

CO-EVOLUTION OF INSTITUTIONS AND STRATEGIES:

FINNISH PULP AND PAPER INDUSTRY 1918-1995

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In this paper, we focus on the co-evolution between an institutional form and company-level strategies over an extended period of time. We analyze the content and evolution of the institutional environment surrounding Finnish paper and pulp firms between 1918—1995. Our study includes two elements. First, we identify the *de facto* institutional structures affecting corporate strategies by parcelling the institutional environment to a set of informal and formal rules. Second, we examine the consequences of the shared institutional environment vis-à-vis competitive actions undertaken by the firms. Moreover, we scrutinize the durability of the institutional form by measuring the level of adaptability of the competitive actions. Our results suggest that firms participating in the building and maintenance of the institutional form start and enhance an institutional process of change in correlation with the level of their own internationalization.

Keywords: institutional theory, co-evolution, historical analysis, strategy, paper and pulp industry

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Since Selznick's (1948; 1957) seminal studies, researchers in organization and strategy theory (Murmann, 2003) and in business history (Rose, 2001; Sjögren 1999) have suggested that without understanding institutional forces as one of the basic determinants of competitive action, it is not possible to understand the evolution of a firm. As Meyer and Rowan (1977) stated, institutions penetrate organizations and give an insight on how organizational actors interpret their environment when making decisions on structure and strategy. Similarly, North (1990) has defined institutions as a framework that dictates the opportunities and constraints for organizational actions. Despite the growing interest on this dialectic relationship between institutional environment and firm strategies (Ingram & Silverman, 2001; Farjoun, 2002), there is an urgent need to study this relationship from an evolutionary and historical perspective.

In this historical explorative study, we analyze the co-evolution of the institutional environment and firm-level competitive actions in the context of the Finnish forest industry during the 20th century. By parceling the industry-specific institutional environment to specific formal and informal rules and by analyzing the relationship between these rules and realized competitive actions we add to the literature in two primary ways. First, by examining the period starting from the Finnish Civil War (1918) and ending with the integration into the European Union, we are able to study the entire sequence of institution building, maintenance, and erosion, thus fulfilling some of the shortcomings of present institutional research that has concentrated on tracing only certain segments of evolutionary processes (yet see Holm, 1995; Murmann, 2003).

Second, with detailed historical analysis we operationalise in a novel way the abstract conceptual relationship between organizational actions and institutions. An understanding of this relationship is necessary in order to accumulate theoretical knowledge on the co-evolutionary mechanisms that link together institutional change and firm-level competitive

actions. We, especially, extend the rational choice argument of the new institutionalists (e.g. North, 1990; Murmann, 2003) that see organizations as tightly coupled to their national context. Our basic argument is that the internationalization and consequent existence in various institutional contexts is significantly linked with the erosion of an institutional form.

The article is divided into five parts. First, we reiterate relevant conceptual discussions concerning institutional change. In particular, we concentrate on North's conceptualization that has been seen as a promising link between sociological institutionalism and new institutional economics (Hirsch & Lounsbury, 1997). Next, we describe the research object and the research strategy used. In the third part, we analyze the institutional underpinnings that have influenced the competitive behavior of the companies. In the fourth part, we scrutinize competitive actions of four prominent Finnish firms in terms of their relationship to those specific formal and informal rules that were identified in the institutional analysis. Finally, we conclude the paper by offering directions for future research.

Theoretical Background

The relationship between action and institutions has been a central dilemma in institutional analysis at least since Parsons' classic studies. Parsons (1951) and Selznick (1948; 1957) were explicit in their argument that not only institutions affect organizations but that organizations also influence the institutional realm surrounding them. Later, sociologically orientated neo-institutionalists (overview in Scott, 1995) maintained that organizations have technical and institutional environments that penetrate organizations that seek legitimacy for their actions. In particular, Meyer (Meyer & Scott, 1983b; Scott & Meyer, 1991) has seen institutions as 'taken-for-granted' assumptions that are relatively static and merely drive organizations to adaptation instead of taking novel actions. Consequently, neo-

institutionalists typically argue that technical and institutional environmental pressures shape organizations and that organizations in the same environment will become structurally similar (DiMaggio et al., 1983). Most NI scholars assert that organizations can have little, if any, effect on institutions, which are seen as relatively static (Meyer et al., 1983a; Scott, 1995a).

More recently, Barley and Tolbert (1997) building on Giddens (1976, 1979, 1984) stated that the relationship between institutions and organizational actions is two-directional. Despite the considerable attention this view has raised, the neo-institutional perspective to organizational action has remained on a rather abstract level. Partly as a consequence of the short-comings in neo-institutionalism, some scholars (see e.g. Holm, 1995) have suggested the fusing of neo-institutional theory with a rational choice perspective. In short, rational choice adherents (see e.g. Greif 1998; Buchanan & Tullock 1962; Buchanan 1969; Buchanan & Brennan 1985) emphasize that organizations and institutions have an interactive relation: organizations both affect institutions, as well as are influenced by institutions. The greatest difference in comparison to sociologically flavored institutionalism is that the rational choice school sees economic actors as optimizers or sub-optimizers making rational choices (how to use their resources) within institutional boundaries and according to their ability to process information. These arguments are the common ground for scholars who identify themselves as representatives of new institutional economics. For most of the part, we follow this line of inquiry.

Douglass C. North is the leading authority on new institutionalism in the field of economic history. On the basis of his two most important contributions (North, 1981, 1990), one can argue that North spans three different schools of thought inside the new institutionalism. First, his arguments are built on the public choice school and, especially, on James Buchanan's (Buchanan & Tullock, 1962) and Mancur Olson's (1965) thinking. Second, at the conceptual level, he relies on transaction cost economics (Coase 1960, Cheung 1974,

1983, North 1981, Barzel 1982, 1989). Last, he has integrated some crucial 'sociological' elements such as ideology and culture to his framework which makes it especially attractive for organizational researchers (Powell & DiMaggio 1991).

According to North (1990), institutions form in a metaphorical sense the rules of the game whereas organizations are the players. In other words, institutions are informal and formal rules that constrain an organization's actions. Furthermore, institutions change in time and organizations can equally try to change them. Formal rules are a written set of codes of behavior such as laws and statutes. Formality requires a higher authority to control the execution of these rules and compliance with them. The formal rules have a connection with informal constraints that are unwritten, even unspoken, rules of conduct. Typically, norms and customs are defined as informal constraints. Together, these institutions create a set of incentives which influence organizations' operations.

From our point of view, the most interesting part of North's framework is his definition of institutions and institutional change. According to North, the institutions are meant to reduce uncertainty by providing a structure for everyday life. A major extension in North's framework vis-à-vis other institutional models is his well-defined hierarchy of rules. In "Institutions, Institutional Change and Economic Performance," he divided informal rules into: a) extensions, elaborations and modifications of formal rules, b) socially sanctioned norms of behavior and c) internally enforced standards of conduct. Correspondingly, formal rules are a) political and judicial rules, b) economic rules and c) contracts (North, 1990)¹.

