



ERG (09) 07

**Report on the Discussion on the application of
margin squeeze tests to bundles**

March 2009

A. Introduction

1. A margin squeeze (also known as price squeeze) is a situation where a vertically integrated firm with market power in a key upstream market, supplies rival firms in associated downstream markets and sets prices for the input and the downstream service in a way that renders unprofitable the activities of its competitors in the retail market.
2. This report will continue to be updated with any experiences that NRAs may have over time dealing with margin squeeze in bundles.

A.1. Margin Squeeze in Competition Law and ex post cases

3. Competition authorities have long been concerned with margin squeeze (hereafter MS) practices in unregulated markets.
4. It is important to note that margin squeeze tests applied in Competition Law cases by Competition Authorities are outside of the scope of this report, which is limited to the application of margin squeeze tests by National Regulatory Authorities (NRAs) on ex ante basis in regulated electronic communication markets.

A.2. Margin Squeeze in ex ante regulation in the electronic communication markets

5. The application of margin squeeze tests in regulated industries has received considerable attention. This is particularly the case in electronic communication markets, usually characterized by the presence of a vertically integrated network operator providing access to its competitors.
6. The objectives, powers and consequent type of interventions by NRAs present their own characteristics and justify the analysis of margin squeeze tests in this paper for ex ante regulatory purposes. As ERG stated in its Common Position on Remedies¹, NRAs justify the remedies in light of the objectives laid down for them. These objectives as laid out in Article 8 of the Framework Directive are to: *promote competition (õ), contribute to the development of the internal market (õ), promote the interests of the citizens of the European Union*. While competition law is intended to prevent margin squeeze as an exclusionary abuse, ex ante regulation seeks the more ambitious goal of promoting competition by facilitating entry into those markets meeting the three criteria test².
7. Therefore, a relevant number of NRAs apply margin squeeze tests with the characteristics analyzed in this Report. The objective of promoting competition and, where feasible, alternative infrastructure, demand certain type of decisions. ERG has already provided preliminary guidance in its Common Position on Remedies, with specific attention to margin squeeze. ERG Common Positions on Broadband also detail the possible need of margin squeeze tests where judged necessary to facilitate downstream entry³ and present certain possibilities.

¹ Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework, May 2006.

² ERG response of 19 October 2007, to the draft Recommendation of the European Commission on relevant markets.

³ ERG Common Position on wholesale unbundled access (included shared access), ERG (06) 70, of 12.04.07, and ERG Common Position on Bitstream access, ERG (06) 69, of 12.04.07.

8. The possible application of margin squeeze tests by Competition Authorities on ex post cases in markets where NRAs also apply their test on an ex ante basis is not part of this Report. In any case, as in the EU ex post competition authorities could adopt measures on the basis of Article 82 of the EC Treaty in the same area of intervention of ex ante regulatory measures by an NRA, it is necessary to prevent conflicts between both regimes so that the objectives and regulatory model applied by NRAs will not be distorted by future ex post interventions, as ERG has already expressed⁴.
9. With particular reference to margin squeeze tests applied in the electronic communication industry, NRAs so far have mainly been involved in assessing whether margin squeeze occurred at the individual service level. However, in a convergent world competition among operators will increasingly occur on multi-play offers, where various services (e.g. voice, data and video) will be provided in a bundle. In this scenario one of the new challenges NRAs will have to face is how to carry out a proper MS assessment. The challenge is even stronger in cases where bundled offers include both regulated and unregulated services. So far, most NRAs have not dealt with this issue but where they have, different approaches have been used.
10. In light of this, the purpose of this document is to analyze the relevance and scope of *ex ante* MS practices in the presence of retail bundled offers and to review existing methodologies highlighting their advantages and disadvantages. It should be noted that the consideration of margin squeeze between upstream services, and the consideration of anticompetitive horizontal effects resulting from bundling are beyond the scope of this work.
11. On 12th June 2008 the IRG Convergence Project Team circulated a questionnaire to NRAs to gather information on MS practices on bundling. The questionnaire asked NRAs about their current MS methodologies and their existing regulations on bundling and other surrounding issues connected to convergence and margin squeeze. Twenty-five responses were received (see Annex 2 for questionnaire details and response rates).
12. The document is organized as follows. Section B provides a brief description of MS and bundling. Section C summarizes the current regulatory framework in relation to MS and bundling. Section D reviews general aspects of the answers to the questionnaire. Section E discusses MS methodologies and gives a brief description of the NRA responses to the methodology questions. Finally, section F concludes.

B. Margin squeeze and bundling

B.1 Margin squeeze

13. MS has long been debated⁵ Despite some controversy about definitions, there is consensus that for a MS to be a rational strategy, a number of structural and economic conditions must exist. Firstly, the undertaking allegedly administering the MS must be vertically integrated (or have control over the upstream input). Secondly, the undertaking should have significant market power on the upstream market. Thirdly, the input supplied to rival downstream competitors must in some sense be essential or

⁴ ERG response of 19 October 2007, to the draft Recommendation of the European Commission on relevant markets.

⁵ The EC first referred to price squeeze in unregulated markets cases: EC Decision 76/185/ECSC October 29th 1975, *National Carbonising Company*; EC Decision 88/518/EEC of July 18th 1988, *Napier Brown/British Sugar*. However, EC decisions, notices and case law do not provide a precise definition of a price squeeze. Actually, the first attempt of a definition, even if incomplete, was offered by the Court of First Instance in Commission Decision T-5/97 of November 30th 2000, *Industrie des Poudres Spherique v. Commission*.

key⁶. Finally, the firm must be active in the downstream market, which must not be effectively competitive. This does not mean that the vertically integrated firm needs to hold a dominant position downstream; it just means that there needs to be the prospect of supra-competitive profits in the downstream market so that the firm has an incentive to MS. Furthermore, the practice should result in an exclusionary effect leading to a likely weakening of competition. Note that to yield such effect the practice should be of a sufficiently long duration.

14. A vertically integrated undertaking can pursue three main strategies to MS:
 - (i) raise the input price to levels at which rivals could no longer sustain a profit downstream;
 - (ii) engage in below cost selling in the downstream market, while maintaining a profit overall through the sale of the upstream input;
 - (iii) raise the price of the upstream input and lower the price of the downstream retail product to create a margin between them at which a rival would not be profitable.
15. What distinguishes MS from the other anti-competitive practices is that the key focus is on the difference between the upstream and downstream price, not on whether the prices are excessive, discriminatory or predatory *per se*. In other words, the focus is not on the intrinsic fairness of one particular price (i.e. upstream or downstream), but rather on the effect of the combination of these two prices.
16. It is possible to distinguish two types of MS: (i) a discriminatory MS, when a vertically integrated operator charges its downstream rivals a higher price than it charges to its own downstream operation and (ii) a non-discriminatory MS, when a vertically integrated undertaking raises the price of the upstream input both to downstream rivals and its own downstream operation. Note that a non-discrimination obligation imposed on wholesale prices should limit the possibilities of (i).

