

Part Seven

This is the seventh issue of **Mastering Investment**, the FT's guide to the principles and practice of investment. Published in 10 weekly parts, the series covers all aspects of portfolio investment, from financial markets, bonds, equities and valuation to portfolio management and global investing. For a list of forthcoming topics, please turn to page 15.

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Intangible assets: not seen but must be heard

Many investors use "value metrics" such as EVA and CFROI to judge and rank stocks, and companies wishing to implement such metrics must adjust their accounting practices to provide the right kind of data for the metric. As Chris Higson explains, these adjustments may not be good enough. Intangible assets such as brands are not recorded in the balance sheet, yet their effect on a company's share price can be formidable.

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The varying nature of volatile forces

Volatility is one of the most important factors for investors to consider when selecting assets for a portfolio. When the price of a security fluctuates wildly, it carries greater risk (though it may bring commensurate rewards). Estimates of volatility provide a measure of such risk, and can be incorporated in investment decisions. Here, Menachem Brenner examines the nature of volatility and its prevalence in various markets.

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Getting an edge from flexibility

Attempts to evaluate hedge funds have been thwarted by the disparity in their strategies, which devalues any comparisons we might make between them. However, Majed Muhtaseb argues that this tactical freedom constitutes their greatest advantage. Citing recent research into mutual fund and hedge fund returns, he finds that hedge funds perform better because their managers can seize on opportunities more easily.

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The past and future of real estate

Notwithstanding its image as the most mundane of investment markets, real estate forms one of the largest asset classes. Richard Georgi surveys property markets around the world and describes the dynamics of their economic cycle. He identifies new skills that will be required as investors recognise that real estate delivers greater value when actively managed, not treated as passive bricks-and-mortar assets.

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Seeking value from changes in Europe

In this article Rory Knight and Deborah Pretty argue that a company's corporate governance arrangements – in particular the rules governing its duties towards shareholders – substantially affect the performance of the company and its reception in the market. The opacity of rules in many continental European companies, they say, will soon give way to a more value-focused approach.

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Intangibles: not seen but must be heard

Accounting-based value metrics have become very popular but are finding it increasingly hard to measure value, says **Chris Higson**, and things are not going to get any easier

A notable feature of the past decade was the growth of value-based management. Companies adopting this discipline use "value metrics" to assess the performance of their business units and as a basis for managers' pay. A value metric is an accounting measure of return on capital that is compared with the cost of capital to signal the creation and destruction of value.

Some companies use traditional measures such as return on equity for this, but most favour proprietary metrics promoted by consultants, such as EVA and CFROI. (Principles are discussed on page 4.) Many investors have adopted the same metrics to screen and rank companies when selecting stocks, and this article discusses the use of metrics by investors.

The performance of an investment is judged in two ways. The internal rate of return is the yield of the expected cash flows on the invested capital. Value is created when the internal rate of return is greater than the cost of capital. Equivalently, net present value measures the amount of value created as the difference between the present value of future cash flows and the invested capital.

The use of accounting return on capital to measure economic returns, and of the price-to-book ratio as a proxy for net present value, depends crucially on the quality of the accounting data. The prevailing view, encouraged by some consulting firms, is that accounting is not up to the job, indeed that its standards are downright foolish in many cases, but that these can be fixed. So implementation of value metrics usually involves an energetic, and costly, reworking of accounting conventions.

As stock prices became apparently disconnected from fundamental value in recent years, some commentators concluded that there must be a new

financial paradigm in which economic fundamentals no longer matter for value. Of course, the bottom line is unchanged – in rational markets a company must still generate economic value to survive and be valued.

Yet there are reasons to believe that a company's financial performance will look different in the future and that best practice in equity analysis will need different tools. Some changes in the economic landscape radically alter the profile of business profitability and business risk. Investors need to understand these changes and to adapt mental models and ways of working in response.

Data integrity

In a properly conducted investment appraisal, all of the assets and claims used and created by an investment project are accounted for, and all the cash flows are identified. To give the same data integrity when calculating value metrics, income must be comprehensive and the balance sheet needs to give a complete list of assets and claims, measured at their opportunity cost. This is a tall order. Though it is conventional to make adjustments to the accounting when calculating value metrics, the adjustments that outsiders such as investors are able to make, using published accounting data, typically fall short.

The prime focus of the income statement is to describe the profit the company makes from its operations. For example, part of the return that a company delivers to its investors may be in the form of unrealised holding gains on assets such as property. These may or may not be recognised. But even when they are, they will rarely be passed through the income statement. Earnings will not be comprehensive if balance sheet changes such as gains and losses on foreign exchange are taken direct to the profit and loss reserve in the balance sheet rather than being passed through

earnings. Investors do not usually adjust for these items.