¹ In this context, contract means conventional, formalized ways of drawing a contract in typical exchange situations, where the template is supplied by some organized body or perhaps diffuses throughout an industry. We acknowledge the comment of one the reviewers in this clarification.

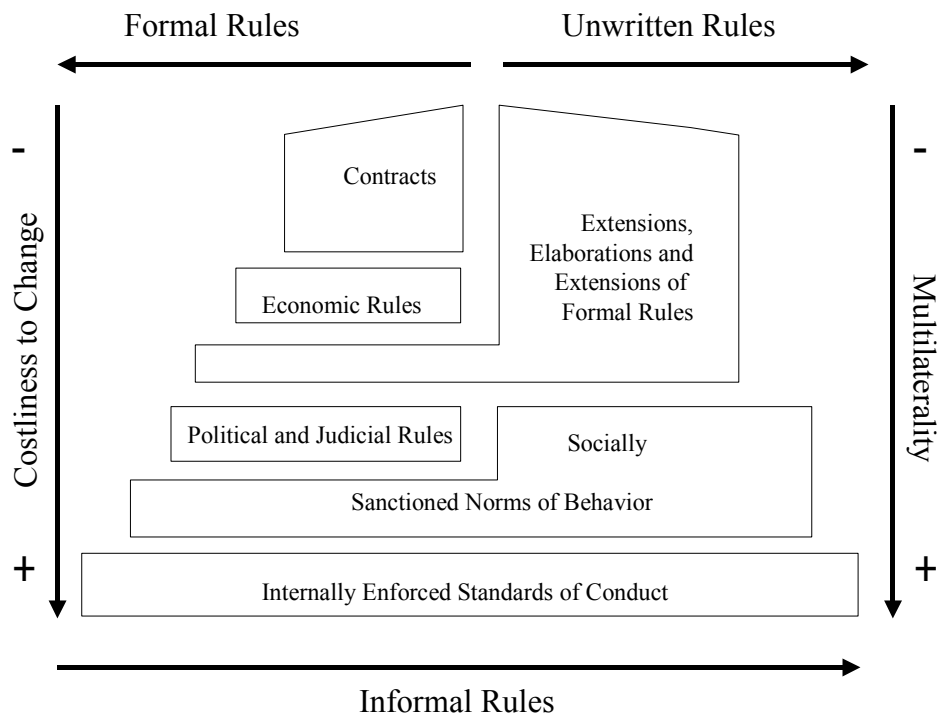


Figure 1: Hierarchical Form of Institutional Constraints

Figure 1 illustrates how North (1990) sees the institutional structure of a society as a hierarchy where each level is more costly to change than the previous one. Accordingly, this increases the probability of incremental institutional change. On the one hand, informal rules are so imbedded in the societies that they change slowly. On the other hand, formal rules at the lower level of the hierarchy are very costly to change — mostly because of the multilateral negotiations between numerous organizations.

The concept of institutional change is a crucial element in constructing a comprehensive framework for analyzing firm-level competitive actions. Institutional change is a process that starts when one or several players perceive that they could do better with an altered agreement or contract. The motivation to try to change the contractual environment occurs because of a change in relative prices. Hence, some new institutional arrangement seems to offer better benefits than the present one, taking into consideration the estimated costs of change. Consequently, players make an attempt to re-negotiate the contract and either

explicit or implicit negotiations arise (North, 1981, 1990). Nevertheless, because of the hierarchical form of the institutional environment, the change might not be possible without restructuring a higher (i.e. lower in the Figure 1) set of rules at the same time. Hence, the lowest levels of the rules are more multilateral — they influence a greater number of players and ultimately all players — and the highest levels are almost purely bilateral agreements between two organizations.

North's economic historical framework explicitly concentrates on the macro- or societal-level institutions, ignoring the organizational level on the basis of a group of a priori assumptions such as path dependence and bounded rationality. By referring to the concept of bounded rationality the choices of a firm are bound to the knowledge and the limits of the resources the firm possesses at the time of a decision (Simon, 1957, 1993). According to the concept of path dependence, the choices of the firm are bound to its history: its resources, former decisions, technologies, and so on. Thus, by choosing certain strategies, a firm adjusts itself to a certain historical path; the development of a firm is therefore dependent on the choices made in the past (David, 2001). Although intellectually attractive, the assumptions regarding path dependence and bounded rationality do not take into account the influence of the specific organizational-level environment on the evolution of organizations. Thus, by examining the concrete competitive actions of firms we are able to 'make sense' of the interrelationship between actions and institutions from a realistic point of view.

Research Object

The world trade in paper industry products has grown continuously during the 20th century. The total production of the paper industry has grown from c. 10 million tons in 1900 through 43 million tons in 1950 to 260 million tons in 1995. Development in the Finnish forest

industry during the 20th century can be characterized by an enormous growth in production and productivity. At the same time, there has been a major shift in the production chain: from sawn timber to pulp and paper. From the perspective of Finnish society, the forest industry's importance has been paramount, especially before the 1990s. The share of the combined forest industry in Finnish exports was in 1960 almost 70 per cent, while in 2000 the share was 26 per cent. At the same time, the share of the paper and pulp industry in Finnish exports has diminished from 42 to 18 per cent. However, in 1990s, the Finnish companies moved over 40 percent of their production capacity outside Finland² (Hagström-Näsi, 1999; Hazley, 2000; Jääskeläinen, 2001). This means that the companies significantly and rapidly internationalized themselves in at the same time when Finland enhanced its economic and political ties with the European Union.

The rationale for choosing the paper and pulp industry as a research object is that it is a rather mature industry with a stabilized group of organizational actors. Hence, it gives the possibility of finding relevant strategic development paths and to understand their relationship to the institutional environment. Moreover, in recent years Nordic researchers both in business history as well as in organization studies have produced an accumulating body of relevant knowledge about the industry's operating logic (Melander, 1997; Tikkanen, Alajoutsijarvi, & Sallinen, 2001), national characteristics (Laurila & Lilja, 2002; Lilja, Räsänen, & Tainio, 1992; Räsänen, 1993; Tainio, Korhonen, & Ollonqvist, 1989), organizational decline (Moen, 1998) and historical strategies (Lamberg, 2002; Lamberg & Ojala, 2001a; Peterson, 1996, 2001). Thus, we follow an already existing rich tradition in using the forest sector as a vehicle for both theoretical and empirical studies in social sciences.

