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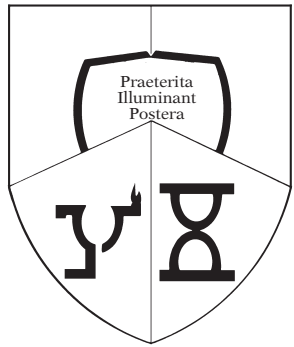

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Research on the Evolution of Accounting
Thought and Accounting Practice

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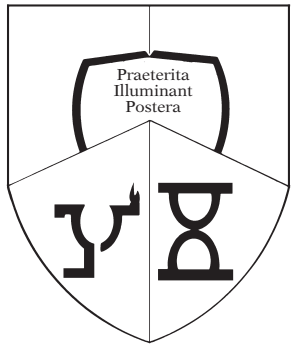

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ACCOUNTING HISTORIANS JOURNAL

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ACCOUNTING HISTORIANS JOURNAL

Statement of Policy

The *Accounting Historians Journal* is an international journal that addresses the development of accounting thought and practice. *AHJ* embraces all subject matter related to accounting history, including but not limited to research that provides an historical perspective on contemporary accounting issues.

Authors may find the following guidelines helpful.

1. Authors should provide a clear specification of the research issue or problem addressed and the motivation for the study.

2. Authors should describe the method employed in the research, indicating the extent and manner in which they intend to employ the methodology. Manuscripts are encouraged that draw on a variety of conceptual frameworks and techniques, including those used in other social sciences.

3. Manuscripts that rely on primary sources should contain a statement specifying the original materials or data collected or analyzed and the rationale used in selection of those source materials. Authors should provide the reader information as to how these source materials may be accessed.

4. Authors who use a critical or new theoretical framework to examine prior historical interpretations of the development of accounting thought or practice should include a discussion of the rationale for use of that framework in the manuscript.

5. In performing all analyses, authors should be sensitive to and take adequate account of the social, political, and economic contexts of the time period examined and of other environmental factors.

6. While historians have long debated the ability to assign causation to particular factors, we encourage authors to address and evaluate the probable influences related to the problem or issue examined.

7. Authors should clearly state all their interpretations of results, and the conclusions they draw should be consistent with the original objectives of and data used in the study. Interpretations and conclusions should be clearly linked to the research problem. Authors also should state the implications of the study for future research.

ACCOUNTING HISTORIANS JOURNAL

Guide for Manuscript Submission

Manuscripts for review should be submitted by e-mail attachment to fleischman@jcu.edu or christopher.napier@rhul.ac.uk and formatted in Microsoft Word. The identity of author(s) should not appear on the attached file — only on the accompanying e-mail transmission. Additional correspondence may be sent to Professor Richard Fleischman, 6818 74th Street Circle East, Bradenton, FL 34203 USA (telephone 941-580-3719) or Christopher Napier, School of Management, Royal Holloway, University of London, Egham, Surrey TW20 0EX, UK (telephone 44-1784-276121). There is no submission fee, although authors are urged to consider joining The Academy of Accounting Historians by completing the membership application form on the inside of the back cover. Papers which have been published, accepted for publication elsewhere, or are under consideration by another journal are not invited. The *Accounting Historians Journal* will accept a variety of presentation formats for initial submission as long as the writing style is reflective of careful scholarship. Notwithstanding, authors should attend to the following guidelines:

1. An abstract of approximately 100 words on a page that includes the article's title but no identification of the author(s) .
2. A limited number of content footnotes.
3. A limited number of tables, figures, etc., appended at the conclusion of the text, but whose positioning in the narrative is indicated.
4. References are to appear in brackets within the text. Specific page numbers are mandatory for all direct quotes but are optional otherwise.
5. A bibliography of all references cited in the text.
6. Manuscripts should not exceed 10,000 words in length.

Upon acceptance or an invitation to revise and resubmit, authors will be sent a style sheet which must be followed conscientiously for all subsequent revisions of the paper. Once the article is accepted, the editor will request the submission of a diskette prepared in Microsoft Word. If time permits, authors will be sent galley proofs. However, the inclusion of additional material will be severely limited.

Authors will be provided with 3 copies of the *AHJ* issue in which the manuscript is published. Reprints may be ordered by arrangement with the publisher.

NOTE FROM THE CO-EDITORS

2009 Manuscript Awards

We are pleased to announce the following winners of the annual *AHJ* Manuscript Awards for Volume 36 (2009) as judged by the editorial board. Monetary awards of $500 for the winner and $250 each for the runners-up have been dispatched to the recipients.

WINNER: Norman Macintoch, "'Effective' Genealogical History: Possibilities for Critical Accounting History Research"

RUNNERS-UP: Igance De Beelde, Natalie Gonthier-Besacier, and Alain Mikol, "Internationalizing the French Auditing Profession"

Robert Russ, Gary Previts, and Edward Coffman, "Corporate Governance in the 19th Century: Evidence from the Chesapeake and Ohio Canal Company"

Congratulations to the recipients for outstanding pieces of work. For the second consecutive year, every article in the two issues received at least one vote.

Due to financial exigencies, the Academy of Accounting Historians announces the 2010 awards will be $300 for the winning article and $100 for each of the two runners-up. However, the prestige and the plaque will remain the same.

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2008 Vangermeersch Award Winner

Nicolas Praquin
UNIVERSITÉ PARIS-SUD 11

THE CRÉDIT LYONNAIS IN FRANCE (c. 1871-1918): USING CASH FLOW ANALYSIS TO ASSESS RISK IN BANKING

Abstract: In the absence of accounting rules, financial reports and disclosures were of little use to shareholders and stakeholders before World War I. To offset the unreliability of financial information, several banks, including the Crédit Lyonnais, implemented a system of accounting analysis that, in essence, anticipated modern financial-analysis tools based on funds statements and cash-flow statements. This paper, based on the Crédit Lyonnais archives, sets out to explain the purpose of this method, to present the different concepts employed, and to show how they interact. The relevance of this model is assessed through two case studies.

INTRODUCTION

After the failure in France of a number of Saint-Simonist[1] initiatives, such as Laffitte's *Caisse Générale du Commerce et de l'Industrie* in 1837 and the Pereire brothers' *Crédit Mobilier* from 1852 onwards, mixed banks (banks combining both commercial and investment-banking activities) emerged at the same time as large department stores. They would be called "savings banks" before World War I, having been labeled on occasion with the rather pejorative term of "financial bazaars" [Bigo, 1947, p. 182].

[1]The French social philosopher and reformer Claude Henri de Rouvroy, Comte de Saint-Simon (1760-1825), was one of the founders of modern industrial socialism and evolutionary sociology. Indeed, Auguste Comte, who is widely seen as the father of sociology, was one of his secretaries. Saint-Simon denounced the privileges of noble birth and saw the nobility essentially as "men of leisure" (*oisifs*), idle hornets (*frelons*) who exploit a mass of "workers" (the bees). He argued for the idea of creating a new society, one that relied notably on re-organizing the economy and credit and one in which industrialists, thinkers, and artists were to lead the nation. His arguments won over a significant vocal fringe of engineers, mostly graduates from the *École Polytechnique*, persuaded by his ideas of renewal of the governing elite.

Notably during the Second Empire but also up to the inter-war period, they were the main players involved in structuring the credit system in France.

The Crédit Lyonnais (CL) was the epitome of a success that was if not collective at least pluralistic since other so-called savings banks such as the *Comptoir d'Escompte* (1848), *Crédit Industriel et Commercial* (1859), the *Société des Dépôts et Comptes Courants* (1863), the *Société Lyonnaise de Dépôts* (1863), the *Société Générale* (1863), and the *Société Marseillaise de Crédit* (1865) can also be added to the list. The CL's early move away from direct investment in industry forced it to become the savings bank *par excellence*, and its subsequent history demonstrates the significance of this decision. From this constraint, it was able to draw its strength – the small unitary margins generated by commercial banking operations required the bank to implement a high-performance organizational structure in which information had to be centralized to enlighten rational decision making and to limit risk. For such everyday banking business, Henri Germain, the founder and chairman of the CL until the turn of the 20th century, would put accounting at the heart of his information system.

The CL's withdrawal from the sector of direct investment went together with the birth of its *Service des Études Financières* (SEF) (the Department of Financial Analysis). On the issue of financial brokering, in which the CL played a leading role, assessing the risk of insolvency[2] did not yet rely on quantitative and statistical analysis methods such as "credit rating," but instead on financial and accounting analysis tools. In this context, the SEF's main purpose was to draft technical and/or financial studies for numerous departments requesting them, such as Securities Management, Risks, Interbank Relations, Securities Issuance, to enable them to use sector-specific information and accounting data provided by companies to measure company economic viability and to assess the risks the bank was assuming. The SEF also carried out economic monitoring, including macroeconomic studies, sector-specific studies, and data collection. Since it reported directly to general management, its strategic function would always ensure it remained independent from other departments.

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[2] For more in-depth study of the issue of risk assessment at the CL, see Praquin [2003, 2005]. It should be noted that this paper does not consider the use of accounting techniques for the management of CL itself. For a recent study of this, see Pezet and Sponem [2008].

More specifically, this service set up a system of "deconstructing" accounts disclosed by companies with the purpose of restating them. This analysis of financial statements constituted one of the major reasons for this service to exist; the goal was to reduce the risk of asymmetrical information tied to the window-dressing that most companies engaged in at that time in western countries such as Britain [Edwards, 1980], France [Lemarchand, 1992], Germany [Spoerer, 1998], Spain [Bernal Lloréns, 2000], and the U.S. [Dicksee, 1927; Michael, 1996]. This tool for analyzing annual statements relied on an intricate system of tables designed to establish concordance between the earnings disclosed by companies and the cash flows they generated. This cohesive set of tools predated the methods of corporate financial analysis that were to be implemented in France from the end of the 1950s onwards.

This paper therefore pursues two aims. The first is to show, both in general terms and through two case studies, how a profitable financial institution came to implement risk-assessment tools. The second is to highlight the fact that historical research enables us to understand how some accounting and financial concepts, however much they may be perceived today as innovative, were actually envisioned in bygone eras before being forgotten due to the lack of appropriate diffusion.

HISTORY AND DEVELOPMENT OF THE CL

The history of the birth and development of the CL is inextricably tied to the personality of its founder, Henri Germain,[3] who was to leave his mark on the bank until retiring from business life. The first 20 years were marked by an uncertainty that weighed heavily on the strategic direction given to the CL. After an unfruitful period of direct investment in companies, Germain took the decision to orientate the bank definitively towards short-cycle activities.

1863-1882: An Uncertain Strategy for Assets: The composition of the first Board of Directors was significant in terms of both the

[3] Born in 1824, Germain studied law. In 1856, he took on a position as a broker and perfected his knowledge of the business world by working in a Lyon silk-making business owned by the Saint-Simonist Arlès-Dufour. His second marriage was to a Vuitry, the daughter of the former governor of the *Banque de France*, former minister, and president of the State Council. At 40, he founded the CL. Elected as a *député* on several occasions from 1869 onwards, he was prevented three times from becoming a minister by James de Rothschild's veto. He died in 1905.

multiple influences they exerted on the CL at the outset and the ambiguity of the strategy with which Germain wished to endow it. Among the board members were Saint-Simonists, arguing for a new social order to be built on industrial development and wealth sharing, who rubbed shoulders with more conservative bankers and industrialists. What they had in common was that they all belonged to a business class faced with a banking system that they judged to be archaic and unable to satisfy their financing needs. Local bankers offered insufficient financial soundness, and the *Banque de France* declined to part from its traditional role as discount broker and would only underwrite certain securities – government securities, shares, and French railway bonds. Some hoped to obtain easier cash loans while others sought to find ways of underwriting and circulating the bond loans they issued.

From this plethora of expectations was born a mixed bank, similar to the main competitors previously mentioned. Germain's convictions differed according to whether his focus was on assets or liabilities. On the liability side, from its creation onwards, the focus of the CL was invariably to try to attract small investors by offering good rates of interest as the bank sought popularity as a savings bank. In addition, it proposed demand deposits, fixed-term deposits, commercial paper, and interest accounts reserved for banking and business clients. Germain proved to be still more inconsistent with regard to assets. The CL began by becoming involved in industrial investments in the hope of making quick capital gains. This reflected a rationale typical of economic development in the Second Empire when large investments made large profits. The risk tied to the amount of capital invested was associated with the possibility of a yield significantly higher than in current banking operations. However, Germain did not wish to relive the disastrous experience of the Pereire brothers' *Crédit Mobilier*.[4] He remained prudent and dedicated the majority of assets to discount operations which were less fruitful but much safer owing to the spreading of risk and the short-cycle nature of this activity.

[4] These brothers founded the first French conglomerate. Also Saint-Simonists, they had built their businesses (rail and maritime transport, property, banking, and insurance) by relying on a bank, the *Crédit Mobilier*, that was in charge of issuing and circulating the bonds necessary for financing these investments. Falling out of favor, and unfortunate in a number of property deals, they lost the support of the political powers and went bankrupt.

From 1870 onwards, Germain's turning away from all direct industrial investment forced him to invent another form of banking and to create a model that stood for the soundness and liquidity of its investments. This shift from a mixed bank to what would later be called a savings bank was completed in the aftermath of the stock market crash of 1882.

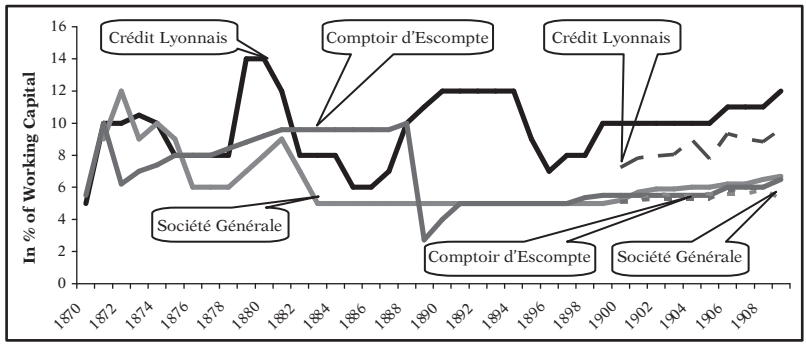
1882-1914: Success in Choosing a Banking Specialization: The progressive disengagement from the industrial sector was a success for the CL. From the end of the 1870s, it became "the leading French publicly-traded bank" [Bouvier, 1961, p. 68] until the end of World War I. While its competitors were still embroiled in industrial "adventures," such as the *Société Générale* with its sulphur, guano, and loans businesses in Sicily and in Peru, or the *Comptoir d'Escompte de Paris*' backing of speculation in copper, Germain's bank took advantage of this period of slower economic growth to strengthen its network in France and abroad. From 110 branches and offices in 1882, it expanded to 257 by 1903. From 1884 onwards, it offered new services to its clientele, such as rental of safe boxes, and by the turn of the century, it had also launched a significant property-building program in Lyon and Paris.

In other words, the choice of specializing in current operations proved to be profitable in the long term. This specialization occurred mainly through the management of accounts, short-term operations (loans, overdrafts, seasonal loans), and banking intermediation (selling shares and bond issues to its clients). However, such an orientation could only be successful at the price of constant vigilance, which specifically meant finding an accounting tool that performed ever better and setting up specialized services such as the *Service des Etudes Financières* (SEF). The latter was responsible for studying the quality of requests for banking intermediation that various companies made to the CL. In order to assess better these proposals, it implemented a system of financial analysis, the history of which is outlined below. The CL's strategy proved to be effective especially when compared to other banks. Its profit margins and dividend payouts were significantly higher that those of its competitors (Figure 1).

The CL's growth ensured regular increases in its profits which rose at the same pace as figures in the main entries of its balance sheet (Figure 2). A comparison of progress in the main liabilities (current accounts in credit, demand deposits) and in assets (commercial portfolios, current accounts in debit) with

FIGURE 1

Dividend and Profit Rates for the Crédit Lyonnais, the Société Générale, and the Comptoir d'Escompte (1870-1909)



Continuous Line: Dividend Rate — **Dotted Line**: Profit Rate
(*Source:* Kaufmann, 1914 : 489 ; 492)

the rise in profits, whether disclosed or "original,"[5] is fairly telling. The first observation is logical – the progression of assets is in line with liabilities. The second observation proves to be much more interesting in that following the crash of the *Union Générale* in 1882,[6] profits experienced regular growth, strongly correlating to that of the main entries in the balance sheet.

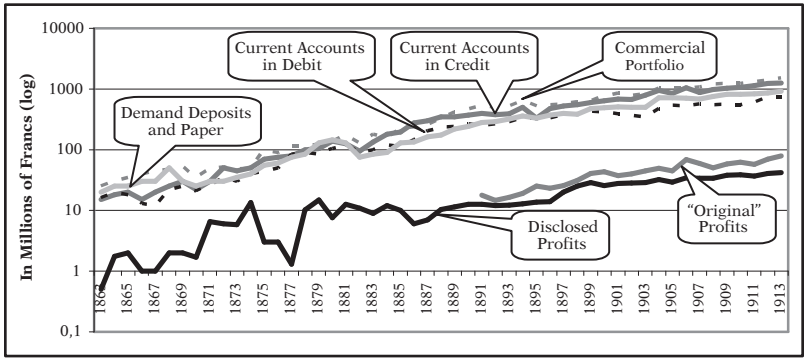
In other words, the decision to increase its geographic scope in France and abroad enabled the CL to stimulate not

[5] The "original" profits are provided by Bouvier et al. [1965, p. 239]. They are defined in the following way: "the mass of profits is understood over each financial year as an 'original' mass including: profits paid out (dividends, directors' fees), profits in reserve, diverse provisions and amortizations on dubious debtors, insofar as these last two entries are signalled" (p. 219). We can see that in the framework of a semi-logarithmic graph, "instruments *par excellence* for comparing rhythms of variation" [Saly, 1997, p. 107], they present hardly any difference with disclosed profits. Yet, it seemed interesting to show them insofar as they could have provided additional insight given the considerable arithmetic variance that exists with the disclosed net incomes.

[6] The *Union Générale* was established in 1878 to compete specifically with the CL and, more generally, "Jewish" finance. It aimed to attract mainly "Catholic" savings and succeeded in obtaining the support of the French clergy. It experienced rapid growth, often criticized by its detractors. Numerous abuses and accounting manipulations brought it to bankruptcy in 1882. This bankruptcy triggered the first French stock-market crisis and brought about a series of economic and social troubles.

FIGURE 2

The Case of the Crédit Lyonnais: Trends in the Main Entries in the Balance Sheet Compared to Profits Made (1863-1913)



Sources: All the entries except that of the "original" profits come from graphs published by the CL on the occasion of its fiftieth anniversary [*Brochure du cinquantenaire du Crédit Lyonnais: 1863-1913,* archive hc14]. The "original" profits are provided by the work of Bouvier et al. [1965, p. 239]. They are defined in the following way: "The mass of profits is understood over each financial year as an 'original' mass including: profits paid out (dividends, directors' fees), profits in reserve, diverse provisions, and amortizations on dubious debtors, insofar as these last two entries are signalled" [Bouvier et al., 1965, p. 219]. We can see that in the framework of a semi-logarithmic graph, "instruments *par excellence* for comparing rhythms of variation" [Saly, 1997, p. 107], they hardly present any difference with disclosed profits. Yet, it seemed interesting to us to show them insofar as they could have provided additional insight given the considerable arithmetic variance that exists with the disclosed net incomes.

only the flow of savings but also the flow of net incomes. The quasi-indexation of low unitary profits on the growing mass of resources (i.e., liabilities) mechanically generated an equally increased accounting net income.

THE WORK OF THE SEF

In September 1871, Germain came up with the idea of an office, unique in its way and never equaled [Kaufmann, 1914, p. 353]:

> The *Comptoir National* also set up, a few years ago, a financial analysis department. The Crédit Lyonnais' department was used as a model. However, with only limited staff, it cannot be compared, even remotely, with its much larger rival. A body with this centralizing

> feature does not exist at the *Société Générale*. It leaves each department to decide what information to acquire and the data that it needs.

Even though the issue of assessing risk was a concern widely shared by the whole banking sector at that time [Bonin, 2000], what is striking here is the importance of the role played by the SEF in the development of the CL [Bigo, 1948; Bouvier, 1961].

The SEF was an independent and autonomous service. Depending on the case, its studies were released in single unified documents that either explicitly or implicitly discriminated between the technical and the financial parts. One of the greatest challenges the SEF encountered was managing to break away from the window-dressing carried out by companies that disclosed their accounts to the CL.

Role and Purpose of the SEF: This service was responsible for collecting and analyzing economic and financial intelligence. In the public arena, the context was favorable since financial data and economic statistics[7] were developing and communication infrastructures (the telegraph and the railway) could enable their rapid circulation. It was the moment for the CL to create added value by developing its know-how in centralizing, sorting, and organizing disparate data sets in order to draw quality information from them and to be the first to act on "big business opportunities" and to generate thereby "huge profits" [Meeting of the Board of Directors, November 5, 1889, cited by Flandreau, 2003, p. 259; see also Bouvier, 1961, p. 290]. Also, it would later enable the bank to target investments for its large clientele using first-hand intelligence, as stated in the *Brochure du cinquantenaire du Crédit Lyonnais (1863-1913)*: "The SEF is working for both our clientele and for all of the services and branches of the Crédit Lyonnais" [CL Archives, hcl4, p. 48].

