leverage. It is theoretically possible to move the whole earth if you could have a long enough lever. A little bit of effort at one end of the lever can result in a multiplied effort at the other. This is leverage. As we can use physical leverage to move physical objects, so we can use financial leverage to use other people's money to make more money for ourselves. Leverage is a wonderful friend in good times but can be a terrible enemy in economic downturns.

Leverage of a firm can be calculated in a few different ways, for example as Total debt/Total equity or Total debt/Total assets. If we have separated the operating and financial activities in a firm's financial statements we are also able to identify the operating and financial leverage of a firm. We can calculate *financial leverage* (FLEV) as:

$$\text{FLEV} = \text{NFO}/\text{Equity}$$

Notice we use Net financial obligations (NFO) rather than the more usual measure of Total debt. In calculating NFO, we have deducted from Total debt any financial assets a firm might have. This is the actual measure of a firm's financial leverage.

Figure 4-2 How to Analyse Return on Equity (ROE)



- a. NBC = NFE/NFO
- b. RNOA = OI/NOA = ROOA + (OLLEV x SPREAD)

Many analyses of leverage, however, do not consider another potentially important aspect of leverage, namely *operating liability* leverage. *Financial* leverage is a measure of the effect of financing some of the Total operating assets of a firm by Net debt through the debt markets rather than by shareholders' equity. *Operating liability* leverage is a measure of the effect of financing some of the Total operating assets of a firm by creditors (that is, by suppliers or customers) through the product and input markets. One is leverage because of a firm's financial activities; the other is leverage because of a firm's operating activities. These two aspects of leverage combine to reduce the amount of equity needed to fund a firm's business activities and, in this way, acts as a lever on the returns a firm can provide to its equity investors compared to the return it can earn on its operating assets.

Financial and operating leverage mean a firm is not restricted to providing its equity investors with the return the firm can earn on its operating assets. Using leverage, it can provide its equity investors with a different (hopefully higher) return than that gained from its operating assets. Let us see how these two types of leverage work for Ryman Healthcare. As at 31 March 2018, Ryman Healthcare had in place operating assets with a book value of \$5,796.8 million (see Table 4.5 above). These operating assets comprise 33 retirement villages (including about 6,400 retirement village units and about 3,400 aged-care beds), retirement villages under development as well as various other assets such as furniture and fittings, motor vehicles, debtors and inventory.

That is quite a lot of assets, or resources, put in place by the firm to generate value. These assets can generate value for customers, employees, suppliers and the general community as well as for equity investors. We are focusing on the value they can generate for equity investors. These operating assets of Ryman Healthcare, amounting to almost *six billion dollars*, did not simply appear out of nowhere. They have been funded in three ways with resources contributed by equity investors, debt holders and creditors. Based on Ryman Healthcare's restated Balance sheet as at 31 March 2018 (see Table 4.5 above), I have set out in Table 4.8 below how the operating assets of Ryman Healthcare have been funded.

Table 4-8 How the Operating Assets of Ryman Healthcare are Funded as at 31 March 2018

	\$m	%
Operating liabilities (OL)	2,787.6	48
Net financial obligations (NFO)	1,068.7	18
Ordinary shareholders' equity (BV)	1,940.5	34
Operating assets (OA)	5,796.8	100

As can be seen from Table 4.8, Ryman Healthcare has financed 48% of its Operating assets by way of Operating liabilities, 18% by Net financial obligations (NFO) and 34% by equity. Almost half of the resources needed to fund Ryman Healthcare's Operating assets have been provided by creditors through Operating liabilities. In Ryman Healthcare's case, its creditors are primarily its customers (in most firms, creditors are usually suppliers). Operating liabilities are unusually high in the case of Ryman Healthcare. This is because customers of Ryman Healthcare make interest-free advances to the firm in exchange for occupation rights over individual retirement village units. These loans from customers funded nearly half of the value of Ryman Healthcare's Operating assets as at 31 March 2018. Net financial obligations (NFO) funded 18% of Ryman Healthcare's operating assets, a relatively modest proportion compared to many firms.