In this article, we concentrate on studying Finnish companies that can be regarded as the “winners” of the century-long competition at the domestic and – in some regards –the

² For more information go to <<http://www.forestindustries.fi/>>.

international level. At the beginning of the 21st century, Stora Enso, UPM-Kymmene, and M-Real were global companies and among the largest paper producers in the world. In Europe, Stora-Enso was according to the turnover in 2003 the largest forest industry company, UPM-Kymmene came second and M-Real fourth. On a world scale, however, the large US-based companies are even larger, leaving Stora-Enso in second and UPM-Kymmene in fifth place. In combined paper and paperboard production capacity (all grades), Stora Enso was the largest producer in the world, while UPM-Kymmene was the third in the world (after International Paper).³ Table 1 summarizes the main characteristics of the studied companies.

Table 1: Company sample and characteristics

	<i>Founding year</i>	<i>1999 turnover (billions dollars)</i>	<i>1974 ranking (paper sales)</i>	<i>1999 ranking (paper sales)</i>	<i>Ownership sphere</i>	<i>Number of competitive actions</i>
Enso-Gutzeit (Stora-Enso)	1918	11	32.	2.	Finnish state	94
Kymmene	1904	..	56.	..	SYP (bank)	131
UPM	1920	8,8	53.	5.	KOP (bank)	150
Metsäliitto	1934	4,5	93.	13.	Co-operative (landowners)	48

From the societal perspective, the research site and timeframe cover a period between two exogenously catalyzed institutional change processes. After Finland became independent in 1917, the country drifted into a short but traumatic Civil War in 1918. The consequence of this period was a rather total restructuring of formal as well as informal institutional settings,

³ These numbers are based on the statistics offered by the Finnish Forest Industries Federation (available at: <http://www.forestindustries.fi/>). In this study, we will analyze Enso (-Gutzeit), United Paper Mills (UPM), Kymmene, and Metsäliitto (ML). Enso was merged with Swedish Stora in 1998. United Paper Mills (UPM) and Kymmene merged in 1996 to become UPM-Kymmene. In this paper, we will analyze UPM and Kymmene separately up to the merger. M-Real is the paper-producing company within the Metsäliitto group. The name of M-Real was from the late 1980s up until the end of the 1990s Metsä-Serla.

including a new foreign trade policy and cartel legislation (overview in Hjerppe & Lamberg, 2000; Lamberg, 1998). In 1995, Finland joined the European Union, which ended some of the characteristic institutional structures, thus putting an end to one era in Finland's economic history. Our purpose is, thus, to analyze the evolutionary period between these two revolutionary development stages.

Method

As typical in inductive and explorative research, we preferred a research strategy that combines different longitudinal methods. In the literature, this approach is seen as being especially appropriate when researching issues that are relatively inadequately understood (Glaser and Strauss, 1967). The aim of such inquiry is to facilitate theorizing through a careful examination of relevant data collected from multiple sources, validated both by extant theories and ongoing re-encounters with the data (Eisenhardt, 1989). In this study, we primarily employed historical analysis which has been considered especially useful in finding generating mechanisms for change. In a multilevel analysis such as ours, a historical perspective facilitates the interpretation of complex causal relationships between organizational actions, socio-economic development and competitive patterns (Kieser, 1989).

Data. The material for the analysis of organizational forms is a combination of archival material including industry statistics and calendars as well as annual reports. During the research process, we engaged in intensive utilization of various non-public as well as public archival materials in the cases of the four prominent firms. We started our data collection by examining a variety of public sources such as company histories and magazine articles describing the historical development of the companies. Simultaneously, we studied the economic and political history of Finland and the Finnish forest industry to obtain knowledge of societal level development before the European integration. Second, we

collected annual reports and relevant trade statistics. We used this material both for historical understanding of the companies' histories and for identification of the competitive actions. In defining competitive actions we followed Miller and Chen (1994) who refers to "...[including] major facilities expansions, mergers and acquisitions, strategic alliances, and important new products or services [...] strategic actions involve a larger expenditure of resources, a longer time horizon, and a greater departure from the status quo than do tactical actions." Third, we engaged in an extensive examination of non-public archival material focusing on strategic level issues at the corporate level. This material includes protocols, correspondence, consult reports, financial and other data linked to strategic management of the companies. Moreover, we studied archives of the major sales cartels (Finnpap, Converta, Finncell) and of special interest groups (Finnish Association of Forest Industries). Altogether, we analyzed tens of thousands of documents thus reaching an understanding of the managerial interpretation of the institutional environment and of the processes leading to specific competitive actions.

Analysis. For the historical analysis, we utilized several research strategies as categorized by Langley (1999). First, we quantified historical events and patterns by collecting time series of industry level performance and competitive structure and by creating databases of competitive actions for four companies. These databases cover the whole research period. Typically, one of the companies in focused on performing one or two competitive actions per year. These events were first coded in terms of their relationship with the surrounding institutional environment. In other words, the coding schema is derived directly from the analysis of the institutional environment. Second, we coded each strategic action by using a three-dimensional procedure which included information on the competitive postures of the firm's actions. The first dimension describes the general nature of action, the second the functional focus of action and the third one the level of co-operation with other firms (yes or no). Altogether, each action obtained 17 attributes. In the quantitative testing, we used

aggregate profiles, that is, we compared the sum of actions during three periods and focused on the similarities between these action profiles.

Moreover, we had access to time series regarding the financial performance of Finnish, North American, and Swedish paper and pulp companies during the last century (Melander, 2001; Ojala, 2001b, 2001a; Ojala & Pajunen, 2001). Also, we used the reports of Artto (Artto, 1995; Artto & Juurmaa, 2000) who has extensively studied the competitive performance of the paper and pulp industry during the last three decades.

Simultaneously with the quantification approach, we analyzed the industry and the particular companies with a narrative strategy. The narrative approach is especially useful when engaging in analysis of holistic phenomena such as the co-evolutionary interplay between the firm and the society (Langley, 1999). Whereas the quantification strategy in this study is primarily used for the analysis of the competitive actions, the narrative approach is exploited in the identification of the industry-specific institutional arrangements. We wrote four separate case histories describing the development of the focal firms thus reaching an understanding of the different company-specific operating logics and historical path-dependencies. Next, to draw conclusions and assign meaning to data, we relied upon our contextual knowledge and engagement in the history of the paper and pulp industry. The results of the study were also interpreted and reflected against those institutional factors that previous research on the same industry has highlighted (see e.g. Laurila & Lilja, 2002; Melander, 1997). Finally, we discussed our findings with industry specialists both in academia and in forestry companies. Thus, the research process was highly iterative to a point where we reached theoretical saturation. Table 2 summarizes the research process.

