Nasjonal
kommunikasjons-
myndighet

Principles for margin squeeze tests in Market 15

Annex 2

Case 1804194

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Contents

1 Introduction

The Norwegian Communications Authority (Nkom) designates Telenor ASA (Telenor) as a provider with significant market power in the market for access and call origination on public mobile communications networks (Market 15), and imposes special obligations on the company pursuant to Chapter 4 of the Norwegian Electronic Communications Act (ekomloven). Among other things, Telenor is required to meet any reasonable request for access within the relevant market. The decision states that requests for service provider access, national roaming and MVNO access will normally be regarded as reasonable. Furthermore, Telenor is subject to price regulation as a prohibition of margin squeeze for the three access forms, cf. Section 4-9 of the Electronic Communications Act. For MVNO access, this entails a prohibition based on full margin squeeze tests, while price regulation for service provider access entails the requirement of a positive gross margin. For national roaming, Nkom requires that the prices for national roaming should not be higher than the prices for MVNO access. Nkom will not perform separate margin squeeze tests for national roaming. This document describes the principles on which margin calculations are to be based.

Section 4-9, second paragraph, second sentence, of the Electronic Communications Act states that the Authority may impose the obligation on a provider to document that the prices are in accordance with the obligations[1]. The prohibition against margin squeeze will be tested using margin squeeze tests. At the scheduled times, and in connection with any extraordinary tests, Telenor will be required to disclose information necessary to perform the tests.

The margin squeeze tests will take place according to the principles described below and using the margin squeeze model presented in the annex to the decision. The purpose of the margin squeeze tests is to reveal whether buyers of regulated access from Telenor can achieve a positive margin by offering products that are equivalent to representative parts of Telenor's product portfolio in the retail markets. In the model, margins are calculated for a reference operator by comparing end-user revenue that Telenor achieves for the representative range of products included in the margin squeeze test with an access buyer's calculated costs associated with offering these products, including the costs of the purchase of access.

Nkom imposes differentiated price regulation for the different access forms. In the market analysis, Nkom has defined the following four end-user markets as the basis for the derived wholesale market:

- Residential market for bundled mobile services

[1] The preparatory remarks (Proposition no. 58 to the Odelting (2002-2003), p. 106, state: *"The provider must be able to document that the prices are in accordance with the authorities' requirements. The reason for imposing this requirement of a 'reverse burden of proof' is that the Authority does not have the same information base as a provider."*

- Business market for bundled mobile services
- Residential market for mobile broadband
- Business market for mobile broadband

For MVNO access, the margin squeeze tests will be performed for a combination of the residential market for bundled products and the residential market for mobile broadband, and a combination of the business market for bundled products and the business market for mobile broadband. For service provider access, gross margin tests will be performed at product level for representative end-user products.

Chapter 2 provides a brief definition of margin squeeze. 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 access buyers do not experience margin squeeze. The principles have been developed in order to perform margin squeeze tests that are suitable to alleviate the competition problems described in the competition analysis, and they enable tests that will reveal whether access prices lead to margin squeeze.

2 Definition of margin squeeze

BEREC states the following concerning 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*."[2] In a situation with margin squeeze, competitors are unable to offer the same retail prices as the provider with significant market power, and achieve a profit at the same time.

A full margin squeeze test is passed if the difference between relevant revenue and wholesale costs exceeds the downstream costs, including a return on invested capital. This can also be stated as a requirement that relevant revenue from the retail business, including any revenue from termination, less relevant access costs, termination costs and costs related to the retail business, must lead to a positive result. A gross margin test is passed if relevant revenue from the retail business, including any revenue from termination, exceeds the relevant access costs and any termination costs[3]. Where there are complex price structures in the retail and wholesale markets, the relevant items may consist of combinations of product-related revenue and costs.

[2] See ERG (2009) p. 2. (ERG has now been replaced by BEREC).
[3] Termination revenue and costs will not normally be incurred 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 applied to margin squeeze tests. The principles are categorised as either conceptual or operational. Conceptual principles are independent of the concrete design of the margin squeeze model. Operational principles specifically describe what information is used in the margin squeeze test and are thus more closely related to the margin squeeze model.

3.1 Conceptual principles

3.1.1 Efficiency standard

When margin squeeze tests are performed, an efficiency standard must be defined to determine the type of 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) provider.

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 be the basis for the test. In a reasonably efficient operator (REO) approach, the test will presume the scale and efficiency of an efficient alternative provider and thereby use the data set of alternative providers. A third approach is an adjusted EEO test. An adjusted EEO test uses data from the regulated provider as the starting point and makes the necessary adjustments so that the test for the reference operator sets requirements that are considered to be realistic for an access buyer in the relevant market.

