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by Richard Cadman

Margin squeeze: defining a reasonably efficient operator*

Is this the biggest challenge in telecom margin squeeze?

What standard should a regulator or competition authority apply when determining if a dominant firm has been margin squeezing its competitors: the Equally Efficient Operator (EEO) or Reasonably Efficient Operator (REO)? Traditionally competition authorities, at least, have applied the EEO on the basis that economic efficiency is only served if competitors are at least as efficient as incumbent firms. However, the European Commission (EC) has on several occasions introduced the concept of a REO, most recently in its Recommendation of regulation of Next Generation Access[1] where the EC writes:

"In the specific context of ex ante price controls aiming to maintain effective competition between operators not benefiting from the same economies of scale and scope and having different unit network costs, a "reasonably efficient operator test" will normally be more appropriate." (paragraph 26)

The problem is that a REO has not been properly defined leaving it difficult for regulators to apply the test. In this article we seek to define a REO to meet two objectives. First, the REO standard should promote efficient entry in markets where there is a dominant firm. Secondly, the REO standard should be sufficiently transparent that it can be applied by the dominant firm when setting its own prices.

Policy and legal Background

The EEO standard has emerged in the context of competition policy with its emphasis on protecting consumers from the abuse of a dominant position that one or more firms might enjoy in a relevant market. Competition policy and law do not seek to introduce competition into previously monopolistic markets, but to protect consumers should one firm in a relevant market become dominant. Competition policy is concerned primarily with economic efficiency and so it follows that any competitor to a dominant firm should be at least as efficient. To use competition law to protect a less efficient competitor would be harmful to economic efficiency and consumer welfare. The various cases of alleged margin squeeze that have been examined by the courts and the European Commission under competition law have, therefore, expected the competitor to be equally efficient.

Regulatory policy, by contrast, has the objective of promoting sustainable competition, typically in previously monopolistic markets. In the European Union, the Common Regulatory Framework for the electronic communications market explicitly sets the objective of national regulatory authorities as promoting competition in Article 8.2 of the Framework Directive. Regulatory policy is applied in very different economic and market conditions to competition policy. Table 1 contrasts the economic circumstances where competition and regulatory policy apply.

The idea of a REO, which we also refer to as an explicitly ex ante margin squeeze test, has emerged because in a regulated market where competition is being introduced it would be difficult, if not impossible, for an entrant at the time of entry to be as efficient as the incumbent. As the European Commission suggests in the paragraph quoted above, an entrant will not benefit from the same economies of scale and scope as an incumbent.

How then should a margin squeeze test be adapted to meet the REO standard, whilst not promoting inefficient entry and being sufficiently transparent

1 European Commission (2010) 'Commission Recommendation of 20th September 2010 on regulated access to Next Generation Access Networks' SEC (2010) 1037

* This article is based on a consultancy project conducted by the author and Richard Carter for three Dutch electronic communications firms: BBNed, Online and Tele2. All views expressed are those of the authors. I thank Richard Carter for his comments on this article.

	Competition policy	Regulatory policy
Market economics	Normal market. Independent competitors. Market failure may occur if one firm becomes dominant.	Incumbent former monopoly, usually still dominant in the upstream essential input which it provides to itself and downstream rivals.
Policy objective	Protect competition and consumers from the abuse of a dominant position.	Promote sustainable competition where it has not historically existed.
Timing	Applied *ex post* usually following a complaint of anti-competitive behaviour. Only applied ex ante in case of a merger which may create a dominant firm.	Applied *ex ante*. Regulated firms may have property rights affected to ensure access by competitors to essential inputs on fair and reasonable terms.

Table 1

for the incumbent to know what costs it should price against?

What is an REO?

A margin squeeze occurs when the monopoly or dominant provider of an essential input, which is also active in the retail market, sets its price such that an efficient competitor cannot make a reasonable profit. The monopolist can either set the wholesale price too high, compared with its own retail price, or sets its retail price too low. Formally, a margin squeeze is said to occur when the following condition is met:

$$R - (C + M) \leq 0$$

Where R = revenue, C = costs of inputs, and M = retail margin.

