Trinity College
Trinity College Digital Repository

Senior Theses and Projects

Student Works

4-1-2012

The Standard Answer to American Business

Madison X. Helies
Trinity College, madison.helies@trincoll.edu

Follow this and additional works at: http://digitalrepository.trincoll.edu/theses

Recommended Citation
Helies, Madison X., "The Standard Answer to American Business". Senior Theses, Trinity College, Hartford, CT 2012.
Trinity College Digital Repository, http://digitalrepository.trincoll.edu/theses/156

THE STANDARD ANSWER TO AMERICAN BUSINESS

By

Madison X. Helies

A Thesis Submitted to the Department of Economics
of Trinity College in Partial Fulfillment of the
Requirements for the Bachelor of Arts Degree

Economics 498-99

April, 2012

The Standard Answer to American Business

Madison X. Helies
Trinity College
Department of Economics
Senior Thesis, April 2012

Abstract

One hundred years after its dissolution, the Standard Oil Company retains its tarnished reputation for unscrupulous and anticompetitive behavior. Though this reputation has in many ways demonstrated what firms should not do, this paper examines the ways in which Standard Oil showed America how to successfully manage a rapidly growing business. The 19th Century saw a total upheaval of the American economy. With the Industrial Revolution and development of Big Business, American enterprise was forced to adapt and evolve. In the subsequent period of change in business organization, The Managerial Revolution, Standard Oil was among the most successful large firms, and must have made critical contributions to modern management that changed American business. This paper examines how the Standard Oil Company changed the way America does business, through the evolution of modern management and organization, by way of a case study of the Standard Oil's most prominent management innovations and techniques and the economic impact on the firm. The paper will then analyze the impact of Standard's practices by examining firms that imitated these management techniques and the correlating economic effects for each firm. Standard Oil did have a serious impact on modern American business as it established the successful route to corporate size of Horizontal Combination, consolidation, and Vertical Integration which was imitated by many in many industries.

Acknowledgements

I would like to express my utmost gratitude to my Thesis Advisor, Professor Gerald Gunderson, who's lessons first interested me in the study of American economic and business history. Without his insight, guidance, and knowledge, this project would not have been possible.

I would like to thank this year's Economics Senior Thesis Coordinators Professor Carol Clark and Professor Rasha Ahmed, who provided essential advice and motivation. The time and efforts they gave to assisting the thesis writers were above and beyond, and are immensely appreciated.

In addition, thank you to the Trinity College Economics Department for their participation in all preliminary thesis presentations. Their constructive comments, questions, and suggestions allowed me to refine the scope of this research.

Table of Contents

Chapter	Title	Page
	Title Page	
	Abstract	i
	Acknowledgements	ii
	Table of Contents	iii
	List of Figures	iv
	List of Tables	iv
1.	Introduction	1
	i) A New Era	1
	ii) The Evolution of Modern Management	2
	iii) The Significance of Standard Oil	3
2.	Background	6
3.	Methodology	7
4.	The Management Contributions of Standard Oil	10
5.	Imitators	27
	i) The American Linseed Oil Company	27
	ii) The Sugar Trust	28
	iii) The American Cotton Oil Company	31
6.	Results	35
7.	Conclusion	43
	References	50

List of Figures

1. The Horizontal Integration of Standard Oil.…………………………….…14

2. Standard Oil Trust……………………………………………………..20

3. Vertical Integration Standard Oil……………………………………...23

4. The Standard Oil Committee Structure……………………………………. 24

5. The Evolution of Management in the Standard Oil Co. ……………….….. 26

6. The National Linseed Oil Trust Timeline………………………………….. 28

7. The Sugar Trust Timeline……………………………………………….. 31

8. The American Cotton Oil Trust Timeline………………………………….. 33

List of Tables

1. The Standard Oil Company Financial Data…………………………………36

2. The American Linseed Oil Company Financial Data……………………….38

3. The Sugar Trust Financial Data……………………………………………...40

4. The American Cotton Oil Company Financial Data………………………...42

Chapter 1: Introduction

i) A New Era:

The late 19th Century was a hugely important time for American business. From 1865 to the early Nineteen hundreds, the American economy was transformed from predominately agrarian to an industrial World power, facilitated by a few exceptional entrepreneurs. It was an era we must examine to better understand the business practices and policies of our time, as well as the structure of modern corporate and financial systems. This period in which the struggle between entrepreneurial ambition and market competition was both new and poignant began an age of extraordinary industrial success and the establishment of Big Business.

In the year 1860, the population of the United States was thirty-one million people. However, by the year 1890, the population had more than doubled to read sixty-three million, and by 1920, the population of the United Stated had reached one-hundred and six million. Most of this growth was occurring in cities which were becoming more and more connected through railroads and technology. The rapid growth of the American population and cities was an essential change that provided many economic opportunities and afforded entrepreneurs to construct big business. The expansion of new railroad infrastructure and innovations in communication technology, such as the telegraph, lead to the establishment of a new National Market.

Big business developed when entrepreneurs took advantage of this new National Market and improvements in technology to combine mass production with mass distribution. Though some entrepreneurs capitalized on these economic changes before the Civil War, most had to "await the integration of the National Market by the railroad and the development of new technology in production."[1] When big business did develop, however, it did so rapidly. No single American company was valued at ten million dollars in the year 1860, but a mere forty years later in 1904, some three hundred firms were. It is between those dates that the most controversial and powerful businessmen Americans had yet seen, and the empires they built changed American business, and economy for generations to come. The United States, during this period, began developing a dual economy, which carried throughout the 20th Century the trend of dominant Big Business and outlying small firms."[2]

ii) The Evolution of Modern Management:

Modern business enterprise, as described by Alfred Chandler in *The Visible Hand*, is defined by its many well-defined operating units and is managed by a "hierarchy of salaried executives," each unit with its own office, manager, set of books, and accounts[3]. The Managerial Revolution began with the United States railroad industry in the mid eighteen-hundreds and forever changed the way American business was managed, initiating the rise of big business. With the rise of increasingly large companies in the years after the Civil War, the personal small firm management of the past had given way for large-scale administrative management as big business leaders created innovative organizational structures capable of running the enlarged outputs of their firms.

[1] Mansel G. Blackford and K. Austin Kerr. *Business Enterprise in American History*. (Boston: Houghton Mifflin, 1994) 135.

[2] Blackford, Mansel G., and K. Austin Kerr, 126.

[3] Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business*. (Cambridge, MA: Belknap, 1977) 1-3.

The American Managerial Revolution is a critical study, for not only were major adaptations to enterprise management crucial in the development of big business, but modern management also took the place of the market mechanism in coordinating the activities and resources of the American economy in many ways. For example, Vertical Integration replaced one level of market exchange between two separate firms with internal transactions within one firm. The nature of economic decision-making in the United States had undergone substantial changes with the rise of Big Business. Decisions that were once previously made through "invisible hand" market forces became internalized within the new big business firms. In fact, Alfred Chandler's *Visible Hand* is based off the notion that Adam Smith's "invisible hand" of market forces was replaced in this era by the "visible hand" of large-scale modern management. Though the American economy's quantities of supply and demand for goods and services continued to be generated through the market, modern business enterprise acquired various functions that had been previously carried out by the market and became the economy's most powerful institution. "Rarely in the history of the world has an institution grown to be so important and so pervasive in so short a period of time [as modern business enterprise]."[4] The managers of big business firms quickly became the most influential economic decision makers.

iii) The Significance of Standard Oil:

In the study and understanding of the history of modern American economic institutions, case studies are an integral tool, as they help pinpoint the most important issues and specify critical turning points. One of the most prominent cases of this era is that of the Standard Oil Company.

[4] Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business*. (Cambridge, MA: Belknap, 1977) 4.

Standard Oil was a giant presence in not only the American oil refining industry, but eventually, throughout the World and various other industries. Standard Oil changed American business with its contributions to modern management. Standard Oil is infamous for the many, often curious, business practices and innovations that aided in their enormous success. But, in becoming one of the first and largest multinational corporations and the largest oil refiner in the World, some of Standard's most important practices became their management techniques. The revolutionary transformation of the American economy in the 19th Century required substantial amendments to business management. Standard Oil adapted to this transition by way of innovations such as Horizontal Combination, the Trust, Executive Committees, and Vertical Integration.

Standard's history is essential to understanding the rise of the large corporation in the United States Economy. Standard lead the way in terms of legal and administrative Consolidation, Horizontal Combination, and Vertical Integration, which became a normal road to size for the large American firm[5]. The experience of the Oil industry, namely its dominant firm Standard Oil, was often paralleled in other industries in this period. The management of the Standard Oil Company used many innovative techniques to attain market dominance and become the largest oil refiner of their time. Standard's amendments to business organization not only led directly to increased efficiency, but also to more innovation in their field and with their products. The infamous Chief Executive of Standard Oil, John D. Rockefeller, managed the firm from its inception to his turn-of-the-century retirement and in doing so became the wealthiest man in World history. Standard Oil pioneered many ways of American big business and a "review of its

[5] Alfred D. Chandler and Richard S. Tedlow. *The Coming of Managerial Capitalism: A Casebook on the History of American Economic Institutions* (Homewood, IL: R.D. Irwin, 1985) 343.

story thus helps to identify the conditions, motives, and methods that led to the rise of the large modern corporation in the United States" [6].

By looking at the evolution of enterprise management from the dawn of American industrialization and the modifications made by Standard Oil, I hope to provide evidence that the Standard Oil Company changed the way America does business. This paper strives to establish a timeline of Standard Oil's organizational development and detail the corresponding successes that were achieved as well as aiming to examine the dissemination of management innovations from an industry leading firm: Standard Oil, to other firms throughout the economy. I believe that this correlation will provide me with evidence of the impact of modern management techniques on Standard's success and how the firm played an integral part in the Managerial Revolution.

[6] Chandler, Alfred D., and Richard S. Tedlow, 344.

Chapter 2: Background

America, in the late 19th Century, had just emerged from a crippling Civil War. This war had not only depleted resources, but had taken a serious toll on the Unites States' labor force. Apart from the Civil War, the abolition of slavery in the mid-1860s changed the entire economy of the Southern United States. It was certainly a new beginning for the American economy, one that held many opportunities for future great entrepreneurs.

To understand the importance of the changes made by Standard Oil to American Business enterprise, must we first study the preceding processes of production and distribution. From 1790 to the 1840s, there was very little modification in American business enterprise with respect to size or nature. "As the population rose from 3.9 to 17.1 million and as Americans began to move west ... the total volume of goods produced and distributed and the total number of transactions increased enormously" [7]. However, business enterprise remained small, single-unit institutions, becoming increasingly specialized. In the early Oil industry, business firms were largely in partnership form, eventually becoming larger entities. However, the functions of drilling, producing, transporting, marketing, and refining were all separate and independent between firms. Refiners often only produced one type of product.

The Managerial Revolution started with the railroad industry in the American north-east in the 1840s. As the industry grew and the expanding infrastructure connected the ever-growing population and economy, it became clear that the old and informal business practices were unsuitable. This presented an opportunity for firms willing to change with the times, innovating new management techniques in hopes of realizing a larger payout.

[7] Chandler, 14.

Chapter 3: Methodology

In conducting this research, we must consider several hypotheses. First, The Standard Oil Company naturally attracted imitators of its profitable organizational innovations from its size and success. Second, these adoptions of Standard Oil's techniques had larger implications for modern management as they sped up firm growth in the overall American economy.

The methodology used for this research was economic and historical analysis. This analysis includes firm financial data as well as historical accounts which provide information on firm decision making and public opinion. To understand the Managerial Revolution and the coming of Big Business in the United States, it is essential to study the firms that were active during this period. The lasting impact of the changes made during this revolutionary time in American business can be seen through firm and industry case studies, which are an integral tool in identifying critical turning points and innovations. In studying the specific impact of the Standard Oil Company on American business during the so-called Managerial Revolution, the natural first step is to examine the evolution of Standard Oil and its organizational structure.

From the first step in this research, four of the most noteworthy of Standard Oil's management techniques are identified: Horizontal Combination, legal and administrative Trust consolidation, Committee Structure, and Vertical Integration. The next aspect of this research approach was to catalogue Standard Oil's organizational evolution and development by studying each of these techniques as they were applied by Standard Oil, including: why they were employed, when Standard developed them, and how they were implemented. All the while, assessing any corresponding milestones of the firm's financial success and economic benefits such as firm capitalization, net earnings, and increased market share. With this information, a timeline will be assembled of the evolution of Standard Oil's organization, and the net economic contribution of each innovation. After the timeline of Standard Oil's contributions to modern management is established, the large-scale impact of these contributions will be measured by the study of firms that imitated Standard's techniques and the net economic contribution to each firm. These contributions would be analyzed under the assumption that if imitator firms had success with these tactics, they would be perpetuated in the market. The firms that have followed the Standard Oil Company's organizational route to success, in its entirety or by individual technique, and will be analyzed are: the American Linseed Oil Company, the American Cotton Oil Company, and the Sugar Trust. These firms were chosen based not only on their dominance in their respective industries, but are also acknowledged as some of the successful trusts that followed (at least in part) the management route of Standard Oil.[8] By following these imitators of Standard Oil's management tactics and noting if their experiences with these tactics were successful, we can determine if they had the potential to be perpetuated by other firms, and thus, have a lasting impact on American business enterprise.

Some assumptions are necessary in the conducting of this research. The first and most essential assumption is that firms will adopt new management techniques when the potential benefits outweigh the resources spent on introducing the techniques to production. Secondly, we must assume that the success of Standard Oil's imitators will lead to further adoption of Standard's techniques by other firms. The third assumption is that other firms who imitated the management and organizational techniques of the Standard Oil Company, in the oil industry or

[8] Chandler, 326

elsewhere, knew of Standard's innovations and successes, and made influenced decisions to adopt these tactics. The remaining assumptions required for this research are accepted term definitions. For this research, the term "*success*," will likely refer to the increased economic benefits experienced by Standard Oil, or other firms. This includes measures of increased profit or earnings, capitalization, or market share. The next definition required by this paper is: *Horizontal Combination*, or integration, which is the enterprise restructuring method where multiple companies in the same industry and stage of production combine to control one step in the production or sale of the same products. The purpose of Horizontal Combination is often to gain some control to a highly competitive or unstable market, or to achieve efficiencies in size. It also is a tactic that can be utilized to lessen competition in the industry and thus protect the firm from loss. The next required definition is that of the *Trust*, which is a legal entity in which participating individuals pool their assets and agree to have trustees manage those assets on behalf of the group. The *Committee Structure* is defined as a system that evolves to coordinate the activities of the various operating units of a firm. Committees often acted to decentralize authoritative control in a large firm and promote the trade of good ideas. Lastly, this research requires a definition for *Vertical Integration,* which is the expansion of a company from only one stage in the production or sale of a good to the control of raw materials or selling of finished goods. In the case of the oil industry, this would imply a firm attempts to control the production of crude oil, the transportation and refining of that oil, and the selling of the finished refined oil product.

