Nkom
Norwegian
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Authority

Annex 2

Principles for margin squeeze tests in Market 15

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Contents

1 Introduction

The Norwegian Communications Authority (Nkom) designates Telenor as a provider with significant market power in the market for access and call origination on public mobile networks (Market 15), and imposes special obligations on Telenor pursuant to chapter 4 of the Electronic Communications Act. Among other things, Telenor is directed to meet all reasonable requests for access in the relevant market. The decision states that requests for service provider access, national roaming and MVNO access will normally be regarded as reasonable. Further, price controls are imposed on Telenor in the form of a prohibition on margin squeezes for the three forms of access. For national roaming and MVNO access this entails a prohibition based on a full margin squeeze test, while price controls for service provider access entails a requirement to a positive gross margin. This document describes the principles that margin calculations are to be based on.

The prohibition on margin squeezes under section 4-9 of the Electronic Communications Act will be monitored through margin squeeze tests. The margin squeeze tests will be conducted according to the principles described below and using the margin squeeze model that follows from the appendix to the decision. The margin squeeze model is a tool that at each time of testing should be adapted to the relevant parameters that, in accordance with the principles, are involved. The purpose of the margin squeeze tests is to uncover whether buyers of imposed access in Telenor's mobile network can achieve a positive margin by offering products that are equivalent to representative parts of Telenor's product portfolio in the retail markets. The model estimates the access buyer's margin by comparing the retail revenues that a buyer of access is expected to achieve by providing similar retail products to Telenor with the access buyer's estimated costs linked to providing these products, including the cost of buying access.

It follows from the decision that Nkom imposes differentiated price regulation for the different access forms. In the analysis Nkom has defined the following five retail markets:

- Residential market for bundled telephony mobile services
- Business market for bundled telephony mobile services
- Residential market for mobile broadband
- Business market for mobile broadband
- The market for M2M communication in mobile networks

For national roaming the margin squeeze test will be performed for the residential and the business markets combined. For MVNO the margin squeeze tests will be performed for a combination of the residential market for bundled telephony mobile services and the residential market for mobile broadband, and a combination of the business market for bundled telephony mobile services and the business market for mobile broadband. For service provider there will be performed gross margin tests on product level for representative products.

Chapter 2 provides a brief definition of margin squeezes. Chapter 3 explains the principles and assumptions on which Nkom will base the use of margin squeeze tests as tools to monitor Telenor's obligation to have access prices that ensure that buyers of access do not experience margin squeezes. The principles have been developed to conduct margin squeeze tests that are apt to remedy the competition problems explicated in the competition analysis, and they enable tests that will uncover whether different types of buyers of access are experiencing margin squeezes.

2 Definition of margin squeeze

BEREC says the following about a margin squeeze situation: "*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*."[1] In a situation with margin squeeze, competitors are unable to both offer the same retail prices that the provider with significant market power can and achieve a profit.

A full margin squeeze test is passed if the difference between relevant revenues and wholesale costs are higher than downstream costs, including returns on invested capital. The requirement can also be stated as a requirement that relevant revenues from the retail operation, including revenues from termination, less relevant access costs, termination costs and costs related to the retail operation, must lead to a positive result. A gross margin test is passed if relevant revenues from the retail operation, including revenues from termination, exceed the relevant access costs and potential termination costs[2]. Where there are complex price structures in the retail and wholesale markets, the relevant items may consist of combinations of product-related revenues and costs.

[1] See ERG (2009) p. 2. (ERG has now been replaced by BEREC).
[2] Termination revenues and costs will normally not accrue for a service provider.

3 Principles for the use of margin squeeze tests in Market 15

In this chapter, Nkom explains the principles that will be used for margin squeeze tests.

3.1 Efficiency levels and scale adjustments

A margin squeeze test includes a methodological choice of efficiency level of the reference operator. A decision must be made about whether the efficiency level of the reference operator shall be comparable with the scale (and implicitly with the efficiency level) of the regulated provider, or the scale (and implicitly with the efficiency level) of a generic (alternative) operator.