This formal definition is normally interpreted to mean that the competitor is at least as efficient as the incumbent, as both the costs and the margin are typically calculated on the basis of the incumbent's own costs.

However, as the EC implies, competitors' lower economies of scale and scope may mean that the entrant cannot meet such a standard. In our proposed definition of a REO we consider four costs which an entrant bears but an incumbent does not, at least to the same extent, such that, even if the entrant is as efficient in all other aspects, it cannot be as efficient as the incumbent.

The costs we are considering here are only the costs of the retail operation of the incumbent and entrant. When we consider issues such as economies of scale, we are not concerned with the economies of scale of the upstream business where the incumbent has SMP, but only with those in the downstream retail business. Any benefits of economies of scale in the product where the incumbent is dominant should of course be passed on to the entrant through regulated prices.

Equivalence of Input

The starting point of any margin squeeze test must be the cost of the relevant input or inputs ('C' in the condition above). It is essential that the same input is used to calculate the margin in the test as that which is actually used by the entrant. Where a country has followed the UK model of Equivalence of Input (EOI) in which the incumbent is required to provide the same product internally and externally, this ought not to be a problem. However, where incumbents are free to use a different product themselves than that which is used externally then the REO standard should be based on the input actually used by the entrant.

To give an example: suppose a REO standard is being used to determine if there is a margin squeeze associated with voice calls. The incumbent operator is almost certain to have most "interconnection" at the local exchange level, which is the lowest cost point of interconnection. An entrant, however, may find it efficient to build out only to a proportion of local exchanges and so be more reliant on single and double tandem interconnection and will therefore have a higher cost of interconnect than the incumbent, even if all other aspects of its operation are as efficient.

A margin squeeze test based on the input costs of the incumbent would therefore require the entrant to be more efficient than the incumbent to overcome the disadvantages of not having as extensive a network as the incumbent. As the cost of building a local access network is one the most significant economic barriers to entry, regulators would be failing in their duty of promoting competition if the margin squeeze test is based on the incumbent's input costs rather than the entrants.

Economies of scale

By definition a market entrant will produce at a lower scale than an incumbent. Thus, even if the entrant's cost curve is as efficient as the incumbent, its lower volume means that its unit costs will be higher. Even if the entrant were to have a more efficient cost curve it would still have higher unit costs until the volume it produces was sufficiently high to challenge the incumbent.

However, as the incumbent will not know its rival's cost curve, we propose that a REO should be based on the cost curve of the incumbent, but adjusted for the entrant's lower production volume. This of course raises the question of what is the appropriate volume for a REO based margin squeeze test. Our proposal is that unit costs should be based on a volume equivalent to a market share of 20% - 25%. Thus if the market has total sales of 1,000 units, the unit costs should be based on the incumbent's cost curve assuming a production volume of 200 – 250 units.

We propose this level of volume because academic research has shown that most of the benefits of competition accrue when there are four firms in the market and there is a diminishing return as more firms enter.

In their seminal article, Bresnahan and Reiss[2] explore entry and competition in concentrated markets, specifically various retail service markets in discrete geographic markets in the USA. Although their research does not relate directly to electronic communications markets, their findings are nevertheless interesting. Using an econometric model, they seek to measure how the level of profit changes with the entry of the nth firm in a market. Their analysis confirms their hypothesis that post-entry competition increases at a rate that decreases with the number of entrants and that most of the increase in competition comes with the entry of the second and third firms.

"Our empirical results suggest that competitive conduct changes quickly as market size and the number of incumbents increase. […] Surprisingly, once a market has between three and five firms, the next entrant has little effect on competitive conduct."

2 Bresnahan, T. F. and Reiss, P.C. (1991) 'Entry and competition in concentrated markets' The Journal of Political Economy Vol. 99 No. 5 pp977 - 1009

Economies of scope

Just as the incumbent will benefit from economies of scale, so too will it benefit from economies of scope. It is almost certain that the incumbent will offer a wider range of products than the entrant. At the very least the incumbent will have both a wholesale and retail product, whereas the entrant will only offer a retail product. Economies of scope allow a firm to spread overhead costs over a wider range of products when those costs grow non-linearly with each additional product.