Chapter 4: The Management Contributions of Standard Oil

Horizontal Combination:

Horizontal Combination, or integration, is the enterprise restructuring method where multiple companies in the same industry and stage of production combine to control a larger share of that stage in the production or sale of the same products. The purpose of Horizontal Combination is to gain some control in a highly competitive or unstable market. It also is a tactic used to lessen competition in the industry and thus protect the firm from loss. The benefits of Horizontal Integration are often an experience of economies of scale, economies of scope, and increased market power.

Horizontal Combination was the first of Standard Oil's innovative adoptions of management techniques. To accomplish Horizontal Combination and expand his firm throughout the refining industry, John D. Rockefeller started by proposing buyouts to his Cleveland competitors during his "Conquest of Cleveland." The first Standard Oil buyout occurred in 1871 with the four hundred thousand dollar purchase of Clark, Payne & Company. The firm was the largest competitor of Standard Oil in its hometown of Cleveland and Rockefeller was willing to and did pay $150,000 over the firm's book value to acquire it[9]. Not only did Standard Oil use these mergers and acquisitions to eliminate their refining competition, but also to gain the talent, assets, and facilities of the other firms. Standard Oil continued to collect competing firms throughout Cleveland and eventually New York.

In August 1872, Standard Oil used their monopoly power over transportation to obtain cooperation from rival and allied refining firms to form the National Refiners Association to

[9] Alex Epstein, "Vindicating Capitalism: The Real History of the Standard Oil Company." *The Objective Standard*, Summer 2008.

eliminate competition, control prices and thus potentially profit from allying with and controlling other firms. The association was led by John D. Rockefeller as President, and a board of directors elected regionally from the participating firms. The board was responsible for setting policies regarding the buying of crude oil, allocating refining quotas by firm, setting prices, and securing consistent railroad transportation rates for all members. Profits from the association were distributed to member firms based on the individual property values.

One of the main functions of the National Refiners Association was to negotiate a contract with the Producers Association, who set prices for purchasing crude oil from its members and selling to refiners. The two associations signed an agreement entitled the "Treaty of Titusville" in December 1872 in attempt to set accommodating prices. The agreement set the price of crude oil at $4 a barrel if a gallon of refined oil sold in New York for 26 cents. If the prices of refined oil increased by 1 cent a gallon, the price of crude oil would correspondingly rise by 25 cents a barrel until it reached the $5 price point.

The association system faced some issues, however. Producers of crude oil were unable to control and prevent the increasing quantity of their output and drilling. These increases in crude supply grew too quickly for demand and continually dropped its prices, thus challenging the prices set by the association and canceling the "Treaty of Titusville" contract. Though Standard Oil did obtain many rivals cooperation through the National Refiners Association, there remained independent refineries in the popular regions of New York, Pittsburgh, Philadelphia, Pennsylvania Oil regions, and Cleveland. The increased levels of output by these non-member firms, as well as lack of association enforcement, and falling prices led to the dissolution of the refiners association.

Though this association-style system essentially failed, it represents an attempted change in enterprise management to accomplish Horizontal Integration and increase market power. Rockefeller is said to have called these associations “ropes of sand,” but though this first attempt was unsuccessful, the tycoon and his associates eventually adapted a successful system to attain Horizontal Integration[10].

With the collapse of the National Refiners Association in 1874, Rockefeller and his associates were determined to bring a large portion of the refining industry under the direct control of the Standard Oil Company. They proposed to do this by purchasing controlling stock in successful regional refining companies, a feat which was substantial in the crippling economic environment of 1873. This depressed economy would have had a negative impact on Standard Oil, likely decreasing the value of their assets. Thus, the purchasing of other firm’s assets during this period must be due to some other determining factor like a potential gain expected by Standard Oil, such as economies of scale. Using their control over transportation and shipping as a primary weapon, Standard obtained property leases from other refiners until all of the competitors shipping product through New York on the major trunklines had to use Standard Oil facilities. They did not solely use tactics to eliminate competition, however, Standard’s executives also used agreements to obtain cooperation from some of the largest and most efficient refiners, persuading them to join the Standard alliance. “In October 1874, the largest refining companies in each of the three major areas-Philadelphia, Pittsburgh, and New York-entered Standard’s alliance by exchange of stock. With them came some of the most competent executives in the industry.”[11]

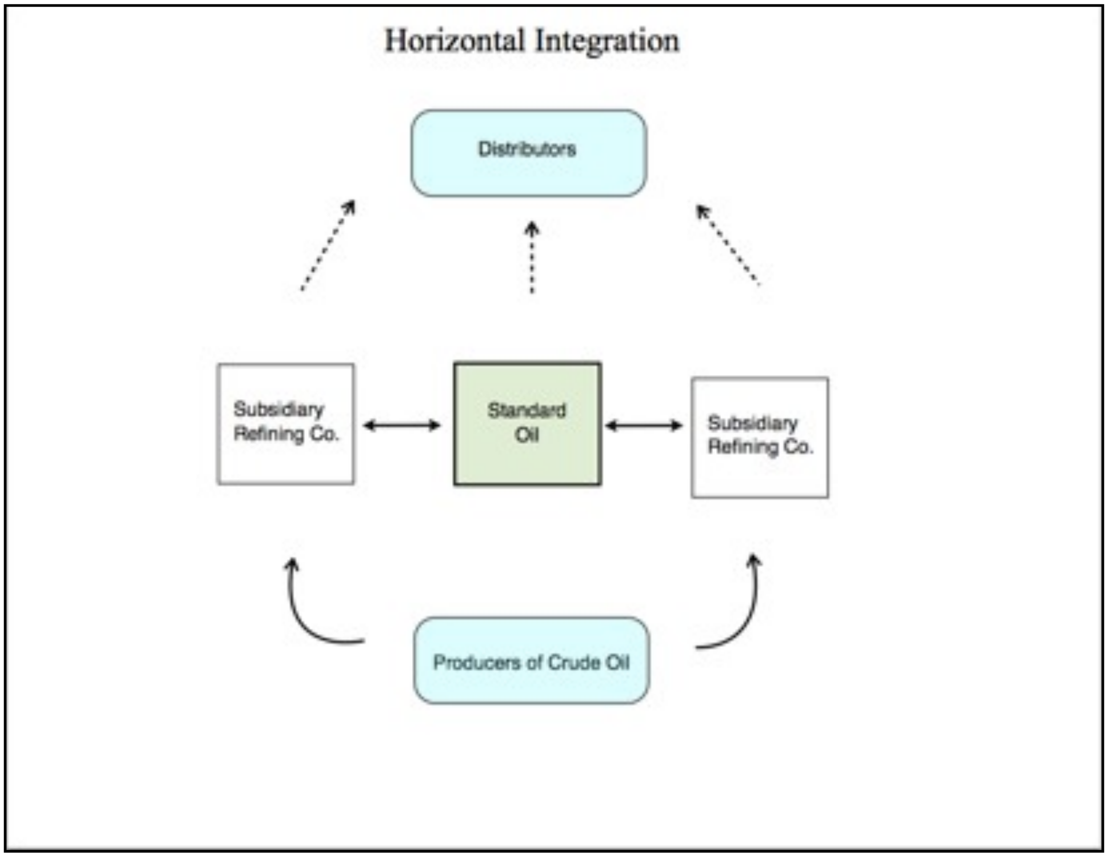
[10] Chandler, Alfred D., and Richard S. Tedlow, 352

[11] Chandler, Alfred D., and Richard S. Tedlow, 353.

With more and more refining firms joining their alliance, Standard Oil decided to revive the old association under the name of the Central Refiners Association. Once again, John D. Rockefeller was the association's president. This time, however, he made some changes to the association structure. Because they had control of many of the major refineries in the participating regions, Standard Oil controlled the majority of the board's votes. Many new firms joined the association, where each member company would lease property to the Central Refiners Association, which would work to control the buying of crude oil and selling of refined oil, as well as setting transport and storage prices, and dividing profits proportionally among members. However, this new Central Refiners Association met a fate similar to its predecessor's when the Pittsburgh refiners and Pennsylvania Railroad refused to join.

From then on, the Standard Oil Company and their allied member firms decided to no longer work through the Association, but use its size and economic power to exchange stock and gain control in firms it wanted, while simultaneously driving those is did not out of business. By the late 1870s, Standard Oil and their subsidiary companies controlled over ninety percent of the refining capacity in the United States.

Figure 1. The Horizontal Integration of Standard Oil


Horizontal Integration
Distributors
Subsidiary Refining Co.
Standard Oil
Subsidiary Refining Co.
Producers of Crude Oil

The Trust:

In an ongoing attempt to obtain market dominance through Horizontal Integration tactics, the Standard Oil Company continued to limit competition by forming alliances with their allies. One of Standard Oil's most infamous innovations and additions to the managerial revolution was that of the Trust. The Trust came about by the firm attempting to control and limit market competition by gaining a monopoly not only in one state, but across many and through many subsidiary firms.

By 1881, a mere eleven years after the firm's inception, the Standard Oil Company had a nearly complete dominance over the American oil refining industry, controlling the nation's refining capacity with the ability to process an unprecedented eighty-eight thousand barrels of crude oil per day. But, for such an impressive company, Standard Oil remained an antiquated combination of legally and administratively separate business enterprises. The structure of the Standard Oil and its holding companies was far from simple. At the core of the alliance was Standard Oil and its five stockholders: John D. Rockefeller, William Rockefeller, Henry M. Flagler, Stephen Harkness, and Oliver H. Payne**,** who together controlled four-sevenths of the company's stock. These men, along with thirty-six other stockholders held minority or majority interests in twenty-six associated refining firms. This system of a group of independent enterprises held together solely through stock ownership, however successful, was outdated.

Though Standard Oil essentially controlled refining firms in a multitude of states, there was no technical way to do business on a national scale. The rights of Standard Oil to own property or stock in firms from states other than Ohio was not as of yet legally clarified. To avoid any legal complications that would prohibit Standard Oil from owning companies outside of the state of Ohio, the firm assigned three mid-level employees: M.R. Keith, G.F. Chester, and G.H Vilas, to serve as trustees and hold stock in out-of-state subsidiaries. Thus, the legal entity of the Standard Oil Company did not own any controlling stock in its member companies. These three trustees held the stock in trust for the forty-one shareholders of Standard Oil Ohio. When the firm issued dividends, they were distributed to the investors as individuals, in amounts proportionate to their investments in the parent company. This structure allowed Rockefeller or other executives to swear under oath that Standard Oil of Ohio did not own property outside of the state, when it indeed controlled a majority of the pipelines and refineries in Pennsylvania, New York, New Jersey, and Maryland.

This structure, however, was administratively weak and legally vulnerable. This weakness became unavoidable when new technology emerged in the oil industry, and the firm realized it must centralize management and control. The critical new technology was the development of a long distance crude oil pipeline to gather and store crude at railheads and terminals. The first long distance pipeline was built in 1878 by the Tidewater Pipeline Co., a firm of crude oil producers set out to break Standard's monopoly on low transportation costs. Tidewater built a pipeline to connect western Pennsylvania with the Reading Railroad that had no preexisting deal with Standard or any other oil firm. Tidewater Pipeline Co. quickly started expanding, selling crude to refineries in Pennsylvania and New Jersey, and eventually developing their own refineries.

Long distance pipelines could carry crude oil more cheaply than a railroad could, and provided product storage, all of which made preparing for a larger and steadier quantity of output possible. However, these pipelines could carry crude oil to refineries, but could not carry refined oil to markets. This required relocation of refineries to central locations close to the market, in places such as ports where ships fuel and load refined oil to bring to European markets. When Rockefeller and his associates saw the potential in this new technology, they moved quickly to construct Standard Oil's own pipelines to transport crude between Pennsylvania and Cleveland and Philadelphia and New York. To build and manage these new pipelines, as well as consolidate and operate the existing lines, Standard and allied companies set up the National Transit Company, which capitalized at $30 million. The legal groundwork for this new company was a ‘catchall’ charter that Standard’s legal team had purchased from the State Bureau that had been issued by the Pennsylvania State legislature a decade before to allow the holding of stock in out-of-state companies.

The long-distance pipeline had a daily delivering capacity of 6,000 barrels of crude per day, which was a huge increase from the previous norm of 1,500 barrels. By the early 1880s, Tidewater Pipeline Company and the National Transit Company were pumping between 7,000 and 8,000 barrels a day. This increase in capacity called for a new centralized administration to: exploit new opportunities afforded by the pipeline technology; actively compete in the market; build, reorganize, and close refineries; and oversee production, transportation and marketing. The forty firms in Standard’s alliance now required a new legal entity, however, finding this proved difficult for Standard’s legal team who searched without success for a similar charter. In 1881, the Pennsylvania legislature attempted to tax the assets (dividends, capital stock, property, etc.) of Standard Oil of Ohio as a “foreign firm” in the state. During this time, the Tidewater Pipeline Company had broken Standard’s monopoly over low cost transportation and competition had increased in the oil refining market as independent refiners took advantage of the profit margins. As a result, the Standard Oil Company’s share of the oil industry’s refining capacity fell from ninety percent to seventy-seven percent.

Administrative consolidation required the legal consolidation of all Standard Oil’s properties into a single business entity. Standard’s legal counsel Samuel C.T Dodd studied new organizational structures in hopes of finding one that would allow Standard Oil to maintain central control while continuing growth. A holding company was one option for the firm, but obtaining a charter for such an entity would prove difficult. A trusteeship seemed to be more appropriate for the company as it assured the secrecy that this monopoly firm desired, and promoted trustees as the legal agents for individual stockholders, not corporations. With a trusteeship, the extent of Standard's holdings could be obscured from other competing firms.

It was in 1881 that Standard's Samuel C.T Dodd finally succeeded in instituting a new structure of legal enterprise that worked for the firm: the Trust. In a trust, participating individuals pool their assets and agree to have trustees manage those assets on behalf of the group. A trust was a modern approach to the holding company, but without the legal incorporation and any of the necessary public disclosure. In January of 1882, Dodd and Flagler drafted The Standard Oil Trust Agreement, which established a trust as the one and only central holding agency of the forty-one investors's securities. The shareholders of the forty companies agreed to exchange stock for certificates in the new Standard Oil Trust. Rockefeller and his associates valued the trust at $70 million and issued 700,000 trust certificates with a par value of $100 to the Standard Oil stockholders. The net book value of the 40 firms involved in the trust was equal to $55,221,738, substantially lower than Rockefeller's value of $70,000,000. However, realized earnings of the Standard Oil Trust proved his valuation to be somewhat conservative.

