

Vertical integration: efficiency & foreclosure



Explanatory note

The Dutch Independent Post and Telecommunications Authority (OPTA) regulates the postal and telecommunication markets in The Netherlands. OPTA is an independent executive body that commenced its activities on 1 August 1997. OPTA's mission is to stimulate sustained competition in the telecommunications and post markets. In the event of insufficient choice OPTA protects end-users. OPTA regulates compliance with the legislation and regulations on these markets.

In terms of market conditions, market structure and regulatory framework, telecommunications and postal markets present a continuously changing landscape. In this environment, OPTA has committed itself to improving the economic reasoning on which strategic choices are made in such a way that market parties can contribute to and have a clear understanding of the development of OPTA-policies, now and in the future. In 2003 the OPTA bureau was complemented with the Economic Analysis Team (EAT) headed by the Chief Economist. EAT is responsible for developing economic reasoning and stimulating discussion on key issues within the telecommunications and postal markets. To achieve this, EAT produces two kinds of policy notes - short discussion papers. Economic Policy Notes focus on economic issues and principles. Regulatory Policy Notes focus on strategic economic issues in specific regulatory fields. To stimulate discussion EAT organises roundtables. With its products and activities the Economic Analysis Team expects to add value to the economic debate in Dutch telecoms and post.

Often, lessons can be drawn from past cases. Policy Notes will try to benefit from analysing such cases. These Notes, however, are aimed at contributing to the development of future OPTA policies and are focused on providing sound economic reasoning to that effect. For the purpose of these Notes it is not necessary to take into account other considerations, either of a factual or of a policy nature, that may have played a role in these past cases. These Notes, e.g., do not set out to identify or evaluate short term benefits service providers may offer to end consumers but primarily aim to look into long term benefits of competition. As a consequence, discussion of these cases should not be considered or construed as an attempt to revise or evaluate these cases. Furthermore, Policy Notes are not aimed at reviewing past policies or expressing future policies. They are solely intended to stimulate discussion and critical comment within as well as outside of OPTA, thus laying a basis for the development of future policies.

The analyses and conclusions expressed in Economic and Regulatory Policy Notes of the Economic Analysis Team (EAT) do not necessarily reflect the opinions of the Commission of OPTA. As such, the opinions of EAT, in whatever shape or form, do not have a legal status. Quotes from and references to these Notes can be made freely, provided that such quotes and references sufficiently express the preliminary character and purpose of the Notes.

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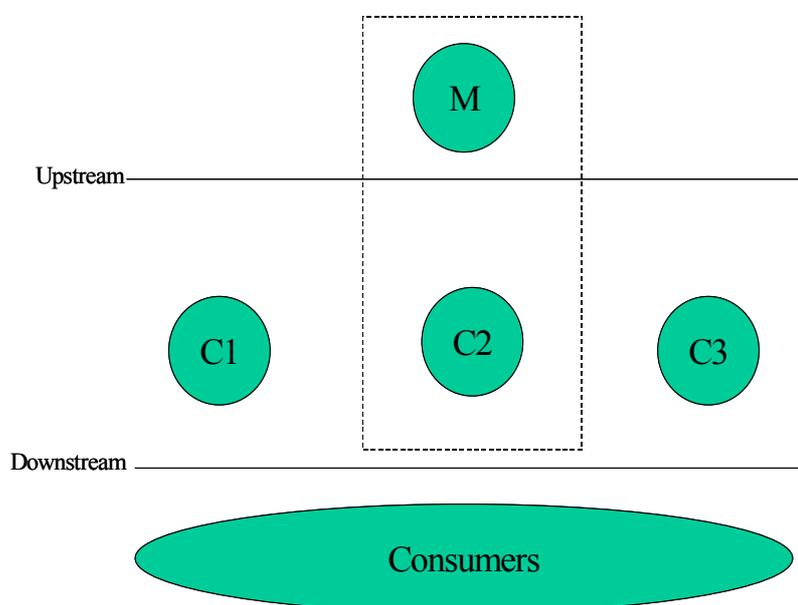
Abstract

A firm that participates in more than one successive stage of production or distribution of goods or services is vertically integrated. Vertical integration can lead to private and social benefits. However, if the upstream operator has a dominant position there is a risk that vertical integration leads to vertical foreclosure of downstream competitors. This EPN aims at analysing the economic advantages and disadvantages of vertical integration. Attention is given to the mechanics with which foreclosure can come about and to the incentives to foreclose by dominant upstream operators. In this way the EPN contributes to gaining a better understanding of the (possible) behaviour of vertically integrated network companies in electronic communications markets.

1 Introduction

A firm that participates in more than one successive stage of production or distribution of goods or services is vertically integrated¹. Many incumbent firms in network sectors are vertically integrated. In the Netherlands KPN and the cable companies, for example, own a fixed network and provide retail services that use fixed network inputs. In order to provide retail services, downstream competitors have to purchase network services from the upstream fixed network owner. In utility network sectors, the upstream fixed network owner is often the only one that can provide network inputs (essential facility) or faces competition from one or at most few alternative networks. Figure 1 shows the basic reference model used in this paper. An upstream monopolist (M) with its own downstream organisation (Competitor2), competes with downstream Competitor1 and Competitor2, who depend on monopoly input supplied by M.

Figure 1: vertical integration



When the upstream network owner is also active in the downstream retail market the network owner can affect the competitive position of downstream rivals through pricing and supply conditions of upstream network services. The market participants with market power in the electronic communications services sector in the Netherlands are vertically integrated owners of networks that also provide downstream retail services.

However, vertical integration also has potential benefits. Generally speaking, the vertically integrated or non-integrated structure of a firm can have effects on:

- productive efficiency: productive efficiency, also called technical or cost efficiency, refers to the benchmark case that a given output should be produced at the lowest cost. Vertical integration can positively affect productive efficiency by lowering transaction costs between upstream and downstream firms.

¹ Carlton, Perloff (1999), p. 377

- externalities: externalities occur when firms do not take account of all costs and benefits of their behaviour. Vertical integration allows previously separated firms to coordinate their activities. It can be a way to correct externalities that occur between upstream and downstream firms².
- risk of foreclosure³: a vertically integrated firm can be able and have an incentive to foreclose downstream competitors or raise their costs. This results in reduced downstream competition leading to a situation in which the vertically integrated firm can charge higher prices.

This EPN aims at analysing the economic advantages and disadvantages of vertical integration. The economic issues related to vertical integration give a useful reference point to understanding and analysing the behaviour of vertically integrated network forms like KPN and cable companies. Furthermore, it gives input in ongoing discussions on the differential treatment of downstream business units of the vertical integrated firms and third operators. It also provides useful insights in the policy debate on structural separation.

The paper is organised as follows:

- **Section 2** gives a short historic background of the economic debate on vertical structure;
- **Section 3** lists a number of potential benefits of vertical integration;
- **Section 4** sets out the potential risk of foreclosure that is created by vertical integration;
- **Section 5** discusses the relation between vertical integration and innovation;
- **Section 6** points at possible remedies if the risk of foreclosure is assessed to be considerable;
- **Section 7** concludes with policy implications.

2 Background: Chicago and Post-Chicago

2.1 Pre-Chicago theory

Until mid 1970 competition theory and policy were sceptical regarding vertical integration. The foreclosure or essential facilities doctrine stipulates that the owner of an essential facility has an incentive to monopolise the complementary or downstream market segments. Furthermore, vertical integration was seen as a way to increase entry barriers, while it created only limited advantages. These concerns lacked a proper economic foundation.

2.2 Chicago theory

Starting from the 1950s, the Chicago School challenged these views and their reasoning became mainstream mid 1970. The Chicago School claims that vertical integration can generate many efficiency benefits, while it has only limited negative effects on competition. The core of the Chicago School thinking in this area is formed by the “one monopoly profit” theory. Any chain of production has only one final product market. Therefore, only one (monopoly) profit can be made. A firm with a monopoly position in the upstream market can capture all monopoly profit without vertical integration.