Balance sheets usually do not carry intangible assets. Accounting practice requires the costs of intangible assets such as reputation, human capital, intellectual property and research to be charged as incurred. Acquired, rather than built, intellectual property assets are sometimes carried in the balance sheet, though these are never subsequently revalued. Investors now commonly capitalise research expenditures, but no other elements of intangibles expenditure, and these assets are not usually revalued.

Companies that grow by takeover may make very large investments in goodwill, which is the difference between the cost of an acquired company and the balance sheet assets acquired. Internationally, goodwill is amortised over widely varying periods. Hence accounting returns look very different between companies that grow organically and those that grow by acquisition, and also between acquirers in different countries. It is now common practice to add back written-off goodwill into capital employed when calculating value metrics, but this is rarely revalued.

There will be unrecorded assets and liabilities when the company has written contracts to keep current assets "off balance sheet", for example by factoring the sales ledger or using consigned inventory. Some adjustments by analysts do enhance the completeness of the balance sheet, the most common being the capitalisation of operating leases. But devices such as factoring are much harder for the outside analyst to observe and there is usually no attempt to adjust for these.

The main divergence from current value is for tangible fixed assets. Although the balance sheet is usually complete in tangible fixed assets, these are by default carried at their historic costs, which, particularly for long-lived assets such as land and buildings, may bear little relation to

current values. Internationally, revaluation of fixed assets is either not permitted, as in the US, or has unfavourable tax consequences. In the UK revaluations are allowed, but they are found predominantly in property-rich sectors such as hotels and drinks, are occasional and are partial with not all assets necessarily being revalued.

Future visions

The internet is significantly increasing the transparency of offline and online markets by reducing the buyer's search costs. One vision of the future is that falling search costs will dramatically intensify competition. Gary Hamel and Jeff Sampler put it thus: "imagine a world in which you put your weekly grocery shopping out to bid ... Customer ignorance – about prices and relative product performance – has been a profit centre for many companies. But consumers are about to get much, much better informed – and the consequences will be awe-inspiring." They continue: "Let's be clear: in frictionless capitalism nobody makes any money!"

So, on this "competitive wasteland" view, substantial excess returns will be implausible in most markets. The key to the delivery of superior economic value in the new world will be achieving competitively superior rates of growth, while ensuring that return on capital remains (albeit only slightly) above the cost of capital.

The world of intangibles

At the same time, there is a widespread view that the reason for soaring corporate price-to-book ratios in recent years, aside from possible overvaluation by stock markets, is the increasing importance of intangible assets. Intangibles are resources such as intellectual property and knowledge assets, brands, alliances, human and organisational capital. Conservative accounting rules mean that such investment is written off as it is incurred. As a result the "book" price-to-book is understated. But what is more interesting is the impact of intangibles on "price".

Intangibles are increasingly seen as holding the key to value creation. Their potential in enabling companies to earn and sustain a return that is significantly above the cost of capital comes from their uniqueness and scalability. Most tangible assets, and all financial assets, are commodities in that there are other assets in competitive supply that can provide the same service. Intangibles tend to be unique and, unlike tangibles or financial assets, the use of an intangible at one place and time does not preclude its use elsewhere; intangibles are scalable for relatively low costs. Once the investment in Viagra has been made and protected, the marginal cost of producing the goods is small.

The so-called "network effect" is simply an extreme case of this. It describes a world where not only can you "scale", but where scale brings additional rewards because each customer values the product more as more customers use it. The returns to scale are exponential rather than linear. A direct implication of the scala-



Any old iron: tangible assets in a failed enterprise may still have value, which may not be true of intangibles

bility of intangibles is that the winner takes all. With scalability the product with a small advantage in performance can scoop the market. Indeed, if there are potential network effects, beliefs about who will win the battle, rather than objective functionality, may be enough to tip the market.

Shifting terrain

The economic landscape is undergoing fundamental change, triggered in large part by economic deregulation in the final decades of the past century and the transforming power of information technology. In the face of these forces, companies are restructuring in ways that will have a radical effect on

risk and on return on capital.

In the new economic order sketched by writers such as John Hagel and Marc Singer, companies are moving away from growth-restricting vertical integration in favour of specialisation along resource lines. They see companies reengineering and reconfiguring into three types: product development; infrastructure and logistics; and customer-facing.

Each of these business types has a different tangible/intangible asset profile. Whereas an infrastructure business may be capital-intensive in a conventional way, the main asset for product development is likely to be intellectual property, and for the customer-facing business, brand equity.

Moreover, the span of resource control increasingly extends beyond conventional ownership to include extended supply and networks of complementary businesses.

