

CHAPTER 7: HOW TO PREDICT THE FUTURE TO ETERNITY

I regard knowing as an active comprehension of the things known, an action that requires skill ... into every act of knowing there enters a passionate contribution of the person knowing what is being known, and that this coefficient is no mere imperfection but a vital component of his knowledge ... So it is our personal participation that governs the richness of concrete experience ...

Michael Polanyi¹

In this chapter, we will consider that the whole concept of value is subjective and cannot be reduced to mathematical formula. One of the reasons for this is that valuing an equity interest in a firm involves the need to predict the future earnings of a firm to eternity. None of us can do this mathematically. The reason for this is that we cannot know for sure what the future will hold. In this chapter, we will discuss what we can do about this. We will also think about how we can deal with the interesting psychological phenomenon called risk. We will see this is another area no-one has figured out how to reduce to a mathematical formula. It involves more guesses; more judgements. Indeed, this chapter is about the 'loose ends' and untidy difficulties of knowing what adds value. To know what adds value would be a great thing. But as Michael Polanyi has pointed out: knowledge is a *personal* thing. Also, it is something we share and develop in community, never alone. So, let us think about how we can predict for our firms the future to eternity, risks and all.

7.1 Putting the Guesswork into Eternity

In this section, we will think about the implications of needing to value an equity interest based on our forecasts into eternity, which is a very long time. One of these implications is the essential need for guesswork in valuing firms.

Eternity is a long time

January 1, 2000 was the beginning of a new millennium. This does not happen too often; in fact, it only happens every 1,000 years. There were scares of the millennium bug; concerns that computers around the world would malfunction as each time zone around the world progressively ticked over to 2000. These were unfounded concerns, as it turned out. Never trust IT specialists, we collectively muttered at the time (while also being slightly relieved). I spent New Year's Eve that year in New Zealand. Being in one of the world's first time zones, we celebrated the New Year and new millennium before most people in the world. The New Year progressively rolled around the world, with impressive fireworks in the world's major cities. The fireworks in Sydney Harbour were spectacular and received international attention. On the Sydney Harbour Bridge the words "Eternity" in neat copperplate handwriting appeared as the centrepiece at the end of the fireworks display. The same word appeared on the Sydney Harbour Bridge during the fireworks display at the end of the opening ceremony at the Olympic Games in Sydney later that year.

In the early 1930s, Arthur Stace, who had been a homeless alcoholic, started to write the words 'Eternity' in yellow chalk on the footpaths of Sydney in the early hours of the morning. He did this for

over 35 years, until his death in the late 1960s. These words were everywhere, in immaculate copperplate handwriting: on footpaths, entrances to train stations, and anywhere else he thought it would catch people's attention. They became a noticeable feature each day for Sydneysiders in the city and in some of the inner suburbs. Nobody knew who wrote these words until 1956 when the identity of the person doing this - dubbed "Mr Eternity" - was discovered. It was a 'nobody' called Arthur Stace who had been crazily writing the word 'Eternity' on Sydney's streets. Yet there was his handwriting taken decades after his death and emblazoned across the Sydney Harbour Bridge at the dawn of the current millennium: *'Eternity'*.

We do not think much about eternity. It is a long time. Yet our theory of the valuation of firms and our conceptual framework for the practice of financial statement analysis is based on valuing dividends, cash flows or earnings for eternity. This is what an equity interest in a firm gives us. Sure, firms will not last for eternity. Eventually, firms will be either liquidated or taken over and an equity interest in the firm will cease to exist. But the final payment received for an equity interest on liquidation or from a takeover bid would be related to the view of the value of the firm or its assets at that time. This value would depend on the expectation of dividends, cash flows or earnings from the firm or its assets in the future (to eternity). Of course, eventually everything comes to an end. Also, although it may not be to eternity, some firms can last a long time. They can last decades, even (sometimes) centuries.

Our DCF and economic profit valuation models, even when simplified to exclude a firm's financial activities, still requires us to forecast cash flows and Abnormal operating income (Abnormal OI) for eternity. I do not know about you, but I am often not sure what I will be doing this weekend, let alone this time next year, or in ten years' time, or in eternity. So how can we possibly expect to be able to forecast a firm's Abnormal OI for eternity? In this chapter we will discuss how to do this in practice. Those participating in the capital markets of the world recognise this difficulty. Indeed, it is the difficulty of predicting the future to eternity that underpins the central difficulty of financial statement analysis and the fundamental analysis of firms. It is why we can never objectively know what a firm is worth. Yet, fortunately for us, investing equity in firms and analysing the financial statements of firms is not an absolute game. When we purchase or sell an equity interest in a firm we purchase or sell it from someone else. It is this aspect we will now consider.

Guessing Better Than Others

All of you use information from both financial statements and other sources to evaluate the longer-run economic performance of a company. You then assess whether the inherent economic value is reflected in the current stock price. But, in making this assessment, your focus is not on coming up with a precise valuation, but on identifying large price-to-value gaps and the risks associated with the valuation estimates.

Trevor Harris, Morgan Stanley²

Finance theory is based, among other things, on the assumption of homogeneous expectations among all participants in the capital markets. This means that everyone thinks the same thing about the future. No-one thinks this assumption is true, although finance models based on this assumption can be very useful in predicting behaviour in our capital markets. This assumption is not true because it is when people's expectations about the future diverge, when they are different, that transactions occur in the capital markets. So when you are purchasing or selling equity interests in firms, whether in the world's

listed equity markets or in the private equity markets, you are pitting your capacity to predict the future to eternity against someone else's capacity. It is the great paradox of finance theory that it is possible to do this consistently and win. This is why financial statement analysis and fundamental analysis of firms is a worthwhile activity for equity investors.

... in practice, when we discuss the fundamentals of a company and how the market is likely to value the stock, we focus on the two to three years immediately ahead. We've found that beyond three years, we're going too far into the fiction zone where people's models tend to have 'garbage in, garbage out' problems ... we use a thought process that has a rolling two- to three-year time horizon.

*Andrew Lacey, Lazard Asset Management*³

The quality of our financial statement analysis will be based on the extent to which we are better at predicting the future of a firm to eternity than other equity investors in the capital markets. Given that many equity investors give little or no attention to this task, gaining real skills and capabilities in this may give us an edge. It may allow us to know what adds value better than many others. To be able to value firms using the DCF and economic profit models we need to be able to forecast a firm's future Abnormal OI (and cash flows) to eternity. We know growth in expected Abnormal OI is driven by increases in the Return on Net operating assets (relative to the cost of capital) and by increases in the book value of Net operating assets. Usually, we can only meaningfully forecast a firm's Abnormal OI for a short period, for just a few years.

