

**Margin Squeeze Testing in an
ex ante Regulatory Environment**

Prepared for

BBNed, Online and Tele2

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SPC Network

Strategy and Policy Consultants Network Ltd
Chapel House
Booton
Norwich
NR10 4PE
United Kingdom

Tel: +44 1603 871162
Email: info@spcnetwork.eu

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Executive Summary

The Dutch telecoms regulator, OPTA, has introduced “Non-Discrimination Rule No.5” (ND5) which seeks to prevent the incumbent firm, KPN, from effecting a margin squeeze against its downstream rivals. However, competitor firms in downstream markets remain concerned that the implementation of ND5 does not prevent such behaviour by KPN and that the test is structured in such a manner that the effects of a margin squeeze are felt, even when KPN is acting within the letter of the ND5 test. The result is that competition in the market is compromised.

SPC Network has therefore been asked to analyse the relevant issues and to set out the principles of a specifically *ex ante* margin squeeze test that will support the regulatory policy goal of promoting competition, as set out in the European Union Directives and Dutch Telecommunications Act.

The underlying economics of markets governed solely by competition law and the subsequent objectives of that law are quite different to the economics and objectives of regulatory policy. The table below summaries these differences:

	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 competition where it has not historically existed.
Timing	Applied <i>ex post</i> usually following a complaint of anti-competitive behaviour. Only applied <i>ex ante</i> in case of a merger which may create a dominant firm.	Applied <i>ex ante</i> . Regulated firm may have property rights affected to ensure access by competitors to essential inputs on fair and reasonable terms

There has been much discussion as to whether a margin squeeze test should be based on the concept of an Equally Efficient or a Reasonably Efficient Operator. We argue that the Reasonably Efficient Operator (REO) standard is appropriate to achieve the objective of regulation policy, in line with the European Commission which says:

“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.” European Commission (2010, para. 26)

We equate the REO standard with an efficient entrant that should have the same as, or a more efficient cost function than, the incumbent firm, but which is likely to be producing at a lower volume and so have higher unit costs. A REO is also likely not to enjoy the same economies of scope so overheads will need to be recovered across a smaller range of products.

An efficient entrant is likely to be less well known or trusted in the market than the incumbent, thus a consumer would incur both search and switch costs if he or she decided to change supplier. To attract consumers the entrant will need to compensate them for their search and switch costs through either a price discount or increased advertising expenditure to raise awareness, or a combination of the two. The incumbent would not incur these costs meaning that even an efficient operator would have higher costs than the dominant firm.

Finally, the entrant may be disadvantaged if the incumbent uses a lower cost input for itself than it sells to competitors and this not taken into account in the margin squeeze test.

An *ex ante* margin squeeze test based on a REO should take account of these factors to promote competition.

An important feature of the margin squeeze test is the costs allowed for in the margin and the basis on which such costs are calculated. It is important that all efficiently incurred costs of an entrant are allowed for within the test. We propose that allowable costs should include the wholesale customer’s network costs, recurring non-network costs and customer acquisition costs. The table below sets out the costs we propose should be included in the downstream margin.

Cost	Definition
Service development	Cost of developing the service, including investment in IT, staff training, etc.
Network Costs	Network backbone providing transport between points of interconnection
ISP/IN Platform	Hardware and software costs of platform used to provide services
Customer Care	Provision of internet and call centre based care services
Invoicing/Bad debt/debt recovery	Cost of invoicing, collection of debts, chasing and writing off bad debt.
Market Monitoring	Externally acquired market information
Modems and other Customer Premises Equipment	Cost of acquiring and distributing equipment required at customer locations
Advertising	
Promotions and Discounts	Costs required to compensate

	consumers for search and switch activity
Commission	Sales commission to own sales staff and distributors

In line with precedent, we propose that the Long Run Incremental Cost (LRIC) should be the appropriate standard. Incremental costs include not only the short run variable costs, but also long run costs, including any sunk costs in developing the product which is being tested for the margin squeeze. Also in line with common practice, a mark-up should be allowed for the entrants' joint and common costs.

Regulators need to be aware that firms subject to a margin squeeze test can act strategically by claiming costs are joint and common rather than the incremental cost of a service. It has been established in margin squeeze cases that where one service uses a significant proportion of a resource also used by other services such that the commonly used asset would be smaller if the service in question was not offered, then that cost should be regarded as an avoidable, or incremental, cost. Regulators need to ensure that such behaviour is prevented and costs are properly allocated.

Formally, a margin squeeze can be presented as:

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

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

We propose that in electronic communications markets where the sector regulator has an obligation to promote competition, this formal definition should be:

$$(R \times (1 - D) - (C_E + M)) \leq 0$$

Volume \approx X% market share
Scope \approx 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 rate of discount required can be established empirically, but there is *prima facie* evidence that a level of around 5 – 10% would be required. The subscript E (C_E) refers to the input cost to the entrant. The scale and scope of production is also explicitly stated as a volume equivalent to a market share of X%, and scope to be average overheads for Y products. Academic and empirical evidence suggests that the volume of production at which costs are calculated should be equivalent to a 20 – 25% market share. The number of products across which overheads should be recovered would be determined on a case by case basis, and would need to consider the range of products offered by an efficient operator.

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1. Introduction and Context

Non-Discrimination Rule No. 5 (ND5), introduced by OPTA the Dutch telecoms regulator, aims to prevent the incumbent fixed network operator, KPN, from implementing a margin squeeze that would prevent its rivals from offering services under competitive conditions in downstream markets. Despite the implementation of ND5, competitors report that they continue to suffer from the effects of margin squeeze in all relevant markets. In the light of forthcoming market reviews, SPC Network has been asked by competitors¹ to propose the structure of an appropriate *ex ante* margin squeeze test that will promote competition, in line with OPTA's legal obligation under Article 1.3.1 of the Telecommunications Act.

Margin, or price, squeeze is a form of anti-competitive conduct by a vertically integrated firm that operates in competitive downstream markets and is the dominant or monopoly supplier of an essential upstream input to itself and to its downstream rivals. A margin squeeze can originate in both upstream and downstream markets, where an upstream margin squeeze is a form of price discrimination and a downstream squeeze a form of foreclosure. A third way in which competitors can feel the effects of a margin squeeze is when the incumbent benefits from economies of scale and scope which mean that even an equally efficient competitor will have higher unit costs. The incumbent can also benefit from consumers facing search and switch costs if they want to move to a competitor for which entrants need to offer compensation.

Competition policy, which has been the legal basis governing most margin squeeze cases to date, differs from regulatory policy in its objectives and is applied in markets with different underlying economics. Whereas competition policy aims to protect competition from the abusive behaviour of a dominant firm, regulatory policy has the objective of promoting competition in hitherto monopolistic markets or in downstream markets into which a vertically integrated incumbent can leverage its dominance from an upstream input market.

In competition law, *ex post*, margin squeeze cases, the competitor is normally expected to be "as efficient" in its downstream operation as the dominant firm. Regulatory policy allows a different standard, requiring the competitor to be "reasonably efficient", as the European Commission has recently stated in its Recommendation on the regulation of Next Generation Access networks (European Commission 2010, para. 26).

We argue in this paper for a set of principles to be applied to a specifically *ex ante* margin squeeze test designed to promote competition. These principles seek to promote economic efficiency, but also recognise that even the most efficient entrant will incur costs which are

¹ BBNed, Online and Tele2 (collectively BOT).

not incurred by the incumbent. The application of economic principles applied in *ex post* margin squeeze cases will not suffice to promote competition in markets that are not yet competitive.

The paper is structured as follows. In Section 2 we define a margin squeeze and examine the difference between competition and regulatory policy and therefore why an *ex ante* margin squeeze test should differ from an *ex post* test. Section 3 explores some of the key parameters which should be included in an *ex ante* margin squeeze test and why and how these might differ from an *ex post* test. In particular we discuss the difference between an “Equally Efficient Operator” test and a “Reasonably Efficient Operator” test, the latter of which has hitherto has been ill defined concept. Section 4 provides more practical detail on the implementation of an *ex ante* test and draws on experience in other countries. Section 5 concludes.

2. Why a Specifically *Ex ante* Margin Squeeze Test is Necessary

This section of the paper provides a general definition of a margin squeeze and describes OPTA's ND5. The differing objectives of competition and regulatory policy are then discussed and why a specifically *ex ante* margin squeeze test is necessary to promote competition.

2.1 Margin Squeeze Definition

“An undertaking which is in a dominant position as regards the production of a raw material ... and therefore able to control its price to independent manufacturers of derivatives ... and which is itself producing the same derivatives in competition with these manufacturers, may abuse its dominant position if it acts in such a way as to eliminate competition from the manufacturers in the market for these derivatives. From this general principle the ... Commission deduced that the [dominant undertaking] may have an obligation to arrange prices so as to allow a reasonably efficient manufacturer of the derivatives a margin sufficient to enable it to survive in the long term” (*‘National Carbonising’* quoted in *Office of Fair Trading 2002*).

A margin squeeze may arise when a dominant firm in an upstream market supplies both its own downstream arm and its rivals in downstream markets with an essential input that represents a significant input cost for downstream firms. The downstream market may be either a retail market or an intermediate wholesale market. The integrated firm may exert a margin squeeze by either (i) raising the price of the input whilst maintaining the downstream price or (ii) lowering the downstream price whilst maintaining the price of the input². The vertically integrated firm can choose where to take its profits and so can reduce the gross margin available to competitors through setting a high upstream price, whilst still making an overall profit.

Formally, a margin squeeze occurs if:

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

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

² See Vickers (2008) for a further definition of margin squeeze.

