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Agenda

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Assessing energy supply profitability: does a margins approach make sense?

How profitable should a competitive energy supply business be? Companies need to know this when making pricing and investment decisions; regulators need to know this to assess the need for market intervention. In profitability analysis, a forward-looking return on assets approach is preferable to a margin on turnover assessment, but how can this can be applied to energy supply?

In recent years energy retailers (supply companies) in the UK appear to have been hesitant to pass through rapidly increasing wholesale gas and electricity prices to domestic customers. In contrast, after the reductions seen in wholesale prices over the past six months, energy suppliers have been quick to announce forthcoming price cuts, but may also hope to see higher margins in the future. Such volatility makes it particularly difficult for companies to make a long-term assessment of future supply margins, yet this is crucial in forming pricing strategies and making capital allocation decisions between upstream and downstream businesses. In addition, regulators need to have an understanding of appropriate supply margins when assessing the degree of competitiveness in the sector, and companies facing increased liberalisation in European markets also need a view of how customer profitability may be affected.

Across most industries, profitability assessments often complement simplistic margin on turnover analyses with return on assets (ROA) methodologies, such as the return on capital employed (ROCE) and the internal rate of return (IRR). Advantages of looking at the return on assets include the following (see also box below for a summary of the relative advantages of the margin on turnover and ROA approaches):

- an explicit calculation of the level of returns required to remunerate capital at risk;
- a robust measure of value created, thus allowing the comparison of within-group investments;
- more straightforward applicability to forward-looking profitability assessments, allowing ex ante analysis;[1]
- applicability to new entrant analysis, which is valuable to existing and prospective companies in the sector.

Despite the consensus that an ROA methodology is theoretically the more appropriate approach, most discussion regarding energy supply profitability continues to focus on the margin on turnover. This may be because of the particular difficulties of asset identification and quantification for energy supply, as well as the complex relationship between the upstream and downstream parts of vertically integrated companies.

Margin on turnover versus return on assets

Margins on turnover are calculated as ratios of company financial results. Examples include:

- **gross margin = (revenue – direct costs)/revenue;**
- **return on sales (ROS) = earnings before interest and tax (EBIT)/revenue.**

Advantages of the margin on turnover approach include:

- **relative ease of calculation;**
- **no requirement for an estimation of the asset base or cost of capital.**

Return on asset (ROA) approaches differ from margin on turnover approaches in that they all incorporate a measure of the required return by the company to remunerate the capital at risk. The most common examples are:

- **return on capital employed (ROCE) = EBIT/capital employed;**
- **the internal rate of return (IRR) = discount rate used in a net present value calculation of a company's cash flows that yields precisely zero.**

Advantages of the ROA approach include:

- **explicit treatment of the financial risk a company faces;**
- **a robust measure of value created by a company;**
- **the IRR relies only on cash flows and the opening and closing asset values.**

Source: Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', prepared for the UK Office of Fair Trading, Economic Discussion Paper 6, July. Available at www.oxera.com.

In spite of these difficulties, persevering with an ROA analysis may prove worthwhile for supply companies. It forces an assessment of the extent to which costs incurred today may give rise to profits in the future and therefore how far they can be thought of as investments in assets. Such costs could range from IT software to customer acquisition, brand development or price promotions. An ROA approach also makes it clearer internally which assets are allocated to which business. For example, the capital support given to supply by the upstream business in an integrated company can be quantified more accurately, providing insight into the relationship between upstream hedging, contracting and required levels of capital and profits to be made in supply.

Traditional profitability analysis in energy supply

Energy supply in the UK has been open to competition for almost ten years, and free from formal price regulation for around five years. Prior to liberalisation, the gas and electricity regulators, Ofgas and Offer, set separate RPI – X price controls on each public energy supplier, which were designed to cover all elements of cost (generation, distribution, transmission, and supply business costs) as well as a profit margin. Price cap decisions by Offer, Ofgas and the Monopolies and Mergers Commission in the 1990s were made with reference to an allowed margin of turnover, ranging from 0.5%[2] to 1.5%.[3] Early decisions also made reference to a return on assets, although this did not appear to be the primary driver for the allowance.

