A Reappraisal of the Role of Finance in The Corporate Revolution of the Late Nineteenth Century

William Doyle[1]
University of Dallas

It is practically an article of faith among economists that financial activity involves little more than the exchange of claims against current output for claims against future output, and that financial development is driven primarily by changing deficit financing requirements within industry or government. The stylized fact that finance is concerned mainly with the allocation of real savings among competing uses, however, ignores the fact that securities perform a variety of functions for both their issuer and purchaser and are not always issued in order to obtain funds to finance spending in excess of current revenues. The new financial developments which accompanied the corporate revolution of the late nineteenth century, in fact, had far less to do with obtaining funds from savers than with changing, establishing or formalizing relationships within and between existing businesses. These new relationships enabled business to manage their internal affairs and coordinate their activities with other firms in ways that would have been impossible before.

Incorporation and the Use of Corporate Stock

According to Raymond W. Goldsmith, a rise in the ratio of financial assets, or securities, relative to tangible assets has been a nearly universal feature of economic development during the nineteenth and twentieth centuries [8]. Growth in the number of corporate stock issues and large, widely held corporations has typically proceeded apace of the general increase in financial activity that accompanies increases in the importance of financial wealth as an item of total wealth. Paul Samuelson is one among many economists who has asserted that the primary reason that businesses choose to incorporate and issue

[1]Much of this work draws heavily on [7] in which extensive citations of the primary sources used in reconstructing the financial histories of the meat packing and sugar refining industries appear. The reader is referred there for a far more detailed and meticulously documented account of the financial development of these two industries than is possible here. Only citations of readily accessible secondary sources appear in this text.

BUSINESS AND ECONOMIC HISTORY, Volume Twenty-two, no. 1, Fall 1993.
Copyright © 1993 by the Business History Conference. ISSN 0849-6825.

corporate stock is because "large corporations can raise large sums of money to engage in efficient large scale production [14, p. vii]." The economic rationale for incorporation is presumed by Samuelson to be as follows:

> without limited liability and the corporation, a market economy simply could not reap the benefit that comes when large supplies of capital need to be attracted to efficient-sized corporations that produce a variety of complementary products, that pool risks, and that best utilize the economies of sizable research units and managerial know-how [14, p. 440].

These apparently sensible assumptions are at the root of many accounts of the three interrelated, watershed events of late nineteenth century American financial history: the so-called "corporate revolution," the great merger wave of 1897-1905, and the emergence of a sophisticated, formal market for industrial securities [See, for example, 4,5,6].

It is indeed tempting to interpret the financial behavior of many of the large, integrated manufacturing corporations that emerged during the late nineteenth century in terms of obtaining funds to finance their greatly increased productive capacity and physical size compared to earlier manufacturers organized as partnerships or proprietorships. If one takes seriously the financial records of firms that grew large and incorporated during the period, however, this interpretation of the relationship between America's financial and industrial development becomes highly suspect.

Financial History of the Meat Packing and Sugar Refining Industries: General Features and Similarities

The financial records of the meat packing and sugar refining industries tell a remarkably similar story, despite the fact that their general histories were quite different in a number of important respects. The dominant firms in sugar refining grew by way of horizontal consolidation, whereas the largest firms in meat packing grew by way of vertical integration. One industry underwent a dramatic technological revolution (the advent of refrigeration) which greatly increased the likelihood that its financial resources would be severely taxed by the need of most producers to invest "all at once" in new, capital intensive production and distribution facilities. The other underwent more gradual technological change.

While it would be incorrect to suggest that their financial histories precisely mirrored those of firms in other industries, the general features of their overall development are inclusive enough to suggest them as plausible representatives of the many other firms which consolidated, grew large and incorporated during the late nineteenth century. Particularly striking is the extent to which similarities exist in their responses to the innovations in production technologies that comprised the "mass production" revolution in American manufacturing. This is very important, but not--as is commonly supposed--because manufacturers required massive infusions of capital in order

to finance the incorporation of such new technologies into their production processes.