Box 1: Margin Squeeze vs. Predatory Pricing

A clear distinction should be made between margin squeeze and predatory pricing. Predatory pricing is an exclusionary behaviour conducted by a dominant firm which sells below its own costs with the effect of driving out competitors allowing the firm to recoup losses later. The dominant firm does not need to be vertically integrated or to sell an essential input to downstream rivals.

In a predatory pricing case, a core issue is the definition of “cost”. Three possible cost bases could be adopted: average variable costs (AVC), average total costs (ATC) and average incremental costs (AIC). In a seminal article, Areeda and Turner suggested that a price at or above AVC should be presumed lawful, but a price below AVC should be presumed unlawful (Areeda & Turner 1975). More recently, ATC has been proposed as it captures a firm’s fixed costs and AIC as it isolates the costs of an increment of output used to supply the predatory sales and includes both fixed and variable costs (Bolton, Brodley & Riordan 2000).

In a margin squeeze, the dominant firm may be selling above costs, however defined, but by taking its profits in the upstream business through above cost wholesale prices it can price below cost at the retail level, forcing its rivals to price at an unsustainable level. (See Motta (2004) pp447 - 449)

Two standard forms of margin squeeze can be identified: discriminatory and exclusionary. In a discriminatory margin squeeze, the vertically integrated firm charges a lower price to its own downstream businesses than it does to competitors. This form of squeeze can also be effected if the incumbent is able to use a different (lower cost) input internally than that supplied to competitors due to its integrated nature, such that whilst formally it is neither discriminating against its rivals nor effecting a margin squeeze, the competitive effect is the same.

The second form of margin squeeze is exclusionary, and occurs when the incumbent is able to shift its profits to the upstream business such that its downstream business can trade at a loss whilst the firm remains profitable overall. In behaving in such a manner its rivals are unable to sustain a competitive position.

Crocioni and Veljanovski (2003) provide formal definitions of these two types of margin squeeze. They define a discriminatory margin (or price) squeeze as occurring when:

$$P^d - P_{3rd}^{ui} - C^d \leq M$$

where

$$P_{int}^{ui} < P_{3rd}^{ui}$$

and an exclusionary or non-discriminatory margin squeeze as occurring when:

$$P^d - P^{ui} - C^d \leq M$$

where

$$P^{ui} = P_{int}^{ui} = P_{3rd}^{ui}$$

Where P^d = downstream price of vertically integrated firm

P^{ui} = Price of essential upstream input, which is distinguished between:

P_{int}^{ui} = Price charged for the input to the vertically integrated undertaking's downstream operation

P_{3rd}^{ui} = Price for the input charged to other downstream firms

C^d = efficient unit costs of downstream transformation³

These definitions assume a deliberate attempt by the vertically integrated firm to act anti-competitively. However, competition in the downstream market can be undermined if a margin squeeze test is not implemented in a way that takes due account of the underlying economics of competitive supply in the relevant market, in particular economies of scale and scope and consumer costs of search and switch. (In the remainder of this document, references to “scale” should be read as including economies of scale and scope and costs of search and switch, unless clearly otherwise from the context.) We will discuss later in this paper how these problems raise the costs of even an efficient entrant so that its margins are reduced, potentially below a sustainable level, even though the incumbent is not technically behaving in either a discriminatory or exclusionary manner. If a margin squeeze test is based on the incumbent's scale and position in the market will have the effect of a margin squeeze even though technically no margin squeeze may technically be taking place.

Margin squeezes can happen in both wholesale – wholesale markets (where in the input is used to produce a downstream wholesale service, e.g. Local Loop Unbundling (LLU) and bitstream) and wholesale – retail markets (where the downstream product is sold to an end user). From hereon our analysis applies equally to wholesale – wholesale and wholesale – retail markets and references to “retail” markets should be interpreted as any downstream market regardless of the customer, except where it is clearly otherwise from the context.

Electronic communications markets generally meet the conditions in which a margin squeeze is a possible anti-competitive behaviour by the incumbent, vertically integrated firm. Whilst most retail, and some wholesale, markets are no longer subject to *ex ante* regulation, vertically integrated operators generally remain dominant in upstream (wholesale) markets. In the Netherlands, KPN has been found to have Significant Market Power (SMP) in the five wholesale fixed markets under the revised Recommendation⁴.

³ The relevant downstream costs to be included in a margin squeeze test are discussed in Section 4.5 below.

⁴ European Commission (2007) *Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation* (December 2007) and also http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/mkt_over_200510.pdf

To prevent margin squeeze behaviour, OPTA introduced ND5 which is set out in a number of market reviews. This rule states:

Price discrimination is not allowed in such a way that KPN charges a wholesale tariff to its own downstream arm (including the retail arm of KPN) as a consequence whereof other wholesale customers of KPN are not able to offer services under competitive conditions to the downstream markets due to margin squeeze.⁵

OPTA's policy guidelines set out the key elements of ND5

Each downstream service should be replicable from a pricing perspective (§ 11).

In the context of replicability of services the criterion is the way KPN produces the service (instead of the largest efficient competitor), § 12

Each replicable downstream service should contain the following cost elements (§ 13):

Purchase costs of regulated wholesale services based on non-discriminatory tariffs as set out in the reference offer;

Long term incremental costs of unregulated wholesale services;

For downstream retail services the relevant incremental retail costs⁶ need to be added.

Each individual service needs to comply with ND-5 which is not a test on market level.

The retail component is based on incremental retail costs per individual service (1% for telephony, 2% for leased lines and 3% for wholesale broadband access).

In case of a violation of ND5 KPN needs to adapt the tariffs of the regulated wholesale services accordingly.

ND5 as set out above apparently seeks to address discriminatory margin squeezes only and thus can leave the entrant open to a margin squeeze effect through a lack of scale. We discuss in the remainder of this paper how a margin squeeze analysis should be designed to account for both discriminatory and exclusionary behaviour by the incumbent and to overcome the problem of scale in the downstream market. Of particular concern to BOT members is the final cost element on § 13 which apparently sets an arbitrary and very low retail component per service. One purpose of this report is set out a non-arbitrary method of calculating the incremental downstream costs to be included in a margin squeeze test. Any

⁵ Informal translation provided by BOT.

⁶ Note the use of "incremental retail costs". We will later discuss what is meant by "incremental" and what retail costs should be allowed in the margin squeeze test.

test based on a simple mark-up may well trade effectiveness for simplicity and so leave downstream competitors, and ultimately consumers, in a worse position.

2.2 Objectives of Regulatory and Competition Policy

Regulatory and competition policy share a common objective of ensuring efficient competition in markets in the interests, ultimately, of consumers. Neither policy seeks to protect inefficient competitors or to promote the interests of producers ahead of consumers, although regulatory policy may accept some short term consumer loss in the expectation of long term gains⁷. However, each policy is designed to address markets with different underlying economics and market structures.

Competition policy is designed to protect competition and is applied in markets where competition is established but where a dominant firm is alleged to have abused its position to the detriment of competition and consumers. Competition law stems from Articles 101 and 102 TFEU which prevent restrictive agreements and the abuse of a dominant position respectively. Legal sanctions are applied *ex post* and only if abusive behaviour is proven⁸.

Motta (2004, p. 30) provides a useful definition of competition policy as “a set of policies and law which ensure that competition in the marketplace is not restricted in a way as to reduce economic welfare”⁹. If objectives other than economic efficiency are to be pursued by governments, they should be done so through other policies than competition and in such a way that competition is distorted as little as possible.

An assumption behind competition policy is that competition already exists in the market, even if that competition is imperfect as one firm is dominant, and so policy is designed to defend competition from abuse of a dominant position.

The objective of regulation policy is the promotion of competition in specific economic sectors which have been characterised by monopoly or where dominance in an upstream market can be leveraged into a related downstream market by a vertically integrated firm. Such leverage can be applied in existing downstream markets, in new downstream markets or potentially from a new upstream market, if there is an expectation of dominance in that new market as may the case with Next Generation Networks (NGA). Regulatory obligations

⁷ See page 12 – 13 below for more discussion on this point..

⁸ Competition Law can be applied *ex ante* in merger cases but these are not the subject of this paper.

⁹ Economic welfare refers to the benefit the economy receives from the production of a certain good. In a perfectly competitive market, in which all firms are price takers and prices are set at marginal cost, all welfare accrues to consumers (consumer surplus). However, where one firm is dominant or a monopoly, it can raise price above marginal cost which has the effect of reducing demand, maximising its own surplus and reducing the surplus accrued to consumers. Those consumers whose willingness to pay lies between the monopoly price and the competitive price are then excluded from the market. The loss of consumption by these consumers leads to a loss of total welfare, known as deadweight loss of monopoly. (See Motta 2004, chapter 2 for a more detailed explanation of market power and welfare.)

are applied *ex ante* to constrain the behaviour of dominant firms whether or not those firms have at any time behaved anti-competitively.

Electronic communications markets, in common with other utilities, are characterised by the existence of former monopoly operators remaining in a position of dominance¹⁰, in particular in upstream essential inputs where economies of scale effectively preclude efficient investment by entrants. Changes in technology and the perception of the role of markets and the state in the 1980s and 1990s led the European Union and national governments to introduce competition, at least where it is economically viable to do so. To support the introduction of competition, a framework of *ex ante* regulation has been developed.