The SEF periodically carried out in-depth studies that it sometimes supplemented with reports drafted on more specific points. These studies had several purposes. They gave the CL

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[7] In addition to the numerous newspapers born with the Second Empire and affiliated to powerful moneymen (Mirès' *Le journal des chemins de fer*, the Pereire brothers' *Le journal des actionnaires*, *La semaine financière*, which was indirectly tied to the Rothschilds), a more independent press also developed, such as the *Messager de la Bourse*, the *Journal des économistes*, or, much later in 1873, Leroy-Beaulieu's *L'économiste français*. From the mid-19th century onwards, economic statistics developed in the form of congresses (Berlin in 1863, Budapest in 1878, etc.) or studies, with the notable backing of Napoléon III.

a chance to reduce its risks by knowing the financial quality of both current and prospective clients in greater depth. They also gave it an opportunity to improve the management of its clientele's credit lines by increasing, maintaining, or reducing the outstanding payments yet to be made. But, most importantly, in the framework of the CL's intermediation activities, these studies enabled the bank to guarantee high-quality securities to its clientele of savers and investors. Specifically because of this financial analysis service, the CL was widely recognized as a bank of the highest order and soon won the trust of its peers. It often led banking syndicates and found no difficulty gathering financial partners around the table to float companies on the stock market and sell shares to the public. Companies also benefited from these studies because obtaining intermediation from the CL was for them an additional guarantee that the operation would move ahead.

Germain had always planned for the SEF to be an independent service so that it would not be subject to external pressures with respect to any findings in the studies it would issue. The chairman-founder of the CL understood that it was important to keep apart the functions of analyzing and decision making. The SEF therefore worked on its own or provided analysis at the specific request of other departments in the bank but was never the decision maker. Evidence of how watertight this division was between the SEF's analysis and decision making by the other departments can be found in the archives. Although it is possible to establish the purposes of SEF studies either by studying them directly or by reading other research [Flandreau, 2003], it proved impossible to discover the extent to which the SEF's findings influenced decision making by the other departments or services receiving these studies. However, two factors suggest that they did play a major role. First, Germain laid great emphasis on this service. Second, the periods of the bank's success and its subsequent decline also corresponded to the periods when the SEF was at first considered irreplaceable but subsequently progressively neglected.

Technical Studies: With respect to its banking intermediation activities, for which the SEF was mobilized, the CL mainly dealt with mining and industrial companies that needed to raise considerable funds to finance their investments. Railway companies had no need for financial intermediation since they received a state guarantee in 1840 underwriting the issuance of their shares. This guarantee ensured the public's trust and therefore

they were able to sell their bonds directly to their clientele at ticket offices in train stations.

The purpose of the so-called technical studies was to describe the conditions affecting the supply-chain and business activities of the different entities in a given group. The goal was to place a company in its competitive environment by highlighting historical details relating to the different stages of its development by providing data on the geographical locations of its factories and their accessibility, by assessing the quality of different supply sources, and by analyzing the successive investments undertaken.

The purpose of the section dealing with production was to shed light on the production process as a whole, from the mining of raw materials to the marketing of finished products. The SEF did not lack the elements of comparison as it produced data and statistics on both the company under scrutiny and its competitors. The SEF was in a position to refer to sector-specific information gathered from the annual public reports published by the Ingénieurs des Mines and to compare them with data disclosed, it appears, in a company's accounting of its internal costs. On this point, however, we should be cautious because the precision of certain calculations may lead us to assume that the only possible source was the company itself. Yet, at other times, precise data are missing either because the CL had not received them or the company was unable to provide them. As we will see later, the bank analyzed the accounting for net income using gross operating profit without knowing how it had been reached. These data therefore essentially appear to stem from excellent knowledge of the sector and timely investigations within the company itself as a number of reports about on-site visits testify. These data allow us to suggest that cost accounting and financial accounting were totally decoupled. In the event that precise data were lacking, the auditor would extrapolate from past indicators.

Financial Studies: The financial studies contained a descriptive part drawing together the various elements that formed their basis, the considerable work of restating accounting data that department staff conducted upstream. These financial reports detailed how the main accounting items were established (acquisitions, sell-offs, content), described the accounting methods used (measuring inventories, amortization policy), and assessed the pertinence of dividend payouts by comparing them with the profits generated. The reports concluded with a valuation of

the share price that was calculated, depending on the case, by a measurement (specific to the SEF) of the company's assets, by capitalizing dividends, or by simulating forced bankruptcy.

Yet, the most notable feature during this turn-of-the-century period of transition resided in the considerable work of restating and analyzing accounting data disclosed on a company's balance sheet, income statement, and corresponding reports. By first deconstructing and then reconstructing the financial statements provided by companies, the analysts at the CL sought to forge their own opinion on the "veracity" (the term used at that time) of the net income disclosed by comparing the company's figures with net incomes reached using their own methods.

The dual aim of the SEF was to break away from the uncertainties associated with the disclosed accounts and to implement a homogeneous method of restating accounting data that offered several advantages – standardizing processes for producing restated data, generating economies of scale, ensuring soundness in decision making, minimizing risk, and creating internal technical competencies.

Issues Relating to Disclosed Accounts: The lack of homogeneity in corporate accounting practices constituted the major challenge facing the SEF. This situation arose due to the following phenomenon. In the absence of any accounting standards, the lack of standardization of key concepts, such as those relating to calculated cash flow[8] or to the recognition of rules defining assets as opposed to expenses, raised difficulties in interpreting the same economic situation. In order to enable translation into accounting terms, this situation led to the use of numerous accounts that worked differently. In other words, assets might be charged indiscriminately either to the balance sheet or the income statement, and depreciations might or might not be recorded according to the ultimate configuration that company boards sought to give to their financial statements.

More specifically for the CL, it was statements of investments (whether assets or expenses) that posed the greatest difficulty for interpretation. The SEF had little information at its disposal that enabled it to know the criteria that a company

[8] This is stretching the current classical distinction between calculated expenses and paid expenses to cover all accounting movements that do not result in a monetary flow, owing to the facts that amortizations, provisions, and reserves fulfil analogous functions and that the accounting distinctions conceptually established today did not exist at that time.

was following in improving, transforming, or acquiring an investment and whether such an investment was an asset or an expense. Echoing this issue was the question of how expenditure on fixed assets was amortized. The methods most often encountered were industrial amortization expenses, depletion of a reserve account created for this purpose, and assets charged to other reserve accounts or to accounts made of matured bonds. The corollary of this was the deduction of depreciation from the fixed-asset account in question.

Nevertheless, by examining reports disclosed with annual statements, CL analysts were able to identify the different types of accounting used by companies to state the fall in value of their investments. Above and beyond the existence of statutory amortization (most commonly either a rate of one fifth or a fixed amount, both recorded as a drop in the gross operating profit), companies turned to other ways of accounting for amortizations that evaded disclosure in the profit-and-loss account. Thus, the *Compagnie des Forges et Aciéries de la Marine et d'Homécourt* did not hesitate to multiply and blend the different options that were open to it. From 1856 to 1860, it set up a reserve amortization fund that was both charged and depleted at the same time over its financial years. Subsequently, this account remained relatively inactive until the 1880s when once again it began to be depleted. In 1867, it added an insurance fund that, according to CL annotations, did not undergo any transactions other than in 1869 and in 1872. Furthermore, being able to charge bond reimbursements to the profit-and-loss account created de facto supplementary reserves that could be used for future amortizations. This was the case from 1869 to 1887 and then from 1908 to 1919. Reserves could also be merged.

Faced with the impossible task of formulating an exact idea of what fixed-asset and stockholder-equity accounts contained, the SEF developed a statement that, although unable to provide precise information on asset purchases and sales (charged to fixed-asset accounts at sale price), enabled the SEF to know the variations in fixed assets between one financial year and another.

THE SEF METHOD: THE WORK OF RESTATING ACCOUNTS

Until the inter-war period, the diversity of accounting practices made it difficult for a third party to utilize accounts disclosed by companies. The SEF therefore set out very early on to conduct technical and financial studies which, thanks to an accounting and financial method, allowed it to formalize a certain

number of restatements so as to measure better the net incomes of companies with which the CL wished to maintain or develop a business relationship.

To compensate for the lack of reliability in disclosed accounts, the CL set up a coherent system of financial analysis based on two financial concepts, excess working capital and gross operating profit, which hinged on the key concept of "new works" (*travaux neufs*). However, the relevance of this model depended on prior work on restating disclosed accounts using formalized statements with a number of articulations.

A Key Concept: Calculating "New Works": The CL performed most of its financial brokerage business with industrial companies that were required to reinvest relentlessly in order to remain competitive. These investments, named "new works" by the SEF, weighed heavily on the profitability of these companies which, to improve the financial picture portrayed in their operating statement, cut amortization expenses by transferring them, in all or in part, onto their balance-sheets accounts. The goal of the analysts at the CL was therefore to acquire a reliable and homogeneous performance indicator. The intent was to break away from window-dressing that might alter the impact of "new works" on net income.[9] Building such an indicator presupposed having already identified and isolated all the accounting items that contribute to making up these "new works."

"New works" were therefore calculated on the basis of the variation in net fixed assets to which were added all the decreases that the company had experienced during the financial year. These were added in the form of asset sales or amortizations charged to the different items of equity (profits, reserves, capital, amortized bonds). The calculated figure reached constituted the "new works in the financial year" (*travaux neufs de l'exercice*).

The "new works in the financial year" could then either be charged in total to gross operating profit in order to attain, following other restatements, the profits and losses for the period

[9] The SEF auditors did not fail to inform Germain of the impact of new works on the accounting income. In a letter dated March 4, 1902 addressed to the chairman of the CL, Lucien Rolland d'Estape clearly states, with respect to the *Compagnie des Hauts-Fourneaux, Forges et Aciéries de la Marine et des Chemins de Fer*: "I have compared turnover with gross profit, from which overheads have been deducted, but not with the net operating profit, so that the percentage would be free from the accidental variations that arise from the difference, often significant from one year to the next, in the amount of new works" [CL Archive, deef 23828].

according to the SEF method. They could also be used to compare the profits disclosed by the company and the profits calculated using the SEF method.

In other words, analysts at the CL rejected all capitalization of "new works" and treated them as definitive expenses. In this way, they broke away from the accounting dualism (charging to the profit-and-loss account and/or to the balance sheet) that was being exploited by companies. Consequently, they could develop their own accounting for net income (indifferently called profits and losses or total net profits), calculated on the basis of variations in overall cash flows (called excess working capital) which was subsequently compared with the gross operating profit.

Yet, "new works" were not just intermediary amounts; they too were subjected to analysis in the reports. They were generally used to assess the level of investment carried out during a financial year, and their impact was accounted for in the analysis of the amount of profits disclosed.

Financial Concepts – Variation in Excess Working Capital and Gross Operating Profit: Analysts at the CL were interested in knowing their clients' performance and thereby assessing the profitability of their companies. However, to achieve this end, they had to possess reliable measurement indicators and, better still, by deploying alternative calculation processes, to be able to cross-check their figures by reaching identical net-income results. For these reasons, as already stated, the SEF set out to measure net income using two different concepts – variation in excess working capital and gross operating profit.

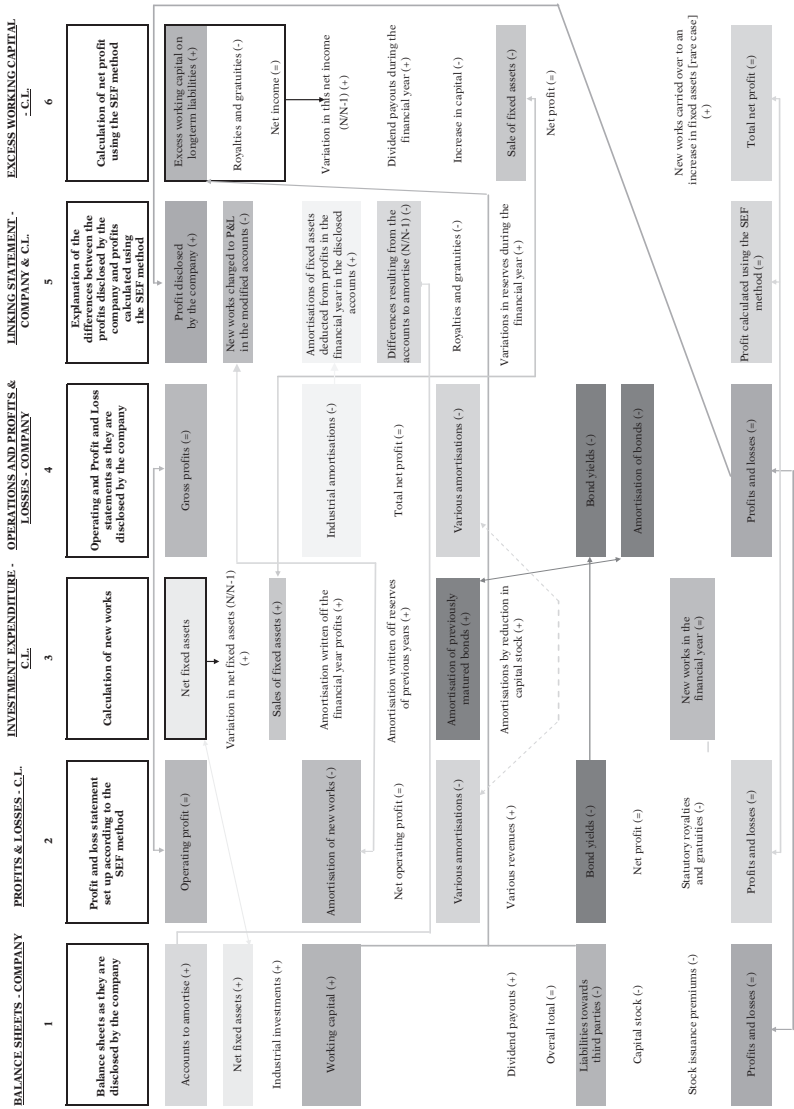
Variation in excess working capital requires a brief detour to look at the underlying notion, namely "working capital," a term coined during the 19th century but employed in different [Batsch, 1995, p. 15] or even contradictory [Lemarchand, 1993, pp. 366, 569] ways. Within the CL, this expression (still commonly found in the form of "revolving fund" in the 1870s) exclusively denoted current assets that, in addition to inventories, accounts receivable, and cash accounts, also generally included the portfolio of shares and bonds.

An essential sign of the asset liquidity in which the CL was particularly interested, the analysis of working capital constituted a significant part of the comments found in the reports. After each constituent item was broken down in detail and justified as to its makeup and measurement, the report concluded with an assessment of its reliability and liquidity. The underlying idea was to ensure that once fixed assets were covered by sufficient

reserves, the working capital exceeded current liabilities, itself composed of the "floating" debt (i.e., revolving debt) and, less commonly, the "consolidated" debt (i.e., bonds payable). Shorn of inventories, and sometimes of shares and bonds, the excess working capital then became "immediate available assets" (short-term liquidity), as shown in Figure 3.

FIGURE 3

A System of Accounting Restatements



The aim of the diagram is to show that the SEF calculated the performance of a company based on its capacity to generate cash flows. The particularity of the system is that potential net cash flows are calculated on the basis of the fictive liquidation of immediately available assets and liabilities. In a historical context where liquidity was rare and the banking system underdeveloped, the CL, which was mainly a short-term lender, sought to ensure that its clients could face their short-term commitments, even in the most difficult situations (i.e., bankruptcy). Furthermore, fixed assets were considered as being difficult for the CL to mobilize. For this reason, it accorded them little importance and sought to "neutralize" them by ensuring only that they were covered with sufficient reserves. To mark clearly this conceptual difference between the long and the short terms, the diagram distinguishes between these two elements, whereas the CL only focused on the short term. Calculation of this liquidity, performed in successive stages, was accompanied by an assessment of the overall situation which, to foster comparison, was reported in tonnage produced or per business operation.

Measured by its *variation* and after restatement of operations having no impact on the operating statement (sales of fixed assets, increases in capital, and dividend payouts), the excess working capital constitutes an interesting indicator of a company's cash flow in that, with its very mode of calculation free from potential window-dressing carried out on the profit-and-loss account, represents sound liquidity flows capable of confirming the reliability of disclosed profits.

Net income calculated on the basis of the variation in excess working capital is also measured using the gross operating profit disclosed in the company's accounts. However, since the CL did not dispose of any information regarding how it was made up (disclosed profit-and-loss accounts shifted seamlessly from turnover to gross profit), calculations on the basis of gross operating profit had only one purpose. That was to ensure the coherence of the whole financial-analysis system by obtaining a net-income figure identical to the one determined using the variation in excess working capital. The discretionary character of profit-and-loss account disclosure at that time, the limited confidence the CL had in its reliability, and the clear preference for the balance sheet owing to its capacity to measure the company's solvency meant that the former received much less comment in the reports.

Analysis Statements – Possible Articulations and Cross-Checking:

It would appear that this coherent and complete system of financial and accounting analysis emerged with the creation of the SEF in 1871. The first studies based on summary statements date from the early years of that decade. Although the archives consulted do not always provide a totally identical number of statements for each company (either because some were deemed unnecessary or because others have been lost or were left unfinished for lack of information), their composition varied little from one company to the next. This may be seen as a sign that there was a real desire to standardize analysis beyond the particular choices made by each company.

The following statements served as a basis for the SEF's work:

- Presenting the balance sheet, operating statement, and profit-and-loss account, as they were disclosed by a company, but adapted to an internal CL matrix which, notably, allowed working capital to be measured and excess working capital easily calculated.
- Drafting intermediary statements (investment expenditure, calculation of net profit using excess working capital, and a linking statement) ensuring the link between the company's accounts and those assessed by the CL on the one hand and, on the other, profits calculated on excess working capital and operating profits.
- Drafting the revised balance sheet, operating statement, and profit-and-loss account calculated by the SEF in the previous two steps.

This three-stage, account-restatement procedure was based on significant levels of theoretical thinking. In addition to cross-checking consistency, the fundamental relationships that the CL established between net profit and excess working capital should be highlighted. A breakdown of these two concepts, with respect to modern techniques of financial analysis based on the funds statement and developed by the French *Plan Comptable Général* in 1982, illustrates the relevance of this approach (Appendix I).

In other words, the SEF succeeded in reaching a profit figure based solely on cash flows while ensuring that this result could be compared with the figure disclosed by the company using its linking statement. This method enabled the CL to make a clean break from the variety of ways used to account for investments whose impact on the disclosed profit it could not control.

However, it should be noted that although analysts at the CL effectively succeeded in building a coherent system for examining accounts, they were still limited in their ability to comment

on variations arising from one financial year to another without ever putting them into the perspective of a conceptual framework as has been done in this analysis. The concordance they established was aimed more at ensuring the coherence of the system and the reliability of the net profit figure than at constituting a tool for analyzing variations in corporate financing. Furthermore, this net-profit figure, free from the uncertainties tied to the variety of methods used to account for investments, was not developed any further in the commentaries.

In fact, their goal was two-fold. From an organizational viewpoint, it was a question of seeking to break away from the plethora of accounting practices in order to formalize common methods at the CL. From a technical viewpoint, it was a question of isolating the flows of operating liquidity[10] (variation in excess working capital) from the major impact of internally financed investments so that the reliability of the net-profit figure calculated on the basis of balance-sheet items could be verified.

This paper has sought to push this reasoning to its logical conclusion in order to test the relevance of the model and to show that in the final analysis, such theoretical thinking proves to be very close to current tools of analysis such as the funds statement or cash-flow statement.

MEASURING NET INCOMES: THE IMPACT OF RESTATEMENTS

The next step is to measure the impact of restatements carried out by the SEF on disclosed net incomes. The interest of measuring this impact is to ensure that the main cause of variance between earnings disclosed by companies in a business relationship with the CL and the results calculated by the SEF are due to the different ways of stating investments ("new works"). To do this, four types of calculation have been carried out:

(i) a comparison between the annual levels of profit determined by the SEF and the annual levels of profit disclosed by companies. The aim is to show the impact of the accounting statement relating to "new works" on the level of earnings.

(ii) the same comparison using a moving average over nine

[10] The term "operating" should be understood in its broadest sense; that is, free from the impact of investment expenditure and not compared with other forms of income (e.g., financial or extraordinary) which would make no sense at a time when modern distinctions were completely unformalized.

years.[11] The aim is to determine whether the variances smooth out over time and do indeed stem from the accounting statement relating to "new works."

(iii) a comparison (SEF vs. company) between the variance in amortizations and the variance in profits in order to ensure that it is indeed the accounting statement including the "new works" that has an impact on the net income disclosed by companies

(iv) the same comparison using a moving average over nine years

The present analysis was carried out using case studies based on the annual accounts of two companies, one of which, the *Société de Vezin-Aulnoye*, had a precarious financial balance that tended to worsen at the turn of the 20th century. The other, the *Compagnie des Hauts-Fourneaux, des Forges et Aciéries de la Marine et d'Homécourt*, maintained sustained growth up to the eve of World War I. However, due to a lack of data over time, only the first calculation could be carried out in the case of the *Société de Vezin-Aulnoye*.

With regard to the comparison of annual profits, we can observe that short and stable periods present fewer variances between disclosed profits and those calculated by the CL as testified by the regularity of the figures reached during the years 1884-1890. In contrast, over a short and turbulent period (financial difficulties facing the *Société de Vezin-Aulnoye* or conjunctural growth[12] for the *Compagnie d'Homécourt* over the previous decade), the CL method tended to increase the variances between the figures calculated by the SEF and those disclosed by the company (Figures 4 and 5).

The differences observed were significant. The variance between profit figures calculated by the CL and disclosed profit amounted to 67% for the *Société de Vezin-Aulnoye* from 1889-1890 to 1901-1902, and 306% for the *Compagnie d'Homécourt* over the years 1907-1919. Whereas companies, such as *Vezin-Aulnoye*, could limit industrial amortizations (i.e., those that the

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[11] In order to avoid superimposing the graphs and to facilitate their reading, the moving average is calculated on the basis of half of the average lifespan of investments carried out by the companies.

[12] "Repercussions from the international crisis were only felt at the end of 1907 and the industrial recession was only slight....Europe remained unaffected by the American slowdown of 1910-1911.... Industrial production would exceed, in 1913, the 1908 level by 32%; the increase rose to 58% for the steel industry, 65% for the mechanics industry while production of potash doubled" [Flamant, 1976, pp. 329-331].