To provide a simple example, suppose the incumbent sells two products (wholesale broadband access and retail broadband access) and the entrant sells only retail broadband access and buys in wholesale access from the incumbent. Without economies of scope the incumbent has twice the level of overheads as the entrant and it divides them equally between the two products. If the incumbent's total overheads are €2 it would assign €1 to each product. The entrant has the same level of overhead per product and so has overhead of €1. Each firm's retail price is then equally affected by the level of overheads. The entrant has its own overheads of €1 plus €1 of overheads included in the wholesale price.

Now suppose that the incumbent enjoys some economies of scope such that its total overheads are less than twice the level of the entrant. For example, say that its total overheads are now €1.8. Again it divides its overheads equally between the two products: €0.9 to each of the upstream and downstream product.

Now the incumbent's retail price includes its total overheads (€1.8) and the entrant's retail price includes half the incumbent's overheads included in the wholesale price (€0.9) plus all of its own, higher, overheads (€1) in its retail margin. Once again even if the entrant is equally efficient on all other aspects, the simple fact that is has fewer products to allocate overheads to means that it is at a competitive disadvantage: the entrant has to cover total overheads of €1.9 whereas the incumbent has to cover total overheads of €1.8.

One way to account for economies of scope in the REO standard would be spread the incumbents overheads across its competitive products only, rather than its competitive and SMP products, thus placing on the same footing as an efficient entrant.

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Search and switch costs

Last, but by no means least, we turn to the question of compensating the consumer for any search and switch costs he or she incurs when changing supplier. It is a reasonable assumption that there is greater consumer awareness of an incumbent than there is of an entrant, even when consumers are large businesses themselves. After all, by definition the incumbent is already in the market, whilst an entrant may be a recent newcomer. Consumers and businesses considering changing suppliers will incur costs of finding out about potential alternatives and then if they change supplier may incur directs costs of actually changing suppliers: so called search and switch costs. New entrants need to compensate consumers for such costs either through some form of discount or through extensive advertising to lower search costs in the first place. Entrants may also have to absorb some of the switch costs themselves by providing migration services free of charge.

Over and above the direct search and switch costs are what might be considered psychological switch costs, or the "nobody ever got fired for buying the incumbent" principle. Risk averse customers may prefer the incumbent simply because it is the incumbent and so would require even greater compensation from an entrant to buy from the entrant.

Search and switch costs are likely to be lower for consumers and businesses buying from the incumbent firm and so it may incur much lower costs to compensate consumers. Thus, even if an entrant was as efficient as the incumbent in all other aspects of its business it would still incur higher retail costs than the incumbent. Unless these costs are allowed for in a margin squeeze test, the entrant will be disadvantaged and competition will not be promoted.

The obvious next question is what level of search and switch costs should be accounted for in a REO standard? This level could be calculated empirically through observing prices in the market and through research surveys. However, there are some useful indicators already available.

The Dutch electronic communications market regulator, OPTA, has implicitly recognised that the additional marketing costs incurred by entrants are in the region of 5-10%. In its decision on fixed telephony markets of December 2008, OPTA stated:

OPTA acknowledges that having the disposition of a last mile network is not sufficient for successful market entry. A solid customer case, reputation and name are indispensable. For historic reasons KPN has an extensive customer base, a well known brand and a reliable reputation. [OPTA note: In the context of WLR OPTA acknowledges that alternative providers can only set a retail price 5 to 10% less than the KPN retail price.] A significant part of the KPN customer base is therefore very loyal and not sensible for incentives to switch to another provider (end user inertia). Therefore KPN is able to ask a 'price premium', i.e. the customer is prepared to pay a higher price to KPN for the same service than to other providers.[3]

In a different market, the UK energy regulator, Ofgem, established that regional incumbents can maintain a six to ten percent average price differential over competitive suppliers. Ofgem found no cost basis for this premium[4].

The actual level of discount used to compensate for search and switch costs may be considered on a market-by-market basis. Where the vertically integrated firm is much larger than its competitors, the discount may have to be higher with the discount falling, and potentially being set at 0%, as the market shares of firms converge.