At the EU level, this *ex ante* framework is set out in a series of Directives, collectively known as the Common Regulatory Framework (CRF). The amended Article 8.2 of the Framework Directive (FD) sets out the objective National Regulatory Authorities (NRAs) must follow:

The national regulatory authorities shall promote competition in the provision of electronic communications networks, electronic communications services and associated facilities and services by inter alia:

- (a) ensuring that users, including disabled users, derive maximum benefit in terms of choice, price, and quality;*
- (b) ensuring that there is no distortion or restriction of competition in the electronic communications sector; and*
- (c); encouraging efficient use and ensuring the effective management of radio frequencies and numbering resources.*

The CRF was transposed into national law in the Netherlands on 20th May 2004. Article 1.3.1 of the Dutch Telecommunications Act (TA) lays out the objectives for the NRA, OPTA:

OPTA shall ensure that its decisions contribute to the achievement of the objectives referred to in Article 8, paragraphs 2, 3 and 4 of Council Directive 2001/21/EC in each case by:

- a. the promotion of competition in the supply of electronic communications networks, electronic communications services, or associated facilities, amongst other things by encouraging efficient investment in the area of infrastructure and supporting innovations.*
- b. The development of the internal market.*
- c. The promotion of the interests of end-users in respect of choice, price and quality.*

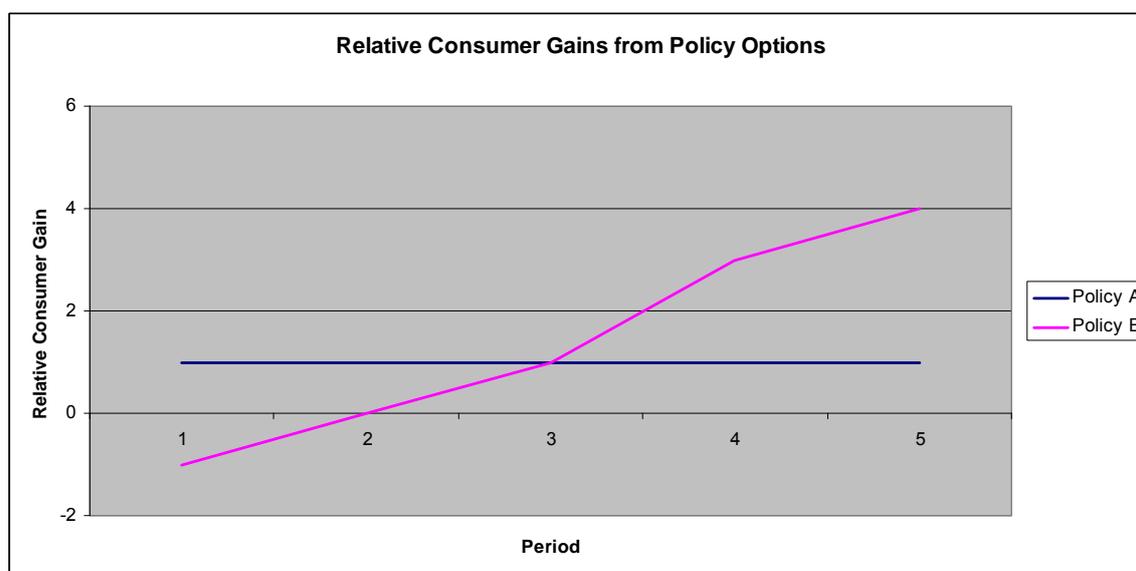
As with the CRF, the Dutch TA requires OPTA to promote competition and does not explicitly rank the consumer benefits of “choice, price and quality”, which appear in the same (alphabetical) order in both the FD and the TA. Price is not ranked higher than other dimensions of competition, rather all three are regarded as equally important. OPTA is also expected to balance short and long term development of competition and not to harm long

¹⁰ Defined as being in an economic position to behave to a significant extent independently of competitors, customers and consumers. See Framework Directive, Article 14.2.

term investment incentives¹¹. This could mean that the NRA may allow price to rise in the short term, in a way which may reduce consumer welfare, in the interests of long term development of sustainable competition.

Balancing short and long term consumer gains requires regulators to measure not just who gains how much, but also when such gains will be realised¹². Suppose a regulator is faced with two policy options (A and B). Relative to option A, policy B is expected to deliver negative consumer gains in the short term, but higher gains over the longer term, with a certain probability, as represented in Figure 1 below. The net gain over the period can be simply calculated by subtracting the gain from policy A from policy B (allowing for the probability). In the example, policy A delivers a consumer gain of +1 per period, whereas policy B delivers between -1 and +4, resulting in a net total gain of +2. Depending therefore on the probability of that gain being realised policy B may or may not deliver a positive result for consumers over the whole period. If the probable gains from B are greater over the period than from A, regulators may decide to accept consumers' short term pain for their longer term gain.

Figure 1: Gains from Policy Options over Time



Specifically in the context of margin squeeze, Geradin and O'Donoghue (2005) point to several clear differences between regulation and competition policy. They start by stating that “the treatment of margin squeeze cases under regulation and competition law not only diverges, but may in fact be flatly at odds with each other.” They then highlight three principal differences.

¹¹ Explanatory Memorandum to the revision of the Dutch TA 28851, nr 3 page 93

¹² For a discussion on timing of gains from policy see Jacobs (2008). Although Jacobs discusses pension reform, his approach has interesting implications for regulatory policy.

First, regulatory powers are more extensive as access price regimes can restrict the ability of the incumbent to make a margin on the upstream market(s). Basing prices on the Long Run Incremental Costs (LRIC) of a hypothetically efficient firm, rather than actual costs, can have an impact on the ability of the integrated incumbent to make supernormal profits upstream.

Secondly, competition law protects competition from anti-competitive conduct. It does not give competition authorities the power to impose any new obligations except as part of a remedy for breaching existing rules. Regulatory powers may impose new types of obligations on firms with SMP even when no abuse of its position has been found with the objective of promoting competition in the relevant market. To quote Geradin and O'Donoghue: "sector specific regimes can in some cases take pro-active measures to effectively create competition on downstream markets. [...] In the case of margin squeeze, a NRA may also adopt wholesale rates that are favourable to the incumbent's competitors, in order to stimulate entry."

The third distinction is that competition law duties should only be imposed if they lead to more competition than they discourage, whereas regulatory authorities can take action that reduces the ability and incentives of the incumbent to compete, for example by imposing a duty of access to networks on favourable terms.

2.3 Lessons from Margin Squeeze Cases

Although competition law and regulatory policy have different objectives and operate under different market conditions, there are a number of interesting and important issues that have arisen in competition law that throw light on *ex ante* margin squeeze assessment. It is beyond the scope of this paper to summarise or even comment on all such cases, however we draw on three particular cases which have relevant implications for an *ex ante* test.

One of the earliest cases investigated by the European Commission under (then) Articles 85 and 86 EC was *Napier Brown – British Sugar*¹³. At the time British Sugar (BS) was the largest producer and seller of sugar in the UK and the only processor of sugar beet. Napier Brown (NB) was a sugar merchant, which amongst other things, bought sugar from BS and retailed under its own brand (Whitworths). The case involved various allegedly anti-competitive actions by BS including that it "engaged in pricing practices which had the objective of driving NB out of the retail sugar market" (para. 11).

NB claimed that BS engaged in pricing practices that meant that it was impossible for a repackager of sugar in the UK, without an internal source of supply, to survive by "artificially

¹³ 88/518/EEC: Commission Decision of 18 July 1988 relating to a proceeding under Article 86 of the EEC Treaty (Case No. IV/30.178 *Napier Brown – British Sugar*) OJ L284, 19/10/1988 P. 0041 - 0059

maintaining an unrealistically low margin between its prices of industrial and retail sugar with the objective of forcing NB out of the market” (para. 24). In its finding, the Commission stated that the “analysis of pricing must be centred upon the difference between the selling price of the dominant companies’ raw material and its downstream product prices, in the present case on the margin between BS’s price for industrial and that for its retail sugar” (para. 25).

Of particular interest to this paper is that the Commission “noted that the major difference between the two packaging margins supplied by BS and NB is that of transport. This is because BS used the delivered price only system. Thus the margin calculated by BS (i.e. the margin above BS’s industrial sugar price, which itself already contained a standard charge for the delivery of that industrial sugar) is simply the costs incurred by BS for delivering retail sugar in addition to its costs for delivering industrial sugar. NB on the other hand, had to pay a standard charge for the delivery of industrial sugar from BS included in the price paid (BS refused to permit NB to collect its own sugar) and, in addition, bear its transport costs for retail sugar” (para. 26).

BS was therefore able to benefit from being a vertically integrated firm and to use its dominance in the upstream market to foreclose NB from downstream markets by charging a cost which it did not incur itself.

A relevant case in electronic communications markets is *Telefonica*¹⁴ which related to the supply of wholesale broadband access by the Spanish incumbent to Internet Service Providers. We do not have space to provide a synopsis of this case, which has been extensively commented on in the literature¹⁵. However, there are a number of key issues which arose in *Telefonica* and which we discuss later in this paper, in particular, whether the competitor should be equally efficient as the dominant firm or reasonably efficient and the incremental costs of the retail operation which need to be considered in a margin squeeze test. In discussing these issues later in the paper we will refer back to *Telefonica*.