The impact of leverage on returns to equity investors can be substantial. For example, in the case of Ryman Healthcare, its operating assets generated a return of 9.8% in 2018.⁵ This is the return generated by its retirement villages, rest homes, hospitals and other operating assets. It is a substantial return and compares well with typical returns firms often achieve on their operating assets of about 8-9% per year. Yet in Section 4.1 above, we saw that Ryman Healthcare provided a return on equity (ROE) of 21.4% in 2018. How could Ryman Healthcare provide this return to its equity investors when its operating assets generated 9.8% in 2018? Well, it did it through leverage. The impact of leverage on the returns a firm can generate to its equity investors is set out in the following equation or relationship:

$$\text{ROE} = \text{ROOA} + (\text{RNOA} - \text{ROOA}) + (\text{ROE} - \text{RNOA})$$

ROOA is the return on Ryman Healthcare's operating assets with no leverage. RNOA is the return on Ryman Healthcare's net operating assets, including the leverage effect of its operating liabilities. In this way, RNOA – ROOA identifies the leverage effect of its operating liabilities. The difference between Ryman Healthcare's ROE and RNOA is the leverage effect of its financial liabilities.

Ryman Healthcare's Return on net operating assets (RNOA) was 14.4% in 2018.⁶ This was greater than

the more typical return firms often achieve on their Net operating assets of about 10-11% per year. We can use the equation above to examine the impact of leverage on Ryman Healthcare's ROE in 2018:

$$\begin{aligned}\text{ROE} &= \text{ROOA} + (\text{RNOA}-\text{ROOA}) + (\text{ROE}-\text{RNOA}) \\ &= 9.8\% + (14.4\% - 9.8\%) + (21.4\% - 14.4\%) \\ &= 9.8\% + 4.6\% + 7.0\% \\ &= 21.4\%\end{aligned}$$

What this relationship shows is that in 2018 Ryman Healthcare was able to generate a ROE for its equity investors of 21.4%. Less than half of this came from the return it generated from its Operating assets (9.8%) and more than half came from its leverage (4.6% + 7.0% = 11.6%). About four-tenths of this leverage effect (4.6%) was generated from Operating liability leverage (using Operating liabilities to leverage its Return on operating assets) and about six tenths came from financial leverage (using borrowings to leverage its Return on net operating assets). Leverage can be a wonderful thing, allowing firms to provide higher returns to equity investors than the returns generated by the firm's operating assets. But this is not the full story of leverage. To better understand the impact of leverage on equity investors we need to understand the other two aspects of ROE, namely profitability and efficiency. We will next consider profitability.

Profitability

I find in business most people have a strong understanding of the concept of profitability. We tend to have a clear grasp of the idea of profit margins: how much profit I make from each dollar of sales. There are several different ways of measuring it and looking at it, but the idea itself of selling something to customers for more than it costs you (to buy inputs from suppliers and to transform those inputs in some way) seems clear enough to most people. Also, it is easy to grasp the idea that if you do not make an 'adequate' profit margin you will quickly go out of business. Indeed, the concept of a firm's profitability largely 'cuts to the chase' in terms of a firm's ability to add value to equity investors. It is seen as in some way core to the activities of a firm.

We define profit margin (PM) as:

$$\text{PM} = \frac{\text{OI}^*}{\text{Sales}}$$

* Operating Income after tax

The profit margin focuses our attention on the profitability of each dollar of sales. Clearly, the more profit a firm can achieve from each dollar of sales, the greater the 'value add' to equity investors. The 'average' profit margin in the US is about 6%, but can vary widely between industries, and between companies within industries, and over time depending on where we are in the economic cycle.⁷ For example, many firms can be expected to have PMs of more than about 10% or less than about 3%.