Table 2. Source material and methods for historical and institutional analysis

Approach	Data	Method	Purpose
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Analysis of competitive actions	Event data	1) Descriptive statistical time-series analysis of crucial economic variables and competitive actions; 2) narrative description of main trends in the industry	1) to outline the competitive environment in 1945-2000; 2) to anchor strategic patterns to economic realities; 3) to include the totality of competitive actions in the analysis
Institutional analysis	Process data	1) Systematic listing and codification of qualitative incidents according to predetermined characteristics; 2) interpretative analysis of the influence of institutional forces	1) To create a comprehensive analysis of the institutional environment in the P&P industry;

Institutional Environment: A Historical Analysis

In the following, we identify the most important rules and constraints in the context of the Finnish forest industry and categorize them to formal and informal constraints according to North's (1990) definition.

Formal rules

Formal rules are here classified as governmental (political and juridical) regulations, although they can also include economic rules and contracts (North, 1990). Governmental regulation, listed in Table 3, had an impact on the case companies' overall performance and on their strategic decisions. In addition, companies played an active role in the regulated system, on the one hand to gain direct contributions from the State and on the other hand to legalize their role in society (DiMaggio et al., 1983; Tainio et al., 1989).

Table 3. Formal rules affecting the case companies' strategic behavior

Rule	Nascence	Maturity	Decline / demise
Government's positive attitude toward cartelization	1918	1920—1950s	1980—1990s
Trade Agreements	1918		
Law about protection of private forests	1915—1922		
Regulated financial system	1918	1950—1970s	1980—1990s
Competition regulation (Bank of Finland submitted)	1968	1970s	1980s

permission for new plants etc. Labor legislation and corporative negotiation system	1940s	1950s on
Environmental legislation	1950s	1980s on

The major part of the legislative environment of the Finnish pulp and paper industry was created since Finland obtained independence in 1917. The first years after the independence were an opportunity window for the wood processing industry. For example, in 1918 Civil War the business elite was recruited to the rationing organization of the rightist White Army, where they had good possibilities to restructure their own institutional environment (further discussion in Hjerpe et al., 2000).

In 1918—1919, the Finnish political system adopted three principles that were crucial for pulp and paper production up until 1980—1990s: 1) a positive attitude toward cartelization; 2) a trade agreement policy that favored export industry; 3) regulations regarding forest ownership. First, the Finnish government — guided by industrial circles — encouraged companies to create export cartels (sales associations) in 1918 (further discussion in Lamberg, 1998).⁴ Cartels were seen as a defensive act against German competition, but before long they became a central mechanism through which Finnish companies met foreign competition. In addition, export cartels created a shared co-operative domain in domestic political actions (Kuisma, 1993).⁵

Cartels remained active up to the turn of the 1980s and 1990s, after which they ceased to exist, on the one hand, because of the consolidation process. On the other hand, the anti-

⁴ Finland's cartelization policy correlated strongly with the international situation. (Nussbaum, 1982; Pohl, 1985; Schroter, 1996)

⁵ In addition, Finnish paper producers were active, especially during the interwar years, to establish cartels with other Scandinavian producers. These attempts failed after the war, but on an informal level the international co-operation continued. This can be at least detected from the fact that the mergers between Finnish and Swedish companies were brought about quite easily at the end of the 1990s. (Heikkinen, 2000; Nordberg, 1998)

cartel legislation of the European Union made their existence illegal anyway. In the long run, sales associations delayed consolidation processes because through these cartels small companies had a wide and direct access to the world markets. Cartels also reinforced path dependence within the industry: there were no direct contacts between producers and buyers, and accordingly, companies were lacking product development impulses from buyers, which led to production of similar, bulk products (see also Alajoutsijärvi, 1996; Heikkinen, 2000).

Second, the interest of the pulp and paper industry was imbedded in the Finnish foreign trade policy system in the 1920s. Since that formative period, the crucial question in all trade agreement negotiations has been to secure the openness of central export markets. Accordingly, bilateral agreements in the 1920—1930s, clearing agreements in the 1940—1950s, the FINN-EFTA agreement in 1961, the free trade agreement with EEC in 1973 and finally joining the European Union in 1995 were motivated by the interest of the biggest export industry. Moreover, the representatives of the pulp and paper industry were included in the negotiation teams to channel the interests of this industry in political decision making. Foreign trade policy was, thus, a major element in the performance of these export-oriented companies (Lamberg & Skippari, 2001b).

A third political decision, made in 1915, was the act of parliament that prevented companies from buying forestland. This regulative act was a result of fierce political argumentation between industrial circles and rural landowners who saw forest industry companies as predatory organizations trying to ruin the position of the peasantry (Hjerppe, 1979; Kuisma, 1993; Larsen, 2001). Consequently, raw material supply has been channeled mainly through the market system although the trade was heavily regulated by the public sector (by taxation etc.) and by both buyer and seller cartels. In addition, it seems that another consequence of privately owned raw material is that pulp and paper companies used to operate in a competitive environment in supply markets. Accordingly, adoption of recycled fiber for

example, was easier and more attractive than in, for example, the United States where largest companies own considerable amounts of forestland.

The regulative economic policy affected the forest industry strongly after World War Two. The objective of regulation policies was to support investments and exports. From the 1950s on up to the 1980s, the Finnish government regulated financial markets by controlling interests, currency exchange, and the emission of bonds. Especially, continuous devaluations gave pulp and paper companies — at least in the short-term — competitive advantages in international markets. There were altogether 14 devaluations and one revaluation between 1949—1991⁶. Compared to the rate of return of the companies, devaluations usually had a positive impact on the firms' short-run performance, at least the devaluations in 1977, 1978, 1979, 1982, and 1991 did⁷. Devaluation policy had a positive effect especially on large companies engaged in exports of products manufactured from domestic raw materials. Thus, pulp and paper industries were the “winners” as regards the devaluation policy, which ended at the beginning of the 1990s due to the European integration policy (Pekkarinen & Vartiainen, 1993).

Low interest levels, achieved by the active role played by the Bank of Finland, motivated high investments. These led to the incurring of debt, and thus low return on investments. Although the government favored investments, it also controlled competition by requiring permission for large investments, such as new machines and production plants. This was also done through the Bank of Finland, which regulated permission for international loans up to the mid 1980s. Because of the thin domestic capital markets, it was necessary to get funding from abroad for large investments such as new paper machines and production plants.

⁶ These devaluations were: 1949 (18 & 33 %); 1957 (39 %); 1967 (31 %); 1977 (6 & 3 %); 1978 (8 %); 1979 (1.5 & 2 %); 1980 (2 %); 1982 (4 & 6 %); 1984 (1 %); 1991 (14 %). The only revaluation was carried out in 1989 (4 %).

⁷ The devaluation in 1980 did not have a positive effect on the companies' performance, and the revaluation of 1989 was one cause for the diminishing returns.