The case was conducted under the competition provisions of the EU treaty and was thus an *ex post* investigation under competition rather than regulatory policy. In considering the relevant costs to be included in the test, the Commission decided that the “Equally Efficient Operator” (EEO) was the relevant standard¹⁶. Under this test, the detrimental effect of a margin squeeze can be described in terms of the foreclosure of competitors which are able to provide downstream services as efficiently as the dominant firm. However, the Commission recognised that this test favoured *Telefonica*, as given the economies of scale

¹⁴ COMMISSION DECISION of 04.07.2007 relating to a proceedings under Article 82 of the EC Treaty (Case COMP/38.784 – *Wanadoo España vs. Telefónica*) “*Telefonica*”

¹⁵ See for example Subiotto and Snelders (2008) Chapter 2.3.1

¹⁶ *Telefonica* paras 311 – 315

and scope it enjoyed, “its unit costs can be expected to be lower than those of its reasonably efficient rivals”. The Commission recognised that a reasonably efficient competitor which shared the same cost structure as Telefonica but which did not have the same economies of scale would inevitably have higher unit costs. We discuss below (Section 3.1.2) how a specifically *ex ante* margin squeeze test based on regulatory policy could reasonably be based on an assumption of scale below that of the incumbent operator to promote competition.

The Commission found that Telefonica was in breach and that the clear-cut nature of the abuse should have been known to Telefonica throughout the relevant period (para. 749). The Commission stated that “Telefónica's conduct has constrained the ability of ADSL operators to grow sustainably in the retail market and appears to be an important factor that led to Spanish retail prices being among the highest in Europe, at least 20% above the EU average” (para. 752). In the light of the gravity of the case, Telefonica was fined €168,750,000.

The second relevant issue discussed in *Telefonica* are the costs which the Commission considered should be included in the downstream margin. We return to these in Section 4 of this paper.

The third relevant case was conducted by the UK regulator, Ofcom, in the PayTV market and in particular to the conduct of Sky, the vertically integrated satellite TV provider. Ofcom's final Decision¹⁷ was the culmination of a protracted review of the PayTV market and followed an earlier investigation by the Office of Fair Trading (OFT).

Ofcom found that Sky set its wholesale prices (rate card) by considerations relating to the OFT's 2002 margin squeeze test rather than by commercial considerations and that these prices did not allow its wholesale customers who are also active in the retail market (principally Virgin Media, the cable TV company) to compete effectively given its smaller scale. The rate card prices, Ofcom found, were set close to the price that would be expected under an *ex post* margin squeeze test, i.e. assuming Sky's scale. “*No entrant would have Sky's scale; nor would we expect one to be able to reach Sky's scale, given Sky's current subscriber numbers relative to the likely number of total pay TV households in the UK*” (Ofcom 2010, para 7.131)¹⁸.

The second interesting issue raised in the Sky investigation is that Ofcom recognises that Sky is in a unique position to choose where to take its profits, which Virgin Media is not.

¹⁷ Ofcom (2010)

¹⁸ Ofcom was also concerned about scale in an earlier Direction on margin squeeze in wholesale broadband markets. Ofcom (2004) explicitly addresses the question of scale (paras 2.64 – 2.80) and Ofcom goes on to conduct a margin squeeze analysis by modelling the cost of a similarly efficient operator by adjusting BT's cost and volume data (para 2.67).

Ofcom notes that it may be more attractive for Sky to raise the wholesale price by £1.00 as this rises its revenues from both its wholesale and retail customers, whereas if it raised its retail price by £1.00 it would only earn the additional revenues from its own customers and may lose some customers to its rivals (para 5.610).

Ofcom imposed remedies on Sky under section 316 of the Communications Act 2003 which allows Ofcom to set conditions on TV companies to ensure fair and effective competition in the provision of licensed services. In particular, Ofcom decided that it could not expect commercial agreements between Sky and other retailers to set a fair and reasonable price for standard definition versions of the two premium sports channels (Sky Sports 1 and Sky Sports 2). Ofcom has therefore intervened to set a price that it believes should allow an efficient competitor to match Sky's retail prices. Ofcom based its calculations on Sky's own retail costs, adjusted for scale so as to allow for a market with several competitors¹⁹.

2.4 Conclusion on the Need for an *Ex ante* Test

Table 1 below summarises the difference between competition and regulatory policy.

Table 1: Competition and Regulation Policy

	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 competition where it has not historically existed.
Timing	Applied <i>ex post</i> usually following a complaint of anti-competitive behaviour. Only applied <i>ex ante</i> in case of a merger which may create a dominant firm.	Applied <i>ex ante</i> . Regulated firm may have property rights affected to ensure access by competitors to essential inputs on fair and reasonable terms

Regulatory and competition policy apply in markets with different underlying economics and structures and therefore have very different objectives. Regulatory policy is applied in specific sectors which have been characterised by monopoly and/or where a vertically integrated firm, dominant in an upstream market, may leverage that dominance into associated downstream markets. Regulatory policy seeks to promote competition in these markets. The purpose of competition policy is to protect competition from anti-competitive

¹⁹ See Ofcom (2010) Section 9 for the full set of remedies imposed.

behaviour of dominant firms in markets which are characterised by competition. Regulatory and competition authorities also act at different times. Whilst NRAs have the power to act *ex ante*, imposing obligations on firms with SMP even if they have not behaved anti-competitively, competition authorities can only act *ex post* following a complaint of anti-competitive behaviour and can only impose sanctions if such behaviour is proven.

The different economics of competitive and regulated markets and the different objectives of competition and regulatory policy require a different approach to testing whether a dominant firm is not meeting the obligations placed on it, whether those are the special obligations of dominant firms not to behave anti-competitively or the *ex ante* regulations placed on a firm with SMP. The implementation of a margin squeeze test in the context of regulatory policy therefore needs to differ from a competition policy based test, as market dynamics are different where competition has to be promoted and where it has to be protected. The application of an *ex post* test in an *ex ante* context may not be sufficient to meet the objectives of regulatory policy and failure to have a different rule would mean that competition policy and regulatory policy are equivalent, which it is clear they are not. In the remainder of this paper, we propose how a specifically *ex ante* margin squeeze test should be constructed to promote competition.

A parallel can be drawn between a specifically *ex ante* margin squeeze test and “Equivalence of Input” agreed between the UK regulator Ofcom and BT in 2005 as an explicitly *ex ante* form of non-discrimination (see Box 2 below). Equivalence is itself a crucially important issue for margin squeeze, which we discuss in Section 3.1.1.

In the next section of this paper we discuss some of the principles and parameters of an *ex ante* margin squeeze test and how these differ from an *ex post* test.

Box 2: Equivalence of Input: An explicitly *ex ante* form of non-discrimination

In 2005 BT and the UK regulator, Ofcom, agreed a set of Undertakings in which, *inter alia*, BT agreed to provide certain wholesale products under a condition known as “Equivalence of Input” (EOI). This required BT to provide these products under the same terms and conditions internally and externally. Before the adoption of this condition BT was subject to a “no undue discrimination” rule, an *ex post* competition law concept under which products could be supplied under different conditions, providing that difference was objectively justifiable. BT’s competitors had pointed out during the Telecoms Strategic Review (TSR) that discrimination was the key problem they faced in establishing a sustainable market position, and that the existing rule was insufficient. Indeed, under EU case law, treating people the same in the face of justifiable differences would have been discriminatory.

Bearing in mind its objective under Article 8.2 FD, Ofcom put forward the concept of real equality of access, which became EOI, as a means to overcome this problem of discrimination. EOI is an explicitly *ex ante* form of non-discrimination as it requires equal treatment without the need to prove that BT was in fact discriminating against its downstream customers. Equal treatment means that BT must provide the same products, under the same terms and conditions internally and externally. In the longer term, EOI designs out differences between products and processes provided internally and externally, in contrast with the competition law definition of non-discrimination which allows different treatment provided it is objectively justifiable.

Ofcom had found no evidence of discrimination, but was concerned that “cumulative materiality” meant that BT’s competitors were unable to compete effectively. (See Cadman 2010 for a more detailed explanation of the background to BT’s Undertakings).

3. Principles and Parameters of an *Ex ante* Margin Squeeze Test

In this section of the paper we consider the high level principles and parameters that should be applied to a specifically *ex ante* margin squeeze test designed to meet the Article 8.2 FD objectives of promoting competition and ensuring “choice, price and quality”.

A specifically *ex ante* margin squeeze test is not simply an *ex post* margin squeeze test applied *ex ante*, but a test designed to support the objectives of regulatory policy in the light of the underlying economics of regulated markets. It is therefore designed to promote efficient competition in markets characterised by a vertically integrated firm which is dominant in the upstream, essential input, market.

We start with a fundamental issue: whether the competitor is expected to be as efficient (also referred to as “equally efficient”) as the incumbent or “reasonably efficient”. Whilst the definition of the former is clear, the latter has not hitherto been properly defined.

3.1 Equally Efficient vs. Reasonably Efficient Competitor

In an *ex post*, competition law, margin squeeze case, the complainant is normally expected to be equally efficient in its downstream operations as the dominant firm that is allegedly abusing its position. In *Napier Brown – British Sugar*, the Commission introduces the concept in paragraph 30: “Thus with retail prices below [...] NB or any repackager as efficient as BS, had an insufficient margin to repackage and sell sugar for retail sale, even without trying to make a profit” (our emphasis). Within the context of competition policy, with its emphasis on protecting competition and promoting efficiency, such an approach has a strong economic justification: economic welfare would not be enhanced by a less efficient firm being protected.

However, the objective of regulatory policy is to promote competition against an incumbent firm which enjoys various benefits such that even the most efficient entrant is unlikely to be as efficient as the incumbent. This fact has been recognised by the European Commission most recently in its Recommendation on the regulation of NGA.

“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.” European Commission (2010, para. 26)

Note that the Commission explicitly refers to operators having different economies of scale and scope and therefore different unit costs, issues we will discuss in 3.1.2 and 3.1.4 below.