We can calculate Ryman Healthcare's overall operating profit margin for the year ended 31 March 2018 from its restated Income statement (see Table 4.6 above), as follows:

$$\begin{aligned}\text{PM} &= \text{OI}/\text{Sales}^8 \\ &= 396.6/694.0 \\ &= 57.1\%.\end{aligned}$$

As we can see, Ryman Healthcare's profit margin of 57.1% is very high. For every dollar of sales in 2018 it made more than 50 cents profit. There are not many businesses that can achieve profit margins like this. A large proportion of Ryman Healthcare's Operating income after tax (OI) in 2018 related to the Fair-value movement of investment properties. In some years, Revaluation of Property, plant and equipment (unrealised) is also a major item (as it was in 2017). The market value of its retirement villages is related to the market value of residential properties in the surrounding areas of each retirement village. This is because Ryman Healthcare's customers generally purchase occupation rights by selling their homes. For this reason, a key part of the drivers of Ryman Healthcare's OI is growth in residential property values.

A key part of the story of Ryman Healthcare's ability to generate a ROE of 21.4% in 2018 lies in its ability to generate Profit margins of 57.1% in 2018. However, it is only part of the story, and all parts of the story interact with each other. As I said previously, in business I find most people have a strong connection with and understanding of the importance of Profit margins in generating returns to shareholders. However, I often find much less understanding of the fact that Profit margins are not of importance in themselves, but rather it is the interaction or combination of Profit margins with efficiency – the amount of Sales generated by each dollar of Net operating assets invested in the business – that is critical. In the next section, we will consider efficiency, the remaining aspect to an analysis of ROE.

4.4 Analyse ROE: Efficiency and Leverage Revisited

This section completes our analysis of Return on equity (ROE). We will consider efficiency, the third aspect to an analysis of ROE. We will also revisit our previous analysis of leverage.

Efficiency

Efficiency is how well Net operating assets (NOA) in a business are being used to generate Sales or turnover (turnover is another word for Sales). It is measured as the relationship between Assets and turnover, called (unimaginatively) Asset turnover (ATO).

We define ATO as:

$$\text{ATO} = \frac{\text{Sales}}{\text{NOA}}$$

ATO is the amount of sales generated by each dollar of NOA in the business. It is the ability of NOA in the business to generate sales.

Alternatively, ATO can be looked at as its inverse:

$$1/\text{ATO} = \text{NOA}/\text{Sales}$$

The inverse of ATO (that is, $1/\text{ATO}$) is the amount of NOA needed to be put in place in the business to generate each dollar of Sales.

An average Asset turnover (ATO) in the US is about 2.0 times; but can vary widely between firms with most firms having an ATO between about 1.0 and 3.0 times.⁹ Typically, a firm's ATO tends to be more stable over time than its Profit margin (PM), although ATO can fall significantly for firms during economic downturns. A firm with an ATO of 2.0 times can generate \$2 of Sales each year for each dollar of NOA put in place in the business, or alternatively, 50 cents of NOA are used by the firm to generate

each dollar of annual Sales.

It is surprising how easy it is in business to overlook the importance of a firm's ATO. Yet, as can be seen in Figure 4.2 above, Return on net operating assets (RNOA) is driven by the *interaction* between Profit margins (PM) and Asset turnovers (ATO). This can be expressed as follows:

$$\mathbf{RNOA = PM \times ATO}$$

This is the du Pont analysis of operating profitability, named after the major US manufacturing company that used this analysis in the early 20th century. We can calculate Ryman Healthcare's overall ATO for the year ended 31 March 2018 from its restated Balance sheet and Income statement (see Tables 4.5 and 4.6 above), as follows:

$$\begin{aligned} \text{ATO} &= \text{Sales/NOA} \\ &= 694.1 / [\frac{1}{2}(3,009.2 + 2,497.1)] \\ &= 0.25 \text{ times} \end{aligned}$$

Ryman Healthcare's ATO is low at 0.25 times. It can generate 25 cents of Sales for each dollar of NOA the firm has in place in the business. This low ATO reduces the impact of Ryman Healthcare's strong profit margins (57.1%) on its Return on net operating assets (RNOA) (14.4%) and on its ROE (21.4%).

