Mergers in emerging markets with network externalities: the case of telecoms

Dewatripont, Mathias; Legros, Patrick

Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

discussion papers

FS IV 00 – 23

Mergers in Emerging Markets with Network Externalities: The Case of Telecoms

Mathias Dewatripont
Patrick Legros
Université Libre de Bruxelles

December 2000

ISSN Nr. 0722 - 6748

Forschungsschwerpunkt Marktprozeß und Unternehmensentwicklung

Research Area Market Processes and Corporate Development

Zitierweise/Citation:

Mathias Dewatripont, Patrick Legros, **Mergers in Emerging Markets with Network Externalities: The Case of Telecoms,** Discussion Paper FS IV 00-23, Wissenschaftszentrum Berlin, 2000.

Wissenschaftszentrum Berlin für Sozialforschung gGmbH,
Reichpietschufer 50, 10785 Berlin, Tel. (030) 2 54 91 – 0
Internet: www.wz-berlin.de

ABSTRACT

Mergers in Emerging Markets with Network Externalities: The Case of Telecoms

by Mathias Dewatripont and Patrick Legros

This paper develops a unifying framework to understand competition issues in network industries. It focuses on the telecom(munication) industry and takes two specific effects of this industry into account. First, the telecom industry is in continuous evolution and alliances affect not only the current market power of the firms but also the evolution of the industry. Second, the production of services in the industry is evolving towards the provision of integrated services in a "system" that benefits from strong "network externalities". The analysis suggests that the antitrust authorities should capture as well such effects as the magnitude of the installed bases, the compatibility of the alliance's system with other systems, the switching costs for customers and application writers, and the "credibility" of the alliance to offer the service. The developed framework builds on the existing models of networks and combines the different network effects. The relevance of the framework is shown for two important merger cases (WorldCom-MCI and MSG cases), involving respectively an existing market and an emerging one.

ZUSAMMENFASSUNG

Unternehmenszusammenschlüsse in entstehenden Märkten mit Netzexternalitäten: Das Beispiel der Telekommunikationsindustrie

In diesem Beitrag wird ein einheitlicher Bezugsrahmen zur Analyse des Wettbewerbs in Netzwerkindustrien entwickelt. Er zielt auf die Analyse der Telekommunikationsindustrie ab und berücksichtigt dabei spezielle Effekte dieser Industrie. Erstens ist die Telekommunikationsindustrie durch eine stetige Evolution gekennzeichnet und Allianzen zwischen den Unternehmen beeinflussen nicht nur die aktuelle Marktmacht der Unternehmen, sondern auch die Entwicklung der Industrie. Zweitens entwickelt sich die Produktion der Dienste in dieser Industrie immer stärker in Richtung auf das Angebot integrierter Dienste (Systemangebote), die Vorteile aus Netzexternalitäten nutzen. Die Analyse zeigt auch, daß die Wettbewerbsbehörden ebenfalls Merkmale wie die Anzahl der verfügbaren Anschlüsse, die Kompatibilität des Systems der Allianz mit anderen Systemen, die Wechselkosten der Kunden sowie die Glaubwürdigkeit der Dienstleistungsqualität der Allianz berücksichtigen sollten. Der entwickelte Bezugsrahmen stützt sich auf die vorhandenen Netzmodelle und kombiniert die unterschiedlichen Netzeffekte und -merkmale. Die Bedeutung des Ansatzes wird am Beispiel von zwei wichtigen Fusionsfällen aufgezeigt (WorldCom-MCI und MSG), bei denen es sich jeweils um einen existierenden und einen entstehenden Markt handelt.

Introduction

The recent series of alliances in the telecommunication industry is a challenge to antitrust authorities. In addition to the usual challenge of defining market power, specific aspects of the industry make the task of evaluating the effects of alliances or of full mergers difficult:

1. The telecommunication industry is in continuous evolution and alliances affect not only the current market power of the firms but also the evolution of the industry.
2. The production of services in the industry is becoming similar to what has been witnessed in the computer industry, with an evolution towards the provision of integrated services in a "system" that benefits from strong "network externalities" (that is, virtuous circles by which consumers value a good more the higher the number of other customers served by the firm).

