



Historical Perspectives on Contemporary Problems: Organizational Capabilities and Strategy and Structure of Large Pulp and Paper Firms, 1950-1980

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Abstract

The organizational capabilities of the leading firms shape to a great degree the structural evolution of the pulp and paper industry. The phenomenal expansion and structural change of the North American pulp and paper industry between 1950 and 1980 exhibited many of the dynamic forces in play today, as well as resulting in an industrial organization for which the next challenge was globalization. This paper examines in detail how some of the leading North American firms forged a corporate strategy of expansion and diversification in the post-World War II decades. The adoption of a diversified and multidivisional corporate structure by the leading firms completed one line of technological evolution in the industry, and subsequently directed large scale firms to attain competitive advantage through economies of scale and industry leadership. Similarly, the consolidation of the industry created a handful of leading firms with a national scope, whose next challenge was globalization and competition from Europe. The paper suggests that competitive strategy in the pulp and paper industry is intimately related to firm specific organizational capabilities, maturity of technology, and the duration of product life cycles.

Introduction

In 1970 a spectacular phase of expansion of the North American pulp and paper industry appeared to have gone out of steam with the rest of the economy. Since 1950 American pulp and paper firms had modernized machinery, acquired foreign subsidiaries, and invested tremendous amounts of new capital. The industry had witnessed a rapid structural change too, as a wave of mergers and acquisitions swept through it. The consolidation in the pulp and paper industry tended to favor vertical integration, and when possible, diversification into new paper products. Thus the leading firms, which spearheaded the structural change, arrived during the 1970's at similar diversified, multidivisional corporate structures.[1, 2]

The state of the industry around 1970 resembled in many ways that of today. For a casual observer history sometimes offers perhaps a striking analogy of current events, but the evolution of a modern large-scale industry is a complex process and rarely emulates perfectly past experiences. Yet precisely because the development of an industrial organization follows an evolutionary path, many of the dynamic forces lend themselves to a historical analysis. This presentation is an exercise in such an analysis.

The changes in the corporate structure of the leading pulp and paper firms in the post-World War II period deserves attention because of its potential effects on the ability of the firms and industry to learn and innovate today. Most of the literature on industrial and technological change follows the Richard Nelson and David Winter argument that firm-specific routines of learning determine innovative activities, and that existing organizational capabilities guide firm and industry evolution.[3] Nathan Rosenberg also argued in the early 1980's that the organization of technological learning - - "learning by using" - - was critical for industries that contracted for much of their machinery from outside suppliers, where technological change was incremental, and whose production processes had significant scale economies.[4] Over the past decade scholars have reconsidered some of the basic assumptions about the relationship between innovation and industrial structure, however.

In 1990 Michael Porter proposed a prescriptive theory that individual firms should establish competitive "industrial clusters" through the coordination of technology and manufacturing processes.[5] Following Porter, scholars have examined how and to what extent firms should cooperate while developing organizational capabilities. In one extreme, David Teece and others have suggested that firms capitalize best on rapid technological change by streamlining their internal organization and by avoiding inter-firm strategizing.[6] Vertically integrated firms in capital- and technology-intensive industries have inherent advantages to adopt competitive innovations, William Lazonick has argued.[7] In contrast, Charles Sabel and Jonathan Zeitlin have argued that networking offers the best



corporate strategy to guard against the uncertainties presented by technological change.[8] Paul Robertson and Richard Langlois have argued that firms' ability to adopt a vertically integrated or networked research and development organization varies across environments, and depends critically on the scope of innovation and the relative maturity of the industries involved, .[9] In this paper I apply this theoretical line of analysis to the North American pulp and paper industry between 1950 and 1980, and attempt to develop a new perspective on the industry today.[10]

The vehicles of this discussion are the particular experiences of International Paper Company, West Virginia Pulp and Paper and Weyerhaeuser, all of which managed to finance independently their own post-World War II expansions. In contrast, other leading pulp and paper firms that followed aggressive strategies of expansion depended on large financial institutions. Just to name a few, St. Regis and Kimberly-Clark Company took out big loans for their expansion, as did the Mead Corporation, in order to finance its move into the South. The distinct abilities of International Paper, Westvaco, and Weyerhaeuser to mobilize large scale internal financial resources and their strikingly different organizational capabilities draw attention to how their managers forged distinct corporate strategies of expansion.[1, 11]