Since deregulation, UK energy suppliers have been free to set their own prices to earn whatever profits the market will allow. In general, companies have continued to refer to actual and targeted margins on turnover, although sometimes with reference to the capital employed in the business. A recent example is Centrica's presentation of its 2006 results:

> profitability has got to reflect the scale, complexity and the capital requirements of this business. And that really translates into through-cycle margins in excess of 5%. And at our new price level we will still achieve that in 2007.[4]

Given that supply margins have to be referenced back to an underlying ROA assessment, how can this approach be applied to supply, which is generally considered as 'asset-light'?

Challenges of an ROA approach

In recent years profitability assessments have increasingly incorporated ROA-based approaches. This has come as a result of dissatisfaction with the economic rationale underpinning the benchmarking of margin on turnover values. Raw margin on turnover values do not incorporate information about the capital at risk, whereas the greatest advantage of ROA approaches is their explicit treatment of risk and returns. The basis of both the IRR and ROCE is a comparison of the returns that a company generates with the financial obligations it faces as a result of having capital at risk. In this way, a profit margin can be justified if it can be shown that the returns on capital are necessary to cover the cost of capital at risk.

However, there are also difficulties with applying ROA in energy supply analysis. To calculate the ROCE, robust estimates of returns and a clear identification and value of assets are required for every year of the period of analysis. The IRR relies on year-by-year cash flows, but has the advantage over the ROCE of requiring asset estimations only at the beginning and end of the period of analysis, and also that it focuses on cash flow rather than accounting profits.[5] There are, however, a number of complications that any profitability assessment of energy supply companies must overcome, irrespective of the methodology employed.

– **Cost allocation**. The major UK energy suppliers are fully owned subsidiaries of much larger energy companies. This complicates the determination of costs to the supply business due to the presence of indirect costs that are incurred by both energy supplier and the wider group. Examples are salaries to managers, IT systems, training expenditures and office rents.

– **Revenue allocation**. Identifying appropriate transfer prices for electricity or gas sales from upstream businesses to downstream businesses is far from straightforward. Market prices do exist, but with different prices for spot and forward wholesale energy; linking transfer prices to market prices does not completely solve the problem.

– **Heterogeneous upstream structures**. The difference in the structure and complexity of energy groups might provide an argument for the application of alternative cost allocation methodologies to different groups.

– **Dynamic price volatility**. Wholesale price volatility makes using historical data as a guide to future expectations difficult. It is not clear whether wholesale prices should be treated as cyclical (where past periods of high pricing might lead to the expectation of lower prices in the future) or more random (where past pricing is not a robust indicator of future prices). The relationship between short- and long-run margins is uncertain.

In addition to the four challenges cited above, an ROA approach must incorporate both an identification and valuation of the assets of the company. This raises further issues in the case of energy supply.

– **Identifying assets**. In contrast to their upstream generation divisions, energy supply companies appear to be asset-light, with few identifiable, fixed assets. The total value of a supply company goes beyond its tangible asset base, and so the identification of intangible assets becomes an important requirement in an ROA analysis.

– **Valuing assets**. Valuation of both tangible and intangible assets usually employs the notion of the modern equivalent asset (MEA). This is the lowest cost a company would have to incur hypothetically, given current technology, to replace a given set of services and goods. Identifying an MEA value for certain assets such as power stations might be relatively straightforward, but MEA estimates for intangible assets (such as brand names) are likely to be more difficult to substantiate. Even historical cost book values for these assets may be hard to establish since they are often not valued on company balance sheets. One possible way around the problem of valuing and identifying assets would be to undertake a comparison with an entrant into the supply market.