Based on how the price obligations are aimed at ensuring equal terms of competition in the retail markets for efficient operators, and since access buyers differ significantly from Telenor in terms of their market shares and breadth of service production, there is much to indicate that the margin squeeze test in Market 15 should be based on REO or adjusted EEO. The REO principle is assessed, but not preferred, since the necessary information basis is not sufficiently robust or durable. Adjusted EEO will achieve many of the same benefits as REO, but will be based on information from Telenor that has many years of historical data related to regulatory accounting reports to Nkom. Among other things, selecting the adjusted EEO principle entails that access buyers that have a significantly lower market share and cannot fully utilise economies of scale to the same degree as Telenor 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.

On this basis, Nkom will base margin squeeze tests in Market 15 on the principle of adjusted EEO. This entails 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.

Principle 1 Efficiency standard

To determine the efficiency standard for reference operators in margin squeeze tests, the adjusted EEO principle is applied.

3.1.2 Relevant scale adjustments

The adjusted EEO principle requires consideration of the size, measured in market share, that characterises the reference operator.

In Nkom’s decision 1 July 2016 the principle of efficiency standard meant 5 per cent market share for MVNO and service provider. This was determined on the basis of historical assessments related to markets for voice call termination on mobile networks. With information on market development, Nkom has a significantly better basis for making renewed assessments on what should be realistic efficiency standards in the Norwegian market. The market development in Norway show that access buyers have significant challenges in obtaining high market shares. The regulation should be designed to facilitate efficient providers starting without significant market share. In this regulation, the efficiency requirement when testing price terms for MVNO and service provider access will be 3 per cent market share in the business markets and 3 per cent market share in the residential markets.

Market shares are normally measured based on the number of subscriptions.

Relevant scale adjustments will also entail the adjustment of cost structures as a natural consequence of differences in scale, including fixed and variable costs.

Principle 2 Scale adjustment

The margin squeeze test for the MVNO and service provider access forms assumes reference operators with a 3 per cent market share in the business markets and a 3 per cent market share in the residential markets.

3.1.3 Wholesale products

On determining access costs, the margin squeeze tests will normally be based on Telenor's reference offers for the regulated access forms. The reference offers can be considered to set an upper limit for the overall price terms that can be set in response to a reasonable request for access. Volume discounts under the reference offers are included in the calculation of access costs. On this basis, the margin squeeze tests will normally use the terms and conditions in Telenor's reference offers for service provider access and MVNO access, respectively. For each test for the respective access forms, the reference offer that meets the requirements for traffic-dependent (variable) prices will be used.

Principle 3 Wholesale products

Margin squeeze tests are assumed to test Telenor’s reference offers with traffic-dependent prices for MVNO access and service provider access.

3.1.4 Relevant time perspective

Decisions regarding which time perspective to use in margin squeeze tests will usually be based on an assessment of the maturity of the market. 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 assumed to have a different effect for the different mobile operators or access buyers.

The use of a static perspective in margin squeeze tests means that revenue and costs are modelled for a defined period. Margin squeeze tests performed in mature markets will often apply a static perspective[4]. One advantage of a static perspective in margin squeeze tests is that uncertainty is reduced; in addition, the results are easier to generate.

Alternatively, revenue 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 apply a dynamic time perspective 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 revenue, costs and cash flows. In addition, using a longer time frame can reduce the ability of margin squeeze tests to capture more temporary margin squeeze situations.

Based on the assessments set out above, particularly those related to market conditions, Nkom has concluded that the revenue and costs to be included in the margin squeeze tests must 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 up to 12 months is appropriate as it corresponds to accounting periods, statistics periods and similar reports, and data collection will therefore normally cover up to 12 months. Yet this does not preclude the use of data covering a shorter period of time, including for Telenor's subscription distribution, revenue and costs. This will, among other things, apply if a usage

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

pattern 12 months back in time will not be representative of the competition situation in the market close to the time of the test. Nor does this preclude that information that is related to a full-year period may include information that extends more than 12 months back in time, at the time of the margin squeeze test. Normally, however, information concerning subscription distribution, revenue, volume and access costs will be delimited to six months preceding the time of the margin squeeze tests.