In this paper, we suggest a framework to take into account both effects and to evaluate the costs and benefits of alliances. We develop a framework that builds on the existing models of networks and that combines different network effects that have been identified separately in the literature. This is an important task in our view given the increasing importance of industries with network externalities in the economy, their crucial role in aggregate technological progress and their high potential for monopolization.

In emerging market industries, the market power analysis *must be* by definition prospective; the *current* market power of firms is only an imperfect indicator of their future market power. Authorizing certain alliances can have an effect not only on the future concentration in the industry but also on the standards that will become dominant. In order to evaluate the distortions that can be introduced by alliances (with respect to the status-quo situation), our analysis suggests that the antitrust authorities should capture such effects as:

- The magnitude of the installed bases,
- The compatibility of the alliance's system with other systems,
- The switching costs for customers *and* application writers,
- The "credibility" of the alliance to offer the service.

We argue that a number of the effects we have identified here are implicit in the concerns that have led the European Commission to impose conditions on the *WorldCom-MCI* merger proposal and to block the *MSG Media Services* joint venture proposal (in the first case, the concern was the *degradation of compatibility* between Internet backbones by a dominant WorldCom-MCI, and in the second case the monopolization of the *emerging* digital pay-TV market in Germany).

The remainder of the paper is organized as follows. In Section 1, we present a unified framework for markets that present network effects, pointing for each type of market how network effects play and how dominance can be achieved. In Section 2 we

develop the connection with the WorldCom-MCI and MSG cases in terms of the typology introduced in Section 1. In Section 3, we conclude.

1. Network Markets and Network Effects

1.1. Typology of Network Markets

1.1.1. Communication Markets, Systems Markets and Mixed Markets

The most obvious benefit of subscribing to a telecom operator is the ability to call other people on the network. Intuitively, the more agents subscribe to the network, the larger is the benefit for an individual agent (as long as the agent cares to communicate with the other agents on the network). Markets where the benefit of consumers comes from the ability to communicate with other consumers via the network can be called communication markets. A large literature that we briefly review below has developed in order to understand the dynamics of such markets, especially the snowball effects that are related to the increasing benefit that consumers obtain when the number of subscribers to their network increases (based on the classic papers Katz and Shapiro 1985, Farrell and Saloner 1985). In short, the "network effect" in communication markets is the fact that the more agents are present on a network, the greater are the incentives for other agents to join this network.

Recently, a literature has considered products that are obtained by combining different components in a complementary way (see for instance the survey by Katz and Shapiro 1994 and the papers by Church and Gandal 1992, Gilbert 1992, Chou and Shy 1990, Farrell and Saloner 1992, Matutes and Regibeau 1988). Obvious examples are the complementarity between computer and software applications, between VCRs and tapes, or between game consoles like Nintendo and games. We follow Katz and Shapiro (1994) in calling these markets systems markets. In systems markets, the "network effect" is the fact that the more applications are available for a system, the greater are the incentives for consumers to purchase the system, *and* the more application writers desire writing applications for this system. Crucial for these markets is the degree of *compatibility* between different systems. For instance many VCRs can now read tapes that have been recorded under different formats (Pal, Secam for Europe, NTSC for the U.S.) but VCRs that also record *from any* format *into any* format are quite expensive (typically four times the price of a regular multi-system VCR).

Finally, we call markets that combine both communication and systems market features mixed markets. Hence, customers on these markets benefit not only from linkage to other agents but also from access to the complementary services provided on the network. For instance, a subscriber to AOL has two types of benefits: (1) "Communication benefits": the ability to send e-mail messages to friends, family, or colleagues or to meet previously unknown other customers of AOL (in what is called "chat rooms", where customers exchange—in real time—ideas, or "game rooms", where

customers play—in real time—games). (2) "Services": for instance, access to services that are provided by other sources (web pages for instance) or that are proprietary to the AOL network (for instance information on weather, on financial market performances, or proprietary "virtual shows"). Note that in (2) the benefits *increase with the number of services that can be provided*, i.e., in the form of links to other providers or sources of information (like the public Internet) and to proprietary services of AOL.

In systems and in mixed markets, there is therefore an "up" market (services) and a "down" market (customers) and the sizes of the "up" and of the "down" markets affect the benefits of the customers in the "down" market. Moreover, the size of the "down" market will determine the incentives for service providers in the "up" market to join a given system.