B.2 Margin squeeze in regulated markets

17. Unlike in unregulated markets where MS is assessed on a case-by-case basis, in regulated markets there might be merit in considering at the outset whether and under which circumstances an *ex ante* MS assessment is sensible.
18. The possibility for a vertically integrated undertaking to engage in a MS practice depends on whether the existing regulation allows the firm to choose upstream and downstream prices freely or rather strongly restricts these choices. Three cases can be considered:
 - i) Under full regulation (both wholesale prices and retail prices are regulated), the SMP operator has no pricing instruments at its disposal⁷. In such a situation, in theory, MS should not occur, as prices are no longer set by the SMP operator, but by the regulator. This does not mean, however, that the risks/incentives of MS or, more generally, of exclusionary abuses are completely absent;

⁶ If the input is not key as downstream competitors may substitute for alternative input(s), margin squeeze would not be a rational strategy.

⁷ Despite this statement, note that price regulation may still allow some freedom of choice to the SMP firm. This happens, for example, when wholesale or retail prices are regulated through price caps or tariff baskets.

- ii) Under partial regulation where some wholesale prices are regulated and retail prices are left unregulated, the SMP operator can MS its competitors on downstream markets by lowering its retail prices;
 - iii) Under no regulation where both the wholesale prices and the retail prices are left unregulated, the SMP operator can price squeeze through both access and retail prices. One would expect though that as there is no regulation, the NRA is unlikely to apply an ex-ante MS test. It is more likely that potential concerns in this situation would be dealt with by an ex-post assessment by national competition authorities.
19. The above suggests therefore that the most likely situation where an ex-ante MS test may be applicable is where wholesale prices are regulated and retail prices are left unregulated. However, even where there is little or no flexibility for the SMP firm in setting prices, NRAs may still use MS procedures to monitor compliance with existing regulation, as MS practices may undermine regulation already in place. For example, this may happen where a retail-minus methodology is used to set regulated wholesale access prices⁸.
20. It should be recognized that the incentives for a firm to engage in MS are related to the marginal profitabilities of regulated upstream services and related downstream services. In light of this, price controls that result in smaller marginal profits for upstream services will make MS more likely. This is the case where upstream prices are cost-oriented.

B.3 Bundling

21. A bundling practice arises when a firm sells two or more services together, as one combined offering, at a joint price⁹.
22. Two types of bundling may be identified: i) ~~pure~~ **pure bundling**, that occurs when consumers can only purchase the entire bundle and not the single services separately; ii) ~~mixed~~ **mixed bundling**, that occurs when consumers are offered a choice between purchasing the entire bundle at a discounted price and purchasing the separate components of the bundle. Tying occurs when the purchase of a good is conditional on the purchase of another good. In some cases, the effects of tying are equivalent to those of mixed or pure bundling. In this document, we will refer to bundling, but the reader must be aware that such statements will also hold true for relevant tying.
23. In analyzing retail bundling practices, there may be a trade-off between static positive and dynamic negative effects. For example, in the short term, retail bundling practices may well be welfare-enhancing as a consequence of both supply-side and demand-side efficiencies- such as the existence of production and marketing economies of scope or reductions in consumers' transaction costs.
24. However, retail bundling strategies may also be pursued by a vertically integrated firm to foreclose competitors from downstream markets. Specifically, bundling might be used by a vertically integrated operator with SMP in an input market to leverage its power into one or several downstream markets where it does or does not have SMP (i.e vertical leverage)¹⁰. This could occur by charging a bundle price that a non-

⁸ See IRG Public Consultation Document on ~~Principles~~ **Principles of implementation and best practice regarding the implementation and use of retail minus pricing as applied to electronic communication activities (January 2006).**

⁹ Occasionally, business clients ask operators to ~~put together~~ **put together** different services, even if they are not sold to those business clients at a joint price.

¹⁰ In addition, a vertically integrated undertaking can also pursue a MS strategy through a bundled offer in order to enhance its position in the retail markets where it does not have SMP (i.e horizontal leverage).

vertically integrated downstream rival . relying on regulated wholesale inputs for the provision of the retail product . would be unable to replicate.

25. Ultimately, it has to be recognized that often bundled offers may include both regulated and unregulated retail services and a key consideration for NRAs is whether the bundle can be replicated by the market, including new entrants, on a sustainable basis over the medium to long term.

C. Margin squeeze and bundling in the current Regulatory Framework

C.1 Margin squeeze regulation

26. As noted above price squeezes have received renewed attention in regulated industries. In 1998, the European Commission proposed two imputation tests to establish whether a MS exists . see the European Commission's Telecommunications Access Notice¹¹.
27. The first test (called an Equally Efficient Operator test, EEO) involves assessing whether the dominant/SMP firm's downstream operations could trade profitably if it had to pay an upstream price that was equivalent to that charged to rival competitors. In this case the test amounts to whether the following is satisfied:

$$P - r - w_{SMP} - d_{SMP}$$

where:

P = retail price of the SMP's downstream service;

r = regulated price of the regulated wholesale service needed by alternative operators to provide such downstream service;

w_{SMP} = SMP's other upstream costs

d_{SMP} = SMP operator's downstream costs

28. The second test (called a Reasonably Efficient Operator test, REO) involves examining whether the difference between the vertically integrated firm's retail and input prices is sufficient for a reasonably efficient downstream competitor to make a normal profit. In this case the test amounts to the following being satisfied:

$$P - r - w_{AO} - d_{AO}$$

where d_{AO} denotes the downstream costs of a hypothetical reasonably efficient entrant.

29. The primary difference between the two tests is that the first is based on the relationship between the vertically integrated company's retail price (P) and its own (non-regulated) cost ($d_{SMP} + w_{SMP}$), while the latter is based on the relationship between the vertically integrated company's prices and the alternative operator's costs, ($d_{AO} + w_{AO}$).
30. Although the European Commission¹² mainly refers to the first imputation test, NRAs have adopted either one or the other definition according to their needs to test MS occurrence (see results of the questionnaire in section C).

¹¹ See paragraph 6 in Notice on the application on competition rules to access agreements in the telecommunications sector.

¹² ONP Committee document (ONPCOM 01-17).

31. It is important to clarify here that the MS test as set in the current Regulatory Framework is not listed by the EC among the remedies that NRAs can impose on SMP operators. It is also not in the Access Directive for wholesale markets¹³, nor in the Universal Service Directive for retail markets¹⁴, but Art 13 AD states that a price control measure can be imposed to prevent a price squeeze to the detriment of end-users. Hence, MS tests have so far been used by NRAs as a tool either to ensure the regulated price does not lead to a MS by the SMP operator or to verify compliance by the SMP operator where retail and/or wholesale services price are regulated or to verify replicability by competitors of SMP operators offers.