A peculiar institutional arrangement occurred in the late 1960s, when the Bank of Finland, together with the Finnish Forest Industries Federation (thus, the companies themselves), started to regulate the investments within the forest sector. This was an outcome of the investment wave during the 1960s: the total volume of the Finnish forest industries rose 83 per cent in the years 1960—1972; the paper industries production rose in the same period from 1.4 million tons to 3.5 million tons. This led to a serious discussion concerning the adequacy of the raw wood resources.⁸ The growth of the forestry sector was seen as a necessity, but steps were taken in order to govern and limit investment. An outcome of this was that, from the late 1960s up to the late 1980s the Bank of Finland restricted permission for investment, in cooperation with the Finnish Forest Industries Federation. The basic aim was to restrict the use of raw materials. Thus, the companies had to invest in production that would not increase the use of the raw materials but, of course, would increase their returns on the investments.

The outcomes were partly as planned — raw material resources received more efficient use. Due to this extraordinary institutional arrangement, the Finnish paper industry companies started to invest in production with a higher degree of processing (e.g. fine and magazine papers)⁹. Furthermore, the export of pulp, which had been Finland's most important export item from the early 1950s, came to an end. Instead, the pulp was used in the domestic paper plants, thus again, increasing the value of the production. Also, a number of former pulp

⁸ Finnish Forest Industries Federation (FFIF), Investment statements (Investointilausunnot ja puukatot), General (Yleinen) 1970—1974 (HF10:25), Restricting the investments within the forest industries (Investointien rajoittaminen metsäteollisuudessa), Heikki Pärnänen 10.10.1973.

⁹ An outcome of this policy was that the huge investments in new production capacity kept the profits of the Finnish pulp and paper industry for a long time at a relatively low level. However, these investments in the production of more valuable products were the major cause of the companies' success in the 1990s See (Artto, 1995; Artto et al., 1999; Diesen, 1998; Laurila, 1998; Lilja et al., 1992; Lilja, Räsänen, & Tainio, 1996)

and saw mill companies¹⁰ integrated vertically forwards within the production chain and started to produce paper (Hakkarainen, 1993; Kettunen, 2002; Ojala, 2002).

Finland's relatively expansive labour legislation and unionization (further discussion in (Rehn, 1996) had a direct impact on companies' development as well. Especially influential was the union of the paper workers as one of the strongest unions in Finland due to its strategic position in the major export industry. The basic dilemma between the labour and the companies was that inflation caused continuous pressure to increase wages after World War Two. To the forest companies, inflation was an ambiguous consequence of devaluations – and a cause of renewed devaluations. The enormous growth in productivity compensated at least partly the pressure that devaluations caused on the wage level (Lilja et al., 1992, 1996).

For the pulp and paper industry, the environmental regulations were at first the basic determinants for long-run raw material availability. Finnish environmental legislation is based on regulations started already during the early 20th century to prohibit the devastation of forests and the allocation of areas of forest to the landless population of the countryside¹¹. The objective of this policy was to ensure the continuity of wood production in Finland. Thus, environmental awareness was motivated by industrial and national economic gains. However, attitudes changed from the late 1960s on, when water pollution and protection of old-growth forests gained the greater attention of the public opinion. In the 1980—1990s, the introduction of environmentally attractive products and production methods, such as the use of recycled fiber, the adaptation of a forest certification system, and Finland's commitments to the international environmental conventions, led to the formulation of a new forest policy in the 1990s (see also Hänninen, 1999; Koskinen, 1999).

¹⁰ Including companies like Enso, Kaukas, Schauman, and Veitsiluoto.

¹¹ The most important legislation is: the Private Forest Act 1915 (revised 1967); The Tenant Farmer Act 1918; Lex Kallio 1922; the Land Act 1945; and the New Forest Act 1997.

Informal constraints

Informal constraints can be characterized as the (unwritten) forces below the surface. They are culturally enforced codes of conduct that are usually affiliated to asymmetric information and co-operative behavior (North, 1990). They have a crucial impact on the evolution of the formal constraints, and they determine companies' possibilities and performance. Informal constraints change much more slowly than formal rules. Furthermore, it is far more difficult to influence an informal institutional setting than the formal rules. Informal constraints have usually a close relationship with formal rules: they are partly overlapping. For example, the formal rule setting had influenced involvement in informal international cartels and informal co-operation against private forest owners in raw material price negotiations.

Table 4. Informal constraints affecting strategic behavior

Constraint	Nascence	Maturity	Decline /demise
Co-operation within the forest cluster	1880s	1920—1970s	
Co-operation against forest owners: (in)formal buyer cartels	1910s	1920—1990s	
Geographical domains	1920s	1950—1980s	
International producer co-operation	1920s	1930—1960s	1995
Spheres	1910—1920s	1950—1970s	

The active co-operation between the major producers was the most important informal constraint that affected companies' performance and development paths. The co-operation itself could appear at the formal level. A good example is the jointly owned Central Laboratory, where most of the research and development has been done. Other important co-operative organizations were, for example, the already mentioned sales associations, the Confederation of Finnish Industry, and the Finnish Forest Industries Federation. These organizations not only generated concrete benefits for technology or production, but they were also sources of information. Companies obtained information through these organizations and they had excellent knowledge regarding their domestic competitors because of the co-

operation. It is noteworthy that co-operation was especially characteristic right after World War Two when companies reconstructed practically the whole industry chain.

The co-operation extended not only to companies, but also to the Finnish forest cluster, which consists of a diversified range of forest-based enterprises and expertise.¹² The forest cluster's essential position in the Finnish economy can be traced back to the evolution of the governmental educational and research input related to the pulp and paper industry. The national schooling and training system satisfied the growing demand for expertise. Various governmental research institutions¹³ and research programs backed up the development in the pulp and paper industries, whose own R&D share has traditionally been at a relatively low level (Federation, 2000; Michelsen, 1993). The shared information within the cluster promoted knowledge that de facto formed the basis for the companies' strategies. Co-operation within the cluster had many informal characteristics, although in many cases it based on formal contracts (Alajoutsijärvi, 1996; Hänninen, 1999; Lilja et al., 1992, 1996).

Co-operation between companies at certain levels of the supply chain was typical for the Finnish forestry industry. The co-operation was important at both ends of the production chain: in the acquisition of the raw materials and semi-finished products and at the other end as co-operation between the sales associations. Lumber purchasing companies were especially typical of the Finnish forest industry. There has even been co-operation in semi-finished products: some pulp production plants are owned jointly by several companies. The paper industry is energy intensive and therefore the acquisition of cheap energy is essential for the industry. It is especially noteworthy that during the latter part of the 20th Century Finnish pulp

¹² The Finnish forest cluster comprises the forestry industry (the pulp, paper, and paperboard industries); the wood products industry; producers of machinery (incl. equipment, automation, and chemicals needed by these industries); the packaging industry; the printing industry; power companies; logistics companies; consultants; research institutions, and higher educational units.