1.1.2. A Unified Framework

Having defined a typology of markets that will exhibit network effects, we can now understand the common structure of these different markets, and later the conditions that will generate dominance.

We first offer a unifying view of these markets, based on a three-layer structure representing the product that customers effectively purchase.[1] We give the layers the generic names of *hardware*, *interface* and *applications*. In markets that are relevant for our analysis, there is an interface – which is in general based on software but could be a mechanical device – that enables the functioning of the network or provision of services (via the use of applications) to the customer.

[1] As should be clear, the three-layer structure is for simplification.

Product	*Hardware*	*Interface*	*Applications*
Communication markets			
Simple telephony	Telephone lines	Switches (manual or computerized)	Not very relevant
Systems markets			
Personal computers	Box and microchip, disk drives, …	Operating system (windows, Unix, OS2)	Word processing, relational database programs,…
VCR	Box, motor for tape, etc.	Software that translates the signals from the tape and that commands the motor speed, …	Recorded feature films, cartoons, …
Mixed markets			
Public Internet	PSTN (Public Switched Telephone Network), fiber optic networks	Core backbones and routing processes, internet protocol	Messaging, Web pages,…
Global Communications	Transport networks (theirs and other carriers)	Internet Protocol Platform, Application Provider Interfaces	Video conferencing, e-commerce, Global call centers, Messaging…

Table 1

1.2. Dominance in Network Markets: Theory

How is dominance achieved *and* preserved in markets with network externalities? Beyond the classical way of dominance by merger, such markets are prone, as the literature has clearly established since the mid-80s (e.g., Katz and Shapiro 1994), to significant tendencies for monopolization through "positive feedback effects" or snowball effects.

It will be useful to go back to our typology of markets in order to understand how these snowball effects are generated in communication markets, systems markets and mixed markets.

1.2.1. Snowball Effects in Communication Markets

Consider a market in which new customers enter each period and can decide to join one of many competing firms. Consider the decision of an individual customer who has to choose between different networks at a given point in time. As we know now, the main network effect comes from the ability to communicate with other customers (now and in the future).

To communicate *now*, two factors are important: first the ability to communicate on-net (i.e., inside the network that is chosen) and the ability to communicate off-net (i.e., with customers of other networks). The ability to communicate on-net is related to the number of current customers of the network, what is called the installed base of consumers. The ability to communicate off-net is related to the compatibility between the networks. In terms of table 1, while most telecoms use the same "hardware", they have different "interfaces" (provisioning systems and interconnections with other networks). If the networks are fully compatible, the quality of communication off-net is similar to the quality of communication on-net and the relative sizes of the installed bases do not translate into competitive advantages. If however the networks are not compatible at all, then the network with the largest installed base offers the greatest benefits to consumers and this can translate into a competitive advantage.

To communicate *in the future*, consumers must form expectations about their future ability to communicate (on-net or off-net). In particular, they must form expectations about the ability of the network operators to continue their service, about the future base of consumers on different networks and the future quality of communication on-net and off-net. The greater are the expectations of a consumer about the future quality of a given network, the greater are his expected benefits from joining this network. Positive expectations of the consumers about the quality of a network can therefore translate into a competitive advantage.

The decision to join a given network depends on both the installed base and the expectations of the consumers (about compatibility, quality, consumers). Snowball effects refer to the phenomenon by which a large installed base creates positive expectations about the future size of the network in a self-reinforcing way since consumers have incentives to join the network now and therefore increase the installed base tomorrow.

As we have seen, the key ingredients for snowballing to yield dominance and positive profits are: a strong installed base, positive switching costs (but not necessarily high), some degree of incompatibility (which can be endogenous) with competing networks, and credibility of the continuing existence of the network (which is partly endogenous since the profitability of the network is related to its number of consumers).

1.2.2. Snowball Effects in Systems Markets

In systems markets, the network effect is indirect since it relates the benefits of consumers to the availability of the applications. We could apply almost immediately the reasoning of the previous section and point to the same factors for explaining the acquisition and the persistence of dominance in systems markets. This would however hide important differences between the two environments, the least of which is that a firm introducing a system has to get dominance on *two* markets: the "up" market (applications) and the "down" market (consumers).