FIGURE 4

Comparison of C.L. Net Profits - Cie des Hauts-Fourneaux… d'Homécourt Disclosed Net Profits (1856-1919)

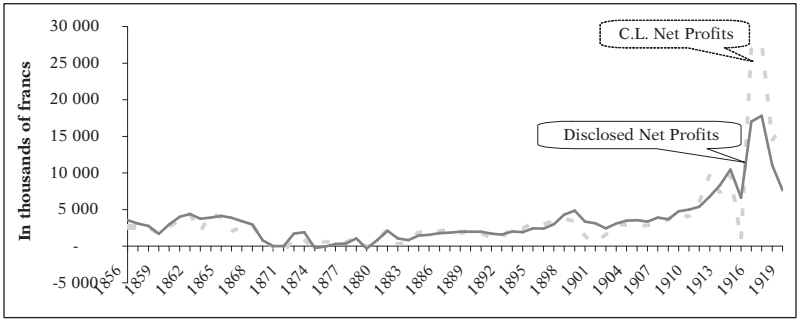
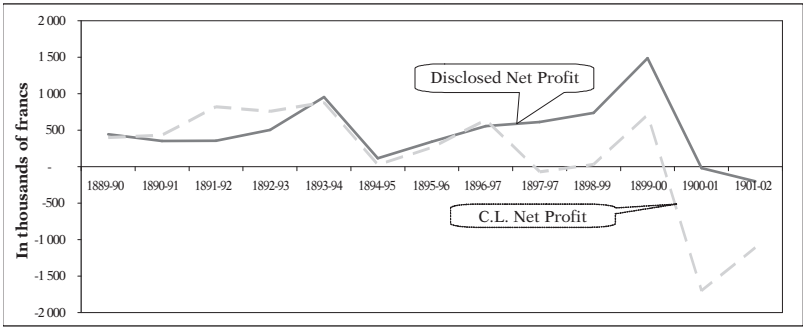


FIGURE 5

Comparison of C.L. Net Profits - Cie Vezin-Aulnoye Disclosed Net Profits (1889-90 / 1901-02)



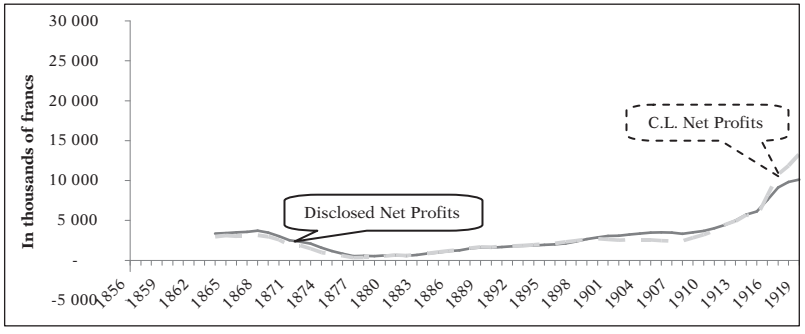
company recorded in its profit-and-loss accounts) to reduce the impact on their bottom line of a conjuncture or unsuccessful management, CL's restatement of "new works" had the effect of erasing the smoothing effect caused by amortizations of the disclosed accounts and of increasing the variances between the two forms of net incomes. Conversely, periods of strong growth, such as that experienced by the *Compagnie d'Homécourt* between 1916 and 1919, were used by the companies to increase their amortization expenses and therefore to reduce their net incomes, with the effect of stimulating the net profit calculated by the SEF. In other words, during stable cycles, disclosed net incomes and the CL's net incomes were similar, whereas in turbulent periods they seemed to diverge significantly.

In this sense, the SEF-implemented statements constituted effective alarm indicators for risk because they enabled the SEF to state the real level of a company's activity based on its cash flow rather than on its disclosed earnings, the object of much manipulation. The CL could then adjust its commitments (short-term operations and financial intermediation) with a better understanding of its clients' financial situations.

Over the longer term, the SEF restatements had a minor impact, and the figures calculated on both sides tended to balance out (Figure 6). The cumulated profits calculated by the CL differ from the figures disclosed by the *Compagnie d'Homécourt* by only 5%, whereas the extreme variances were 0.64% in 1878 and 119% in 1918. Such a mild impact is logical because both the method of amortizing "new works" used in the disclosed accounts and the CL's method of charging them globally had, in the end, an identical effect on profit levels. Moreover, this method offered little of interest to a managerial approach of forecasting risk and preferring liquidity. What mattered most to the CL was the predictability in the short and, in due course, medium term.

FIGURE 6

Comparison of C.L. Net Profits - Cie des Hauts-Fourneaux… d'Homécourt Disclosed Net Profits (1856-1919) - Rolling Average Over 9 Years



The last interesting element to analyze is the impact of restating "new works" on the net income. To this end, it suffices to compare for each financial year the variance in amortizations with the variance in net profit. Indeed, if the two variances have a similar movement, it means that the main source of divergence between the two forms of net income arises from the restatement (amortizations or "new works") of investments. The

first is calculated by measuring the difference between disclosed amortizations and amortizations calculated by the CL (potential amortizations and "new works"); the second by deducting from the disclosed profits those calculated by the CL.

In the stable short term, variances in amortizations are shown to be close to variances in profits, but the difference rises in periods of instability, regardless of whether they were profitable like in the period 1916-1919 for the *Compagnie d'Homécourt* (Figure 7). Over the longer term, as measured using rolling averages, the variances balance out (Figure 8). Differences in amortizations (6%) are not far at all from those in profits (5%).

FIGURE 7

Comparison of Variance in Amortisations with Variance in Net Profits (C.L. - Cie… d'Homécourt: 1856-1919)

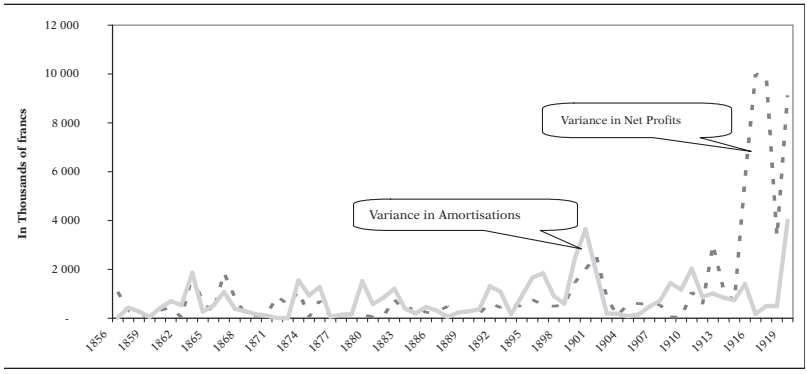
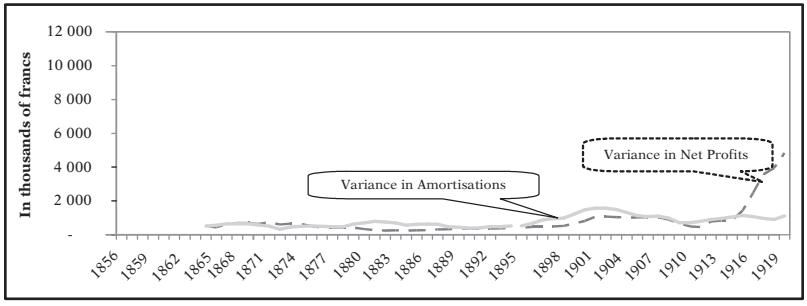


FIGURE 8

Comparison of Variance in Amortisations with Variance in Net Profits (C.L. - Cie... d'Homécourt: 1856-1919) - Rolling Average Over 9 Years



This close correlation confirms that the issue of "new works" constituted the main source of concealment of profit or loss by companies. For the CL, it was therefore important to know the impact of these investments on its clients' earnings since a low level of cash flow could be an indication of a lower performance and of an increased risk of failure. This type of information gave it a competitive advantage as it could better select its clients, reduce its risks, and improve its financial performance.

DISCUSSION AND CONCLUSIONS

This paper confirms the importance that companies have always given to cash flows to estimate the viability and reality of an economic activity [Lemarchand, 1992]. It also enables us to shed new light on the expectations of a creditor bank. Faced with a plethora of uncontrollable accounting practices, the bank pushed its rationale to its limit, considering any investment as an expense, by building a technical system that enabled the CL to verify the sincerity and the regularity of the accounts submitted for its inspection (cross-checking the net income by two methods). It also satisfied the preference for liquidity for which it had consistently argued. By implementing this type of accounting restatement, the SEF succeeded in achieving the first goal set by the founder of the CL – detecting as effectively as possible the risk of insolvency of any company seeking to build a business relationship with this top-tier bank. This study also shows that the issue of financing constitutes a central pillar of measuring and controlling the real performance of a company and demonstrates how close the CL method was to the modern concept of "free cash flow" (operating cash flow – capital expenditures – dividends paid out).

Reliance on such account analysis fell after the war. We might assume that the development of medium and long-term bank financing and the fall in corporate internal financing from the inter-war period were the causes of this decline. However, this argument does not apply directly. In many countries, funds statements emerged very early on by whatever means companies financed their activities.

In the U.S., the funds statement emerged as early as 1863, taking on numerous forms until 1925 when these converged in the concept of variation in working capital [Rosen and DeCoster, 1969]. This form then developed towards the statement of changes in financial position [APB 19, 1971] and then the cash-flow statement [SFAS 95, 1984]. In France, the first funds

statements appeared at the end of the 1950s taking multiple forms until the *Plan Comptable Général* of 1982 which highlighted the relation between net global working capital (working capital + amortizations and provisions + long-term liabilities – gross investments), working-capital requirements (inventories + creditors – debtors), and cash and cash equivalents [Hoarau, 1995]. On an international level, this change mirrored the one seen in the U.S. where the statement of changes in financial position of 1977 was replaced on January 1, 1994 by the cash-flow statement.

Furthermore, it is interesting to note a recurrence of the same issues among those who instigate such tools [Hoarau, 1995]. In the first phase, they seek to highlight the risk of liquidity. In the second phase, their goal is to account for the set of movements that affect the financial situation by focusing more specifically on the issue of structural financing. In the third phase, they return to the issue of measuring solvency, this time through a more in-depth analysis of cash flows split between operations, investments, and financing.

The tool implemented by the CL and described in this paper arose from the first phase. However, it is interesting to note that its technical construction is close to tools implemented in France in the second phase. Furthermore, the CL may be seen as a long-forgotten forerunner in the French context, whereas this type of tool had already seen relatively widespread use in the U.S.

Yet, at the dawn of the 21st century, it is surprising to hear echoes of concepts confidentially developed within the CL more than a century before: " 'We have observed significant divergences between cash flow caused by operations and disclosed net incomes, which sounds the alarm for potential profit manipulation,' explains the company [Weiss Ratings] that has studied 7,000 companies" [Fay, 2002, p. 3].

The European Commission [1997, p. 8] shares this position:

> This additional angle of observation [cash-flow statements] is deemed very useful by most users and preparers, because it is not influenced by accruals and matching and therefore does not involve conventions and estimates. It may also enhance the comparability of the reporting of operating performances by different enterprises, as it eliminates most of the effects of using different account treatments for the same transactions and events.The joint use of cash flow statements, balance sheets and profit and loss accounts also helps

> users in better evaluating the changes in net assets of an enterprise and its financial structure (including its liquidity and solvency), as well as its ability to affect the amounts and timing of cash flows in order to adapt to changing circumstances and opportunities. Morevover, this may allow a better assessment of the quality of the profits reported.

However, it should be noted that de-consolidation operations today enable unfavorable movements of cash flow to be concealed. Yet, the first consolidated statements only appeared at the end of the 19th century in the U.S. In France, several scholars commented on consolidation during the inter-war period, but the first practices only became manifest in the 1950s. In the absence of (de)consolidation, the method used by the SEF proved to be very effective for assessing cash-flow movements in the balance sheets it analyzed.

One final question remains – why did the CL method disappear? The most probable motive for the SEF's gradual move away from accounting and financial-restatement tables was the fact that the tax administration stipulated as a precondition for deducting amortizations from taxable income that amortizations be recorded as expenses. This might also explain why other countries have continued to use funds statements when they were not employed in France until the 1950s. From that point forward, the financial interest of paying lower taxes trumped the rationale of concealing "new works." Blended accounting (charging to reserves, amortizing bonds, recording assets as expenses, etc.) disappeared in favor of a normalization of accounting through fiscal criteria [Praquin, 2006].

Focused squarely on measuring the significant impact of "new works" on economic and financial performance, SEF analysts unfortunately did not recognize the theoretical scope of their analytical framework which exceeded the restrictive limits it had been assigned. Historical research therefore enables us to bring these anonymous precursors of financial analysis out of the shadows and to pay our respects to the contemporary relevance of the concepts they developed.

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APPENDIX I

Measuring Cash Flows: From the CL (1870s) to the French *Plan Comptable Général,* 1982

C.L.: Δ **Ex. W.C.** + [D.P.F.Y. – I.C. – S.F.A. + N.W.] = **G.O.P.** – [V.A. – V.I. + B.Y.] = **T.N.P.**
C.T.: Δ **WCR +** Δ **NT** – Δ GNWC = **CFOA** – V.A.
(Excluding external financing and cash flows from operating activities)

Where: C.L.: Crédit Lyonnais
C.T.: current transposition
Δ Ex. W.C.: Variation in excess working capital.
D.P.F.Y.: Dividend paid out during the financial year
I.C.: Increase in Capital
S.F.A.: Sale of fixed assets
N.W.: New Works
G.O.P.: Gross operating profit
V.A.: Various amortizations
V.I.: Various inflows
B.Y.: Bond yields
T.N.P.: Total net profit
WCR: Working Capital Requirement
GNWC = Global Net Working Capital
NT: Net Treasury
CFOA = Cash flows from operating activities

Comments:

1. Entries in bold type bring out the basic points highlighted by the concepts of the Crédit Lyonnais or by the French *Plan Comptable Général* 1982.
2. Insofar as:
   - The current financing statement includes variations in long-term external financing, which was virtually nonexistent during that era due to the preference for internal financing, except in several industrial sectors; the comparison above is totally possible. Also, the Crédit Lyonnais sometimes "relegated" this external financing to the excess working capital; so it was already balanced out.
   - Calculated expenditure and products are virtually nonexistent and cash flows from operating activities and total net profit tend to be confused.
3. In France, there is a formula to analyse the financial balance of any company which is:
   - (Inventories + Accounts receivable) – Accounts payable = Working Capital Requirement (WCR).
   - Treasury in assets – Bank overdrafts = Net Treasury (NT).
   - (Equity + Long Term Liabilities) – Fixed Assets = Global Net Working Capital (GNWC)

     Then: WCR + NT = GNWC.
4. Variations in WCR and in NT are equal to the variation in GNWC; by deducting this same variation from GNWC (excluding external financing), with deduction of cash flows from operating activities, cash flows logically match up to operating activities. The sole purpose of this tautology is to show that the Crédit Lyonnais was handling concepts that were very close to 'ours' but with very different outcomes – measurement of liquidity and of the inflowing income and not calculation of a financial balance based on the excess of stable resources (that is liabilities).

Notes on calculations:

Detail of the calculation: the breakdown is carried out using the "calculation of net profits through the SEF method" [Excess Working Capital]" ❶ and the "profit and loss account set up according to the SEF method" ❷ from which the net accounting *incomes* are equal:

❶: Δ Excess Working Capital (Δ Ex. W.C.) – Statutory royalties and gratuities + Dividend paid out in the financial year (D.P.F.Y.) – Increase in the capital (I.C.) – Sale of fixed assets (S.F.A.) + New works carried over as an increase in fixed assets (N.W.F.A.) = Total net profit (T.N.P.)

❷: (Gross) operating profit (G.O.P.) – New Works charged to Expenses (N.W.E.) – Various amortizations (V.A.) + Various inflows (V.I.) – Bond yields (B.Y.) – Statutory royalties and gratuities = Profits and losses = Total net profit (T.N.P.).

Which enables us to write:

⇨ Δ Ex. W.C. + D.P.F.Y. – I.C. – S.F.A. + N.W.F.A. = G.O.P. – N.W.E. + [–V.A. + V.I. – B.Y.]

We may also write:

⇨ Δ Ex. W.C. + D.P.F.Y. – I.C. – S.F.A. + N.W.F.A. + N.W.E. = G.O.P. + [–V.A. + V.I. – B.Y.]
⇨ Δ Ex. W.C. + [D.P.F.Y. – I.C. – S.F.A. + N.W.] = G.O.P. + [–V.A. + V.I. – B.Y.]

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ON HIS MAJESTY'S SECRET SERVICE: ACCOUNTING FOR THE SECRET SERVICE IN A TIME OF NATIONAL PERIL 1782-1806

Abstract: Reforms to the civil list in the late 18th century in England sought to deny the Crown opportunities to use its civil-list funds and sinecures to buy influence in Parliament and, thereby, diminish constitutional protections for liberty. Among the most important reforms were tighter accounting requirements for civil-list spending, including that for the secret services. The unique nature and purpose of the home and foreign secret services, which were the responsibility of the Crown and paid from civil-service funds, resulted in accounting controls which depended upon additional measures to provide Parliament with greater control over spending and enhanced accountability. These enhancements to accountability were especially important at a time of almost continual war between England and France in the decades spanning the close of the 18th century, resulting in significant increases in spending on the foreign secret service.

INTRODUCTION

The history of English public-sector accounting from the "Glorious Revolution" in 1688 has been dominated by the need to ensure the financial authority of Parliament. In the late 18th century, during a remarkable period of public-sector reform, the constitutional intent of making the executive financially accountable to Parliament for the expenditure of monies appropriated by Parliament was confirmed as the essential, undiminished reason for the unprecedented reforms to government accounting associated with the civil list. Binney [1958, p. v] has referred to the last two decades of the late 18th century as a period of "unique interest and importance" in the history of British public finance for this period "witnessed the first drawing back of the curtain concealing from parliamentary and public view the design and action of the financial machine." The American War of Independence (1776-1783) and the almost continuous war with France from 1792 until 1815 were particu-

larly important in prompting reform of civil-list accounting and audit reforms which provided the basis for subsequent enduring reforms in the 19th century.

Until the financial crisis created by the American War of Independence, Parliament took little interest in the civil administration of the "King's Executive," most notably accounts of expenditure from the civil list, which provided for the financial needs of the monarch, both personal and those of his executive government [Chester, 1981, p. 34]. Unlike the civil list, parliamentary control over military spending through a stricter accounting and appropriation regime had been among the most important constitutional outcomes of the Glorious Revolution. The War of Independence exposed for the first time since then the extent to which the Crown used the civil list as a potent form of patronage and, thereby, allowed the Crown to threaten liberty by extending its influence in the House of Commons.

In a recent paper, Funnell [2008] has examined the process by which widespread apprehension caused by the increasing arrogance of the Crown confirmed the belief at the end of the 18th century that there was an intimate dependency between a rigorous, parliamentary-controlled accounting for executive spending on the civil list and the preservation of liberties fundamental to the English Constitution. Although Funnell's study provides a detailed rendition of the motives for the civil-list reforms and the accounting consequences of the reforms for most forms of civil-list spending, absent is any mention of the secret services, the peculiar purpose of which might have been expected to have very different accountability requirements. The main aim of the present paper is to meet this omission by highlighting the changes to accounting for secret-service funding during the time that William Pitt[1] was prime minister (1783-1801, 1804-1806) which were coincident with the comprehensive reform of the civil list that began in the early 1780s and with later ongoing hostilities with France. In particular, this paper is concerned with a curious, yet understandable, paradox at the time in Parliament's position on accounting for secret-service monies when compared with the improved accounting for other civil-list spending, resulting in a less rigorous regime of formal accounting controls and a greater reliance on professions of honesty.

[1] In this paper, "William Pitt" signifies the British prime minister often referred to as William Pitt the Younger to distinguish him from his father, William Pitt the Elder, also a prominent politician in the 18th century, later known by his title as the Earl of Chatham when elevated to the peerage.

The overriding need to shield from overt public scrutiny those who protected the nation's interests by engaging in clandestine activities, sometimes at the risk of their lives, meant that Parliament was prepared to treat the secret services as a special case, which might permit a very different set of accountability controls and acceptable behaviors. However apposite Parliament's position may have been at the time, rarely has this been without its critics. Namier [1963, p. 176], for one, referred to how:

> Legends naturally surround all 'secret service'; its very name inspires fear and distrust and stimulates men's imagination – it is believed to be wise and wicked, efficient and powerful. In reality the most common characteristic of political secret service at all times is its stupidity and the unconscionable waste of money which it entails. Where its task is to obtain 'intelligence,' it most frequently produces tales which could not stand five minutes' cross-examination in a law court.

The present article, which deals with an exceptional period in the history of public-sector accounting and accountability at the end of the 18th century, is the first in the accounting history literature to examine the tensions between the peculiar and required mode of operation of secret services and the need to ensure accountability and transparency for the monies required of these services. The growing body of public-sector accounting history has been overwhelmingly concerned with accounting methods used in central government and audit, notably in times of war [for example, see Funnell, 1994; Black, 2001; Edwards et al., 2002]. The great freedom allowed the Crown in the spending of secret-service funds from the civil list and the absence of an effective means to ensure that spending on the domestic and foreign secret services would be controlled in total and accounted for systematically was a major concern of the promoters of the reform of the civil list in the late 18th century. Any spending by the Crown allowed to go unchecked represented a potential threat to liberty, none more than spending on secret services. Indeed, a prominent part of the Civil Establishments Act 1782 [22 Geo. III, c. 82[2]], the centerpiece of the achievements of the economic reform movement championed by Edmund Burke

[2] "An act for enabling his Majesty to discharge the debt contracted upon his civil list revenues; and for preventing the same from being in arrear for the future, by regulating the mode of payments out of the said revenues, and by suppressing or regulating certain offices herein mentioned, which are now paid out of the revenues of the civil list."

and the basis of subsequent government accounting reforms [see Funnell, 2008], was devoted to innovations that limited total spending for some parts of secret-service spending and tightened the means by which those directly spending the funds would be made accountable. Particularly notable as a form of accounting control was the statutory reliance upon the swearing of oaths. In the absence of accounts supported by documentary evidence, these oaths fulfilled a highly effective, supplementary role in the accounting process. While oaths were certainly not a new feature of government, or indeed of the administration of law, Parliament's reliance upon them in the context of accounting for secret-service spending recognized especially both the *necessary* imperfections of the secret-service accounts and the religious imperative in accountability relationships at the time.