The Trust Agreement authorized nine original trustees: John D. Rockefeller, William Rockefeller, O.H. Payne, Bostwick, Henry Flagler, Warden, Pratt, Brewster, Archbold and gave them the power and responsibility of overseeing the daily affairs of the Standard Oil Companies. This included hiring directors and even placing a trustee as a director if seen fit. The trust agreement then sought to set up separate Standard Oil firms in each state of major interest. And in 1882, Standard Oil of New York and Standard Oil of New Jersey were formed and run by

William and John D. Rockefeller, respectively. This design functioned to prevent the individual states from taxing the properties held outside of Ohio, as Pennsylvania had attempted in 1881. The new trust structure required that the companies have a common name, common office and common management, and thus the trustees set up headquarters at 26 Broadway in New York, New York. The trustees soon began to streamline refining capacity, and from 1882 to 1885 the trust reduced its number of refineries from fifty-three to twenty-two. Two-thirds of the trust's 17.7 million barrels of crude oil output was now coming from three new refineries in Bayonne (N.J.), Philadelphia, and Cleveland. This new consolidation made Standard Oil's refineries the largest in the word, its three main plants producing between one-fifth and one quarter of the World's total kerosene.

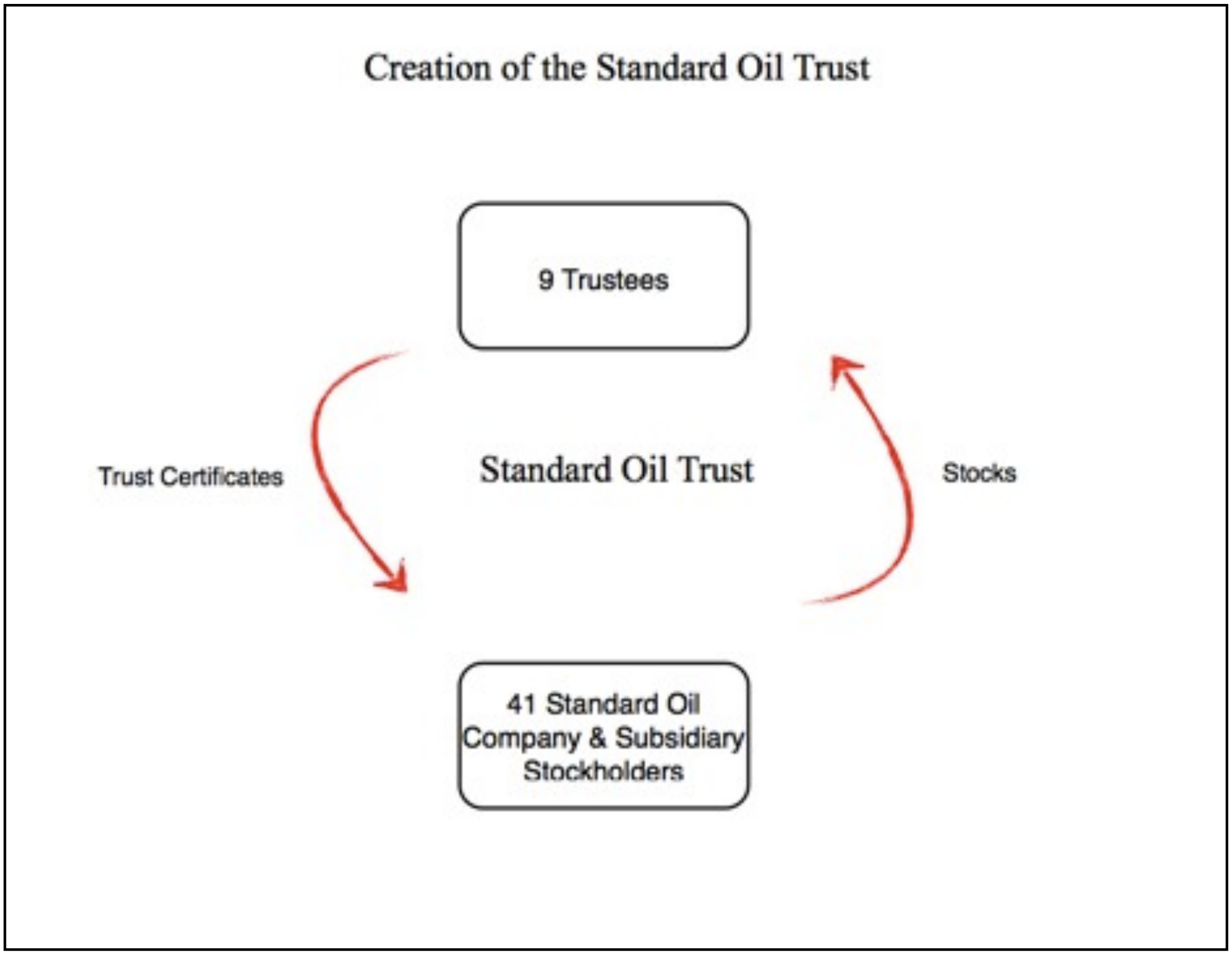
The resulting economies of scale from the formation of the Standard Oil Trust permitted a substantial lowering of unit costs. In the 1870s, the industry-wide increase in plant size to a refining capacity of 1,500 to 2,000 barrels per day had cut the average costs from 5 cents to 2.5 cents. By the mid-1800s, some of the most efficient independent refiners had reduced their average costs to 1.5 cents. Standard Oil, at this time, had dropped its average refining costs from .543 cents in 1884 to .452 cents in 1885. This increased Standard's profit margin from .530 cents to 1.003 cents.[12]

For the first time, the Trust created negotiable securities, which affected the business culture of Standard Oil. The trust's executives promoted employee stock-ownership, and the employees received extensive capital gains and dividends. Of course, this provided employees with new incentives to be more productive and take pride in their work, and had a positive

[12] Chandler, Alfred D., and Richard S. Tedlow, 360.

impact on morale and the firm's productivity. The impact of the implementation of the trust changed managerial strategy further than just legal organization, it affected the way daily business was done, employees were motivated, and production was increased. This provides us with evidence that the four managerial innovations of the Standard Oil Company had a positive ripple effect on business management in modern America.

Figure 2. The Standard Oil Trust


Creation of the Standard Oil Trust
9 Trustees
Trust Certificates
Standard Oil Trust
Stocks
41 Standard Oil Company & Subsidiary Stockholders

Vertical Integration:

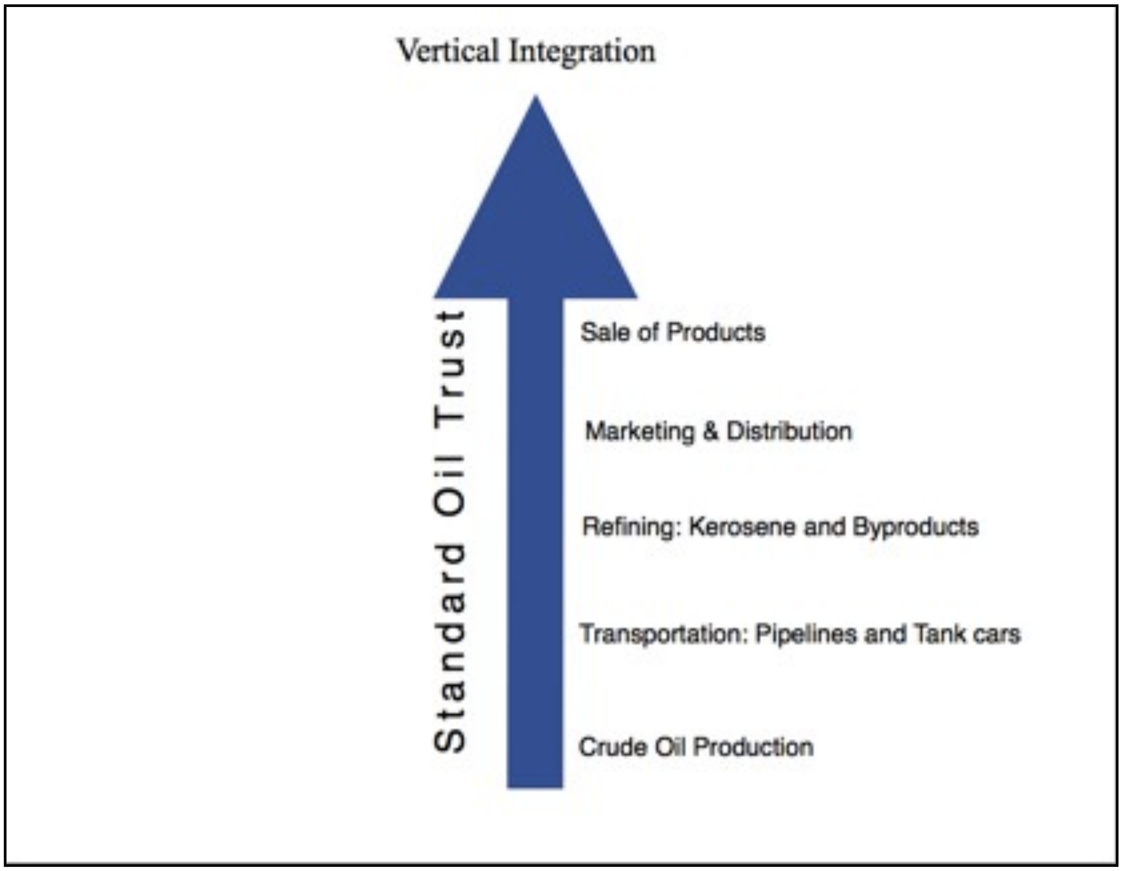
With the formation of the trust, Standard Oil had successfully attained horizontal market dominance and could now direct more attention to implementing further a management method which they had started in 1873 with the acquisition of short-distance pipelines: Vertical Integration.

Vertical Integration is the expansion of a company from only one stage in the production or sale of a good to the control of raw materials or selling of finished goods. In the case of the oil industry, this would imply a firm attempts to control the production of crude oil, the transportation and refining of that oil, and the selling of the finished refined oil product. This is exactly what the Standard Oil Trust sought to do. By the beginning of the 1880s, the Standard Oil Company was an efficiently integrated and coordinated enterprise. Standard's facilities were storing thousands (if not millions) of barrels of crude oil, its pipelines were moving that crude oil to its refining plants, its advanced refineries were experiencing great economies of scale, and its export facilities were shipping Standard Oil petroleum products across the world.

In the 1870s and 1880s, the Standard Oil alliance and then the Trust thought it unnecessary to control its own crude oil supply. However, when production began to decline in the Pennsylvania oil fields, crude producers were given a larger opportunity to control their price and output. Luckily for refiners facing this low supply and high prices, a new region of oil fields in northern Ohio and Indiana: the Lima fields, were becoming popular. The opening of the Lima fields, however, ran the risk of crude supply resting in the hands of small independent producers. As a defensive move, Standard began building pipelines and buying property in the Lima Oil fields. These fields ran another risk, however, as the oil was high in sulfur. John D. Rockefeller made the risky decision that the oil could be made into a good quality product and hired chemists to remove the sulfur from the oil. Thus, the Standard Oil Company became more active in this oil region. Within three years, Standard Oil was extracting twenty-five percent of America's crude oil.

The Trust then turned to marketing as its next stop on the road to Vertical Integration. Once the refining reorganization required by the long-distance pipeline infrastructure and crude oil buying and production had been coordinated, the Board of Trustees decided to allocate more attention towards investing in marketing. But Standard Oil, like most refining firms at the time was reliant on independent wholesalers to distribute products. In 1884, the Standard Oil Company made its first transition into integrated marketing when it set up two companies: Continental Oil Company and Standard Oil of Iowa, to distribute the Trust's product to regions west of Ohio. By 1886 the Trust had created a centrally controlled marketing group to control and coordinate the distribution of products, marketing price and quality policies, and acquire market information.

Figure 3. The Vertical Integration of Standard Oil


Vertical Integration
Standard Oil Trust
Sale of Products
Marketing & Distribution
Refining: Kerosene and Byproducts
Transportation: Pipelines and Tank cars
Crude Oil Production

Committees:

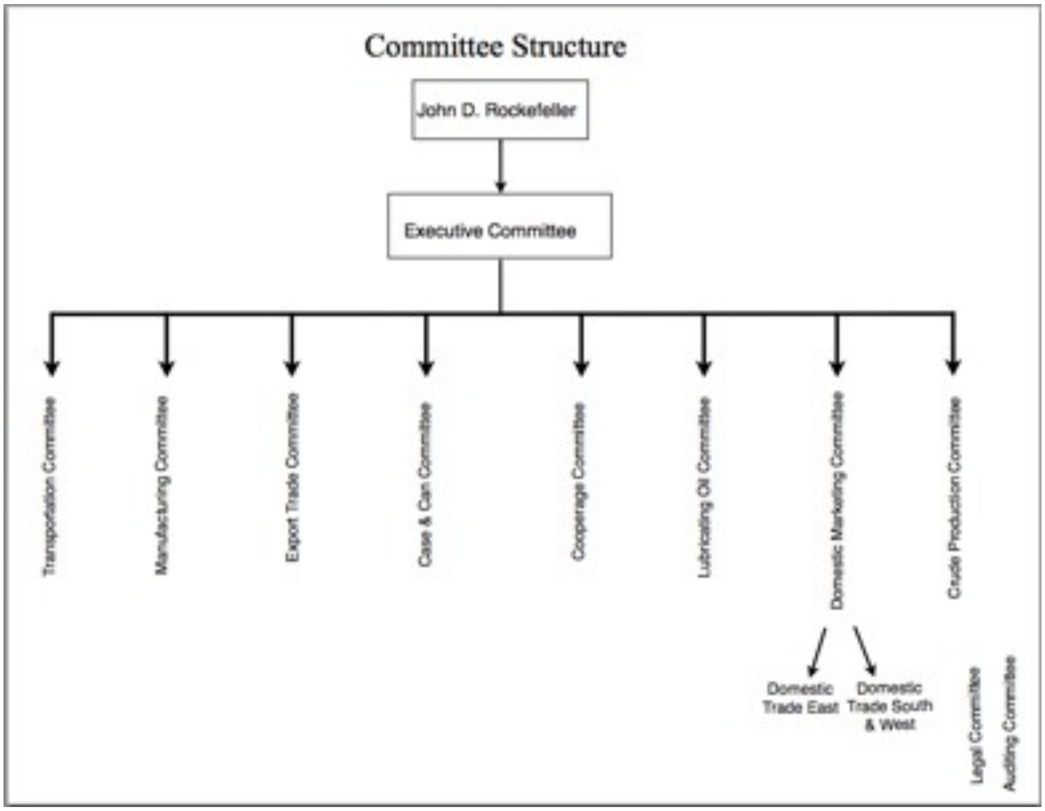
The expansion of the Trust into new stages of production made it necessary for the Standard Oil Trust to make adaptations to the organizational structure. The system that evolved within the Trust reflected the many independent enterprises which were consolidated within the company.