Installed base: Attracting consumers will depend on the current and future availability of applications. Attracting application writers will depend on the expected profits that they can obtain by joining the system, profits that in turn depend on the number of consumers present in the market. Hence, both the installed base of consumers (on the "down" market) *and* the installed base of applications (on the "up" market) are important to generate snowball effects. Because the snowball effect on both ends of the market reinforce each other, it seems that systems markets will be more prone to create dominance (tipping) via network effects than communication markets.

Switching costs: Switching costs must be positive for both consumers and application writers. These switching costs are related to the degree of compatibility between systems; for instance if Windows applications can run—and provide the same quality—on Apple based machines, the switch would not involve the repurchase of applications. As for communication markets, switching costs need not be "high." If going from a system to the next the set of applications available to use on the system decreases in a significant way, then there is an "indirect" switching cost equal to the difference of benefits obtained by consuming two products H-I-A with unequal A. Here again, this effect is likely to be important when the two systems H-I are not compatible.

Compatibility: If systems (that include APIs) are compatible, e.g., if they utilize a common industry standard, applications developed for one system can easily be "ported" onto another system (Besen and Farrell 1994, Farrell and Saloner 1992). If systems are not compatible however, then dominance in installed bases can translate into further dominance by the snowball effects. In particular, a firm's strategy will typically encourage a generous supply of applications, while also trying to discourage the supply of applications to rivals (Besen and Farrell 1994) It can be shown that this strategy is most likely to succeed when a firm has an initial advantage in installed bases because it can credibly compete away application developers from rival systems.

Credibility of the product: since the system H-I and the applications A define the product, the credibility of the product depends on the present and future availability of the system (H-I) *and* of the applications (A). It also depends on the reputation of the firm introducing the system. Firms with well established brand names have more to lose from failing than firms which are less known, hence they will either avoid introducing a system that is not ready or they will try – like IBM did for the PCjr – very hard not to have the product fail by supporting application developers for instance.

1.2.3. Snowball Effects in Mixed Markets

Mixed markets combine and compound the network effects of communication markets and systems markets. The two effects—the direct effect due to communication and the indirect due to the services provided by applications—are operating in the same direction. Consumers have direct switching costs that are for instance the need to buy a new system, to learn how to use the new system and the new applications. Consumers have also indirect switching costs that are related to the loss in communication benefits *and* to the loss in services. Application writers have also direct and indirect switching costs: the direct costs are linked to the writing of applications for a different system or to convert their initial application into the standard of the new system (on the strategic use of converters, see for instance Farrell and Saloner 1992); the indirect costs are linked to the loss of revenues that can be obtained due to the difference in the consumers bases.[2] Hence network effects will be at least as large as in the other markets and intuition would suggest that the network effects are in fact stronger in mixed markets.

2. The WorldCom-MCI and MSG Cases

In the previous section we stressed the importance of direct and indirect network effects that will benefit an alliance and the analysis that demonstrates their likely impact in terms of durable dominance of an emerging market. We now turn more precisely to two leading cases in European competition policy which are very instructive on these issues, namely, WorldCom-MCI and MSG Media Services.

To organize the analysis, Table 2 presents the three cases in terms of the unified framework of Section 1. For WorldCom-MCI, a proposed merger of two telecom companies with substantial Internet businesses, the relevance of the framework is straightforward since Table 1 already considered public Internet (we focus on this aspect of that merger since divestiture of MCI's Internet business was a condition for the merger to be cleared). Let us stress that the dominance of the core backbones was the key deciding issue in the case. Indeed, the TCP/IP protocol was a standard publicly available for applications, so that dominance on backbone interconnection was the only concern.

MSG Media Services was a proposed venture between Bertelsmann (a leading German media group), Kirch (the leading German supplier of feature films and television programming) and Deutsche Telekom (then the monopoly provider of telephone service in Germany and the owner/operator of nearly all German broadband cable networks). The venture intended to be the first to offer digital Pay-TV in Germany. Just like in our unified framework, we can distinguish three layers that are

---

[2] This also implies that the application writer has less incentives to improve his application on a system that yields lower revenues.

complementary for providing the final product. And just like in our framework, dominance on the emerging market of digital Pay-TV comes from monopolization of at least one layer.