The REO standard was also raised by DG Competition in 2005 in a Discussion Paper on the application of (then) Article 82 (now Article 102)²⁰, which is the basis for competition law in the EU. In paragraph 67 of that paper, DG Competition discusses the application of the efficient competitor test. It says that “it may sometimes be necessary in the consumers’ interest to also protect competitors that are not (yet) as efficient as the dominant company”. The efficient competitor assessment should not only compare cost and price, but also the “specific market context, for instance taking account of economies of scale and scope, learning curve effects or first mover advantages that later entrants can not be expected match even if they were able to achieve the same production volumes as the dominant company”.

Hitherto, a reasonably efficient operator test has not been properly defined, except that it should take into account economies of scale and scope. Some sources have sought to equate a reasonably efficient operator with an entrant²¹. In our discussion below we do not equate the costs of a reasonably efficient firm with actual costs of a downstream entrant. We believe defining a particular entrant as reasonably efficient would be incorrect for three reasons. First, it would be unreasonable to expect the incumbent to set its prices using another firm as the benchmark when it cannot know that other firm’s costs, and anyway different entrants are likely to have different costs. Secondly, it cannot be assumed that an entrant is equally efficient, even at a lower level of production. Thirdly, if entrants are inefficient using their costs as the basis of a margin squeeze test may encourage inefficient entry (See Box 3 below).

We propose that a proper definition of a REO should provide certainty for all players and support efficient entry. It is important that a REO should equate to an efficient entrant: it should have the same or a better cost function as the incumbent, but should also allow for an efficient entrant’s lack of economies of scale and scope *and* for its additional marketing costs to compensate consumers for their search and switch costs. The test should also adjust for the possibility that the downstream arm of entrants and incumbents may use different wholesale inputs which give an inherent advantage to incumbents. We start with this last point.

²⁰ DG Competition *Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses* December 2005

²¹ See for example Comreg (2010) para. 4.7

Box 3: Efficient Entry

Article 1.3.1 (a) of the TA requires OPTA to, amongst other things, encourage efficient investment. A common concern of regulators is that their actions may encourage inefficient investment. It is worth therefore considering what is meant by efficient entry.

There are three variations of efficiency in economics: productive efficiency, allocative efficiency and dynamic efficiency.

- Productive efficiency refers to goods and service being produced at the lowest possible cost, at a given level of quality.
- Allocative efficiency refers to the production of the right goods at the right time in the place and can be likened to a market with no imperfections. Any regulatory policy, for example, that encouraged over production of a good would lead to allocative inefficiency.
- Dynamic efficiency refers to the introduction of new processes and products that deliver innovation to consumers.

The problem of monopoly is that it can lead to productive, allocative and dynamic inefficiency. Goods may be produced at a cost above the efficient level, economic resources are misallocated if the monopolist's price is too high excluding some consumers from the market and there is less innovation in the market as the monopolist has no incentive to invest to stay ahead, since there are no rivals.

In a regulated context, inefficient entry may occur if the regulated price of a product is set above the efficient cost of producing that product. Inefficient firms may enter the market with costs below the regulated price, but above the efficient costs. If the incumbent is able to reduce its costs to the efficient level, then these entrants may be forced out of the market. Allocative inefficiency also occurs if the entrant invests resources in a product with costs above the efficient level.

To discourage inefficient investment, therefore, regulators seek to use cost controls that ensure that prices of monopoly products are set close to the efficient cost level such that firms that cannot enter with lower costs remain out of the market.

3.1.1 Wholesale Equivalence

ND5 specifically addresses price discrimination which leads to a margin squeeze. As we saw in Section 2.1 a discriminatory margin squeeze arises when the vertically integrated firm charges a lower price for an essential input to its own downstream arm than it does to its competitors for the same input. KPN is clearly prohibited under the Rule for behaving in such a manner. However, under EU and national law, discrimination refers to different treatment in equivalent circumstances and so where circumstances are not equivalent, different treatment is permitted. Indeed to provide the same treatment in different circumstances would be a form of discrimination, under this approach.

The efficient network structure of an entrant can mean that it uses a different input to that used by the incumbent, even when the input used by the incumbent is theoretically available. In this case, the objective of regulatory policy of promoting competition requires that the margin squeeze test that is based on the actual input used by efficient competitors. Whilst an *ex post* test may use the incumbent's actual input, an *ex ante* test which seeks to promote competition should be based on the actual input cost of an efficient entrant.

In Box 2 above we briefly described Equivalence of Input (EOI) which was designed by Ofcom specifically to overcome the fact that BT could legitimately use a different wholesale input, thereby circumventing the intended effect of non-discrimination rules. EOI requires BT's retail arms to use the same products under the same conditions as are used by entrants²². Basing an *ex ante* margin squeeze test on an assumption of EOI, even if such an obligation does not exist, would support the development of efficient competition. Box 4 provides two brief examples of how KPN is able to avoid ND5 by supplying different wholesale inputs internally and externally.

Box 4: Lack of Equivalence in the Netherlands

Example 1: Leased Lines

Local and regional leased lines are regulated, whereas national leased lines are not. It is not efficient for competitors of KPN to build a network with the same degree of national ubiquity as KPN and so when they offer a national leased line to a customer they often need to buy regional leased lines as a wholesale input. Competitors' prices to customers therefore are made up of the regulated price for a wholesale regional line plus the cost of their own trunk segment. KPN, however, as it has full national coverage can offer a national leased line based on a local leased line as the wholesale together with trunk capacity "local regional" and trunk capacity "regional national". The scale of KPN's network means that it is able to cost these services on a pure LRIC¹ basis which, we have been told, is close to zero. KPN is also able to sell regional leased lines as if they were national leased lines and so benefit from the same efficiency gains which are not available to its competitors.

KPN is legitimately able to provide a separate wholesale input internally and externally, what we will term a discriminatory margin squeeze, and also to benefit from economies of scale which are not available to even efficient entrants.

Example 2: Voice interconnection

In fixed telephony KPN has an ND5 obligation for local (BiBa) calls as well as national (BuBa) calls. This minimum level, however, is not replicable by any entrant. In this recipe KPN may use local interconnect tariffs (30.7% in local calls and 0.2% in national calls). This means that the cost level of an entrant is always higher than KPN's ND 5 level.

²² See definition of EOI in Ofcom (2005)

The imposition of EOI on the same basis as has been implemented in the UK ensures that any margin squeeze test is based on the same input to a downstream product as the wholesale provider must provide the same product on the same terms both internally and externally. The alternative approach is that a specifically *ex ante* margin squeeze test should be based not on the wholesale input used by the dominant firm, but on the wholesale input it supplies to the reasonably efficient competitor.

3.1.2 Economies of Scale

Economies of scale occur when the Long Run Average Costs (LRAC) of production declines as the volume of goods or services produced increases, thus a firm which doubles in output would not double its costs. These economies of scale increase until a certain level is reached at which costs may start to increase, known as the Minimum Efficient Scale (MES). In a market such as telecommunications, incumbent operators are likely to have the largest market share and so, depending on the shape of the LRAC, are likely to have lower unit costs than entrants. In extreme cases, the MES might only be met once a firm reaches a 50% market share, in which case the industry can only support one efficient operator. However, if competition in the market is the aim, the market may need distorting in the short term to support competitive entry, as was noted by DG Competition²³.

An obvious advantage of incumbency is that the incumbent firm will by definition be producing a larger quantity than its rivals and will therefore be further along the LRAC curve enjoying higher economies of scale, as the Commission pointed out in *Telefonica*. Entrants may be as efficient as the incumbent at a given level of production, or even more efficient²⁴, but as they produce a lower quantity, they will still have higher unit costs. To reach the same level of production, the entrant will have to price at the same level as the incumbent to attract market share, but will always be pricing below its own costs until it reaches the same level of production. The entrant will therefore suffer the effects of a margin squeeze even if the dominant firm is not in fact exerting a squeeze.

Ofcom (2004) refers to the incumbent's scale advantages. In the context of an analysis of the margin between IPStream and ATM²⁵ interconnection prices, Ofcom considered the effects of BT's scale on a margin squeeze test and considered the effects of two extreme assumptions. If the entrant is assumed to have high volumes by the end of the modelled period, for example the incumbent's volumes, it will have lower unit costs, leading to a lower margin. However, if a low volume is assumed, the entrant will have high unit costs, leading

²³ Op cit

²⁴ The incumbent's history as a monopolist may mean that its LRAC are above the LRAC of an efficient firm (X-inefficiency).

²⁵ Asynchronous Transfer Mode

to a higher margin being set which might attract inefficient entry. Ofcom identifies its objective as promoting competition and so it therefore needs to find a volume which is consistent with allowing a number of operators competing effectively with BT, while not encouraging inefficient entry. As these markets were new at the time, Ofcom based its test not on BT's forecast volume, but an adjusted volume assuming the entrant had the same cost function, but a lower scale of production²⁶.

To comply with the Article 8.2 FD objective of promoting competition a specifically *ex ante* margin squeeze test should be conducted on an assumption of production volumes of an efficient firm in a sustainably competitive market, rather than the level of production of the incumbent firm or forecast by the incumbent firm. We discuss the appropriate scale in Section 4.1.

This method allows the integrated firm to calculate the costs of the REO based on its own costs and so overcomes a common objection to a REO standard based on entrants' costs that the integrated firm cannot reasonably be expected to know the costs of its rivals. The proposed approach does not require a simple mark-up on unit costs at the current level of production, rather it requires an assumption of a lower level of production.