In the first section that follows, a brief outline is provided of the evolution of modern secret diplomacy and the importance of the English secret service in the late 18th century, a time of considerable international instability and threat for England. The civil-list reforms in the late 18th century are then examined to identify the very different approach that was implemented for reforming the control of, and accounting for, secret-service spending. Most of the details of secret-service spending in the 18th century that survive, and upon which this research relies, are to be found preserved at the British National Archive, Kew, in Home Office (H.O.) accounts, Foreign Office (F.O.) accounts, Treasury (T) documents, and those from the Audit Office (A.O.).

THE ORIGINS AND ORGANIZATION OF THE ENGLISH SECRET SERVICE

The English secret service in the late 18th century was the product of a long period of evolution that owed much to the practices of other countries, in particular Italy. From the Italian city states during the Renaissance arose the features of intelligence gathering that were to define the modern intelligence services throughout Europe. Although the need for information about one's enemies or potential enemies had always been important in any military success as far back as ancient times, not until the 14th and 15th centuries did this intelligence gathering reach a sophisticated and truly effective form in the Italian city states of Venice and Genoa, a form that was quickly mimicked by most other major European states [Thompson and Padover, 1963]. The Venetians had realized that the best way to create and maintain the means to gather reliable information was to

establish permanent embassies in neighboring states [Thompson and Padover, 1963, p. 17]. Not until the 16th century did England under Henry VIII (1509-1547) follow the Italian example and establish permanent embassies in the major European states [Bleiweis, 1976, pp. 2-3].

Most historians trace the origins of the modern English secret service to the reign of Elizabeth I (1558-1603) and her Secretary of State for Foreign Affairs, Sir Francis Walsingham (1534-1590). In 1573, Walsingham was appointed to the powerful Privy Council and in this capacity, notes Haynes [1994, p. 25], contributed "mightily" to the foreign affairs of England. Walsingham took office in the late 16th century at a time when the major European states were seeking to expand their influence and territory and, therefore, were prone to conflict. The 17th century inherited this instability and became a century of almost continual wars, commercial and political.

In response to the considerable international pressures during Elizabeth's reign, Walsingham created, for the times, a formidable intelligence network, with intelligence gathered mainly from sources in Holland, France, and Germany. Plowden [1991, p. 55] believes that so sophisticated and comprehensive was Walsingham's intelligence-gathering network that it is "no exaggeration to say that very little went on in Catholic circles … during the 1570s and 1580s" that did not come to Walsingham's notice. Ambassadors were for Walsingham the most important official source of information, providing reports of court gossip, major political events, and official meetings [Bleiweis, 1976, p. 39]. Unofficial sources were the largest, most diverse but least reliable group of "intelligencers," which included English living abroad, soldiers, sailors, businessmen, artists, and students [Bleiweis, 1976, pp. 16-18; Haynes, 1994, p. 12]. One 17th century contemporary [quoted in Thompson and Padover, 1963, p. 60] wrote that diplomats should nurture their spies because "Well-chosen spies contribute more than any other agency to the success of great plans … And there is no expense better designed … than that which is laid out upon a secret service, it would be inexcusable for a minister of state to neglect it."

Despite the historical importance of intelligence gathering for state security, not until 1582 did Elizabeth's "spy master" Walsingham have a regular budget. Initially it was set at £750, rising to £2,000 in 1588. Still, this was never sufficient for Walsingham to meet the need for regular, reliable foreign intelligence from mainly Catholic France. Despite his frequent supplications for more money, he often had to use his own money to keep his

intelligence operations functioning, eventually bankrupting him and his family [Plowden, 1991, p. 55; Haynes, 1994, p. 12].

Intelligence gathering was later raised to even more sophisticated levels under John Thurloe who became Secretary of State in 1652 during the dictatorship of Oliver Cromwell. Thurloe was convinced that the best agents were those who were motivated by money and that the essential requirement of an effective intelligence service was "a good purse" [Thompson and Padover, 1963, p. 92]. As a dictatorship surrounded by numerous domestic and foreign enemies, often working together, an efficient intelligence-gathering system was essential to the maintenance of Cromwell's authority. Thus, Cromwell spent on average more than £70,000 a year to garner both domestic and foreign intelligence, none of which he formally accounted for. So effective were his secret services that Samuel Pepys concluded that "Cromwell carried the secrets of all the princes of Europe at his girdle" [quoted in Thompson and Padover, 1963, p. 83]. Although England was almost continually in a state of preparation for war in the century that followed the dictatorship and the restoration of the monarchy, not until the wars with France did England under William Pitt the Younger again fully appreciate the benefits of an effective secret service.

As effective and comprehensive as Cromwell's secret services were, the spending on them while Pitt was prime minister represented a very different scale of operation and sophistication. From almost the outbreak of revolution in France in 1789 until the end of hostilities in 1815, England was either at war with France or believed that it needed to be ready for war. In addition, when Pitt became prime minister, England had only recently lost the American colonies, its hold over India was being threatened by widespread administrative abuses, and rebellion had been growing in Ireland. When war with France did break out in April 1792, Britain quickly established an extensive, well-funded espionage center in neutral Switzerland to coordinate the collection of intelligence under the direction of William Wickham. France, Pitt warned England, had directed its hostilities "against the very essence of your liberty, against the foundation of your independence … against your constitution itself" [House of Commons, November 10, 1797, in Pitt, 1806, p. 172]. So successful was intelligence gathering in the time of Pitt, that it is sometimes credited with a critical role in expanding and consolidating the British Empire [Thompson and Padover, 1963, p. 158]. Table 1 below shows that between 1785 and 1792, spending on all parts of the secret service increased signifi-

cantly when England joined with her European allies against the French. Annual outlays for the secret service in these years averaged £24,000 [Mitchell, 1965, p. 256]. There was a particularly significant rise in foreign-service spending after 1794 as war began to envelop Europe.

TABLE 1

Charges Incurred and Paid for Secret Service Money, 1775-1798

Year	Sums issued to the Secretaries of State (mainly for foreign-secret service)	Sums issued to Treasury (mainly for home-secret service)	Sums issued to Post Office (for home-secret service)	Total
	£	£	£	£
1775	11,250	34,000	7,249	52,499
1776	9,000	39,000	6,263	54,263
1777	9,000	57,000	7,139	73,139
1778	9,000	51,000	7,159	67,159
1779	7,250	62,000	7,239	76,489
1780	8,362	37,000	7,139	52,501
1781	6,750	40,000	7,875	54,625
1782	15,225	31,000	3,569	49,794
1783	35,500	8,000	0	43,500
1784	7,006	3,000	0	10,006
1785	31,878	6,000	0	37,878
1786	25,727	96,000	0	121,727
1787	98,050	10,000	0	108,050
1788	212,851	10,000	0	222,851
1789	32,154	10,000	0	42,154
1790	26,221	10,000	0	36,221
1791	22,244	10,000	0	32,244
1792	14,992	10,000	0	24,992
1793	39,585	10,000	0	49,585
1794	49,335	10,000	0	59,335
1795	173,068	10,000	0	183,068
1796	183,194	10,000	0	193,194
1797	223,222	10,000	0	233,222
1798	175,000	10,000	0	185,000

Source: "An Account of the Charges Incurred and Paid for Secret Service Money, 1774-1798," House of Commons Sessional Papers of the Eighteenth Century, Vol. 121, July 4, 1799.

Apart from the continued reliance upon traditional sources of information, the Post Office in the 18th century, as Table 1 demonstrates, was an especially effective means of collecting information about domestic and foreign matters until the 1780s, when the funding arrangements for secret services changed dramatically. The importance of the Post Office as a source of intelligence, both domestic and foreign, was established in 1710 with the passage of *An Act for establishing a General Post Office for all her Majesty's Dominions* [12 Anne c. 10]. The act gave the Post Office a monopoly over all movement of mail. There was to be only "one General Letter Office and Post Office … erected within the City of London, from whence all Letters and Packets … may be sent into any Part of the Kingdom … or to North America, the West Indies, or to any other of her Majesty's Dominions …" [12 Anne c. 10, Section II]; control was to be absolute. These exclusive rights gave the Post Office the ability to monitor almost all the mail entering, leaving, and moving around England. The act also allowed the Principal Secretaries of State, and only them, to delay and open any mail [12 Anne c. 10, Section XL]. Irrespective of the source of information, Namier [1963, p. 176] regarded all secret-service spending in the early modern period as a waste of money. With the primary function of the secret service to buy corruption, it was to be expected that it would only be successful in purchasing the services of individuals whose services were unlikely to be worthwhile. Secret-service spending created a "mutual benefit society for pseudo-political parasites" with a financial interest in fomenting fear and exaggeration [Namier, 1963, p. 176].

The unique nature of the secret service and its growing importance, cost, and sophistication in the 18th century were recognized when it came time in the closing decades to reform the civil list and accounting for civil-list expenditures, with several main sections of the Civil Establishments Act concerned exclusively with the secret services.

REFORM OF THE CIVIL LIST AND THE SECRET SERVICES

Throughout the 18th century, the relationship between Parliament and the executive was one of an overdeveloped desire to ensure a separation of their respective powers. Only by "destroying the equilibrium of power between one branch of the legislature and the rest" would the constitution be threatened [Bentham, 1776, p. 73]. Parliament did not want to know how the King spent his money from the civil list on the royal house-

hold or on the civil government; Parliament only wanted to be certain that limits were placed on the level of civil-list spending [Funnell, 2008]. It was the King's government and it was accepted as the King's constitutional right to govern as he saw fit [Chubb, 1952, p. 9; Blackstone in Roseveare, 1969, p. 87]. The civil-list funds were therefore accepted as a means of reducing any constitutional friction between the Crown and Parliament [Cromwell, 1968, p. 5]. The high ideals of the constitution, however, did not prevent the Crown from regularly attempting to influence Parliament through the use of honors and sinecures associated with the civil list, which Castlereagh observed were "more likely than any others to secure parliamentary influence" [quoted in Foord, 1947, p. 499].

The cost of the royal household and of departments of state was to be met primarily from the Crown's hereditary sources of income. In addition, Parliament granted monarchs additional funding at the beginning of their reigns, which constituted the civil-list funds. The intention of Parliament was to ensure that the Crown had sufficient income to meet all its needs, both the personal needs of the sovereign and for carrying out executive functions. In return, the Crown was expected to live within its income, except during periods of emergency such as wars. The reality was somewhat different. Even in the absence of war, Parliament was frequently called upon to vote amounts to cover large accumulated deficits in the royal budget. However, it was war, and the Crown's indebtedness that war inevitably produced, which provided Parliament with unchallengeable opportunities to examine the financial affairs of the Crown when additional funding from Parliament was sought, none more so in the 18th century than the American War of Independence [see Funnell, 2008].

The American War of Independence was a watershed in not only refashioning England's standing as an imperial power but also in the changes that it produced in government finances. The mounting cost of the war and the Crown's growing indebtedness and influence in Parliament soon raised concerns about the way in which the war was being managed, about whether the money taken from a small and wealthy elite was being used effectively and appropriately. From this spreading discontent arose the economical reform movement, popularized by Edmund Burke's speech in the House of Commons on February 11, 1780 [*Parliamentary History*, XXI, cols. 1-73]. Earlier Burke [*Parliamentary History* XX, December 7, 1779, col. 1,257] had criticized spending on the war and for domestic purposes as:

> Lavish and wasteful to a shameful degree. Oeconomy, the most rigid and exact oeconomy, has become absolutely necessary … Amidst the many and various matters that require reformation … before this country can rise superior to its powerful enemies; the waste of public treasure requires instant remedy …

While financial concerns most immediately and directly created the economical reform movement, these were also symptomatic of a more fundamental and far more serious worry. The vast sums involved in the war against the American colonies allowed the Crown to purchase greater influence in Parliament with the granting of profitable, war-related contracts and sinecures [Watson, 1960, pp. 232, 247]. According to one member of the House of Commons, in no other period of history did contracting abuses "flourish in such rank extravagance. At no other period were they so detrimental to the public service" (observations made in the House of Commons, as quoted in [Porritt, 1963, p. 218]). A leader of the economical reform movement, Christopher Wyvill, warned that the war had resulted in "the national substance … fast waning away by the profusion of expence in this rash and unfortunate war; and the influence of the Crown fed by that very prodigality, and increased in full proportion to it, is now swollen to a most alarming magnitude" [quoted in Harling, 1996, p. 34].

Allowing the Crown to buy influence by the granting of sinecures undermined the independence of both public officials and weakened the constitution [see Burke in Cromwell, 1968, p. 6]. The Crown's influence during the War of Independence, observed the pre-eminent constitutional authority William Blackstone, had become "most amazingly extensive" [Blackstone quoted in Foord, 1947, p. 484; Funnell, 2008]. Charles Fox referred to this influence of the Crown as the "one grand domestic evil, from which all our other evils, foreign and domestic, have sprung. … To the influence of the Crown we must attribute the loss of the … thirteen provinces of America …" [quoted in Ayling, 1972, p. 287]. Dunning's resolution in the Commons that "the influence of the Crown has increased, is increasing, and ought to be diminished" [*Parliamentary History* XXI, April 6, 1780, cols. 340-388; Watson, 1960, p. 232; Ayling, 1972, p. 283] helped to precipitate the beginning of the end of the more outrageous abuses of royal patronage. Deficiencies in accounting for civil-list expenditures, including for the secret services, and the threat that this posed to liberty also prompted Dunning [*Parliamentary History* XXI, April 6, 1780, col. 367, also col. 691; see

also Foord, 1947, p. 491] to call upon the House:

> To examine into and to correct abuses in the expenditure of the civil list revenue. … If the public money was faithfully applied and frugally expended, that would reduce the influence of the Crown; if, on the other hand, the influence of the Crown was restrained within its natural and constitutional limits, it would at once more restore that power which the constitution had rested in that house – the inquiring into and controlling the expenditure of public money …

Enactment of the remarkably innovative Civil Establishments Act [22 Geo. III, c. 82] in 1782, which owed its existence to the commitment, political standing, and brilliance of Edmund Burke, provided for the elimination of many sinecures which had been used to enhance the Crown's influence in Parliament [see Funnell, 2008]. It also established a more formal regime of accounting for civil-list funds, thereby enhancing Parliament's financial authority over the executive. More immediately, it introduced a number of iconoclastic reforms to control the level of spending on the secret services and to enhance significantly parliamentary surveillance through improved accounting requirements centered on the Treasury.

The highly influential Lord Shelburne believed at the time that publicity through better accounting was the only sure way to avoid the abuses that now plagued the executive and the civil list. He sought to ensure that all matters that involved expenditure should be open to public view, although, significantly, not those pertaining to the secret services [Binney, 1958, p. 268]. Accounting for the secret services had always been haphazard and at the discretion of the Crown. When upon leaving the Treasury in 1766, Lord Rockingham asked how to close the secret-service accounts, he was informed by the Duke of Newcastle, one of his predecessors, that when he had provided the secret-service accounts to George II, "the late King used to burn them in the presence of the person who was concerned" [quoted in Namier, 1963, p. 173]. Only rarely when the Crown sought additional funds to meet mounting deficits would Parliament be able to see something of what had been spent on the secret services and how it had been spent. Accordingly, the secrecy that normally surrounded the civil list was to be found in an exaggerated form with the accounts for the secret services, which allowed the Crown great discretion in the use of money for secret service or other purposes, including corrupting Parliament. Use of secret-service funds to buy influence in Parliament had a long his-

tory, especially at election time. In one election, cited by Namier [1963, p. 203], the not inconsiderable sum of £1,000 was paid out of the secret-services money of the civil list to the Duke of Argyll and additional monies paid to another 24 candidates. In addition, between elections, considerable sums were spent out of the secret-service funds to assist the government in gaining influence in boroughs.

ACCOUNTING FOR SECRET-SERVICE SPENDING AND THE 1782 ACT

Spending Limits: The Civil Establishments Act has been described by Reitan [1966, p. 335] as the act that finally ended the struggle over the nation's finances between Parliament and the executive. Pitt was later to remind Parliament that it should never take for granted its financial authority for "the general principle which constituted the chief security of our liberties … [was still] the power of controlling the public expenditure" [House of Commons, December 8, 1796, in Pitt, 1806]. The overriding intentions of the act to give greater publicity to the financial affairs of the executive and to control spending on the civil list were clearly established in the preamble with the need for "introducing a better Order and Oeconomy in the Civil List Establishments, and for the better Security of the Liberty and Independency of Parliament."

Until Burke's reforms, there was no protocol for determining the amounts to be spent on the secret services, which were organized according to domestic or foreign activities. This changed notably in the case of the home secret-service spending when, in response to repeated abuses and the absence of reliable accounts which permitted these abuses, Burke was able to introduce statutory limits to spending. The 1782 act required "for preventing … all Abuses in the Disposal of Monies issued under the Head of Secret Service Money" for monies spent "within this Kingdom," that the home secret service, was not to exceed £10,000 in any one year [22 Geo. III, c. 82, Section XXIV]. At the same time, in an effort to tighten control over the issue of secret-service monies, the new act no longer allowed the Post Office to be a conduit for these monies. This is clearly seen in Table 1 above where, after 1782, all secret-service funding for the Post Office ceased. The Post Office would still remain a very effective means of collecting intelligence throughout England and in obtaining intelligence by intercepting communications to and from foreign representatives in England.

Burke made it clear that he did not want to threaten the effectiveness of the home secret service but, consistent with the main purpose of the act, he did want to limit the total spending in any one year and deny the Crown any discretion in the amounts to be spent. Should the total spent on the home secret service need to increase beyond the amount now set by legislation, this would now have to be considered by Parliament since any increase in spending required an amendment to the controlling legislation. Thus, the total spent on the home secret service was to be limited, indeed fixed, and better controlled by Parliament. Although it served an important role during periods of major social unrest, of which the 1790s are notable, the home secret service under Pitt, as before, never assumed any great importance. Indeed, there are very few references to agents in its employ in extant ministerial papers and other official documents from the late 18th century. Rarely did its agents work full-time in gathering information [Ehrman, 1983, p. 137]. Accordingly, spending on the home secret service was insignificant when compared to that which had for some time been spent on the foreign secret service. Spending on the foreign secret service, often in states which were potentially and actively enemies of England, was also far more difficult to control with certainty, especially in times when war threatened to erupt at anytime.

Where it was not possible easily to limit the level of spending "by reason of the uncertain quantity of the service," such as in a time of war, Burke's Act required that any spending for the service be confined "to its line"; that is, all spending for the service must be accounted for in the one type of appropriation and not distributed between votes or types of appropriations which would provide the Crown with the opportunity to hide spending and to deceive Parliament. He sought to reassure Parliament that he did not seek "to stop the progress of expense in its line, but to confine it to that line in which it professes to move" [*Parliamentary History*, February 14, 1780]. This had the great advantage of allowing Parliament to be certain that, while the level of spending may not be within its full control, the appropriation accounts would guarantee that it was aware of the extent to which spending had occurred. For this to be effective, a more prominent role for the Treasury was required.

The Accounting Role of the Treasury and the Secretary of State: To enhance further the control of all secret-service spending and accounting, from 1783 on, all secret-service monies would be issued only through the Treasury, to whom the person receiving

the monies would be accountable and from whom he would receive his discharge. No longer would secret-service monies be paid out of civil-service monies without the express permission of the Commissioners of the Treasury [22 Geo. III, c. 82, Section XXVIII]. The Treasury was also required to keep detailed accounts of all parts of the civil-service receipts and spending and to strike an annual balance for each element [22 Geo. III, c. 82, Section XXXV]. At the head of the Treasury were the five Lords Commissioners, with the First Lord specifically authorized to pay monies out of the fund provided for secret services [Binney, 1958, p. 170]. In addition to now controlling all accounting and audit for civil-service monies, the Treasury was the authorized body to commence any legal actions for the recovery of any amounts for which a discharge had not been given.

Complementing the greatly enhanced role of the Treasury in accounting, the 1782 act stipulated that the authority to use the money appropriated to the foreign secret service was now to be restricted to only three senior public officials who, ultimately, would be held accountable to Parliament through the Treasury for the monies given into their charge. Accordingly, the 1782 act required that the payment of any monies from the civil-list revenues for the foreign secret service was to be only through one of the Principle[3] Secretaries of State at the Foreign Office and the Home Office or the First Commissioner of the Admiralty [22 Geo. III. c. 82, Section XXV]. Thus, for example, the following information concerning use of civil-service funds for the foreign service was still being sent to the Treasury decades later in September 1830: "£432/13/- received by Earl of Aberdeen, Secretary of State for Foreign Affairs and spent on Foreign Secret Service and for which I am accountable under Civil List Act of 22 George III c. 82" [A.O. 119/118]. Each of the newly authorized officials would be charged by the Treasury with secret-service monies and required to submit accounts to the Treasury at predetermined intervals to receive their discharge or *quietus*. Consistent with the wider reform of accounting for civil-service spending and, in particular, to provide greater transparency and accountability for monies given to senior officials, the Civil Establishments Act also prohibited the long-standing practice of allowing secret-service monies paid to the Principle Secretaries of State to be disguised as part of their salary. Thus, in 1769, for example, £3,000 was paid to each of the two Principle Secretaries of State, the Secretary for Home Affairs and the Secretary

[3] "Principle" is the correct historical spelling for the period.

for Foreign Affairs, from secret-service monies as part of their salaries [Namier, 1963, p. 192]. After the 1782 act, secret-service monies would now be clearly identified as salary, a fee, or an allowance.

Most of the money provided through the Treasury to the three senior approved officials subsequently would be made available to English ambassadors and senior officers in the armed services who, in turn, would be charged to account for this money to one of the Secretaries of State or the First Commissioner of the Admiralty. Previous to the 1782 act, secret-service monies were given to a number of ministers who would dispense the money to their informants or officials, mostly ambassadors, as they saw fit. For this money, they neither expected nor required any receipts or other documentary evidence to verify how the money was spent, only that it was received by the ambassador and had been spent for the purposes authorized.