² See for example paragraph 3.1 about eliminating double marginalisation.

³ See also Regulatory Policy Note 01

Example

A monopoly producer of flour delivers to a competitive bread market. The costs of producing the flour are 10. The costs of producing breads are 15. The monopoly price of bread is 35. If the monopoly producer of flour vertically integrates with a bakery it can set the monopoly price and make a monopoly profit of 10 (35-10-15). However, this monopoly profit can also be made by charging 20 for flour (shifting mark-ups from retail to wholesale market). Assuming competition between bakeries, only the costs of production are added to the costs of buying the flour. Therefore vertical integration to monopolise the downstream market is not necessary, because the available monopoly profits can be made upstream. Imperfect competition on the downstream market can in these circumstances be detrimental for the upstream monopolist, as higher downstream prices negatively affect volume and turnover. So in case of an upstream monopoly, the monopolist has an interest in intense downstream competition.

According to the Chicago School, the incentive to leverage market power to a downstream market is absent in case of an upstream monopoly, even if the monopolist would have the opportunity to foreclose competition on the downstream market. In the views of the Chicago School vertical integration is not likely to lead to less competition on the downstream market and will only take place if it is (technologically) efficient. So, generally speaking the Chicago school view is that vertical integration normally results in positive welfare effects without significant risks for competition.

2.3 Post-Chicago theory

In the 80s and 90s post-Chicago economists developed the view that the “one monopoly profit” theory only holds under specific assumptions, and that there are circumstances under which an upstream monopolist can indeed use its upstream weight to obtain downstream market power. There can thus be a genuine risk of foreclosure. At the same time post-Chicago economists acknowledge that there are benefits from vertical integration. These benefits are generally related to a reduction in transaction costs. In order to determine whether conduct by a vertically integrated firm, or indeed whether a given vertical structure, is desirable from a social welfare perspective, efficiencies of vertical integration have to be weighed against the risk of foreclosure.⁴ Most economists nowadays would agree with this post-Chicago school view. This EPN also follows the logic of comparing possible benefits (section 3) with costs (section 4) of vertical integration.

3 Benefits of vertical integration⁵

There are possible costs associated with vertical integration for firms. For example, the vertically integrated firm’s own inputs might be more costly than competitively provided inputs. Also, a larger firm might be more difficult to manage than a smaller non-integrated firm. This suggests that firms only vertically integrate if there are sufficient benefits to outweigh possible costs. These benefits can take the

⁴ “Vertical integration can promote efficient trade and investment by mitigating the contractual hazards that can occur in markets characterized by specific assets and bargaining among firms with market power. ... However, vertical integration also can create incentives for firms to impose costs on rivals. This is the major thrust of the “post-Chicago” school of competition policy, which emphasizes the potential competitive hazards associated with vertical arrangements.” (Gilbert & Hastings 2001, p 2)

⁵ A selection of the more important arguments found in literature are given. This is not an exhaustive list. Although the arguments can be found in many articles the above presentation heavily relies on Yoo (2003), Rey & Tirole (2003) and Carlton & Perloff (2000)

form of productive efficiencies or correcting externalities – these are discussed below.⁶ They can also be strategic and might be anti-competitive in nature. In this case they are benefits for the vertically integrated firm, but costs for other firms and/or society as a whole. These costs are discussed in section 4. The benefits that are discussed in the following paragraph are with one exception not only benefits from the perspective of vertically integrated firms themselves, but also from the broader perspective of social welfare. The one exception is when vertical integration is aimed at avoiding regulation.

3.1 Lowering transaction costs

One of the most important reasons for vertical integration is the opportunity to lower transaction costs between upstream and downstream firms. Vertical integration can lead to lower costs of production thereby increasing productive efficiency. For example, if an upstream and downstream firm are not vertically integrated the coordination of their activities requires contracts. The writing and enforcements of these contracts lead to (transactions) costs. The higher the transaction costs, the more benefits vertical integration can deliver. Carlton & Perloff distinguish four types of transactions in which transaction costs are likely to be substantial enough to make vertical integration desirable: specialised assets; uncertainty that makes monitoring difficult; information; and extensive coordination⁷.

Specialised assets, which have few alternative uses and therefore few alternative buyers, can be a reason to vertically integrate. Vertical integration helps to remedy so-called hold-up problems⁸ that arise with specialised assets. If a firm (the seller) makes an investment specifically geared to the interests of another party (the buyer) and the means of production (the investment) have no or limited alternative use, opportunistic behaviour by the buyer is possible. Once the investments are sunk, the potential buyer can try to renegotiate for a lower price. The producer has a weak position, as its investments cannot be used in alternative ways. The hold-up can also be the other way around. If the buyer has a large demand for the intermediate product, the producer can ask a premium for its unique means of production.

The shift from wooden to metal automobile bodies required Fisher Body to make investments in new metal stamping technology unique to GM's⁹ cars. The existence of such relationship-specific investments raised the danger that GM would act opportunistically against Fisher Body after the investment costs had already been sunk. To mitigate this risk, GM and Fisher Body entered into a long-term exclusive dealing agreement in which the price was set at operating costs plus a substantial mark-up for capital costs. When the demand for metal-bodied automobiles increased dramatically, Fisher Body was able to use its capital investments much more efficiently than the original contract had envisioned, and the existing formula allowed Fisher Body to charge GM prices that overcompensated it for its capital costs. Unable to manage its relationship with its input supplier through contractual devices, GM was left with no choice but to vertically integrate backwards into body fabrication by acquiring Fisher Body¹⁰.

Uncertainty about for example quality of the input can give rise to the need for extensive monitoring. This is expensive and might even not be possible if it is an outside firm producing the input. Vertical

⁶ For more a more detailed discussion of these benefits see Carlton and Perloff (2000), chapter 12.

⁷ Carlton & Perloff (2000), p. 382

⁸ The hold-up problem can also be (partially) eliminated with contract, although this can be risky (see Fisher Body)

⁹ GM= General Motors

¹⁰ Yoo (2003) who refers to this example used in Klein, Crawford, Alchian (1978), Vertical Integration, Appropriable Rents, and the Competitive Contracting Process, 21 Journal of Law & Economics 297, 298

integration (backwards) gives the opportunity to monitor and assure quality of inputs. Uncertainty about quality can lead to opportunistic behaviour. If for example products are not homogeneous and the producer is not able to determine the value of each individual product¹¹. Buyers might search intensively to find products that are worth more than average. Sellers have to sort additionally to prevent being left with a stock of products worth less than average. The costs of “over-searching” can be eliminated by vertical integration.

Transactions involving information are difficult to structure in a contract. Giving the right incentive when contracting, having certainty regarding the quality of the (information) product are problematic. Vertical integration can circumvent these problems.

If extensive coordination between productive activities is required vertical integration might be preferable above contracts. In network sectors coordination problems are eminent. For example, it would be difficult to coordinate network investments if the local loop would be managed separately from the rest of the network. Under-investment in one part of the network limits the possibilities of the network as a whole.

3.2 Correcting double marginalisation externalities

Vertical integration between *successive monopolists* in a chain of production increases welfare. Individual monopolists restrict output to a level where marginal costs equal marginal price. In a chain of successive independent monopolists each individual monopolists would use a monopoly mark-up. The final price would be higher than the monopoly price.¹² Output has been restricted too much by the individual choices of the monopolists. The successive monopolists could increase their profits by reducing the price for the final product. This would also increase consumer welfare. However, it will be difficult to reach agreement between successive monopolists over this price reduction. Vertical integration eliminates this co-ordination problem. Notice that solving this vertical externality is beneficial in case of an upstream and downstream monopolist.

3.3 Pro-competitive effects of vertical foreclosure

Section 4 explains the potential competitive risk of vertical integration, namely the risk of vertical foreclosure. Even though genuine foreclosure is anti-competitive, some defences exist as to why foreclosure might be beneficial in specific circumstances (these defences differ from the productive and contractual efficiencies described above, which exist even when foreclosure is not a competitive concern).