The trust developed a Committee System to ensure total coordination and efficiency over all of Standard's integrated elements. These committees served to set policies and coordinate and standardize the activities of all Standard Oil subunits or functions of the company, while decentralizing operations and allowing for the open communication of good ideas and practices. The first of the Standard Oil Trust's committees to form was that of the Transportation

Committee, which was comprised of executives of various alliance firms that dealt with railroads and pipelines in the late 1870s. When Standard Oil expanded into European markets, the executives that dealt with the European wholesalers formed the Export Trade Committee.

In 1881, just before the Standard Oil Trust Agreement, and the refining capacity of the firm and its subsidiaries was being reorganized, the Manufacturing Committee was assembled. After the 1882 formation of the Trust, the Cooperage, Case and Can Committee was formed to oversee the production and distribution of the petroleum byproducts that Standard began to produce such as paraffin wax, petroleum jelly. The year 1885 saw the formation of the Lubricating Oil Committee with the centralization of the sale of byproduct lubricants at the Trust's New York headquarters. In the following year the Trust formed the Domestic Trade Committee, and soon after the Production of Crude Oil Committee.

Figure 4. The Standard Oil Committee Structure


Committee Structure
John D. Rockefeller
Executive Committee
Transportation Committee
Manufacturing Committee
Export Trade Committee
Case & Can Committee
Cooperage Committee
Lubricating Oil Committee
Domestic Marketing Committee
Crude Production Committee
Domestic Trade East
Domestic Trade South & West
Legal Committee
Auditing Committee

In total, the Trust developed eleven major committees, the senior committee being the Executive Committee which oversaw the activities of the decentralized business organization. The Standard Oil Executive Committee was made up of the nine trustees at the firm's New York City headquarters on any given day[13]. The Executive Committee adjudicated all of Standard Oil's basic policies, routine matters and issues from subordinates. This senior committee allocated funds throughout the extensive company, approved all distributions exceeding $5,000, and set up committees and subcommittees to advise and provide information to the trustees[14]. This committee of trustees favored functioning by way of discussion and concession over despotic orders. Standard's Executive Committee received valuable information from subordinates, and carefully considered decisions, implementing these decisions through "requests, suggestions, and recommendations."[15] This system did prove to be quite time consuming, however it allowed for the weighing of evidence and expert opinions (as was the case with the decisions made to chemically improve the sulfuric Lima oil). "Standard Oil found the conference method essential to the unity and cooperation in a business managed by formerly competitive, aggressive individualists."[16] The Executive Committee exemplifies the greater impact Standard Oil's contributions to management had on daily business, as it managed a largely successful corporation and motivated workers with the sentiments of cooperation and shared information, not authoritative decree. Though Standard Oil's Committee Structure was

[13] Chandler, Alfred D., and Richard S. Tedlow, 367.

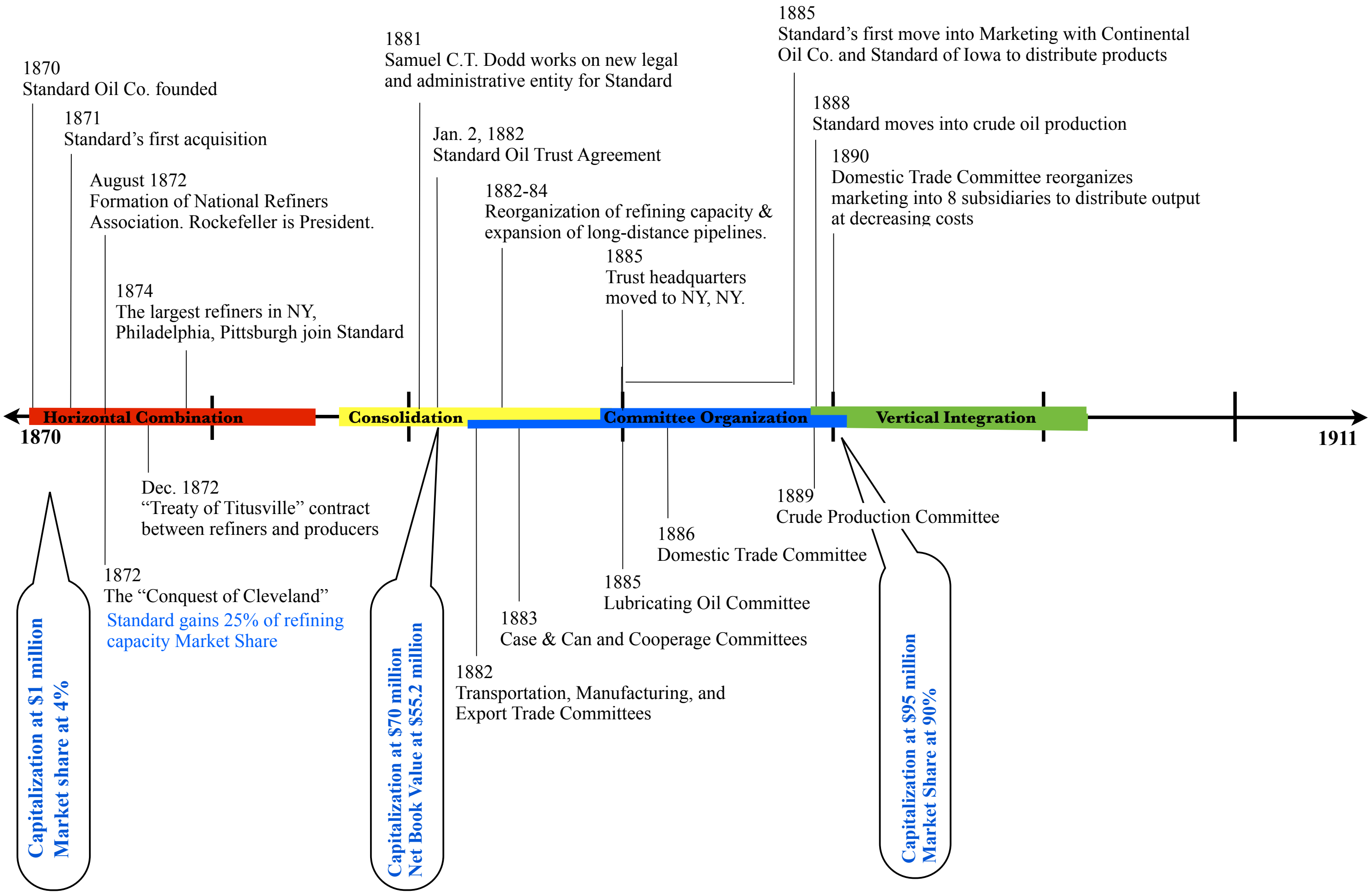
[14] Chandler, Alfred D., and Richard S. Tedlow, 367.

[15] Chandler, Alfred D., and Richard S. Tedlow, 367.

[16] Chandler, Alfred D., and Richard S. Tedlow, 367.

very different and more complicated than management systems of the past, it successfully ran one of the largest and most prominent business entities in modern America.

Figure 5. The Evolution of Management in the Standard Oil Company


1870
Standard Oil Co. founded
1871
Standard's first acquisition
August 1872
Formation of National Refiners Association. Rockefeller is President.
1874
The largest refiners in NY, Philadelphia, Pittsburgh join Standard
1881
Samuel C.T. Dodd works on new legal and administrative entity for Standard
Jan. 2, 1882
Standard Oil Trust Agreement
1882-84
Reorganization of refining capacity & expansion of long-distance pipelines.
1885
Trust headquarters moved to NY, NY.
1885
Standard's first move into Marketing with Continental Oil Co. and Standard of Iowa to distribute products
1888
Standard moves into crude oil production
1890
Domestic Trade Committee reorganizes marketing into 8 subsidiaries to distribute output at decreasing costs
Horizontal Combination
Consolidation
Committee Organization
Vertical Integration
1870
1911
Dec. 1872
"Treaty of Titusville" contract between refiners and producers
1872
The "Conquest of Cleveland"
Standard gains 25% of refining capacity Market Share
Capitalization at $1 million
Market share at 4%
Capitalization at $70 million
Net Book Value at $55.2 million
1882
Transportation, Manufacturing, and Export Trade Committees
1883
Case & Can and Cooperage Committees
1885
Lubricating Oil Committee
1886
Domestic Trade Committee
1889
Crude Production Committee
Capitalization at $95 million
Market Share at 90%

Chapter 5: Imitators

i) American Linseed Oil Company

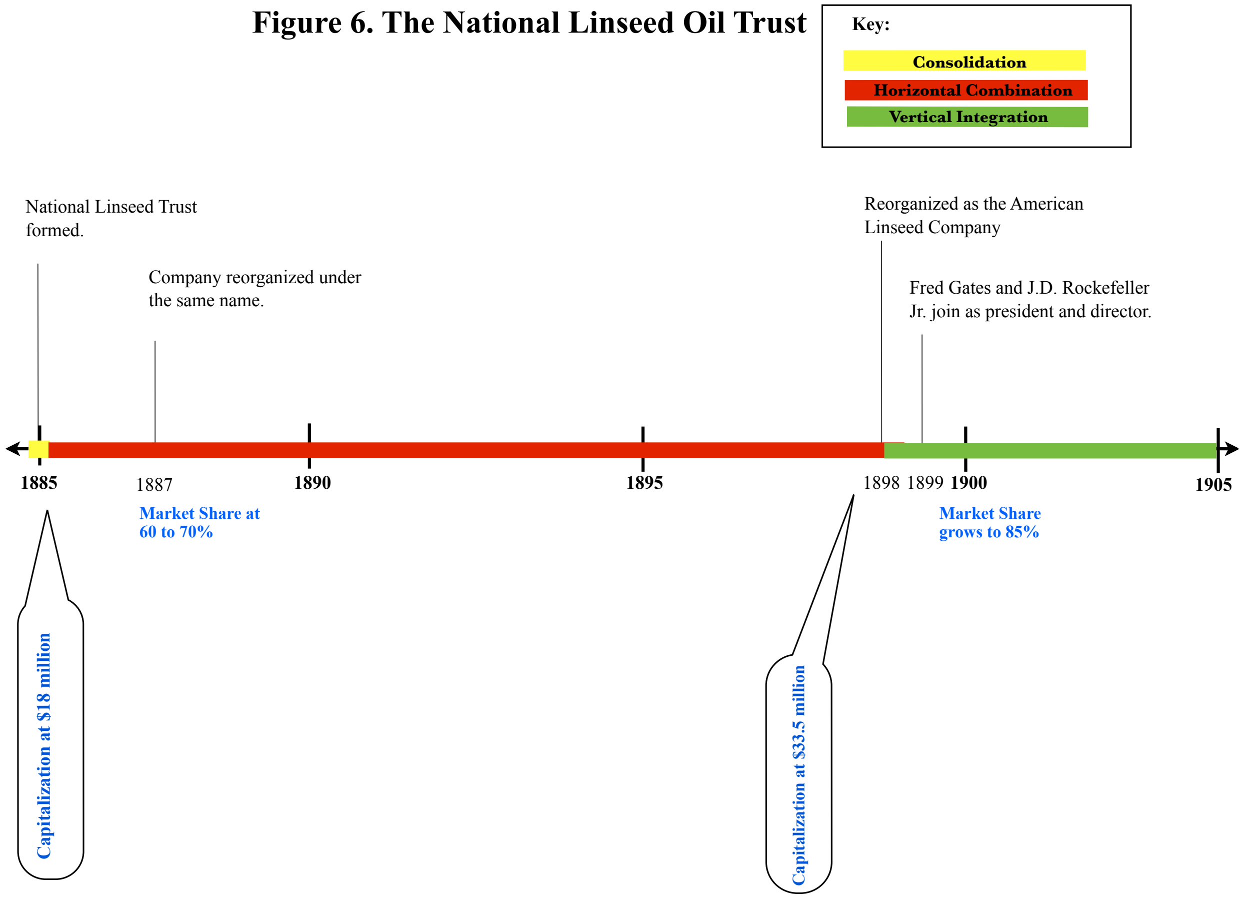
The National Linseed Oil Trust was incorporated in 1885 with a capitalization of $18,000,000. Due to its less diverse product line, smaller size, and smaller markets, the young National Linseed Oil Trust was not as well suited for success as some trusts in cotton oil, lead, or petroleum. But, much like Standard Oil, the National Linseed Oil Trust worked to streamline its production capacity by consolidating the four-dozen mills that made up the merger[17]. The Linseed Trust, though relatively small, recognized the importance that attaining assets in storage and transportation in the growth of the Standard Oil Trust, and acquired "over forty storage elevators, a fleet of tank cars, and a number of tank stations."[18] The National Linseed Oil Trust became the American Linseed Company in 1898, after a financial and administrative reorganization chartered under the state laws of New Jersey. To aid the newly restructured company, Frederick T. Gates came aboard as president. Gates, John D. Rockefeller's financial advisor, was well accustomed to the ways of the Standard Oil Company, and sought to improve his new firm with this experience. Yet Gates was not the only link between Standard Oil and the American Linseed Company. John D. Rockefeller, Jr. soon became a member of the firm's Board of Directors. The involvement of these two men in the reorganized linseed oil company suggest that the influence of Standard Oil's techniques and strategies on the improvement of American Linseed were nothing if not prominent. The newly reorganized linseed firm was beginning to make more complete use of its facilities and diversifying its line of production by exploring byproducts and new products to be made. Eventually, the American Linseed Company entered

[17] Chandler, 327.

[18] Chandler, 327

into competition with other trusts; competing with National Lead in the linseed oil industry, and with cotton oil, meatpacking and fertilizer firms in the production of fertilizer[19].

Figure 6. The National Linseed Oil Trust


Key:
Consolidation
Horizontal Combination
Vertical Integration
National Linseed Trust formed.
Company reorganized under the same name.
Reorganized as the American Linseed Company
Fred Gates and J.D. Rockefeller Jr. join as president and director.
1885
1887
1890
1895
1898
1899
1900
1905
Market Share at 60 to 70%
Market Share grows to 85%
Capitalization at $18 million
Capitalization at $33.5 million

ii) The Sugar Trust

In the mid to late 1800s, the American Sugar Refining industry was most heavily concentrated in the City of New York. This industry included many small and mid-sized firms, which more often than not were owner-managed corporations or unincorporated partnerships[20].

[19] Chandler, 367.

[20] Doyle, 193.

The industry was struggling, however, and in the period from 1875 to 1887 it was often subject to imbalanced supply and demand levels with excess capacity and overproduction[21].
As the industry's poor conditions continued in 1886, some of the largest New York sugar refining firm leaders began brainstorming plans to replicate in their field the "trust mechanism" that had been implemented so successfully by John D. Rockefeller at Standard Oil[22]. On October 24, 1887, a trust agreement was implemented in the American sugar-refining industry. This agreement provided a Board of Trustees (the Sugar Refineries Company) to accept the entire capital stock of each of the participating firms in exchange for a proportionate amount of the trust's fifty-million dollars in trust certificates. The financing of this trust organization was completed entirely through the exchange of stock and trust certificates. By November 1887, the Sugar Trust had exchanged certificates for $6.59 Million in refining firm stock. This system of stock and certificate exchange mirrors the technique used by the Standard Oil Company in the setting up of their own trust, five years prior.