C.2 Bundling regulation

32. As far as bundles are concerned, the current regulatory framework requires NRAs to strike a balance between the above-mentioned positive static and negative dynamic effects of bundled offers. On the one hand, NRAs, pursuant to Article 17 (2) of Universal Service Directive, may impose an SMP obligation not to unreasonably bundle retail services. However, on the other, in order not to rule out welfare-enhancing cases arising from bundling, the directive notes that the imposition of this remedy should consider the specific circumstances of each single market analysis and on the specific obligations imposed at the wholesale level. Therefore, NRAs may need to develop a methodology to assess, whether a bundle is likely to have anticompetitive effects. Indeed, this is the approach followed by a number of NRAs (see results of the questionnaire in section C).
33. Furthermore, as far as bundling practices are concerned, paragraph 3.2. of the Explanatory Note to 2007 EC Recommendation¹⁵, provides some innovative indications on when a bundle may become a relevant product market: *“In most cases the individual services in the bundle are not good demand-side substitutes for each other yet may be considered to be part of the same retail market if there is no more independent demand for individual parts of the bundle. [...] Hence the bundle may become the relevant product market. Whilst certain bundles are well established (voice and SMS on mobile), others are at an earlier stage of development such as bundles of television and internet. If, in the presence of a small but significant non-transitory increase in price there is evidence that a sufficient number of customers would unpick the bundle and obtain the service elements of the bundle separately, then it can be concluded that the service elements constitute the relevant markets in their own right and not the bundle.”*

C.3 Margin Squeeze assessment for bundled offers

34. Where retail bundles are offered by a vertically integrated firm with SMP in the wholesale market, NRAs may have to apply the bundling regulatory provisions set out by the Universal Service Directive and/or a MS assessment (test) at the wholesale level. Where this is the case NRAs, at the same time, may want to assess whether to impose an obligation not to unduly bundle and may want to check whether an equally/reasonably efficient operator in the downstream market would be able to replicate the bundled offer of the SMP operator.
35. Checking for replicability may involve NRAs conducting profitability tests for the bundle to verify if the bundle retail price covers the costs of acquiring the wholesale inputs necessary for the provision of the bundle plus any other relevant costs. In carrying out this exercise, it is likely that NRAs would need information on input prices, downstream

¹³ Artt. 9-13 of the Access Directive (2002/19/EC).

¹⁴ Artt. 17 of the Universal service Directive (2002/22/EC).

¹⁵ EC Recommendation on relevant product markets 2007/879/EC.

prices, efficient downstream costs and appropriate margins of downstream competitors.

36. This raises an issue as to what powers do NRAs have to request information or to act when bundles include unregulated parts.
37. In this sense, it is worth remembering that there is a crucial difference between MS practices and other sorts of anticompetitive practices in downstream markets, in that the former challenge the cornerstone of EC regulation in a way that no other upstream or downstream or upstream practice does. The Explanatory Note to 2007 EC Recommendation recognizes the distinct status of MS as a damaging practice.¹⁶ This states that NRAs must be involved in monitoring the structure of regulated (and unregulated) prices over which MS may exist and NRAs are invited to monitor the situation and establish justified and appropriate remedies with respect to wholesale access¹⁷. Article 5 of the new proposal for the framework directive provides authorities explicitly with the legal basis to obtain information to make such an assessment. Information can be gained even if the market is not identified (retail markets).

D. Questionnaire responses regarding bundling and margin squeeze

38. This section summarizes the NRAs' responses to questions about the use and implications of MS procedures and also approaches to bundling. It does not summarize the answers about methodological aspects, which are commented on section D.

D.1 Responses regarding bundling

39. The first part of the questionnaire provides an overview of current obligations on bundling. It seems from the responses that 13 NRAs¹⁸ have imposed some obligations on the SMP operator to prevent unreasonable bundling. Those obligations were mainly imposed on markets 1 - 2 and 3 - 5 as well as to a lesser extent on narrowband and broadband. The obligation is in most cases interpreted in a manner that there should be no pure bundling or tying of services when an operator with downstream SMP provides such services with other electronic communication services. Some of the NRAs that did not impose this kind of generic market obligation still have the chance to prohibit an anticompetitive offer using existing law.

Example: Spain (line rental)

The SMP operator is not permitted to market pure bundles of line rental services with other telecom services. The obligation is argued as necessary to prevent leverage of market power from markets 1 and 2 to other markets.

Example: Ireland (narrowband)

In the retail fixed narrowband access market the SMP operator is required to not unreasonably bundle. Examples of this, include the requirement to offer all retail narrowband access services as stand alone products, not to price the bundle below the

¹⁶ EC Recommendation on relevant product markets 2007/879/EC.

¹⁸ Austria, Belgium, Germany, Greece, Hungary, Ireland, Italy, Poland, Romania, Slovakia, Slovenia, Spain and UK.

fixed wholesale regulated elements and ensuring any bundle passes a net revenue test. This is not an exhaustive list of examples of unreasonable bundling.

40. None of the countries responding to the questionnaire have issued an obligation to provide wholesale services to support the provision of a specific bundle. However, most countries indicated that existing *ex ante* regulated wholesale offers that have been set where an SMP position existed upstream may facilitate competitors to offer bundled services.
41. In relation to the regulation of wholesale offers to enable the provision of bundles, a few countries mention that they would act if a non-replicable bundle proved to be harmful to competition. Alternatively, on occasion, the marketing of retail bundles (and individual services) by SMP operators has been allowed, provided relevant wholesale services have been developed.

Example: Portugal (WLR)

The provision of bundled offers by the SMP operator that, in general, is comprised of fixed telephone line and traffic was only allowed when the number of WLR lines reached 150.000 and some conditions related with that offer were fulfilled. More specifically, when the SMP operator decided to launch a bundle comprising of fixed telephone line and traffic, ANACOM decided that the SMP operator should lower its interconnection prices by 10%, in order to avoid a MS situation.

Example: UK (narrowband)

In fixed narrowband retail services, Ofcom imposed a number of obligations on BT in relation to SMP services. In particular, there is a condition that requires BT to publish charges, terms and conditions and notify Ofcom of amendments of these and there is an obligation on BT not to discriminate unduly. Ofcom's interpretation of the no undue discrimination condition was that bundles of SMP and non-SMP products would be likely to be unduly discriminatory. This covered both residential and business bundles. However, Ofcom was asked by business customers, as well as BT itself, to allow BT to respond to the demands of individual business customers by offering bespoke prices for services in business retail markets. Further, Ofcom's interpretation of the no undue discrimination condition limited BT's ability to tailor packages. Ofcom recognized this weakness and accepted that once wholesale inputs were of sufficient standard to enable other Communications Providers to offer retail services that were commercially and technically replicable to those that BT might offer, the requirement to publish charges could be disapplied for certain customer types..

D.2 Responses regarding margin squeeze

42. The second part of the questionnaire provides an overview of MS procedures adopted by NRAs. Twelve NRAs in the sample have a procedure to perform an *ex ante* MS analysis in at least one retail market¹⁹. The rest of the NRAs that responded stated that they analyse MS *ex post* (*this can either be because the NRA has competition authority powers or because the NRA has regulatory powers*)²⁰. These countries declare that this happens on a case by case basis- either when there is a complaint or when *ex post* there is an allegation of MS taking place.

¹⁹ Austria, Croatia, Estonia, Germany, Greece, Ireland, Italy, Poland, Portugal, Slovenia, Spain and Turkey

²⁰ Some NRAs also mention that they would refer the case to the national competition authority.