Increased downstream market power obtained through foreclosure might be seen as a compensation for upstream investment or innovative activity.¹³ If foreclosure is the result of investments and/or innovation, it might be acceptable as a method to promote long term dynamic efficiency. In patent theory this is standard practice. Companies are rewarded for their innovations by granting them monopoly profits. It seems advisable to refrain from intervention if foreclosure is the result of an innovative strategy.

¹¹ A producer cannot price all apples individually based on their characteristics. A supermarket might start to select apples to pick only the ones of top quality. Vertical integration, vertical contracts and selling bundles can eliminate this problem. Vertical integration in the example of apples is highly unlikely. Bundling per container seems more likely.

¹² And therefore above the profit maximising price that the monopolists would want to ask.

¹³ Rey & Tirole (2003)

Foreclosure can also be beneficial for social welfare if it prevents excessive downstream entry. From a social welfare point of view, it can be wasteful to duplicate investments in fixed assets. Excessive entry may occur when the price-reducing effect of entry is outweighed by the social cost that entrants do not take account of fixed costs of incumbents (this is the so-called “business-stealing” externality). Foreclosure may be socially desirable when duplication of fixed costs is particularly harmful.¹⁴

Supplying internal divisions or subsidiaries can be cheaper than supplying access to competitors.¹⁵ According to Rey & Tirole this can be the result of the fact that “upstream decreasing returns to scale make marginal units more costly than infra-marginal ones, or because there is a genuine asymmetry between the costs of supplying the downstream affiliate and its competitors. It could be argued that there is no foreclosure because discrimination among competitors is cost-based.” In telecommunications this issue has been hotly debated, mainly because of the difficulty to separate real cost differences from artificial cost expansion by the incumbent.

3.4 Reducing impact of regulation

A motive for a regulated firm to vertically integrate may also be to avoid regulation. In the case of a network sector in which the network owner is obliged to provide access to third party operators, it is only partially possible to avoid access price regulation. In the case of vertical integration at least for the wholesale volume that is sold to the downstream operation of the firm, access price regulation can be avoided. However, non-discrimination might also put an end to this kind of differential treatment between in-house and out-house retail departments (see 5.3). So, avoiding regulation might prove difficult. It might be more difficult to regulate a vertically integrated firm compared to regulating non-vertically integrated firms. The integrated firm often has to be disentangled for regulatory purposes and the possibilities for using information strategically increase with vertical integration. If firms are vertically integrated more micromanagement of the regulator is required because of the existing incentives for vertical leveraging. A vertically integrated firm may not be able to avoid regulation, but might have more opportunities to reduce the impact of regulation.

3.5 Benefits of vertical integration in telecommunications markets

A lot of the literature on vertical integration originates from merger theory and is based on assessments in vertical mergers, where competition authorities need to assess whether a vertical merger would lead to a significant lessening of competition. The perspective on vertical integration is however different from a regulatory perspective in for example the telecommunications sector, where the regulatory authority has to deal with existing vertically integrated firms. In the Netherlands, as well as in most European countries, the vertically integrated incumbents are the products of privatised vertically integrated state monopolies, and not the result of mergers between network and services companies. KPN and the cable companies have chosen to keep using vertically integrated business models. Keeping this in mind, the applicability of the benefits of vertical foreclosure in telecommunications and especially in relation to KPN and the cable companies is discussed briefly.

Lowering transaction costs

The specialised asset and extensive coordination arguments seem especially relevant in

¹⁴ Rey & Tirole (2003)

¹⁵ And incumbents have an incentive to argue that this is the case to artificially strengthen their competitive position.

telecommunications. Communication networks, and fixed telephony networks specifically, require very large, sunk investments. If the downstream retail market would be characterized by a large service firm with market power, this services firm would have the incentive to renegotiate the network access price. To reduce risks both the network and the retail firm might be interested in a long-term agreement or may vertically integrate. The current vertically integrated nature of the network owners on the electronic communications market solves this kind of hold-up problem. It also reduces the coordination problems within a network sector like telecommunications.

However, the vertically integrated structure makes hold-up by the monopolist possible. Service providers that do not own a network are fully dependent on network access. And network access is in many cases the only available alternative. Once a service provider has entered the market and gained clients, the network provider could increase the price of its network and the service provider has to pay or go out of business. Regulation reduces the risk of this kind of hold-up.

A hold-up problem that cannot be eliminated by vertical integration is introduced by the regulator. The regulator may let the incumbent invest in state of the art infrastructure and enforce relatively cheap access for third parties once the infrastructure investment is made (or mandate a high access price first and a low access price later). This kind of regulatory uncertainty may prevent the investment being made in the first place. It is clear that the incumbent cannot merge with the regulator to reduce this risk. Therefore the regulator should have a clear long-term view on how it intends to regulate the market and stick to this view in order to avoid uncertainty and reduce the investment risks.

Deltaplan Fibre¹⁶

KPN has launched a plan to connect 80% of the houses in the Netherlands with fibre optic cables. According to KPN, achieving this result requires national action and the cooperation of many parties. KPN is very clear on the role of the regulator:

It has to be prevented that OPTA, like they are doing at the moment, concludes at a certain point in time that the new broadband network could have been built much cheaper, reflecting state-of-the-art-technology, and that service providers may use the network for a lower price determined in retrospect. With this risk it will not be possible to find commercial financiers.

Guidelines should specify that users of the broadband network should pay a reasonable price for the net as it is, and not how it could have been, or should have been according to the user. So the price should be based on actual costs and the return should be in line with continuity, leaving room for additional investments.

Internalising externalities

The (local) network has monopoly characteristics and is regarded as the main competitive bottleneck. Services and service providers can be competitive if network access is available. Vertical integration as way to eliminate inefficiencies of successive monopolies seems to be of limited relevance for the electronic communications sector, as there are no non-integrated downstream or upstream operators that have a dominant position. However, the reasoning behind the double marginalisation externality is not just relevant for successive monopolies. In the case of downstream competition, like in telecommunications, the double marginalisation externality exists as long as prices are above marginal costs (which in practice will almost always be the case as perfect competition is exceptional). However, although internalising the externality is beneficial, vertical integration has competitive effects on

¹⁶ KPN (2003), translation of part of chapter 6

independent downstream players (see section 4).

Pro-competitive effects of foreclosure

The arguments for pro-competitive effects of foreclosure are often used in the regulatory debate on the electronic communications sector. Is the strong position of the vertically integrated incumbent the result of abuse of its dominant position or is it the reward for its innovative behaviour? Does OPTA's wholesale pricing take the fixed costs of the incumbent sufficiently into account, or are access prices set too low, leading to inefficient and wasteful entry? Is supplying within the vertically operated firm that much cheaper, or are discriminatory prices put in place to raise the costs of rivals? Is the difference between internal transfer pricing and wholesale tariffs discriminatory or does it represent the efficiencies of vertical integration?

The introduction of competition in the electronic communications sector has been reasonably successful. However, the incumbents are still very strong in most European countries and competitors often rely on regulation. What if this strong position is the result not of abuse of a dominant position, but related to the advantages of being a vertical integrated operator (f.e. lower transaction costs). Whether the pro-competitive effects should and/or are properly taken into account by regulators appears to be a crucial question in the electronic communications sector.

Reducing impact of regulation

Vertical integration as a way to reduce the impact of regulation could be a plausible driver for vertical integration in the electronic communications sector, and could be an important reason for vertically integrated operators to maintain their current integrated structure. Especially since the new regulatory framework emphasises that downstream markets should be regulated only if wholesale measures are insufficient to remedy the competition problems that have been determined.

Vertical integration can deliver productive efficiency gains and can solve externalities .

These gains are definitely relevant for the telecommunications sector considering the large sunk investments in infrastructure.