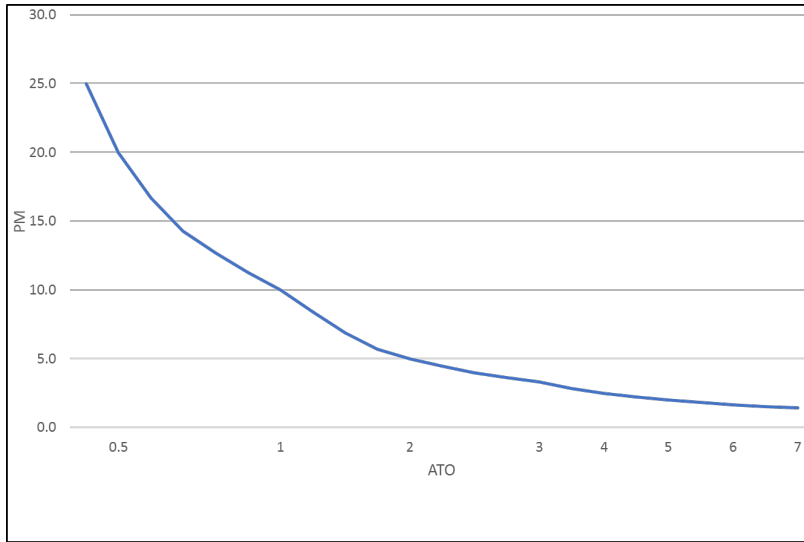
Indeed, it is usual for there to be a trade-off between PM and ATO: the higher the PM the lower the ATO and vice versa. For example, supermarkets typically make low Profit margins on their Sales (say about 3%) but generate a lot of Sales from their Operating assets (Asset turnovers of 3.0 times are not uncommon). In contrast, luxury car dealerships typically have much more substantial Profit margins (say about 10-15%) but generate much less Sales from their Operating assets (Asset turnovers of 1.0 times or less are not uncommon). This inverse relationship between Profit margins (PM) and Asset turnovers (ATO) is shown in Figure 4.3 below. All firms with the various combinations of PM and ATO represented by the line in the graph in Figure 4.3 would earn a RNOA of 10% per year. In most businesses there is a trade-off between PM and ATO. As a firm increases its PM, its ATO tends to decline; and as a firm increases its ATO, its PM tends to decline.

Averages (median) of the ratios of the various drivers of ROE in US in 1963-1999 are set out in Table 4.9 below. The averages can vary significantly across different industries and over time during different stages of the economic cycle. However, they give some guidance as to the order of magnitude of what might be typical ratios. As far as I am aware, averages for these ratios are not publicly available in Australia and New Zealand but could be expected to be broadly similar.

We have discussed the three aspects to an analysis of ROE: leverage, profitability and efficiency. We have seen profitability and efficiency interact to generate RNOA and that, in practice, in most industries there is a trade-off between PM and ATO, between profitability and efficiency. In business, many have a good grasp of PM, but can often fail to fully appreciate that RNOA (that is, operating profitability as a percentage of NOA) is not driven by PM but by the *interaction* of PM and ATO. It is the interaction and trade-offs between PM and ATO that need to be the focus of managers' attention in running a business and is a primary means for management to 'add value' to equity investors.

In the same way, many consider the effect of leverage to be driven by the amount of debt in place to help fund the Operating assets of a business: the more debt in place, the greater the leverage. We will now revisit leverage and see that leverage is not driven simply by the amount of NFOs (or debt) used to help fund a firm's Operating assets.

Figure 4.3: Trade-Off Between PM and ATO



Note: RNOA = 10% for all points on this graph.

Table 4.9: Drivers of ROE: Average (Median) Ratios in US: 1963-1999

Ratio	Median	Ratio	Median
ROE	12.2%	FLEV	0.40
RNOA	10.0%	NBC	5.2%
ROA	6.8%	SPREAD	3.9%
OLLEV	0.35	PM	5.5%
OL SPREAD	3.4%	ATO	1.94x

Source: Nissim, D. and Penman, S.H., “Ratio Analysis and Equity Valuation: From Research to Practice,” *Review of Accounting Studies*, Mar 2001; 6, 109-154: Table 1, p.129.