43. The *ex ante* MS procedure is more common for markets 1 - 5 and where a retail price control obligation applies. However, a handful of countries also carry out an *ex ante* MS analysis on broadband services. This includes countries where a retail-minus price control obligation is imposed on regulated bitstream services and countries where wholesale price controls comprise of cost oriented prices.
44. In most cases, the *ex ante* MS procedure is applied regularly, once a year (or once every x months) and then when new offers appear.
45. Normally where an *ex ante* MS procedure is applied, and a negative finding is discovered, the SMP operator is asked to rectify the situation. The decision as to how this should be rectified is usually left to the operator. Formally, the retail offer is suspended until wholesale and retail prices are aligned. Where there is little flexibility in wholesale prices, then the obligation implies that the retail conditions of the offer will need to be modified by the operator. In other cases the *ex ante* MS analysis is part of the wholesale price setting exercise- that is, it is a regulatory tool to directly address potential issues in relation to wholesale tariffs.
46. All the countries with an *ex ante* MS procedure run an imputation test- with different degrees of sophistication (for example two countries merely compare retail and wholesale prices). Most countries declare that the test is the only consideration they take into account in their MS analysis. However, a few countries take into consideration other aspects of the case when deciding if a MS may occur or not. These aspects relate to the possibility that the MS results in foreclosure and that it may be justified objectively.
47. Only five countries²¹ apply an *ex ante* MS analysis to bundled offers. Some of these countries assess the economic replicability of the whole bundle whilst others assess the replicability of a bundle component or both.

Example: Austria

RTR runs extensive *ex ante* MS tests concerning product bundles of broadband and fixed network voice access. Bundles involving broadband and/or fixed network access with other (non-SMP regulated) products such as mobile broadband access or mobile voice access are also assessed by RTR.

Example: Spain

CMT runs *ex ante* MS tests on all bundles which comprise broadband services and/or line rental and/or fixed line voice traffic. In essence, where the rivals compete in the same class of bundles as the SMP firm, the SMP's bundles have to satisfy a joint replicability test. Otherwise an ortho test (or individual replicability test) must be applied.

E Margin Squeeze Methodologies

E.1 Introduction

48. It is clear from the 25 NRA responses to the questionnaire that there is no absolute consensus on the approach taken to assess a MS. This reflects differences in national

²¹ Austria, Croatia, Ireland, Spain and Poland.

markets and some divergences in the weighting of the main objectives by NRAs. Further, but for 5 countries, the *ex ante* MS analysis has only been carried out for single products.

49. As outlined previously, the aim of this report is to identify issues for NRAs in the event that they consider there is merit in setting an *ex-ante* test for MS for bundled products.
50. This section firstly provides an outline of the general methodological issues associated with MS (covering both single and bundled offers) and then proceeds to discuss some specific issues that arise when considering MS for bundled offers.

E.2 MS Methodologies- general aspects

Downstream Costs

51. Broadly speaking one may argue that the two versions of the EEO and REO test described in paragraphs 26 and 27, are the same except for downstream costs²². In the former case, usage is made of the downstream costs of the vertically integrated firm while in the latter test; the downstream costs of a reasonably efficient downstream competitor are used.
52. One could argue that the equally efficient test derives from competition law principles such that only conduct that excludes firms that are as efficient as the vertically integrated firm should be considered as an abuse. Under competition law, the responsibility of the dominant firm is limited to competing on the merits. The dominant firm cannot be expected to set prices based on rivals' costs (which are unknown to them). Competition on the merits is thus consistent with the exclusion of less efficient competitors, but is not compatible with the unlawful exclusion of equally efficient rivals. Accordingly, using the dominant firm's costs as the basis for a MS test could be argued to be a test of competition on the merits and therefore the most relevant test from a competition policy perspective. Further, it is argued that a test based on the vertically integrated firm's costs takes into account any relevant advantages or disadvantages arising from vertical integration.
53. However, in regard to this latter consideration, a number of national competition authorities or national regulatory authorities (inclusive of DG Competition (2005) . see paragraph 67 of Discussion Paper²³) have suggested that where the market exhibits significant economies of scale and scope, learning curve effects or first mover advantages, then there might be a case for using the higher costs of the downstream competitor.
54. In a regulatory context, this reasoning may have merit where promotion of competition is the main regulatory principle. Specifically, regulators might find it justified to promote the entry of relatively inefficient operators in the short term in the expectation that they will become more efficient in the long run. Additionally, there might be efficiency benefits from having competitors in the market that although they might be less efficient may still be able to constrain the pricing of the SMP operator.

²² Wholesale costs also vary with economies of scale and hence differences in wholesale costs may derive from the consideration of an EEO standard or a REO standard.

²³ DG Competition (2005) %DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses+

55. Where there are concerns about the incentives to invest and innovate, it is possible that a regulator would more likely use the equally efficient operator test. Under this test, as specified above, a dominant firm is not required to price its products artificially high in order to encourage (inefficient) entry into its market to increase the competitiveness of that market in the long run.

From the NRA responses to the questionnaires, it is clear that for the majority of NRAs that perform an *ex ante* MS analysis the only source of information on costs is the SMP firm. Only two NRAs factor rivals' costs into their *ex ante* MS analysis.

These two NRAs declare that they use the reasonably efficient MS analysis. From those that only consider the SMP costs, most declare that they use the equally efficient operator standard, although in half of the cases, the NRAs admit that they on occasion modified the SMP's costs to take into account differences in economies of scale and scope or to take into account the inherent advantages enjoyed by the SMP firm.

56. In summary, it can therefore be seen that there is no consensus on which particular test . EEO or REO or modified EEO . should be used, as there are pros and cons for each of the tests. The test to be used is very dependent on the specific circumstances of the case and the objectives of the NRA. For example, if the market is mature and the main aim is to promote competition then there might be merit in using the REO test. However, if there is a concern to protect the investment and innovation incentives for the SMP operator then the EEO test might be more suitable. This means that whichever test is chosen will ultimately depend on the market situation and NRAs objectives. What is important though for regulatory certainty is that NRAs at the outset set out what are their objectives and aims and explain the reasoning for their choice of test.

Relevant cost standards

57. It is important to clarify that in the *ex ante* MS analysis the assessment of costs needs to cover the affected retail activities but also the unregulated upstream activities which the alternative operator may outsource (not necessarily from the SMP firm) or perform in-house²⁴.
58. There are two relevant cost standards . fully distributed costs and avoidable costs. As argued below, each standard has advantages and disadvantages, and the choice of standard is a decision for the NRA to take that depends on the nature of the case.
59. A criticism on the use of fully distributed costs is that it can be problematic in the presence of common costs²⁵ between upstream and retail activities (or when there are scope economies in retail activities). In these cases the attribution of common costs between inputs and /or retail services can be viewed as arbitrary because changing the allocation rule can change the cost threshold. This criticism is obviously less relevant where such scope economies do not exist or where non-regulated wholesale costs do not constitute a large part of retail costs.

²⁴ The costs of regulated wholesale activities are factored in the MS test through the regulated price.

²⁵ Common costs are incurred in the supply of one or more services and cannot be directly attributed to any one service. They arise in the presence of economies of scope. Joint costs exist when the provision of a specific service necessarily entails the output of some other service. In other words, the products can be economically produced only in fixed proportions and neither of them has a genuine, separate incremental cost function.

