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The meaning of margins: DG Competition's profitability analysis in sector inquiries

The European Commission's sector inquiries into the financial services sector have analysed the profitability of industry participants to help determine the state of competition in these markets. This assessment could form the basis for future inquiries and it is therefore important that it is methodologically sound. While profitability analysis is an established component of UK competition authority investigations, there is still debate about how it should actually be conducted and interpreted. This debate has useful lessons for inquiries at the European level

Profitability analysis has been a well-established, if evolving, component of market inquiries by UK competition authorities for many years. The European Commission's Competition Directorate-General has conducted such analysis as part of its review of the extent of competition in the payment cards and 'core retail banking' (particularly current accounts) industries in the EU.[1] These investigations are part of the Commission's sector inquiries, which are also examining business insurance and gas and electricity markets.[2] The interim reports on payment cards and retail banking, published this summer, are among the first studies in which the Commission has publicly employed this type of analysis. The use of profitability analysis by other national competition authorities has also been relatively limited compared with the UK.[3]

The European Commission's analysis of profitability may affect how it determines its conclusions on the state of competition in these markets and any specific enforcement initiatives it proposes. It may also encourage the use of profitability analysis by national competition authorities and regulators. Reviewing the Commission's approach is therefore important: for example, only one particular measure of profitability—margin on turnover—was employed, and it is this measure that is discussed here.

Margin on turnover compares profits (the accounting definition of which varies according to the margin on turnover measure being used) with revenue. There are several variants—for example, the return on sales (ROS) is the ratio of profits to revenue or, in accounting terminology, the ratio of earnings before interest and tax (EBIT) to revenue (see box below for a description of various measures of profitability). The Commission used a variant of ROS—the ratio of profits to cost, or a cost mark-up—in its interim report on payment cards. It is possible to derive the ROS from the cost mark-up and, as such, the commentary in this article applies to all variants of margin analysis.[4]

Profitability measures

Gross margin	=	**(revenue – direct costs)/revenue**
Return on sales **(ROS)**	=	**EBIT/revenue**
Return on assets **(ROA)**	=	**EBIT/total assets**
Return on capital employed **(ROCE)**	=	**EBIT/capital employed**
(Pre-tax) return on equity **(ROE)**	=	**pre-tax profits/equity**
Internal rate of return **(IRR)**	=	**discount rate which gives a net present value (NPV) of zero if applied in a present value calculation**

Notes: ROA, ROE and ROCE comprise a ratio of a measure of flow (profits) to a measure of stock (assets). Therefore, it is often the case that these ratios are calculated using the average assets, equity and capital employed between the time periods for which profits have been measured. The UK Competition Commission typically defines capital employed as the sum of interest-bearing debt and equity shareholders' funds.
Source: Competition Commission (2006), 'Provisional Findings Report: Home Credit', Appendix 3.8, p. A3 (8)-1.

Using profitability analysis in competition investigations

Profitability analysis is used not just in competition investigations. For example, it is used as a tool to measure performance by credit ratings agencies and investors, and for investment appraisal by companies. However, there is a distinction between accounting profitability, which simply uses accounting data to calculate profitability ratios at a point in time, and economic profitability, which typically measures profitability over the economic lifetime of the assets in question by measuring the discount rate at which the present value of net cash flows is zero.[5] It is the latter form of profitability that can provide the most meaningful and reliable information about the state of competition in a market.

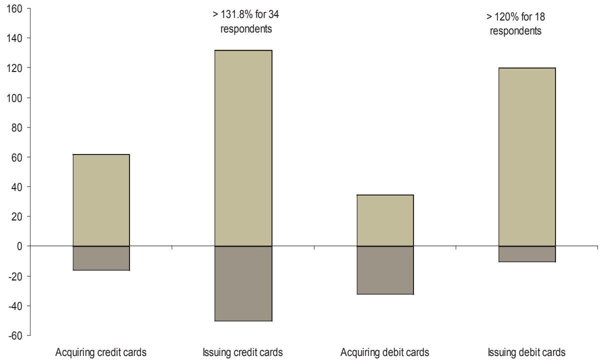
In the UK, competition authorities have used profitability analysis to help determine the presence and significance of entry barriers in an industry. In particular, the Competition Commission's guidelines suggest that, where profitability is persistently and substantially above the competitive benchmark for a company that constitutes a significant proportion of the market, there is prima facie evidence of the presence of significant entry barriers.[6] The persistence and substantial nature of excess returns are important because profitability may vary significantly between firms and over time. Indeed, in theory, it is the presence of 'high' profits that signals to other firms to enter the market, a process that should continue until the marginal firm achieves 'normal' profits. Apparently high profitability could also be explained by a number of factors other than market power, including problems with measuring the actual profitability of a business or activity, cyclical or transitory factors, and some firms being more efficient than others or benefiting from past innovation.

Profitability is therefore an indicator of the extent of competition in a market and the possible presence of market power, but should be used in conjunction with other indicators of the competitive process such as market shares and entry barriers. This is the general framework by which profitability analysis is (intended to be) used in UK competition investigations.