According to Alfred Chandler, the most fundamental transformation that occurred in American manufacturing during the last quarter of the nineteenth century involved a profound, interrelated, organizational and technological revolution. The revolution in production involved the application of new mass production technologies to the manufacture of a wide range of items. This development was complemented by revolutionary changes in the internal organization of businesses formerly organized as simple partnerships, proprietorships or closely held corporations. Taken together, these changes enabled dramatic increases in output per unit of time through improved design of manufacturing or processing plants, and by improvements in managerial practices designed to synchronize raw materials and product flows with final market demand [3, pp. 240-241].

The technologies of mass production, coupled with new ways of organizing inputs and commodities in the process of production, gave rise to significant increases in the speed with which high volumes of raw materials could be transformed into finished goods and distributed to consumers [3, p. 240]. While most mass production industries appear to have become "capital intensive" in the sense that these new technologies enabled a sharp decrease in the amount of labor required to produce a single unit of output, the economies enabled by the new technologies resulted more from the volume and speed of throughput than the physical size of a given manufacturing facility or the value of its productive equipment [3, p. 244]. Increased capital intensity among late nineteenth century manufacturers, insofar as it occurred, should thus not necessarily be construed to mean fixed-investment intensive. Perhaps "items-in-process intensive" would be a more accurate, though more cumbersome, term.

The financial impact of the mass production revolution among American manufacturers was unrelated to the problem of financing the construction of new factories or the purchase of new machinery. Its importance derived rather from the new forms of internal and external business organization that emerged to enable businesses to cope more effectively with the potentialities and problems of the new methods of production and distribution [9, pp. 15-16]. Firms within many mass production industries were engaged in high volume production and sales of a homogeneous product. The per-unit cost reductions realized by such manufacturers as a result of the economies of high-volume, rapid production induced many to "run full" at all times, regardless of the effect on earnings or the price of their product. For many such manufacturers collusion or formal consolidation became absolutely necessary for survival [9, pp. 15-16]. Other mass production industries, particularly those which produced technologically sophisticated or perishable products, were forced to confront the problem of coordinating raw material and product flows with final market demand. Businesses of this type typically undertook integration into distribution or the provision of raw materials [9, pp. 15-18].

The profitability of the major firms within the sugar refining and meat packing industries resulted from low per-unit earnings on high volume sales of a mass manufactured product rather than high per-unit profits. Furthermore,

each pursued one of the courses of integration outlined above in response to the operational problems and opportunities created by the high rate of throughput and volume sales that mass production and distribution made possible. It would not be implausible to suggest that their financial histories are similar to those of a broad cross section of industries in which mass production and mass distribution techniques became the norm during the last quarter of the nineteenth century.

Both industries exhibited a number of similar financial tendencies during 1875-1905. The most striking is the degree of self reliance displayed by their major firms in funding the expansion and maintenance of productive capacity and, to a lesser extent, their working capital needs. While firms in both industries made extensive use of various types of short term credit, their dependence on outside infusions of long term capital was minimal. Paradoxically, this appears to have been true both of the early firms that were organized as partnerships, proprietorships or closely held private corporations, and of the large, widely held corporations that dominated each industry after 1895. The major firms within each industry continued to rely almost exclusively on the capitalization of retained earnings and short term borrowings to finance the maintenance and expansion of productive capacity and other aspects of their daily operations even after their financial structures had undergone the changes enabled by incorporation and the issue of stock.

The Role of Short-Term Credit in Financing Fixed Capital Expenditures

Firms are generally assumed to seek short-term credits in order to increase their working capital, while the contribution of short term credit to fixed capital formation is typically ignored. For firms with high rates of profit on a rapid and regular turnover of working capital, however, this contribution can be considerable [2, p. 11][2]. The increased rate of return on equity made possible by the use of short term credits to finance the expansion of working capital (and the corresponding shift of owners capital into fixed investment) would allow for approximately twice the rate of expansion of productive capacity (assuming that all earnings were reinvested in the business) than would occur if the firm relied entirely on its own resources to finance its operations.