However, if we based our view of the value of a firm on the present value (PV) of just a few years of Abnormal OI we would be omitting a large part of the value of the firm. An equity interest in a firm entitles the investor to returns to eternity, not just for a few years. To overcome this difficulty, we need to calculate a continuing value for a firm beyond our practical forecast horizon for forecasting Abnormal OI. Look around where you are. Your horizon is how far you can see. It may be a short distance (for example, if you are in a room with the blinds shut) or a longer distance (for example, you may have a panoramic view of a harbour or a valley before you). Whether shorter or longer, your horizon is limited, as is your practical forecast horizon for predicting a firm's Abnormal OI.

What lies beyond our forecasting horizon for our firm? The answer is, we do not know. I will say that again; we do not know. We cannot predict it by forecasting the economic and business drivers of a firm and relating these to the firm's accounting drivers (that is, to a firm's financial numbers) and hence to a firm's value. We cannot see over the horizon of a firm's future. What lies beyond the horizon is *speculation*. When the initial British settlers of Wellington came in 1840, they saw that Wellington Harbour was surrounded by large hills and they initially suspected that there was little flat, arable land beyond those hills. They could easily imagine a continuation of the hills that they could see spreading out for long distances in all directions. Well, that was not correct. But newly arrived, sitting in Wellington Harbour in a small sailing ship after having survived a voyage half way round the world and looking at the surrounding hills, you could only speculate as to what might lie beyond.

So, what do we do? The answer is, we *guess*. We guess, because we must; and we guess, because we think we can do it better than many others in the equity markets. Indeed, these guesses are the judgements we can often make better than many others and so they can be a key way we make money and contribute to our community by allocating capital well. But we must never forget that we are guessing and will invariably be wrong. So we will look for a *margin of safety* when using the results of our analysis to make investment decisions. A margin of safety is the difference between our estimate

of the value of a firm and the amount we pay to purchase an equity interest in a firm. Essentially, it is this *margin of safety* that will make us rich as an equity investor by skewing the risk-return relationship of our equity investments in our favour.

In the late 1980s, following the collapse of one of the more colourful and famous Australian entrepreneurs, Standard & Chartered Bank in Hong Kong found itself in control of a 50% interest in a large trust that owned over 200 pubs and hotels throughout Australia. They engaged the investment bank I worked for at the time to sell this interest. It seemed to us the best thing to do was to have each pub or hotel valued individually to find out what the net asset backing of the trust was (based effectively on a liquidation value) as a starting point to deciding what the interest in the trust might be worth. So, we engaged a team of three experienced 'pub valuers' to embark on this task. The pubs and hotels were spread throughout Australia, including remote locations in Australia's outback. It also happened to coincide with a major airline pilots' strike in Australia, which made travelling the vast distances around Australia, well, interesting.

I went with the leading 'pub valuer' of the team as he inspected a few of the hotels in Sydney. Before he looked at the accounts of each hotel he walked through the premises and took a few notes in his notebook. He then took me aside and showed me how he could calculate how much the hotel 'should earn' based on the physical amount of alcohol sold in the hotel (based on its official records which it submitted to the liquor licensing authority), his noting of the various prices charged and his estimates of where the sales would proportionately fall in the various aspects of the hotel (bottle shop, public bar, and so forth). And in the corner of the public bar of each of these hotels were a few gaming machines. I talked to the manager of one of the hotels. He said the gaming machines were amazing.

They would open the back of the gaming machines every few days and empty out enormous amounts of cash, close them up again, and then in a few days open the back of them again and empty out enormous amounts of cash, and so on and on. Indeed, it was not unusual (in the late 1980s) for about one-half of the value of each pub or hotel in Australia to be related to the profits earned from a few gaming machines sitting in one corner of their premises. The point of the story is this. The reason the manager of the hotel could open the back of the gaming machines and regularly have a lot of cash come out was because the odds of winning in the gaming machines were set in favour of the 'house'. The odds were stacked in their favour. Play a gaming machine long enough and you will lose and the house will win: guaranteed. Anyone who has played gaming machines would be all too aware of this harsh reality.

The idea of having a significant *margin of safety* is the same idea as a hotel having its gaming machines programmed to have the odds in its favour. However, the hotel owner controls the environment. They can set the odds on their gaming machines to ensure the 'house' wins. We do not control the environment of firms. Indeed, we have only a very limited understanding of what the future may hold for a firm. A firm is certainly not like a gaming machine in that respect. We cannot open the back of a firm and see how it has been programmed to produce Abnormal OI into the future. Well, not exactly. But we can 'open up the back' of firms. Financial statement analysis is a key skill we need to be able to 'open up the back' of firms and see how they 'tick', how they are programmed, how their business model is working to provide equity investors with Abnormal OI.

But firms are not machines. We know that because firms involve people. Also, while a gaming machine functions as an independent machine, firms do not. Firms operate in various marketplaces in which they compete and interact with various other parties; more people. There are also a wide range of factors that can impact on firms that are beyond the control of any person or group of people. So we seek to skew the odds in our favour by having a margin of safety. However, there will always be

considerable uncertainty and risk, so we want a large margin of safety. We have seen the need for guesswork in analysing financial statements, as we move beyond our forecast horizon and extend our imaginations into eternity. We need to estimate continuing values for firms on the edge of our forecast horizon to capture our speculation about what may lie beyond. In the next section, we will look at how we can practically determine continuing values when calculating the Present value (PV) of Abnormal OI and the value of a firm.

7.2 Continuing Values

I think there is a real arbitrage opportunity for investors willing to look out three, four or five years.