Based on the ever-increasing use of mobile data, there is also a need to investigate the development in a forward-oriented perspective. Nkom will therefore supplement the periodic margin squeeze tests with parallel tests that normally require data growth equivalent to the development in Telenor's customer portfolio that is included in the margin squeeze test. In concrete terms, parallel tests will be like the ordinary tests, but with a difference in the modelled volume of mobile data. These parallel tests are used mainly for information purposes and will be an appropriate indicator of whether Telenor's access prices will yield positive margins in the coming period. The results of such tests can thus be included in the assessment of the need for extraordinary tests. These parallel tests are not considered to be an independent basis for imposing a rectification requirement.

Principle 4 Time perspective

Margin squeeze tests require the use of information in a static perspective, normally up to 12 months retroactively. Information about subscription distribution, revenue, volume and access costs will normally be restricted to six months.

Parallel margin squeeze tests for information purposes, in order to assess margins in coming periods, will be performed concurrently with ordinary margin squeeze tests and will normally apply the assumption of growth in the use of mobile data equivalent to the development in Telenor's customer portfolio included in the margin squeeze test.

3.1.5 Frequency for conducting margin squeeze tests

In order to test the margin squeeze prohibition, Nkom believes that it will in principle be sufficient to perform margin squeeze tests twice a year. On this basis, at six-monthly intervals and in reasonable time before the information is to be made available, Nkom will send Telenor an overview of the information the company must provide on 1 April and 1 October, respectively.

In addition to the standardised margin squeeze tests, it may be relevant to perform tests at other times. This is particularly relevant in the following situations:

- Telenor changes one or more of its wholesale prices
- Telenor introduces a new wholesale product

- Access buyers or other competitors submit justified grounds for major market changes related to costs, prices and customer distribution, which would have led to other results than the original margin squeeze test.

On assessing whether the test should be performed more frequently, a proportionality assessment must be made. In such a proportionality assessment, weight should among other things be given to the following:

- The consideration that the access buyer must be able to offer its products in the retail markets based on access agreements with Telenor, without the access buyer being subject to margin squeeze when the access buyer replicates Telenor's representative products.
- The consideration that the market operators directly affected by the regulation should have a certain degree of stability and predictability.
- The consideration that actual prices, costs and demand must be relevant for the competition situation and thereby included in the margin squeeze calculations within reasonable periods of time.
- The consideration of whether any tactical price changes might undermine the purpose of the regulation.
- The consideration that a margin squeeze calculation creates administrative work that imposes implied costs on all parties (Telenor, alternative providers and the supervisory authority).

Principle 5 Frequency for conducting margin squeeze tests

As a general rule, margin squeeze tests will be performed at six-month intervals, with data collection as of 1 April and 1 October. Tests may be performed more frequently if the market development and proportionality considerations indicate that this is necessary.

3.1.6 Representative retail products

A key issue relating to the design of margin squeeze tests is which retail products to include in the tests. Retail products included in the tests must be representative of the competition situation in the markets that are tested.

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

[5] Products from Telenor's internal brands. At the current time, the brands concerned are Telenor, Talkmore and Dipper.

The selection of representative products will be based on a number of assessments, and a renewed assessment of which retail products are representative of the competition situation and should be included in the margin squeeze tests, must be made whenever the tests are performed. As a starting point, Nkom considers it appropriate that the margin squeeze tests include around 70 per cent of the number of subscriptions in each of the retail markets. In addition, products that accounts for at least 10 per cent of the number of subscriptions in the relevant end-user markets, will normally be viewed as representative. The shares are calculated on the basis of the subscription distributions at a time near to the test.

On assessing whether retail products are considered to be representative of the competition situation in the market, weight must among other things be given to whether the product is sold, whether the product is offered to new customers at a campaign price, and whether the access buyers have equivalent products that compete directly with Telenor’s product. The aforementioned criteria are not exhaustive. It is of great importance that the product is subject to competition in the relevant retail market.

If Telenor launches new products that to a great extent are intended to replace products that have been included as representative products, it might be relevant to include these products in the test, normally by assuming usage patterns that correspond to the earlier, comparable products, or by including the new products with a share that includes the share of the preceding products.

Telenor’s product offerings are subject to change, based on the company's commercial assessments. In the residential market there is normally a wide range of products. Several product series bear the same name and are distinguished by the size of data quotas included. There are relatively few products in the business market, and the same product is thus included in company agreements that differ considerably from each other. Nkom has received information from Telenor in order to gain a better insight into how business agreements are designed. Nkom is concerned that testing a product in the business market that is used by a highly diversified customer portfolio can be less reliable. Nkom has therefore assessed whether the margin squeeze tests in the business markets should require retail products at a less aggregated level, particularly in the light of competition problems in this part of the market and the position held by Telenor. Based on a comprehensive assessment, Nkom has concluded that it is currently considered proportionate to also assume the product level for the testing of retail products in the business markets. Nkom is monitoring the development closely, however, and will assess whether selected levels of representative retail products are proportionate throughout the regulation period.