"The trusts main purpose was to increase the value of the industry's existing capital stock through administrative planning and coordination of the industry's investment and production process."[23] Like Standard Oil, the new trustees soon began consolidating the refiner's capacity to become more efficient and solve the industry's issues of supply. Of the twenty refining plants owned by the Sugar Trust, seven were closed down, and the remaining plants were enlarged and improved upon[24].

[21] Doyle, 193.

[22] Doyle, 195.

[23] Doyle, 195.

[24] "Sugar Trust Began Organizing in 1887," The New York Times. November, 14, 1909.

In June of 1890, the trust was ordered to be dissolved, but preparations were already underway to reorganize the firm. In January of the following year, the trust re-emerged as the American Sugar Refining Company (ASRC), incorporated in the state of New Jersey. As with its predecessor, the American Sugar Refining Company exchanged trust certificates to participating firms, but this time the firms would give back the old trust certificates and receive "share-for-share" stock in the new corporation. These trust certificates that had been submitted by the participating firms were held by the Central Trust Company, and then turned over to a Reorganization Committee that became the "owners" of the trust. The directors of the American Sugar Refining Company were: President Henry O. Havermeyer, Secretary and Treasurer John E. Searles, T. A. Havermeyer, William Dick, and F.O. Matthesen. "Most of the company's considerable growth between 1891and 1893 consisted of the acquisition of the securities of other companies."[25] The use of the technique of direct exchanging of equity, much like Standard Oil, led to the American Sugar Refining Company gaining control of 90 percent of the United States sugar refining capacity in the first year.

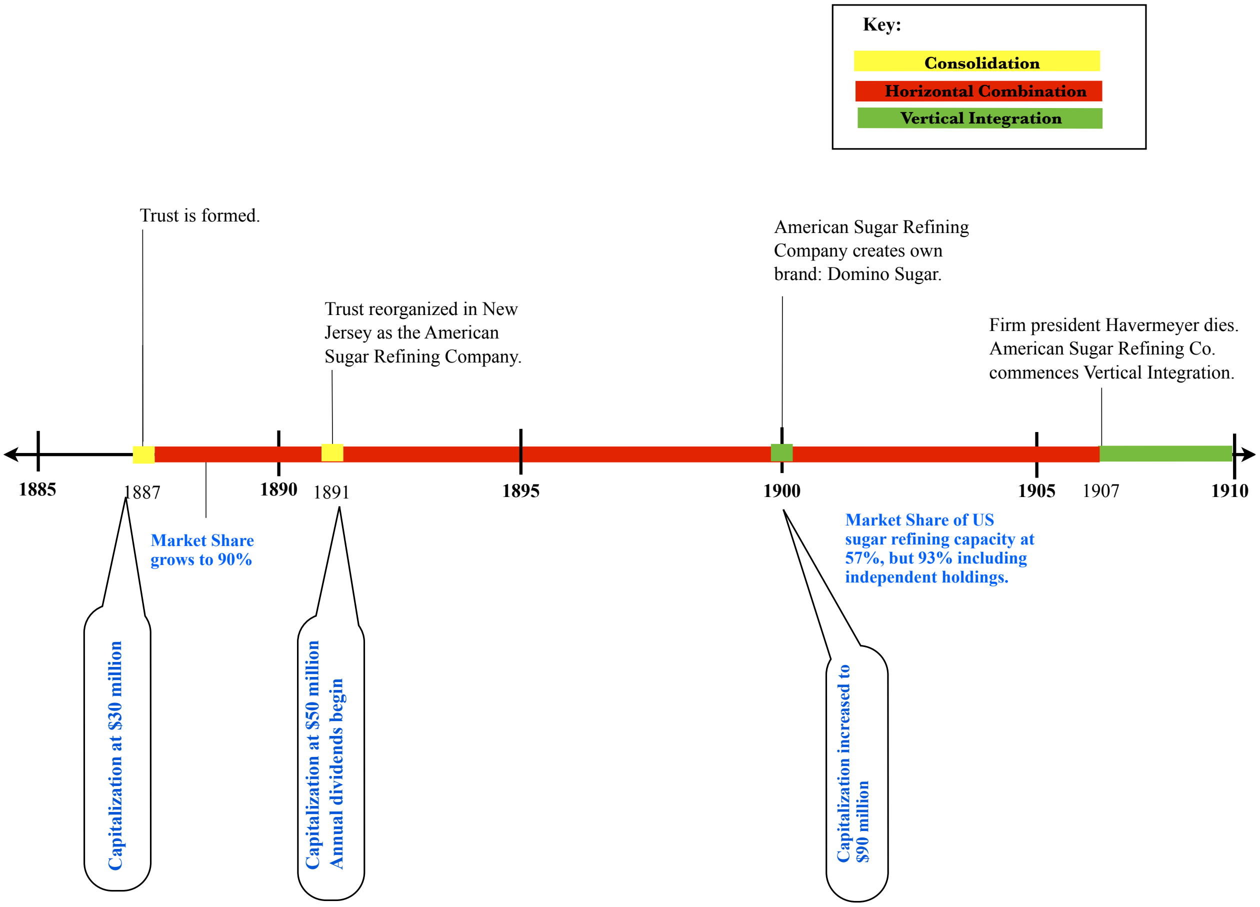
The Sugar Trust continued to advance its Horizontal Integration, and by 1902 all large sugar refining firms were under the control of the American Sugar Refining Company except for the Arbuckle Brothers, Federal Sugar Refining Company, and Revere Sugar Refining Company. Though the Sugar Trust was predominantly focused on expanding horizontally, upon the 1907 death of firm President Henry O. Havermeyer in 1907, the sugar giant moved into Vertical Integration. The ASRC proceeded to sell holdings in other companies, build up their own marketing committee, and develop a brand name: Domino[26]. "The Sugar Trust was vertically

[25] Doyle, 200.

[26] Visible Hand, 228.

integrated: under its umbrella sugar moved from raw cane, through the plant process, to the point of final consumption."[27]

Figure 7. The Sugar Trust


Key:
Consolidation
Horizontal Combination
Vertical Integration
Trust is formed.
Trust reorganized in New Jersey as the American Sugar Refining Company.
American Sugar Refining Company creates own brand: Domino Sugar.
Firm president Havermeyer dies. American Sugar Refining Co. commences Vertical Integration.
1885
1887
1890
1891
1895
1900
1905
1907
1910
Market Share grows to 90%
Market Share of US sugar refining capacity at 57%, but 93% including independent holdings.
Capitalization at $30 million
Capitalization at $50 million Annual dividends begin
Capitalization increased to $90 million

iii) American Cotton Oil

The American Cotton Oil Trust was organized on September 10, 1884, and was one of the original twelve firms published in the Dow Jones Industrial Index. The firm's original purpose was the production of vegetable oil from crushing cotton seed.

The cotton seed oil industry experienced a growth sector in the 19th Century, after the American Civil War, due to technological innovations in processing the oil, and increasing uses

[27] *The Ways of Providence,* Levy, 418.

for it in common consumer goods. While in 1866 the United States had seven cotton seed crushing mills, by the 1880s that number was in the fifties, and by the turn of the century, America had over one hundred crushing mills. “By the 1880s, the Texas and Arkansas mills tried to regulate the price paid for the seed, which fluctuated widely due to varying crop yields, the availability of the seed and the competing demand for the seed” [28]. These mills had initially formed a pool to accomplish these goals, much like Standard Oil’s attempted Refiner’s Association. But by 1884, the Texas and Arkansas firms formed the American Cotton Oil Trust, to horizontally control the largest capacity for cotton seed crushing in America. As stated in the Trust’s “Articles of Incorporation,” the purpose of the trust was to secure “intelligent cooperation in the business of procuring and cleaning cotton seed and the manufacturing of oil, oil cake, fertilizers, and other products therefrom, and the scale of such products in home and foreign markets.”[29] However, in practice, the trust had a much more monopolistic approach. This included depreciating the value of the cotton seed, “governing” the oil mills, and controlling the means of transportation, much like the Standard Oil Company had with the northeastern railroads[30].

In 1887, the State of Louisiana voiced a discontent shared by many, when it sued the American Cotton Oil Company to have the Trust dissolved. But in 1889, the trustees responsible for the American Cotton Oil trust had set up a corporation deemed the American Cotton Oil Company of New Jersey. Like Standard Oil and its other imitators, this new firm was chartered under the state laws of New Jersey, but this time the two cotton oil firms were intended to

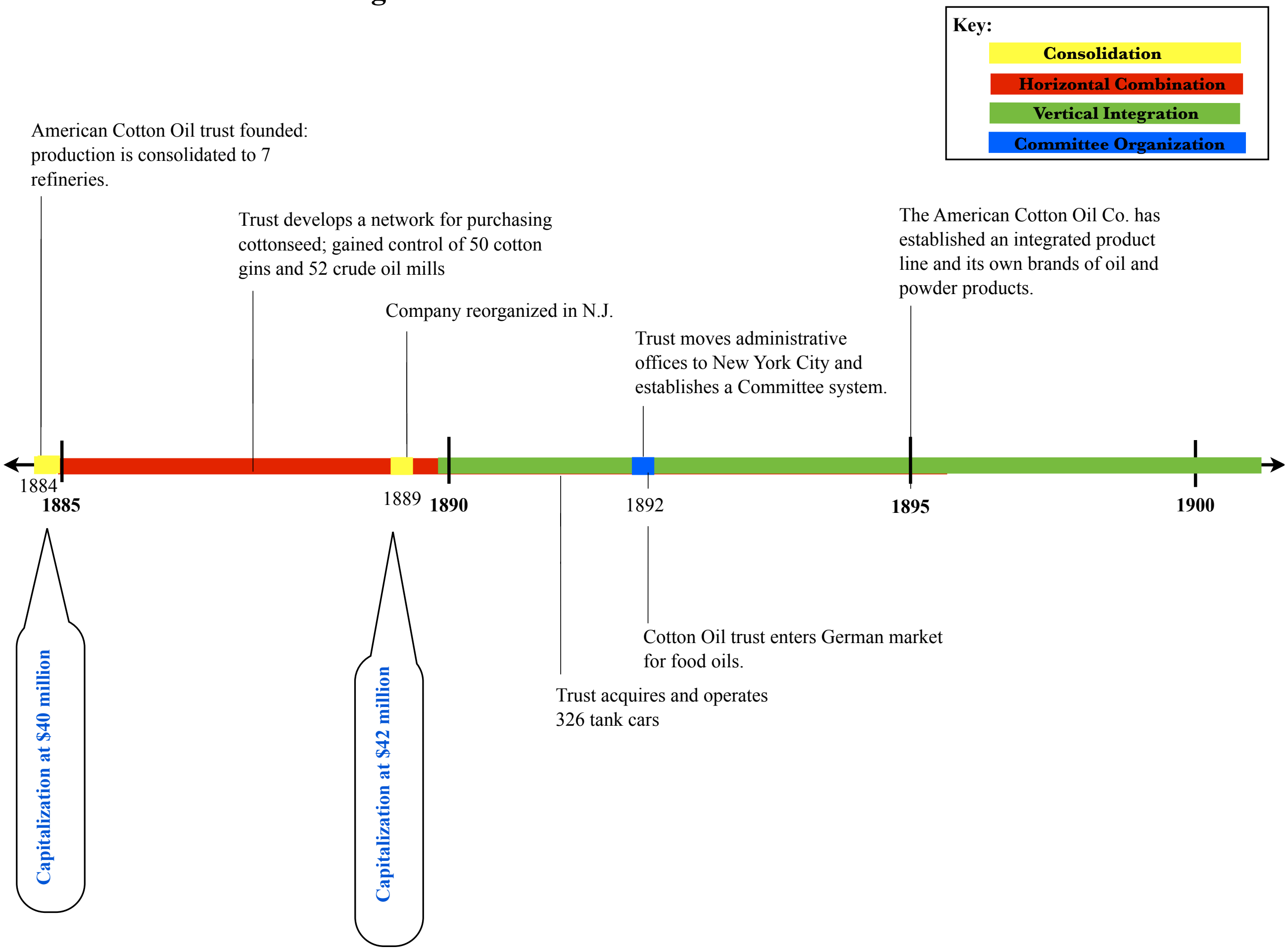
[28] Jolink, 390

[29] “Trust Secrets Revealed,” New York Times. February 15, 1890.

[30] Jolink, 390.

consolidate. To achieve this, the trustees intended to exchange trust certificates for stock in the New Jersey enterprise. By doing this, the cotton oil trust could live on through the American Cotton Oil company[31].

Figure 8. The American Cotton Oil Trust


Key:
Consolidation
Horizontal Combination
Vertical Integration
Committee Organization
American Cotton Oil trust founded: production is consolidated to 7 refineries.
Trust develops a network for purchasing cottonseed; gained control of 50 cotton gins and 52 crude oil mills
Company reorganized in N.J.
Trust moves administrative offices to New York City and establishes a Committee system.
The American Cotton Oil Co. has established an integrated product line and its own brands of oil and powder products.
1884
1885
1889
1890
1892
1895
1900
Cotton Oil trust enters German market for food oils.
Trust acquires and operates 326 tank cars
Capitalization at $40 million
Capitalization at $42 million

While in 1884 the American Cotton Oil Company included cotton ginneries and compressors, crude oil mills and refineries; "by 1887, the list of manufacturing properties was expanded with lard plants, soap factories, and fertilizer mixing establishments."[32] By the 1890s, the American Cotton Oil Company had interests in transportation to connect companies

[31] Jolink, 390.

[32] Jolink, 390.

geographically as well as further vertically integrate the firm. Like Standard Oil, the American Cotton Oil Company moved its administrative offices to New York City, where they established executive offices for committees such as sales, audits, and advertising.