Consolidation in the North American pulp and paper industry between 1950 and 1970 resulted in an industry with a handful of leading large-scale enterprises whose structures resembled each other. Spectacular mergers were typically attempts to create fully diversified pulp and paper firms, whereas just a few decades earlier careful vertical specialization had characterized the industry. The new corporate structure brought important changes in the organizational capabilities of the firms, such as technological knowledge, manufacturing, finances, and scale and scope of operations. These changes, in turn, triggered pressures to adopt new organizational innovations that allowed for greater managerial control and efficiency.[12]

Firms arrived at the diversified, multidivisional corporate structure through distinct paths and strategies. Pre-existing organizational capabilities, such as specialized technological knowledge, production capabilities, and geographical concentration, characterized the managerial strategy of expansion. When the industry reached the culmination point of a long phase of expansion, consolidation, diversification, and organizational changes, it effectively established a precursor to the state of the industry today, as well as embodying a striking analogy to the current level of industrial organization. Consideration of the corporate strategies and structures of the leading pulp and paper firms in the post-World War II period may allow us to contextualize some of the forces driving structural change today.

From Economies of Scale to Specialization: International Paper Company

Since its incorporation in 1898, the industrial leadership of International Paper (IP) was based on its size, which enabled economies of scale, and its pioneering role in adopting organizational innovations, such as the centralized corporate structure. However, during the first half of the twentieth century, as historian Thomas Heinrich has recently demonstrated, the efforts of the company's management to diversify from its traditional high volume undifferentiated product areas constituted an ambiguous experience. The Company's entry into the electric power business in Canada and the southern kraft paper industry emulated its managerial tactics in newsprint, and emphasized capital efficiency, economies of scale, and price-setting power. Although modestly successful in power and southern kraft, the company's early attempts to enter specialized market niches, such as corrugated paper products, were typically frustrated by barriers of entry.[13, 14, 15]

The wartime expansion of IP's southern paperboard production followed, to a degree, from wartime regulation, and enabled the firm to finally integrate forward into paper converting. Wartime mobilization required unprecedented amounts of paper containers, and IP successfully introduced a number of pioneering packaging products. In the 1950's the company continued to diversify by innovating for specialized markets, such as milk bottle containers.

IP's decision in 1956 to acquire the Long-Bell Lumber Company was an attempt recast itself as a true forest products firm, similar to Weyerhaeuser. The move prompted the scrutiny of antitrust officials, and although legal challenges were eventually not filed, the experience did not go unnoticed by the management. The similar acquisition of St. Helen's Paper Company by Crown Zellerbach in 1953 was also challenged by the Federal Trade



Commission, and resulted in Crown divesting St. Helen's in 1957. Consequently, IP decided to pursue expansion along its existing diversified paper product lines. Simultaneously, the company forged a global strategy by acquiring subsidiaries and contracting partnerships in Latin America and Europe. Yet the real venue of expansion turned out to be specialized container products, such as liquid packaging, corrugated container, and folding cartons, in the United States. After several decades of unsuccessful attempts, the company eventually emerged as a potential leader in these specialized market niches.[16]

Why did it take several decades and many attempts for IP to successfully diversify from newsprint and book paper across almost the whole spectrum of paper and forest products? The answer lies only partially in the organizational capabilities of the company itself. Its financial situation was excellent in the 1950's and it had acquired new technological capabilities in paperboard and paper converting in the years since World War II. Also decisive was the loss of competitive advantage by the leading firms in specialized paper products, as exemplified by the difficulties of the Hinde and Dauch Paper Company and the Union Bag and Paper Company. These firms struggled with rapid technological change that resulted in the convergence of paper coating and converting operations. Much of the new business in the paper container industry after 1950 was in specialized grocery packages that required coated paperboard.

