

Entry profitability of a mid-tier audit firm

Note prepared for the Competition Commission

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Non-confidential version

1 Introduction to the model

1.1 Objectives

This note accompanies the spreadsheet containing a stylised model of entry profitability of a hypothetical mid-tier audit firm. Oxera has prepared this model following discussions with the Competition Commission (CC) about the entry profitability analyses in Oxera's 2006 and 2007 reports for the DTI/FRC and the European Commission, respectively.¹ The CC has indicated that it would find it helpful to use a similar analysis in its assessment of entry barriers in the current market investigation.² Oxera has therefore updated, and simplified, the models used previously.

Oxera currently advises BDO and Grant Thornton in the context of the market investigation, and, as in 2006 and 2007, has benefited from discussions with these firms when developing the model.

The model is not intended to capture everything that a mid-tier audit firm would need to do to enter, or significantly expand into, the FTSE 350 audit market. It is designed only to show how the probability of winning individual audit tenders impacts on the overall economic viability of entry/expansion in this market. This is the major barrier that both BDO and Grant Thornton have identified. There will be other barriers to entry and investments needed, but

¹ Oxera (2006), 'Competition and choice in the UK audit market', prepared for the Department of Trade and Industry and Financial Reporting Council, April. Oxera developed a similar entry profitability model in its 2007 report for the European Commission: Oxera (2007), 'Ownership rules of audit firms and their consequences for audit market concentration', prepared for DG Internal Market and Services, October.

² Competition Commission (2012), 'Audit Market Investigation, Restrictions on entry or expansion', working paper, para 61.

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both BDO and Grant Thornton have indicated that these would generally occur when these firms are entering into, or expanding in, other audit markets, so are not included.

In addition, the model is not designed to provide a precise point estimate of the costs of overcoming the entry barrier of a reduced probability of winning a tender, but rather to provide an approximate magnitude of this cost, given the overall market and cost dynamics.

Within these limitations, the model is designed to provide an indication of what changes would be necessary to the current market dynamics in order to make new entry or significant expansion of mid-tier firms into the FTSE 350 market (more) economically viable. The CC could use the model to gain a further understanding of entry barriers (in line with the objective set out in the CC working paper referred to above), and to explore the effects of any potential remedies in this area.

1.2 Dynamics captured in the model

Oxera's 2006 report contained an entry profitability model that addressed, in a stylised manner, the marginal profitability of mid-tier audit firms when expanding into the audit segment of FTSE 350 companies under different scenarios. The model allowed adjustments to variables such as the rate of a company switching auditors, the rate of a company using a tender process to select a new auditor, and the length of the payback period. It then calculated the resulting entry profitability measured by the internal rate of return (IRR). The model contained an economically significant 'sunk cost' that would need to be incurred in order for mid-tier audit firms to be in a position to acquire a significant number of new audit clients in the FTSE 250, and then move on to auditing clients in the FTSE 100.

Since 2006, while overall market structure and concentration have remained the same, some of the underlying market dynamics have changed. In line with discussions that Oxera has held with mid-tier firms, and with the material that the Competition Commission has published so far in this market investigation, it would now appear that, for at least some mid-tier firms, to provide an audit service to most FTSE 250 companies and many FTSE 100 companies would no longer require significant additional 'sunk cost' investment.³ Thus, as described to Oxera, the current major barrier preventing these mid-tier firms from entering the FTSE 350 market is not their ability to provide the requisite audit product at the requisite quality and price, but a feature of the choice process whereby their probability of winning any specific audit tender is, in general, significantly lower than that of a Big Four firm in the same tender process.

Because mid-tier audit firms believe that they already have the necessary capabilities and infrastructure in place to deliver an audit service to most FTSE 350 companies at a comparable quality and price to the Big Four audit firms, Oxera considers that the approach adopted in its 2006 entry profitability analysis needs some adjustment. This is to capture more effectively various factors that now have a significant impact on the profitability of entry/expansion of mid-tier audit firms into the FTSE 350 market segments.

The information that Oxera has recently gathered suggests that the business case for entry into auditing FTSE 350 companies is critically dependent on the probability of winning an audit tender. It is this aspect of entry into the market that Oxera has now modelled.

For it to be economical to participate in a tender process, a success rate that is systematically lower than that of the competitor firms would need to be balanced by some other factors, such as higher levels of efficiency in the delivery of audits or a better price/quality/profitability combination. To keep the model simple, Oxera has made the

³ This applies to acquiring a number of additional audit clients over a reasonable time period, not to acquiring a large number of audit clients at once.

assumption that all firms tendering have approximately the same costs and deliver approximately the same quality of service.