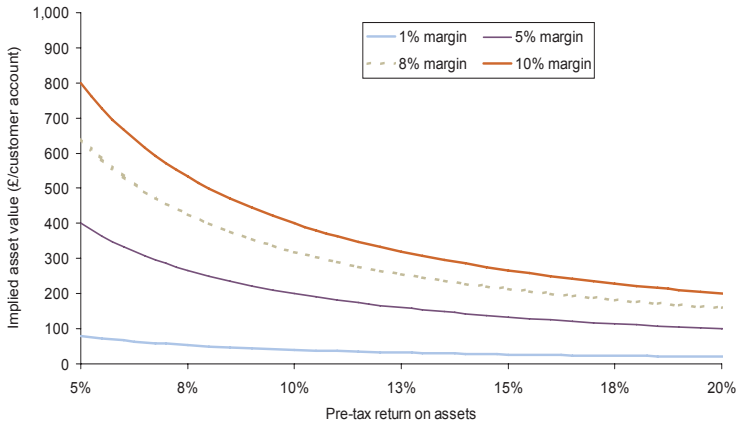
ROA analyses can also be used in a forward-looking framework, where returns are calculated ex ante to assess the profitability of particular investments. This is a powerful technique used widely in industry.[6] It does, however, introduce further considerations of forecasting costs, prices, demand and asset values, and should be used with caution.

Hidden assets?

As mentioned above, it is clear that a key difficulty in applying an ROA approach to supply profitability is identifying and quantifying the capital employed in the business. However, the techniques for assessing the economic value of intangible assets have progressed in recent years and have been applied across a number of industries such as supermarkets.[7] These techniques, combined with the application of the principles of MEA and forward-looking profitability analysis, make establishing the link between margins on turnover and returns on assets a more realistic prospect.

One way of depicting the relationship between assets, returns and margins on turnover is shown in Figure 1. For different margins on turnover, the implied assets in the business are shown for different assumed (pre-tax) rates of return on assets (on the basis of a turnover of £400 per customer account per year). For example, a 5% supply margin and a 10% assumed pre-tax rate of return would imply assets of £200 per customer account, as the supply margin represents half the pre-tax rate of return.

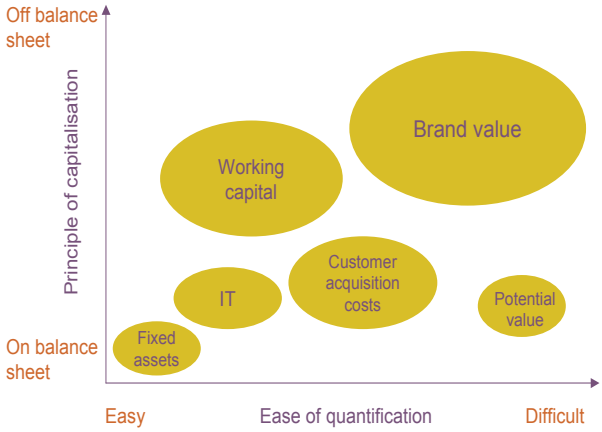
Figure 1 The relationship between profit margins, rates of return, and implied asset values



Source: Oxera.

What might the assets in supply be? Figure 2 provides a conceptual illustration of how types of asset could differ in terms of their characteristics. It might be clear that some costs, such as investments in fixed assets, should be capitalised, and it might also be relatively straightforward to quantify these assets. However, for energy supply, fixed assets are likely to be small in

Figure 2 Identifying and quantifying energy supply assets



Note: The figure depicts the relationship between the ease of quantification of an asset and ease with which the principle of capitalisation can be established (ie, can the cost be shown to contribute to future value?). Energy supply assets that are difficult to quantify, or where the principle of capitalisation is open to question, could make up a large proportion of total assets, and thus play an important part in calculating profits using ROA methodologies.
Source: Oxera.

scale. For other costs, such as investments in a brand name, it may be more difficult to establish in principle what costs should be capitalised, and harder in practice to quantify the assets, but the value of the assets might well be very large.