Academic Baruch Lev provides the example of Ford. He argues that the potential for economies of scale in manufacturing is largely exhausted and that excellence in manufacturing has been widely mimicked. So manufacturing production has become commoditised. Increasingly, a company such as Ford must look to innovation and to developing brand equity to build competitive advantage. As a result, Ford sees little use in owning



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manufacturing assets and is busy pushing manufacturing, and ownership of relevant assets, to third parties. Technology allows Ford to manage these network relationships tightly and efficiently.

A prevalent feature of the modern economy is the shifting of asset ownership out of the corporation by using leasing, factoring, franchising and similar contractual devices. Since these arrangements often replace borrowing, a financial motive for off-balance sheet financing may be to flatter the debt ratio, leading many governments to require companies to bring "off-balance sheet" assets back into the balance sheet. Rules that limit the use of operating leases are also in line with the practice of financial analysts in capitalising operating leases.

However a very different motive for off-balance-sheet financing is to shift out assets which others may have greater competency in managing, and which are not strategic resources of the business. Outsourcing is not new. For example, companies frequently leased their fleet when they did not wish to maintain in-house skills in fleet management, insurance and repair, and access to second-hand

vehicle markets. What has changed is the growing willingness, and the energy, with which companies are applying this logic to reconfiguring their resource systems, and the use of networks, rather than ownership-like contracts, to provide resources.

Airlines have long mixed outright ownership with capital leasing and operating leasing of planes. But, in addition, British Airways operates a number of routes through franchised affiliates. These operators fly planes that bear the BA livery but, as independent airlines, their assets do not appear in the BA balance sheet.

Planes are clearly core assets to airlines in a way that the executive car fleet is usually not. Nonetheless, planes are not a strategic resource for an airline; airlines all use much the same planes and planes are in competitive supply. A list of the resources that confer competitive advantage on airlines would include control of sites and slots, reputation for safety and service quality, membership of strategic alliances, code-sharing arrangements and reservation systems. None of these appears in the balance sheet.

Coca-Cola's bottlers are analogous to BA's franchises. At a further remove still are networks of software developers commanded by Microsoft.

Microsoft is itself a major software developer, but the platforms it has created support many other developers. Most relevant for this discussion, those developers support the Microsoft platform. They comprise a resource that adds value to Microsoft by leveraging the demand for Microsoft's own products.

Performance analysis

Other things being equal, we expect a value-creating business to earn a return on capital that is greater than the cost of capital. Over the past two decades, value-management consultants have refocused companies on this basic logic and investors have been refining investment processes along the same lines, even adopting some of the consultants' metrics. The use of some measure of return on capital is now central to equity analysis practice, both as a metric, to rank companies, and in modelling, by assuming a return on capital that converges on the cost of capital.

The above changes are having a major effect on the return on capital profile of companies, an increasing proportion of which do not have a

A feature of the modern economy is the shifting of asset ownership out of the corporation

return on capital that can sensibly be measured because they do not directly use capital. Strategic resources or intangible assets do not figure in the balance sheet, while tangible assets that are needed may be held off-balance sheet, or held in another company within a network or alliance.

Take Dell Computer, which can be classed as an old or a new economy stock according to taste. Since 1997, Michael Dell has reengineered the business model, and thus the balance sheet, of Dell. Energetic use of internet selling and of IT to manage a network of suppliers gave Dell negligible inventory and net credit. Fixed assets are largely operating leased. Dell's other creditors are more than sufficient to finance the small amount of on-balance sheet operating assets, so Dell's net operating assets became negative. In consequence, an operating margin of 10-12 per cent combined with an infinite asset turn to give an infinite return on capital at Dell.

Hitherto, practical difficulties in implementing the return on capital model have usually been blamed on accounting. In the future, it is unlikely that return on capital-driven valuation models can be reliably immunised by some menu of accounting adjustments. In the case of Dell, the response of analysts (and of government standard setters) might be to capitalise operating leases, and perhaps the relatively small amount that Dell has spent on R&D, and this would doubtless yield a finite return on capital. But these adjustments miss the point. Capital is not the scarce resource at Dell, nor is it the appropriate measure for Dell's performance.

Just as exploitation of intangible assets offers a way to differentiate, it will also make the world more risky. The uniqueness and scalability of intangibles creates a winner-take-all environment, which brings corresponding risk. Increasingly we see companies making large bets on uncertain outcomes. An unsuccessful investment in an intangible, unlike some unsuccessful tangibles, has little value in another use. Worse, even when an intangible is successful, rights in it are harder to police. These risks are likely to be "unsystematic" – they will not affect the cost of capital. But they have profound implications for equity analysis.