Case	*Hardware*	*Interface*	*Applications*
WorldCom-MCI	PSTN, fiber optic networks	Core backbones and routing processes, internet protocol	Messaging, Web pages,…
MSG Media Services	Cable network	Decoders and access system software	Feature films, shows, cartoons, …

Table 2

2.1 WorldCom-MCI

In the WorldCom-MCI merger proposal, it can be argued (Crémer, Rey and Tirole 1998) that, with a sizable post-merger market share on the Internet backbone segment, a significant risk of further dominance was present through degradation of the quality of interconnection of Internet backbones. This risk was due in that case to a lack of incentives for improvement or maintenance of this quality by WorldCom-MCI. The argument can be summarized as follows:

- First, the quality of interconnection between two backbones depends on investments by both backbone owners to maintain/improve this quality; it is thus the party that invests less that determines the quality of interconnection.
- Second, when considering a specific pair of backbones, the net gain from such investment in interconnection quality is much lower when one's backbone has a much larger market share than the other backbone, since the customer of the smaller backbone will want to use this interconnection for a much bigger proportion of use than the customer of the larger backbone. In fact, poorer quality of interconnection between this pair of backbones can even induce the customer of the larger backbone to try and stay "on-net".
- Poor interconnection can thus trigger a snowball effect with ever increasing market share for the large backbone and thus full domination in a pretty short time horizon. Such a snowball effect can be accelerated by various strategies pursued by the dominant firm: first by a "divide-and-conquer strategy," by which the dominant firm degrades the quality of interconnection with one competitor at a time, until the implied nuisance leads its customers to leave its backbone; second by charging

smaller networks high interconnection fees, or by pricing on-net traffic at advantageous rates relative to off-net traffic for its own customers.

- In the absence of the merger between WorldCom and MCI, there were a number of players in the Internet backbone market with reasonably symmetric market shares. They consequently had reasonably symmetric incentives to all invest in maintaining good-quality interconnection between themselves and thus to contribute to an ever improving "cooperative standard". Instead, a merger without divestiture of its Internet business by either WorldCom or MCI would have created this asymmetric situation by which, through lack of investment in the quality of interconnection by this dominant firm, "de facto standardization by monopolization" would have occurred, with the subsequent dangers for consumers of Internet backbone services.

Concerns of this sort have led the European Commission to insist on divestiture by WorldCom of its Internet business as a precondition for allowing the merger to go through.

2.2 MSG

The leading case to date concerning emerging telecom markets and its related risk of dominance is MSG Media Services (Commission 1994). In paragraph 55 of the Commission decision, it is stated:

"Although a monopoly in a future market that is only just beginning to develop should not necessarily be regarded as a dominant position within the meaning of Article 2(3) of the Merger Regulation, the assumption that no market dominance exists presupposes in such a case that the future market in question remains open to future competition and that the monopoly is consequently only temporary".

In the MSG Media Services case, the Commission ruled (in paragraphs 61-63) that the monopoly position of the venture would not have been temporary, in particular because of:

- all potential competing pay-TV providers' dependence on Deutsche Telekom's cable network;
- the parties' substantial existing customer bases (in cable network and analog pay-TV) and distribution bases (store-front network for DT, book clubs for Bertelsmann);
- the parties' complementary strengths, in technology for DT and programming for Bertelsmann and Kirch.

This has led the European Commission to block the proposed venture altogether.

3. Conclusion

In this short paper, we have presented a unifying framework to understand competition issues in network industries. Such industries are by nature prone to monopolization, and are thus a big concern for antitrust authorities. We have focused on the telecom industry here, given its importance in the aggregate economy and given its high level of activity in terms of mergers and joint ventures. We have shown the relevance of the framework for two important merger cases, involving respectively an existing market and an emerging one. We feel that many more cases are to come, and that refining the analysis in their light will be an important task.

References

Besen, S. and J. Farrell (1994), "Choosing How to Compete: Strategies and Tactics in Standardization," *Journal of Economic Perspectives*, 8(2), Spring, pages 117-31.

Chou, C.F. and O. Shy (1990), "Network Effects without Network Externalities," *International Journal of Industrial Organization*, 8, pp. 259-270.

Church, J. and N. Gandal (1992), "Integration, Complementary Products and Variety," *Journal of Economics and Management Strategy*, 1, pp. 651-676.

Commission decision (94/922/EC), Case IV/M.469 - MSG Media Services, OJ (1994) L 364/01.