Note: See Figure 4.2 above for a definition of most of these ratios. OL Spread = ROOA – Short-term borrowing rate (after tax).

Leverage revisited

We saw earlier that financial leverage (FLEV) is the relationship between Net financial obligations (NFO) and Shareholders’ equity. To use the terminology of Barrow’s 1660 translation of Euclid’s *Elements*, FLEV is the ‘mutual habitude’ of NFO and Shareholders’ equity: two important ‘flatmates’ in any firm. We also saw that FLEV levers the Return on net operating assets (RNOA) into a ROE.

The relationship of ROE and RNOA can be expressed as follows:

$$\text{ROE} = \text{RNOA} + (\text{FLEV} \times \text{SPREAD})$$

Operating spread (SPREAD) is the difference between the return a firm can earn on its Net operating assets (RNOA) and the cost to the firm of borrowing (Net borrowing cost, or NBC).

Net borrowing cost can be expressed as:

$$\text{NBC} = \frac{\text{NFE}}{\text{NFO}}$$

where NFE = Net financial expenses and NFO = Net financial obligations. NBC can be readily calculated from our restated financial statements.

The key thing to notice is that the *difference* between ROE and RNOA is not financial leverage (FLEV), that is the relationship between NFO and equity which is often called a firm's gearing. Rather, the difference between ROE and RNOA is FLEV x SPREAD, that is the interaction of FLEV and SPREAD. The leverage equity investors can experience in their ROE compared to the return the firm is generating on its Net operating assets (RNOA) is driven by two things working together, only one of which is FLEV.

Operating spread (SPREAD) is the difference between the return the firm can generate on its Net operating assets (RNOA) and its Net borrowing cost (NBC). The greater a firm's SPREAD the greater the leverage equity investors gain in terms of increased ROE for each dollar of NFO introduced into the firm. If there was no difference between the return the firm can generate on its Net operating assets (RNOA) and its Net borrowing cost (NBC), the firm could increase its borrowings (NFO) as much as it liked but it would generate no leverage between its ROE and RNOA. Leverage between a firm's ROE and RNOA depends on the *interaction* between FLEV and SPREAD, between a firm's level of borrowings and the profitability of its operations compared to its cost of borrowing. It is both working together that levers ROE compared to RNOA.

In 2018, Ryman Healthcare had substantial operating spread of 13.1%, calculated as RNOA of 14.4% minus NBC of 1.3%¹⁰. Note that both RNOA and NBC are after tax, as both Operating income (OI) and Net financial expenses (NFE) are after tax in our restated Income statement. Even though Ryman Healthcare had only a slightly above 'average' level of FLEV (NFO/Equity) of 53.3%¹¹, because of its substantial SPREAD its gearing had a significant impact on its ROE, increasing its RNOA of 14.4% to a ROE of 21.4%, an increase of 7.0%.

We have seen how to analyse the Return on equity (ROE) of a firm into leverage, profitability and efficiency. In the case of Ryman Healthcare, we have seen that its ROE can be broken into:

$$\begin{aligned} \text{ROE} &= \text{ROOA} + (\text{RNOA}-\text{ROOA}) + (\text{ROE}-\text{RNOA}) \\ &= 9.8\% + (14.4\% - 9.8\%) + (21.4\% - 14.4\%) \\ &= 9.8\% + 4.6\% + 7.0\% \\ &= 21.4\% \end{aligned}$$

In 2018, financial leverage played only a part in driving Ryman Healthcare's ROE (7.0%, that is about one-third of its total ROE), with operating liability leverage also contributing to Ryman Healthcare's strong ROE (4.6%, that is also about one-fifth of its total ROE), as did its ability to earn a slightly above average ROOA (9.8%, that is about 45% of its total ROE).