¹³ Such as the Finnish Forest Research Institute (METLA), the Technical Research Centre of Finland (VTT), and various universities which teach forestry and carry out research.

and paper companies co-operated in building hydroelectric and nuclear power plants (Ruostetsaari, 1989).

The ownership of forestland in Finland is split up between private forest owners: during the late 1990s, private forests provided over 80 percent of the forest industry's raw material. Thus, negotiations regarding the raw material with the large number of forests owners played an important role for pulp and paper companies. The representative of the private forest owners, the Central Union of Agricultural Producers and Forest Owners (MTK), was a powerful pressure group. Although there has been — at least in theory — free competition in round-wood markets, in practice forest industry companies have engaged in significant co-operation in order to lower the price of the raw materials. The Finnish Forest Industries Federation influenced the price of the raw materials by negotiating the right of use of round-wood among the member companies and since the 1960s it has conducted negotiations with MTK about the raw material prices.

A most interesting feature has been the regional domains of the companies. In these geographically divided areas, large companies had almost a monopoly in round-wood purchasing and therefore the possibility not only to obtain a decent amount of raw materials but also to influence the price of lumber. These regional divisions were based on informal gentlemen's agreements. If competition existed, the companies might have co-operated in informal round-wood purchasing cartels in order to be able to dictate the price of the raw materials. Eventually, the last cartel was exposed during the late 1990s (see e.g. Hakkarainen, 1993; Nordberg, 1998). Up to the late 1980s there was even an informal association to promote the interests of the companies in the lumber markets, namely "Teollisuuden Puuyhdistys" (raw wood association of the industries), which ceased to exist in 1988¹⁴.

¹⁴ FFIF, Puukatto ja osaluku 12.11.1990 (HF 10:28).

The peculiar ownership structure behind the Finnish companies explains also their strategic behavior. Finnish stock markets were undeveloped for a long time, partly due to governmental control¹⁵. Thus, ownership was concentrated in certain “spheres” around the industries. Our case companies belonged to these competing spheres: Enso was a government-owned company, while Kymmene and UPM were “flagships” of the competing commercial banks, and Metsäliitto belonged to the agrarian capital sphere. The competition between, and the co-operation within, these spheres was especially characteristic of the development of the Finnish pulp and paper industry during the 1970—1980s. The consolidation process, for example, was at first operated mainly within these spheres. The first major merger between the spheres was the mergers of Serlachius (SYP) and Metsäliitto in 1986 (Näsi, Ranta, & Sajasalo, 1998; Ojala, Lamberg, & Melander, 2002). Due to the ownership structure, shareholder value and the demand for a high rate of return were not important goals for the Finnish companies as they were, for example, in the United States.

Analysis of the Competitive Actions

To analyze the inter-linkages between competitive actions and the surrounding institutional environment, we engaged in a quantitative examination that included testing of the similarity of competitive actions on the one hand and the scrutinizing of the institutional behavior on the other. First, we divided the entire period of 1918—1995 into three sub-periods according to our findings in the historical analysis:

1918—1944 Institution building (nascence)

1945—1980 Institution maintenance (maturity)

¹⁵ An undeveloped stock exchange was also a major cause of the inhibited development.

1981—1995 Institution ending (decline)

Next, we scrutinized the competitive actions of the four firms in terms of their similarity. In this, we employed the standard Pearson’s correlation test. For the testing procedure, the events were first sequenced to the above-mentioned periods. Hence, the frequencies of actions constitute an aggregate level set of variables that describe how firms positioned themselves strategically during that period of time. Secondly, these frequencies were transformed from an absolute scale to a relative one by calculating the percent shares of different categories from all produced events. Thirdly, in this way combined strategic profiles were compared with profiles of the other companies. The results of the correlation test are described in Tables 5, 6 and 7.

Table 5. Pearson correlations for postures of strategic actions (1918-1944).

		enso	kymi	metsalii	upm
enso	Pearson Correlation	1.000	.798**	.564*	.755**
	Sig. (2-tailed)	.	.000	.018	.000
	N	17	17	17	17
kymi	Pearson Correlation	.798**	1.000	.608**	.863**
	Sig. (2-tailed)	.000	.	.010	.000
	N	17	17	17	17
metsalii	Pearson Correlation	.564*	.608**	1.000	.671**
	Sig. (2-tailed)	.018	.010	.	.003
	N	17	17	17	17
upm	Pearson Correlation	.755**	.863**	.671**	1.000
	Sig. (2-tailed)	.000	.000	.003	.
	N	17	17	17	17

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 6. Pearson correlations for postures of strategic actions (1945-1980).

		enso	kymi	metsalii	upm
enso	Pearson Correlation	1.000	.920**	.897**	.902**
	Sig. (2-tailed)	.	.000	.000	.000
	N	17	17	17	17
kymi	Pearson Correlation	.920**	1.000	.874**	.919**
	Sig. (2-tailed)	.000	.	.000	.000
	N	17	17	17	17
metsalii	Pearson Correlation	.897**	.874**	1.000	.798**
	Sig. (2-tailed)	.000	.000	.	.000
	N	17	17	17	17
upm	Pearson Correlation	.902**	.919**	.798**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	17	17	17	17

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7. Pearson correlations for postures of strategic actions (1981-1995).

		enso	kymi	metsalii	upm
enso	Pearson Correlation	1.000	.944**	.801**	.852**
	Sig. (2-tailed)	.	.000	.000	.000
	N	17	17	17	17
kymi	Pearson Correlation	.944**	1.000	.767**	.896**
	Sig. (2-tailed)	.000	.	.000	.000
	N	17	17	17	17
metsalii	Pearson Correlation	.801**	.767**	1.000	.852**
	Sig. (2-tailed)	.000	.000	.	.000
	N	17	17	17	17
upm	Pearson Correlation	.852**	.896**	.852**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	17	17	17	17

** . Correlation is significant at the 0.01 level (2-tailed).

The main result of the test is that the action profiles of the four companies were significantly similar throughout the period of study. This simply means that all companies followed related logic in their strategic actions. From an institutional perspective, we interpret this as a result of the similar environment in which the firms operated. To maintain controllability of the results, we also compared the time series describing the economic performance of the companies. As noted in earlier comparative studies (Lamberg & Ojala, 2001; Artto, 1995), these profiles were also significantly similar especially during the 1970—

1990s. It is important to notice that the firm sample included only ‘winners’ from the Finnish forest industry. Accordingly, surviving in the context of the domestic and global forest industry required companies to adopt similar strategies instead of novel competitive actions.

After the testing of the competitive profiles of the firms, we scrutinized their direct relation with the institutional environment. We started our analysis by interpreting each competitive action vis-à-vis the particular informal and formal rules identified in the historical analysis. After the first initial results, we clustered the institutions into five groups of institutions. These five groups can be seen as ‘meta-institutions’ constituting the most important elements of the institutional environment surrounding the four focal firms. The groups and their definitions are described in Table 8.