Michael Mauboussin, Legg Mason⁴

This section is about how we can determine a measure for what we do not know. We have seen in previous chapters that our economic profit model can be expressed as:

$$V_0^E = \text{BV of Equity} + \text{PV of Abnormal OI}$$

Now,

$$\text{PV of Abnormal OI} = \frac{\text{Abnormal OI}_1}{\text{WACC}} + \frac{\text{Abnormal OI}_2}{\text{WACC}^2} + \frac{\text{Abnormal OI}_3}{\text{WACC}^3} + \dots$$

In other words, the PV of Abnormal OI is calculated by discounting the expected future Abnormal OI of a firm for eternity by the required rate of return for operations (WACC). However, it is only practical to forecast Abnormal OI for a firm for a relatively short period of time; for just a few years. This is called the forecast horizon. How far we can see into the future will vary for different firms. But there will always be a limit, a horizon. We can conceive the value of the equity in a firm to be:

$$V_0^E = \text{BV of Equity}_0 + \frac{\text{Abnormal OI}_1}{\text{WACC}} + \frac{\text{Abnormal OI}_2}{\text{WACC}^2} + \dots + \frac{\text{Abnormal OI}_t}{\text{WACC}^t} + \frac{\text{CV}_t}{\text{WACC}^t}$$

where the forecast horizon is to period t and CV_t (which we call the continuing value) is the value of the firm's equity at the end of the forecast horizon.

Now, does not this simply mean we have transferred our problem of valuing an earnings stream into eternity as at the *present* date into a problem of valuing an earnings stream into eternity as at a *future* date (that is, in period t)? The answer to this question is, well, yes. But what we have achieved by doing this is to separate clearly what we can reasonably estimate based on information we can critically analyse (that is, BV of Equity₀ and Abnormal OI₁, Abnormal OI₂ ... Abnormal OI_t) from what we cannot (that is, CV_t). It is not possible to know the future but within the constraints of our forecast we can make convincing, sensible, sound estimates about the future based on a clear understanding of the economic and business drivers of a firm and our forecasts of these drivers. To the extent we can do this, our estimates of value are grounded in reality and can be subject to the discipline of critical discussion and review by us and by others.

What do you think distinguishes a crank, or 'mad' person, in our capital markets from a financial 'genius'? For example, Copernicus was not a crank. He was Polish and lived in the late 15th and early

16th centuries and proposed that the earth rotated around a stationary sun, rather than the other way around. This whole issue seems quite quaint to us today. To conceive of the sun or the earth as stationary or as the ‘centre’ of the universe is both odd and irrelevant. Any point in the universe, including the earth and sun, could be used as a fixed point should we wish to think of it that way and the rest of the universe considered as related to this point. However, it was a big issue in 16th century Europe. For example, the Christian religious authorities of the time were concerned the notion of the earth rotating around the sun could encourage a return to sun-worship by some people.

But why was Copernicus not a crank? It was not because he was correct in his ideas. Our current understanding perceives a universe of almost ‘infinite’ scale (that is, really, really big), compared to our relatively small sun’s minor solar system on the edge of the Milky Way. The sun is clearly not the centre of the universe. However, even though Copernicus was to be later proved ‘wrong’, he was not a crank because he was highly critical of his own ideas, which he rigorously and carefully questioned and examined in the light of astronomical observations.⁵ In the same way, our DCF and economic profit models are both based on a theory or idea that can help us focus our critical examination of a firm’s financial statements (and of other information that we may have on a firm) to help us understand the economic and business drivers of a firm.

These frameworks, or ways of thinking, can help focus our efforts on rigorously assessing the information we have to form a view on the value of a firm. This can increase our confidence in our assessments and give us a solid foundation on which to stand when making decisions on how to allocate our scarce capital into equity investments in firms. However, an analysis based on our DCF and economic profit frameworks does not give the ‘complete’ or ‘correct’ answer. One reason for this is the limitations of our horizon. We can only practically ‘see’ so far. Beyond that, it is pure conjecture.

As we have mentioned previously, there is value in separating out what is based on analysis of relatively objective information (things which we, to some extent, can ‘know’) and what is speculation, judgements based on what we do not know or on guesses or hunches.⁶ By clearly separating that part of our analysis based on careful assessments from those based on speculation, we can identify and limit the amount of speculation and sentiment (for example, fear and greed) that can easily drive our capital markets, particularly at certain times. Remember, our capital markets effectively trade in expectations or dreams about the future. In this way, we can make better capital allocation decisions ourselves and be part of an overall capital market ‘climate’ that can lead to better capital allocation decisions more generally by market participants. This would have considerable social and economic benefits in any community.

Notice that our expression achieves this separation:

$$V_0^E = \text{BV of Equity}_0 + \frac{\text{Abnormal OI}_1}{\text{WACC}} + \frac{\text{Abnormal OI}_2}{\text{WACC}^2} + \dots + \frac{\text{Abnormal OI}_t}{\text{WACC}^t} + \frac{\text{CV}_t}{\text{WACC}^t}$$

The continuing value (CV_t) is based on speculation. The current BV of equity and our forecasts of Abnormal OI we can critically analyse, discuss and assess in detail. So how do we arrive at a continuing value for a firm when using an economic profit model to estimate a firm’s value? When the early British settlers in Wellington in 1840 were thinking further about what might lie beyond their immediate horizon of the rugged hills surrounding Wellington Harbour, they probably thought about a few possible scenarios. Perhaps those early British settlers in Wellington thought that the rugged hills continued for a long distance in all directions (that is, no arable land nearby); or perhaps that there was some flat, arable land to the east only (that is, some arable land nearby); or perhaps that there was extensive arable land behind all the hills (that is, large amounts of arable land nearby).

They probably did not seek to form scenarios or speculations that there might be arable land of a certain specific type, or of various heights above sea level, or with thick forests or open plains or any of a wide range of specific possibilities. There was no point in doing this, since they did not know anything about what might lie over the hills and ranges. We can do the same when thinking what might lie beyond our forecast horizon for a firm. It is most effective to simply make some broad assumptions beyond those periods where we can forecast Abnormal OI.

The formulas for continuing value we have incorporated into the spreadsheet in this unit are:

DCF model:

$$CV_t = \frac{OI_{t+1} [1 - (g/RINOA)]}{WACC - g}$$

Economic profit model:

$$CV_t = \frac{\text{Economic profit}_{t+1}}{WACC} + \frac{OI_{t+1} (g/RINOA)(RINOA-WACC)}{(WACC - g)}$$

where

g = expected growth rate in OI

RINOA = expected rate of return on incremental Net operating assets (i.e. on new invested capital).