We can see that Ryman Healthcare's RNOA of 14.4% was primarily driven by a very strong profit margin (PM) of 57.1%, with a low asset turnover (ATO) of 0.25 times. Some of the key economic and business drivers of Ryman Healthcare's strong PM in 2018 were:

- Strong development margins and growth in residential property values, which led to upward revaluations of Ryman Healthcare's properties.
- Strong demand for retirement village units. This is due to:
 - about 3% per year population growth in the 75+ age group in New Zealand and Australia.
 - a growing *proportion* of people in the 75+ age group in New Zealand and Australia who wish to live in retirement villages.
- Ryman Healthcare's significant capacity to develop, own and manage retirement villages. In other words, Ryman Healthcare has the capacity to provide a significant 'stock' of retirement village units to meet the strong market demand. Ryman Healthcare's ownership of a significant 'land bank' of future development sites and its significant in-house property development and construction capability underpins its capacity to continue to grow strongly its portfolio of properties.
- Rate of turnover of occupation rights for existing retirement village units. Currently, existing residents in retirement village units stay in their units for about 7 years, before they either die or move into other stages of their integrated retirement village (serviced apartments, rest homes or hospital care). Every 7 years or so Ryman Healthcare is, on average, able to resell occupation rights to each of its retirement village units.
- High occupancy levels of Ryman Healthcare's retirement village units, serviced apartments, and rest home and hospital beds. This relates to several factors, including overall market demand as well as Ryman Healthcare's reputation, quality of service and the effectiveness of its marketing.

Ryman Healthcare has a stated policy of growing its earnings by 15% each year over the medium term, which it has been achieving, or exceeding, over many years. We have gained some insights into what was driving Ryman Healthcare's strong ROE of 21.4% in 2018. First, we investigated some of the key accounting 'drivers' of Ryman Healthcare's ROE and then started to consider some of the key economic and business drivers that might be driving, or causing, the level of Ryman Healthcare's accounting 'drivers' (such as its strong PM). So far, we have only been looking at the past, a trip already taken by equity investors. No one ever got rich by analysing the past. Our only interest in analysing and understanding the past drivers of ROE is to prepare us to ask a key question: how do we expect ROE for a firm to *change in the future*?

Conclusion

This chapter has given us some ideas about how we can understand the past. It is possible to have a high degree of confidence about what happened in the past, if our sources of information are reliable. The financial statements can help us engage with what we can know about a firm's economic and business realities. We have seen how we can restate a firm's Balance Sheet and Income Statement. This helps us to clearly separate the operating and financial activities of a firm and to identify a firm's comprehensive earnings and book value of ordinary shareholders' equity (BV). Comprehensive earnings (expressed as ROE) and BV are two of the three aspects we need to identify to be able to calculate a firm's Abnormal earnings (AE). The third aspect is cost of capital (which we will look at further in Chapter 6). A firm's AE is a measure of its economic profit. We also analysed a firm's Return on equity (ROE) by breaking it into leverage, profitability and efficiency.

We have seen that the past is a trip already taken; and it is a trip easier to understand and analyse than the future, which is a trip yet to be taken, a path no-one has yet trodden. Understanding the past is of no value by itself. Its value, however, is in providing a starting point to answering the central question of financial statement analysis: how the key drivers of the past could be expected to *change* in the future. Everyone is wise after the event; few have this wisdom *before* the event. Our unit is about helping us to start to develop the capacity to have a degree of wisdom before the event, to be able to make our own assessments of the value of a firm based on our own analysis of its financial statements and of other information about a firm. In the next chapter, we will look at how to use our understanding of the past of a firm to better predict its future. This is what we will need to be able to do if we are going to assess the value of a firm. Also, in the next chapter we will focus on forecasting a firm's enterprise (not its equity) profit as well as its Free cash flow (FCF). We will do this by choosing to focus solely on a firm's operating activities and not on its financial activities.