The greatly enhanced role for the Treasury in accounting for secret-service monies required by the 1782 act also extended to the audit of the accounts. Audit was put on a more permanent and regular footing in 1785 with the creation of five Commissioners for Auditing the Public Accounts and their office, the Board of Audit[4] [25 Geo. III c. 52], which was placed very firmly under Treasury control [see 25,Geo. III, c. 52, sections VIII, XI, XIV, XVIII, XIX, XXI]. In particular, the Treasury continued to be responsible for executing the commissioners' oath of office [s. IV], appointing audit staff, and for determining all conditions associated with their employment [s. V]. The 1785 act marked "in the strongest manner the intention of the legislature that … [the Board] should be strictly subject to the controls of the Treasury" [1810 Committee on Public Expenditure, Fifth Report, p. 388]. In practice, the 1810 Committee on Public Expenditure [Fifth Report, p. 398] found that this meant that:

> the decision of the Auditors is in no instance final; but the Lords of the Treasury exercise complete authority with regard to all the articles of an Account … [The] special jurisdiction of the Treasury is constantly and habitually necessary to the final settlement and passing

[4] The first Board of Audit, appointed on July 5, 1785, consisted of, in addition to the five commissioners, two of whom were Controllers of Army Accounts, two Inspectors General on £500 per.annum, and 16 clerks earning between £80 and £300 per annum. By September 1785, an extra seven junior clerks, a solicitor, an office keeper and two messengers had been appointed. The office was further expanded in 1787 and remained at a total complement of 43 until into the 19th century [*Establishment Rolls*, Board of Audit 1785-1799, National Audit Office].

> of the greater part of the Public Accounts which are examined by the Commissioners of Audit.

In another attempt to promote the wise management of individual civil-list revenues and to ensure that the necessary services would be provided without the Crown accumulating debts which at regular intervals had required Parliament to grant additional funding, the 1782 act placed a limit of £900,000 on the civil list. Very controversially, the act also provided for payments to be made in a prescribed, unvarying order from the eight classes specified for the appropriation of civil-list revenues. The latter condition was intended in particular to reduce discretion in how secret-service monies were spent. Where discretion by an official of the Crown was able to be exercised over the civil-list money appropriated by Parliament, Burke sought a new "plan of arrangement" to prevent this discretion being abused. In Burke's view, it was not "safe to permit an entirely arbitrary discretion even in the First Lord of the Treasury himself; it will not be safe to leave with him a power of diverting the public money from its proper objects, of paying it in an irregular course…" [*Parliamentary History*, February 14, 1780]. Removing the ability of the Crown to choose how to spend secret-service monies would enhance the ability of Parliament to make the executive accountable by establishing in the act "a fixed and invariable order in all … payments, which it shall not be permitted to the First Lord of the Treasury, upon any pretence whatsoever, to depart from" [22 Geo. III, c. 82, Section XXIV]. Only when the costs of each higher-ranked service had been fully provided for could the next class of expenditures be paid.

Not surprisingly, the first priority of payments from the civil list was the pensions and allowances of the royal family. This was followed in the second class by payments for allowances and pensions of senior government and parliamentary officials, such as the Speaker of the House of Commons, and judges. Payments to England's ambassadors and foreign consuls, which included secret service payments, formed the third class in the civil list. Cleverly, to encourage Commissioners of the Treasury and the Chancellor of the Exchequer to take seriously their new responsibilities for the civil list, their salaries and other remuneration were provided for in the eighth and final class [22 Geo. III, c. 82, Section XXXI]. Thus, not until all other demands on the civil list had been met, would these officials receive any payments. In 1786, with a total of £900,000 now fixed for civil-service spending and when spending for the first seven classes

of civil spending totaled £897,000, there was only £3,000 left available for the Commissioners of the Treasury. Outcomes such as this, notes Watson [1960, p. 248], made it very unlikely that corruption and bribery by the Crown would be allowed to occur on any appreciable scale and, at the same time, encouraged a much more closely policed accounting regime. In addition, the act prohibited any amounts unpaid to the Commissioners of the Treasury being treated as arrears, providing another powerful incentive to watch spending closely [22 Geo. III, c. 82, Section XXXII; Binney, 1958, p. 271]. Should any amount be unpaid, the arrear "shall be wholly lapsed and extinguished, as if the same had not been payable" [22 Geo. III, c. 82, Section XXXIII]. Accounts of spending in the order prescribed were to be kept by the Treasury and made available to both Houses of Parliament when required [22 Geo. III, c. 82, Section XXXV].

Oaths and Accounting for a Quietus: While clear lines of accountability for secret-service monies were established by the 1782 act, when it came to accounting for these after funds had left the hands of the Secretaries of State and were given to agents in the field, a very different set of accounting practices prevailed to that required for all other parts of the civil list, thereby recognizing the peculiar nature of secret-service expenditure. The juxtaposition of secrecy and access to large sums of money with few formal accountability controls over agents in the field of service recognized that accounting for secret-service spending on the frontline was expected to be very different from that of other civil-list spending. Certainly it was unlikely, given the nature of the process of gathering information from individuals who would wish that their identities remain known only to their immediate contacts, that there was the opportunity to obtain detailed receipts for expenditures in a similar manner to that of other government services. Burke recognized that the fluidity and unpredictability of international politics, hence the need for intelligence gathering and the need to keep secret the identities of those gathering intelligence for England, meant that a very different way of exercising accountability and of obtaining accounts was required.

Ambassadors, consuls, or commissioners representing England in another country, or any commander-in-chief or other senior commander of the navy or land forces receiving secret-service monies from the Secretaries of State, would be expected to provide receipts for the money received, although these were in aggregate only. Unlike the more stringent accounting require-

ments now required for all other civil-list monies, these receipts were required to state only that the money had been received for the "purpose for which the same hath been issued" [22 Geo. III, c. 82, Section XXV]. The Secretaries of State and the First Commissioner of the Admiralty would receive their discharge or *quietus* from the Treasury once the necessary receipts had been received and given to the Treasury. Crucially, they had to swear an oath in person before the Barons of the Treasury, testifying to the veracity of the accounts based upon these receipts. These receipts from ambassadors and others had to be provided to the Exchequer within three years of the money being issued to obtain a *quietus*. The receipts for monies received from the Secretaries of State and the First Commissioner of the Admiralty which formed the basis upon which a charge was created against officials in foreign postings, were sufficient, once the handwriting had been verified, to "acquit and discharge the said Secretary or Secretaries, or First Commissioner of the Admiralty, in their said Account at the Exchequer" [22 Geo. III, c. 82, Section XXV]. The accounts for secret-service monies, with receipts for spending, now required to be submitted by Secretaries of State to the Treasury, and thence to the Audit Office, were in the form of the traditional charge-and-discharge accounts. In Figure 1 below, the account and the oath which accompanies it is typical of foreign secret-service accounts provided after Burke's Act in 1782 and after refinements contained in 45 Geo. III, c. 76 in 1805.

Should it be necessary for the Secretaries of State or the First Commissioner of the Admiralty to use money issued for foreign secret service for domestic purposes, an acquittance would be granted if they swore the following oath [22 Geo. III, c. 82, Section XXVII] before the Barons of the Exchequer:

> I *A.B.* do swear, That the Money paid to me for Foreign Secret Service, *or* for Secret Service in detecting, preventing, or defeating, treasonable, or other dangerous Conspiracies against the State…, has been *bona fide*, applied to the said Purpose or Purposes, and to no other: and that it hath not appeared to me convenient to the State that the same should be paid Abroad. So help me GOD.

In 1805, soon after the union of Britain and Ireland, a similar provision was included in civil-list legislation for secret-service payments by Commissioners of the Lord High Treasurer in Ireland to the Under Secretary for Civil Affairs in the Office

FIGURE 1

General Account of the Monies issued and received by the Right Honourable Earl Bathurst, late His Majesty's Principle Secretary of State for Foreign Affairs, under the Head of Secret Service from 1st November 1809 to the 14 March 1810

Charge		**Discharge**	
	£		**£**
By Balance received from the Right Honourable George Canning	397.19.4	Expended by William Hamilton as per receipt	24,067.9.3
By Exchequer Issues during said period	30,000.0.0	To Foreign Ministers	168.5.8
To pay the fees thereon	768.10.0	Deducted at the Treasury and Exchequer for Fees	768.10.0
		Balance transferred to M. Willerby as per Receipt	6162.4.5
	£31,166.9.4		***£31,166.9.4***

"The Right Honourable Earl Bathurst, this Accountant maketh oath that the above Accounts to the best of his knowledge and belief are true and just" (25 June 1812).

Source: A.O. 3/949

of the Chief Secretary. To enhance parliamentary control over secret-service payments for rebellious Ireland in "detecting, preventing or defeating treasonable or other dangerous Conspiracies against the State," an acquittance was to be granted for the Under Secretary who had been given the secret-service money after making an oath very similar to that required of officials in England. Unusually, and recognizing the fraught conditions in Ireland, receipts or other documentation were not required, only that the Under Secretary affirmed by oath before the Barons of the Exchequer in Ireland that the money given to him had been "*bona fide* applied to such Purposes" as approved and that the spending of the money for these purposes had been approved [45 Geo III, c. 76].

For the officials, most often an ambassador, who had paid foreign agents, for which documentary evidence would have been most unusual, a *quietus* would be given if within one year of arriving back in England, they either returned any money

received to the Exchequer or made the following oath [also see A.O. 19/118] before the Barons of the Exchequer:

> I *A.B*. do swear, That I have disbursed the Money, instructed to me for Foreign Secret Service, faithfully, according to the Intent and Purpose for which it was given, according to my best Judgment, for his Majesty's Service, So help me GOD.

No further documentation was required. The discharge was given by the Treasury through the Upper Exchequer, or Exchequer of Accounts, which had the authority to summon before it most officials who performed the role of public accountant; that is, the individual held accountable by Parliament for money spent by the executive. The Upper Exchequer also recorded the details of the accounts of the public accountants. Once the *quietus* had been given by the Upper Exchequer, this was the final authority. No matters could again be raised in relation to the accounts and monies nor could they be challenged by the courts [Binney, 1958, p. 189].

In most cases when no documentation was provided by the sources of intelligence who ultimately received the secret-service monies, whether full-time spies or unofficial agents for whom anonymity may have been a matter of life and death, the oaths required of accountable officers associated with the secret services assumed great importance. The oath in effect at times substituted for the documentary evidence which was required when accounting for other civil-list spending and mirrored oath taking in the courts and elsewhere. The oath that accompanied the accounts fulfilled an important auxiliary role in the accounting process by providing Parliament and the Treasury with an additional assurance that the accounts were a "true and just" rendition of how the secret-service money had been used. The practice of taking an oath to attest to the veracity of accounts and the fidelity of actions was very widespread, to be found wherever an account of any significance was to be given. Indeed, swearing an oath and relying upon the integrity of the authorized officials was an essential accounting control. Thus, inspectors of accounts working on behalf of the Board of Audit also were required to take an oath [Commissioners for Auditing the Public Accounts, 1786]:

> ...not to permit, suffer, or conceal, any fraud whatsoever in any accounts intrusted to your care. In all Accounts... you shall see that they are carefully and faithfully examined, drawn, and prepared for Auditing; giving therein

> to no Accountant any allowance but such as shall be duly and regularly vouched and allowable according to the custom, method, and rules of the Exchequer.

The influential Lord Shelburne in the late 18th century was far less convinced of the efficacy of oaths as an accounting control, preferring instead the rendering of accounts in a public forum, with the one notable exception of secret-service accounts. He observed [quoted in Binney, 1958, p.269] that he had:

> ...found by experience that this is the grand principle of economy and the only method of preventing abuses; far better than oaths or any other checks which have been devised. Instead, therefore, of oaths there should be an obligation to print at the end of the year every expenditure and every contract, except in cases of Secret Service, which may be subject to checks of another nature.

Unlike the present, an oath had far greater social significance in the 18th century. The right to take an oath was both a mark of social position and provided a clear indication of the legal status of the matter for which the oath was made. Also, as much as the legal importance of the oath and its role as an administrative device, the ritual of taking an oath impressed upon persons the importance of what they were about to do. Most obviously taking an oath in court, in a form which has some religious significance, when giving evidence has long been the means by which courts are able to impress upon those involved the importance of their actions and statements; indeed, their very life might be in danger for a false declaration [Binney, 1958, p. 269]. In the 18th century, a time when everyone was expected to have a strong religious belief, the ritual of the taking an oath was in effect a solemn appeal to God testifying to one's truthfulness, which symbolized the expectation that any lies would not escape unpunished for to swear a false oath was to imperil one's soul.

CONCLUSION

Given that the overriding concern of the civil-list reforms after 1782 was to protect the liberties of all Englishmen, any part of government which was allowed to continue to operate with a high level of secrecy and, thus, was a potentially potent means to threaten liberty was especially important. Even though profound accounting and accountability changes were made to the civil list after 1782, notably the appointment of commissioners for auditing the public accounts, the treatment of secret-service

spending in the Civil Establishments Act recognized that these reforms had their limits when it came to clandestine operations for which the giving of formal accounts for monies spent may be incommensurate with the clandestine nature of the services performed. The considerable opportunity that this allowed for abuse in the spending of secret-service funds did not escape the attention of Burke. Thus, the 1782 act contained a number of significant clauses which were concerned with the amounts to be spent on the secret services and, as a means to ensure that accountable individuals could be clearly identified, the procedure by which the money would be spent and accounted for. The provisions of the act that were related to the secret services sought to compensate for the unavoidable paucity of secret-service accounts by limiting the authority for secret-service spending to a very few senior offices and relying upon their integrity.

The concerns of this article have been limited to a period of time when the beginnings of modern systems of financial accountability for governments were established and were beginning to be more fully appreciated. Thus, the article provides the opportunity to prompt accounting historians to examine the subsequent evolution from the early 19th century of accounting for the secret services in Britain and other democratic states, although recognizing the obvious significant impediments that may be present to gaining access to information. These difficulties in and of themselves would prove the value of attempts to investigate whether and how secret services have been made accountable, but especially in the most chaotic and extreme political circumstances such as war when there is a well-demonstrated tendency for governments to become dangerously arrogant and the protections that mechanisms of financial accountability have provided for individual citizens are shown to be insufficient. The surprising, ongoing silence in the literature about the accountability of the secret services contradicts their significance in times of war or other national military emergences, such as the 21st century "war against terror" by the U.S. and its allies, but especially the threat that abuses by insufficiently accountable secret services can have for the liberty of citizens in democratic states. The potency of this threat and the alacrity with which governments may be tempted to jeopardize the liberty of individuals, either for reasons of political self-interest or supposedly in the national interest, have been exposed many times throughout the war-ravaged 20th century and now into the 21st century. An enhanced understanding of accounting for secret services would also complement the work by researchers

such as Chwastiak [1999, 2001, 2006] and Gallhofer and Haslam [1991], who have exposed the importance of accounting in justifying war, providing opportunities for the military industrial complexes in states such as the U.S. and Britain to gain extravagant financial benefits from war and in excusing the excesses of war.

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FINANCIAL REPORTING IN 1920: THE CASE OF INDUSTRIAL COMPANIES

Abstract: This study uses the 1920 *Moody's Analysis of Industrial Investments* to assess the extent of financial reporting by U.S. industrial companies. The reporting of an income statement and a balance sheet, as well as the amount of disclosure in both of these statements, is examined empirically to determine which economic factors influence this reporting. The results show that corporate-governance, operating, and financing factors all significantly influence the reporting of financial statements and the extent of disclosure within those statements. However, the significant factors vary across the two financial statements and the two decisions considered (reporting a particular statement and the amount of disclosure within the statement to report). All factors are shown to influence significantly the decision to report both a balance sheet and an income statement and the amount of information to report in a balance sheet. The decision regarding the amount of information to report in an income statement is only influenced by corporate-governance and operating factors.

INTRODUCTION

Prior to the formation of the Securities and Exchange Commission (SEC) and accounting standard-setting bodies, financial reporting for U.S. industrial companies was not regulated at the federal level. Companies were free to choose their own reporting policies. Financial reporting focused primarily on the balance sheet [Kittredge, 1901; Sprague, 1901; Gilman, 1939; Skinner, 1987; Kendig, 1993]. However, a number of companies did report income statements although few details of income components were included [Lee, 1979; Morris, 1984; Baldwin et al., 1992]. This study will examine empirically the factors

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that influenced these companies to disclose financial statements voluntarily and the amount of disclosure contained within those statements.

Coombs and Edwards [1995] developed a model for disclosure as a function of the market for disclosure and regulation. This market included investor demand for information for decision making and firms supplying disclosure to attract capital. The role of regulation in this model is to ensure that the supply of disclosure does not fall short of demand. The authors note that regulation has taken on an increasing role during the 20th century. This model, then, recognizes the need for regulation to ensure adequate disclosure.

Bartlett and Jones [1997] examine motivations for voluntary disclosure in an environment where securities regulation exists. The paper concludes that the amount of voluntary disclosure is primarily attributable to the philosophy of the chairman of the Board of Directors (BD) and the chief financial officer (CFO). They found the main reasons to provide voluntary disclosure were to meet social pressure, to demonstrate responses to social pressure to prevent regulation, and to manage the corporate image. These same motivations for voluntary disclosure may also exist in an era prior to securities regulation.

Merino and Neimark [1982] report that, in the late 19th century, U.S. businesses promised more voluntary disclosure to reduce the lack of competition and centralization of economic power when faced with political threats. This increase in voluntary disclosure was not adequate, and federal legislation was proposed annually from 1903-1914 and occasionally from 1919-1930. The increase in voluntary disclosure that did occur was a response to social pressure to prevent regulation.

Prior to 1897, most industrial securities were traded through the use of trust certificates.[1] After 1897, stock in individual companies was marketed but issued through promoters who gave shareholders confidence in the quality of the investment. (The promoters often were selling watered securities of little value, but the public was unaware and had faith in the promoters.) By 1902, shares of industrials were regularly traded on exchanges [Navin and Sears, 1955] which required investors

[1] Trust certificates represented ownership in a trust. The trust itself owned the corporations. These trusts were put together by financiers who chose the companies to include in the trust, making ownership in a trust seem less risky than buying individual stock. Ownership in a trust certificate then would be similar to buying shares today in Berkshire Hathaway because of Warren Buffett's proven expertise in picking investments.

to perform their own analyses of companies or to rely on rating agencies for investment advice.

Therefore, during the early 20th century, the demand for public financial information came from investors. This market required a plentiful supply of securities, expert advice from investment intermediaries, and useful financial information [Bryer, 1993]. The first two of these requirements existed by 1920. However, the existence of useful financial information was a debated issue.

Michael [1996] reports investor dissatisfaction with disclosure in the U.S. as early as 1900. Kohler [1926] expresses dissatisfaction with published financial information for analysis. This paper indicates that less than 20% of balance sheets could be considered useful for analysis. Senatra and Frishkoff [1984] echo the same concerns. While using reports from 1925, they could not perform adequate financial-statement analysis given incomplete income-statement information. Couchman [1928] criticizes the balance sheet only reporting model of the day for not showing users where an organization is going. This paper concludes that a statement that shows the results of operations is necessary to assess the investment potential of a company.

Edwards [1989a] notes that the criticisms of accounting in the U.K. in 1920-1930 were excessive summarization, failure to prepare consolidated statements, failure to publish a profit-and-loss account, and excessive use of secret reserves. Many of these same deficiencies existed in U.S. reporting as the British model was closely followed. The first three of these criticisms relate to financial-statement disclosure.

These papers indicate that there was social pressure during the years around 1920 to promote voluntary disclosure by companies. Merino and Neimark [1982] also note the existence of threatened regulatory action. Further, Hawkins [1963] indicates that between 1920 and 1927, the Investment Bankers Association of America sought, through voluntary actions, to standardize the information regarding industrial securities presented to the public and called for both a balance sheet and an income statement, again providing evidence that companies of the day were considering these social pressures in their disclosure decisions.

Taken together, this literature shows that the 1920 era was a time when social pressure for increased disclosure and threatened legislative or regulatory action were present in both the U.S. and the U.K. This situation created an environment in which both the models proposed by Coombs and Edwards

[1995] and Bartlett and Jones [1997] would suggest that companies would logically react by increasing voluntary disclosure. Yet, the empirical reality is that many companies continued to provide minimal financial-statement disclosure. Other companies did seem to respond to the calls for increased disclosure and put out considerable amounts of information. As a result, the supply of financial information was very company specific and primarily relates to the philosophy of the BD chairman and the CFO as posited by Bartlett and Jones [1997]. Merino et al. [1994] provide some era-specific evidence by discussing the differences in reporting style and the use of audits by companies controlled by J.P. Morgan and John D. Rockefeller. Perhaps other economic factors in the operating environment of the company may have influenced the decision of these policy makers within the company to choose a particular level of disclosure.

What motivated a company to issue financial statements during this era of voluntary disclosure? By becoming aware of the economic factors in the operating environment of firms that voluntarily disclosed financial information, the development of financial reporting in the U.S., as well as the need for and effect of accounting regulation, can be increasingly understood.

Barton and Waymire [2004] assert that the quality of financial reporting is a function of information costs in securities markets, contracting and control conflicts among stakeholders, competitive and political costs, and available alternative information. For firms traded on the New York Stock Exchange (NYSE) in 1929, the results indicate that the quality of financial disclosure increased if the firm operated in a technology-based industry, had recently issued common equity, or was highly levered. The quality of financial disclosure decreased with the age of the firm, if the firm issued dividends, or if the firm was regulated. The study concludes that the quality of financial disclosure increases with economic incentives to provide information to investors.

Archambault and Archambault [2005] find that regulated utilities typically reported income statements in the 1915 *Moody's Analyses of Investments* (*Moody's*). They also report that industrial companies that are listed on a stock exchange were more likely to issue both income statements and balance sheets than were unlisted companies. The conclusion of that study was that regulation, either externally imposed as in the case of railroads and utilities or self-imposed as in the case of listed companies, increased disclosure. That study focused on the regulatory component of Coombs and Edwards' [1995] disclosure model.