Crémer, J., Tirole, J. and P. Rey (1998), "The Degradation of Quality and the Domination of the Internet," mimeo, IDEI, Toulouse.

Farrell, J. and G. Saloner (1985), "Standardization, Compatibility, and Innovation," *Rand Journal of Economics*, 16, pp. 70-83.

Farrell, J. and G. Saloner (1992), "Standard Setting in High-Definition Television," *Brookings Papers on Economic Activity: Microeconomics*, pp. 1-93.

Farrell, J. and G. Saloner (1992), "Converters, Compatibility, and the Control of Interfaces, " *Journal of Industrial Economics*, 40(1), March, pages 9-35.

Gilbert, R. (1992), "Symposium on Standardization in Network Industries," *Journal of Industrial Economics*, 40, pp. 1-8.

Katz, M.L. and C. Shapiro (1985), "Network Externalities, Competition and Compatibility," *American Economic Review*, 75, pp. 424-440.

Katz, M.L. and C. Shapiro (1994), "Systems Competition and Network Effects," *Journal of Economic Perspectives*, 8, pp. 93-115.

Matutes, C. and P. Regibeau (1998), "Mix and Match: Product Compatibility Without Network Externalities," *Rand Journal of Economics*, 19, pp. 221-234.

Bücher des Forschungsschwerpunkts Marktprozeß und Unternehmensentwicklung

Books of the Research Area Market Processes and Corporate Development

(nur im Buchhandel erhältlich/available through bookstores)

Tobias Miarka
Financial Intermediation and Deregulation: A Critical Analysis of Japanese Bank-Firm-Relationships
2000, Physica-Verlag

Damien J. Neven, Lars-Hendrik Röller (Eds.)
The Political Economy of Industrial Policy in Europe and the Member States
2000, edition sigma

Jianping Yang
Bankbeziehungen deutscher Unternehmen: Investitionsverhalten und Risikoanalyse
2000, Deutscher Universitäts-Verlag

Horst Albach, Ulrike Görtzen, Rita Zobel Eds.)
Information Processing as a Competitive Advantage of Japanese Firms
1999, edition sigma

Dieter Köster
Wettbewerb in Netzproduktmärkten
1999, Deutscher Universitäts-Verlag

Christian Wey
Marktorganisation durch Standardisierung: Ein Beitrag zur Neuen Institutionenökonomik des Marktes
1999, edition sigma

Horst Albach, Meinolf Dierkes, Ariane Berthoin Antal, Kristina Vaillant (Hg.)
Organisationslernen – institutionelle und kulturelle Dimensionen
WZB-Jahrbuch 1998
1998, edition sigma

Lars Bergman, Chris Doyle, Jordi Gual, Lars Hultkrantz, Damien Neven, Lars-Hendrik Röller, Leonard Waverman
Europe's Network Industries: Conflicting Priorities - Telecommunications
Monitoring European Deregulation 1
1998, Centre for Economic Policy Research

Manfred Fleischer
The Inefficiency Trap
Strategy Failure in the
German Machine Tool Industry
1997, edition sigma

Christian Göseke
Information Gathering and Dissemination
The Contribution of JETRO to
Japanese Competitiveness
1997, Deutscher Universitäts-Verlag

Andreas Schmidt
Flugzeughersteller zwischen globalem Wettbewerb und internationaler Kooperation Der Einfluß von Organisationsstrukturen auf die Wettbewerbsfähigkeit von Hochtechnologie-Unternehmen
1997, edition sigma

Horst Albach, Jim Y. Jin, Christoph Schenk (Eds.)
Collusion through Information Sharing? New Trends in Competition Policy
1996, edition sigma

Stefan O. Georg
Die Leistungsfähigkeit japanischer Banken Eine Strukturanalyse des Bankensystems in Japan
1996, edition sigma

Stephanie Rosenkranz
Cooperation for Product Innovation
1996, edition sigma

Horst Albach, Stephanie Rosenkranz (Eds.)
Intellectual Property Rights and Global Competition - Towards a New Synthesis
1995, edition sigma.

David B. Audretsch
Innovation and Industry Evolution
1995, The MIT Press.