The European Commission's approach to profitability analysis

It is not the aim here to review the European Commission's reports on financial services, and it should be noted that these are at an interim stage and may evolve. Instead, this article discusses more generally how profitability analysis is used and when and how margin on turnover measures should be employed. It focuses on the payment card inquiry since the

Figure 1 Ranges for cost mark-up ratios in payment card acquiring/issuing, 2004 (%)



Note: This chart reports the ranges for the cost mark-up ratio as reported by the European Commission in its interim report on payment cards. The range reflects either the range for all respondents where this is reported, or the range for the weighted country averages. The range is stated to be –16% to 62% for acquiring credit cards, and between –50% and above 131.8% for issuing credit cards (pp. 65–66). For acquiring debit cards, the weighted country profit ratio varies from –32% to 35% (p. 72). For debit card issuing, the respondent range is between –10% to above 120%.
Source: European Commission (2006), 'Interim Report I: Payment Cards', April 12th.

profitability analysis was a significant contributor to determining the interim findings.

For this inquiry, the Commission requested annual revenue and cost data over the period 2000–04 for the payment card (both debit and credit cards separately) activities of 203 issuing and acquiring banks across the 25 Member States (the former issue cards to cardholders; acquirers deal with the merchants that accept the cards for payment). Where necessary, these institutions were required to allocate revenue and costs between their various activities. Profitability was measured with the use of a cost mark-up (revenue minus costs, divided by costs) for each of the companies that submitted data, and the Commission used this profit ratio to measure the distribution of profitability of financial institutions, as well as the differentials between countries and how the profit ratio evolves over time. The analysis led the Commission to conclude that profitability in the issuing of payment cards (credit and debit) is high and has been sustained over time. However, the range for the estimated cost mark-ups was typically very large—for example, between around –50% and 132% in the issuing of credit cards (see Figure 1).

It is the use of the cost mark-up ratio that is the focus of this article, but it is useful to set out some of the other issues with the European Commission's analysis of payment card profitability as a way of highlighting the limitations of this analysis, and therefore the inability to draw strong conclusions from it.

– **Cost allocation**—as the European Commission notes, the measurement of profitability at the activity level is typically subject to problems relating to the allocation of costs that are common to other activities, and this is likely to be particularly important in the financial sector. Banks and other financial institutions typically have large common costs, such as those associated with branches and IT infrastructure. While the financial institutions undertook the cost allocation themselves, this is unlikely to be satisfactory from an analytical point of view since, to the extent that respondent institutions do not allocate costs in the normal course of business, the resulting data provided could still be insufficiently reliable. No guidance was provided by the Commission as to how to allocate common costs, and the methods employed by institutions are likely to be inconsistent.

– **Problems with the data**—there were differences in the type of cost for which institutions have provided data,[7] and in the way each bank presented the data. This makes like-for-like comparison difficult both between and within Member States, and is likely to explain part of the wide variations in margins as reported in Figure 1.

– **The results of the profitability analysis were not interpreted in conjunction with the market structure analysis**—the interim report failed to link the profitability analysis (limited as it was) to the market structure analysis. For example, while the Commission concluded that the issuing of credit cards is highly profitable in the majority of the EU 25 Member States, and that this suggests the existence and exercise of market power in these markets, the analysis of market concentration yielded no evidence of excessive concentration.

– **Short time period**—the Commission’s analysis was based on a relatively short time period, 2000–04, which may not constitute a full business cycle. This may have been a period particularly favourable for credit lending. This is relevant because a profitability assessment should consider how to treat exceptional or unusual events, and there is regulatory precedent for adjusting profits to take into account expected increases to bad debt charges, for example.[8]

The European Commission also conducted profitability analysis as part of its inquiry into retail banking activities, particularly current accounts. Although the analysis was more limited and the conclusions drawn more circumspect, a similar critique could be applied to this analysis—for example, as regards the choice of measures of profitability (return on assets and profit before tax as a share of gross income).

The use of a cost mark-up ratio as a measure of profitability

The ratio of profits to operational costs (or the cost mark-up) is, analytically, the same as the better-known ROS (the ratio of profits to revenue) since it is possible to derive one from the other. Formally, measures of profitability such as ROS, ROCE and ROE are referred to as ‘accounting’ measures of profitability. However, the finance literature recognises the internal rate of return (IRR) and the net present value (NPV) as the conceptually correct measures of profitability of an activity (an investment, line of business or business). Both the IRR and NPV are based on cash flow rather than accounting profits. The latter are sensitive to, among other things, a company’s depreciation and revenue recognition policies in a way that cash flows are not.

Therefore, the cost mark-up is not conceptually the most appropriate measure of profitability. Yet the European Commission did not review the merits of other measures or justify the use of the cost mark-up (because of data limitations, for example). Thus it is important to assess the validity of the cost mark-up or other margin on turnover-based measures of profitability.