3.1.3 Compensation for Search and Switch

Consumers looking to change supplier potentially face search costs, i.e. those related to finding out about alternative suppliers, and switch costs, those related to actually changing suppliers. The latter costs may involve learning how new software works, switching regular payment details between banks or acquiring new customer premises equipment related to a new communications service. Switch costs may also be psychological in that the largest firm in the market is seen as the low risk choice, whereas any smaller firm may be regarded as higher risk. Whilst the actual switch costs may be small, psychological costs may be high, requiring the entrant to discount further than calculable costs of switching to reflect the perceived risk of not buying from the incumbent. The difference between the calculable costs and the discount required by switchers may be referred to as the "risk premium". Corporate customers, for whom the risks of changing supplier may be greater, may face a higher risk premium.²⁷

In a normal competitive market, it can reasonably be assumed that consumers are equally aware of all suppliers and so consumers of one firm's products do not face any greater search and switch costs than consumers of another. However, in a formerly monopolistic market, the incumbent is well known and competitors are likely to be less well known.

²⁶ See Ofcom (2004) paras 2.64 – 2.68

²⁷ See Section 4.3 below.

Consumers looking to switch away from the incumbent therefore incur search and switch costs, whilst entrants' customers who might switch back to the incumbent face much lower search and switch costs. To be competitive, entrants need to compensate for consumers' search and switch costs through higher marketing costs (which may be spent on advertising or discounts), and these costs should be considered when establishing the costs of a reasonably efficient competitor.

Waterson (2003) examines the role of consumers in competition policy and highlights the importance of search and switch activity in promoting competition. Through a series of case studies he shows that reluctance by consumers to search or to switch suppliers, even in potentially competitive markets, can lead to sub-competitive outcomes. He argues that in markets such as telecommunications, policies are required which encourage consumers to be active to ensure such markets become competitive.

Waterson proposes that if consumers do not undertake search activity, i.e. they search only one firm, the pricing outcome will be at the monopoly level, regardless of the number of firms in the market. He also suggests that the greater the proportion of active consumers, the greater the proportion of low cost firms. A proportion of consumers needs therefore to believe that a better deal is available on the market than the one they currently have from their supplier.

We agree with Waterson's proposition, and suggest that consumers face asymmetric search and switch costs. Such costs are low or non-existent in relation to the incumbent, but positive in relation to entrants. If incumbent's and entrants' prices were equal, the additional search and switch costs associated with the entrant would mean that entrants are at a disadvantage compared with incumbents even if they are equally efficient. This differential can be demonstrated by use of the famous Hotelling model (Hotelling 1929).

In a Hotelling model consumers face a total cost of p_i (the price of the good offered by supplier i) plus tx , the cost of transport to the seller for each unit of distance, x . The marginal consumer is indifferent between the two suppliers as he or she faces an equal total cost of buying from each supplier. Either supplier can raise its prices above the competitor and not lose all its customers as some customers will still face a lower total cost buying from the original supplier²⁸.

Armstrong (2006) adapts the Hotelling model to show how suppliers can use consumers' preference for one supplier over another to price discriminate. He redefines x as

²⁸ Hotelling writes: "Many customers will still prefer to trade with him [the original supplier] because they live nearer to his store than to the others, or because they have less freight to pay from his warehouse to their own, or because his mode of doing business is more to their liking, or because he sells other articles which they desire, or because he is a relative or a fellow Elk or Baptist, or on account of some other differences in service or quality, or for a combination of reasons" (page 44).

representing the consumer's relative preference for producer A over producer B. He also defines the variable t as representing the consumer's "choosiness", i.e. how much he dislikes buying his less preferred brand.

Now, suppose that firm A is the incumbent supplier and firm B is a new entrant. Consumers have a high degree of knowledge about firm A, but little knowledge about firm B. The t variable can be redefined as consumers' "search and switch" costs, including the costs of finding out about the supplier, its prices, physical costs of switching (if any) and the perceived risk of buying from a new entrant. Each supplier's price consists of the wholesale cost of the input bought from the incumbent, vertically integrated entity and its own costs of its downstream operations, such that:

$$p^A = W + R^A$$

and

$$p^B = W + R^B$$

Where W = Cost of wholesale input and R = downstream costs.

Suppose now that $p^A = p^B$, but that consumers face a zero t cost when buying from the incumbent and a positive t when buying from the entrant, which is likely to be the case until an entrant is equally established as the incumbent. In this case consumers always face a higher total cost when buying from an entrant even *when it has an equally efficient retail operation*. The indifferent consumer lies closer to supplier B, providing supplier A with a larger market.

To compensate for this position, the entrant will need to reduce consumers' search and switch costs, either by compensating the consumer through a discount relative to the incumbent, or by spending more on advertising and other awareness raising activities, or both. These are costs that the incumbent does not carry²⁹.

The need for an entrant to incur higher marketing costs, including offering a discount relative to the incumbent, is recognised in de Bijl and Peitz (2002). They set up a number of models of facilities-based and service-based entry and estimate the rate at which entrants gain and incumbents lose market share. In the models, consumers chose suppliers after observing prices. A simple model would result in all consumers buying from the provider who offers the highest utility, based on a combination of per minute and monthly charges. However, the consequence of such an approach would be that all consumers would move operator in response to a very small price difference, which is not observed in the market.

²⁹ Bester and Petrakis (1996) use a similar model to show how firms use coupons to price discriminate between local and distant customers. Coupons offer a discount to distant customers to overcome their travel costs and so attract them away from their local store.

“Instead, market shares exhibit a certain extent of stickiness, and change in rather a smooth fashion. In particular, gaining market share from a well known, established firm with a large installed customer base requires great marketing efforts and substantially better price-quality combinations by the new competitor.” (Page 42).

The research discussed above shows that active consumers are important for a properly functioning market, but that they are also likely to face search and switch costs in newly competitive markets where there is a large, well known incumbent and a competitive fringe. To attract customers the fringe has to either reduce the search costs (through high advertising costs) or compensate consumers for their search and switch activity (through a discount relative to the incumbent). Thus even if the entrant was as efficient as the incumbent, it will incur these extra costs until it is equally established and all consumers face similar search and switch costs regardless of their chosen supplier.

In the light of regulators’ legal obligations to promote competition the Reasonably Efficient Operator test should allow for entrants’ need to compensate consumers for search and switch. We discuss the appropriate level of these costs in Section 4.3.

3.1.4 Economies of Scope and Overheads

Economies of scope are factors which make it cheaper to produce a range of related products than to produce each individual product on its own. Thus an incumbent firm producing a complete set of voice and data products would enjoy economies of scope compared to an entrant producing, for example, broadband internet access only. As with economies of scale, total costs do not rise linearly with the number of products being produced.

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 it 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.

3.2 Time Period

Adjustments to a margin squeeze test to reflect the costs of an efficient entrant should only persist for the time within which the entrant may reasonably 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 that 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 as 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 in the market which still need to be addressed through the presence of an *ex ante* margin squeeze test designed to promote competition.

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 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. SMP in the upstream

market would otherwise allow the SMP operator to leverage that dominance into the downstream market.

3.3 Cost Standard of the Downstream Business

It is reasonably settled in margin squeeze cases that the appropriate cost standard is the Long Run Incremental Cost of the downstream business³⁰. Bolton *et al* (2000) provides a useful definition of incremental costs as:

Long-run average incremental cost (LAIC) is the per unit cost of producing the predatory increment of output whenever such costs were incurred. More precisely, the LAIC of a product is the firm's total production cost (including the product), less what the firm's total cost would have been had it not produced the product, divided by the quantity of the product produced. LAIC thus includes all product-specific costs incurred in the research, development, and marketing of the predatory product or increment of sales even if those costs were sunk before the period of predatory pricing. In addition, LAIC logically includes any costs incurred to effectuate the predatory scheme following formation of the predatory strategy. LAIC is a superior cost measure to Average Total Cost for a multi-product firm because it does not require courts to allocate joint and common costs, an undertaking that lacks a precise methodology and is particularly unsuited to jury resolution. Moreover, LAIC measures the present worth of the productive assets by replacement costs, and not by historic costs, which may give little indication of their current value. (page 2272)

This definition includes not only the short run costs of producing the increment of output, but also any long run and sunk costs incurred before the output is produced. Bolton *et al* say that this approach is particularly useful in product markets with a high degree of intellectual property, but it could equally apply in markets with high fixed and low variable costs.

This approach is supported by the European Commission in *Telefonica* and in previous cases (*Telefonica* para. 318, footnote 295). The Commission define the Long Run Average Incremental Costs (LRAIC) as: “*the difference between the total costs incurred by the firm when producing all products, including the individual product under analysis, and the total costs of the firm when the output of the individual product is set equal to zero... Such costs include not only all volume sensitive and fixed costs directly attributable to the production of the total volume of output of the product in question but also the increase in common costs that is attributable to this activity*”³¹

³⁰ We do not discuss here the appropriate cost standard applied to the upstream input which are exogenous to the margin squeeze test and so taken as a given. Regulators will apply cost standard to regulated inputs (LRIC, FAC etc.) as appropriate.

³¹ Implicit in the calculation of LRAIC is the appropriate size of the increment, which we address in Section 4.2.

Incremental costs are not marginal costs. As clearly described above incremental costs include all the sunk, fixed and variable costs of providing the service or increment of the service which may be causing the margin squeeze. Incremental costs can also be thought of as the avoidable costs of providing a service or increment of a service: i.e. what costs would be avoided if the increment was not provided. These avoidable costs again include sunk and fixed costs as well as the avoidable variable costs. The integrated firm that might be implementing the squeeze cannot claim that sunk and fixed costs are part of their overheads (as is reported is the case with KPN) and so not relevant costs to be considered in a margin squeeze test, if those costs would not be incurred if the service was not provided.