The major firms within the sugar refining and meat packing industry relied almost exclusively on the personal resources of a small circle of owners to finance their early fixed capital expenditures. Working capital was obtained primarily through the use of commercial bank credit, single name commercial paper and borrowing on open account from suppliers. The innovations in

---

[2]This point may be illustrated in the following manner. Consider a firm with total assets of $100,000, one-half of which consists of fixed capital, the other one-half working capital. Assume the firm has no debt whatever. On average, the firm turns over its working capital every three months; its annual sales are therefore $200,000. If the average rate of profit on total sales were five percent the firm would earn a ten percent return on equity. If such a firm, however, shifted its own capital to fixed investment and relied on bank credit for an identical proportion of working to fixed capital its rate of return on equity would climb to twenty percent [2].

production, marketing and distribution employed by the large sugar refining and meat packing firms enabled a greatly increased throughput and a quick turnover of working capital. Throughout the entire period (1875-1905), the earnings that were generated on the rapid turnover of a primarily borrowed working capital were of sufficient quantity to fund a high rate of expansion of productive capacity, and to supplement bank borrowings and other forms of short term credit in funding a similarly expanding base of working capital.[3] None of the major firms in either industry, with the exception of Swift & Co., relied to any significant extent on stock or bonds to fund any aspect of their manufacturing operations prior to 1905.

Incorporation and the Use of Corporate Stock

Thomas Navin and Marian Sears assert that a vast majority of all new common and preferred stock issues during 1887-1902 were created in connection with horizontal consolidations: either trusts converting to holding companies or holding companies formed in imitation of the trusts. Only very rarely did firms issue shares as a means of raising additional cash prior to 1893 [11, pp. 136-137].

Although the use of large quantities of cash in putting together consolidations became more common during 1897-1902, securities issued during consolidations, reorganizations and recapitalizations greatly outnumbered those issued to raise additional capital to finance expansion. The cash that was obtained from the sale of consolidation backed securities was almost always used to purchase options on the shares of the firms that were being consolidated, to retire the short term indebtedness of consolidating companies, to compensate stockholders for the cash assets of consolidated companies or to provide working capital in the case of consolidations that acquired only the fixed assets of consolidating companies. Funds obtained through the sale of consolidation backed securities were very seldom used to finance the physical expansion of consolidated corporations subsequent to their consolidation. Those securities that were issued to facilitate consolidation that were not exchanged for cash (a considerable majority of all securities issued prior to 1902) were exchanged directly for property or for the securities of the consolidating companies [10; 12, p. 130]. The role of incorporation and corporate stock within the sugar refining and meat packing industries during 1875-1905 mirror these general tendencies.

Incorporation and the Use of Corporate Stock in the Sugar Refining Industry

The recurring problem that plagued the sugar refining industry during the 1870s and 1880s was excess productive capacity. By 1886 the shrinking

---

[3]Some of the longer established firms in the meat packing industry substituted internally accumulated equity or funds obtained from the sale of stocks or bonds for short term borrowings on their balance sheets after 1900.

number of firms that were able to continue in operation possessed an annual capacity to produce that was estimated at 3.926 billion pounds, while during 1885 total sales of refined sugar were only about 3.3 billion pounds. The efforts of the major sugar refining firms thus came to be directed less towards formulating and implementing competitive strategies to oust rivals from the marketplace, and more towards establishing a viable mechanism to enable the coordination of investment and production within the industry.

As techniques for establishing industry-wide coordination grew increasingly sophisticated, the informal arrangements and familial ties which had earlier served to establish some measure of cooperation among the refiners gave way to more formal methods of combination and consolidation. In attempting to strengthen the mechanisms of intra-industry coordination, finance became the sugar refiners' most important tool.

Prior to the incorporation of the American Sugar Refining Company, which absorbed the seventeen independent sugar refineries that were combined under the Sugar Trust in 1887, all American sugar refineries were either partnerships, proprietorships, or, in a handful of cases, very closely held corporations. Among incorporated sugar refineries the use of stock was confined to the specification of the pro rata share in the company's earnings to which each of the firm's narrow circle of owners was entitled; such stock was very seldom traded, even informally. In order to enable the combination of the independent refineries under the Sugar Trust it was necessary for each independent refining firm to incorporate. The entire capital stock of each corporation was then exchanged for an identically valued block of trust certificates. The stock of the previously independent corporations was held by the trustees in its entirety until the formation of the American Sugar Refining Company, a holding-operating company, in 1891.