60. The use of an avoidable or incremental cost standard²⁶ is a way to overcome the aforementioned problem of attributing common costs to different services. Avoidable costs are typically employed in ex post predatory pricing cases²⁷ and here, they are defined as costs that the vertically integrated SMP firm could avoid if it decided to close its downstream operations while continuing to provide the upstream input to third parties. However, avoidable costs are also subject to criticism. In the context of an ex ante regulatory tool, they may provide too low a threshold for retail prices, constraining the potential for entry by efficient entrants when the avoidable cost standard does not guarantee the recovery of the fixed costs of entry.
61. Similarly, pricing at the avoidable cost level could even mean that competitors who provide a competitive constraint could be excluded. This is especially so if there are common or joint costs between different downstream services. Accordingly, the use of fully allocated costs as a proxy for average total cost has also been put forward as an alternative cost measure or the allocation of common costs to the LRIC calculation using a reasonable mark-up.
62. Accounting separation may be a tool that could inform NRAs as to how to allocate common costs along the vertical chain. In so far as accounting separation isolates regulated and non-regulated wholesale costs from downstream costs the above criticism may be of lesser relevance. However, in practice for most NRAs, accounting separation rarely separates downstream common costs and sometimes does not even isolate non-regulated wholesale costs. In such cases to properly deal with scope economies between retail, unregulated wholesale services and regulated wholesale services, a fuller implementation of accounting separation is needed.
63. A useful distinction between mature and fast-growing markets was raised in one of the questionnaire responses. In the first case, the use of historical costs or current cost accounting may be able to evaluate the margin, but when markets exhibit strong growth LRIC may be more appropriate.
64. Finally, it should be borne in mind that a key point is the period of time over which costs are assessed to be ~~%fixed+~~ rather than ~~%variable+~~ and also the scope of the retail offers to be considered in the test. The longer the period and/or the larger is the test base, the more likely that costs could be classified as variable. One may argue therefore that the more relevant question for regulators is to decide on the scope of the test and the time period over which to conduct the test and to choose cost standard accordingly. The next sections provide a brief discussion of these issues.

Only 6 countries have given information on the cost standards that they use in their ex-ante MS tests. From those, there is an even split with three declaring that they use forecasted LRIC costs, while the other three use historical or current costs.

²⁶ The terms avoidable and incremental costs as they are used here refer to a setting with no bundling. In this setting the two concepts are very similar and, unless the costs the firm incurs to start or discontinue its downstream activity are different, they will be the same. Unfortunately, in the presence of bundles, the wording ~~%avoidable cost+~~ is also used to refer to the costs that are avoided by the firm by selling different services as a bundle. Similarly, with bundles, the word ~~%incremental+~~ may refer to the additional costs incurred by the firm in adding a service to an existing bundle or service. Paragraphs 102-108 deal with these concepts.

²⁷ According to AKZO ruling, prices below AVC are predatory per se; and prices above AVC but below ATC may be predatory if they are offered with the intent of eliminating a rival. European Commission (1991), ~~Case C62/86, AKZO Chemie v. Commission, [1991] ECR I-3359 [1993] 5 CMLR 215q~~

Scope of retail offers to be included in the MS analysis

65. In light of the above, the first step is to determine the scope of the analysis i.e. to identify how many and which retail offers will be considered in a single test. For example, should one consider all services included in a relevant market or only one/some of those services? Naturally, the offers considered should be the ones suspected of not being economically replicable, but one also needs to decide whether to consider them jointly or separately. Moreover, the retail terms and conditions of the bundle and the use of different wholesale inputs within the retail bundle will help determine if the retail bundle should be assessed on its own or assessed jointly with other bundles.
66. The larger the product set considered in the test, the greater the opportunity for the SMP operator to cross-subsidize some products from other products. If this is the case, this may mean that, in some products or sub-set of products, alternative operators may not be able to enter the market. Under these circumstances, if a regulatory goal exists to have alternative operators competing in all possible bundles then it will be up to the NRA to decide how this should be achieved.
67. In the case of regulated wholesale prices that are set using a retail-minus methodology, as recognized by the IRG January 2006 document²⁸, the NRA may study whether it is the case that the value of the costs used to calculate the minus varies between different subsets of the service portfolio grouping together services with similar costs.
68. In this manner, the decision about what set of retail offers to consider in the test depends on the available information, the specific characteristics of the involved markets and the goals of the NRA.

Relevant time period for the test

69. A critical parameter when setting up a MS model is to select the appropriate time period. There are two methods: the static approach and the dynamic approach- also known as the discounted cash flow method (DCF).
70. The static test consists of taking as a basis for analysis one period- generally an accounting year²⁹ but can be as short as one month. Then, data is collected and revenues and costs compared for this period. This test is adequate when current costs and revenues are a good forecast of future margins. This is more likely to happen in stable markets. Note that although bundles will normally not change competitive dynamics in a drastic manner, the cases when this happens are bound to be the most problematic ones. In consequence, it is important for the NRA to be able to forecast these circumstances.
71. In the case of markets with non-stable revenues and costs (for example non mature markets) the static test may not be the best choice. This is because it does not take into account the reasonable short term losses accrued in the launch period of the service and does not consider the risks associated with investments that the company may incur in marketing the offer.

²⁸ Principles of implementation and best practice regarding the implementation and use of retail minus pricing as applied to electronic communication activities (January 2006).

²⁹ Several one-year static tests can be performed.

72. The dynamic method consists of setting up a discounted cash flow model for the range of offers studied. This model is generally multi-year- the NRA considers the profitability over a period of time that exceeds a year.
73. The outcome of the model is the net present value (NPV) of the expected future cash flows of the service under examination. If the NPV is positive then the provision of the service creates value/would create value for the company/competitors. If the NPV is negative then the conclusion is that the service would result in a loss.
74. The DCF model is best used for non mature services. Its benefit is that it takes accounts of revenue and cost changes across time avoiding the accounting distortions that result from a static yearly method. This is useful if a large initial investment is required to market the offer (capital or marketing expenditure). With time, the service unit cost decreases due to economies of scale, learning curve, allowing for return on investment over a series of years.
75. Indeed when considering the cost of capital it is critical to accommodate depreciation costs over the appropriate period, which DCF allows. With non-mature markets, in the case of a static model, it is best to use an economic depreciation method rather than a straight line one as the former accounts for smaller levels of asset usage in initial years.
76. A related advantage of DCF is that it may include a terminal value which reflects the value of the services cash flow beyond the end of the modeled period. At the end of the study period there might be some non recurrent costs which are not fully recovered within the analysis.
77. The NRA must also choose the discount factor. This factor should be related to the Weighted Average Cost of Capital (WACC)³⁰ of the investment project or a proxy for this value. In calculating the WACC one may incorporate the differences in risks and costs of raising funds of alternative operators or the SMP firm. The decision will depend on whether an EEO standard or a REO standard is adopted.
78. The main shortcoming of the DCF method is however that it does not specify how costs should be recovered during different years. A positive NPV could arise from the incorporation of the results of the anticompetitive behavior. In light of this, it is critical to consider that the longer the study period, the more uncertain the forecasts will be- which could result in false positives or false negatives. Another fact to consider is whether under DCF, the SMP operator is allowed to incur initial losses whilst its competitors may not in reality be able to endure those.
79. There are several options to decide on the period of study in a DCF model. There is the option to set up the period based on the economic lifetime of relevant assets or the average customer lifetime. There is also the option to set up a very long period that includes the whole lifetime of business or multiple investment cycles. This is more relevant when developing a business valuation model but not suitable for regulatory purposes.

In general, almost all NRAs use a static model for narrowband and voice traffic services considering data from the last available accounting year that has been reviewed by the NRA. However, a few NRAs consider a static model with a shorter

³⁰ See ERG-WG RA (07), Principles of Implementation and Best Practice for Wacc calculation, February 2007.

period (months) or a DCF model with a period that relates to the average consumer life-time.