The enormous expansion of IP culminated in the reorganization of the company in 1977. Just as the company had half a century earlier pioneered the centralized corporate structure in the pulp and paper industry, it now perfected the product-diversified, multi-divisional corporate structure by displacing geographical divisions with product-focused divisions. The company reorganized into consumer packaging, industry packaging, specialty packaging, white paper, and wood products and resources divisions. This organizational innovation clarified the technological capabilities and underlying markets of the respective divisions. Although a new benchmark for the industry, IP merely exemplified one set of forces that drove large-scale pulp and paper enterprises towards diversification and a new corporate structure.

Convergence of Organizational Capabilities: West Virginia Pulp and Paper Company

In 1953 the world's largest manufacturer of corrugated paper specialties, the Hinde and Dauch Paper Company, and the leading U.S. book and magazine paper producer, West Virginia Pulp and Paper Company (Westvaco), announced a merger that created the seventh largest U.S. pulp and paper firm. The persistence of the wartime shortages of paperboard supply had prompted Hinde and Dauch managers to explore a potential merger with a paper supplier, and backward integration into Westvaco held the promise to improve the efficiency of its paper converting processes. In contrast to this logic, the merger marked for Westvaco a radical departure from the corporate strategy forged under the stewardship of John Miller and Adam Luke, who had emphasized coated papers for magazines and catalogues as the core businesses of the firm.[1]

The managements of Hinde and Dauch and Westvaco also recognized the convergence of their respective organizational capabilities. Hinde and Dauch was the leading corrugated paper converter and produced much of its own paperboard. However, new opportunities in the grocery packaging business required knowledge of coated paperboard, which it largely lacked. Westvaco, in turn, was the technological leader in paper coating, and a great manufacturer of paperboard too. The merger of the two companies practically integrated technological capabilities and gave the firm competitive advantage in the emerging markets in paper packaging.

Westvaco had pursued an ambitious and successful program of innovation in coated papers and had invested heavily in modernization of its production machinery since the 1930's. Much of this specialization was enabled by the first-mover advantages the firm enjoyed due to its pioneering relocation to the South since the 1920's, as well as innovative partnerships with customer firms in the printing and publishing industry. With the combination of sustained leadership in product innovation and competitive production processes in the South, Westvaco had secured a leadership position in the coated and book paper industry. Yet the firm had little or no organizational capabilities outside these specialized paper markets, and therefore the managers rarely considered diversification when planning long-term corporate strategy during the 1940's.

The merger with a leading paper converting firm prompted Luke to revise the corporate strategy of his family firm. Reversing its strategy of vertical specialization in coated and book paper, Westvaco launched an aggressive strategy of expansion that extended the geographical and product scope of the company. In its extreme the firm acquired a paper mill in Brazil in 1955, vitalizing historical relations there, but mostly Westvaco focused on regrouping the North American operations of its new division. Naturally the acquisition of a paper container specialist facilitated the production of paperboard and other packaging grades, in particular Westvaco specialties, such as papers for grocery packages. In this sense the merger intensified initial seeds of diversification within the company, but by and large these production lines had represented a relatively minor share of Westvaco's total production.

The 1953 merger triggered a true program of expansion and diversification at Westvaco, and the organization of production flows in the new converting division was a critical factor for success. The company modernized Hinde and Dauch converting mills to fit the model of its book paper operations. Vertically integrated mills with good access to pulpwood, and the placement of pulping, papermaking and converting operations at a single plant characterized these efforts. Eventually the whole Hinde and Dauch organization was decentralized and absorbed into the Westvaco structure in the 1960's.

Within two decades following the acquisition of the Hinde and Dauch, the Westvaco evolved from a specialized coated and book paper producer to a firm with a wide product range and national, even global, scope. In the pursuit of a strategy of expansion and diversification, the company had mobilized its existing organizational capabilities and, to a significant extent, attempted to emulate its previous successes in the coated and book paper industries.

From Forestry to Pulp and Paper Making: Weyerhaeuser Company

Among the pulp and paper firms that adopted the diversified structure, the Weyerhaeuser Company was a relative latecomer, perhaps because of the unique evolutionary path the firm followed. The company cautiously diversified, or integrated forward, from its businesses in lumbering and forestry into the production of pulp and paper. Incumbent pulp and paper firms typically diversified from the manufacture of high volume undifferentiated paper products into specialized product lines, but Weyerhaeuser followed the reverse path.