Margin squeeze can be identified using three approaches that rely on different principles. An equally efficient operator (EEO) approach means that the test presumes that the reference operator has the same scale and efficiency as the regulated provider. The data set of the regulated provider will thus become the basis for the test. In a reasonably efficient operator (REO) approach, the test will presume a scale and efficiency of an efficient alternative operator, and thus use the data set of alternative operators. The third approach is an adjusted EEO test. An adjusted EEO test uses data from the regulated provider as a starting point, but opens for adjustments considered necessary to make the test realistic from the point of view of the buyer of access.

Based on the fact that the price obligations aim to ensure equal terms of competition in the retail markets for efficient operators, and based on the fact that the other operators differ significantly from Telenor in their market shares and wide scope of service production, indicates that the margin squeeze tests in Market 15 should be based on an adjusted EEO. Among other things, selecting the adjusted EEO principle entails that buyers of access that have a significantly lower market share and cannot fully utilise economies of scale are allowed higher unit costs without this being considered a cost inefficiency.

Nkom believes that the use of the adjusted EEO principle for margin squeeze tests in Market 15 will be appropriate given the purpose of the regulation.

For these reasons, Nkom will base margin squeeze tests in Market 15 on the principle of adjusted EEO. This means that Telenor's data is used as a starting point and that scale adjustments will be made where necessary for the regulation to fulfil its purpose.

3.1.1 Relevant scale adjustments

The adjusted EEO principle requires that decisions are made on which size, measured as market share, should characterise the reference operator.

In its recommendation on termination rates[3], the EFTA Surveillance Authority (ESA) found that a mobile operator's scale advantages are exhausted at a market share of around 20 per cent[4]. This finding is based on the assumption that a new market entrant will be able to achieve this kind of market share within three to four years. A buyer of national roaming is dependent on having its own frequencies to be able to use its own mobile network. Nkom finds that an operator using national roaming will need to achieve a higher market share than an MVNO in order to efficiently exploit its investments. An MVNO is not dependent on having its own frequencies and will base much of its traffic production on input factors from the host operator. Nkom therefore finds that the efficiency requirement, measured by market share, cannot be as high for an MVNO as for an operator that uses national roaming. Nor must this requirement be set too low, such that it is inconsistent with the goal of ensuring that establishment is only attractive to efficient providers.

In Nkom's assessment, it will be appropriate to apply the same limits as ESA for the access form national roaming. There are fewer such guidelines for MVNOs. Operator-specific cost models were prepared in connection with Nkom's decision of 27 September 2010 in the wholesale markets for termination in mobile networks (Market 7). In addition a cost model was also developed for a hypothetical efficient MVNO. In this context Nkom found that an efficient MVNO had a market share of 5 per cent. In Nkom's opinion, using this market share when performing margin squeeze tests of MVNO access would be appropriate and consistent with the assumptions that has been underlying the regulation of Market 7. Nkom believes that the same conditions that are applicable to the assessment of threshold values for MVNOs are also applicable to service providers, which like MVNOs also need limited infrastructure investments.

For these reasons, Nkom will base margin squeeze tests on a 20 per cent market share for a buyer of national roaming, on a 5 per cent market share for a buyer of MVNO access and on a 5 per cent market share for buyers of service provider access. Market shares are normally measured based on the number of subscriptions.

Relevant scale adjustments also imply an adjustment of cost structures which follows naturally from differences in scale, cf. chapter 3.6.

3.2 Representative retail products

A key issue in the design of margin squeeze tests is which retail products to include in the tests. Nkom believes the retail products included in the tests shall be representative of the competitive landscape in the markets being tested.

[3] http://www.eftasurv.int/media/internal-market/ESAs-Recommendation-on-termination-rates.pdf
[4] Cf. The ESA Recommendation, paragraph 17, and Annex.

Nkom has assessed whether it is most appropriate to test for Telenor's total product range[5], all product that are for sale, or a representative selection of products. Based on the knowledge to Telenor's portfolio Nkom has decided to test a representative selection of products.

A basis for identifying representative products to be included in the margin squeeze tests will be the products that cumulatively constitute 70 per cent of the number of subscriptions in each of the markets that are subject to margin squeeze tests, and the products that constitute at least 10 per cent of the number of subscriptions in the relevant markets. The shares are calculated based on the subscription distributions close up to the time of the tests.

If Telenor launches new products that largely aim to replace products that have been included as representative products, it may be appropriate to include these in the test, normally by assuming usage patterns that correspond to the earlier, comparable products.