The effectiveness of a margin squeeze test can be undermined by game playing by the vertically integrated firm. An example of such strategic behaviour would be claiming a cost is an overhead, or a joint and common cost, when it should in fact be regarded as an incremental cost. For example, if an asset is used by several services it may be claimed as a joint and common cost, but if one service dominates the use of that asset such that it could be substantially reduced if the service was not provided such a cost should more properly be classed as an incremental cost³². This behaviour allows the vertically integrated firm to transfer profits from the downstream business to the upstream business and thus effect a margin squeeze.

This point was explicitly addressed in *Telefonica*. The Commission wrote:

If the traffic generated by the product in question represents a significant proportion of the traffic generated by the totality of services that share the common asset, it is highly probable that a significant proportion of the corresponding common cost is an avoidable cost and hence incremental. (Telefonica, para 431)

In Section 4.5 we will consider the individual downstream cost items incurred level which should be included in the margin. However, by way of example, suppose a vertically integrated firm was already providing a customer call centre which was being run efficiently. The firm adds another product to its range which uses some resource in the call centre. This firm cannot claim that some portion of the call centre is not an avoidable cost as without the additional product it would not need that proportion of its staff and physical resources at the call centre. Likewise, if the firm ceased to provide a product that used a proportion of the call centre, those costs could be removed and should thus be considered as incremental or avoidable.

³² Indeed, members of BOT have indicated that KPN is unduly allowed to allocate costs to overheads which should properly be allocated to the incremental costs of a service and are thus able to reduce their retail prices unfairly.

3.4 Existing vs. New Markets

We have not so far made a distinction between an *ex ante* margin squeeze test in an existing market and a new market. In the light of OPTA's Regulatory Policy Note 06 (OPTA 2010), we consider here whether a margin squeeze test is appropriate in new markets. In the Note, the authors consider the effect of OPTA's proposed price-cap regime for NGA on the prevention of monopoly profits, efficiency incentives and investment incentives. They consider only the direction of these effects and not the scale. In this section, we consider first whether there is a case for an *ex ante* margin squeeze test in new product markets and, if so, whether the adjustment would be different to those discussed above.

We can identify two types of new market. The first is a new downstream market based on an existing upstream input, or a development of an existing input. The second refers to a market based a new upstream input, for example Next Generation Access (NGA) based on Fibre to the Cabinet or Home (FTTC/H). In the preceding sections, we have suggested that an *ex ante* margin squeeze test needs to take account of the vertically integrated firm's scale, scope and consumer awareness advantages and its ability to supply itself with a different product to the one it supplies to downstream competitors.

When a new product is based on an existing wholesale input, or a development of an existing input, as for example is the case with VDSL, it seems clear that the incumbent's advantages carry over into the new market. It still owns the essential input and can leverage its existing position into the new market. Therefore we believe that a margin squeeze test is still necessary.

Similarly, where the incumbent may be in a position to leverage its position in current generation access into NGA, for example through ownership of the civil infrastructure required or through access to capital, it may still be able to exert a margin squeeze³³.

However, where there can be competition between new upstream inputs, as for example was the case with mobile networks, the problem of margin squeeze may not occur. This would be the case if several vertically integrated firms can compete with each other without the need to use an essential resource supplied by another firm.

The second question is whether the principles set out above remain valid in a new market. In Section 2.1 we identified two forms of margin squeeze (discriminatory and exclusionary) and the problem of downstream scale which may have the effect of a margin squeeze. Provided that an incumbent firm is active in both the upstream and downstream market, and is dominant in the upstream market, its ability to behave in an anti-competitive manner

³³ Ofcom recognises the possibility of a margin squeeze in new product markets in its 2010 review of Wholesale Local Access (Ofcom 2010B)

through discrimination or exclusion is likely to persist in a new market and so the principles set out above remain valid.

The effect of scale in the downstream market, however, may be different. Under most *ex ante* obligations of non-discrimination, an incumbent firm must make available a new service to its own downstream arm at the same time as it makes that service available to its other wholesale customers. It may be considered, therefore, that the incumbent cannot gain any first mover advantage that would allow it to achieve minimum efficient scale in the downstream market before its competitors.

Whether this is so or not is likely to vary on a case by case, dependent on both the geographic and product market definition and crucially the position of the incumbent in any related markets. For example, if the incumbent has the strongest position in current generation broadband access, it may well be able to leverage that benefit into NGA by encouraging customers to remain with their existing supplier. It should not therefore be assumed that all firms would start from the same place.

A related issue is the relevant scale on which to conduct any margin squeeze analysis in a new and growing market. This is precisely the question that Ofcom addressed in its statement on the margin between IPStream and ATM (Ofcom 2004). At the time the volumes of the relevant products were small and so any test would need to be conducted on a forecast of volumes rather than actual levels. Ofcom considered that if it used BT's relatively high forecast, the resulting margin may have been insufficient to promote competition, whereas use of the lower forecasts of competitors could have resulted in incentives for inefficient entry³⁴.

There is no clear rule that can be developed to determine the appropriate volume. Instead a regulator faced with this issue can only make an intelligent judgement as to an appropriate level of take-up over a reasonable time period and set a volume for a margin squeeze test accordingly. Whatever the volume chosen, it is important that the cost function used is the same for both entrants and the incumbent so that both are equally efficient given the chosen volume. Ofcom points out that this volume should allow for a modest number of scale entrants in keeping with the context of setting the margin to promote competition.

³⁴ Ofcom (2004) paras 2.65 – 2.67

4. Implementation of an *Ex ante* Margin Squeeze Test

In Section 2.1 above, a margin squeeze test was defined formally 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 paper that an explicitly *ex ante* margin squeeze test 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 \approx X% market share

Scope \approx 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 (C_E) 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% to be discussed below, and scope to be average overheads for Y products.

4.1 The Appropriate Wholesale Input

We have shown above that the appropriate wholesale input in an *ex ante* margin squeeze test should be that provided by the incumbent to the entrant and not the one supplied by the incumbent to itself. Equivalence of Input as designed in the UK has the objective of ensuring that BT provides the same product under the same terms and to the same standard internally and externally and so implicitly any margin squeeze test would be conducted using the same input. Where there is no obligation of EOI, as is the case in the Netherlands, then to meet the legal objective of the promotion of competition, an *ex ante* margin squeeze test should use the cost of the wholesale input to entrants as the basis.

In its recent draft Decision on the markets for wholesale voice call origination and termination³⁵, the Irish NRA (Comreg) considered the appropriate wholesale input for what Comreg names a "Similarly Efficient Operator" (SEO). As demonstrated in Box 4, KPN provides itself with a different mix of local, single and double tandem interconnection than that bought by an efficient entrant. Comreg has explicitly recognised this situation in its

³⁵ Comreg (2010) *Wholesale call origination and wholesale call termination markets: Consultation and draft decisions in relation to proposed amendments to the price control obligations and further specification of the transparency obligations* Document No. 10/76, 28th September 2010

proposed margin squeeze test. It considers three mixes of local, single and double tandem interconnection: a weighted average, a “more” interconnected level and a “lower” interconnected level. Table 2 below shows the proportion of interconnect at each level for the three options.

Table 2: Comreg's Proposed Interconnection Weightings³⁶

	Weighted Average	Higher Level	Lower Level
Primary (Local)	66%	88%	12%
Single Tandem	24%	12%	70%
Double Tandem	10%	0	18%

Comreg is bases the input costs of a SEO on an assumption that an efficient entrant will be buying most of its interconnection at the Single Tandem level, whereas the incumbent is likely to “buy” at the local level. This is a reasonable assumption and ensures that the wholesale cost included in the margin squeeze test is closest to that experienced by the entrant rather than the incumbent. If Comreg had set the interconnection rate as the Weighted Average this may have resulted in a margin squeeze test being based on an input cost below the level experienced by an efficient competitor.

In the Netherlands, local interconnection is not available to competitors and so the exact mix proposed by Comreg would not be applicable. Nevertheless, in our view OPTA should adopt the same approach as Comreg: that is adopting the input cost of the efficient entrant, rather than the incumbent, for products in all relevant markets. In the case of voice interconnect, the efficient entrant would need to buy a combination of single and double tandem interconnection, regardless of the mix used by KPN.

4.2 The Appropriate Scale

We suggest that a volume equivalent to a market share downstream in the region of 20% - 25% would be reasonable. To be precise, we argue that entrants should be as efficient as the incumbent *were both firms to have 20% - 25% market share*. Such an approach would be more likely to promote competition than expecting an entrant with a low market share to have the same unit costs as the incumbent with a high market share. To calculate the appropriate costs, the regulator would need to establish the Long Run Average Cost (LRAC) curve of the downstream arm of the integrated firm and then establish the average downstream unit costs at a volume equivalent to 20 – 25% market share.

A market share of 20% - 25% can be supported by both academic analysis and decisions of the European Commission. First, academic research has shown that most of the benefits of

³⁶ Source: *ibid* para 4.10

competition accrue when there are four firms in the market and there is a diminishing return as more firms enter. Secondly, the European Commission proposes a similar market share for its calculation of the cost of fixed and mobile termination.

In a much cited article³⁷, Bresnahan and Reiss (1991) 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 *n*th 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. In markets with five or fewer incumbents, almost all variation in competitive conduct occurs with the entry of the second and third firms. Surprisingly, once a market has between three and five firms, the next entrant has little effect on competitive conduct.”