For broadband services, six NRAs state that they carry out a forward looking NPV analysis for which the time period differs. In the NPV analysis, the time period considered may be based on the average lifetime of an end user (estimated using churn data) or may be related to the period over which regulated wholesale prices remain unchanged.

E.3 MS Methodologies- specific issues raised by bundling

80. This section deals with aspects that are specific to MS tests when applied to bundles. It first looks into the reasons why such a procedure may be used and then summarises some of the issues raised in the questionnaire in connection to methodologies.
81. It is worth noting that competitors often complain to the NRA about their inability to compete with the SMP operator for customers of bundled products claiming that there is insufficient margin. This has led to NRAs being concerned about the potential for an SMP operator to MS and behave in an anti-competitive manner. As convergence progresses, there will be more bundled offerings and so concern in this area could increase.

The need for an *ex ante* MS procedure for bundles

82. In most cases where an *ex ante* MS procedure has been applied to bundles this has been because there already existed an *ex ante* MS procedure that covered at least one of the individual bundle components. Indeed, if an NRA had already considered the need for such a procedure at the individual service level, then if a large part of the demand for the service was indirect demand through bundled sales, the NRA would need to consider the bundle test to ensure compliance with the existing regulatory obligation. This is, having established the likelihood of foreclosure and the rationale for an exclusionary intent at the individual service level it may be difficult for the NRA to argue that such reasons were invalid in the case of bundles that included such individual services.
83. Similarly the success of retail bundling may challenge retail-minus price control obligations on individual upstream services. Where such obligations exist and bundling constitutes a large part of demand for individual services, NRAs may be forced to consider bundle prices and individual component costs in order to calculate the due approved margin.
84. One must note though that it may also be possible for an NRA to argue for the need for an *ex ante* MS test to be applied to bundles for which no *ex ante* MS procedure is carried out for any of their individual retail components.
85. Specifically, in the market definition exercise of wholesale markets which are key in providing bundled downstream services, even if there is an SMP operator, but no MS procedure is imposed, it may be that with new bundles, such a need arises. This is because there are advantages for an SMP firm in several wholesale markets, of mixing and matching such wholesale services, and these advantages simply do not exist for alternative operators that must purchase those services at regulated prices. In such

cases, NRAs, in assessing the possibility of a MS practice would only need to identify SMP for wholesale services. NRAs would not have to prove SMP on retail markets.

86. Hence, in some circumstances there may be merit in having an *ex-ante* MS assessment on bundled offerings. Specifically, if the SMP operator uses bundled offerings to price squeeze competitors in the market, then competition could be thwarted. However, as long as everyone has the possibility to replicate bundles and offer them to the public on a profitable sustainable basis, regulation is not necessary, since a level playing field would be in place. However, where this is not possible, the NRA may want to ensure access at the wholesale as well as the retail level to ensure replicability.

The aggregation level. (Should the margin be calculated for the whole bundle or for some bundle part?)

87. Once we have established where lies the need for an *ex ante* MS for bundles, we need to consider whether the test should be applied to the whole bundle or only to some bundle parts.
88. Where a bundle (pure or mixed) involves several regulated products from different markets, alternative operators would likely be able to market all the services in the bundle. Under these circumstances, it should be sufficient to consider the ~~joint~~ joint margin of all the included services in the bundle. Further, the SMP operator should be able to prove that full cost recovery at the individual market level would be maintained after introducing the bundle. This has the benefit of simplifying the analysis as no decisions need to be made about how to allocate revenues and costs among the bundle parts.
89. An exception to the previous statement would occur in the case that the margin squeeze test were applied to support the fixing of regulated wholesale prices, in a retail-minus fashion. In such a case, to check that the regulatory obligation is abided with, the NRA may need to assign individual margins within the bundle component.
90. In the case where competitors are already marketing bundles using the same components as the SMP operator (regardless of whether they are all regulated or not), then a ~~joint~~ joint margin test should suffice to check that those competitors are not being squeezed. This is, up to a point, the procedure chosen should be contingent on the business models chosen by the SMP competitors.
91. Where the bundle involves services from different markets some of which are regulated and some of which are unregulated and not available to competitors, then, revenue and cost information about the non-available services may need to be removed from the margin calculation to ensure that the ~~regulated~~ regulated products costs are recovered. Focusing solely on the regulated product set can ensure that the regulated product costs are recovered and the SMP firm is abiding by the regulatory obligation concerning such parts.
92. One insight from the previous paragraphs is that the type of test on bundles depends on the existing limits of competitors business models. For example, in the case of triple play offers, if there is no possibility for rivals to offer a TV service, then the test should remove from the triple play margin, the margin for the TV service. However, if such a service was available to competitors, then a joint margin test would suffice. The above suggests therefore that a regulatory assessment of which retail services can be reasonably marketed by an efficient or reasonably efficient competitor is needed.

93. In the case of relevant tying situations where the purchase of a product is conditional on another purchase, information is likely only to be available for the bundled product and the tied product.

Cost standard and bundling

94. The aggregation question has been much debated. A general conclusion from this debate is that whatever aggregation level is considered, it is necessary to only account for the appropriate incremental costs at that level of aggregation.
95. Here the notion of incremental costs is two-fold. It refers to the added costs incurred when a new component is added to a bundle (see paragraph 98), but also to the incremental costs as defined in paragraph 52. This is the costs that the vertically integrated SMP firm could avoid if it decided to close its downstream operations while continuing to provide the upstream input to third parties.
96. When the MS analysis requires the allocation of margins to bundled parts, one may need to consider whether current accounting separation obligations will be able to enlighten such allocation of costs

Upstream/Wholesale Offers

97. The upstream offers to be include in the test ought to relate to the retail offers previously defined as relevant. Whether downstream offers are replicable or not will depend on a number of factors, and in particular on whether access to the relevant inputs is possible, and reasonable, either via the regular operation of market incentive mechanisms, or through specific access regulation.
98. Where there is a direct relationship between the retail service provided and the wholesale services supplied by the notified operator, it is simple to identify the wholesale offer to be included in the test. However, when several distinct upstream services support relevant downstream services, then defining the relevant wholesale offers may not be an easy task.

As noted above, a key regulatory issue is to ensure replicability of downstream services that are key for competition. In checking whether this is the case, most NRAs analyse replicability on an individual service and input basis. In the case of voice services, interconnection costs are used, while for broadband services, a mixture of local loop prices and bitstream prices are used. Essentially, the mix is based on the usage of each wholesale solution.

99. For instance, two regulated wholesale offers may be used to provide broadband retail offers over the copper network: bitstream and unbundling of the local loop. Bitstream can be provided at different network levels (aggregation node, parent node, distant node). This means that different components or services of the same wholesale offer may be used to provide similar retail offers. Obviously, when there is no alternative infrastructure and access is mandated, the cost and network structure of alternative operators are dependent on the wholesale offers and any MS test should reflect this complexity.
100. In considering the relevant scope of wholesale offers to be included in the test, present and prospective wholesale offers to form the bundle, and the demand for the different

offers should be taken into account by the NRA. In addition, differences in national circumstances . i.e., the strength of the SMP operator, the presence of cable operators or a second infrastructure, etc.-, will have an influence in the ways in which NRAs deal with the MS test.