3.2.1 Usage patterns and subscription distribution

When choosing the representative retail products it is necessary to decide the basis on which relevant usage patterns are to be determined. Since the products covered by the margin squeeze test are largely bundled products that include a given volume of voice, SMS and data for a fixed monthly price, the assumptions about the consumption of the three services will have a major impact on the results of the margin squeeze tests.

Nkom believes that determining the relevant usage patterns based on the usage patterns of the end users who actually use the products included in the margin squeeze tests will be well suited to determining whether buyers of access with the current access prices can profitably replicate Telenor's retail portfolio. This means that the margin squeeze tests will normally be carried out based on the usage patterns of Telenor's customers.

For the subscription distribution, Nkom has concluded that this should be set using Telenor's actual subscription distribution as a point of departure, and that the tested products are to be given a relative weight corresponding to Telenor's customer base.

3.3 Price / revenue basis at the retail level

The modelled retail revenues in the margin squeeze model are a function of price and volume, either by an explicit calculation within the model, or based on calculation from Telenor's data warehouse. In connection with revenue modelling, Nkom has attached importance to ensuring

[5] Including all of Telenor's brands. At the time of decision this includes: Telenor, Djuice, Talkmore and Dipper.

that as far as possible the figures are verifiable, at the same time as the modelled revenues should be realistic.

Retail revenues can be generated by subscriptions and various types of traffic, and also by other services such as international roaming and sales of handsets[6]. Traffic to special numbers and other content services originating on mobile networks may also be produced using the services encompassed by the regulation of Market 15. However, revenues from subscriptions and voice and SMS traffic originating in Norway, together with data traffic produced on the basis of the regulated services, constitute the main components on the revenue side of the model.

The revenue basis is modelled using information from Telenor, based on the data collection done ahead of each test, possibly supplemented by relevant list prices. Data collection includes information about revenue from the retail operation, rebates, campaigns, the impact of lock-in periods, etc., so that the test provides the most realistic picture possible by taking rebates and campaigns into consideration.

3.4 Wholesale products

The purpose of the margin squeeze tests is to verify whether the prices of Telenor's regulated access products are in compliance with the obligation to offer access prices that do not cause buyers of access to experience margin squeezes. In the decision, Telenor is directed to meet reasonable requests for service provider and MVNO access, as well as access to national roaming. The wholesale products covered by a complete margin squeeze test are MVNO access and access to national roaming. The access products are regarded as essential input in the retail products covered by the margin squeeze tests. The pricing of service provider access must fulfil the requirements to a positive gross margin and is therefore included in a gross margin test.

3.5 Price basis at the wholesale level

Wholesale revenues included in the margin squeeze tests will primarily be revenues from voice call and SMS termination. Termination costs[7] for voice and SMS is also included in the margin squeeze tests. The price basis for voice termination revenue and costs will be the applicable maximum price as set in Nkom's decision in Market 7.

[6] Retail revenue stemming from sale of handset is excluded from the gross margin tests.
[7] Termination revenues and costs will normally not accrue for a service provider.

The setting of access costs will normally be based on Telenor's reference offers for the regulated forms of access. The reference offers can thus be seen as setting an upper limit on the total price terms that a reasonable request for access can be met with. Volume discount which follows from the reference offers are included in the calculation of access costs. In light of this, the margin squeeze tests will normally use the terms and conditions in Telenor's reference offers for service provider access, MVNO access and national roaming respectively. For each test for each of the respective forms of access, the access agreement that complies with traffic related (variable) prices shall be used.

In the first instance, a test of the terms for national roaming will be performed as an MVNO test with an assumption of 20 per cent market share. However, the decision states that the degree to which the provider has its own coverage and traffic in its own network may be an objective issue that can justify different price terms. Version 8 of the LRIC model calculates network costs, and based on this model Nkom has calculated how access costs can increase in step with a reduced share of access purchases. The first point for a possible price increase occurs when the buyer of access purchases less than 50 per cent of its traffic from the host operator. The price calculated for a buyer of access that buys traffic from Telenor can increase by a factor of 1.2 if the purchase of access represents less than 50 per cent of the access buyer's traffic. If a buyer of access requests purchases that are less than 20 per cent of its traffic, the factor may be 1.9. These factors may be affected if an updated LRIC model is developed during the regulatory period.