These continuing values (CV) are perpetuity-based⁷ formulas with constant growth, margins, asset turnover and WACC. Both CV formulas make explicit the assumptions about RINOA, the expected rate of return on incremental Net operating assets (i.e. on new invested capital) invested after the forecast period. Although the continuing value (CV) differs between the DCF and economic profit models, the value of a firm will be the same with either model, given the same projected financial performance. Under the economic profit model, the CV formula is the Present value (PV) of economic profit in the first year after the forecast period in perpetuity, plus an incremental economic profit after that year based on additional investment in Net operating assets at returns exceeding the cost of capital. If expected RINOA equals WACC, then the second half of the CV formula for the economic profit model is zero and the continuing value is the first year's economic profit in perpetuity.

Remember the early British settlers in Wellington probably did not seek to generate detailed scenarios in their minds about what might lie beyond their immediate horizon of the rugged hills surrounding Wellington Harbour. At least there was no point in doing this. If someone had the time, they might have imagined detailed visions of streams or waterfalls in picturesque small valleys, or details of potential rock formations that may or may not exist beyond the hills. But it is unlikely they did. They were too busy ensuring their survival; deciding where to establish their town, grow crops, build houses, even how to survive some early earthquakes. In terms of speculating about what might lie beyond the hills, beyond their horizon, they needed to stick to broad generalities or possibilities. The key issue for them was how much, if any, arable land might lie over the hills. It is the same with financial statement analysis. We have limited time and energy to devote to analysing firms. We need to focus on the key aspects that will affect value.

There are several issues involved in selecting continuing value scenarios and a few traps for the unwary. These issues and traps generally relate to being over-confident about our ability to predict what lies beyond our forecast horizon. We should always remind ourselves that we do not know what lies beyond our horizons. It may or may not be a pot of gold. Indeed, even if there is a pot of gold, given

the likelihood of mean reversion⁸ in most markets most of the time, it probably will not stay that way after a sufficient elapse of time. A key trap in selecting a continuing value scenario is to assume the past will continue indefinitely into the future. We can be at risk of doing this whether a firm has strong or poor existing growth. If a firm is providing strong growth in Abnormal OI, then it is likely it will not be able to continue to do this indefinitely.

In the case of Ryman Healthcare, other competitors could be expected to enter their markets, customer acceptance of the sale of occupation rights might change (perhaps stimulated by competitor behaviour), and the market for retirement village units may one day become 'saturated' and the opportunities for future growth reduce. At one extreme, once every person over 75 years of age is living in a retirement village, the opportunities for growth will be much less. A slowdown in growth is inevitable eventually. Also, demographic factors such as an ageing population in New Zealand and Australia will eventually reverse as the 'baby-boomer' generation dies in the next 20-40 years. However, some firms do manage to provide a large and growing Abnormal OI for long periods of time. For example, Ryman Healthcare has been performing strongly since its listing in 1999. A few companies do manage to buck the trend of mean reversion of returns for quite long periods; but usually it is only a few.

Factors that suggest Ryman Healthcare may be able to maintain and grow its high level of Abnormal OI include: the element of local monopoly held by individual retirement villages, due to the difficulty of securing suitable sites in appropriate residential areas (in this respect, they are similar to regional shopping centres); and the business model of Ryman Healthcare, which has 'built-in' growth as it is able to resell occupation rights in its retirement village units and also grow its deferred management fees. The business model used by Ryman Healthcare means some aspects of Ryman Healthcare's business are easier to predict than is the case for many firms. It is almost as if there are a few gaps in the hills around Wellington Harbour that allow us to see a few years further for Ryman Healthcare than we can see for many other firms. Indeed, it is relatively easier to predict Abnormal OI for firms with established and proven business models in strongly growing markets where they can extend and develop their activities using their existing business models, than it is for firms facing more significant change and unpredictability in their markets and environment.

We have seen one trap in selecting a continuing value for a firm is to assume the past will continue indefinitely into the future. Another trap is to fail to carry out sensitivities in our calculation of a firm's continuing value. We should conduct sensitivities over a wide range of possible scenarios. This will help to give us a feel for the possible valuation ranges for a firm based on changes to the primarily speculative elements of our valuation. This may also suggest the range of prices at which it may be possible to transact in a firm's equity, both in terms of buying (when sentiment is more negative) and of selling (when sentiment is more positive).

Explicitly considering the parts that make up a continuing value can be particularly useful in assessing the apparent reasonableness of the listed share price of a firm or any price offered for the equity of a private firm. We can use the economic profit model to determine the growth rate beyond the forecast horizon that is implicit in the share price of a firm. We can then assess the reasonableness of this implied growth rate which can help us identify where speculation and sentiment may be outweighing an intelligent assessment of the value of a firm. For example, we could run sensitivities on the growth rate we use in the continuing value (CV). Forming considered views about the appropriate growth rate to use in our continuing value is important. We can discuss issues about a firm's appropriate growth rate with others, with thought and analysis going into this as best we can. There may be some useful long-range forecasts for residential property values or other economic data that we might find useful

in thinking about what might lie beyond our forecast horizon for Ryman Healthcare and how best to handle our calculation of a continuing value.

We can also complete various sensitivity analyses concerning our forecasts of Abnormal OI, changing our forecasts of sales, ATO and PM and other factors in various ways to gauge their effects on our view of the value of a firm. For example, we could run sensitivities for Ryman Healthcare with different forecasts of residential property values (and with different property revaluation forecasts), and with changes in the forecast level of sales of occupation rights. Such an analysis would show that our economic profit valuation of Ryman Healthcare is highly sensitive to changes in our forecasts of residential property values and somewhat sensitive to our forecast of sales of occupation rights⁹. This suggests we should put effort into our forecast of residential property values, as our judgements around this factor will have a significant impact on our assessment of the value of Ryman Healthcare using our economic profit framework.

We have examined some of the issues about how to analyse the BV of equity, make Abnormal OI forecasts and calculate continuing values. The remaining aspect to consider when using DCF and economic profit frameworks is the discount rate to use, that is WACC, the cost of capital for operations. This is related to the risk of the firm's business activities. In the next section, we will look at this remaining aspect to our model: the interesting psychological phenomenon called risk.

7.3 Risk

... the fallacy of setting price targets, or single point estimates of intrinsic value. I believe you should always think about investments in terms of probabilities – that is, possible ranges of values, with probabilities assigned to each value.