Julie Ann Elston
US Tax Reform and Investment: Reality and Rhetoric in the 1980s
1995, Avebury

Horst Albach
The Transformation of Firms and Markets: A Network Approach to Economic Transformation Processes in East Germany
Acta Universitatis Upsaliensis, Studia Oeconomiae Negotiorum, Vol. 34
1994, Almqvist & Wiksell International (Stockholm).

DISCUSSION PAPERS 1999

Suchan Chae Paul Heidhues	**Bargaining Power of a Coalition in Parallel Bargaining: Advantage of Multiple Cable System Operators**	FS IV 99 - 1
Christian Wey	**Compatibility Investments in Duopoly with Demand Side Spillovers under Different Degrees of Cooperation**	FS IV 99 - 2
Horst Albach	**Des paysages florissants? Une contribution à la recherche sur la transformation**	FS IV 99 - 3
Jeremy Lever	**The Development of British Competition Law: A Complete Overhaul and Harmonization**	FS IV 99 - 4
Damien J. Neven Lars-Hendrik Röller Zhentang Zhang	**Union Power and Product Market Competition: Evidence from the Airline Industry**	FS IV 99 - 5
Justus Haucap Uwe Pauly Christian Wey	**The Incentives of Employers' Associations to Raise Rivals' Costs in the Presence of Collective Bargaining**	FS IV 99 - 6
Jianbo Zhang Zhentang Zhang	**Asymptotic Efficiency in Stackelberg Markets with Incomplete Information**	FS IV 99 - 7
Justus Haucap Christian Wey	**Standortwahl als Franchisingproblem**	FS IV 99 - 8
Yasar Barut Dan Kovenock Charles Noussair	**A Comparison of Multiple-Unit All-Pay and Winner-Pay Auctions Under Incomplete Information**	FS IV 99 - 9
Jim Y. Jin	**Collusion with Private and Aggregate Information**	FS IV 99 - 10
Jos Jansen	**Strategic Information Revelation and Revenue Sharing in an R&D Race with Learning Labs**	FS IV 99 - 11
Johan Lagerlöf	**Incomplete Information in the Samaritan's Dilemma: The Dilemma (Almost) Vanishes**	FS IV 99 - 12
Catherine Matraves	**Market Integration and Market Structure in the European Soft Drinks Industry: Always Coca-Cola?**	FS IV 99 - 13
Pinelopi Koujianou Goldberg Frank Verboven	**The Evolution of Price Discrimination in the European Car Market**	FS IV 99 - 14
Olivier Cadot Lars-Hendrik Röller Andreas Stephan	**A Political Economy Model of Infrastructure Allocation: An Empirical Assessment**	FS IV 99 - 15
Holger Derlien Tobias Faupel Christian Nieters	**Industriestandort mit Vorbildfunktion? Das ostdeutsche Chemiedreieck**	FS IV 99 - 16
Christine Zulehner	**Testing Dynamic Oligopolistic Interaction: Evidence from the Semiconductor Industry**	FS IV 99 - 17

Johan Lagerlöf	**Costly Information Acquisition and Delegation to a "Liberal" Central Banker**	FS IV 99 - 18
Ralph Siebert	**New Product Introduction by Incumbent Firms**	FS IV 99 - 19
Ralph Siebert	**Credible Vertical Preemption**	FS IV 99 - 20
Ralph Siebert	**Multiproduct Competition, Learning by Doing and Price-Cost Margins over the Product Life Cycle: Evidence from the DRAM Industry**	FS IV 99 - 21
Michael Tröge	**Asymmetric Information Acquisition in Credit Auction**	FS IV 99 - 22
Michael Tröge	**The Structure of the Banking Sector, Credit Screening and Firm Risk**	FS IV 99 - 23
Michael Tröge	**Monitored Finance, Usury and Credit Rationing**	FS IV 99 - 24
Silke Neubauer	**Multimarket Contact, Collusion and the International Structure of Firms**	FS IV 99 - 25
Horst Albach Thomas Brandt Holger Jakob M. A. Paradowska-Thimm Jianping Yang	**Dokumentation der „Bonner Stichprobe" – Zur Datenbank der Jahresabschlüsse deutscher Aktiengesellschaften, 1960-1997**	FS IV 99 - 26
Tomaso Duso	**Endogenous Switching Costs and the Incentive for High Quality Entry**	FS IV 99 - 29
Jos Jansen	**Regulating Complementary Input Supply: Production Cost Correlation and Limited Liability**	FS IV 99 - 30
Robert Greb	**Internationalisierung der FuE-Tätigkeit von Unternehmen der Chemischen Industrie in Deutschland**	FS IV 99 - 34
Suchan Chae Paul Heidhues	**The Effects of Downstream Distributor Chains on Upstream Producer Entry: A Bargaining Perspective**	FS IV 99 - 35
Tobias Miarka	**The Recent Economic Role of Bank-Firm-Relationships in Japan**	FS IV 99 - 36
William Novshek Lynda Thoman	**Demand for Customized Products, Production Flexibility, and Price Competition**	FS IV 99 - 37