FOOTNOTES

1. Investment properties "include land and buildings, equipment and furnishings relating to retirement village units and community facilities, including units and facilities under development. They are intended to be held for the long term to earn rental income and for capital appreciation" (footnote 1(d) in Ryman Healthcare's 2018 Annual Report). Retirement village units and community facilities are revalued every six months using an independent registered valuer. We see in Table 4.1 that Fair value movement of investment properties is included in Ryman Healthcare's Income statement and in its Profit for the year.
2. Miller, M.H., "The Modigliani-Miller Propositions After Thirty Years," *Journal of Economic Perspectives*, 1988. 2(4): 100.
3. This figure is based on a chart for all stocks and flows for a firm in Penman S.H, *Financial Statement Analysis and Security Valuation*, McGraw-Hill/Irwin. New York 5th edition. 2013: 244.
4. Modigliani, F., "Introduction". In A. Abel (ed.), *The Collected Papers of Franco Modigliani*, volume 3, pp. xi-xix. Cambridge, Massachusetts: MIT Press. 1980.

5. ROOA of 9.8% has been calculated as follows:

$$\begin{aligned} \text{ROOA} &= \frac{\text{OI} + \text{Implicit Interest (After Tax)}}{\text{Operating Assets}} \\ &= \frac{396.6 + 130.9}{\frac{1}{2}[5,796.8 + 4,944.8]} \\ &= \frac{527.5}{5,370.8} \\ &= 9.8\% \end{aligned}$$

The implicit interest (after tax) can be calculated as the short-term borrowing rate (after tax) (I used 5%) times the average operating liabilities, that is: $5\% \times \frac{1}{2}[2,787.6 + 2,447.7] = 5\% \times 2,617.7 = \130.9m .

6. RNOA of 14.4% has been calculated as follows:

$$\begin{aligned} \text{RNOA} &= \text{OI/NOA} \\ &= 396.6 / [\frac{1}{2}(3,009.2 + 2,497.1)] \\ &= 14.4\% \end{aligned}$$

7. See Nissim, D. and Penman, S.H., "Ratio Analysis and Equity Valuation: From Research to Practice," *Review of Accounting Studies*, Mar 2001; 6, 109-154: Table 1, p.129; and Palepu, K.G. and Healy, P.M., *Business Analysis and Valuation: Using Financial Statements: Text & Cases*, Thomson/South-Western. 4th ed. 2018: Table 5.10, p. 5-25.

8. Sales = Total income. See Table 4.1.

9. See Nissim, D. and Penman, S.H., op.cit; and Palepu, K.G. and Healy, P.M., op. cit.

10. NBC = NFE/NFO

$$\begin{aligned} &= \frac{12.2}{\frac{1}{2}(1,068.7 + 845.0)} \\ &= 12.2/956.9 \\ &= 1.3\% \end{aligned}$$

11. FLEV = NFO/Equity

$$\begin{aligned} &= \frac{\frac{1}{2}(1,068.7 + 845.0)}{\frac{1}{2}(1,940.5 + 1,652.1)} \\ &= 53.3\% \end{aligned}$$

QUESTIONS

- 4-1. Why should we bother restating a firm's financial statements? What benefit is there in simply re-arranging the elements of a firm's financial statements?
- 4-2. Why is clearly separating a firm's operating and financial activities a "powerful way of viewing a firm"? What is the difference between a firm's operating and financial activities? Why is this difference so fundamental that there is benefit in considering each quite separately?
- 4-3. Why does the quote from Merton Miller (of 'Modigliani and Miller' fame) in this chapter that "... showing what *doesn't* matter can also show, by implication, what *does*" actually mean to you? What benefit might there be in focusing on the enterprise of a firm, rather than on its equity? What risks or dangers might there be in this approach?
- 4-4. What aspects of a firm's financial statements drive its Return on equity (ROE)?
- 4-5. Which aspects that you identified in your answer to Question 4-4 above do you think are the most important? What, in turn, drives these accounting drivers of a firm's financial performance? When analysing a firm's financial statements, what do you think we should focus on, and why?