Michael Mauboussin, Legg Mason¹⁰

Risk is an interesting psychological phenomenon. Some people love risk, others hate it. Some people love taking 'crazy' risks when they are young, and then seek to avoid taking most risks when they are old. Some people take risks after carefully considering them; others take risks without much consideration, or sometimes without even being aware of the risks they are taking. This section looks at what risk is and how we can possibly measure it.

Muddy swamps

There is a high, hard ground where practitioners can make effective use of research-based theory and technique, and there is a swampy lowland where situations are confusing 'messes' incapable of technical solution ... in the swamp are the problems of greatest human concern.

Donald Schön¹¹

In business, risks are lurking everywhere. But what *is* risk? Risk is uncertainty, not knowing what might happen next, not knowing what might happen in the future. In a sense, risk is not being able to know. Risk can also be thought of as a probability distribution: different expected probabilities or likelihoods of different possible outcomes. We live in a world where the unexpected can happen, and it probably

will. Things we do not expect to happen might happen and they might happen when we do not expect it. It is easy to think of risk as being the possibility of bad things happening, things we do not like, or which are painful. However, risk is more like *uncertainty* about whether good or bad things might happen.

Investing in the equity of firms is about balancing risk and return and seeking to have that balance in our favour. It is a bit like the owners of gaming machines in hotels. If we can get the balance between risk and return in our favour we should find plenty of money when we open the back of the gaming machines. To be able to use our DCF and economic profit models we need to forecast returns to equity investors, which is the expected future Abnormal OI (or expected future cash flows). When we are dealing with the future we can only talk about *expected* returns. This means we must also acknowledge the possibility of the unexpected, the possibility (or, indeed, perhaps the near certainty) we might receive returns that are different to those we expect. As I mentioned in the previous section, a difference between firms and gaming machines is that, unlike gaming machines, firms are not machines that can be set in certain ways. Indeed, there are many things we cannot control in business, including the environment of firms.

The reality is that business, and life, is uncertain. We do not know the future; and the future will be full of surprises and of the unexpected. Risk is the recognition that we might in fact receive something different from our expected future returns: it may be better, it may be worse. A key factor in determining the required rate of return for investors is an assessment of the risk of a business (compared to the risk of alternative investment opportunities that might be available to investors). This will determine a firm's cost of capital. This section looks at how we can assess the risk of a business and how this can help us to assess the cost of capital for a firm.

You may have studied finance theory. Much of modern finance theory is based on the notion that listed share markets are efficient and the share prices of listed companies effectively *reflect* the intrinsic value of firms always (often expressed as reflecting all publicly available information). The required rate of return for equity is seen as comprising a risk-free return (which can be related to the long-term return on government securities) and a premium for risk. The variability of returns of a portfolio of investments in listed companies can be reduced by adding the shares of more listed companies to that portfolio. The aspect of variability of returns from a single firm that impacts on the variability of returns of a diversified portfolio of an investor is the *nondiversifiable risk* or the *systematic risk* of a firm. This is the risk finance theory suggests a firm contributes to its equity investors and for which they need to be compensated in terms of the level of expected returns.

In finance theory, asset pricing models are designed to calculate a required return for an equity investment in a firm. They do this by calculating the risk premium for an equity investment based on its sensitivity to the systematic risk of a fully diversified market portfolio. This is called its beta. No-one can calculate a firm's beta precisely. I will say that again: *no-one can calculate a firm's beta precisely*. The calculation of a firm's beta is based on looking at the past variability of a firm's listed share price relative to the share market overall and assuming this relationship will continue in the future. This beta of a firm is then multiplied by the market risk premium to calculate the risk premium for an equity investment in a firm. This is then added to the risk-free return to calculate the equity cost of capital for a firm. The key point to note is that a firm's beta does not directly connect us to the actual business risks of a firm. It also takes no notice of any deviation of a firm's share price from its intrinsic value. The risk of an equity investment is simply based on the past variability of a firm's share price relative to the share market.

Quite a few equity investors, me included, would say 'who cares about a firm's beta'. Even if it was

possible to measure it convincingly (which is at best highly questionable), we should ask ourselves how a firm's beta would affect my view of the risk surrounding my equity investment in a firm. For example, suppose I arrived at a valuation for Ryman Healthcare of about \$16.00 per share. If I was able to purchase shares in Ryman Healthcare at \$12.00, I would have a significant margin of safety and a degree of protection if my forecasts of Ryman Healthcare's Abnormal OI (or cash flows) that underpin my \$16.00 per share valuation proved to be optimistic. Alternatively, suppose I purchased shares in Ryman Healthcare at \$15.95 per share. I would have a small margin of safety and little protection if my forecasts of Ryman Healthcare's Abnormal OI (or cash flows) proved to be optimistic. Although the calculated betas of Ryman Healthcare might be identical in both cases, the risks of my equity investment in each case would be very different.

Further, the approach to measuring the risk of investing in a firm based on its beta relies on other people's judgements, namely on the movements of past listed share prices of a firm relative to movements in the share market. Listed share prices are simply the views of the marginal investor about the value of a firm's equity. A key tenet of financial statement analysis (and, more generally, of fundamental analysis) is that we base our assessments of firms on our own analysis of a firm's value. In the words of Michael Polanyi at the beginning of this chapter, "So it is our personal participation that governs the richness of concrete experience". We ourselves need to know what adds value; we never hand this task over to someone else. Clearly, an assessment of the risks of investing in a firm is a key element of financial statement analysis and of fundamental analysis of firms. The risks of investing in a firm cannot be understood without us understanding the risks of a firm's business. We must engage in this 'swampy lowland' and admit the risks of a firm's business are incapable of a tidy, simple technical solution.

Analysing risk

The equity cost of capital is driven by the risks of a firm's business activities relative to the risks of alternative investment opportunities. A consideration of risk is essentially a consideration of alternatives; of alternative future outcomes. It recognises that the world is not certain, that business is not a world of point-estimates, of certain outcomes. It is also recognises that risk is not the result of share markets nor of changing numbers in the financial statements of firms. It is the result of the business activities of a firm, the way a firm conducts its activities in an environment of uncertainty.