Timing

Adjustments to a margin squeeze test to reflect the costs of a reasonably efficient entrant should only persist for the time within which the entrant may be expected to achieve sufficient scale and consumer acceptance such that it can become equally efficient. At this point, the advantages of incumbency may be considered to have been removed and the market to have become normally competitive. If the adjustments continue beyond this time, inefficient entry may be encouraged and consumer welfare may be harmed as regulatory protection of entrants may keep downstream prices above the competitive level.

How long should such a period be? We have considered two options. Under the first option an ex ante margin squeeze test would be based on a REO for a fixed period, say three or five years. However, we have rejected this option as it requires

3 Reference in Dutch Para 413. Informal translation.
4 Ofgem (2008) Energy Supply Probe: Summary of initial findings and remedies

the NRA to judge in advance how quickly a market will become effectively competitive.

Our preferred, option is to hold a periodic review of the need for continuing with an ex ante margin squeeze test in the light of competitive developments in the market and the metrics to be used. Such a review could be tied in with the market review cycle, in much the same way are price controls are. This option allows the NRA to make a pragmatic decision about whether competitors have benefited from a period of promotion of competition and whether their market position is a result of their own actions or whether market failures remain that can be corrected through the presence of an ex ante margin squeeze.

The key criterion for whether the REO standard can be replaced with the EEO standard is whether effective competition in the downstream market is sustainable in the absence of ex ante regulation in the immediate upstream market. For example, suppose that the retail broadband access market was being examined. If the Wholesale Broadband Access (WBA) market is effectively competitive and not subject to ex ante regulation, then a margin squeeze test between these two markets could revert to the *ex post* EEO standard. However, if WBA is only competitive because the incumbent is required to provide unbundled access in the Wholesale Network Infrastructure Access (WNIA) market, then the REO standard would need to be maintained in any margin squeeze test between WNIA and WBA products, unless the dominant upstream firm was not active downstream. Significant Market Power (SMP) in the upstream market would otherwise allow the SMP operator to leverage that dominance into the downstream market.

Conclusion: A formal definition

Earlier we formally described a margin squeeze test as:

$$R - (C + M) \leq 0$$

Where R is the downstream price, C is the cost of the upstream input and M is the margin, equivalent to the costs of an equally efficient downstream operator.

We have argued in this article that a margin squeeze test using the REO standard should be based on the input used by the entrant and adjusted for consumers' search and switch costs, for which an entrant needs to compensate, and for the incumbent's economies of scale and scope. On this basis, the *ex ante* margin squeeze test can be presented formally as:

$$(R \times (1 - D)) - (C_E + M) \leq 0$$
Volume ≈ X% market share
Scope ≈ Y Products

Where the additional variable D is the discount percent entrants need to offer consumers to compensate for search and switch costs and to overcome the risk premium faced by the entrant. The subscript E (CE) refers to the input cost to the entrant. The scale and scope of production is also explicitly stated as volume equivalent to a market share of X%, and scope to be average overheads for Y products. We have proposed various values to be applied to the economies of scale and the discount for search and switch costs. Bringing those values in to the condition set out above, we propose that a REO standard should use the following inequality as the margin squeeze test:

$$(R \times (1 - 0.05{:}0.1)) - (C_E + M) \leq 0$$
Volume ≈ 20% - 25% market share
Scope ≈ Competitive products

This condition, which applies to the immediately downstream market, should remain in place so long as a firm is dominant in the upstream market and operates in the downstream market and therefore has the ability to leverage its dominance.

Our REO standard is designed to promote competition, in line with regulators' objectives under Article 8.2 of the Framework Directive, but also to be transparent such that incumbents can set a price using their own cost curve in the retail market. This test therefore provides advantages to all players in the market: regulators, entrants, incumbents and, most importantly, consumers who will benefit from increased competition over time. Further development may be needed to refine the parameters of the test so that ex ante margin squeeze cases based on the REO standard do not get mired in legalistic debates about, for example, definitions of market share. However, we hope that our proposed REO standard can be used as a basis for further discussion and development.

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