This model addresses the profitability of entry and/or expansion into FTSE 350 companies where no additional non-bidding cost investments are required. The model makes explicit the relationship between the probability of winning an audit tender, the cost of participating in the bidding process, and the expected payback period before bidding costs would need to be incurred again.

To avoid having to calculate the salary costs of partners, the model makes an assumption that the audit profit is endogenously determined such that the implied IRR at the given level of tender costs, probability of winning, and payback period equals the assumed weighted average cost of capital (WACC). Users of the model can set their own estimates of the cost of capital facing audit firms. The model then assumes that the normal winning probability is 30%, and that the investment payback period being used is 15 years. The costs of having a lower probability of winning are then calculated as the *difference* between an investment under these normal conditions, and the equivalent investment if the probability of winning were lower.

The model can be set up to use a different probability of winning and investment time horizon as the market norm if appropriate, although this is not directly alterable.

1.3 Model outputs

The model produces two outputs. The first is the IRR of participating in an audit tendering process, based on the assumed values of bidding cost, winning probability, audit profit, and payback period.⁴ With this measure, the cost of a mid-tier firm participating in an audit tender is, in essence, the difference in the IRR of having a low success rate and having a 'normal' success rate.

The second output is the cost (or gain) to a mid-tier firm of winning an assumed target number of new audit clients when the implied IRR of each participation in the tender is below (above) the assumed WACC. The cost measured is the value of the wedge between the actual return and the assumed WACC. This measure gives an approximate cost (or gain) of winning this number of new audit clients. The logic here is that, after winning a significant number of new audit clients, the entrant firm would achieve a market position where the disadvantages of a lower probability of winning would largely disappear. If a firm requires a target number of *simultaneous* audit clients in order to achieve this market position (ie, a particular market share) then the number of tenders needed to be won is higher than the simultaneous number of clients needed. (This arises because a won audit assignment with a short tenure may have been subsequently lost before the firm reaches its target market share.)

The number of audit tenders needed to be won to reach the new market dynamics can be set by the user of the model. In practice, as a firm gains new clients it is likely that the probability of winning in the future would increase, rather than remain at exactly the same level until the assumed target number of new clients is reached. This effect can be simulated in the model by adding together the outputs for smaller numbers of target clients, using a different probability of winning in each batch of new clients.

⁴ The payback period is used rather than the average length of an audit engagement, in order to enable analysis of the impact of having partners with shorter investment time horizons than the expected tenure of the audit assignment.

1.4 Limitations

The model looks only at the investment costs of tendering. It therefore does not cover expenditure incurred by the acquiring firm in advance of acquiring FTSE 350 clients, other than the tendering costs. For some potential audit clients, such expenditure could be significant (for example, in order to be in a position to audit a large multi-national bank), and this model does not cover the acquisition of these types of clients.⁵

More generally, a critical assumption is that there are a significant number of FTSE 350 audit clients for whom one or more of the mid-tier auditors would not need to make additional investments, over and above the costs of participating in a tender, in order to be able to offer equivalent audit services.

There is also an implicit assumption that the general costs of expansion and/or acquiring additional clients are covered in the returns that are available under normal conditions. Therefore, any additional investment costs that would be required just as a result of general expansion are assumed to be covered already by the returns that would be made on those new clients. Under conditions of rapid expansion into the FTSE 350 market segment, this assumption may not hold, and the model will underestimate the additional investment costs involved and, therefore, overestimate the IRR of any expansion relative to the normal IRR.

The model does not estimate the changes in entry costs that might occur if the frequency of tendering is altered. The model is designed to measure the costs of acquiring individual audit assignments, and it is assumed that, as the firms already have the technical capability to provide audit services, the costs of individual acquisition do not vary with the speed of multiple acquisitions. However, increasing the frequency with which tenders arise will, all else being equal, reduce the elapsed time it would take to achieve any particular level of market share, or number of acquired clients, for a new entrant. This may be important for the quicker delivery of any benefits from a less concentrated market, including the resilience of the market structure, should one of the major audit firms run into difficulties. However, these impacts are outside the scope of this model.

In addition, to the extent that there are economies of scale or scope in the tendering process, increasing the frequency of tendering may actually reduce the costs of tendering for each assignment.