Our economic profit model leads us to value the equity of a firm as follows:

$$V_0^E = \text{BV of Equity}_0 + \frac{\text{Abnormal OI}_1}{\text{WACC}} + \frac{\text{Abnormal OI}_2}{\text{WACC}^2} + \dots + \frac{\text{Abnormal OI}_t}{\text{WACC}^t} + \frac{\text{CV}_t}{\text{WACC}^t}$$

We discount the expected future Abnormal OI of a firm to reflect the time value of money (returns in the future are worth less to us than returns today) which includes the risk or uncertainty about whether the firm will generate the expected future Abnormal OI. This is incorporated in the discount rate, the required rate of return for the firm or its WACC. In this way, our economic profit model includes risk as well as the expected earnings of a firm. The same applies to our DCF model.

Analysing and forecasting risk for a firm is the same process as analysing and forecasting the earnings of a firm. Analysis is "breaking things into bits." Including risk in our analysis is simply thinking about our analysis in terms of the potential for several possible outcomes rather than simply a point estimate. Just as accounting drivers determine Abnormal OI (or cash flows), so the risk or uncertainty with each of these accounting drivers determines the business risk the firm faces. Analysing risk involves carefully examining each of the accounting drivers of Abnormal OI (or cash flows) and linking these to the key

economic and business drivers of the business. We need to understand the risks the firm faces with each of its key economic and business drivers and the uncertainty inherent in the forecasts of these key economic and business drivers.

Let us consider how this might work with Ryman Healthcare. In Chapter 4, Section 4.4 above we identified the following key economic and business drivers of Ryman Healthcare’s profit margins (PM) and of its Return on equity (ROE):

- Strong development margins and growth in residential property values.
- 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.
- Rate of turnover of occupation rights for Ryman Healthcare’s existing retirement village units of about 7 years.
- High occupancy levels of Ryman Healthcare’s retirement village units, serviced apartments, rest homes and hospitals.

In Chapter 5 above, we forecast some of these key economic and business drivers. We forecast:

- Reduced levels of expected future growth in residential property values.
- Continued strong sales growth.
- Maintenance of Ryman Healthcare’s significant capacity to develop, own and manage retirement village units.
- Maintenance of the existing rate of turnover of occupation rights for existing retirement village units of about 7 years.
- Continued high occupancy levels.

We came up with point estimates of forecast growth in residential property values (and in revaluations of Ryman Healthcare’s properties) for the next five years. See Table 7-1 below.

Table 7-1: Forecast growth in residential property values

2019	2020	2021	2022	2023
0%	0%	5%	5%	7.5%

Note: years ending 31 March.

We also came up with point estimates of forecast growth rates for each source of Ryman Healthcare’s sales for the next five years. See Table 7-2 below.

One thing certain about these forecasts is that they will be proved wrong by the unfolding of actual events. There will be surprises. For example, growth in residential property values may prove to be softer in 2019 and 2020 than I have forecast, that is we might see a decline in residential property values in these years rather than simply no growth as I have forecast. Also, the growth in residential property values forecast in 2021, 2022 and 2023 of 5%, 5% and 7.5% respectively might prove to be overly optimistic, should a downturn in residential property markets in New Zealand and Australia prove to be longer lasting than I have forecast. I have also forecast the Sales of New Occupation Rights

in volume terms to remain constant at 700 units each year (although the value of these sales is forecast to increase in line with my forecast of residential property values). Ryman Healthcare might be able to exceed these forecasts; or alternatively, it may face some problems with its construction of new properties at some time in the future which might result in it achieving a lower level of construction in some years.

Table 7-2: Forecast growth rates for Ryman Healthcare’s sources of sales

Care Fees	Increase by 15% each year
Sales of New Occupation Rights	700 units each year
Resales of Occupation Rights	Total Sales of Occupation Rights 7 years previously
Management Fees	Increase by 15% each year

In this way, we could review all my forecasts for the key economic and business drivers of Ryman Healthcare. Instead of viewing them as point estimates, I can start to see them as distributions of a range of possible futures. I might see Ryman Healthcare as possibly having more potential to exceed my forecasts of Sales of New Occupation Rights than to fall short of reaching them. I could further examine their property development plans, their ‘land bank’ of development sites and track carefully their announcements over time about their purchases of further development sites and the progress of their developments. Behind this approach is a way of seeing the world that acknowledges the future as being uncertain. I am including in my analysis a sense of the type of distribution of potential outcomes I might envisage around my point estimates.

Also, I can run a range of sensitivities of my forecasts to measure the impact on my value of Ryman Healthcare of changes in some of the key economic and business drivers, by linking them to a change in Ryman Healthcare’s accounting ‘drivers’ and to its accounting-based measures of value. This is one of the great things about spreadsheets. Using my spreadsheet, I can incorporate the ‘good thinking’ and ideas set out in this Study Guide and in our unit to bring together my analysis, views and opinions about Ryman Healthcare into a dollar value for the firm. Over time, I can increasingly include my own thinking and ideas into my spreadsheet for Ryman Healthcare, increasingly making it my own spreadsheet; making it my own tool. I can then run as many different sensitivities as I like until I have a very good feel for the impact of my various key judgements in my forecasts on my value of Ryman Healthcare. In this way, I can begin to see the value of Ryman Healthcare as a range of values, based on different views about the future for my firm. In this way, I can gain an understanding about the risks I might be taking with an equity investment in Ryman Healthcare.

This section has looked at what risk is and how we can measure it. We considered the high, hard ground of techniques based on finance theory; and the ‘swampy lowland’ of looking at a firm’s business risks as somewhat confusing ‘messes’ incapable of simple technical solutions. In the next section, we will look at the benefits of ensuring a substantial margin of safety before we make equity investments in firms.

7.4 Margin of Safety

A margin of safety is a rational, intelligent response to the reality of risk. Firms are not gaming machines. They cannot be programmed; they will never be fully predictable. Indeed, there is only one thing certain about the forecasts of Ryman Healthcare discussed in the previous section, and that is that they will prove to be wrong. These forecasts are almost certainly a view of a future reality that will never exist exactly as forecast. Also, only a few key aspects of the potential future realities for Ryman Healthcare are being forecast. The future reality of Ryman Healthcare will include a wide range of other details and aspects not part of our forecasts. Real business, real life, is always complex, messy and difficult to put convincingly into any technical box.

A range of futures

One thing we can do is to change some of these forecasts and see what effect this would have on our forecasts of Ryman Healthcare's Abnormal OI (and Free cash flow) and on its value. We can create a range of futures for Ryman Healthcare. These sensitivity analyses can help us focus on those aspects of our forecasts that contribute the most risk, or uncertainty, to our estimate of the value of Ryman Healthcare. This can help us to focus more effort on analysing these aspects of the business and seek to gain greater comfort with our forecasts for those critical items.