4 Risk of vertical integration: foreclosure

This section discusses possible anticompetitive motives and effects of vertical integration. More precisely, vertical integration can lead to vertical foreclosure. Vertical foreclosure occurs when a vertically integrated firm refuses access, charges higher prices, or creates other disadvantages to downstream competitors compared to its in-house downstream unit, with the aim to weaken the position of downstream competitors, and thus to reduce the intensity of downstream competition.

Rey and Tirole (2003) define foreclosure as follows:

“... a situation in which: (i) a firm dominates one market (bottleneck good); and (ii) it seeks to restrict output, perhaps but not necessarily by discouraging the entry or encouraging the exit of rivals in another market, by using its market power in the bottleneck good market.” (p. 8)

and, more specifically, vertical foreclosure:

“Vertical foreclosure may arise when a firm controls an input that is essential for a potentially competitive downstream industry. The upstream bottleneck owner can then alter downstream

competition by denying or limiting access to its input.” (p. 8).

4.1 Reasons to foreclose

The upstream monopolist can encounter problems in the market that prevent the firm to obtain the full monopoly profit, in contrast with the one-monopoly profit theory of the Chicago School. These problems can be solved by vertically integrating. Vertical integration and foreclosing competitors can therefore be an attractive strategy for an upstream monopolist to be able to increase its total profits.

4.1.1 Variable proportions production function

As described in section 2, the Chicago School put forward the “one-monopoly-profit” theory: there is just one monopoly profit and an upstream monopolist can fully appropriate this. Vertical integration, according to this view, would therefore only be driven by efficiency motives and would not have anti-competitive effects.

This complete appropriation of monopoly profits depends on whether the production technology in an industry is “fixed-proportions” or “variable-proportions”. In a “fixed-proportions” production function, inputs to produce a product or service are always used in the same proportions. Changes in relative prices of inputs do not lead to the situation where a supplier uses relatively more of one input and less of another. In a “variable-proportions” production function, on the other hand, a supplier chooses its mix of inputs as a function of the relative prices of those inputs. Under a “fixed-proportions” production function a non-integrated monopoly can control downstream prices perfectly – vertical integration does not add to this ability. If downstream firms have the ability to substitute between inputs (that is, have a “variable-proportions” production process), then the upstream monopolist does not have complete control over the downstream industry and substitution between inputs may decrease total demand for the upstream monopoly input. Under those circumstances, vertical integration can be a way to increase control and profits.¹⁷

4.1.2 Commitment problem

Rey and Tirole (p. 11) argue that vertical integration and possible foreclosure as a result might not be driven by the wish to expand market power to other markets, but to *restore* market power¹⁸. An upstream monopolist will not be able to fully exploit its monopoly power without exclusion, because of a commitment problem.¹⁹

The commitment problem can be explained as follows. Assume that an incumbent gives one firm access to its essential facility. Subsequently the incumbent has an incentive to also grant access to the next firm that makes a request, even if this leads to more competition and reduced profits for the first access seeker. Access seekers take this into account and have a lower willingness to pay for access. The lack of

¹⁷ Carlton & Perloff (2000), pp. 388-394.

¹⁸ This argument brings the foreclosure theory and the Chicago School together. Bundling can give the same result as vertical integration.

¹⁹ Market power can also be restored through exclusive supply agreements. The incumbent commits itself to sell only to the first firm and not to any subsequent firms. From a welfare perspective exclusive dealing leads to a worse outcome than vertical integration. Vertical integration with one of the downstream firms leaves room for input deliveries to other downstream firms (possibly for higher tariffs). Exclusive dealing does not allow for such deliveries and the second (and subsequent) downstream firm(s) will be forced off the market.

commitment of the monopolist reduces its profits. Vertical integration can help the incumbent to commit to the price, because the integrated firm has an interest in total profits (upstream and downstream). The monopolist thus creates commitment by limiting supply to its own retail organisation and excluding others. The loss of monopoly power due to the commitment problem becomes larger with stronger downstream competition^{20, 21}.

Rey and Tirole conclude that the commitment problem does not necessarily lead to vertical integration. There are circumstances in which the commitment problem might lead to vertical separation. In this way downstream players are discouraged to develop/support an upstream alternative.

Rey & Tirole, p. 14:

“Interestingly, while the desire to foreclose often motivates vertical integration, it may alternatively call for divestiture. For example, we develop a rationale for the 1995 divestiture of AT&T manufacturing arm that is related to the official justification of this divestiture. With the impending competition in telecommunications between AT&T and the Regional Bell Operating Companies (RBOCs), the latter, who were major buyers of AT&T equipment, would have been concerned that the AT&T manufacturing arm would exclude them in order to favour its telecommunication affiliate. The RBOCs might therefore have turned to alternative manufacturers. We provide necessary and sufficient conditions under which this smaller-customer-base effect dominates the foreclosure effect, and thus divestiture is preferred by the bottleneck owner to vertical integration”.

4.1.3 Upstream price regulation (“Baxter’s Law”)

If the price of upstream services is regulated (and thus smaller than the monopoly price), then – even according to the Chicago view – there will be an incentive for the upstream monopolist to capture the one monopoly profit at the downstream market. Farrell and Weiser (2002) phrase this as “Baxter’s Law”.

Farrell and Weiser argue that access to a platform increases the value of that platform. If just the platform holder offers services on this platform the value of the platform for consumers is reduced. They illustrate this point with the console and games market. A consumer is willing to pay 100 for a console that allows playing all video games produced in a competitive market. A monopoly in applications will provide each platform purchaser a value of just 70, reflecting the quality, variety, and price of the available applications. Additional profits created by monopolising the downstream market would lead to reduced profits of the same amount in the upstream market. Vertical integration would be useless to improve profits. The platform provider *internalises the complementary efficiencies* (ICE) from a more valued applications market. However, if the upstream market is regulated until below profit maximising levels, the reduction of upstream profits will be smaller. If the console provider can make an additional profit of 10 per unit by monopolising the games market, it may have a far smaller effect on platform profits when the platform price is regulated below the profit-maximizing level. “In a sense, the platform provider can compensate for the fact that its platform is priced below the profit-maximizing price by taking additional – and possibly otherwise inefficient -- profits in the applications market.”²² Regulation

²⁰ This has two aspects. The profit of the upstream bottleneck owner is smaller when the number of downstream operators is larger. The profit of the upstream bottleneck owner is smaller if the downstream products are better substitutable, with a given number of downstream firms.

²¹ Non-discrimination obligations can be counterproductive because they solve the commitment problem. Such a measure obligates the incumbent to sell additional units of input for the same (high) price as the original units.

²² Farrell & Weiser (2002), p.24

of the upstream market makes it profitable to foreclose the downstream market.

According to Farrell and Weiser, this exception of the general principle of internalising complementary efficiencies has been central in telecommunications policy. "In particular, the Bell System allegedly leveraged its way to market power in complementary markets in various ways, refusing to allow competitors in long distance and equipment manufacturing to gain equal access to its network."²³ In an era where the monopoly platform was generally price-regulated, the telecom presumption to mandate modularity might be justified by this fact alone: "Baxter's law" notes that ICE does not apply to regulated monopolies.

4.1.4 Preventing resale

Price discrimination can be a way to increase a firm's profits²⁴. Price discrimination is only possible without resale: the possibility for buyers to trade amongst each other. If someone that pays a low price is able to resell its product to someone targeted to pay a high price, price discrimination is not possible. One way to prevent resale is to vertically integrate. A firm wanting to price discriminate might vertically integrate to prevent resale and make price discrimination possible. Carlton & Perloff use the following example.