The Weyerhaeuser strategy of expansion was based on its historical strengths. From early on Weyerhaeuser recognized that its competitive advantages flowed from organizational capabilities associated with forestry, such as the large timber holdings and specialized cutting-edge technological knowledge. The reliance on these core capabilities also characterized the company's diversification into the pulp and paper industry. Its expansion of capabilities in the manufacture of pulp and paper followed a strategy of specialization and cautiousness. When Weyerhaeuser eventually fit the model of a diversified large pulp and paper firm in the 1970's, it was an outcome of selective piece-by-piece addition of new lines of production.

Weyerhaeuser focused on building distinct technological capabilities in forestry and lumbering during its early decades, and relatively slowly began to consider forward integration into pulp and papermaking. The 1931 opening of a pulp mill in its home base, the Pacific Northwest, marked the beginning of a long and punctuated evolution from forestry into papermaking. During the 1940's the firm began the manufacture of traditional Pacific pulp and paper products, such as sacks, paperboard, plywood and other. Specialization in the forward integration from forestry into papermaking enabled the firm to successfully avoid cycle-susceptible markets where business and paper firms suffered.

When growing distinct divisions of the company, the managers of Weyerhaeuser typically based their strategy on specific, pre-existing strengths. Having championed forestry and lumbering since its incorporation, the company pioneered aggressive national and global strategies of growth in forestry, whereas it proceeded with great care in its pulp and paper operations. The successful expansion of forestry and lumbering operations was followed in the late 1950's with an attempt to increase the firm's national and product scope in the pulp and paper industry. Reaching out from its traditional geographical location in the Northwest, the firm entered the production of specialty packaging, such as milk carton and folding boxes, in the South. The firm also acquired timber lands, because it typically favored fully integrated production processes.



Weyerhaeuser was by 1960 a relatively large pulp and paper firm, but the strategy of specialization had constrained the realization of potential economies of scale. The acquisition of the Hamilton Paper Company in 1960 marked a departure from the strategy of specialization in the company's pulp and paper operations. Emulating the pooling of capital and technological knowledge in other pulp and paper firms, Weyerhaeuser now began to adopt a more aggressive strategy of expansion in paper. Yet again the firm staked out a unique tactic, perhaps tapping its experience in forestry, and often reduced risks and costs of new investments by partnering with other firms. The opening of bleached kraft mills in Canada in 1965 was typically such a partnership, as well as the move that completed the development of the firm's diversified structure.

Weyerhaeuser had entered pulp and paper from forestry with the production of pulp, and thereafter gradually added new paper product lines. With accumulating experience and the development of new organizational capabilities, the appetite of the firm increased and it began to make larger and larger moves into pulp and paper. Finally, in 1979, Weyerhaeuser entered the newsprint sector by establishing a mill in Longview with the Japanese Jujo Paper Company. The partnership completed a half century of evolution of a forestry and lumbering firm into pulp and paper making. Unique organizational capabilities and managerial experiences of the company determined the strategy of expansion, yet the resulting corporate strategy was similar to those of other leading pulp and paper firms.

Conclusions

Structural opportunities in the pulp and paper business triggered a phenomenal phase of industry growth between 1950 and 1980. Facilitated by innovation in machinery and paper products, the industry received a powerful impulse of efficiency improvement and market expansion. In order to capitalize on these opportunities and offset new competition from small and entrepreneurial rivals, the managers of the incumbent forest products firms forged corporate strategies of expansion and diversification.

The corporate strategies of diversification and growth triggered a wave of acquisitions and mergers beginning in the early 1950's. Typically, firms acquired new technological capabilities that allowed vertically integrated production of new specialized paper products, in particular for the paper container market. When executing corporate expansion and diversification the large pulp and paper firms relied on their pre-existing organizational capabilities, as well as past experiences that emphasized economies of scale and industry leadership. The consolidation wave resulted in the adoption of a diversified and multidivisional structure by most of the leading North American pulp and paper firms. By the late 1970's the leading pulp and paper firms resembled each other more than ever. Most of the firms shared a related corporate strategy and structure, and faced the challenges of globalization and European competition with rather similar organizational capabilities.

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