Chapter 6: Results

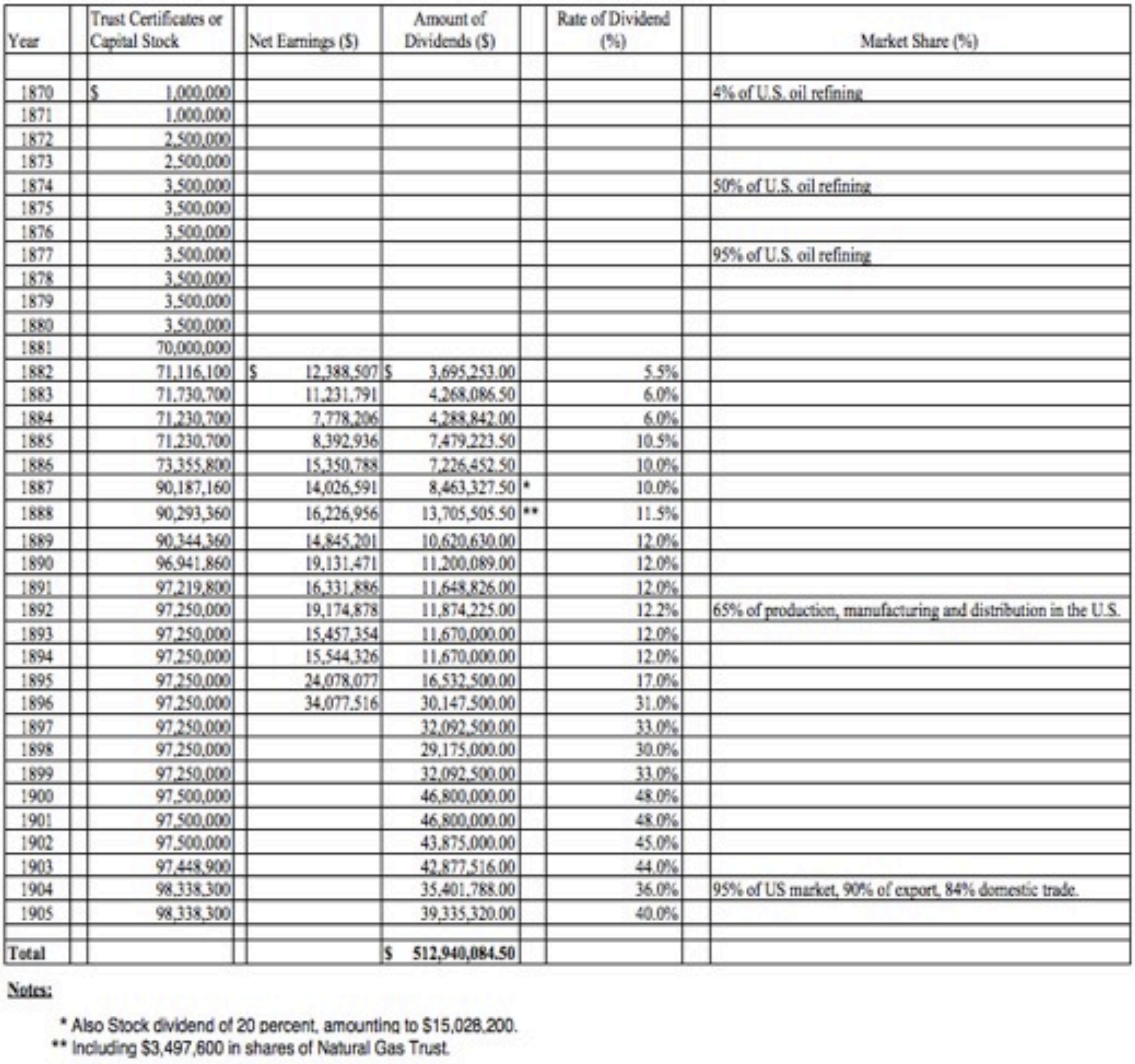
The Standard Oil Company:

From examining the timeline of the Standard Oil Company and the evolution of the firm's adaptation of modern management techniques, it is evident that the oil monopoly had gained substantial financial profits.

From the Standard Oil Company's inception in 1870 to 1880, the firm's capital grew from $1,000,000 to $3,500,000. During this period, Standard focused mainly on Horizontal Integration and dominating the oil refining industry. The successful results of this technique can be seen by the market share attained by Standard Oil as it increased from 4 percent in 1870 to more than 90 percent by 1880. With the implementation of the Trust in 1882, Standard Oil's capitalization increased from $3,500,000 to $70,000,000 and within the next few years the Trust's earnings increased as well. In the period following the Standard Oil Trust Agreement, the oil company's dividends were increased from 5.5 percent to 10 percent annually, and market share continued to grow. The mid-1880s began a new period for the Standard Oil Trust as they adopted a Committee Organizational structure and a focus on Vertical Integration. These management changes saw the increase in Standard's capital from $70,000,000 to $97,500,000 and net earnings steadily increasing to $34,077,516 in 1896. Dividends were increasing to over 30 percent and market share was increasing to 95 percent of the United States oil refining industry.

The size and success achieved by the growth of Standard Oil is evident from looking at this data, and though the oil giant's imitators, as with all firms, do things slightly differently, the management route taken by Standard proved successful for others as well.

Table 1. The Standard Oil Company- Financial Data



Year	Trust Certificates or Capital Stock	Net Earnings ($)	Amount of Dividends ($)		Rate of Dividend (%)	Market Share (%)
1870	$ 1,000,000					4% of U.S. oil refining
1871	1,000,000					
1872	2,500,000					
1873	2,500,000					
1874	3,500,000					50% of U.S. oil refining
1875	3,500,000					
1876	3,500,000					
1877	3,500,000					95% of U.S. oil refining
1878	3,500,000					
1879	3,500,000					
1880	3,500,000					
1881	70,000,000					
1882	71,116,100	$ 12,388,507	$ 3,695,253.00		5.5%	
1883	71,730,700	11,231,791	4,268,086.50		6.0%	
1884	71,230,700	7,778,206	4,288,842.00		6.0%	
1885	71,230,700	8,392,936	7,479,223.50		10.5%	
1886	73,355,800	15,350,788	7,226,452.50		10.0%	
1887	90,187,160	14,026,591	8,463,327.50	*	10.0%	
1888	90,293,360	16,226,956	13,705,505.50	**	11.5%	
1889	90,344,360	14,845,201	10,620,630.00		12.0%	
1890	96,941,860	19,131,471	11,200,089.00		12.0%	
1891	97,219,800	16,331,886	11,648,826.00		12.0%	
1892	97,250,000	19,174,878	11,874,225.00		12.2%	65% of production, manufacturing and distribution in the U.S.
1893	97,250,000	15,457,354	11,670,000.00		12.0%	
1894	97,250,000	15,544,326	11,670,000.00		12.0%	
1895	97,250,000	24,078,077	16,532,500.00		17.0%	
1896	97,250,000	34,077,516	30,147,500.00		31.0%	
1897	97,250,000		32,092,500.00		33.0%	
1898	97,250,000		29,175,000.00		30.0%	
1899	97,250,000		32,092,500.00		33.0%	
1900	97,500,000		46,800,000.00		48.0%	
1901	97,500,000		46,800,000.00		48.0%	
1902	97,500,000		43,875,000.00		45.0%	
1903	97,448,900		42,877,516.00		44.0%	
1904	98,338,300		35,401,788.00		36.0%	95% of US market, 90% of export, 84% domestic trade.
1905	98,338,300		39,335,320.00		40.0%	
Total			**$ 512,940,084.50**			

Notes:

* Also Stock dividend of 20 percent, amounting to $15,028,200.

** Including $3,497,600 in shares of Natural Gas Trust.

The National (American) Linseed Oil Company:

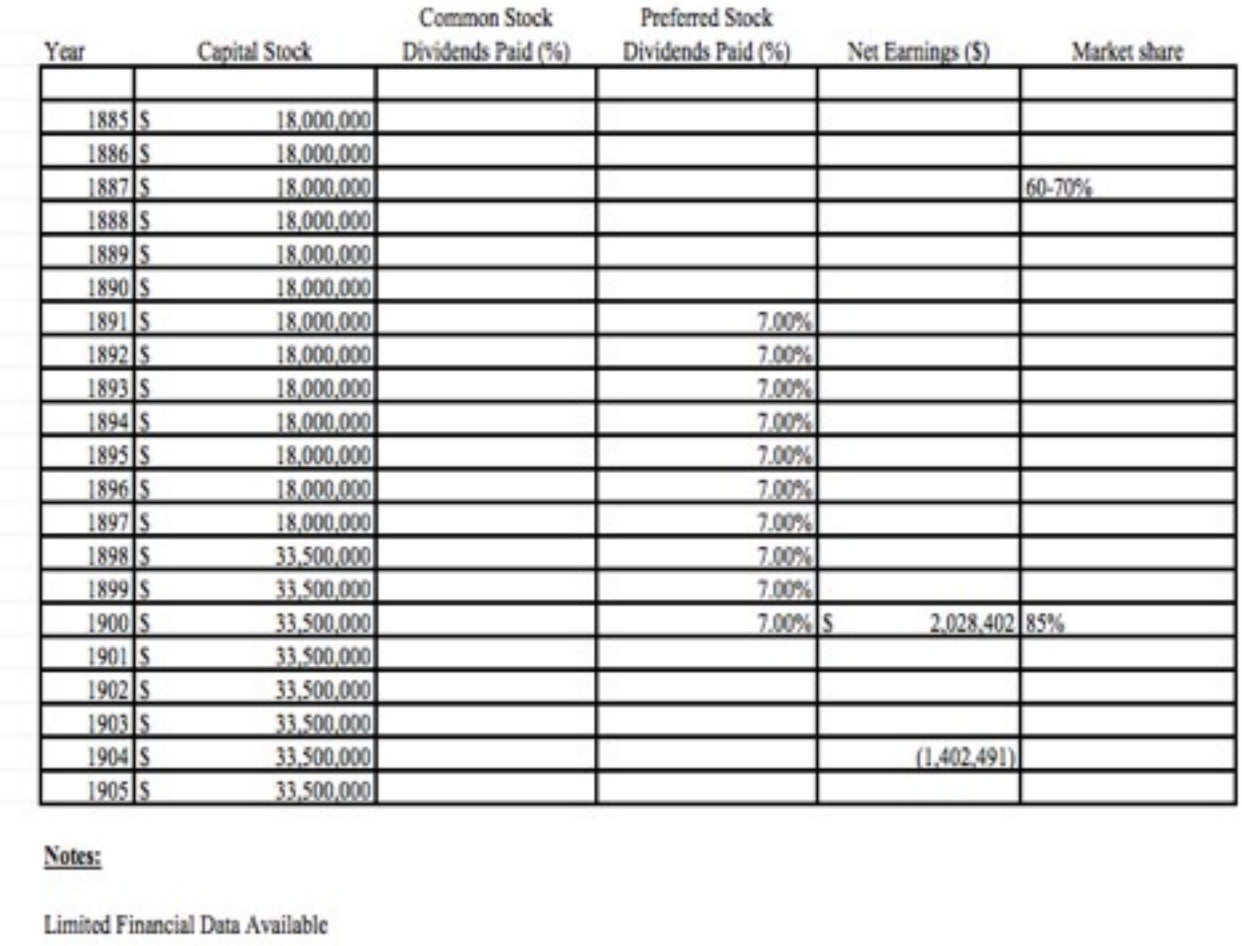
The National Linseed Oil Company was established in 1885 with $18,000,000 in capital. This linseed trust combined linseed oil manufacturers to horizontally control more of the market. The trust mergers had consolidated some 49 mills, over 40 storage elevators, and a fleet of tank cars and tank stations.[33] By the time the linseed oil firm reorganized in 1887 under the same name, it had control of over 60 to 70 percent of the market for American linseed oil production. Through the 1890s the National Linseed Oil Company paid dividends at a steady rate of 7 percent annually. However, the National Linseed Oil Company was never as successful as its counterparts in the petroleum, lead, and cotton oil industries due to the firm's smaller size, less diversified product line, lack of large domestic and overseas markets, and smaller supply.

In 1898, The National Linseed Oil Company was absorbed into the American Linseed Oil Company, a firm that capitalized at $33,500,000. The consolidated American Linseed Oil Company proceeded to vertically integrate and make better use of its facilities by exploring the production of byproducts and new products, much like the route taken by the Standard Oil Company. Once it was reorganized and under the new management of former Standard Oil executives, American Linseed became a major competitor of the National Lead Trust in the production of linseed oil, as well as a competitor in the production of fertilizers with cotton oil, fertilizer, and meatpacking firms[34]. By 1900, the American Linseed Oil trust had net earnings of over $2,000,000 and a market share of 85 percent.

[33] Chandler, 367.

[34] Chandler, 367.

Table 2. The American Linseed Oil Trust- Financial Data



Year	Capital Stock	Common Stock Dividends Paid (%)	Preferred Stock Dividends Paid (%)	Net Earnings ($)	Market share
1885	$ 18,000,000				
1886	$ 18,000,000				
1887	$ 18,000,000				60-70%
1888	$ 18,000,000				
1889	$ 18,000,000				
1890	$ 18,000,000				
1891	$ 18,000,000		7.00%		
1892	$ 18,000,000		7.00%		
1893	$ 18,000,000		7.00%		
1894	$ 18,000,000		7.00%		
1895	$ 18,000,000		7.00%		
1896	$ 18,000,000		7.00%		
1897	$ 18,000,000		7.00%		
1898	$ 33,500,000		7.00%		
1899	$ 33,500,000		7.00%		
1900	$ 33,500,000		7.00%	$ 2,028,402	85%
1901	$ 33,500,000				
1902	$ 33,500,000				
1903	$ 33,500,000				
1904	$ 33,500,000			(1,402,491)	
1905	$ 33,500,000				

Notes:

Limited Financial Data Available

The Sugar Trust:

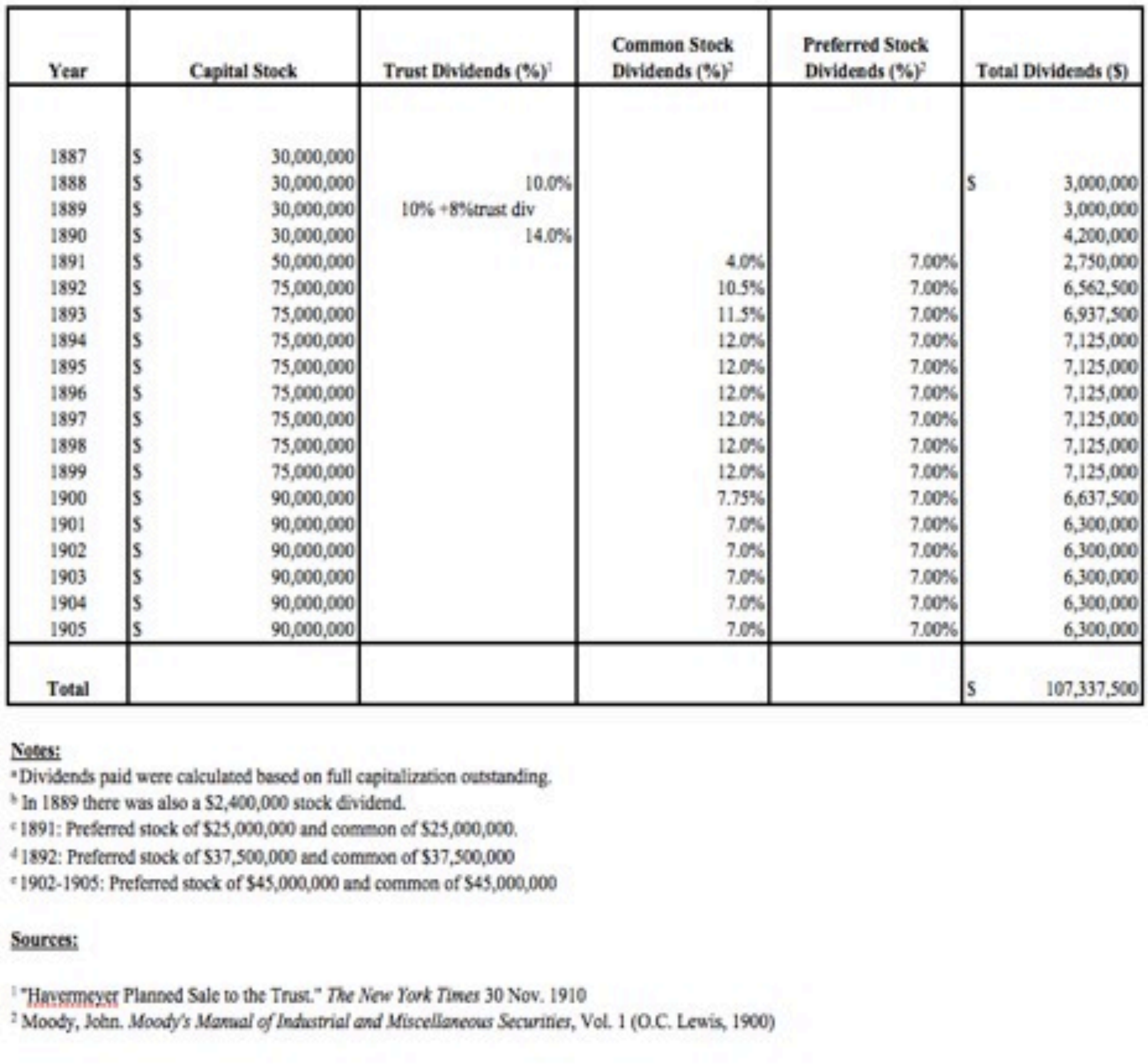
The American Sugar Refining Company was founded in 1887 with $30,000,000 in capital and quickly moved to consolidate production and purchasing. The economies of scale created by this consolidation lowered unit costs and gained the Sugar company market power. The dominant founder of the American Sugar Refining Company, Henry O. Havermeyer utilized the firms economic power to further Horizontal Integration as well as, “drive out competitors by price cutting, exploiting railroad rebates, controlling supplies, and making rebate arrangements with wholesalers - all methods the Standard Oil group had made notorious in the 1870s."[35] The Sugar Trust controlled 90 percent of the U.S. sugar refining market within its first year of operation, but by 1891 the trust was ordered to dissolve. The sugar trust cleverly reorganized itself and reemerged as the American Sugar Refining Company in New Jersey, this time with $50,000,000 to $75,000,000 in capital. Much like John D. Rockefeller, American Sugar Refining president Henry O. Havermeyer valued the secrecy that was provided for by the trust configuration and refused to report the firm's earnings, even to stockholders. However, the success of the American Sugar Refining Company can be seen through the substantial yearly dividends that were paid at 7 percent for preferred stock and often higher percentages for common stock. In 1894, the Sugar Trust controlled 75 percent of the U.S. sugar industry, but due to raised profit margins which invited industry competition and Havermeyer's expensive attempt at Horizontal Integration, the market share fell to 49.3 percent in 1907.[36] Unlike Standard Oil, which swiftly transitioned from Horizontal to Vertical Integration when profit opportunity arose, Henry O. Havermeyer's main focus was Horizontal Integration, and his strategy for this was to buyout competition. From 1902 to 1907 alone, this strategy cost the firm over $20,000,000. The impact of this technique was quite large: in 1901, the American Sugar Refining Company supplied only 57 percent of U.S. sugar, but controlled 93 percent of the market from its additional holdings in independent refining firms. By 1907, the Sugar Trust controlled 97 percent of the sugar processing capacity in the United States. Regardless of this huge gain in market share from the implementation of Horizontal Integration tactics, upon Havermeyer's death in 1907, the sugar firm decided to take on Vertical Integration. The American Sugar Refining Company started selling its holdings in

[35] Chandler, 328.

[36] Chandler, 328-329.

various other firms, creating its own marketing organization, and establishing its own brand: Domino Sugar. [37] From the Sugar Trust's beginning in 1887 to 1905, its capitalization had increased from $30,000,000 to $90,000,000. Large dividends, implying positive and healthy net earnings, had steadily been paid, and market share for the American Sugar Refining Company had increased to almost 100 percent.

Table 3. The Sugar Trust- Financial Data



Year	Capital Stock	Trust Dividends (%)[1]	Common Stock Dividends (%)[2]	Preferred Stock Dividends (%)[2]	Total Dividends ($)
1887	$ 30,000,000				
1888	$ 30,000,000	10.0%			$ 3,000,000
1889	$ 30,000,000	10% +8%trust div			3,000,000
1890	$ 30,000,000	14.0%			4,200,000
1891	$ 50,000,000		4.0%	7.00%	2,750,000
1892	$ 75,000,000		10.5%	7.00%	6,562,500
1893	$ 75,000,000		11.5%	7.00%	6,937,500
1894	$ 75,000,000		12.0%	7.00%	7,125,000
1895	$ 75,000,000		12.0%	7.00%	7,125,000
1896	$ 75,000,000		12.0%	7.00%	7,125,000
1897	$ 75,000,000		12.0%	7.00%	7,125,000
1898	$ 75,000,000		12.0%	7.00%	7,125,000
1899	$ 75,000,000		12.0%	7.00%	7,125,000
1900	$ 90,000,000		7.75%	7.00%	6,637,500
1901	$ 90,000,000		7.0%	7.00%	6,300,000
1902	$ 90,000,000		7.0%	7.00%	6,300,000
1903	$ 90,000,000		7.0%	7.00%	6,300,000
1904	$ 90,000,000		7.0%	7.00%	6,300,000
1905	$ 90,000,000		7.0%	7.00%	6,300,000
Total					$ 107,337,500

Notes:

[a] Dividends paid were calculated based on full capitalization outstanding.

[b] In 1889 there was also a $2,400,000 stock dividend.

[c] 1891: Preferred stock of $25,000,000 and common of $25,000,000.

[d] 1892: Preferred stock of $37,500,000 and common of $37,500,000

[e] 1902-1905: Preferred stock of $45,000,000 and common of $45,000,000

Sources:

[1] "Havermeyer Planned Sale to the Trust." *The New York Times* 30 Nov. 1910

[2] Moody, John. *Moody's Manual of Industrial and Miscellaneous Securities*, Vol. 1 (O.C. Lewis, 1900)

[37] Ibid, 329.

The American Cotton Oil Company:

The American Cotton Oil Company trust began in 1884 with $40,000,000 and immediately began a stage of Horizontal Integration. From 1884 to 1887, the trust incorporated several different manufacturing properties including cotton compressors and ginneries, lard plants, soap factories, and fertilizer-mixing mills; integrating companies that were buyers of cotton seed oil[38]. The company reorganized in 1889 and the periods of Vertical and Horizontal Integration continued into the 1900s, where capital was increased to $42,000,000.

By the turn of the Century, the American Cotton Oil company had transitioned into manufacturing a whole new array of products. The firm's president stated in his 1901 annual report that, "in addition to the crushing of cotton seed and the refining of oil, the commercial operations of the company include the refining of lard, the manufacture of lard compound, soaps, soap powders, fertilizers, etc., on an extensive scale."[39] In 1903, the American Cotton Oil Company president's annual report explains the furthering of Vertical Integration undergone by the company, as they move towards controlling more of the final stages of production. "Your Executive is continually reminded that many of the Stockholders of The American Cotton Oil Company are under the impression that its business is confined to crushing, extracting and refining Oil from Cotton Seed. This is a fallacy."[40] The firm held valuable assets in various manufacturing firms, as well as brands, trademarks, and goodwill, which together was worth millions of dollars[41]. Though they fluctuated annually from economic depression and crop yield

[38] Albert Jolink, "The Urge to Merge and the American Cotton Oil Company," Management and Organizational History 2 Nov. 2006, 390.

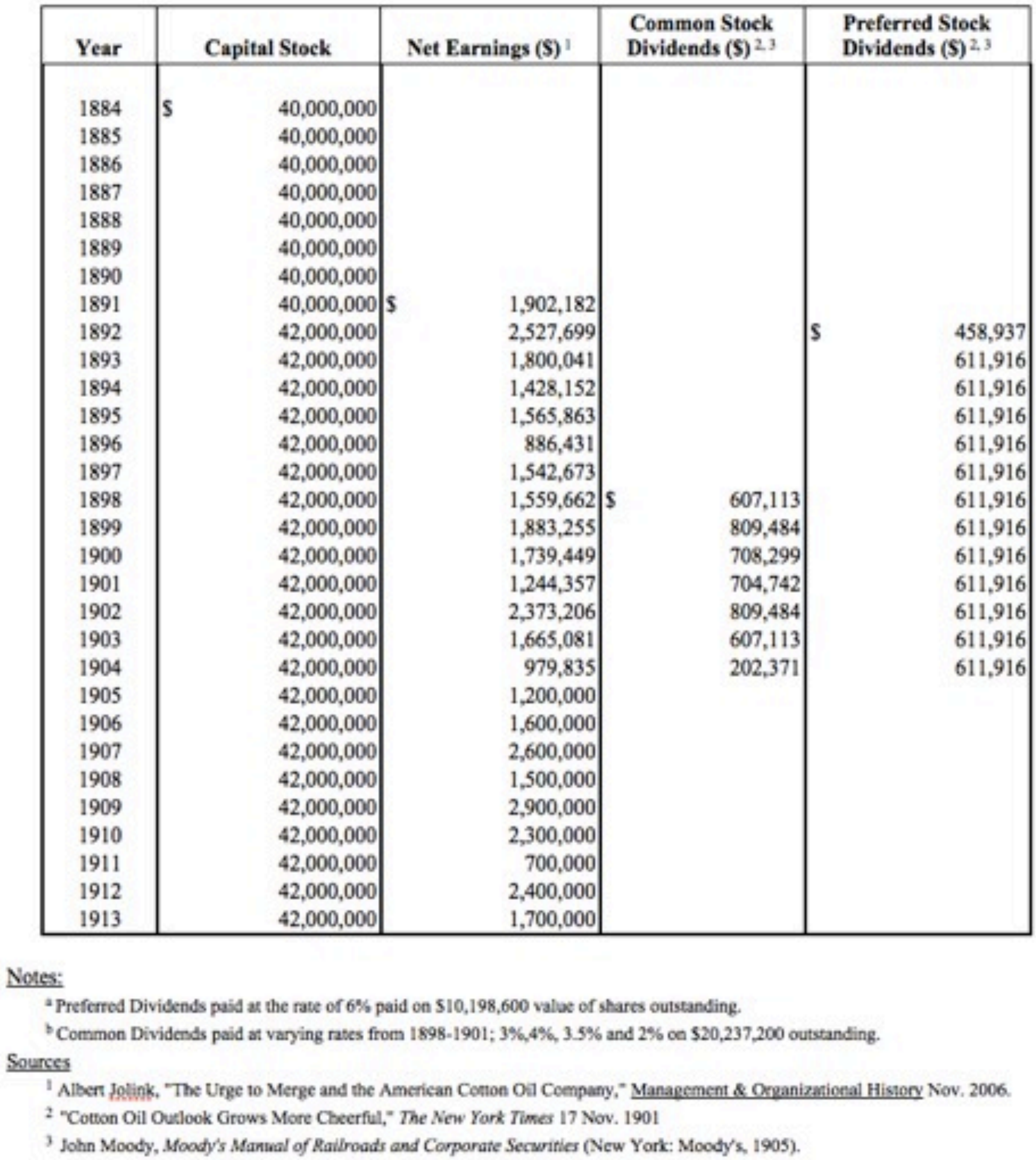
[39] Jolink, 391.

[40] Ibid, 392

[41] Ibid, 392.

variation, net earnings for this period were relatively high for American Cotton Oil, as were dividends which were paid annually for both preferred and common stock.

Table 4. The American Cotton Oil Company- Financial Data



Year	Capital Stock	Net Earnings ($) [1]	Common Stock Dividends ($) [2, 3]	Preferred Stock Dividends ($) [2, 3]
1884	$ 40,000,000			
1885	40,000,000			
1886	40,000,000			
1887	40,000,000			
1888	40,000,000			
1889	40,000,000			
1890	40,000,000			
1891	40,000,000	$ 1,902,182		
1892	42,000,000	2,527,699		$ 458,937
1893	42,000,000	1,800,041		611,916
1894	42,000,000	1,428,152		611,916
1895	42,000,000	1,565,863		611,916
1896	42,000,000	886,431		611,916
1897	42,000,000	1,542,673		611,916
1898	42,000,000	1,559,662	$ 607,113	611,916
1899	42,000,000	1,883,255	809,484	611,916
1900	42,000,000	1,739,449	708,299	611,916
1901	42,000,000	1,244,357	704,742	611,916
1902	42,000,000	2,373,206	809,484	611,916
1903	42,000,000	1,665,081	607,113	611,916
1904	42,000,000	979,835	202,371	611,916
1905	42,000,000	1,200,000		
1906	42,000,000	1,600,000		
1907	42,000,000	2,600,000		
1908	42,000,000	1,500,000		
1909	42,000,000	2,900,000		
1910	42,000,000	2,300,000		
1911	42,000,000	700,000		
1912	42,000,000	2,400,000		
1913	42,000,000	1,700,000		

Notes:

[a] Preferred Dividends paid at the rate of 6% paid on $10,198,600 value of shares outstanding.

[b] Common Dividends paid at varying rates from 1898-1901; 3%,4%, 3.5% and 2% on $20,237,200 outstanding.

Sources

[1] Albert Jolink, "The Urge to Merge and the American Cotton Oil Company," Management & Organizational History Nov. 2006.

[2] "Cotton Oil Outlook Grows More Cheerful," *The New York Times* 17 Nov. 1901

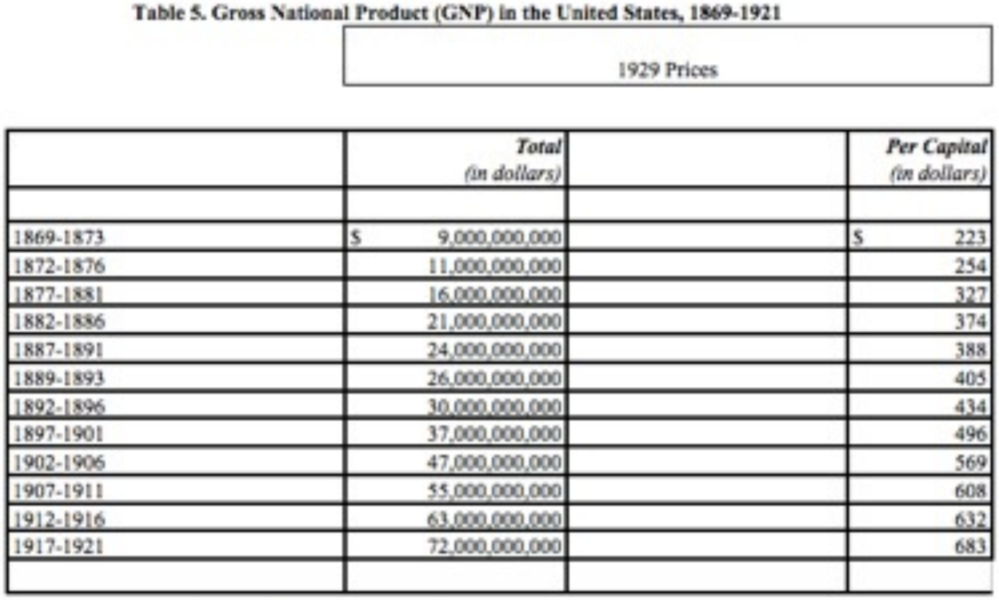
[3] John Moody, *Moody's Manual of Railroads and Corporate Securities* (New York: Moody's, 1905).