101. It is also possible that, in the same country, the development of electronic communication networks and the availability of different wholesale and retail offers . e.g. ULL, bitstream, cable offers, Naked DSL offers . differ significantly between different geographic regions. In this case, it may be appropriate to suit the methodology or the assumptions assumed for the MS rule to those different market conditions.
102. Related to wholesale services the issue has also been raised as to what to do if a bundled offer results in a MS and there is more than one regulated wholesale price involved. Different wholesale price obligations may imply different regulatory procedures in terms of timings for setting or changing wholesale prices. This may restrict the flexibility to change wholesale prices. The ability to adapt retail tariffs is much higher than that for regulated prices. Cost audits may help in setting regulated prices for wholesale services and usually have at least an annual duration. However, the retail prices of bundles could be modified several times a year through promotions or permanent reductions. This may thus pose a challenge to regulators if legal and procedural requirements imply that wholesale standard offers and prices cannot be changed quickly to reflect new downstream conditions³¹. In this instance, some sort of interim intervention in downstream markets may be needed so that in the due time, no harm occurs.

Margin Squeeze Tests for Bundles- the allocation of revenues and costs where a joint margin test can not be applied.

103. There are many ways in which one may allocate common costs to different bundle parts, ranging from accounting methods such as pro-rate apportionments or allocating costs depending on cost drivers. A full discussion of these methods and their implications is beyond the scope of this document. Here we merely point out at a criterion which implies that prices are subsidy-free.
104. An approach is to allocate the costs and revenues to the different bundle parts on a subsidy-free basis. Here the key concepts are incremental and stand alone costs. The incremental cost of a service is the additional cost that a multi-service firm incurs as a result of providing that service in addition to its existing services. For a firm producing two services, A and B, the incremental cost of service A, denoted by IC (A), is defined as:

$$IC (A) = C (A+B) - C (B)$$

where C (A+B) is the cost of producing services A and B together, while C (B) is the cost of producing service B on its own. C(B) is generally referred to as the stand-alone cost of service B. The approach used to assess subsidy-free pricing can best be attributed to Faulhaber (1975) and Baumol (1993 & 1996)³². Under this approach,

³¹ This happens for example, if such changes require public consultation or can only follow some cost auditing.

³² See G.R. Faulhaber, "Cross-Subsidization: Pricing in Public Enterprises", American Economic Review, (1975) Vol 65, pp 966-977; Baumol, W., "Predation and the Logic of the Average Variable Cost

prices are subsidy free provided that each customer or group of customers pays at least as much as the incremental costs associated with supplying it but not more than the stand alone costs.

105. A practical approach dealing with this issue is to use an *ortho test*. This test can be seen as using the methodological concepts of Faulhaber and Baumol. The test considers the incremental revenue and incremental cost of the more competitive market. For example, consider two services: A and B, and assume that B is the more competitive market. The *ortho test* considers the implicit price of B defined as the difference between the bundle price and the firm's price of A. The test is satisfied if the price is larger than an *implicit cost* for B (inclusive of wholesale prices), implying that in so far as some consumers wish to purchase B separately, alternative operators could *compete* with the bundle obtaining a reasonable margin. Note that if the price of A exceeds the price of the bundle or the bundle is pure the test will not be satisfied as such a strong discount entails that there is no possibility for rivals to compete.
106. The implicit cost of B considered in the *ortho test* can thus range between two values: the stand-alone cost of B³³ (so that all common costs would be taken into account and the test would not recognise any economies of scope) and the incremental cost of B³⁴ (so that in the test all the economies of scope would be attributed to B).
107. Some considerations may help in opting between those:
- (i). The strength of the firm's market power in A. If the firm's market power in A is really strong, alternative operators will not attain the same economies of scope, and so it is less reasonable to allow those savings to be reflected in the test for service B.
 - (ii) The degree of scope economies of the firm. If these are large, not allowing their consideration in the *ortho test* for one of the bundle parts, and especially when several *ortho tests* are carried out for several bundle parts, may indirectly impose *too high* a lower limit to the price of the bundle, implying that consumers do not profit from such discounts.
108. The key issue to recognise though is that as convergence progresses, economies of scope could also increase. Indeed if economies of scope are large enough, it may be the case that certain bundles merit a separate market definition exercise. It should be noted though that as long as bundles can be replicable, this is, when regulation reduces barriers to entry in key related wholesale markets, public authorities should refrain from intervention.
109. Finally, in order to allocate margins to specific bundle parts, NRAs might need to consider methods to allocate the bundle revenue. There are different ways to do this. However, to ensure that price-cost comparisons are meaningful, NRAs may need to ensure that the allocation rules for revenues are consistent with those chosen to allocate costs. For example, if incremental costs (*à la* Faulhaber/Baumol) are used, the

Test+Journal of Law and Economics, (1996), Vol. 49, pp 52-53 and Baumol: and Baumol W., *Quasi-permanence of Price Reductions: A Policy for Prevention of Predatory Pricing*, in Scherer, F. M., ed.. Monopoly and competition policy. (1993), Volume 2.

³³ This could be a short run variable stand alone cost or a *stand-alone* long run incremental cost, where *stand-alone* implies that these figures include some common cost.

³⁴ This could be a short run variable cost or long run incremental cost, with no consideration of common cost.

NRA may also need to allocate incremental revenues for that component. Similarly, if an accounting method is used to allocate common costs, the revenue allocation may need to reflect such a rule.

Efficiencies from selling in a bundle

110. There may be a case for NRAs in assessing the profitability of the bundle to consider the retail efficiencies/cost savings there may be in selling a bundle of retail products. Any such savings/efficiencies considered by NRAs in the profitability analysis should be supported by robust evidence.

The test as the unique factor determining the outcome of the analysis

A large number of NRAs that responded to the questionnaire said that to proceed to action, the MS test outcome was the only or main consideration used to decide whether a MS was likely.

111. However, on some occasions, the test outcome in isolation may result in an incorrect appreciation of the possibility that a specific offer or group of offers can foreclose the market to competitors. This can be the case for example, if the offers considered result in a negative margin, but only have a limited impact on the marketplace.
112. However, from an *ex ante* perspective it is difficult to assess the impact of offers on demand, and having a clear-cut rule such as the one used by NRAs increases certainty for all operators.
113. Despite this, in the case of bundles, the difficulties pointed out in the design of tests means that their sole use as determinants of a MS taking place may not always be suitable. In such circumstances one may wish to consider other indicators in assessing the likelihood that a MS occurs as a result of the marketing of a specific bundle that has failed the test.
114. Such indicators may relate to the possibility that foreclosure occurs as a result of the bundle being marketed. The possibility of foreclosure increases when the services that are bundled together are strong complements, undifferentiated from rivals' offers, directed to the mass market or to a specific group of consumers that are of special relevance to rivals. Also, the bundle is more likely to result in foreclosure if the discount is permanent and not of a promotional nature. Finally, the exclusionary attempt is more likely in markets where barriers to entry exist and barriers to exit are low.

Informational needs and legal framework

115. Despite an NRA's ability to request information or act when bundles include unregulated parts (see paragraph 30), carrying out routine *ex ante* MS tests is likely to be information-intensive. Data availability is the main challenge in any MS analysis. In the case of bundles, the data needs are increased as they comprise more services and relate to more wholesale markets. As convergent networks increase the proportion of common costs in the supply of communication services will increase, which means that further data will be needed. This will lead to a huge challenge in achieving a balance between the need for relevant information and the need not to create a disproportionate burden on operators and even NRAs.