The model does not directly address the impact of any changes in the frequency of tendering on the expected length of an audit assignment (strictly speaking, the elapsed time until the next tender, even if the incumbent retains the assignment). If the tendering rate is increased then, if all other factors remain the same, the average tenure of the audit assignment will decrease. Where investors (ie, partners) are using an investment appraisal time horizon of less than the expected audit tenure (for example, because some partners are due to retire over a shorter time horizon), the impact of increased frequency of tendering on the economics of participating in the tender process will be minimal.⁶ However, if the expected audit tenure becomes shorter than the partners' investment time horizon, the audit tenure should be used as the investment time horizon. Under these circumstances it would be appropriate to re-set the time horizon used to calculate the 'normal' outcome to the average audit tenure.

There is also a rather complex relationship between the tender rate, the probability of winning a tender, and the number of tenders that need to be undertaken to arrive at a market position with a given number of *simultaneous* audit clients. The *distribution* of audit tenure

⁵ The largest multi-national companies, including the largest banks, would fall into this category.

⁶ If the investment time horizon for the partners remains shorter than the expected tenure of the audit, the decision to participate will be driven by the impact of the investment time horizon. Changing the length of tenure does not, therefore, affect these decisions until the expected length of tenure falls below the investment time horizon of the partners.

lengths impacts on this result, and, as the distribution is currently unknown, the model does not address this. However, in very simple terms, for any distribution of audit tenure lengths (other than when all tenure lengths are equal to the average length), the total number of tenders that need to be won is greater than the number simultaneously held. In addition, if the distribution of tenure lengths remains the same, as the average tenure decreases (and the frequency of tendering increases), the time taken to reach a particular market share (ie, a target number of simultaneous audit clients) shortens, but the number of tenders to be undertaken remains approximately the same. As indicated above, this impact has not been modelled, as the distribution of the length of audit tenures is not known. However, if the distribution were to be set by assumption, it would be possible to expand the model reasonably easily to include this factor. It should also be noted that there are instances where the probability of winning (low) is combined with low frequencies of opportunities to participate in those tenders that are let (eg, with multiple mid-tier firms in the market, and only one is invited to participate in each tender), where even modest target market shares are never reached.⁷

2 Entry profitability analysis

2.1 Main variables

This section discusses the main variables of the entry profitability analysis for participating in a tendering process of a FTSE 250 company.

- Profitability measure—the entry profitability is measured as the IRR of participating in an audit tendering process of a FTSE 250 company. This is the same metric that was used in Oxera’s 2006 report.
- Bidding cost—it is assumed that the resources used in participating in an unsuccessful bid have no significant residual economic value, and are therefore sunk costs tied to that particular tender. The bidding cost is expressed as a percentage of the expected annual audit fees, and can be adjusted by the model user.⁸
- Audit profit—this is a percentage of the expected annual audit fees. This parameter is set so that the IRR of participating in a tender under ‘normal circumstances’—ie, with a 30% probability of winning the tender and 15 years of payback period—is equal to the assumed WACC. Although, ideally, the audit profit as a share of audit fee should be estimated directly from market evidence, the approach adopted here circumvents the need to impute the salary costs of partners.
- Probability of winning the tender—this is a critical input into the decision to participate in an audit tender, and has a large impact on the entry profitability.⁹
- Expected payback period—the available market evidence suggests that the tendering rate for FTSE 350 companies is around 4% or lower per annum.¹⁰ This would suggest that the average length of time before an audit assignment is re-tendered is around 25 years or more. Because the bidding cost is incurred up front, the longer the winning

⁷ An example of such an outcome for the FTSE 250 would be where there are three mid-tier firms, each has a probability of winning of 10%, and each is invited to participate in one-third of all tenders. Under these circumstances, each mid-tier firm would never achieve more than around nine simultaneous audit clients (~4% market share). In addition, the firm would be likely to experience a negative IRR on those audit clients.

⁸ The percentage bidding cost is currently set at 40%, based on the evidence in paragraph 2(d) of Competition Commission (2012), ‘Audit Market Investigation: Evidence relating to the selection process: tendering, annual renegotiations and switching’.

⁹ A 30% probability of winning is an assumed ‘normal’ probability, based on the evidence in paragraphs 98 and 125 of Competition Commission (2012), op. cit.

¹⁰ Competition Commission (2012), op. cit., para 2(b).

audit firm can expect to keep the acquired company before the next tendering process, all else being equal, the more it can recoup the up-front bidding cost. However, those making the investment (ie, partners) might not, individually, be able to recover their own investment costs over that time period, because they may retire (or leave) before that audit is re-tendered, and the investment time horizon may therefore be shorter than the period before a (re)tendering takes place. The model therefore produces the implied IRR for six expected payback periods—5, 10, 15, 20, 30 and 40 years.