The American Sugar Refining Company acquired all the stock certificates of the corporations that had earlier been consolidated under the trust, in exchange for which the holders of the trust certificates received the entire capital stock of the new company. The directors of the American Sugar Refining Company then had the consolidated corporations dissolved, and the new corporation took title to the actual properties that had formerly been owned by the various individual corporations that had earlier been consolidated under the Sugar Trust. Practically no cash changed hands during the formation of the trust or the subsequent formation of the American Sugar Refining Company.

The American Sugar Refining Company's corporate charter permitted it to issue stock in exchange for either cash, property or the securities of other firms, and to issue bonds for cash if the directors should so authorize. Although the company did not make use of the bonds that it was authorized to issue, its capital stock increased by eighty percent, from $50 million to $90 million, between 1891 and 1905. This $40 million in stock, however, was not used to obtain funds in order to finance the construction of additional productive capacity. Only the company's $10 million issue of 1901 was exchanged for cash, which was subsequently used to extend the American Sugar Refining Company's influence throughout the beet sugar industry; the

remaining $30 million that was issued during 1891-1900 was exchanged directly for property or the securities of other refining companies.

Incorporation and the Use of Corporate Stock in the Meat Packing Industry

From 1878, when western dressed beef first appeared in significant quantities in eastern markets, until 1885, all of the rapidly growing western dressed beef shippers were organized as either proprietorships or partnerships. Obviously, none were capable of using stock for any purpose. The industry's primary sources of long-term funds during this early period of its development were retained earnings and the personal resources of the individuals who comprised the various partnerships out of which the industry's four dominant firms eventually emerged.

Swift & Co. was the first of the major dressed beef shippers to incorporate; its entire initial stock issue of 1885 was subsequently used to acquire the assets of the various Swift affiliated partnerships and proprietorships. The company's capitalization increased several times during 1885-1895 with each new issue of common stock paid for in full in cash. The company's stockholders, however, received extra cash dividends shortly in advance of each new stock issue through 1893, which provided them with the funds to purchase approximately fifty percent of each new issue in advance of it formally being offered for subscription. As a result of this unusual dividend policy, Swift & Co. experienced no net inflows of cash from its stockholders during 1885-1893. Its new issues of stock were equivalent to the capitalization of earned surplus reserves through payment of dividends in the form of additional stock.

The most salient feature of the early financial development of the industry, considering its rapid rate of growth, was its heavy reliance for expansion capital on reinvested profits. Retained earnings were typically capitalized through the declaration of dividends payable in stock, their equivalent, or, in the case of the early partnerships, the implicit augmentation of the partners' equity through the direct purchase of tangible assets from surplus reserves. These practices were especially important during the early period of the industry's development, when a frequent turnover of high volumes of working capital provided a steady stream of profits to enable rapid physical expansion and the accumulation of large cash surpluses.[4]

By 1902 all five of the major western dressed beef shippers had incorporated. These corporations received no significant outside infusions of long term capital prior to their incorporation aside from their initial capitalizations, and increased their capital stocks solely by capitalizing surplus reserves through the issue of dividends payable in stock; none, with the exception of Swift & Co., issued any stock for cash subscription. Furthermore,

---

[4]The rate of return on invested capital declined as the industry matured. This was in large part attributable to the packers' increased trade in meat by-products and related manufactured articles which were transformed into salable commodities at a much slower rate than the edible meat products that were the staple of the industry prior to 1890.

the initial capitalizations of these new corporations consisted entirely of the accumulated assets of the dissolved partnerships or proprietorships (whose initial capitalizations had earlier been derived entirely from the personal resources of the partners or proprietors), or of the personal resources of an extremely narrow group of owner-operators.