F. Conclusions

116. The most likely situation where a margin squeeze practice may take place is where wholesale prices are regulated, some retail prices are left unregulated and where the marginal profitability of regulated upstream services is small relative to downstream service marginal profitabilities.
117. There are a number of methodological differences by NRAs to assess MS. This reflects in part differences national markets and divergences in NRAs objectives.
118. There are two tests: the equally efficient operator test and the reasonably efficient operator test. Their usage depends on the specific objectives of the NRA and the circumstances of the case. For example, if the market is mature and the main aim is to promote competition then there may be merit in using the REO test, but if there is a concern to protect investment and innovation incentives for the SMP operator then the EEO standard might be more suitable.
119. Evaluating the margin properly is important, and a good evaluation depends on how stable are costs. In situations where costs are stable, historical or current cost accounting may be used, but if markets are fast growing, LRIC may be more appropriate. In addition, NRAs must consider the stability of revenues and costs in deciding whether a static single-period or a dynamic multi-period (DCF) test should be used.
120. As convergence makes bundling more likely, the consideration of margin squeeze for bundled offers will become more prominent. As a wholesale SMP operator may use bundles to margin squeeze competitors at the retail level, assessing whether there is a MS on bundled offers can be important under the current regulatory regime.
121. Yet, the analysis of margin squeeze for bundles is complex because it may require the allocation of a common margin to bundled parts, involve several wholesale services, and span regulated and unregulated services. The analysis is information intensive and data availability is likely to be a challenge.
122. Given these difficulties, NRAs may find it useful to complement the use of the test with other indicators linked to the likelihood of an anticompetitive effect. For example (but not exclusively), the existence of demand complementarities, whether the price is of a permanent nature, or whether the bundle is targeted to a key demand segment.
123. There are a number of approaches for allocating margins to bundle parts. However, whichever rules are used, NRAs may need to ensure consistency between the methods to allocate costs and the ones used to allocate revenues.

Annex 1 Questionnaire details

The questionnaire was circulated on the 12 of June 2008 and the deadline for answers was the 21st of July. The following table indicates the response rate for each question (y is reported when the NRA responded to the question, n when it did not and ni when the NRA's answer was that it had no experience or information):

	1	2	3	4	5	6	7	8	9	a	b	c	d	10	11	12	13	14	15
Germany	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Austria	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	ni	y	y
Belgium	y	y	y	y	y	y	y	y	y	y	y	y	y	ni	ni	y	y	y	y
Croatia	y	y	y	y	y	y	y	ni	y	y	n	y	y	y	y	y	y	y	y
Denmark	y	y	y	y	y	y	ni	ni	ni	ni	ni	ni	y	y	ni	ni	y	ni	
Eslovenia	y	y	y	y	y	y	y	y	y	y	y	ni	y	y	y	y	ni	y	y
Spain	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	ni	y	y
Estonia	y	y	y	y	y	y	y	y	ni	ni	ni	ni	ni	ni	y	ni	ni	y	y
France	y	y	y	y	y	y	y	y	y	y	y	y	y	ni	ni	ni	y	n	y
Finland	y	y	y	y	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Greece	y	y	y	y	y	y	y	y	y	y	y	n	y	y	y	y	y	y	y
Hungary	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Ireland	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Italy	y	y	y	y	y	y	y	y	y	y	n	n	n	n	n	y	y	y	y
Latvia	y	y	y	y	y	n	n	n	n	n	n	n	n	n	n	n	y	y	n
Poland	y	y	y	y	y	y	n	y	y	n	n	n	y	y	y	y	y	y	n
Lituania	y	y	y	y	y	y	y	n	n	n	n	n	n	n	n	n	n	y	y
Portugal	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
UK	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Slovak republic	y	y	y	y	y	y	n	n	n	n	n	n	n	y	y	y	n	ni	ni
Sweden	y	y	y	y	y	n	n	n	n	n	n	n	n	n	n	n	n	y	n
Czech Republic	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Romania	y	y	y	y	y	y	y	y	y	y	n	n	y	y	y	y	y	y	y
Switzerland	y	n	y	y	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Turkey	y	y	y	y	y	y	y	n	n	y	n	n	n	n	n	n	n	y	y

Questionnaire questions

SECTION . Short description of current obligations based on the existing market analysis.

On bundles:

1. Have you imposed to the SMP operator any obligation not to unduly bundle? If yes, is this obligation valid for all retail markets?
2. Do obligations exist on the SMP operator to provide relevant wholesale offers so the other operators are able to replicate any bundled retail offer?

On margin squeeze:

3. Do you have a procedure to perform an ex-ante MS analysis? If no: Why don't you have any ex-ante margin squeeze analysis?
4. Do you run ex ante MS tests? Is this the only/main consideration in your MS analysis?
5. Do you run an ex -ante MS analysis on bundles?

6. Please describe the procedure followed in case of confirming the existence of an anti-competitive practice. (Can/Does the NRA forbid the offer? Can the NRA change upstream prices in a flexible and quick way? Which upstream prices are changed if the product is a bundle or supplied using a mix of regulated wholesale services? Do you transfer the case to the Competition Authority? How do you proceed if the results of the analysis fall in the grey zone?)

SECTION B. Short description of methodologies

If you currently run a MS analysis or plan to set up this type of procedure, please answer the following questions regarding your practice. Even if you don't run or plan to run MS analysis please feel free to express your views.

7. Is your ex ante MS procedure applied systematically to certain offers or rather on an ad-hoc basis? Which markets are affected by this procedure?

8. How did you identify the retail and wholesale markets where the procedure had to be applied?

(For example: Do you consider that an SMP position in the upstream market is indispensable to engage in the MS analysis?, Does the market power of the firm in downstream markets affect the fact that the NRA engages in the MS analysis?, Does the consideration of the market being emerging affect the fact that the MS analysis is undertaken? Do you have a definition of emerging market in this respect?)

9. If you run a MS test,
- a. Do you run it on a specific offer or group of offers? How do you decide?
 - b. What period length do you consider for the test? (last accounting year, a number of years...). Which principles guide you on this?
 - c. On costs
 - i. Do you use an Equally Efficient operator standard or a Reasonably Efficient Operator standard? Why?
 - ii. Do you use cost information of the SMP firm only?
 - iii. What is the cost basis (LRIC or other?)
 - d. On relevant wholesale prices (bundled offers)
 - i. How do you define the relevant wholesale prices in the case of bundles? Do you use a mix of wholesale prices that can be used to produce the bundle? (Example LLU/ WBA/ mobile termination other?)
 - ii. What if some of the relevant wholesale markets for the bundle are unregulated?
10. What happens if the bundle includes fixed and mobile services?
11. In the case of bundles, how do you tackle the issue of cross subsidies?
12. What happens if a bundle includes telecom and non-telecom services? How would you analyze this offer?

SECTION C. Short description of possible future obligations based on the new market analysis.

13. What are your expectations regarding ex-ante margin squeeze analysis resulting from new market analysis?

SECTION D. Convergence and Margin squeeze analysis

14. Do you consider that the development of convergence increases the relevance and importance of performing margin squeeze analysis in bundled offers? Why?
15. What do you think that will be the main challenges for margin squeeze analysis when trying to examine converged bundles? How to overtake/minimize these challenges?