"Aluminium ingot is used to produce only aluminium wire and aircraft. There are good alternatives for aluminium wire in electric cables, such as copper, but there are no good alternatives for aluminium in airplanes. As a result, the elasticity of demand for aluminium ingot by wire manufacturers is much higher than it is for airplane manufacturers. Thus, it is profitable to charge a higher price for aluminium ingot to airplane manufacturers than wire producers. If the aluminium monopoly charges a higher price to airplane manufacturers without integrating, the aluminium wire producers can purchase aluminium ingot at a relatively low price and resell to the airplane manufacturers at a lower price than monopoly prices. To prevent this resale, the aluminium monopoly can vertically integrate forward and become the only producer of aluminium wire. It can then charge a very high price for aluminium ingot to the aircraft manufacturers, without worrying about resales from wire manufacturers. "

Carlton & Perloff argue that imperfect price discrimination has ambiguous welfare effects and can increase or decrease welfare compared to simple *monopoly* pricing²⁵. However, price discrimination is not as efficient as competition (or perfect price discrimination). If a previously competitive downstream market is foreclosed to competitors to prevent resale, the welfare effect will be negative. Preventing resale opportunities introduces a consumption inefficiency, that is lacking under competition (or perfect price discrimination). Vertical integration to prevent resale and allow price discrimination will be welfare reducing.

²³ Farrell & Weiser (2002), p.24

²⁴ Price discrimination can also be strategically used to hurt competitors (see next paragraph). The joint approach of EC/ERG states: "A vertically integrated undertaking with SMP at the wholesale level may subject its downstream competitors to a margin squeeze if it charges them a price which is higher than the price implicitly charged to its own retail affiliate for products or services considered to be within the same relevant market. Incentives for such behaviour exist whenever the dominant undertaking can increase its profits by foreclosing the retail market and the outright denial of access is for some reason impossible. In such cases the undertaking might simply maintain its price on the retail market and increase the wholesale price charged to its competitors to a level where the retail price is insufficient to cover their costs."

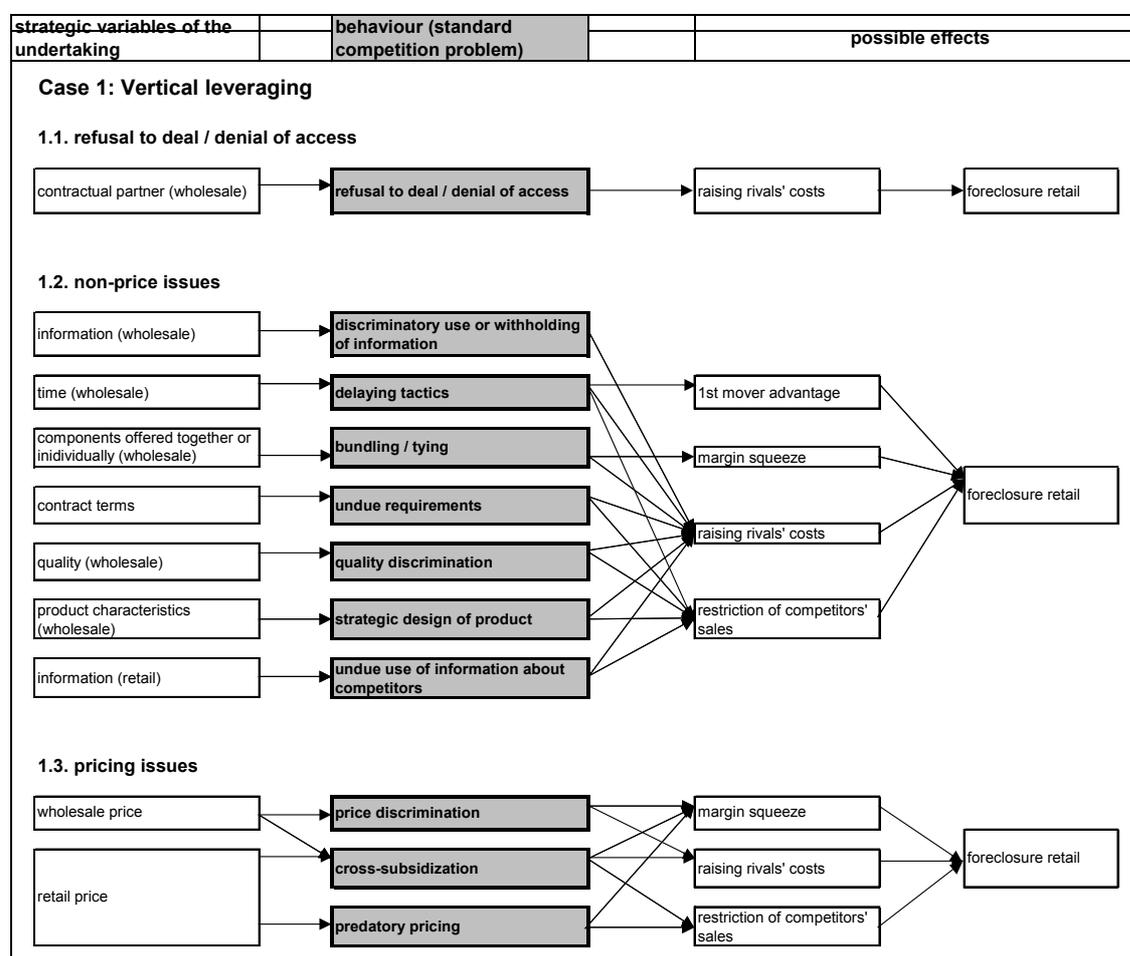
²⁵ See also EPN02 on Price Discrimination

Vertical integration can have anti-competitive effects and can be used to increase or restore (monopoly) profits to the detriment of consumers and welfare.
Foreclosure of the downstream market is to be expected under upstream regulation.

4.2 Means to foreclose: strategic behaviour

Strategic behaviour is defined by Carlton & Perloff (2000) as a set of actions a firm takes to influence the market environment so as to increase its profits. The joint ERG/EC approach on remedies in the new regulatory framework, describes possible strategic behaviour of a vertical integrated operator leading to foreclosure. Figure 1 depicts the relations between strategic variables, behaviour and possible effects. The immediate effects (first mover advantage, margin squeeze, raising rivals' costs, and restriction of competitors' sales) can ultimately lead to foreclosure.

Figure 2: competition problems and effects in the case of vertical leveraging



Source: European Regulators Group (ERG) (2003), joint ERG/EC approach on appropriate remedies in the new regulatory framework, p. 44

4.2.1 Raising rivals' costs

A vertically integrated firm can try to raise rivals' costs – negatively influence competitors' and potential competitors' *cost* functions. Salop and Scheffman (1987) conclude that cost-raising strategies can be an important anti-competitive instrument, used to increase profits by disadvantaging rivals. This instrument is easier to apply than predation. It does not require competitors to exit the market to become profitable

and it is not required that the firm applying cost raising strategies has market power in the relevant output market.

Economides (1998) shows that a vertically integrated firm which has a monopoly on the input market may have strong incentives to raise costs of downstream rivals by non-price discrimination. This results in less competition, leading to increased profits for the vertical integrated monopolist and reduced welfare. Whether the incumbent has higher or lower costs than the competitors, does not affect this result.

This conclusion also applies if the monopolist delivers input of a lower quality to third parties. As a result consumers are willing to pay less for the competitors' product, while costs remain similar to the superior product of the vertically integrated operator. In this way the competitors' *demand* function is negatively influenced instead of its costs function. This kind of behaviour is also called restriction of competitors' sales.

4.2.2 First mover advantage

First mover advantages arise from being in the market before competitors are. Mostly first mover advantages are rightly deserved and a reward for innovating companies²⁶. However, a vertically integrated operator has the ability to artificially create first mover advantages by delaying tactics on the wholesale market, or to prevent competitors to realise first mover advantages. For example, market parties have argued that KPN has used delaying tactics at the beginning of local loop unbundling in the Netherlands, to prevent market parties to generate first mover advantages. They argue that problems with delivery processes and network integrity issues disappeared very quickly after KPN's own subsidiaries were prepared for large scale retail roll-out.