The problems faced by the large dressed beef shippers during 1875-1890 were related primarily to the establishment of an effective means of year round refrigerated transportation, the extension of their marketing and distribution networks into markets along the eastern seaboard, and the coordination and financing of increasing volumes of throughput. Incorporation and corporate stock was much more important in enabling the western dressed beef shippers to establish, coordinate and control their distribution and transportation subsidiaries than in financing expansion of their processing capacity. The dressed beef shippers first used stock to coordinate the old distribution system of jobbers, wholesalers, independent butchers, and retail meat dealers. This was often accomplished through the establishment of financial alliances between individual dressed beef shippers and established, eastern meat retailers and wholesalers. The usual method was for each to swap a portion of their firm's equity for equity in the business of the other. Years later the dressed beef shippers consolidated control over their distribution networks by "buying out" the individuals with whom these financial alliances had been formed.Most of the proceeds of Swift & Co.'s stock sales after 1893 went for this purpose, which the other companies financed using internally generated funds. In some cases the packers established new branch distributorship in eastern and midwestern markets; in almost all such instances construction of these facilities was financed using retained earnings supplemented by short term borrowings. The packer's distribution system was coordinated primarily through the agency of subsidiary corporations whose stock was owned entirely by the meat packing companies proper.Subsidiary corporations and corporate stock were used in a similar fashion to coordinate the refrigerated transportation and by-products subsidiaries of the western dressed beef shippers, the former of which were entirely self-financed once established.

During 1890-1905, after their integration into marketing, transportation and distribution was well underway, the large dressed beef shippers were forced to confront new problems that arose as a result of their earlier expansion and increased competition in markets that had come to be served by more than one packer. During 1901-1902 the major dressed beef shippers made preparations for a formal, industry-wide consolidation. After the investment syndicate that had been formed to underwrite the proposed merger withdrew from the agreement following concern about its legality and the onset of stringency in the money markets, the large dressed beef shippers formed a jointly owned holding/operating subsidiary, in which each held a portion of the voting stock. The newly created holding/operating company subsequently acquired a number of independent packing companies that had earlier been purchased by the three largest dressed beef shippers with their own funds in anticipation of the failed general consolidation. Through the agency of the jointly owned subsidiary the large packers were able to

coordinate investment and output in the industry through 1912 when the company was dissolved by court order.

These general financial tendencies would be of limited importance to financial history if they were unique to these two industries. Other writers, however, have interpreted various aspects of the "corporate revolution" in ways that suggest that these accounts may be typical. Adolph D. Berle and Gardiner C. Means, in their influential account of the rise of the modern corporation, assert that its widespread acceptance initially was attributable to a desire on the part of business owners to "free themselves" from fixed investments that had already been undertaken, or to enable the consolidation of smaller, existing business properties within a single incorporated business unit [1, pp. 12-13]. Such corporations typically grew through the reinvestment of earnings or by acquiring control of other existing companies through the purchase or exchange of securities. The sale of stock, they assert, was of minor importance in financing additional investment in plant and equipment [1, pp. 42]. Most incorporations, they further note, occurred after companies had already become large, profitable enterprises. Moreover, most stock issues that were traded on the securities exchanges had already been issued and sold by some other means, and were usually backed by other financial assets or physical properties already in existence, rather than an expected revenue stream from some yet to be consummated investment project.

Ralph Nelson's findings on industrial finance during the late nineteenth century support this interpretation. Most of the securities that were issued between 1897-1902 were issued by industries undergoing consolidation, and were exchanged directly for property or the securities of other companies rather than for cash. During 1897 ninety-four percent of all recorded issues of industrial stock were exchanged directly for tangible assets and the securities of other companies (including the assets and equity of partnerships that were converting to incorporated businesses). During the next five years the number of securities issued for cash to the general public increased to an annual average of only 10.6 percent of all securities issued [13, pp. 88-89]. Although no similar figures are available for the period before 1897, it is almost certain that the proportion of securities exchanged directly for cash in the primary market was even lower, as investors had yet to become fully accustomed to the distribution of industrial securities.

R. C. Michie, in a highly detailed, comparative study of the London and New York investment markets, tells a similar story. He describes the typical nineteenth century consolidation as involving "no more than the conversion of [an] established company into [a] larger grouping, involving little fundamental change or any need to obtain finance for major new developments [11, pp. 12-15]."

Moreover, firms that were most likely to engage in consolidation shared a number of similar tendencies, including high ratios of fixed charges to total revenue (due in large part to "excessive borrowing" relative to the use of other methods of internal and external finance), large establishments and numbers of workers, persistent overproduction, excess capacity, and high ratios of total invested capital to output [9, pp. 33-34, p. 55, pp. 90-92]. None of these tendencies support the interpretation that businesses were induced to

incorporate or consolidate in order to enable them to more easily obtain long term capital from outside sources to finance additions to productive capacity. Rather they suggest that the amount of capital that firms were able to obtain through "traditional" channels was more than sufficient to fund a higher level of investment within the manufacturing sector than the manufacturers themselves might have wished for.