DISCUSSION PAPERS 2000

Justus Haucap Uwe Pauly Christian Wey	**Collective Wage Setting When Wages Are Generally Binding: An Antitrust Perspective**	FS IV 00 - 01
Stephanie Aubert Andreas Stephan	**Regionale Infrastrukturpolitik und ihre Auswirkung auf die Produktivität: Ein Vergleich von Deutschland und Frankreich**	FS IV 00 - 02
Achim Kemmerling Andreas Stephan	**Political Economy of Infrastructure Investment Allocation: Evidence from a Panel of Large German Cities**	FS IV 00 - 03
Andreas Blume Asher Tishler	**Security Needs and the Performance of the Defense Industry**	FS IV 00 - 04
Tomaso Duso	**Who Decides to Regulate? Lobbying Activity in the U.S. Cellular Industry**	FS IV 00 - 05
Paul Heidhues Johan Lagerlöf	**Hiding Information in Electoral Competition**	FS IV 00 - 06
Andreas Moerke Ulrike Görtzen Rita Zobel	**Grundlegende methodische Überlegungen zur mikroökonomischen Forschung mit japanischen Unternehmensdaten**	FS IV 00 - 07
Rabah Amir	**Market Structure, Scale Economies, and Industry Performance**	FS IV 00 - 08
Lars-Hendrik Röller Johan Stennek Frank Verboven	**Efficiency Gains from Mergers**	FS IV 00 - 09
Horst Albach Ulrike Görtzen Tobias Miarka Andreas Moerke Thomas Westphal Rita Zobel	**Documentation of the Kaisha-Database – The Annual Accounts Database of Japanese Stock Companies 1970 – 1999 With a detailed Glossary of Japanese Accounting Terminology**	FS IV 00 - 10
Paul Heidhues	**Employers' Associations, Industry-wide Unions, and Competition**	FS IV 00 - 11
Roman Inderst Christian Wey	**Market Structure, Bargaining, and Technology Choice**	FS IV 00 - 12
Michael R. Baye Dan Kovenock Casper G. de Vries	**Comparative Analysis of Litigation Systems: An Auction-Theoretic Approach**	FS IV 00 - 13
Damien J. Neven Lars-Hendrik Röller	**The Scope of Conflict in International Merger Control**	FS IV 00 - 14
Damien J. Neven Lars-Hendrik Röller	**Consumer Surplus vs. Welfare Standard in a Political Economy Model of Merger Control**	FS IV 00 - 15
Jos Jansen	**Coexistence of Strategic Vertical Separation and Integration**	FS IV 00 - 16

Johan Lagerlöf	**Policy-Motivated Candidates, Noisy Platforms, and Non-Robustness**	FS IV 00 - 17
Pierre Mohnen Lars-Hendrik Röller	**Complementarities in Innovation Policy**	FS IV 00 - 18

Absender/From:

Versandstelle - WZB
Reichpietschufer 50

D-10785 Berlin

BESTELLSCHEIN / ORDERFORM

Bitte schicken Sie bei Ihren Bestellungen von WZB-Papers ***unbedingt*** eine ***1-DM-Briefmarke pro paper*** und einen an Sie adressierten ***Aufkleber*** mit. Danke.

For each paper you order please send a ***"Coupon-Réponse International"*** (international money order) plus ***a self-addressed adhesive label***. Thank You.

Bitte schicken Sie mir aus der Liste der Institutsveröffentlichungen folgende Papiere zu:

Please send me the following papers from your Publication List:

Paper Nr./No.	Autor/Author + Kurztitel/Short Title