4.2.3 Margin squeeze

A vertically integrated firm can "squeeze" downstream competitors by raising upstream input prices and/or reducing its retail prices²⁷. In this way downstream competitors are handicapped with a disadvantageous cost position and face an aggressive downstream player. When access prices are regulated, a margin squeeze test is essentially aimed at providing an efficient entrant sufficient margin in order to be able to operate at a commercially viable level. "A margin squeeze can be effected in three ways: (i) The SMP undertaking can charge a price above costs for the wholesale product to its competitors but a cost-based price on the retail market; (ii) it can charge a cost-based price to all retail undertakings but may set a predatory price on the retail market; finally (iii) it might charge a price above costs on the wholesale market, and at the same time charge a predatory price on the retail market. This behaviour may also result in cross-subsidisation. The conditions in telecommunications are such that strategic behaviour

²⁶ "The term first mover advantage refers to the economic advantage the company which is first in a new market has over other companies which enter this market at a later point in time. First mover advantages can pertain to the supply side (the cost function) as well as to the demand side. Supply side first mover advantages include network externalities and learning by doing cost reductions, whereas demand side advantages primarily result from customer lock-in effects. A first mover advantage thus can be said to raise rivals' costs (relative to the first mover) or restrict competitors' sales". Joint approach p. 40/41

²⁷ According to the joint approach a margin squeeze occurs when:

- a dominant provider supplies an 'upstream' product A which is itself (or is closely related to) a component of a 'downstream' product A+B (product B is supplied by the dominant provider only to itself: those who compete against A+B will supply their own alternative to B).
- the implicit charge by the dominant provider to itself for B (i.e. the difference between the prices at which it supplies A+B and A only) is so low that a reasonably efficient competitor cannot profitably compete against A+B.

is possible and can be profitable.

Strategic behaviour of a vertically integrated operator can result in margin squeeze, leading to foreclosure.

5 Vertical integration and service innovation²⁸

The opinions on the effects of vertical integration and access on innovation differ considerably. It is beyond the scope of this paper to give a complete overview of this debate. However, two opposite argumentations are shortly discussed, because they are fiercely debated at the moment. Firstly, there are proponents for a modular (=non-vertically integrated) approach in combination with open access. The internet is often used as an example for this approach, therefore: the internet argumentation. Secondly, there are advocates of allowing (temporary) monopoly profits as reward for investments and innovations. This reason against open access is similar to argumentation in patent theory. It is unclear which approach leads to more innovation and no conclusions are drawn. As a choice between one of these argumentations is not easily made the focus is on scenarios in which a vertically integrated firm has clear incentives to frustrate service innovations from a downstream competitor.

5.1 Internet argumentation

The internet with its end-to-end architecture is hailed for being an innovative machine. “..rather than relying upon the creativity of a small group of innovators who might work for companies that control the network, the end-to-end design enables anyone with an Internet connection to design and implement a better way to use the Internet”.²⁹ It is argued that networks should be relatively stupid and protocol layers should add intelligence accessible for all users. This leads to a horizontal modular approach. Open modular approaches have been successful in the past with for example the open Microsoft standard introduced on IBM computers competing away Apple or allowing competition in the telecommunications equipment market instead of integrating telephone services and telephone equipment. “Modularity thus allows for a smooth dissemination of the best of breed in each level or layer, as users mix-and match components”³⁰. Some authors (Lemley and Lessig) extend this argumentation to a forced open access model, facilitating modularity as much as possible. Farrell and Weiser take a more differentiated approach. They argue that the earlier described internalising complementary externalities principle claims that the platform monopolist will act efficiently even when it comes to deciding whether or not to integrate, and, if it integrates, how to treat its applications competitors. Thus, according to this unobvious interpretation of ICE, close vertical relationships do not raise an economic policy concern. They also define holes in ICE that would require (regulatory) action. One of these holes is the Baxter law. Another hole identified by Farrell & Weiser is “stupid incumbents”: incumbents might just not realise that there is money to be made in opening up their networks. For a complete discussion the reader is referred to their original paper.

5.2 Patent argumentation

Yoo argues that “regulatory restrictions on vertical integration harm dynamic efficiency by rescuing competitors to invest in developing alternative sources of supply that would ultimately break whatever

²⁸ Discussion can be related to the discussion on infrastructure and services-based competition, see also EPN01

²⁹ Shah zie MCI blz 31

³⁰ Farrell & Weiser (2002), p.11

monopoly power that represents the true source of the anticompetitive harm.”³¹ As discussed in Economic Policy Note 01³², “patent theory and practice show that when future profits are permitted, there is a reward for the party that invests successfully. The patent, which creates a temporary monopoly position, is the carrot that encourages investors to invest - the larger the carrot, the greater the willingness to invest. This principle can also result in a race to invest in the telecommunications sector in order to get hold of the carrot³³. It is important to give investors the confidence that ex-post profits will not be skimmed off by regulatory intervention. If this confidence does not exist, investors will be hesitant. “This argument does not argue against access per se, but emphasises the need for rewarding innovations by limiting access or allowing a risk mark-up.

The internet argument relies on a positive relation between innovation and standardization, concentration and network economics. Yoo argues that these relations are ambiguous. Standardisation prevents the development of alternative, competitive systems which might limit innovation, not promote it. There is little (empirical) support that “higher levels of innovation are associated with lower levels of market concentration”³⁴. So, scores of small innovators as in the internet parallel are not necessarily innovating more than a limited number of parties. Finally, according to the internet argument end-to-end architecture can be defended on the basis of network externalities. Network externalities prevent a consumer to capture all benefits from adopting a new technology, although this would be improving overall welfare. This can lead to a delayed introduction of the new technology. Thus, network externalities can harm innovation by causing inferior technology to become locked in. An open-end-to-end architecture would limit the lock-in problems. However, there is a countervailing effect: the adaptation of a new technology lowers the value of the technology in use. These costs are not internalised by consumers adopting the new technology³⁵. This could lead to a too rapid adaptation. It is difficult to say which effect is stronger. Furthermore, standardization can exacerbate network effects: “Customer heterogeneity and product differentiation tend to limit tipping³⁶ and sustain multiple networks.”³⁷

The effect of vertical integration and access regimes on innovation is not clear cut.

5.3 Vertical integration and service competition

As described above it is ambiguous if vertical integration or vertical separation (or open access) leads to more innovation. However, there are circumstances in which a vertically integrated firm has an incentive to frustrate service innovations by downstream competitors. Farrell (2003) has recently analyzed this possibility. The starting point of his paper is that there are two scenarios in which the interests of the

³¹ Yoo, p. 164/165

³² EPN01 (2003)

³³ Both Cave et al (2001) and Analysys (2003) use this argument.

³⁴ Yoo, p. 140

³⁵ To relate this to a current discussion in The Netherlands: Mobile calls lead to a reduced use of the fixed network of KPN. The costs of operating and maintaining this network do not decrease proportionally. The costs of using the network is becoming more expensive. Mobile users do not take these costs into account when making their choice.

³⁶ Tipping occurs when a single provider reaches a critical mass of customers that are so attractive to others that competitors must inevitably shrink, in the absence of interoperation (Faulhaber (2001), Network effects and merger analysis: instant messaging and the AOL-Time Warner case.

³⁷ Katz & Shapiro quoted by Yoo p. 144

upstream network owner and downstream innovating players are well-aligned:

- In case of vertical separation, an upstream bottleneck monopolist is keen to cooperate with service innovation and competition between independent downstream players, because it will increase demand for the upstream input and is therefore in his best interest.
- In case of vertical integration with an upstream and downstream monopolist, the incentive to innovate is strong since the integrated firm benefits fully from any downstream service innovations. There are no spill-over effects to other downstream players, that make them benefit from innovations without contributing to them.