In the terminology of statistics, this involves us thinking about *dispersion* as well as *central tendency*. Dispersion is the spread, the variety, how far the future realities of a business might diverge from our dream or view of its future. Central tendency is the point estimate, or where our dream or view of a firm's future is centred. Gaining a feel for a firm's business risks involves gaining a feel for the potential dispersion of the potential outcomes for a firm, as well as at what level we think this range of potential outcomes might be centred. This involves our minds following several different potential paths or routes for the firm going forward within the framework of our perception of the firm's strategy. Unless we find ourselves considering several different potential outcomes for key aspects of a firm's operating or business activities, then we are not engaging ourselves with a firm's risks.

As we begin to understand that a DCF or economic profit framework provides us not with one, but with a range of potential values of a firm, we begin to understand the risk any equity investment in a firm presents to us. Once we recognise the existence of risk in business, how do we make risk, or uncertainty, our friend rather than our enemy? The best safeguard we have to help make risk our friend rather than foe is a margin of safety. A margin of safety is the difference between our best estimate of the value of a firm and the amount we pay to purchase an equity interest in a firm (that is, its market price). If we value Ryman Healthcare at \$16.00 per share, and its listed share price was \$12.00, we would have a larger margin of safety than if its share price was \$15.95. Another way of putting it is that if we value Ryman Healthcare at \$16.00, and purchase shares in Ryman Healthcare at \$15.95, this is a much riskier investment than if we purchased the shares at \$12.00.

A large margin of safety is our best safeguard, or response, to the business risks of a firm. Understanding the risks of a business is a key part of understanding a firm's business. To understand a firm's risk, we need to understand the economic and business drivers of a firm and to generate several scenarios, rather than just one or the 'expected' scenario. In other words, we need to dream several different dreams for a firm, not just one. We need to dream about several different futures for a firm, none of which may be likely to happen exactly as we might dream them. But these dreams will be what will drive our view of the value of a firm.

In our competitive capital markets, it will be a battle of dreams for a firm; a battle of who is better able

to dream dreams of a firm's future and skilfully connect these dreams to a value for a firm. Capital markets are a collective process and interaction between many people; a community of dream-making. It is a firm's actual future actions, led by management, that will show whose dreams formed in the equity capital markets were closest to the mark, worked out in the messy 'swamp' of a firm's economic and business realities as they emerge into the light of the moment. This will involve understanding how a firm is managing these key risks it faces. You could calculate Abnormal OI for several scenarios, based on forecasts for each scenario. Indeed, the running of sensitivity analyses is a key method to appreciate and identify the key risks incorporated into our value of the equity of a firm.

Spurious accuracy

We hear over and over from corporate managers that the market cares only about the next quarter's earnings. When valuing companies, investors are said to do little more than apply a relative P/E multiple to trailing or next year's projected EPS ... My experience is that most successful investors – as opposed to traders – do not rely on simplistic multiples or short-term earnings in making their investment decisions. But they also spend little time worrying about getting the cost of capital exactly right or working with a sophisticated asset pricing model.

*Trevor Harris, Morgan Stanley*¹²

Despite the lure of precise measures of the cost of capital that are produced by various services using versions of asset pricing models, we need to be careful. The present state of knowledge about how to measure risk and estimate costs of capital cannot provide a reliably precise measure of the cost of capital. In terms of future developments in our thinking about how to conduct financial statement analysis, getting better at quantifying risk and our measures of cost of capital would be valuable and is a likely area in which the growth of our knowledge may develop. Indeed, 'knowledge can be produced wherever serious problems are being attacked and followed to their root.'¹³ However, it remains in the future when our thinking (hopefully) may have substantially improved in this area.

The way we need to handle risk in our analysis today is to treat it in the same way as we treat a firm's earnings. We need to understand the accounting drivers of risk for a firm in the past and the economic and business drivers that have been driving those risks. We then need to forecast those economic and business drivers under several scenarios and convert these forecasts into forecasts of the accounting drivers under these scenarios and then into a range of values for a firm. The relation of this range of potential values for a firm to the current share price of a firm (or of a price we may offer or be offered for shares in a private company) will help us to assess whether the safety margin between our estimate of value of a firm and the current share price is sufficient. It is also vital to run sensitivities of any value for a firm for a range of discount rates or costs of capital.

Risk is essentially a qualitative factor that we need to include in our DCF and economic profit models in a quantitative form. Sensitivity analysis, informed by our qualitative assessments of various accounting drivers and the costs of capital, is essential to properly understand the risks an equity investor would be assuming by acquiring equity in a firm. We need to calculate a discount rate, that is WACC or ρ_F , to be able to apply our DCF and economic profit frameworks to the analysis and valuation of a firm. In the imagery of Donald Schön (see his quote in Section 7.3 above), we need to move from the 'swampy lowland' where the 'problems of greatest human concern' occur and move to the 'hard ground where practitioners can make effective use of research-based theory and technique'. But we

need to tread warily and, basically, not deceive ourselves that there exists the possibility of technical rigour where there is none. And when it comes to calculating costs of capital, we must forsake technical rigour in estimating costs of capital and, well, guess. The trick is to guess as intelligently as we can.

We saw in Chapter 6 that we can simplify our analysis of a firm by focusing on the enterprise, or operations of a firm. We can safely do this if we think that a firm’s financial activities are not materially adding value to a firm. In the ‘swampy lowland’ of assessing a firm’s risk, focusing on the operations of a firm, rather than on its equity, has a significant benefit. We have seen that a firm’s equity cost of capital will change as a firm’s financial leverage (FLEV) changes. If you look at most firms, their FLEV changes over time. For example, Table 7.3 sets out how Ryman Healthcare’s FLEV has changed over the past few years.

Table 7.3: Ryman Healthcare’s FLEV

	2018	2017	2016	2015	2014
FLEV	0.53	0.47	0.40	0.34	0.31

Note: years ending 31 March.