Chapter 6: Conclusion

American business leaders in the late 19th century may not have fully recognized the drastic economic changes happening in their lifetimes or the impact they would have, but the short-term reactions of these leaders in response to those changes made permanent alterations to the nature of American business. Before this period, the United States economy had been predominantly agrarian and mercantile. In the mid 1800s business was growing and modernizing at a rate that Americans had never before seen. Small, owner-managed firms were being replaced by Big Business and modern management bureaucracies. Single unit firms were being replaced by vertically and horizontally integrated corporations.

The tendency toward Oligopoly-a few large firms dominating an industry-in this period, enabled by the adoption of the Trust consolidation vehicle, as exampled by Standard Oil, did not seem to slow economic growth in the United States. In fact, between 1870 and 1920, the Gross National Product (GNP) grew from $9,000,000,000 to $72,000,000,000.

Table 5. Gross National Product (GNP) in the United States, 1869-1921



	1929 Prices		
	Total (in dollars)		*Per Capital (in dollars)*
1869-1873	$ 9,000,000,000		$ 223
1872-1876	11,000,000,000		254
1877-1881	16,000,000,000		327
1882-1886	21,000,000,000		374
1887-1891	24,000,000,000		388
1889-1893	26,000,000,000		405
1892-1896	30,000,000,000		434
1897-1901	37,000,000,000		496
1902-1906	47,000,000,000		569
1907-1911	55,000,000,000		608
1912-1916	63,000,000,000		632
1917-1921	72,000,000,000		683

SOURCE: Mansel G. Blackford and K. Austin Kerr, *Business Enterprise in American History*, (Boston: Houghton Mifflin, 1994) 164.

All of these changes affected the nature of decision making in the American economy. The rise of Big Business meant that firm's production and distribution decisions which were previously made by market forces were now being internalized and centralized in the firm. Thus, the "Visible Hand" of modern management superseded what Adam Smith had referred to as the "Invisible Hand" of market forces with respect to the functions of coordinating production and distribution, and allocating funds and resources[42]. This transition made Big Business the most important institution in the economy, and thus its managers became the most important economic decision makers. This new scale and importance of modern business enterprise required business management to change with the times, and adapt techniques which had never before been used at such a magnitude.

The Standard Oil Company is an essential player in the history of the rise of large modern corporations in the American economy. Within a few short decades, Standard Oil grew from a small grocery partnership into a leader in an emerging industry, and eventually into a multi-million dollar global industrial enterprise. The Standard Oil Company was one of the very first American firms to grow and dominate and industry in this way, by innovating a method of combination, consolidation, and integration.

As we look at a timeline of Standard Oil's development in management and organization, we can see that one technique leads to another. Horizontal Combination led the oil refining giant to require legal and administrative consolidation, which was aided by the invention of the modern Trust in 1881[43]. The Trust required a new system of organization within the firm to coordinate the many aspects and subsidiaries of the Standard Oil Trust, and thus the Committee

[42] Chandler, Alfred. *The Visible Hand.*

[43] Chandler, Alfred D., and Richard S. Tedlow, 344.

Structure was developed. The decentralization of authority and increased communication afforded by the Committee system coincided perfectly with the implementation of Vertical Integration, which required the possibility of various committees to oversee the many stages of production. These innovations also have other repercussions or ripple effects within the firm. As we saw with the development of the Committee structure, the promotion of open communication and good ideas led to increased morale and employee incentives. Thus, the Committee system allowed for increased efficiency of production not only by bettering the firm's coordination, but by encouraging hard work and good ideas.

The experiences of the oil industry were paralleled in other emerging American industries, as the success of Standard influenced the growing popularity of their pioneering route. In industries such as rubber, steel, lead, sugar, whiskey, explosives, salt, and biscuits, firms followed the Standard Oil example of Horizontal Combination, Trust consolidation and Vertical Integration.[44]

Considering the management techniques of Horizontal Combination, Trust Consolidation, Committee Structure and Vertical Integration, the impact of the Standard Oil Company can be seen through multiple industries. Firms that imitated Standard Oil's method for size and success appear to have experienced size and success as well, as they consolidated, integrated, and organized in the pursuit of profits. Though there are sure to be more, three successful trusts followed the Standard Oil management formula. These trusts are the National (later American) Linseed Company, the American Cotton Oil Company, and the Sugar Trust. These firms

[44] Chandler, Alfred D., and Richard S. Tedlow, 369.

experienced growth in capital, earnings, dividends, and market share that suggest the positive payoffs of adopting the management techniques of Standard Oil.

Though it had consolidated into a trust, National Linseed Oil Company struggled in its initial years having not yet integrated or organized well enough to reach a size substantial enough to really compete in or dominate markets. In other words, the National Linseed Company had never reached the success that Standard Oil, National Lead, or the American Cotton Oil Company had in their industries. When Standard Oil executives Fred T. Gates and John D. Rockefeller, Jr. joined a newly reorganized American Linseed Company as president and director in 1899, they seemed to bring some of Standard's success with them. The American Linseed Company finally started realizing substantial growth as it added to its primarily horizontal production strategy a policy of Vertical Integration: manufacturing new products and competing actively in more markets. By 1900, the adoption of Standard Oil's management techniques had facilitated the growth of The American Linseed Oil Company such that it had attained an 85 percent market share.

The Sugar Trust had a slower start to following all of Standard Oil's methods. Though this trust consolidated production and purchasing, it hesitated moving into Vertical Integration. For the first two decades of the business, the Sugar Trust focused on Horizontal Combination and attaining market power for one stage of sugar production. With the death of the trust's president in 1907, the firm resumed the Standard Oil management model and commenced a policy of Vertical Integration by developing brands and marketing organizations. The utilization of Standard Oil's management methods, however delayed, assisted the American Sugar Refining Company in competing in and dominating a market in a new and integrated way.

The American Cotton Oil Company consolidated into a trust in 1884, with the intention of ensuring cooperation amongst firms in the business of crushing cotton seed for vegetable oil. The cotton oil trust consolidated production into several refineries, and had established a purchasing network to assist in the buying of cotton seed from Southern farmers. Within the trust's first ten years, it had acquired over 300 tank cars, which it used for transporting product. As was the case with Standard Oil, the move into transportation prompted a stage of Vertical Integration. By the early 1890s, the American Cotton Oil Company had moved into European markets, and had begun producing its own brands of food oil and soap powder. Before the turn of the Century, the cotton oil trust had become a fully integrated enterprise, which like Standard Oil, required a hierarchy of committees and managers to coordinate. The American Cotton Oil Trust expanded, consolidated, integrated, and coordinated with very little deviation from what Standard Oil itself had done, which afforded it competitive and sustained market power in its industry.

If the vast impact of Standard Oil's management innovations can be seen through looking at just three of the trusts who followed the oil giant's lead, the question is raised of the many other ways in which Standard's techniques may have been perpetuated. Here is a list of just three of the many of Standard Oil's executives with influence and interest in other firms. John D. Rockefeller, Jr. as we know was a director of the American Linseed Co., but was also a director of the Colorado Fuel and Iron Co., and the Manhattan "L" and Merchants' Fire Assurance Corporation of New York. Frederick T. Gates, who went on to be the president of the American Linseed Co., was also a director in over 15 other firms involved in railroads, timber, shipbuilding, paper, iron, and education.[45] Starr J. Murphy, another of John D. Rockefeller's trusted colleagues was also a director at the American Linseed Co., as well as at other firms in realty, shipbuilding, iron, and fuel. The vast span of accomplishments and affiliations of these Standard Oil executives exhibits the enormous influence the company had throughout the U.S. economy, from personal interaction alone.

The case of the evolution of management within the Standard Oil Company provides evidence for how technology and innovation are transmitted from one industry dominating firm to growing firms in other industries throughout the economy, and the impact of financial gain on the spread and adaptation of said technology. If the route innovated by the Standard Oil Company was perpetuated by other firms who saw the success of Standard Oil and their imitators and wanted to emulate that success themselves, the impact of Standard Oil's management techniques could span billions of dollars and spread throughout the economy and the 20th century.

Though we cannot claim with any certainty that following the management techniques innovated by the Standard Oil Company aided these imitator companies in achieving their *highest possible* success, this route most assuredly aided in their growth and advanced their financial standing. In a period of unprecedented economic expansion, new markets and opportunities, the Standard Oil Company's triumphant navigation to global dominance provided the first and best example for fledgling firms across the American economy.

Standard Oil set the precedent for successful management and enterprise in a new economic era of Big Business and new markets. Though their techniques - like the Trust - may

[45] Henry H. Klein, *Dynastic America* (New York: H.H. Klein, 1921) 139-142.

now be frowned upon for obstructing market competition, before the 1870s there was no precedent for business practices at such a scale, and the Standard Oil Company proved itself to be truly innovative and profit maximizing.

References

"Another Pool Alarmed." *The New York Times* 5 Feb. 1890. Print.

Beardsley, Charles. "The Tariff and the Trusts." *The Quarterly Journal of Economics* 15.3 (May 1901): 371-89. Print.

Blackford, Mansel G., and K. Austin Kerr. *Business Enterprise in American History*. Boston: Houghton Mifflin, 1994. Print.

Brands, H. W. *Masters of Enterprise: Giants of American Business from John Jacob Astor and J.P. Morgan to Bill Gates and Oprah Winfrey*. New York: Free, 1999. Print.

Bringhurst, Bruce. *Antitrust and the Oil Monopoly: The Standard Oil Cases, 1890-1911*. Westport, CT: Greenwood, 1979. Print.

Brown, John Howard, and Mark Patridge. "The Death of a Market: Standard Oil and the Demise of 19th Century Crude Oil Exchanges." *Review of Industrial Organization* 13.5 (1998): 569-87. Print.

Chandler, Alfred D., and Richard S. Tedlow. *The Coming of Managerial Capitalism: A Casebook on the History of American Economic Institutions*. Homewood, IL: R.D. Irwin, 1985. Print.

Chandler, Alfred D. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: Belknap, 1977. Print.

Chernow, Ron. *Titan: The Life of John D. Rockefeller, Sr.* New York: Random House, 1998. Print.

Cochran, Thomas C. *200 Years of American Business*. New York: Basic, 1977. Print.

Conant Jr., Luther. "Industrial Consolidations in the United States." *Publications of the American Statistical Association* 7.53 (March 1901): 1-20. Print.

"Cotton Oil Outlook Grows More Cheerful." *The New York Times* 17 Nov. 1901. Print.

Dalton, James A., and Louis Esposito. "Standard Oil and Predatory Pricing: Myth Paralleling Fact." *Review of Industrial Organization* 38.3 (May 2011): 245-66. Springer US, 1 May 2011. Web. <http://rd.springer.com/article/10.1007/s11151-011-9280-1>.

"The Dismantling of The Standard Oil Trust." *The Standard Oil Monopoly*. The Linux Information Project, 12 Oct. 2006. Web. <http://linfo.org/standardoil.html>.

Doyle, William M. "Capital Structure and the Financial Development of the U.S. Sugar-Refining Industry, 1875–1905." *The Journal of Economic History* 60.01 (2000): 190-213. Print.

Epstein, Alex. "Vindicating Capitalism: The Real History of the Standard Oil Company." *The Objective Standard* Summer 2008. The Objective Standard, Summer 2008. Web. <http://www.theobjectivestandard.com/issues/2008-summer/standard-oil-company.asp>.

Granitz, Elizabeth, and Benjamin Klein. "Monopolization by "Raising Rivals' Costs": The Standard Oil Case." *The Journal of Law and Economics* 39.1 (1996): 1-47. Print.

Harnish, Verne. *Mastering the Rockefeller Habits: What You Must Do to Increase the Value of Your Fast-growth Firm*. New York: Select, 2002. Print.

"Havermeyer Planned Sale to the Trust." *The New York Times* 30 Nov. 1910. Print.

Jolink, Albert. "The Urge to Merge and the American Cotton Oil Company." *Management & Organizational History*. Sage Publications, Nov. 2006. Web. <http://moh.sagepub.com/content/1/4/385.short>.

Josephson, Matthew. *The Robber Barons the Great American Capitalists, 1861-1901,*. New York: Harcourt, Brace and, 1934. Print.

Klein, Henry H. *Dynastic America*. New York: H.H. Klein, 1921. Print.

Klein, Henry H. *Standard Oil or the People the End of Corporate Control in America*. New York (N.Y.): Klein, 1914. Print.

Lundberg, Ferdinand. *The Rich and the Super-rich; a Study in the Power of Money Today.* New York: L. Stuart, 1968. Print.

McGee, John S. "Predatory Price Cutting: The Standard Oil (N. J.) Case." *The Journal of Law and Economics* 1.1 (1958): 137-69. Print.

Micheloud, Francois. "The Standard Oil Trust." *John D. Rockefeller & the Standard Oil Company*. Francois Micheloud. Web. <http://www.micheloud.com/FXM/so/SOT.htm>.

Montague, Gilbert Holland. *The Rise and Progress of the Standard Oil Company,*. New York: Harper & Brothers, 1903. Print.

Moody, John. *Moody's Manual of Corporation Securities.* New York: J. Moody [usw., 1902. Print.

Moody, John. *Moody's Manual of Corporation Securities.* New York: J. Moody [usw., 1904. Print.

Moody, John. *Moody's Manual of Industrial and Miscellaneous Securities*. Vol. 1. O.C. Lewis, 1900. Print.

Moody, John. *Moody's Manual of Railroads and Corporate Securities*. New York: Moody's, 1905. Print.

"New Linseed Oil Concern." *The New York Times* 6 Dec. 1898. Print.

"Sugar Trust Began Organizing in 1887." *The New York Times* 14 Nov. 1909. Web.

Tarbell, Ida M. *The History of the Standard Oil Company,*. New York: Mc Clure, Phillips &, 1904. Print.

"Trust Secrets Revealed." *The New York Times* 15 Feb. 1890. Print.

"Trusts Are Bound To Go." *The New York Times* 19 Oct. 1889. Print.