The European Commission, in its recommendation on fixed and mobile termination rates suggests that for the purposes of calculating mobile termination rates the MES should be set at 20% (European Commission 2009a, Annex). The accompanying staff working paper provides a further explanation of why this level of market share has been selected drawing on work conducted by the UK Competition Commission and by WIK for the Australian Competition and Consumer Commission. It suggests that once a mobile network operator has captured 20 – 25% of the market volume there only very limited remaining economies of scale (European Commission 2009b, page 26). It should not be assumed from WIK’s calculation that economies of scale for fixed operators also run out at 20 – 25%, only that WIK’s finding indicates that mobile markets can support between four and five efficient competitors.

An *ex ante* margin squeeze test should therefore reasonable assume equally efficient downstream costs for a firm with a market share of 20% - 25%,.

4.3 Search and Switch Costs

The level of search and switch costs that an entrant must compensate for could be established empirically through both direct consumer research and analysis of price differentiation between the incumbent and entrants. Such an empirical analysis would have to discover whether search and switch costs differ in wholesale – wholesale markets (i.e.

³⁷ Google Scholar shows 642 citations (24th August 2010)

where the incumbent is selling to another operator which itself offers a wholesale product), wholesale - residential retail markets and wholesale – business retail markets (i.e. where the end user is a residential or business customer respectively). Residential consumers may face relatively high search costs with relatively low switch costs, whereas wholesale and business customers might have lower search but higher switch costs. It may also be that these costs will reduce as entrants become more established in the market and so customer awareness and confidence improves. Nevertheless, there are some useful indications of the likely level.

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.³⁸

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 (Ofgem 2008).

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 converge³⁹.

4.4 Economies of Scope

In section 3.1.4 we showed how incumbents benefit from economies of scope which entrants are unlikely to benefit from to the same degree and therefore entrants will carry a cost disadvantage even if they are equally efficient in all other aspects. Economies of scope

³⁸ Reference in Dutch Para 413. Informal translation provided by BOT

³⁹ To the best of our knowledge, no research has been conducted which calculates the discount required by a consumer to switch between networks. However, there is research which shows that consumers prefer networks with a large membership which implies that smaller networks have to offer larger discounts to compensate for their smaller size (see for example Kim and Kwoon (2003)).

will mean that overheads rise non-linearly with the number of products so the overheads to be recovered through sales of an individual product reduce the more products a firm sells.

To overcome the incumbent's inherent advantage from selling more products, the margin squeeze test should set the level of overheads to be recovered through an individual product based on the incumbent's overhead cost function but scaled back to the number of products sold by the entrant. It is not possible to set a general approach to such an adjustment which needs to be considered on a case by case basis.

To provide an example, suppose that the incumbent offered the three "triple play" products of telephony, broadband and TV and that, for some reason, it would be inefficient for an entrant to provide one of these products (for the sake of argument, TV). To ensure the test is then based on the costs of a reasonably efficient operator, the incumbent's overheads should be calculated on the basis of offering two, rather than three, products. We recognise that this approach would require the regulator to establish the efficient number of products to be offered by an entrant for which some empirical analysis would be needed.

4.5 Allowable Costs

In Section 3.3 we proposed that the appropriate cost standard should be the Long Run Average Incremental Costs (LRAIC) of the product which is to be tested for a margin squeeze. The next consideration, therefore, is what costs should be contained in the margin between input and output prices for which the LRAIC needs to be calculated to determine whether or not a squeeze is taking place.

Referring back to the formal definition of a margin squeeze in Section 2.1 above, we consider below what costs fall within the margin, referred to formally as the variable M . What these costs should be have been considered in both case law and in various regulators' margin squeeze tests and we will draw on examples from *Telefonica* and the Irish regulator, Comreg.

In *Telefonica* the European Commission sets out the incremental costs in three categories: network costs, Internet Service Provider's (ISP) recurrent costs and Subscriber Acquisition Costs (SAC) (para. 419).

The network costs incurred by a wholesale customer depend on the wholesale input used and are composed of the corresponding wholesale access price plus the costs of additional network elements need to provide the relevant downstream product (para 421 onwards). In the broadband case considered in *Telefoinca* the additional network costs fell into two categories: the IP backbone network which conveyed traffic from the indirect access points to the ISP point of connection, and the access to the internet.

The ISP recurrent costs are defined as recurrent costs that are distinct from network costs and are identified as: cost of the ISP platform, customer care, invoicing and debt recovery, market monitoring, taxes and “other production costs” (paras 456 -457).

Subscriber Acquisition Costs are identified as: the connection fee (a one-off charge imposed by Telefonica on its competitors for the activation of each new ADSL line), the modem and related costs, promotions, advertising costs, incremental commercialisation costs. The Commission considered the appropriate period over which SAC should be amortised and concluded that this was three years (paras 458 463).

The Irish regulator, Comreg, has recently considered the appropriate costs to be allowed in a margin squeeze test⁴⁰. The costs set out in Comreg’s sample imputation test are shown in Table 3 below.

Table 3: Retail Cost from Comreg Imputation Test

Retail cost components	Comment
Billing and cash collection	This cost reflects the variable cost of printing and posting the bill, the cost of credit management calculated based on a percentage of billed revenue including VAT, and the cost of putting each call on the bill.
Customer care	Variable customer care cost
ISP Connectivity	This cost is developed on the basis of the observed level of busy hour traffic for each Broadband product
Product development and product management direct cost	Direct cost for customer care training and testing and for product development. This is recovered monthly over the period of the cost recovery months.
IT development to support the specific bundle	Cost of direct capex specifically for the bundle. This is recovered monthly over the period of the cost recovery months.
Modem and fulfilment costs	Cost of modem and delivery (where the bundle includes broadband). This is recovered monthly over the period of the cost recovery months.
Ongoing marketing to support the bundle over its lifetime	This is the ongoing marketing specific to this bundle, rather than generic marketing spend. This is recovered monthly over the period of the cost recovery months.
Marketing: Launch campaign	The cost of the specific campaign only. This is recovered monthly over the period of the cost recovery months.
Sales commissions/bounty to Third Party	Sales through call centres, Meteor ⁴¹ shops and third party shops. This is recovered monthly over the period of the cost recovery months.

In Table 4 below, we set out our list of incremental costs which should be allowable in a margin squeeze test based on a REO. We also highlight whether these costs are fixed, and

⁴⁰ Comreg (2010) *Consultation and draft direction: further specification of the obligation not to unreasonably bundle pursuant to D07/61* (page 26)

⁴¹ Meteor is the mobile network operator of the incumbent, eircom.

therefore subject to economies of scale, or variable. In addition to these costs, a mark up should be allowed for the REO to recover its own joint and common costs.

Table 4: Proposed Allowable Costs

Cost	Definition	Cost Type: Fixed (F) or Variable (V)
Service development	Cost of developing the service, including investment in IT, staff training, etc.	F
Network Costs	Network backbone providing transport between points of interconnection	F
ISP/IN Platform	Hardware and software costs of platform used to provide services	F
Customer Care	Provision of internet and call centre based care services	V
Invoicing/Bad debt/debt recovery	Cost of invoicing, collection of debts, chasing and writing off bad debt.	V
Market Monitoring	Externally acquired market information	F
Modems and other Customer Premises Equipment	Cost of acquiring and distributing equipment required at customer locations	V
Advertising		F
Promotions and Discounts	Costs required to compensate consumers for search and switch activity	V
Commission	Sales commission to own sales staff and distributors	V

4.6 Market Level of Test

OPTA's policy guidelines which set out the key elements of ND5 state that each "each downstream service should be replicable from a pricing perspective". This implies that the margin squeeze test should be conducted on a product by product basis, rather than on bundles or across a market as a whole. We agree with OPTA's position on this which is in line with the approach taken in various cases.

5. Conclusions

In this paper we have shown that competition law and regulatory policy are applied in markets with different underlying economics and that they therefore have different objectives. Whilst competition law seeks to enhance welfare by preventing the abuse of dominance *ex post*, regulatory policy has the objective of promoting competition. Obligations are applied to dominant firms *ex ante*. Given these different objectives we have argued that a specifically *ex ante* margin squeeze test is needed.

Competitors in downstream markets can be subject to discriminatory and exclusionary margin squeezes and can also suffer the effects of a margin squeeze if an incumbent firm is able to benefit from economies of scale and scope and from lower consumer search and switch costs which, at least in the short term, cannot be matched by its their competitors. A specifically *ex ante* margin squeeze test should address these three possible forms of margin squeeze.

We have therefore set forward arguments to show that an *ex ante* margin squeeze should be based on a Reasonably Efficient Operator standard, which we equate to an efficient entrant. The specific characteristics of such a test should:

- Be based on the input costs of the wholesale product used by the entrant;
- Assume a scale equivalent to a 20% – 25% actual or projected market share. This is likely to be less than the share of the incumbent but reflects a market structure in which consumers derive benefits from competition.
- Recognise that entrants will need to compensate consumers for search and switch costs which are not incurred by the incumbent and that these costs are likely to be in the region of 5% - 10% of the downstream price.
- An allowance for the incumbent's economies of scope.

We have proposed a periodic review of the relevant adjustment values to ensure that the *ex ante* margin squeeze test reflects the developing market conditions.

We have also argued that the provisions of a specifically *ex ante* test are as relevant in new markets as in established markets.

We have set out in Table 4 a set of proposed costs to be included in the margin to cover efficiently incurred network costs, other recurring costs and customer acquisition costs.

To conclude, we suggest that formally, a specifically *ex ante* margin squeeze test would be:

$$(R \times (1 - 0.05 : 0.1)) - (C_E + M) \leq 0$$

Volume \approx 20% - 25% market share
Scope \approx Y products

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