3.6 Costs for retail operations

A buyer of access who is going to replicate the products included in the full margin squeeze tests will also incur other costs in addition to the access charge. Such costs will primarily be costs related to its own retail operations. The setting of costs for retail operations is based on Telenor's costs as these are reported in the accounting separation. Based on the information from Telenor and alternative operators, Telenor's reported costs are adjusted to reflect the scale of the reference operator. The adjustments affect the distributions between fixed and variable costs and the assignations of costs to the residential and business markets, and follows the principle of adjusted EEO. The scale adjusted costs are used in the margin squeeze tests and the exact distributions between fixed and variable costs follow from the model.

The following overview shows the cost categories used in a full margin squeeze test:

Cost category
Mobile handset (external cost)
Number portability (external cost)
Other costs (external cost)
Sales, of which:
Commission
Other sales costs
Marketing
Customer service
Management & Administration, of which:
IS
Other management and administration
Invoicing
Postage costs
Project management
Service platforms
Depreciation
Costs of capital

3.7 Relevant time frame

Decisions regarding what time frame to use in margin squeeze tests will usually be based on an assessment of the maturity of the market. The margin squeeze model is a tool that, at each time the test is run, should be adapted to the relevant parameters that, in accordance with the principles, are involved. It will therefore be dynamic so that the model is adapted, for example if the access agreements that are to be tested are amended or changed. The choices are a static perspective or a dynamic perspective. The mobile market in Norway is regarded as mature, combined with an underlying growth in selected mobile services, primarily data traffic. The underlying growth is not expected to have a different effect for the different operators or buyers of access.

The use of a static perspective in margin squeeze tests means that revenues and costs are modelled over a defined period. Margin squeeze tests carried out in mature markets tend to use a static perspective[8]. One advantage of a static perspective in margin squeeze tests is that uncertainty is reduced; in addition, the results are easier to generate.

[8] "Applied Margin Squeeze Study, Final Report for The Norwegian Post and Telecommunications Authority, 19.01.2010, Copenhagen Economics", page 43.

Alternatively revenues and costs can be determined on the basis of a dynamic perspective that includes future cash flows in a longer-term perspective. It is relevant to use a dynamic time frame if the dynamics of the market indicate that there will be large annual variations in cash flows. A dynamic perspective makes testing significantly more complex, in part as assumptions must be made regarding future revenues, costs and cash flows. In addition using a longer time frame can reduce the ability of margin squeeze tests to capture temporary margin squeeze situations.

Based on the assessments set out above, particularly those related to market conditions, Nkom has concluded that the revenues and costs that are to be included in the margin squeeze tests shall be determined for a defined period. The actual test will in practice be a test of an average month and will therefore use a historical time series for traffic volumes and costs. A period of 12 months is appropriate as it corresponds to accounting periods, statistics periods and other reports, and data collection will therefore normally cover 12 months.

3.8 Concrete implementation of margin squeeze tests

Nkom has collaborated with Analysys Mason to develop a model for implementing margin squeeze tests. To verify a prohibition on margin squeezes, Nkom believes that it will generally be sufficient to perform margin squeeze tests twice a year. For this reason, every six months and at a reasonable period in advance of when the information must be provided, Nkom will send Telenor an overview of the information the company must provide on 1 April and 1 October. Telenor will normally have to provide information about the following elements:

- Up-to-date subscription distribution for all call plans / retail products.
- Information about retail prices, traffic, subscriptions, revenues and costs for products included in the test.
- Current prices and current rebates for access products for service provider access, MVNO access and national roaming.

The information necessary to perform margin squeeze tests must be seen in light of developments in the retail and wholesale markets. The above list must therefore not be understood to be exhaustive. Input data for the model not discussed here will not be updated in the regulatory period unless unforeseen events necessitate updates.

Nkom's tasks related to updating elements included in margin squeeze tests will normally be as follows:

- Update termination prices based on the applicable regulation at any given time.
- Set the weighting of products included in the margin squeeze tests based on Telenor's information about subscription distribution.
- Update usage patterns based on information from Telenor.

- Update relevant prices, revenues and costs.
- Reconcile costs for the retail operations with the most recently updated report on the accounting separation from Telenor.

On each reporting date, Nkom will have to assess which activities are necessary when performing margin squeeze tests. The list of Nkom's tasks must therefore not be understood to be exhaustive.