Table 8: Institutional environment of Finnish forest industry firms 1918—1995

Group	Explanation
Finnish paradigm (formal and informal)	Emphasis on domestic production and joint marketing in international trade: “produce home—participate cartels”.
Regulation (formal)	Regulated investment policy including the protection of private forests, competition restrictions and corporative labor negotiation system; trade policy.
Domestic co-operation (formal and informal)	R&D co-operation, raw-material buyer cartels, co-operation in labor negotiations.
Geographical domains (informal)	Operational focus in informally negotiated geographical domains inside Finnish borders: “stay in domain”.
Spheres (formal and informal)	Belonging to financial groups in terms of production and marketing co-operation.

After identifying the five meta-institutions, we coded the competitive actions in terms of their relation with the institutional environment. Basically, we scrutinized if the actions challenged / aimed to change the institutional status quo (1) or if they maintained the situation

(0). Figure 2 illustrates the temporal development of the actions vis-à-vis the institutional environment and Table 9, 10 and 11 focus on the challenging actions.

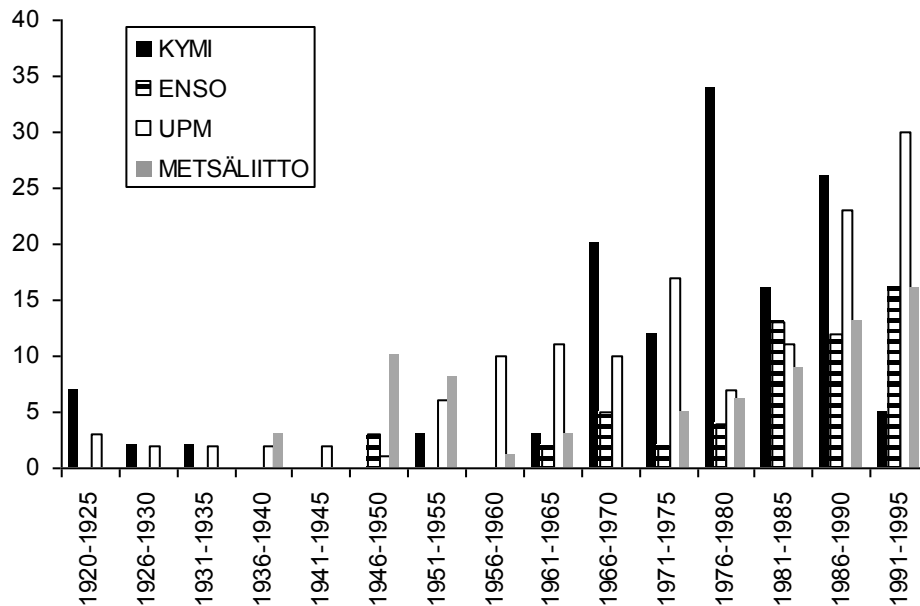


Figure 2: Competitive actions challenging / aiming to change the institutional status quo of the Finnish forest industry 1918—1995. Five year cumulative sums.

The simple frequency analysis illustrated in Figure 2 indicates that all companies respectively started to challenge the institutional status quo during the 1970—1990s. However, the only newcomer, Metsäliitto, immediately challenged the status quo between 1940—1950 after launching its first industrial activities. Company specific differences were found as well. Kymi (Kymmene) and Enso, the incumbent firms, practically operated inside the institutional boundaries until the 1960s and also UPM until the 1950s. On the other hand, Metsäliitto’s ‘aggressiveness’ during the 1940—1950s can be identified as a natural consequence of its entering into an already established competitive and institutional setting. It is also noteworthy that Metsäliitto’s behavior became more similar to the other companies after its formative

decades as a company after it was founded in the late 1930s. Overall, the period of institutional erosion (1980—1995) was characterized by a steady rise of the status quo challenging firm-level behavior.

Table 9: Focus of actions challenging / aiming to change the institutional status quo. Percentages, 1918—1944.

	Finnish paradigm	Regulation	Domestic co-operation	Regional domains	Spheres	n
KYMI	27,3 %	0,0 %	18,2 %	27,3 %	27,3 %	25
ENSO	..	..	..	..	..	34
UPM	0,0 %	9,1 %	0,0 %	18,2 %	72,7 %	32
METSÄLIITTO	..	..	..	..	..	..
Average / sum	13,6 %	4,5 %	9,1 %	22,7 %	50,0 %	91

Note: each action can focus to each group of institutions which can results to row sums >1.

Table 10: Focus of actions challenging / aiming to change the institutional status quo. Percentages, 1945—1980.

	Finnish paradigm	Regulation	Domestic co-operation	Regional domains	Spheres	n
KYMI	37,5 %	0,0 %	4,2 %	37,5 %	20,8 %	56
ENSO	43,8 %	0,0 %	6,3 %	37,5 %	12,5 %	34
UPM	38,7 %	0,0 %	1,6 %	40,3 %	19,4 %	56
ML	5,6 %	2,8 %	13,9 %	47,2 %	30,6 %	22
Average / sum	31,4 %	0,7 %	6,5 %	40,6 %	20,8 %	168

Table 11: Focus of actions challenging / aiming to change the institutional status quo. Percentages, 1981—1995.

	Finnish	Regulation	Domestic co-	Regional	Spheres	n
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	paradigm		operation	domains		
KYMI	19,1 %	0,0 %	6,4 %	34,0 %	40,4 %	53
ENSO	24,4 %	0,0 %	14,6 %	39,0 %	22,0 %	31
UPM	32,8 %	0,0 %	6,3 %	39,1 %	21,9 %	61
ML	23,7 %	0,0 %	2,6 %	42,1 %	31,6 %	28
Average / sum	25,0 %	0,0 %	7,5 %	38,6 %	29,0 %	173

As Tables 9, 10 and 11 illustrate, there were only minor differences in the focus of the challenging actions amid the analyzed firms yet the majority of actions concentrated on certain meta-institutions. Most notably, none of the firms was keen in changing the regulative environment which was maintained by formal rules and laws. This is quite natural since legal firms rarely aim to conduct illegal actions. However, this does not mean that the firms were not interested on changing the regulative environment – the means were only different including lobbying and other forms of corporate political actions. Also, R&D development, buyer cartel agreements and other forms of domestic co-operation were honored throughout the period.