The increase in Ryman Healthcare’s FLEV from 0.31 in 2014 to 0.53 in 2018 (that is, about a 70% increase) would have exerted an upward influence on Ryman Healthcare’s equity cost of capital during this period. It is likely Ryman Healthcare’s FLEV will change further in the future. What this means is that even if we felt we were able to calculate Ryman Healthcare’s equity cost of capital (ρ_E) with a degree of confidence, we would have to keep changing our view of its future ρ_E in line with our forecast of its FLEV. This is a significant complication to how we apply the DCF and economic profit frameworks to the analysis and valuation of firms. However, if we instead focus on the operations of a firm we do not need to change our view of the firm’s cost of capital for operations, WACC or ρ_F , with changes in a firm’s financial leverage (FLEV). This is because a firm’s cost of capital for operations, ρ_F , is unaffected by changes in FLEV. As we face the challenges to incorporate risk into our DCF and economic frameworks, it is good to remove this complication by focusing on a firm’s operations.

In this section, we have seen that a margin of safety is a key concept for managing risks with our investments. A margin of safety is the difference between our best estimate of the value of a firm and the amount we pay to purchase an equity interest in a firm (that is, its market price). We have also seen that focusing on valuing a firm’s operations can simplify our assessment of risk in our valuations as we do not need to adjust our forecasts for changes in financial leverage.

Conclusions

In this chapter, we have discussed the issues of how to predict the future of a firm for eternity. We have acknowledged the impossibility of this task and that this underpins the subjective nature of financial statement analysis and the valuation of firms. The mechanism we use to incorporate our judgements (or guesses) about a firm’s future beyond the visible horizon of what can be reasonably estimated or predicted is to calculate a continuing value. We also looked at the formulas for continuing value we have incorporated into our spreadsheets in this unit. These continuing values are perpetuity-based formulas with constant growth, margins, asset turnover and WACC. They also make explicit assumptions about RINOA, the expected rate of return on incremental Net operating assets (i.e. on new invested capital) that is invested after the forecast period.

Another difficult issue in the use of DCF and economic profit frameworks is how to best incorporate risk. We saw the importance of thinking about several scenarios for the future of a firm rather than just one. In statistical terms, this means not just focusing on central tendency (that is, our expected future Abnormal OI or economic profit) but also on dispersion (that is, how widely different or spread do we expect a range of possible future Abnormal OI of Free cash flow of a firm might be). We also saw the central importance of having a substantial margin of safety to manage risks as we seek to move the risk-return relationships of our equity investments into our favour.

We are now coming near to the end of our discussion of what it might take to analyse a firm's financial statements to help us to know what adds value to a firm. In the next, and final, chapter we will discuss how we might be able to take with us into our lives and careers the ideas and knowledge we have discussed in our unit. In other words, we will think about how the 'good thinking' and ideas of accounting and finance might cause us to change the way we view business reality; how we see, think about and make personal sense of aspects of business.

FOOTNOTES

1. Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* University of Chicago Press. Chicago, 1958: vii–viii & 87.
2. Harris T et al, "From Stock Selection to Portfolio Alpha Generation: The Role of Fundamental Analysis," *Journal of Applied Corporate Finance*, Vol.18, Nos 1, Winter 2006: 81.
3. Ibid: 57-58.
4. Ibid: 73.
5. This thought about Copernicus is taken from an interesting article by Popper, K.R., "Chapter 8: On the Status of Science and of Metaphysics", *Conjectures and Refutations: The Growth of Scientific Knowledge*, Routledge & Kegan Paul Limited 3rd edition 1969: 185-200.
6. Interestingly, our economic profit framework by including the current book value of equity and Abnormal OI over our forecast period can implicitly reflect or incorporate the views of a firm's management about the expected cash flows of a firm beyond our forecast horizon, that is from periods beyond our ability to forecast. This is because the accruals implicitly in our book values and earnings forecasts include some element of future cash flows. In this way, we could be seen to be implicitly including speculation of matters beyond our forecast horizon with things we can be more certain about from within our forecast horizon. It could be argued that by using a discounted cash flow (DCF) approach we would more clearly separate what we can be more certain about with what is speculation. See Palepu, K.G. and Healy P.M., *Business Analysis & Valuation: Using Financial Statements*, Mason, Ohio: Thomson/South-Western, 4th ed. 2008: Chapter 7, section entitled "Difference in Terminal Value Implications": pages 7-14/15 for their thoughts on the use of discounting accounting-based numbers incorporating accruals compared to discounting cash flows.
7. A perpetuity is a series of payments that continues forever. If the payments are constant, the

formula for the value of a perpetuity is:

$$\text{Value of perpetuity} = \frac{\text{Payment}}{\text{Discount rate}}$$

8. 'Mean reversion' means that firms that have been able to generate high, or low, Abnormal OI are unlikely to continue to do this for ever. Instead, their future Abnormal OI is likely to trend towards the mean (or the 'middle', or more 'average') Abnormal OI achieved by firms in that market, which can usually be expected to be zero in the longer term. The key for a firm that is generating high Abnormal OI to avoid mean reversion is to have a sustainable competitive advantage which it can defend, maintain and develop in the future. Ryman Healthcare is an example of a company that has been able to sustain substantial economic profits for decades.
9. Our assessment of the value of Ryman Healthcare is not that sensitive to changes in our forecasts for sale of occupation rights as the resale of occupation rights becomes increasingly important in our forecasts, which lags the sale (and resale) of occupation rights by 7 years.
10. Harris T et al, *op cit.*:70.
11. Schön, D.A., *The Reflective Practitioner*, New York: Basic Books. 1983: 42.
12. Harris T et al, *op cit.*:55
13. Brown, J.S., "Growing up Digital: How the Web Changes Work, Education and the Ways People Learn," *Change*, March/April 2000: 20.

QUESTIONS

- 7-1. "The quality of our financial statement analysis will be based on the extent to which we are better at predicting the future of a firm to eternity than other equity investors in the capital markets." (see Section 7.1). Why is it part of financial statement analysis to predict a firm's future to eternity? How is it possible to even *attempt* to do this? Is there not some way we can avoid having to do this? Discuss.
- 7-2. What is the point of 'guessing' what lies beyond our forecast horizon? How can we possibly be better than average at guessing about what we do not know and cannot predict?
- 7-3. Explain your understanding of what risk is. Finance theory provides us with tools for measuring risk. These are criticised in this Chapter. Do you agree with these criticisms? Why or why not?
- 7-4. Explain the concept of a 'margin of safety'. Are the risks we assume as an equity investor in a firm the same as the risks the firm assumes in its operations? Why or why not? Do all equity investors in a firm (with identical forms of equity investment) assume the same risks in their equity investments? Why or why not?