The cost mark-up may be useful where assets are difficult to measure, or where firms have a relatively small amount of capital employed. In such cases, capital-based measures of profitability might produce volatile results or large returns that are difficult to interpret. However, cost mark-ups, like ROS, suffer from a number of significant methodological and conceptual problems that prevent them from being an accurate measure of the economic profitability of an activity or business, not least a financial institution. In particular:

– **the cost-mark up is not consistent with the risk–return framework**—returns are not compared against the risks that a business incurs. Moreover, the cost mark-up does not compare returns with the capital or assets employed in undertaking that activity;

– **the cost mark-up has no clearly defined benchmark**—where margin on turnover measures have been used in the UK context, competition authorities have in the past benchmarked this against margin on turnover of businesses identified as comparable in competitive markets (eg, businesses undertaking the same or similar activity or having similar capital intensity). Such comparisons are themselves problematic (eg, because of the need to identify competitive markets), and should be considered only rough approximations of a profitability assessment.

Relationship between margins and return on capital employed

The relationship between the return on capital employed and the return on sales (and it can clearly shown to apply to the cost mark-up as well) can be seen in the following equations.

ROCE = EBIT/capital employed
= EBIT/revenue * revenue/capital employed
= ROS * 1/capital intensity

Margins and other measures of profitability

There is a theoretical relationship between the cost mark-up ratio and ROCE or return on equity (ROE) (see box above) that the European Commission could have investigated and deployed as part of its inquiry. By considering what assets or, as this concerns the financial sector, equity would have been required to undertake the activities in question, it would have been possible to impute a 'normal' level of profits for that activity by applying the cost of capital to the imputed asset value and then comparing this to actual profits (the same applies to cost mark-ups). Clearly, this may have been difficult to complete reliably because of the difficulty of identifying what equity that activity would require. However, there is some precedent for allocating equity to different banking activities.[9] Neither the return on capital nor return on equity are the conceptually correct measures of profitability, but they are more informative than margin on turnover measures for capital-intensive sectors.

UK competition authorities have also moved away to some extent from the use of margin on turnover measures of profitability towards return on capital measures and the IRR. Indeed, one example of this is the ongoing review of classified directory advertising services—a business with relatively few fixed tangible assets—where the Competition Commission has used the IRR (among other measures) to measure the profitability of the businesses concerned, whereas its predecessor, the Monopolies and Mergers Commission (MMC), focused more on ROS in its inquiry into the same industry in 1996.[10]

Typically, businesses with higher capital intensity have higher ROS as profits need to remunerate a larger asset base. Therefore, by focusing only on cost mark-ups (or their equivalent, the ROS) for banks and arguing that these often appeared high, the European Commission has not accounted for their capital intensity and risk.

Concluding remarks

Profitability analysis is an important component of market investigations and can, when conducted appropriately, be a useful indicator of the degree of competition and entry barriers. This article has discussed the choice of profitability measure (rather than issues relating to how to measure profitability—eg, how assets should be valued, even when agreement about which measure to use has been reached), and it is far from clear what can be reliably concluded from the European Commission's analysis of profitability in its interim reports on the financial services sector inquiry, not least because of its choice of measure. While accounting-based measures of profitability such as margin on turnover have uses under certain circumstances, these are not the conceptually correct measures of profitability. Care should therefore be taken in using and interpreting results based on these measures.

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[1] European Commission (2006), 'Interim Report I: Payment Cards', April 12th and 'Interim Report II: Current Accounts and Related Services', July 17th.
[2] European Commission (2005), 'Financial Services Sector Competition Inquiry: Frequently Asked Questions', press release, June 13th. The European Commission is due to publish its interim report on business insurance in December.
[3] See Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', report prepared for the Office of Fair Trading, July. Available at www.oxera.com.
[4] In particular, ROS is profit divided by revenue, while the cost mark-up is profits divided by cost. Therefore, cost mark-up times the ratio of cost to revenue (which is the sum of costs and profits) is equal to ROS.
[5] See, for example, Kay, J.A. (1976), 'Accountants too Could be Happy in a Golden Age: The Accountant's Rate of Profit and the Internal Rate of Return', Oxford Economic Papers, **28**, 447–60.
[6] Competition Commission (2003), 'Market Investigation References: Competition Commission Guidelines', CC3, June.
[7] For example, the questionnaire asked institutions to provide data on the cost for the provision of the interest-free period, but did not explicitly ask for data on the cost to the institution of funding the extended credit facility of credit cards.
[8] The UK Competition Commission made adjustments to bad debt charges in its inquiry into banking services supplied to small and medium-sized enterprises. See, Competition Commission (2002), 'The Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises', March.
[9] For example, the UK Competition Commission calculates ROE for the profitability of banks' supply of banking services to small and medium-sized enterprises activities by allocating regulatory capital according to the share of risk-weighted assets that a bank would require to undertake these services. Source: Competition Commission (2002), 'The Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises'.
[10] Sources: MMC (1996), 'Classified Directory Advertising Services', Cm 3171, March 21st, and Competition Commission (2006), 'Provisional Findings Report: Classified Directory Advertising Services', June.

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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