Real issues emerge however in the case of vertical integration with upstream monopoly and downstream competition. In that scenario it is possible that it is not in the vertically integrated firm's best interest to cooperate with downstream innovating competitors. More precisely, non-integrated (independent) downstream players may be faced with the following actions of the integrated firm:

- Sabotage: an unregulated (no access price regulation) integrated firm will cooperate with innovations by downstream rivals, because he will share in the benefits (by raising access prices he can appropriate part of the downstream rents). An integrated firm which faces access price regulation may sabotage downstream innovation if he does not share in the benefits because low access prices prevent this.
- Appropriating ex-post downstream innovation rents: if downstream rivals introduce successful service innovations, upstream monopolist can confiscate these (for example, by increasing access prices after lowering downstream prices). The result is that independents have less incentive to innovate in the case of vertical integration.

Upstream price regulation may give a vertically integrated firm an incentive to sabotage downstream innovations.

6 Remedies

There are real risks related to the presence of vertically integrated firms in the electronic communications sector. Vertically integrated firms have the incentive and ability to limit competition. They might monopolise other markets, behave strategically and sabotage third party innovation. However, considering the undisputable positive effects of vertical integration there is no simple solution.

There are a number of possible remedies to reduce the risk of foreclosure³⁸:

- No access price regulation;
- Non-discrimination in access prices;
- Margin squeeze test;
- Cost oriented access pricing;
- Structural separation.

Each of these possible remedies is discussed below in further detail.

³⁸ This section aims at discussing the most relevant remedies in relation to foreclosure and does not address all possible remedies.

6.1 No access price regulation

The logic of the remedy of no access price regulation is that by allowing the upstream monopolist complete freedom in access pricing, the incentive to foreclose downstream competitors is reduced. The reason is that the upstream monopolist is better able to appropriate the downstream rents. Although this thus gives downstream competitors a better chance to compete, final prices are still too high from a social welfare point of view, because it allows the upstream monopolist to make monopoly profits. This remedy goes against the approach taken in the new regulatory framework. Legislator and regulator should prevent abuse of market power and bottlenecks and not enable the incumbent to make a monopoly profit in that market. The fact that this might lead to an incentive to leverage market power to another, not regulated (downstream) market, should be countered by additional measures. Furthermore, Rey & Tirole show that even without regulation of the upstream market the incentive to foreclose may remain, because for example a commitment problem will prevent the realisation of monopoly profits otherwise (see section 4.1.2).

No access price regulation to reduce the incentive to foreclose downstream markets is not an option.

6.2 Non-discrimination

The key to this remedy is that downstream competitors are not put at a disadvantage compared to the vertically integrated downstream firm – this is a matter of difference between prices and not the absolute price level. A difficulty arises if providing inputs to downstream competitors is more costly than providing input to the in-house downstream unit. Non-discrimination requires that this operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services. However, whether non-discrimination actually leads to a level playing field depends on its interpretation.

In the first interpretation the downstream operation of the vertically integrated operator is not regarded an access seeker to the network (upstream inputs), because it does not have to interconnect to its own network. Access seekers pay for the costs and conditions related to accessing the network of the vertically integrated operator. Conditions for and costs of access for downstream firms can, in this scenario depart significantly from those the vertically integrated operator uses for its own downstream operation. Even if it is assumed that the downstream operations of the vertically integrated operator buys inputs under the same conditions and costs, the playing field is skewed, because the actual costs levels are lower so the downstream operation has a business case that significantly differs from its competitors (see 5.3). Furthermore, the incumbent has an incentive to inflate the costs of access as this inflates the costs of its competitors (raising rivals costs), without affecting its own cost level. Distinguishing between actual and inflated costs is very difficult and time consuming.

The second interpretation regards downstream operations of the vertically integrated firm exactly the same as third parties. The joint approach states:

“This shows that the scope of the non-discrimination obligation clearly covers firms internal processes. The general non-discrimination obligation requires that third party access seekers be treated no less favourably than the operators internal divisions.”³⁹

Additional costs to realise access are non-existing, because the internal divisions already have access. Third party access seekers should have similar conditions. If there are additional costs to facilitate access

³⁹ Joint approach p. 46

it seems logical to split these costs between all access seekers (so including the downstream operations of the incumbent), because without this a difference between internal divisions and third party access seekers arises.

The first interpretation is optimal from an economic point of view. It leads to efficient entry, because access seekers take into account all costs they cause when making their entry decisions. This interpretation makes entry more difficult. Even if the entrant is as efficient as the incumbent, entry might not be possible. However, from a welfare point of view it is not relevant if consumers are served by the incumbent firm or by an entrant. There are two caveats to this interpretation. First, the incumbent has an incentive to inflate the costs related to access and it is not optimal if potential entrants take entry decisions on the basis of inflated costs. Second, there might be an explicit policy goal to promote entry in order to replace regulation with competitive pressure from third parties in the long run. Such a policy goal can justify access costs being divided between entrants and incumbent.

Another issue with non-discrimination is that it solves the commitment problem of the incumbent. The commitment problem can prevent an upstream monopolist from realising a monopoly profit. The upstream monopolist can solve the commitment problem by vertically integrating. A non-discrimination requirement also solves the commitment problem and can be an alternative for vertical integration. A non-discrimination obligation without price regulation may thus lead to increased upstream prices and allow for monopoly profits.

Non-discrimination may solve the commitment problem of a non-vertically integrated upstream monopolist and reduces the risk of foreclosure. However, this remedy, without accompanying price regulation, will likely lead to the restoration of upstream monopoly profits.

6.3 Margin squeeze tests

Although the principle seems straight forward, margin squeeze is a source of much discussion. It falls outside the scope of this paper to cover all aspects of margin squeeze and squeeze tests. We will focus here on access costs.

Access costs artificially *inflated* by the incumbent should be eliminated and if this is not possible a squeeze test should be adapted to prevent foreclosure. Economides⁴⁰: “....that raising rivals’ costs effectively circumvents traditional imputation rules, and allows the monopolist to foreclose its downstream rivals. In the presence of non-price discrimination, to be effective, imputation floors have to be adjusted upwards to account for the artificial costs imposed on the rivals.”

For *actual* access costs the interpretation differences discussed in the paragraph on non-discrimination are relevant. In the first interpretation access costs are not paid by the incumbent. In this case squeeze tests are not relevant. A squeeze test uses the costs of access for third parties and relates these costs to the retail tariffs of the incumbent. However, costs of access are not actually paid by the downstream operation of the incumbent. This operation pays internal transfer prices. The retail tariffs of the incumbent can be below the costs of the access seeker without being predatory. If retail tariffs this low are allowed, this leaves not enough margin for an entrant to operate. If retail tariffs are set higher, leaving the alternative operator margin it will leave the incumbent a very large margin. Preventing

⁴⁰ Economides (1998), p. 283

squeeze on (relative few) retail minutes/services can lead to high profits on the minutes/services of the incumbent.

In the second interpretation of non-discrimination the incumbent and access seekers pay the same. However, this approach might lead to inefficient (too much) entry as entrants are not paying the full costs related to entry.

6.4 Cost oriented access pricing

Cost oriented access pricing ensures that crucial inputs are available to third parties. However, the inability of the incumbent to realise monopoly profits in the upstream market creates incentives to leverage market power. Strategic behaviour is to be expected. The joint ERG/EC approach on remedies in the new regulatory framework, describes possible behaviour of a vertical integrated operator resulting in foreclosure (figure 2). Cost oriented upstream prices will often be just one of the remedies as the regulator will try to curb strategic behaviour induced by the obligation of cost orientation.