Principle 6 Representative retail products **Retail products to be included in the margin squeeze tests must be representative of the competition situation in the markets that are tested. This is assumed to be products that constitute around 70 per cent of the number of subscriptions in each of the retail markets, as well as products that alone account for at least 10 per cent of the number of subscriptions.**

3.2 Operational principles

3.2.1 Usage patterns and subscription distribution

In connection with the choice of representative retail products it is necessary to consider the basis on which relevant usage patterns are to be determined. Since the products subject to the margin squeeze test are predominantly bundled products that include a given volume of voice, SMS and data, at a fixed monthly price, the assumptions concerning the use of the three services will be of great significance to the results of the margin squeeze tests.

Nkom believes that determining the relevant usage pattern based on the usage patterns of the end users that actually use the products subject to the margin squeeze test will provide a good basis to assess whether buyers of access at the current access prices can profitably replicate Telenor’s retail products. This entails that the margin squeeze tests will normally be performed on the basis of Telenor’s customers’ usage patterns.

Concerning the distribution of subscriptions, Nkom has concluded that this should normally be determined on the basis of Telenor’s actual subscription distribution, and that the tested products should be given a relative weight corresponding to Telenor’s customer base. In cases where new calli plans are introduced and these are intended to fully or partly replace previous call plans, and it is appropriate to test only the new call plans, the relative weight of new call plans could be increased accordingly. The relative weight given to the tested products will therefore have to be assessed for each time the margin squeeze tests are performed and will depend on how Telenor’s customer base flows between new and old call plans.

Principle 7 Usage pattern and subscription distribution **Normally, the usage patterns of Telenor’s customers are used in the margin squeeze tests. The products are normally included with a relative weight that corresponds to Telenor’s customer base.**

3.2.2 Retail revenue

Retail revenue can be generated from subscriptions and various types of traffic, but also from other services such as international roaming and sales of handsets[6]. All relevant revenue from end users, including revenue from subscriptions, revenue from voice, SMS and data traffic originating in Norway, revenue from customers' international roaming, as well as traffic to special numbers and other content services originating in mobile networks, are therefore included in the margin squeeze tests.

The revenue basis is modelled using information from Telenor, based on the data collection preceding each test, possibly supplemented with relevant listed 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.

Principle 8 Retail revenue

Retail revenue must normally correspond to Telenor's actual revenue from their own retail business.

3.2.3 Access costs

The margin squeeze tests are to verify whether the prices of Telenor's regulated access products comply with the obligation to offer access prices that do not subject access buyers to margin squeeze.

Access costs will be modelled on the basis of Telenor's reference offers that fulfil the requirement of traffic-dependent prices and by using actual consumption, as reported by Telenor.

In gross margin tests, any fixed access costs and volume discounts will be distributed on the representative products, so that the products bear their respective share. The distribution will be based on the individual product's share of calculated traffic-dependent access costs in the residential markets and business markets, respectively.

Principle 9 Access costs

Access costs in the margin squeeze tests are modelled on the basis of Telenor's reported consumption, as well as reference offers that fulfil the requirement of traffic-dependent prices.

[6] Retail revenue related to sale of handsets is not included in the gross margin test.

3.2.4 International roaming costs

End-users increasingly use mobile telephony services even when they are located outside Norway. The terms of access for roaming in foreign networks therefore have increasing significance. MVNOs have the opportunity to enter into their own international roaming agreements, possibly with facilitators. In the regulation which follows the decision of 1 July 2016, Nkom has used information concerning Telenor's own costs of international roaming when testing MVNO terms. However,this information had a significant degree of inaccuracy and was not sufficiently robust. In the European Commission's report on the implementation of the international roaming regulations[7], it is shown that MVNOs typically have a higher cost of purchasing international roaming than network owners, see in particular Figure 4 of the aforementioned report. Against the background that it is not considered to be very realistic that an MVNO can achieve equivalent contractual terms to Telenor and that information concerning Telenor's international roaming costs has been inaccurate, it is relevant to assume that MVNO terms for international roaming are equivalent to service provider terms. On testing service provider and MVNO terms, international roaming costs are therefore assumed, as stated in Telenor's reference offer for service provider access that satisfies the requirements for traffic-dependent prices.