The current study uses a similar approach and data set as Archambault and Archambault [2005], but examines a different issue. The focus of the current paper is on the motivations for companies to disclose information voluntarily. Industrial companies are chosen as the sample because the companies did not have any external regulatory pressure for disclosure. Therefore, this study seeks to develop a more complete understanding of the motivation to report financial information for industrial firms, focusing on the supply of disclosure component in the Coombs and Edwards disclosure model. To examine this issue, the paper will concentrate on various economic factors faced by companies in their operating environment to determine if these factors help explain the variation in disclosure during this time period.

This study utilizes a sample of 200 industrial firms randomly selected from the 1920 *Moody's*. This sample represents an earlier stage of financial reporting in the U.S. than that studied by Barton and Waymire [2004]. In addition, this study includes listed and unlisted firms, which is a broader, more generalized sample than firms listed on the NYSE only. The current paper focuses on incentives to disclose a balance sheet and/or an income statement. Barton and Waymire [2004] concentrated primarily on overall financial-reporting quality but did report weak results in explaining balance-sheet transparency. Thus, this study extends our knowledge of influences on financial reporting in the early 20th century by extending the time period back and by broadening the types of firms examined.

The factors considered in this investigation are corporate-governance, operating, and financing factors. Both the decision to report a statement, either the income statement or the balance sheet, and the extent of disclosures within the statements will be examined.

Developing a better understanding of what disclosure occurred and the influential economic factors leading companies to choose more extensive disclosure will help us understand the historical development of accounting and the role regulation plays in ensuring full disclosure. The efficient operation of capital markets relies on sufficient disclosure to prevent financial manipulation, to provide investors with enough financial information to make resource-allocation decisions, and to allow equal access to important information [Benston, 1973]. The results indicate that there were a number of important factors that influenced disclosure. However, the results also indicate that some companies did not experience the economic circumstances that promote voluntary statement disclosures.

Income-statement reporting is shown to be positively associated with corporate-governance, operating, and financing factors. Companies that seek broader ownership by having shares traded on an organized exchange, companies that have increased complexity in terms of international operations and larger size, and those that met capital needs by issuing debt or equity securities in the past three years or have their equity securities rated by *Moody*'s are more likely to issue an income statement. Companies with an insider-focused, corporate-governance structure as measured by the portion of the BD that are officers are less likely to issue an income statement. Companies with high debt-to-asset ratios were also found to be less likely to issue income statements.

Balance sheets are more likely to be issued by companies seeking broader ownership by trading common shares on an organized exchange, having complex operations with international activity, and issuing additional capital (both debt and equity) within the last three years. Financing factors were also shown to reduce the likelihood of issuing a balance sheet. Companies with rated bonds were negatively associated with balance-sheet issuance.

The amount of disclosure was shown to be positively related to having traded shares and operating factors of increased complexity and size. Total disclosure was negatively influenced by insider-focused corporate governance. The extent of balance-sheet disclosure showed similar results. Additional positive influences for balance-sheet disclosure are having bond and equity ratings and having higher return on assets. The amount of income-statement disclosure was associated positively only with the complexity of operations and negatively with the lack of an independent BD and company age.

By finding a number of economic factors associated with voluntary statement reporting, the paper provides a link to the supply of voluntary financial-statement information beyond corporate-governance philosophy as documented in Bartlett and Jones [1997]. However, the paper also finds that, consistent with the Coombs and Edwards' [1995] model of disclosure and regulation, not all firms possess the economic circumstances that are associated with increased voluntary financial reporting.

The next section of the paper discusses the literature and develops hypotheses concerning the relationship between various firm characteristics and disclosure levels. This is followed by a section that will discuss the data and methodology used to determine which economic factors are significantly associated

with disclosure levels. The results of those tests are then analyzed. The last section provides a summary and conclusion.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Separation of ownership and management is thought to create a need for financial disclosure [Berle and Means, 1968]. Financial reporting did not exist before corporations and financial markets [Parker, 1986]. Therefore, growth in the corporate form of business created a demand for financial-statement disclosure. A market in industrial corporations formed by 1902 [Navin and Sears, 1955]. Hawkins [1963] reports that the sources of change in financial-statement reporting were the public responsibility of managers, the criticism of financial reporting, government regulation, and development of generally accepted accounting principles. These sources are all related to the business environment. As noted earlier, these social pressures can give rise to an increased demand for financial-statement disclosure. However, companies determine the supply within the constraints of government regulation. A number of economic factors in the operating environment of a company may influence the corporate-governance team of a company regarding the amount of financial information it decides to supply. Table 1 presents the factors that will be considered in this study and their expected effect on the financial statements.

TABLE 1

Hypothesized Factors Influencing Financial Disclosure

Hypothesis	Construct	Balance Sheet Effect	Income Statement Effect
Corporate-Governance Factors:			
H1	Listing Status	+	+
H2	Board Control	-	-
H3	State of Incorporation	+	+
Operating Factors:			
H4	Complexity	+	+
H5	Longevity	-	-
H6	Profitability		+
H7	Size	+	+
Financing Factors:			
H8	Securities Rating	+	+
H9	Securities Issuance	+	+
H10	Leverage	+	+
H11	Dividends	+	+

Corporate-Governance Factors: When a new firm comes into being, choices exist regarding its form of organization. Since all of the companies in this study are corporations, a demand is created for financial information. The amount of disclosure demanded by an owner increases as the owner becomes further removed from the operations of the corporation. This dispersion of ownership is another choice a company faces. A company that remains closely held by a few dominant shareholders could supply fewer disclosures than a widely held corporation with thousands of shareholders. One of the easiest ways to achieve dispersed ownership is to list the company's shares on an organized exchange. This listing comes with a set of requirements that must be met to receive the privilege of listing. These requirements exist, in part, to provide investors with the information they need to make informed investment decisions. Thus, a corporation, in choosing to list on an exchange, is voluntarily choosing to supply more financial disclosure. The increased disclosure may be required by the exchange or may be volunteered by the corporation to attract investors. This study will use the listing status of a company to proxy for the economic circumstance of increased ownership dispersion. As an example of the imposed disclosure requirements of organized exchanges, the NYSE required in 1900 newly listed companies to issue an annual report disclosing a balance sheet and income statement, to hold an annual meeting, and to distribute proxy statements [Gross, 2002]. The literature also supports the relationship between increased disclosure and listing status. Archambault and Archambault [2005] report that pre-regulation firms listed on stock exchanges were more likely to disclose an income statement and a balance sheet. Singhvi and Desai [1971] found increased disclosure for firms trading on public exchanges relative to those traded over-the-counter. Therefore, firms that desire increased ownership dispersion by listing shares on an organized exchange are expected to have more financial-statement disclosure.

> H1: Firms that trade on an organized exchange are more likely to issue financial statements and will provide more disclosure within those statements.

Another economic factor that may influence disclosure choices is the composition of the BD. The BD is the shareholders' representative and is to make decisions about the company's operations. Because the composition and philosophy of the BD varies widely among companies, its composition will be used as a variable to test one aspect of governance.

Management-controlled firms may be in a better position to limit disclosure costs by practicing the "British Secretive Model" with minimal disclosure and a balance-sheet focus [Michael, 1996]. Bryer [1993] notes that in the early 20th century, the BD in British companies regularly limited public disclosure but provided auditors and shareholders with internal information beyond the published financial statements. Guy and Leung [2004] report that firms with a CEO also serving as the BD chairperson have less voluntary disclosure. Disclosure decreases with increased managerial ownership [Eng and Mak, 2003]. This probably also occurs because managers have access to additional information and owner-managers have an incentive to keep that information private so that they can be the ones to earn higher returns on that insider knowledge. Firms with a more independent BD membership have smaller abnormal accruals [Klein, 2002]. Firms with outside BD members are more likely to issue earnings forecasts [Ajinka et al., 2005; Karamanou and Vafeas, 2005].

The literature, then, indicates that including more outsiders on the BD increases the amount of external disclosure. This can result from a reduced management incentive to act on insider information and a stronger external-shareholder focus resulting from more independent BD members. These findings are all consistent with the expectation that, as the number of officers on the BD increases, the reporting of income statements and balance sheets should decrease.

> H2: Firms with a higher proportion of officers on the BD are less likely to issue financial statements and will provide less disclosure within those statements.

Another factor influencing the governance of the corporation is the set of laws that govern its existence. A corporation is a citizen of the state in which it seeks incorporation. This state is chosen by the BD. Most companies incorporate in the state where it is headquartered, but some choose another state when the BD seeks a set of laws (governance restrictions) that better suit the corporation's needs.

New Jersey enacted corporation laws during the late 1800s that attracted a large number of firms from other states [Stoke, 1930]. Delaware and several other states enacted similar laws in the early 1900s before World War I [Grandy, 1989]. States competed against each other by offering lower tax rates and more liberal laws. Dodd and Leftwich [1980] compare two explanations for firms changing their state of incorporation – the

stockholder-exploitation hypothesis asserts that firms change in order to extract wealth from the stockholders, and the cost-avoidance hypothesis stresses that the change enables the firm to minimize the cost of production, investment, and financing activities. This paper reports positive abnormal returns before and around the announcement of the change in venue of incorporation and concludes that the results do not support the stockholder-exploitation hypothesis. Jagannathan and Pritchard [2008] find that Delaware corporations have higher-quality directors and CEOs. Barton and Waymire [2004] predict that firms incorporated in Delaware will provide higher-quality financial reporting due to a more intensive monitoring by shareholders. However, they find an insignificant effect on reporting. Since Delaware and New Jersey were leaders in enacting laws with the purpose of attracting incorporations, this study will test corporate governance by grouping companies incorporated there separately from those incorporating in other states.

> H3: Firms that choose to incorporate in Delaware and New Jersey are more likely to issue financial statements and will provide more disclosure within those statements.

Operating Factors: While all companies in the sample are industrial companies, other operating factors besides industry could create economic circumstances that would lead to differences in the financial-statement disclosures a particular company will make. The operating factors considered in this study are complexity of operations (firms with subsidiaries and international operations), longevity of the entity (the number of years the company has existed), profitability of operations (return on assets), and size of the entity (total assets).

The more diverse and complex an entity's operations become, the more information users need to evaluate those operations. One way to measure complexity is by the number of subsidiaries. Also, as a company expands operations to global markets, operations become more complex. Zarzeski [1996] finds that disclosure needs increase with the number of subsidiaries and with foreign operations. To attract more resources and inform investors, more disclosure is needed as the complexity of operations increases.

> H4: Firms that have more complex operations are more likely to issue financial statements and will provide more disclosure within those statements.

The longevity of the firm may also influence disclosure policy. As a firm ages, it proves the viability of its business model, operating capabilities, and management expertise. A newer firm needs to disclose more information about these issues to the financial markets to establish its viability as a going concern. Chen et al. [2002] note that younger firms are more likely to disclose balance sheets voluntarily along with quarterly earnings announcements. Wasley and Wu [2006] report that young firms voluntarily disclose good news in cash-flow forecasts to signal economic viability. Barton and Waymire [2004] also report a negative relation between age and financial-reporting quality. These results suggest that young firms are expected to be more likely to disclose balance sheets and income statements to help users better assess the firm's viability.

> H5: Firms that have been in existence longer are less likely to issue financial statements and will provide less disclosure within those statements.

Financial statements are the means for a company to disclose its results of operations and financial position. The amount of that information may vary based on the economic performance of the entity in a given period. More profitable firms may be more willing to disclose income-statement information [Singhvi and Desai, 1971]. Patton and Zelenka [1997] and Raffournier [1995] also find a positive relation between profitability and disclosure. However, Alsaeed [2005] finds no association between profitability and disclosure. Profitable firms have more good information to disclose so may have more information within their financial statements. However, this increased disclosure may be limited to the income statement which focuses on profitability. This study will use return on assets as the measure of profitability.

> H6: Firms that have higher return on assets are more likely to provide more disclosure within the income statement.

Larger firms have been shown in the literature to disclose more information [Hawkins, 1963; Singhvi and Desai, 1971; Wallace et al., 1994; Meek et al., 1995; Zarzeski, 1996; Ahmed and Courtis, 1999]. Stanga [1976] lists possible economic motivations for larger firms disclosing more information: greater public attention, more existing and potential stockholders, less competitive pressure, and greater ability to afford increased

disclosure. Thus, larger firms are expected to have more financial-statement disclosure.

> H7: Firms that are larger (as measured by assets) are more likely to issue financial statements and will provide more disclosure within those statements.

Financing Factors: As a company grows, it needs additional capital to fund growth. U.S. output of finished goods from 1909-1918 was $56.4 billion while corresponding output from 1919-1928 was $83.4 billion [Bean, 1945]. Rajan and Zingales [2003] document similar growth in the stock market during this time period. Thus, the time period under study was one of considerable economic growth. Companies could finance this growth either with internal or external sources. Since most firms paid out most of their earnings as dividends prior to 1920 [Previts and Merino, 1979], the companies in this study were probably seeking significant sources of external financing. Companies could choose to issue either debt or equity to satisfy these needs. The financing factors associated with capital-structure choice are measured by the existence of a rating for debt or equity securities, the issuance of debt and equity securities, the debt-to-assets ratio, and the dividend-payout ratio.

Morrison [1935] states that public information about companies should be directed at investors so that they can make buy, sell, and hold decisions. To aid investors in these decisions, *Moody's* provided ratings for debt and equity securities based on public information. To receive a debt rating, 1915 *Moody*'s required that the client firm disclose an income statement. While an income statement was not required to receive a stock rating, one of the components considered in the rating did require an income statement. Therefore, a more informed stock rating would result from the issuance of an income statement. These ratings could be used by investors to help them make investment decisions. Obtaining stock and bond ratings could be considered a type of social pressure. As noted in Bartlett and Jones [1997], meeting social pressure is a motivator for increased disclosure. Additionally from the issuers' perspective, having a rating for the company's stock or debt could then be associated with a decreased cost of capital and an easier placement of new issues if the rating attracted more interest. Since a lower cost of capital and easier placement would be a desire of most companies, additional disclosure to acquire that rating would be an artifact of obtaining that rating. Thus, firms with rated debt and equity are expected to be more likely to disclose financial statements.

> H8: Firms that have ratings associated with existing stock and bond issues are more likely to issue financial statements and will provide more disclosure within those financial statements.

The desire for a rating associated with debt or equity to attract investors at the lowest possible cost of capital is primarily a concern of a firm when stock or bonds are issued. It is this issuance of new stock, either common or preferred, or bonds that would allow a company to obtain additional capital to meet its expansion needs. After issuance, ratings help keep the market for these securities, but the rating is only directly beneficial for attracting additional capital for firms when they issue new securities. Morrison [1935] discusses the importance of providing adequate information to attract new investors. Most companies did not provide adequate information in the time period under study. However, issuing new securities would create an incentive for the firm to provide more financial disclosure to attract investors. Barton and Waymire [2004] report that firms that have recently issued equity disclose higher-quality financial information. Therefore, firms that have recently issued debt or equity are expected to be more likely to disclose financial statements.

> H9: Firms that have issued debt or equity securities within the past three years are more likely to issue financial statements and will provide more disclosure within those statements.

The type of external financing used by a company may influence the amount of disclosure. Debt financing is associated with greater risk. One way to measure the relative use of debt to finance a company's resources is the debt-to-assets ratio. Financial leverage tends to increase disclosure [Wallace et al., 1994; Meek et al., 1995; Ahmed and Courtis, 1999; Barton and Waymire, 2004]. This follows from the need of the firm to show that it can service this debt level. Thus, firms with a higher debt-to-assets ratio are expected to be more likely to issue an income statement and a balance sheet.

> H10: Firms that have a higher debt-to-assets ratio are more likely to issue financial statements and will provide more disclosure within those statements.

The net income of a company can either be paid as dividends or retained. Companies with a lower dividend-payout ratio are relying more heavily on internal financing. The literature provides some documented relationships between dividends

and disclosure. Dividends may act as an alternative source of information about the amount and timing of future cash flows [Miller and Rock, 1985]. Firms that pay dividends may disclose less financial information [Barton and Waymire, 2004]. However, Archambault and Archambault [2003] report that dividend-paying firms are associated with greater disclosure to allow investors to evaluate the ability of the firm to continue dividends [Einhorn, 2005]. The literature is mixed concerning the relationship between dividends and disclosure.

Edwards [1989b] notes that, at the turn of the 20th century in the U.K., performance of a firm was judged mainly in terms of the amount of dividends paid. This view of dividends would seem to be more consistent with Einhorn [2005] than Miller and Rock [1985].

Tax laws in effect during and immediately after World War I may also have affected disclosure. Corporate income taxes were a function of return on invested capital [Kohler, 1925]. Balance sheets may have been more conservative as a result [Montgomery, 1919]. Companies had incentives to write-off assets or recognize liabilities in order to reduce taxable income. These actions may increase or decrease the amount of disclosure in financial statements.

However, dividends reduce invested capital and, consequently, increased taxable income. Firms that paid dividends may have had an incentive to disclose more information in order to justify the dividends. Therefore, in this paper, the positive relationship between dividends and disclosure will be used as the basis for hypothesis development.

> H11: Firms that have a higher dividend-to-net income ratio are more likely to issue financial statements and will provide more disclosure within those statements.

DATA AND METHODOLOGY

To examine which economic factors influence a firm's voluntary disclosure of financial-statement information, those made in 1920 were chosen, relating to the 1919 fiscal year financial statements. This year was selected because it predated the SEC but was late enough into the 20th century that individual industrial firms had achieved economic significance and served as an investment alternative for those seeking returns [Baskin, 1988].

The disclosures were obtained from a random sample of 200 industrial firms incorporated in the U.S. that were not wholly owned subsidiaries from the 6,882 companies comprising

Moody's 1920 edition. The sample was limited to industrial firms because other types of companies, such as utilities, railroads, banks, etc., were generally subject to some form of regulation that required certain disclosures.[2] The focus of the paper is on U.S. companies to keep the economic and cultural environment consistent throughout the sample. A number of ownership-related variables were considered as explanations for voluntary disclosure. Therefore, publicly traded companies needed to be used because the information disclosures of wholly owned subsidiaries could be much different because of the lack of outside shareholders.

The pages in *Moody's* covering each selected company were examined to determine whether an income statement and balance sheet were provided. To calculate the amount of detail provided in the financial statements, the number of line items in the financials was collected. In counting line items, totals and subtotals were not considered if previously disclosed items were used to generate them. However, if a statement started with a subtotal, like net earnings, then the total or subtotal was counted as an item since it then represented a distinct disclosure.

Other data items collected from *Moody's* included: total debt; total assets; dividends; net income; equity issues, either common or preferred, in the past three years; bond issues in the past three years; bond and stock ratings; the exchange on which common stock is listed; the dates of company origination and incorporation; incorporation and headquarters state; existence of subsidiaries and/or international operations; number of BD members; and the number of officers serving on the BD. Net income was seldom labeled as such. Any subtotal listed on the income statement before dividends were deducted was considered net income. The financial-statement disclosure items are used to compute the debt-to-assets ratio, the dividend-payout ratio, and the return-on-assets ratio. Firm size is measured by total assets. The variable used in the study for the age of the company is the older of the age of origination or incorporation. The percentage of officers on the BD is used to measure the Board's independence.

For the multiple regressions, a company missing any of the data items collected could not be used in the multi-variate analysis. Because of missing data, the sample was reduced to 191 companies when the regression did not require data from either

[2] See Archambault and Archambault [2005] for a discussion of the types of regulatory disclosures required of railroads and utilities.

financial statement, 142 companies when a balance sheet but not an income statement was required, 100 companies when an income statement was required but not a balance sheet, and 86 companies when both balance-sheet and income-statement data were required for the regression equation. Least-squares regression was used to examine what factors influence total statement disclosure and its extent in each statement. The dependent variable was the number of line items reported. The more line items a company reported, the more detail provided by its statements. Enhanced detail represents broader information provided by companies to statement users.

For examining the existence of the statements, a logit model is used. The dependent variable is dichotomous, coded as one if the balance sheet or income statement was reported by *Moody's*. Five sets of regressions resulted in the form as follows:

$$\text{DISCLOSURE} = a + b_1\text{EX} + b_2\text{BO} + b_3\text{DLNJ} + b_4\text{SUB} + b_5\text{INT} + b_6\text{AGE} + b_7\text{ROA} +$$

$$b_8\text{TA} + b_9\text{BR} + b_{10}\text{CR} + b_{11}\text{BI} + b_{12}\text{EI} + b_{13}\text{DA} + b_{14}\text{DPO} + e$$

where:

DISCLOSURE — one of the five measures of disclosure (income-statement existence, balance-sheet existence, number of line items in the income statement, number of line items in the balance sheet, total number of line items in the income statement and balance sheet taken together)

EX — dichotomous variable where 1 = traded on any organized exchange[3]

BO — number of officers on the BD divided by number of members on the BD

[3]The tests were also run using the NYSE listing coded as one and all other companies coded as zero. The significance of the exchange variable was the same for all models tested whether it was coded as any exchange or only NYSE. The any exchange measure was chosen for reporting in the study for two reasons. First, some exchanges other than the NYSE may have had statement disclosure requirements for listing and would therefore have the same effect on voluntary vs. involuntary disclosure as the NYSE listing. Second, using any exchange as the independent variable resulted in higher adjusted R^2 and F-statistics, indicating better statistical fit than only the NYSE. The other exchanges included are New York Curb, Boston, St. Louis, Pittsburgh, Providence, Chicago, Detroit, Cincinnati, San Francisco, Philadelphia, Louisville, Cleveland, Los Angeles, Toronto, Montreal, London, and Amsterdam.

DLNJ	dichotomous variable where 1 = incorporated in Delaware or New Jersey
SUB	dichotomous variable where 1 = company has a subsidiary
INT	dichotomous variable where 1 = company has international operations
AGE	number of years that the company has been in existence (using either the date of incorporation or date of origin, whichever is longer ago)
ROA	net income divided by total assets
TA	total assets[4]
BR	dichotomous variable where 1 = company has rated bonds
CR	dichotomous variable where 1 = company has a rated common stock
BI	dichotomous variable where 1 = company issued bonds within the past three years
EI	dichotomous variable where 1 = company issued equity within the past three years
DA	total debt divided by total assets
DPO	total dividends divided by net income.