Conclusion

One of the major problems that plagued firms within both meat packing and sugar refining during this period was excess capacity to produce relative to demand. Another problem related to innovations in transportation and communication and the mass production revolution in manufacturing involved the need to coordinate the production and distribution of mass produced commodities with final market demand.

Recognition of these problems gave rise to two different sets of financial imperatives. The first involved the need to devise solutions to the problems of coordinating large, multi-function enterprises such as those which dominated the dressed beef industry, and to decrease the volatility of asset values in the many industries that were weakened by "cutthroat competition." The second set of imperatives consisted of the need to fund working capital requirements, the maintenance and expansion of productive capacity, and other aspects of day-to-day operations.

Through 1905 businesses continued to rely upon various types of short term credit to fund working capital needs, thus freeing the owner's equity for investment in fixed capital. The higher earnings on equity made possible by this practice -- coupled with the higher rate of turnover of working capital facilitated by new mass production, distribution, and transportation technologies -- generated a sufficient volume of earnings to fund the maintenance and expansion of productive capacity and a commensurate expansion (through the use of equity and accumulated surplus as collateral) of short term credits to fund proportionate increases in working capital.

The first set of imperatives induced the innovation of a host of new financial techniques and financial instruments. These had as their primary purpose the establishment and maintenance of coordination between different functional entities within vertically integrated firms, or between functionally identical firms in horizontally integrated industries. Whether intended or not, these new methods of formalizing the mechanisms of coordination and control among businesses through the exchange of securities caused businesses that were so affected to increase greatly in value. Financial practices do not appear to have changed so that businesses could more easily obtain funds from savers to finance the purchase of new plant and equipment. Modern, multi-unit and/or multi-function incorporated business enterprises, with their securities and sophisticated financial practices, came into being when the use of financial instruments to facilitate coordination permitted higher earnings, greater productivity, lower costs and higher asset values than the use of financial instruments to obtain funds to expand and improve capacity.

References

1. Adolph D. Berle and Gardiner C. Means, *The Modern Corporation and Private Property* (New York, 1932).
2. Rondon Cameron, ed. *Banking in the Early Stages of Industrialization* (Cambridge, UK, 1967).
3. Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA, 1977).
4. Lance E. Davis, "The Investment Market, 1870-1914: The Evolution of a National Market," *Journal of Economic History,* 25 (September, 1965), 355-400.
5. _________, "The Capital Markets and Industrial Concentration: The U.S. and U.K., a Comparative Study," *Economic History Review,* 19 (August 1966), 255-272.
6. Lance E. Davis, et al. *American Economic Growth: An Economists History of the United States* (New York, 1972).
7. William M. Doyle, "The Evolution of Financial Practices and Financial Structures Among American Manufacturers, 1875-1905: Case Studies of the Sugar Refining and Meat Packing Industries" (Unpublished Ph.D. Dissertation, University of Tennessee, 1991).
8. Raymond W. Goldsmith, *Financial Structure and Development* (New Haven, 1969).
9. Naomi Lamoreaux, *The Great Merger Movement in American Business,* 1895-1904 (Cambridge, MA, 1985).
10. Thomas McCraw, ed., *The Essential Alfred Chandler: Essays toward a Historical Theory of Big Business,* (Boston, 1988).
11. R.C. Michie, *The London and New York Stock Exchanges, 1850-1914* (London, 1987).
12. Thomas R. Navin and Marian V. Sears, "The Rise of a Market for Industrial Securities, 1887-1902." *Business History Review,* 29 (1955), 255-272.
13. Ralph L. Nelson, *Merger Movements in American Industry, 1895-1956* (Princeton, 1959).
14. Paul A. Samuelson and William D. Nordhaus, *Economics,* 12th edition (New York, 1985).
15. Thorstein Veblen, *The Theory of Business Enterprise* (New York, 1904).