Value metrics

In some guises, a value metric measures accounting return on capital. This becomes clear when we relate measures such as EVA to traditional measures of return on capital such as return on operating assets and return on equity.

$$\text{Return on operating assets} = \frac{\text{Operating profit}}{\text{Operating assets}}$$

$$\text{Return on equity} = \frac{\text{Earnings}}{\text{Shareholders' funds}}$$

The income that a company delivers to shareholders has been subject to corporation tax, and the investors' required return is set in terms of after-tax income. Since earnings are after-tax, return on equity can be benchmarked against the cost of equity capital. However, an "enterprise" or "entity-level" measure of return on capital is benchmarked against WACC, which is the weighted average of the costs of the loan and equity capital that make up capital employed. But operating profit and thus return on operating assets are measured pre-tax. Net operating profit after tax (Nopat) resolves this problem by deducting the tax charge from operating profit, adjusted for the tax effects of interest paid and received. If T is the corporate tax rate:

$$\text{Nopat} = \text{Operating profit} - (\text{Tax} + \text{Net interest paid} \times T)$$

The resulting measure of after-tax operating return, commonly known as return on invested capital (RoIC), is:

$$\text{After-tax operating return} = \frac{\text{Nopat}}{\text{Operating assets}}$$

Imagine a business with the following data:

Operating profit	100
Interest received	10
Interest paid	(30)
Profit before tax	80
Tax	25
Earnings	55

Assume average operating assets are 500, so its operating return is $100/500 = 20\%$, and the local corporate tax rate (T) is 35%. To find Nopat, we need to know the tax on the operating profit. The actual tax paid is 25, but this reflects the fact that the company received a tax deduction at 35% on its net interest payments of 20; a deduction of 7. So tax on operating profit must have been $25 + 7 = 32$, and Nopat is $100 - 32 = 68$.

Although the statutory tax rate is 35%, the average tax rate is not 35%, and 32 is not 35% of 100. The Nopat calculation reasonably assumes that interest paid (received) is deducted (taxed) at the marginal, statutory, rate and that the tax breaks that reduce the effective tax rate relate to operating profit.

In this example, if WACC was 8% we would conclude that the after-tax operating return of 13.6% reflected superior performance. The difference between return and the cost of capital is often called spread. In the example, spread was +5.6%. The same data can be presented in a different way. If we make a charge against Nopat for the cost of using the capital employed in operating assets during the year, the surplus is economic profit.

$$\text{Economic profit} = \text{Nopat} - \text{Operating assets} \times \text{WACC}$$

Continuing the example, if Nopat is 68 and assets 500, and WACC is 8%, economic profit is $68 - 500 \times 8\% = 28$.

Economic profit is also known as Economic Value Added (EVA), although the term economic profit is used quite loosely in financial analysis and is also commonly applied to spread. The term "EVA" was coined by the consulting firm Stern Stewart. Their version of EVA also incorporates a number of accounting adjustments, designed to correct perceived shortcomings of actual accounting.

In simple terms, when we ask if a company is earning a return greater than the cost of capital, we are asking whether,

$$\text{Nopat}/(\text{Operating assets}) > \text{WACC}$$

Multiplying both sides by capital, the question becomes whether

$$\text{Nopat} > \text{Operating assets} \times \text{WACC}$$

Moving the right hand side over to the left, casts the question in terms of whether economic profit is positive,

$$\text{Nopat} - \text{Operating assets} \times \text{WACC} > 0$$

So the statement that a company has positive economic profit is logically identical to the statement that it is earning a return greater than its cost of capital. Given the accounting, one measure contains neither more nor less information than the other.

CFROI is an accounting return measure with two distinctive features. The denominator uses gross assets revalued using a general price index (I), rather than using historic cost net assets as do both traditional measures and economic profit. The numerator takes gross cash flow and deducts "sinking-fund" depreciation (Ds) of the inflated gross assets instead of the accountant's, usually straight-line, depreciation (Da). (Sinking-fund depreciation is that necessary payment each period that, if invested in a fund earning the cost of capital, will yield the initial investment by the end of the asset life.)

$$\text{Cash flow investment on return} = \frac{\text{Nopat} + \text{Da} - \text{Ds}}{\text{Gross operating assets} \times i}$$

Further reading

● Hamel, G. and Sampler, J. (1998) "The e-corporation: more than just web-based, it's building a new industrial order", *Fortune*, July 12, 80.

● Lev, B. (2001) *Intangibles: Management, Measurement and Reporting*, Washington DC: Brookings Institution Press.

● Hegel, J. and Singer, M. (1999) *Net Worth*, Boston: Harvard Business School Press.



Signpost

See the article on human capital and investment in part nine, July 9.