Key categories of asset include the following.

– Fixed assets consist of office space and furniture, and are the most tangible and readily quantified.

– Some IT and communication assets such as computers and telephones are clearly tangible, whereas others will be intangible, such as internally developed computer systems. The costs of developing such systems can be high and not easily identified. Moreover, the costs of training staff to use new IT systems are particularly difficult to quantify, although this creates an important asset in the form of increases in total factor productivity, which might be expected to translate into higher future profitability.

– Customer acquisition costs consist of a variety of activities. Sales activities, such as new customer discounts and expenditure on advertising, may be quantifiable, but it might be more difficult to determine the extent to which they should be capitalised. Past losses or customer acquisition costs might not justify future profits per se, but could provide evidence of a high MEA valuation, on which a company can be expected to make an appropriate rate of return.

– Brand value is clearly real but extremely difficult to quantify. A particular issue is the possibility of any double-counting that might occur if expenditure on advertising is included as an increase in brand value as well as a customer acquisition cost.

– Working capital to cover short-term trading is required by supply companies to cover any temporary mismatch between costs and revenues. Energy suppliers require a fund of working capital to cover these expenditures due to the large seasonal fluctuations in demand, costs and revenues. Furthermore, working capital is necessary to cover the high balancing costs of purchases on volatile spot markets.

– Working capital to cover forward contracts is clearly something that should appear on the balance sheet. However, the appropriate scale of working capital for a stand-alone supply company given an optimal mix of short- and long-term forward procurement contracts is more of a challenge to determine. Implicit support given to a supply business by upstream or other businesses within a group could be quantified through allocation of an asset to supply, or through an implied annual charge to supply that is similar to the costs of securing a letter of credit from a financial institution.

Concluding remarks

In profitability assessments across most markets, the use of a forward-looking approach based on an ROA methodology is generally seen as preferable to the use of historical evidence of margins on turnover. With a forward-looking approach, investments in assets can be justified by the returns they *will* make for the business rather than the returns they have made. This approach poses particular challenges in energy supply in that a large proportion of the assets of the business are intangible. Nevertheless, the clarity that such an approach provides to companies in distinguishing between operating costs and investments, and in providing a framework for making capital allocation decisions between 'asset-light' and 'asset-heavy' businesses, make the effort worthwhile. Furthermore, regulatory assertions about appropriate profitability levels for competitive supply are unlikely to stand up to scrutiny unless they are supported by a clear assessment of the assets involved in the business and the risks borne by investors.

[1] See Geroski, P. (2005), 'Profitability Analysis and Competition Policy', *Agenda*, April, available at www.oxera.com. The use of forward-looking profitability analysis was advocated by Professor Geroski as a measure of firms' 'incentives' to take certain future decisions.
[2] Monopolies and Mergers Commission (1995), 'Scottish Hydro-Electric plc: A Report on a Reference under Section 12 of the Electricity Act 1989', May.
[3] Offer (1999), 'Review of Domestic and Small Business Electricity Supply Regulation', a consultation document, June.
[4] Sam Laidlaw, Centrica CEO, at the presentation of the 2006 preliminary results, February 22nd 2007. The quoted 5% refers to a margin on turnover. See http://www.centrica.com/files/presentations/prelim06/prelim06_transcript.pdf.
[5] See Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', prepared for the UK Office of Fair Trading, Economic Discussion Paper 6, July. Available at www.oxera.com.
[6] Graham, J.R. and Harvey, C.R. (2001), 'The Theory and Practice of Corporate Finance: Evidence from the Field', *Journal of Financial Economics*, **60**, 187–243. The authors surveyed 392 CFOs on the financial issues, and found that 75.61% of the sample 'always or almost always' used the IRR to decide which projects or acquisitions to pursue.
[7] See, for example, Competition Commission (2002), 'Supermarkets: A Report on the Supply of Groceries from Multiple Stores in the UK', October.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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