The formidable difference between the periods of maturity (1945—1980) and erosion (1981—1995) was the relation vis-à-vis the ‘Finnish paradigm’ and sphere system. The Finnish system of paper production – produce home and utilization of cartels in marketing – started to erode immediately after Finnish firms started to internationalize since the 1960s. At the same time, Enso and Kymi began to build their own marketing organizations thus challenging the role of the important Finnish export cartels (Finnpap and Finncell etc.). During the next period, companies continued to diverge from the Finnish paradigm. What was even more important were the actions that challenged and finally ended the sphere system. This can be seen as a logical consequence of the concentration of Finnish companies to the four major players but equally so as a result of the internationalization boom especially in the

early 1990s: when Finnish firms started to challenge their international competitors the rationale of financial capitalism simply faded away. The strengthening role of international operations explains also the erosion of the domain system. As the level of production abroad rose to over fifty percent in the 1990s it became meaningless to maintain strict domestic domains in raw material acquisitions and production.

Discussion

When interpreting the results of our study, three explanatory patterns emerge. First, the shared institutional environment seemingly caused isomorphism in the competitive repertoire of the companies. In an industry characterized by limited technological innovations and international market focus this seems to be a natural state of strategic behavior especially amid the most successful firms. Also, this pattern is in line with theoretical arguments generated by institutionalists in both economics and sociology. In terms of the institutional change, the similarity of firm level competitive actions means that the industry level is stressed more during the evolution of an institutional form than the actions of particular firms.

Second, incumbent firms that participate in the building of the shared institutional environment seem to follow both the formal and informal rules for long periods of time whereas industry newcomers are obligated to challenge the status quo until they are institutionalized as a member of the community. In our case, Metsäliitto clearly evolved from an industry ‘rebel’ towards a legitimate industry player in two or three decades. Moreover, the focus of the competitive actions differs amid the incumbent and challenging firms. For example, Metsäliitto – probably by necessity – challenged a variety of rules during its first decades of existence.

Third and most importantly, the erosion of the institutional environment seemingly correlates with the level of internationalization amid the focal firms. For instance, UPM, Kymi and Enso started to challenge the status quo by internationalizing their production and concentrating simultaneously on marketing responsibilities for their own organizations. These activities obviously started to change the current status quo that had been characterized by joint marketing and home-ground production facilities. Theoretically, this pattern means that the evolution of an institutional form starts with a tightly coupled setting. During this period, organizations are tightly linked to the building and maintenance of their own institutional environment. When companies start to internationalize their production and internalize their marketing efforts they simultaneously start to change their reference group from the tight domestic setting to a more open international setting. This development results in the erosion and change of the institutional form.

From a co-evolutionary point of view, it is evident that the causal forces leading to institutional change operated on various levels of analysis. For example, firms started to challenge the Finnish paradigm and regional domains as a consequence of their internationalization efforts. These, however, were catalyzed by various forces such as the liberalization of Finnish trade and financial policy in the 1950s and intensified international competition that forced Finnish firms to change their operating principles. What were even more important were the actions that challenged and finally ended the sphere system. On the one hand, the Finnish cartel system eroded as a consequence of exogenous pressures from the direction of the European Union. On the other hand, the enlargement of the Finnish firms and related enhancement of their independent marketing activities demolished the rationale of the cartel system already before the final legal pressure. As these specific examples illustrate, the processes of change included at least the firm, industry, national and supra-national levels that were all engaged in the processes of change leading to the erosion of the institutional form.

Moreover, in a corporatist political system the finding of one-directional causal relationships is extremely challenging as the industry players are active members of the political machinery that creates and enhances, especially, formal institutions.

To conclude, we present two propositions for further analysis in the context of evolutionary research of institutional change:

Proposition 1: During nascent and fast growth phases in the industry life-cycle, firms attach themselves to a domestic group of reference and are primarily interested in institutions that protect their position vis-à-vis international competitors. This is manifested in actions that maintain the institutional status quo.

Proposition 2: During mature and more internationalized phases in the industry life-cycle, firms attach themselves to an international group of reference and are more interested in institutions that facilitate their international operations. This is manifested in actions that challenge the institutional status quo.

Conclusion

Both Finnish independence in 1917 and the EU decision in 1995 were catalyzed by exogenous factors, namely by changes in the international political regimes. Endogenous factors, however, affected institutional change as well. Especially, Finnish paper and pulp companies were active members of the economic and political elite that maneuvered crucial decisions in 1918 and during the 1980s and early 1990s before the EU decision. In this sense, institutional changes influenced competitive behavior, but these changes were also influenced

by the companies and thus could be said to exist a co-evolutionary (Lewin et al., 1999) system.

To summarize the main findings of the study, institutional changes strongly influenced competitive behavior, taking into consideration the various changes and similarities in strategies during the last century. The institutional erosion during the period between the 1970—1990s was, however, anticipated by the companies and thus the causal relationship between institutional and strategic changes is fundamentally dialectic rather than one-directional. In future studies, deeper analysis of these dialectic processes will be needed as well as a more fine-grained analysis of the consequences of these processes. Also, the emergence of new institutions requires further empirical research.

Appendix

Unpublished sources and magazines

Archival sources

Elinkeinoelämän keskusarkisto, Mikkeli
Enso-Gutzeit archive

1. Strategic planning documents 1966—1982
2. Board Minutes 1960—1990
3. Pentti Salmi's correspondence 1974—1982
4. Aarne T. Hilden's correspondence 1968—1974
5. McKinsey presentations and reports 1969 and 1971
6. SIAR report 1976
7. KOP's audit reports 1975—1981
8. Circular letters 1965—1982
9. Eurocan archive 1965 – 1988

Tampella archive

1. Board minutes 1930 – 1995
2. Matters concerning investments 1920 - 1990

Archives of UPM-Kymmene, Kuusankoski

1. Kymin Osakeyhtiö Archive
2. Strategic planning 1965 – 1990
3. Board minutes 1920 – 1990
4. Matters concerning investments, 1920 - 1990

Finnish Forest Industries Federation (FFIF) archive, Helsinki

1. Matters concerning the investment restrictions (HF 10.01 – 10.28)

Magazines

1. Helsingin Sanomat 1945—2002
2. Kauppalehti 1976—1995
3. Paper ja puu 1920—2002
4. Talouselämä 1945—2002

Annual reports (Financial data collected in the database by the authors):

Company	First year	End year	Company	First year	End year
Ahlström	1955	2001	Nokia	1945	1989
Enso	1945	2001	Rauma-Repola	1952	1990

Joutseno Pulp	1969	1981	Rosenlew	1968	1986
Kajaani	1948	1988	Schauman	1963	1987
Kaukas	1954	1985	Serlachius	1969	1985
Kemi	1950	1989	Sunila	1958	1998
Kymi (Kymme)	1951	1995	Tampella	1958	1995
Kyrö	1969	1995	Tervakoski	1970	1981
Metsä-Botnia	1977	2001	UPM	1954	2001
Metsäliitto	1948	2000	Veitsiluoto	1947	1995
Myllykoski	1978	2001			

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