- Expected annual audit fees—these fees differ depending (for example) on the specific target company’s size, number of locations, and the industry of specialisation. However, because both the bidding cost and the profit are normalised as a percentage of the expected annual audit fees, the absolute amount of this variable does not affect the resulting IRR. It does, however, affect the estimated cost in pounds of acquiring any given target number of FTSE 350 audit clients.¹¹
- Assumed WACC—conceptually, this is the return earned when the bidding costs, probability of winning, payback period, and audit profitability are all ‘normal’. The rate can be varied by the model user. Varying the assumed WACC changes both the economic costs (in pounds) of acquiring the target number of new audit customers, and the difference (in percentage points) between the assumed WACC and the IRR of acquiring these customers.¹²
- Target number of new clients—this can be varied by the model user, and represents an assumed number of audit clients that would be required in order for a mid-tier audit firm to achieve a comparable probability of winning an audit client, when the parameters of price and quality are equal.

2.2 Output of the model—example

- Panel A shows the assumed values for different input variables (ie, expected audit fees, bidding costs, probability of winning a tender, and the payback period), as well as the implied IRR of participating in a tender and the implied economic gain/loss of acquiring one new client. The purple shading indicates the inputs whose values can be updated freely. As discussed earlier, audit profit is derived based on the assumptions on other input variables, such that the implied IRR with a 30% probability of winning and 15 years of payback period equals the assumed WACC (in this case, arbitrarily set at 15%).

Expected audit fees from a FTSE 350 client (£ '000)	650
Bidding cost (% of annual audit fees)	40
Audit profit (% of annual audit fees)	23
Probability of winning a tender	30
Payback period (years)	15
Assumed WACC (%)	15.0
Implied internal rate of return (IRR, %)	15.00
Target (assumed) number of new clients	35
Economic gain/loss of gaining one client (£ '000)	0.0000

- Panel B shows the implied IRR for different winning probabilities and different payback periods while holding other input variables unchanged. All else being equal, the lower

¹¹ As an example, £650,000 is assumed to be the expected annual audit fee from a new FTSE 350 client in Panel A of the analysis. This amount is roughly equal to the median audit fees of FTSE 350 companies in 2011, based on the information received from the Competition Commission (‘Public data descriptive statistics’). Different values of expected annual audit fees can be assumed, and the model will produce new estimates of the cost of acquiring a target number of new clients.

¹² For the avoidance of doubt, the use of a WACC of 15% in the examples that follow is purely for illustrative purposes, and is a stylised parameter only. Oxera has not sought to calculate the actual WACC for audit firms.

the winning probabilities, the lower the implied IRR. For example, at 10% winning probability and 15 years of payback period (a possible scenario for a mid-tier firm), the implied IRR is -1.9% , which is lower than the implied IRR at 25% or 30% winning probability.

Payback period (yrs)	Probability of winning a tender (%)					
	10	15	20	25	30	
5	n/a	-23.0	-16.2	-10.3	-5.0	
10	-9.1	-2.7	2.5	7.0	11.2	
15	-1.9	3.3	7.6	11.4	15.0	
20	1.3	5.8	9.6	13.0	16.3	
30	3.9	7.6	10.9	14.0	16.9	
40	4.8	8.2	11.2	14.2	17.1	

- Panel C shows the implied economic gain or loss from acquiring the assumed target number of new FTSE 350 clients (which is specified in Panel A) at different winning probabilities and expected payback periods, with the future cashflows discounted at the assumed WACC. As an example, given that the implied IRR (-1.9%) at 10% winning probability and 15 years of payback period is much smaller than the assumed WACC (15%), there is a large economic loss from participating in tender processes in order to acquire the assumed target number of new clients.

Evaluation horizon (yrs)	Probability of winning a tender (%)					
	10	15	20	25	30	
5	-73,611	-43,277	-28,111	-19,011	-12,944	
10	-64,965	-34,632	-19,465	-10,365	-4,298	
15	-60,667	-30,333	-15,167	-6,067	0	
20	-58,530	-28,196	-13,030	-3,930	2,137	
30	-56,939	-26,606	-11,439	-2,339	3,728	
40	-56,546	-26,212	-11,046	-1,946	4,121	

- Panel D in the model (not replicated here) shows the expected cashflows for participating in a tender for different payback periods.