Principle 10 International roaming costs

The international roaming costs in the margin squeeze tests for MVNO and service provider access are modelled on the basis of the price terms in Telenor's reference offer for service provider access that satisfies the requirement of traffic-dependent prices.

3.2.5 Revenue and costs of interconnection

Voice termination in mobile networks and fixed networks are regulated products. Costs and revenue associated with any such type of interconnection will therefore be modelled on the basis of the regulated maximum prices. Telenor's standard interconnection agreement includes prices for termination of SMS, and normally this rate would be applied equivalently. The turnover of bulk messages or SMS access[8] is increasing, however, and the unit price is lower for this type of traffic. Revenue from SMS termination includes both ordinary SMS traffic and SMS access, and will be based on Telenor's reporting. Costs of termination of voice and SMS abroad will be based on Telenor's reporting.

[7] https://ec.europa.eu/digital-single-market/en/news/report-implementation-regulation-roaming-public-mobile-communications-networks-within-union

[8] Bulk messages/SMS access are, for example, SMS to the end user with a reminder of a dental appointment, from customer clubs, etc.

Principle 11 Revenue and costs of interconnection

Modelled revenue and costs for voice termination are based on the current regulated termination rates. Modelled costs for SMS termination use prices from Telenor's reference offer for interconnection. Revenue from SMS termination uses reported revenue from Telenor. Modelled costs of voice and SMS termination abroad are based on costs reported from Telenor.

3.2.6 Retail business costs

A full margin squeeze test of the MVNO terms, includes costs in the retail business. Retail business costs must be representative of the reference operator being tested.

There are several methods that can be used to model such costs. Nkom's goal is for the method to be robust and transparent, but also as simple as possible, and has therefore changed the design compared to the method used in the decision of 1 July 2016[9].

Retail business costs are modelled on the basis of information from Telenor and other operators, including accounting separation and estimates of shares of fixed and variable costs, as well as estimates of costs related to the residential and business markets. Modelled costs for the retail business use almost the same starting point, as stated in the decision of 1 July 2016, when it comes to the absolute sizes of costs related to the residential and business markets, and fixed and variable costs. This means that information about cost structures that was obtained for the specified decision will apply from now on, except that the ratio of fixed costs is reduced for the cost categories of cost of capital and depreciation. Details of this are available in the margin squeeze model and in the document "Updating the mobile margin-squeeze tool".

While the margin squeeze test described in the aforementioned decision assumes an annual update based on Telenor's reporting of accounting separation, the changed method of determining end-user costs will be rather simplified. Based on the stipulated starting point, the retail business costs will be updated at each margin squeeze test by a cost trend equivalent to the historical development in Telenor's retail business costs[10]. Details of this are available in the margin squeeze model and in the document "Updating the mobile margin-squeeze tool". The basis for determining the cost trend may be reassessed during the regulation period if the development going forward deviates significantly from the historical development.

[9] Nkom's decision in the market for access to mobile networks (Market 15), 1 July 2016, cf. "Bakgrunnsdokumentasjon for marginskvismodell, M15" (Background documentation for margin squeeze model, M1), see: https://www.nkom.no/marked/markedsregulering-smp/%C3%B8konomisk-regulering/marginskvistest-marked-15-2015-2016

[10] The cost trend is based on a regression analysis of retail business costs as they appear in the annual accounting separation reports from Telenor for the years 2014 – 2018.

Principle 12 Retail business costs

Retail business costs are determined on the basis of information from 2015 concerning the cost level, except that the ratio of fixed costs is reduced for the cost categories of capital costs and depreciation. For each year, the costs will be updated by a cost trend equivalent to the historical development in Telenor’s retail business costs.

3.2.7 Concrete implementation of the margin squeeze tests

Nkom has collaborated with Analysys Mason on further developing a model for implementing margin squeeze tests. The margin squeeze model is a tool that, in each testing instance, must be adjusted to the relevant parameters that are to be included, in line with the principles. Consequently, the model will be subject to dynamic adjustment, for example if there is any change in the access agreements to be used in the test.

Margin squeeze tests are performed a minimum of twice per year, and within a reasonable period of time before the information is to be presented, Nkom will impose an obligation on Telenor to disclose information according to the questionnaire (Data request) attached to the margin squeeze model. The information necessary to perform margin squeeze tests will, however, be considered in the light of the development in the retail and wholesale markets. It may therefore be necessary to adjust the questionnaire during the regulation period.

The margin squeeze model and the document “Updating the mobile margin-squeeze tool” state which parameters are to be updated, and at which frequency.