6.5 Structural separation

A final remedy is structural separation (separate ownership) of the upstream network and the downstream activities. This takes away the incentive for the upstream network owner to favour one downstream party over the other. The cost of structural separation is that the benefits of vertical integration are foregone. "Separation increases the cost of contracting and bargaining between the separated entities. These costs are measured both in monetary terms and in terms of the speed at which the separated organisations can respond to changing market and technological conditions; and separation means that it is difficult to co-ordinate investment. This is especially important as the fixed network industry starts to migrate to next generation networks."⁴¹ In an OECD report on structural separation of the local loop the advantages and disadvantages of separation are discussed extensively (see annex1). Both OVUM and OECD conclude that the case for structural separation is weak. The OECD-report formulates it as follows:

"The paper concludes that the structural separation approach is risky with benefits that seem limited, uncertain, indeed, conjectural, with on the other hand, potentially significant costs including potentially adverse effects on network development. Certainly there is insufficient evidence that benefits would be convincingly in excess of costs. Against such an assessment of structural separation proposals, it would seem sensible to persevere with improvements to the current regulatory approach backed with sanctions to deal with anti-competitive discrimination."⁴²

6.6 Conclusions on remedies

Not regulating access, thereby allowing upstream monopoly profits and reducing the incentive of the vertically integrated operator to limit competition downstream is not acceptable as a remedy. Structural separation is not a remedy OPTA can apply and it is questionable if the benefits will exceed the costs. For these reasons a third party access model (TPA-model) balancing the costs and benefits of vertical integration and applying proportional remedies seems the best way forward. However, in such a model the *incentive* of the vertically integrated operator to negatively influence competition remains intact. Only its *ability* to do so is affected by behavioural remedies of the regulator. Therefore, a TPA-model leads

⁴¹ Ovum (2003),

⁴² OECD, p.4

to tension between incumbent, entrants and regulator. Regulatory intervention to reduce negative effects of vertically integration might also lead to partially reducing advantages of vertical integration. An example is the interpretation of non-discrimination as discussed in 6.2. In the Netherlands the regulator has been both applauded and criticised for decisions that neutralised negative but also some positive effects of vertical integration, in order to create a level playing field. This criticism is understandable from the point of view that limiting the potential to benefit from positive effects of vertical integration, might lead to inefficient entry. However, long term sustainable competition might justify these measures. It is interesting to see that structural separation is again considered in the Netherlands⁴³. With separation all positive effects of vertical integration are eliminated to allow competition. Measures within a TPA-model preserving at least some of the positive effects of vertical integration, seem to be more proportional.

Curbing the risk of vertical integration with remedies often means curbing the benefits as well. For the two extreme remedies⁴⁴ the effects are clear. For the other remedies the effect on the benefits and risks of vertical integration depend on the design of the remedy.

7 Conclusions and policy implications

The analysis of possible costs and benefits of vertical integration is in particular useful to better understand: firms' incentives to vertically integrate and vertically integrated firms' ability and incentives to foreclose downstream competitors.

7.1 Implications for regulation

1. There may be good reasons for vertical integration as it can lead to substantial welfare-enhancing efficiencies. In principle, a sector specific regulator should therefore be neutral as regards the structure of the firms it regulates.
2. However a vertically integrated firm may have incentives and the ability to foreclose downstream competitors and this foreclosure may have a negative impact on competition on the downstream market.
3. In order to assess this risk a number of steps need to be taken:
 - First, do downstream competitors have alternative sources for their inputs? Or more generally, does the upstream part of the vertically integrated firm have a dominant position in the relevant upstream market? if not, there is no risk of foreclosure because the upstream part would not be able to exercise a foreclosure strategy.
 - Secondly, what would be the incentive of the upstream player to foreclosure downstream players other than the in-house unit? If foreclosure of downstream players would simply lead to a reduction of downstream demand (because customers of downstream players

⁴³ The separation for all regional power companies was recently mandated. Also the Minister of Economic Affairs put forward in a newspaper interview that although buying back the fixed network of the incumbent is not an option at the moment, it should have been considered when KPN was in financial difficulties.

⁴⁴ No access price regulation (leaving all potential benefits intact but also all risks) and structural separation (eliminating all risks and benefits)

would not switch to the in-house unit but would instead drop out completely), then the upstream player would not have an incentive to foreclose.

- Thirdly, what would be the options for the vertically integrated firm to foreclosure competitors? In this step the potential foreclosure strategies need to be made explicit. (For example: if wholesale prices for independent downstream operators went up, what would be the impact on each of the downstream players – would they be forced from the market or be able to absorb the increase in their margins? How would the vertically integrated downstream operation be able to profit from this? Would they be able to increase retail prices without inducing re-entry? etc.)
4. If the conclusion of the assessment is that there is a genuine risk of vertical foreclosure in a specific relevant market, appropriate remedies should be determined. The remedies should be directed towards the possible foreclosure strategies of the vertically integrated monopolist. For example:
- raising rivals costs strategies should be countered;
 - artificially created first mover advantages should be eliminated
 - and margin squeeze should be prevented
5. Behavioural remedies to counter strategic behaviour might also limit the possibilities of the operator to fully benefit from the positive effects of vertical integration. It should be clear for market parties when such remedies are appropriate, f.e. by explaining the principle of non-discrimination of the use of margin squeeze tests.

A regulatory policy objective to encourage entry, even perhaps inefficient entry for the sake of establishing long-term competition, should be made explicit.

Annex 1

In an OECD report on the benefits and costs of structural separation in the local loop the following often heard advantages are given⁴⁵:

- “Bring the incumbent’s incentives into alignment with a non-integrated carrier, thereby guaranteeing non-discriminatory access to (components of) the incumbent’s networks and thereby promoting competitiveness.
- By promoting access and LLU⁴⁶ in turn promote innovation (such as that required for the delivery of high speed Internet) either by new entrants or by the incumbent which would now be under increased pressure to do so (to avoid new entrants acquiring the competitive edge).
- Create a level playing field by forcing the incumbent’s retail arm to deal with its wholesale arm on the same terms that it deals with any other competitor (implicitly solving interconnection issues as well).
- Allow the management of a structurally separated (LoopCo) to focus on the wholesale portion without the need to consider the impact of its policies on the retail division, and this should improve efficiencies.
- Allow regulators to focus on the wholesale network to guarantee service quality, network reliability, and access to essential network facilities at cost-based prices.
- Be simple compared to behavioural remedies.
- Be effective, while behavioural regulation that runs counter to an incumbent’s inherent incentives, cannot be fully effective.
- Improve information and help eliminate cross-subsidisation.
- Reduce the need for regulation because the change in incentives decreases the need for government oversight.”

However, structural separation is a far reaching remedy with many disadvantages:

- The positive effect on the incentive for the incumbent are ambiguous
- Co-ordination problems between investments of wholesale and retail firms leading to f.e. slowing down of network rollout or degradation of quality.
- Efficiency loses as a result of separating the vertically integrated operator (reduced economies of scope and scale and increased transaction costs);
- Large one off costs resulting from the vertical separation;
- Effect for the consumer is ambiguous. It is unclear if the benefits of vertical separation outweigh the costs.

⁴⁵ OECD (2003). Although the OECD report is concerned with the local loop, many of the arguments for and against separation are more generally applicable.

⁴⁶ Local Loop Unbundling

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Economic Analysis Team

The **Dutch Independent Post and Telecommunications Authority (OPTA)** regulates the postal and telecommunication markets in The Netherlands. OPTA is an independent executive body that commenced its activities on 1 August 1997. OPTA's mission is to stimulate sustained competition in the telecommunications and post markets. In the event of insufficient choice OPTA protects end-users. OPTA regulates compliance with the legislation and regulations on these markets.

OPTA has committed itself to improving the economic reasoning on which strategic choices are made so that market parties have a clear understanding of what to expect from OPTA now and in the future. In 2003 the OPTA bureau was complemented with the **Economic Analysis Team (EAT)** headed by the Chief Economist. EAT is responsible for developing economic reasoning and stimulating discussion on key issues within the telecommunications and postal markets. To achieve this, EAT produces two kinds of policy notes – short discussion papers. *Economic Policy Notes* focus on economic issues and principles. *Regulatory Policy Notes* focus on strategic economic issues in specific regulatory fields.

With its products and activities the Economic Analysis Team expects to add value to the economic debate in Dutch telecoms and post. For further information visit www.opta.nl from where you can download EAT publications.

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