A second multi-variate model was also estimated which left out the variables that required statement information (TA, DA, DPO, ROA). This was done to allow a multi-variate regression without requiring the existence of the financial statements. This is especially important for the income-statement and balance-sheet existence models because with the statement being required, the companies without a statement would not be included in the model estimation. Since this model is trying to explain why an income statement or a balance sheet may have been disclosed, the dependent variable needs to include some observations where the statement did not exist. The full model allows a test of the importance of the financial-statement vari-

[4]Total assets are used in the study rather than the more commonly used log of total assets because using log of total assets caused the goodness-of-fit test to fail for some of the regressions. Because of the model-fit issue, total assets in millions are reported.

ables considered. Therefore, two multi-variate models are used.

Pearson correlations between the independent and dependent variables are also reported to examine whether a significant relationship exists between the independent variables and the dependent variable without considering the other independent variables.

ANALYSIS OF RESULTS

Table 2 provides descriptive statistics for the sample. The N column indicates how many of the 200 companies in the sample had data for each variable. This table indicates that 56% of the sample provided an income statement and 74% provided a balance sheet. The considerably lower percentage of companies providing an income statement relative to a balance sheet is consistent with Skinner [1987] and Buckmaster and Jones [1997]. The existence of 26% of the sample that did not report a balance sheet is inconsistent with the literature that concludes that almost all U.S. firms published a balance sheet [Brief, 1987]. The average income statement consisted of just three line items. Balance sheets provided considerably more disclosure with an average of just over 14 items. This is consistent with findings in the literature that few details about income components were reported in the early 20th century [Lee, 1979; Morris, 1984; Baldwin et al., 1996]. The items in the income statement were also more likely to be summary numbers such as gross profit with no detail of the components of the subtotal. Only 31% of the companies reporting an income statement disclosed gross revenues.

Only 30% of the sample companies traded stock on an organized exchange. Officers represented 45% of the BD members on average. Delaware and New Jersey were successful in their efforts to attract incorporations with 26% of the sample incorporating in those two states. The majority of companies had a subsidiary (59%). International operations existed for 39% of the sample firms. The median age of a company in the sample was 16 years. Thus, new companies do not dominate the sample. Return on assets averaged 8%. The size of companies in the sample varies considerably as seen by the standard deviation of total assets. A bond rating exists for only 37% of the sample, and only 18% issued debt in the three prior years. Equity issues were more common with 26% of the sample issuing some form of equity in the prior three years with 95% having a common-stock rating. The sample firms were not highly levered with a debt-to-asset ratio of 0.19 on average. The dividend-payout ratio

was high with 51% of profits being paid as dividends on average.

TABLE 2

Descriptive Statistics

Variable	N	Mean	Median	Standard Deviation
Income Statement	200	0.56	1.00	0.50
Balance Sheet	200	0.74	1.00	0.44
Income Statement Items	112	3.37	3.00	1.80
Balance Sheet Items	148	14.16	14.00	4.62
Traded on Exchange	200	0.30	0.00	0.46
Percentage of Board that are Officers	191	0.45	0.43	0.20
Incorporated in Delaware or New Jersey	200	0.26	0.00	0.44
Subsidiaries	200	0.59	1.00	0.49
International Operations	200	0.39	0.00	0.49
Age	200	20.17	16.00	18.47
Return on Assets	96	0.08	0.07	0.06
Total Assets (in millions)	148	43.25	10.00	199.69
Bond Rating	200	0.37	0.00	0.48
Common Rating	200	0.95	1.00	0.22
Bond Issues	200	0.18	0.00	0.39
Equity Issues	200	0.26	0.00	0.44
Debt-to-Assets Ratio	148	0.19	0.15	0.15
Dividend-Payout Ratio	104	0.51	0.43	2.32

The sample consists of 200 randomly selected industrial firms included in the *1920 Moody's Analyses of Industrial Investments*. The variables are defined as Income Statement = 1 if the firm issued an income statement and 0 otherwise. Balance sheet = 1 if the firm issued a balance sheet and zero otherwise. Income Statement Items = the number of non-total line items listed in the income statement. Balance Sheet Items = the number of non-total line items listed in the balance sheet. Traded on Exchange = 1 if the company trades on any organized exchange (see footnote 3 for a list of exchanges) and zero otherwise. Percentage of Board that are Officers = number of officers on the Board of Directors dividend by number of members of the Board of Directors. Incorporated in Delaware or New Jersey = 1 if the company is incorporated in either Delaware or New Jersey and zero if it is incorporated in any other state. Subsidiaries = 1 if the company has subsidiaries and zero otherwise. International Operations = 1 if the company has international operations and zero otherwise. Age = number of years that the company has been in existence (using either the date of incorporation or date of origin, whichever is longer ago). Return on Assets = net income dividend by total assets. Total Assets (in millions) = total assets dividend by 1,000,000. Bond Rating = 1 if the company has a bond rating listed in *Moody's* and zero otherwise. Common Rating = 1 if the company has a common stock rating listed in *Moody's* and zero otherwise. Bond Issues = 1 if the company issued bonds within the past three years and zero otherwise. Equity Issues = 1 if the company issued any form of equity within the past three years and zero otherwise. Debt-to-Assets Ratio = total debt dividend by total assets. Dividend-Payout Ratio = total dividends divided by net income.

Total Disclosure: To examine which environmental factors are related to total voluntary financial-statement disclosure, the sum of the number of the income-statement and balance-sheet line items was used as the dependent variable. The results of this total disclosure test are shown in Table 3. The correlations

TABLE 3

Total Statement Disclosure
Least-Squares Regression

	Part 1 Correlation	Part 2 Multi-variate		Part 3 Multi-variate	
Variable	**Coeffi-cient**	**Coeffi-cient**	**t-Stat**	**Coeffi-cient**	**t-Stat**
Constant		14.48	4.74***	13.92	4.70***
Traded on Exchange	0.37***	2.58	2.63***	2.54	2.47***
Percentage of Board that are Officers	-0.16	-5.47	-2.14***	-6.03	-2.22**
Incorporated in Delaware or New Jersey	0.23**	-0.15	-0.14	-0.76	-0.70
Subsidiaries	0.47***	3.64	3.50***	3.81	3.55***
International Operations	0.22**	0.40	0.40	-0.23	-0.22
Age of Company	-0.12	-0.03	-0.92	-0.04	-1.11
Return on Assets	-0.16			10.37	1.28
Total Assets (in millions)	0.41***			0.01	3.59***
Bond Rating	0.21**	1.48	1.14	0.88	0.64
Common Rating	0.12	3.06	1.08	2.65	1.00
Bond Issues	0.16*	0.88	0.59	-1.60	-0.95
Equity Issues	0.12	1.23	1.17	1.60	1.47
Debt-to-Assets Ratio	0.20**			4.96	1.03
Dividend-Payout Ratio	0.05			0.19	0.69
Adjusted R^2		29.8%		42.2%	
F-statistic (p-Value)		5.21	0.000	5.44	0.000
N		100		86	

The sample consists of 200 randomly selected industrial firms included in the *1920 Moody's Analyses of Industrial Investments*. Part 1 reports Pearson correlations. Parts 2 and 3 report regression results using ordinary least squares. All variables are defined in Table 2.

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 percent levels with results in the predicted direction and one-tailed tests for regressions and two-tailed tests for correlations. #, ##, and ### denote significance at the 0.10, 0.05, and 0.01 percent levels with the results of the opposite sign from what was predicted.

between the dependent and independent variables are shown in part 1 of Table 3. Significant positive correlations exist for trading on an exchange, incorporating in Delaware or New Jersey, having subsidiaries and international operations, being larger, having rated bonds, issuing bonds, and being more highly levered. No significant negative correlations exist.

To examine the factors that explain total disclosure when all factors are considered together, multi-variate regressions were estimated. The results are shown in Parts 2 and 3 of Table 3. Part 2 is the regression without financial-statement variables and Part 3 shows the results for the complete model. The model in Part 2, which required the existence of either an income statement or a balance sheet, has an adjusted R^2 of 29.8%, indicating reasonable explanatory power of the variables considered but also implying other significant factors as well. The explanatory power increases considerably in the Part 3 regression (R^2 of 42.2%) as more variables are added. The results for both models are consistent. Requiring the existence of both an income statement and a balance sheet in the Part 3 model does not significantly change the results, adding only total assets as a significant variable but not changing the significance of any other variable.

When all variables are considered together, trading on any organized exchange, having a subsidiary, and being larger are all associated with increased total disclosure. A negative relationship between total disclosure and the percentage of officers on the BD is documented. These results indicate that a significant relationship exists between total disclosure and at least one variable within two of the three economic factors considered in this study – corporate governance and operating. Thus, disclosure is a function of various influences.

Archambault and Archambault [2005] also document a positive relationship between listing status and a voluntary disclosure of statements. The disclosure of statements was generally required by the exchanges by 1920. Thus, documenting this support for H1 is not surprising. Operations become more complex with the existence of subsidiaries and international operations. This increased complexity seems to create an incentive to report more voluntary disclosures to help users of the statements understand performance. Some companies did report gross or net revenues from different operating sources separately which would increase the amount of disclosure, supporting H4.

Operations become subject to more public and political scrutiny as companies grow larger [Stanga, 1976; Watts and Zimmerman, 1986]. The positive relationship between disclo-

sure and firm size is consistent with many previously reported findings [Wallace et al., 1994; Meek et al., 1995; Zarzeski, 1996; Ahmed and Courtis, 1999] and H7.

Corporate governance is also shown to play a role in the amount of total disclosure. Less independent BDs disclose less. Bartlett and Jones [1997] note the importance of corporate- governance philosophy and voluntary-statement disclosures. These results provide support for a relationship between BD membership and statement disclosure as well, consistent with H2.

Some of the variables found to have a significant relationship with disclosure in the correlations do not end up as significant in the multi-variate models. This result could occur if variables exhibit multicolinearity. However, standard tests for multicolinearity, both correlation matrices and variance-inflation factors, indicate that no strong multicolinearity exists among the independent variables. These differences between uni-variate and multi-variate results are similar to those in Singhvi and Desai [1971]. That study looked at total disclosure for companies in 1965. The uni-variate results showed that disclosure was significantly related to size, number of shareholders, listing status, CPA firm, profitability, and earnings margin. The multi-variate results were reduced to only listing status and earnings margin being significant.

This analysis examines total disclosure; however, one or more factors may influence a company to report only an income statement or a balance sheet. Some factors may influence a company to disclose more balance-sheet information and less income-statement information at the same time. Looking at total disclosure then provides an incomplete understanding of the factors that motivate the issuance of each statement. Some factors may be important in the reporting of both statements, but other factors may strongly influence the decision to disclose one statement and have little effect on the decision to report the other. The analysis will now examine the two statements separately.

Income-Statement Disclosers: Since only 56% of the sample reported an income statement, what factors motivated these companies to make this disclosure? Table 4 shows the results of the correlation between that dichotomous variable and each independent variable and the regression equations.[5] Trading on an

[5]Results for dividend payout and return-on-assets are not reported because these two ratios require the existence of an income statement to be reported.

exchange, incorporating in Delaware or New Jersey, having subsidiaries and international operations, having a common-stock rating, and issuing either bonds or equity within the past three years are all positively associated with the likelihood to disclose

TABLE 4

Income-Statement Existence
Logit Regression

	Part 1 Correlation	Part 2 Multi-variate		Part 3 Multi-variate	
Variable	**Coeffi-cient**	**Coeffi-cient**	**t-Stat**	**Coeffi-cient**	**t-Stat**
Constant		-0.96	-0.98	052	0.40
Traded on Exchange	0.38***	2.08	4.51***	1.93	2.96***
Percentage of Board that are Officers	-0.17**	-1.69	-1.91**	-2.76	-2.19**
Incorporated in Delaware or New Jersey	0.14**	-0.03	-0.07	-0.56	-0.93
Subsidiaries	0.17**	-0.19	-0.46	-0.74	-1.30
International Operations	0.26***	1.30	2.82***	1.18	1.87**
Age of Company	-0.08	-0.01	-0.60	0.01	1.09
Total Assets (in millions)	0.11			0.06	2.27**
Bond Rating	0.05	-0.36	-0.82	1.43	1.80**
Common Rating	0.12*	1.18	1.37*	2.15	1.87**
Bond Issues	0.17**	1.56	2.67***	-0.30	-0.34
Equity Issues	0.16**	0.56	1.32*	0.39	0.72
Debt-to-Assets	-0.04			-2.72	-1.55#
Log-Likelihood		-101.4		-60.6	
Zero Slopes Test (p-Value)		59.30	0.000	19.51	0.000
N		191		142	

The sample consists of 200 randomly selected industrial firms included in the *1920 Moody's Analyses of Industrial Investments*. Part 1 reports Pearson correlations. Parts 2 and 3 report regression results using logit. All variables are defined in Table 2.

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 percent levels with the results in the predicted direction and one-tailed tests for regressions and two-tailed tests for correlations. #, ##, and ### denote significance at the 0.10, 0.05, and 0.01 percent levels with the results of the opposite sign from what was predicted.

Therefore, the equation could not be estimated since only those companies with income statements had these variables.

an income statement. The higher the representation of management on the BD, the less likely the company is to disclose an income statement. These results are very similar to the results for total disclosure reported in Table 3. Firm size and bond rating are shown to be significant determinants of total disclosure, but not for presenting an income statement. Disclosing an income statement is shown to be a function of having rated common stock and recently issued debt and equity.

Parts 2 and 3 of Table 4 examine the multi-variate relationship between these factors and the existence of an income statement. Logit regression is used to see which variables are still significant in explaining the provision of an income statement when all variables are considered. The model in Part 2 looks at companies regardless of which financial statements were reported. The Part 3 results relate to companies that had a balance sheet and may or may not have had an income statement. The results do vary, indicating that the decision to report an income statement is influenced by different factors if the decision to report a balance sheet has already been made. The results also differ significantly from the results for total disclosure.

The Part 2 results indicate that corporate-governance (trading on an exchange and the percentage of officers on the BD), operating (international operations), and financing (common rating and bond and equity issuance) factors all significantly influence the decision of a company to publish an income statement. The variables that explain the existence of an income statement when a balance sheet exists (Part 3) differ in that additional operating (total assets) and financing (bond rating and debt-to-asset ratio) factors gained significance while the constructs for issuing debt and equity lost significance.

For a company to achieve broader ownership interest by listing on an exchange, the company may have been required to publish an income statement as an exchange requirement. Also,having this statement would allow easier investor analysis, so having the income statement is consistent with the desire for broader ownership. This result supports H1. Corporate governance through BD membership is again significant. A less independent BD results in a lower likelihood of reporting an income statement. With fewer shareholder representatives on the BD, the needs of shareholders for adequate information were not considered, supporting H2.

Having international operations increases the likelihood of reporting an income statement in both multi-variate regressions. However, having subsidiaries is not significant. Thus, only the

complexity factor of international operations motivated companies to issue an income statement. This result is consistent with H4. Firm size is also a significant influence when it was considered in the model. This positive relationship is consistent with H7. These results support the importance of operating factors in the decision to report net income.

Having a bond rating only significantly enhances the likelihood of an income statement when a balance sheet is present. This variable was significant while issuing bonds was not. In a multi-variate model, these two variables may be proxies to some extent for one another, conceivably explaining the change in significance. Common-stock rating is significant in both models, while equity issues are only significant in Part 2. The debt-to-asset ratio is significant in Part 3, showing a negative relationship. This result is opposite to expectation. However, the hypothesis did assume that the companies have the ability to service the debt. If highly levered firms seemed unable to service their debt, not reporting an income statement would then be one way to cover up this issue. All financing variables considered are significant in one or both models. Thus, the need for additional funds and the make-up of the capital structure seem significant motivators in issuing income statements. Overall these results show that a number of factors influence a company's decision to report an income statement. When comparing these results to others in this study, it becomes clear that income statements are issued more frequently when equity ratings and bond issuance occur. Income statements are frequently issued when a company wants investors to buy its stock or bonds or to continue a market in the company's securities. Firm size is also a significant factor. Larger companies may have become large through equity and bond issuance, thereby appreciating the need for continued disclosure of income to keep shareholders interested in company securities. With only 56% of the sample issuing income statements, it may be hypothesized some form of regulation was necessary to encourage wider reporting.

Income-Statement Items: The previous analysis examined income-statement disclosure. However, traded companies on most exchanges had to provide an income statement. Therefore, disclosing an income statement was not totally voluntary for some of the 30% of the sample that traded on an organized exchange. However, the amount of income-statement information disclosed was voluntary.

Least-squares regressions and correlations are used to de-

termine which environmental factors help explain the amount of income-statement disclosure. Part 1 of Table 5 reports the results for the correlation between income-statement items and the independent variables. International operations are shown

TABLE 5

Income Statement Disclosure
Least-Squares Regression

	Part 1 Correlation	Part 2 Multi-variate		Part 3 Multi-variate	
Variable	**Coeffi-cient**	**Coeffi-cient**	**t-Stat**	**Coeffi-cient**	**t-Stat**
Constant		4.73	4.03***	4.57	3.57***
Traded on Exchange	0.12	0.45	1.18	0.22	0.50
Percentage of Board that are Officers	-0.14*	-1.27	-1.36*	-1.47	-1.25
Incorporated in Delaware or New Jersey	-0.02	-0.45	-1.10	-0.19	-0.40
Subsidiaries	0.04	0.33	0.83	-0.31	-0.67
International Operations	0.19**	0.67	1.76**	0.60	1.33*
Age of Company	-0.19*	-0.03	-2.68***	-0.03	-2.09**
Return on Assets	-0.08			1.82	0.52
Total Assets (in millions)	0.10			0.00	0.97
Bond Rating	0.08	0.03	0.07	-0.46	-0.78
Common Rating	0.00	-0.46	-0.43	-0.66	-0.58
Bond Issues	0.11	0.41	0.72	-0.07	-0.10
Equity Issues	0.04	0.12	0.78	-0.01	-0.02
Debt-to-Assets Ratio	0.11			2.24	1.07
Dividend-Payout Ratio	0.05			0.06	0.52
Adjusted R^2		5.9%		0.0%	
F-statistic (p-Value)		1.63	0.109	0.79	0.680
N		100		86	

The sample consists of 200 randomly selected industrial firms included in the *1920 Moody's Analyses of Industrial Investments*. Part 1 reports Pearson correlations. Parts 2 and 3 report regression results using ordinary least squares. All variables are defined in Table 2.

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 percent levels with the results in the predicted direction and one-tailed tests for regressions and two-tailed tests for correlations. #, ##, and ### denote significance at the 0.10, 0.05, and 0.01 percent levels with the results of the opposite sign from what was predicted.

to have a positive influence on the amount of income-statement disclosure. Officers on the BD and company longevity both reduce the amount of information in the income statement.

To examine the effect of considering all variables together, the multi-variate models are estimated in Parts 2 and 3 of Table 5. The results in Part 2 are for companies with an income statement regardless of whether a balance sheet exists. Part 3 results include the financial-statement variables, so the sample includes companies with both statements. Neither of these models is statistically significant at conventional levels. Therefore, the amount of income-statement disclosure is a function of factors other than those considered in this study. The significance of BD composition and age may be indicating that entrenched management/BD philosophy on reporting may be a key determinant of the amount of disclosure as noted in Bartlett and Jones [1997]. No variable is included in the model to measure this philosophy and, if a sufficiently significant variable does exist, it could explain the model misspecification indicated by the results.

Balance-Sheet Disclosers: Correlations and regressions are also estimated to examine which environmental factors influence the existence of a balance sheet.[6] Different factors may influence why a company chooses to report a balance sheet rather than an income statement in the era before SEC requirements. As shown in Table 2, 74% of the companies reported a balance sheet.

The results of the correlation analysis are shown in Part 1 of Table 6. These results indicate that being traded on an exchange, being incorporated in New Jersey or Delaware, having a subsidiary and international operations, and issuing equity within the past three years are all associated with issuing a balance sheet. Having rated bonds was shown to reduce the likelihood of reporting a balance sheet.

Part 2 of Table 6 shows the results of the multi-variate logit regression for the sample of all companies regardless of the statements issued. The logit regression for firms issuing income statements and a balance sheet or not would not converge. Therefore, results of a second multi-variate model are not reported since statistically, no logistic regression model

[6]Results for total assets, debt-to-assets ratio, and return-on-assets are not reported because these variables require the existence of a balance sheet, and the model needs to consider both firms with and without a balance sheet to explain the existence of the statement.

TABLE 6
Balance Sheet Existence
Logit Regression

	Part 1 Correlation	Part 2 Multi-variate	
Variable	**Coefficient**	**Coefficient**	**t-Stat**
Constant		0.32	0.35
Traded on Exchange	0.22***	1.17	2.32***
Percentage of Board that are Officers	-0.09	-0.77	-0.84
Incorporated in Delaware or New Jersey	0.15**	0.53	1.06
Subsidiaries	0.15**	0.04	0.09
International Operations	0.19***	1.04	1.92**
Age of Company	-0.00	0.01	0.66
Bond Rating	-0.12#	-1.05	-2.39##
Common Rating	0.07	0.40	0.50
Bond Issues	0.06	1.07	1.79**
Equity Issues	0.23***	1.44	2.46***
Log-Likelihood		-90.7	
Zero Slope Test (p-Value)		33.99	0.000
N		191	

The sample consists of 200 randomly selected industrial firms included in the *1920 Moody's Analyses of Industrial Investments*. Part 1 reports Pearson correlations. Parts 2 and 3 report regression results using logit. All variables are defined in Table 2.

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 percent levels with the results in the predicted direction and one-tailed tests for regressions and two-tailed tests for correlations. #, ##, and ### denote significance at the 0.10, 0.05, and 0.01 percent levels with the results of the opposite sign from what was predicted.

could be estimated. The model in Part 2 indicates that trading on an exchange, having international operations, and issuing bonds or equity are positively associated with issuing a balance sheet. Rated debt has a negative association with a balance sheet. Therefore, corporate-governance, operating, and financing factors are important in explaining a balance-sheet disclosure.

The exchange variable is probably significant because of imposed exchange requirements. Complexity of operations again encourages firms to issue more financial-statement information. However, H4 is only supported with respect to international operations.

The bond and stock issuance variables are again significant

for reducing cost of capital and providing potential buyers with needed information about financial position and the company's ability to meet its capital needs. These results are consistent with H9.

The negative relationship between debt rating and the issuance of a balance sheet did not meet the expectation that companies with traded debt were doing well financially and would issue statements to keep a market in the securities. If the company is too highly levered, then the company may not want to report a balance sheet showing the true level of debt. H8 is not supported by these results.

Balance-Sheet Items: Correlations of the independent variable and the number of balance-sheet line items disclosed in *Moody's* were estimated. The results are shown in Part 1 of Table 7. These results show the same significant variables as for total disclosure in Table 3 with the exception of a rating on common stock increasing the amount of disclosure and a less independent BD lowering the amount of balance-sheet disclosure.

Part 2 of Table 7 estimates a least-squares regression of balance-sheet items using all companies with a balance sheet. The results indicate that corporate-governance, operating, and financing factors are all important in explaining how much balance-sheet disclosure is made. The specific significant variables that increase the amount of balance-sheet disclosure are trading on an exchange (H1), having subsidiaries (H4), and having rated debt and equity (H8).

Once again, expanding the breadth of ownership, having complex operations, seeking new capital, or maintaining a market in existing capital are all associated with greater disclosure in the balance sheet. The positive relationship between the amount of disclosure and security ratings is interesting given the negative association between debt ratings and reporting a balance sheet. This combined result seems to indicate that once the balance sheet is issued, ratings encourage additional disclosure.

Part 3 of Table 7 provides the multi-variate results on the sample of companies that issue both a balance sheet and an income statement. The results are again similar to those for total disclosure (Part 3 of Table 3) with the addition of return-on-assets and equity issuance as variables that lead to greater balance-sheet disclosure.

Overall, the disclosure model presented seems to explain the choices concerning total disclosure, the issuance of an income statement, and the amount of balance-sheet disclosure. The

TABLE 7

Balance-Sheet Disclosure Least-Squares Regression

	Part 1 Correlation	Part 2 Multi-variate		Part 3 Multi-variate	
Variable	**Coeffi-cient**	**Coeffi-cient**	**t-Stat**	**Coeffi-cient**	**t-Stat**
Constant		9.86	5.37***	9.15	3.89***
Traded on Exchange	0.38***	2.63	3.50***	2.40	2.94***
Percentage of Board that are Officers	-0.18**	-1.83	-1.01	-4.24	-1.98**
Incorporated in Delaware or New Jersey	0.25***	0.61	0.75	-0.52	-0.60
Subsidiaries	0.42***	2.34	3.04***	4.16	4.87***
International Operations	0.21***	0.67	0.88	-0.77	-0.92
Age of Company	-0.10	-0.00	-0.16	-0.01	-0.25
Return on Assets	-0.15			8.60	1.34*
Total Assets (in millions)	0.42***			0.01	3.94***
Bond Rating	0.25***	1.55	1.59*	1.34	1.23
Common Rating	0.15*	2.44	1.48*	3.20	1.52
Bond Issues	0.19**	0.71	0.62	-1.52	-1.14
Equity Issues	0.07	0.05	0.07	1.43	1.67**
Debt-to-Assets Ratio	0.17**			3.16	0.82
Dividend-Payout Ratio	0.09			0.13	0.59
Adjusted R^2		26.2%		51.1%	
F-statistic (p-Value)		6.12	0.000	7.43	0.000
N		142		86	

The sample consists of 200 randomly selected industrial firms included in the 1920 *Moody's Analyses of Industrial Investments*. Part 1 reports Pearson correlations. Parts 2 and 3 report regression results using ordinary least squares. All variables are defined in Table 2.

*, **, and *** denote significance at the 0.10, 0.05, and 0.01 percent levels with results in the predicted direction and one-tailed tests for regressions and two-tailed tests for correlations. #, ##, and ### denote significance at the 0.10, 0.05, and 0.01 percent levels with the results of the opposite sign from what was predicted.

models for income-statement disclosure and issuance of a balance sheet do not perform as well. While some factors are only significant in one of these decisions, other factors are generally shown to influence all facets of voluntary disclosure.

Table 8 provides a summary of the results from the other tables. To control for potential overfitting of results, a variable

TABLE 8

Results Summary

	Table 3	Table 5	Table 7	Table 4	Table 6
Variable	**Total Disclosure**	**Income Statement Disclosure**	**Balance Sheet Disclosure**	**Income Statement Existence**	**Balance Sheet Existence**
Corporate-Governance Factors:					
Traded on Exchange	+		+	+	+
Percentage of Board that are Officers	-	-	-	-	
Incorporated in Delaware or New Jersey					
Operating Factors:					
Subsidiaries	+		+		
International Operations		+		+	+
Age of Company		-			
Return on Assets			+	NA	NA
Total Assets	+		+	+	NA
Financing Factors:					
Bond Rating			+		-
Common Rating			+	+	
Bond Issues				+	+
Equity Issues				+	+
Debt-to-Assets Ratio				-	NA
Dividend-Payout Ratio				NA	NA

This table summarizes significant results reported in Tables 2-6. A variable had to be significant in at least two specifications within a table or significant in the only multi-variate model in which it was included to be summarized in this table.

needed to be significant in at least two specifications within a table or be significant in the only multi-variate model in which it is included to be considered significant in this summary. The table shows that trading on an exchange, lack of an independent BD, having complex operations, and firm size are important variables for total disclosure decisions. Therefore, corporate-governance and operating factors influence overall statement disclosure. Financing factors are shown to influence individual statements but not total disclosure. Equity ratings and issuing securities are shown to increase the likelihood to report an income statement and securities ratings are associated with more disclosure of information in the balance sheet. This seems to indicate that financing issues had different influences on the two financial statements. Thus, companies wanting to broaden ownership and seeking additional equity capital are most likely to provide a full set of financial statements with reasonable amounts of information. Complexity of operations also shows a positive relationship with disclosure. Firms with subsidiaries have increased amounts of disclosure, and those with international operations tend to issue both statements more frequently. Larger companies are also more likely to provide greater statement disclosure. Corporate governance is shown to be related to a heightened number of income statements but not balance sheets. The volume of disclosure is increased in both.

The summary in Table 8 also shows that the amount of disclosure is primarily a function of corporate governance, complexity of operations, and firm size, while the issuance of statements is a function of corporate-governance, complexity of operations, and financing factors. The factors influencing a company to report either financial statement are very similar with the exception of BD independence and securities ratings. This finding that BD independence is only influential in the decision whether to report an income statement but not in the decision of whether to report a balance sheet provides some support for the conclusion of Bartlett and Jones [1997] that BD philosophy influences the amount of voluntary disclosure. Balance-sheet disclosure was a more common practice as noted by the larger number of firms issuing a balance sheet both in this study and in the literature indicates that their promulgation was a common practice of the day [Kittredge, 1901; Sprague, 1901, Gilman, 1939; Skinner, 1984; Kendig, 1993]. Therefore, balance sheets may not have been viewed as voluntary to many companies, while income statements were voluntary until they became a requirement for listing on an exchange. Thus, the BD philosophy

on disclosure could more readily influence whether an income statement was published along with a balance sheet.

The amount of disclosure within the statements is shown to be influenced by many more factors for the balance sheet than for the income statement. This contrasts with Barton and Waymire's [2004] finding that more factors explain income-statement transparency than for balance sheets. However, the multi-variate models for income-statement disclosure were not significant, indicating that variables other than those considered here are better explanatory factors of the volume of income-statement disclosure. The amount of balance-sheet disclosure is also shown to be a function of corporate-governance, operating, and financing factors.

This study examined factors that would influence a company's decision regarding the voluntary supply of information. The results indicate that there are some important factors that influence the decision to issue a statement and the amount of information contained therein. Corporate-governance, operating, and financing factors all play a role in the disclosure decisions of companies, but those factors vary in their importance in different decisions. The results indicate that disclosure decisions are complex and take multiple factors into account. Since various factors were shown to influence the types of statements reported and the amount of information conveyed, the results confirm the conclusion of Coombs and Edward [1995] that regulation is needed to equate the supply of financial-statement disclosure provided by companies in response to the demands of stockholders.

CONCLUSION

This paper examined financial-statement disclosures by industrial companies as reported in the 1920 *Moody's*. The paper looked at overall disclosure and disclosure particular to the individual statements. The focus of the paper was to determine which company-specific factors would affect the corporate decision to disclose financial statements and the amount of disclosure. By looking at these factors, the motivation of firms to disclose voluntarily as in the Coombs and Edwards [1995] model can be understood.

The model developed in this paper can be used to explain factors that influenced the issuance of an income statement as well as the contents of both financial statements. The model provides some insight regarding the amount of information in

the income statement and the issuance of a balance sheet, but the model did not fit the data as well for these two corporate decisions. The results showed that corporate-governance, operating, and financing factors are important, but that their relative importance varied by the specific disclosure decision under consideration.

A company was more likely to issue an income statement if it traded shares on an organized exchange, had international operations, was relatively larger, had securities rated by *Moody's*, and issued bonds and/or equity in the recent past. Having a large percentage of officers on the BD and/or a high debt-to-asset ratio reduced the likelihood. The decision to issue a balance sheet was positively influenced by trading on an exchange, having international operations, and issuing stock and bonds, but not if already existing debt was rated.

Factors influencing total disclosure and balance-sheet disclosure are similar. Trading on an exchange, possessing subsidiaries, and relatively small size were shown to increase the amount of disclosure. Both measures were negatively influenced by BD composition. Balance-sheet disclosure was also positively influenced by return-on-assets and rated debt and equity. The equation used to estimate the amount of information disclosed in the income statement was not significant. However, three significant coefficients resulted, indicating that income-statement disclosures are greater for companies with international operations and lower for older companies and those with a less independent BD.

Seeking broader ownership by trading on an exchange was shown to be significant in most types of disclosure decisions. As noted earlier, exchanges did impose requirements for issuing statements. Therefore, for these traded companies, statement disclosure was not entirely a voluntary choice. However, traded companies consistently reported more information which shows more voluntary disclosure beyond the mere issuance of the statement. Also, the choice to list securities for trading would involve consideration of all requirements to list. One requirement is statement disclosure. Thus, when a company chose to list securities voluntarily, a simultaneous choice to report financial statements was also voluntarily made.

Complex structures with the existence of subsidiary or international operations were also important for all disclosure decisions. Such companies consistently reported more statement information as is consistent with the literature [Zarzeski, 1996]. Corporate governance was also shown to be an important factor.

Greater managerial involvement on the BD led to reduced disclosure in both statements and a decreased likelihood of reporting an income statement. This is also consistent with the literature [Klein, 2002; Eng and Mak, 2003; Guy and Leung, 2004].

The results do indicate that incentives did exist in the pre-SEC era to encourage companies to disclose financial statements. However, the data and results show that smaller, domestic businesses with a BD controlled by management that neither traded on an organized stock exchange nor sought additional capital recently were highly unlikely to report an income statement voluntarily. These characteristics would seem to describe entrepreneurial firms that were growing rapidly within the economy of the early 1920s. Many of these small, founder-focused companies have grown into large, profitable corporations today. The results of this study clearly document that many of these companies lacked the incentives to provide the additional disclosure considered typical for an efficient capital market [Senatra and Frishkoff, 1984] before regulatory intervention. This variation in economic factors encountered by firms created a gap between the supply and demand for disclosure as modeled by Coombs and Edwards [1995]. The economic factors faced by some companies encouraged the decision not to disclose a statement or to disclose less then the amount of information wanted by market participants [Kohler, 1926]. These results are similar to those reported in Murphy [1988], who examined Canadian reporting and concluded that regulation was a necessary prerequisite for complete disclosure. This paper likewise concludes that many companies lacked the incentives to provide full financial disclosure without regulatory intervention.

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A CONTINGENCY THEORY PERSPECTIVE ON MANAGEMENT CONTROL SYSTEM DESIGN AMONG U.S. ANTE-BELLUM SLAVE PLANTATIONS

Abstract: This paper examines the management control-system design of mid-19th century U.S. slave plantations using a contingency theory framework. Large rice plantations that relied on forced labor and tidal-flow agricultural technology were very profitable for their owners. This paper presents a model that links these favorable operating results to a close fit between the control-system design and three key contingent environmental variables. Absentee owners hired managers to provide on-site oversight and periodic operational reporting. These managers relied on slave drivers to assign individualized daily tasks to the plantation's field hands and monitor their performance. Productive field slaves were rewarded with greater free time each working day. In addition, many slaves worked cooperatively with their masters to obtain better jobs outside the rice fields and cash income. Ultimately, however, it was the institution of chattel slavery that kept the slaves working in the rice fields under oppressive and unhealthy conditions.

INTRODUCTION

This paper extends the existing accounting history literature with an analysis of the control systems and practices of U.S. ante-bellum slave plantations. This topic has received limited coverage in the existing literature. This analysis is couched in a perspective of contingency theory. The relationship between organizational control and the management of complex organizations has long been a popular topic for accounting research [e.g., Otley, 1980; Dent, 1990; Chenhall, 2003]. This paper presents a study of the managerial control systems and accounting practices of 19th century Carolinas Lowcountry rice plantations. The commercial success enjoyed by these large rice planters reflected a good fit between management control systems and

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key environmental factors. The tidal rice culture was characterized by large-scale plantations relying on controlled flooding and the forced labor of the descendents of slaves brought to achieve commercial rice production for export markets. The most profitable of these plantations covered thousands of acres and employed hundreds of slaves. As such, they were some of the largest and most complex commercial business operations in the nation at that time. These business owners utilized an integrated set of management and task controls, an integral part of a broader framework of social control and culture, to manage their agricultural enterprises. Written journals and face-to-face reporting from on-site managers provided planters with operational feedback on the productivity and well being of their slaves and land. These managers, in turn, relied heavily upon their foremen to make many daily decisions essential for business success, to supervise workers in the fields, and to help maintain social order in the slave community. Historical scholarship also suggests that the African origins of the tidal-flow agricultural technology, along with the accompanying tasking system of labor organization, evolved in the Carolinas during the 18th century as a mechanism to enhance worker productivity.

The remainder of the paper is organized as follows. The first section presents a discussion on the study's theoretical framework and a review of the research literature. The second section outlines the archival resources that provided the study's empirical data, followed by the paper's main body containing the empirical findings. The final section offers conclusions.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Framework: This paper focuses on management and task control processes on 19th century U.S. slave plantations. Management control describes the process of implementing strategy [Anthony and Young, 1999]. Business owners typically hire professional managers to run their enterprises on a daily basis. Management control describes the relationship between business owners and their hired mangers. Owners provide direction and oversight while managers develop operational plans and motivate workers to implement those plans. For this reason, management control involves managers and their staffs at all levels of the organization [Anthony and Govindarajan, 1998]. General controls, formal controls, and a system of compensation and incentives are the three primary mechanisms for exercising management control. General controls are based upon the

organization's behavioral norms [Goffee and Jones, 1996]. They are applied through interpersonal interaction in the workplace and the formal direction of subordinates in their activities. Job descriptions, periodic formal or informal personnel performance evaluations, and formal reporting structures within an organization are examples of general controls. Green and Welsh [1988] describe formal means of control as a system in which standards of performance are determined, measuring systems gauge performance, comparisons are made between standards and actual performance, and feedback provides information on variances. Financial budgeting systems, periodic responsibility accounting reports, and standard cost reporting are formal control systems commonly found in contemporary business enterprises. Formal controls are supported by and operate through general controls. An organization's compensation and incentive system specifies the appropriate financial rewards for desired individual performance. Compensation and incentive systems are the tangible motivational links between individual work activities and organizational roles.

Management control practices are applied through an organization's task control system to influence daily efforts of an organization's workers. Task control involves the organization and direction of workers as they produce the goods or deliver the services that form the objective of its operating activities. Task control is transaction-orientated; that is, it involves the control of individual tasks. Rules to be followed in carrying out these tasks are prescribed by the management control process. The objective of task control is to assure that specified tasks are carried out efficiently and effectively [Anthony and Govindarajan, 1998]. Task control involves task specification, programming, and quality control. Task specification involves the prospective definition of the work to be done and its communication to workers. Task specification can be expressed alternatively in terms of the steps to be followed or the outcome to be realized. Where the steps to be followed from start to task completion can be fully specified, these steps can best be described as programming. Programming is often embodied in the form of standard operating procedures (SOPs). Quality control insures that the task performance was effective; that is, task specifications have been met or SOPs have been followed. Task control is central to the direction of workers in their daily activities by supervisors and managers.

Feedback, which is central to the control process, is based upon communication [Anthony and Govindarajan, 1998].

Organizational goals, objectives, and plans are communicated down the organization's chain of command while environmental intelligence and performance results are communicated up. Management control relies on the communication between managers and owners. Management accounting systems, which convey economic and operating information, are nested within these communication channels [Waterhouse and Tiessen, 1978]. Managers and owners on Lowcountry rice plantations communicated with one another by face-to-face contact and/or letters, journals, ledgers, and other hand-written reports. Communication between plantation owners and managers and slaves must have been primarily by oral interaction. Thus, task specification, programming, and quality control, the core of the task control process, must have been exercised via general management controls of supervision and organizational structure.

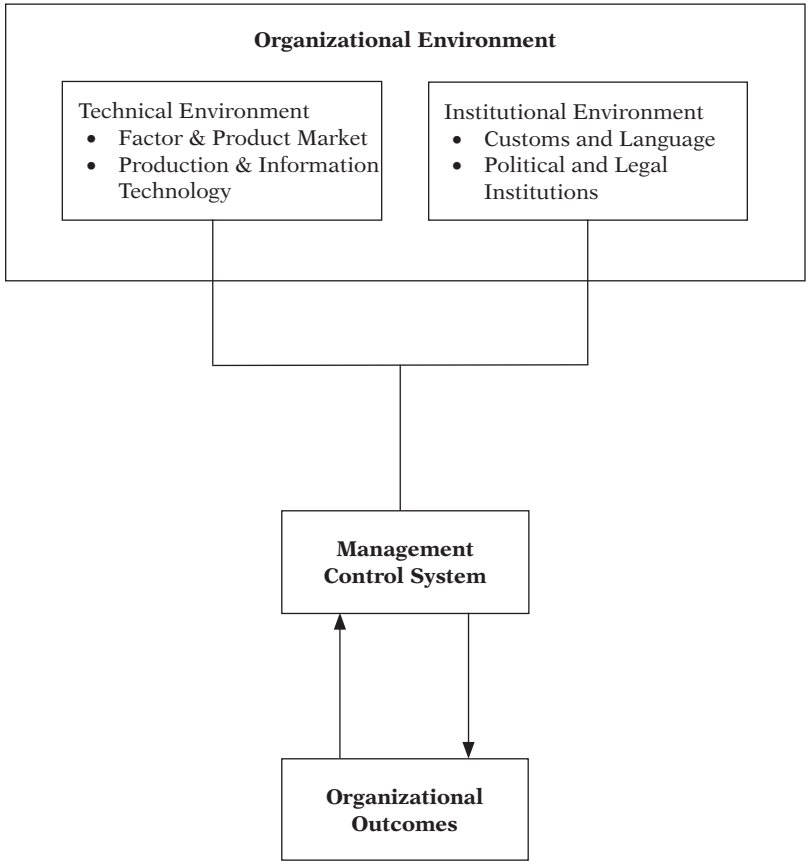
Contingency theory has been one of the dominant conceptual frameworks for research into management control over the past two decades [e.g., Otley, 1980; Dent, 1990; Fisher, 1995]. Waterhouse and Tiessen [1978] and Otley [1980] reaffirmed the role of two key contextual variables, environment and technology, in the design of an effective management control structure. Technology defines how the work of the organization is performed as well as the ways in which organizational participants and key stakeholders communicate and interact [Otley, 1980]. It includes a conversion technology that is the core of the organization's production process. Organizational information and communication technologies establish parameters on its communications and feedback processes. Meyers and Scott [1983] distinguish broadly between two types of organizational environments, the technical and the institutional. Technical environments are those in which organizations acquire factor inputs, apply an appropriate conversion technology to those inputs, and deliver the resulting product or service to the marketplace. These exchanges between the organization and its environment occur in markets that reward efficient and effective performance. Technical environments foster the development of rationalized structures that efficiently coordinate technical work. By contrast, institutional environments are characterized by the elaboration of rules and requirements to which organizations must conform in order to receive legitimacy and support [Rowan and Meyers, 1977]. In institutional environments, organizations are rewarded for utilizing the designated structures and processes, not for the quality and quantity of their outputs.

This study draws its primary theoretical framework from

managerial accounting research that seeks to develop models that link organizational outcomes, contextual variables, and management control-system design [Chenhall, 2003]. While an organization's control structures are contingent on its environmental context, its effectiveness and efficiency are measured by its performance relative to its goals and objectives [Waterhouse and Tiessen, 1978]. This paper proceeds from the notion that superior organizational performance, defined operationally as cash profits, is a function of the fit between the organization's key contextual variables and its management control-system design [Gerdin and Greve, 2004]. Good fit means enhanced performance while poor fit implies diminished performance.

FIGURE 1

A Contingency Theory Perspective on Management Control-System Design



Literature Review: Management control systems and activities on slave plantations have received only modest attention in the accounting history literature. Fleischman and Tyson [2004] reviewed many account books and ledgers produced by 19th century slave plantation owners and managers. Their review was largely focused on the use of these journals to measure slave valuation and productivity. They found that these plantation records were rarely used to compile the productivity and valuation of individual slaves. Instead, they concluded that these journals were instruments of social control over slaves rather than a means for measuring and reporting the results of operations or the financial condition of the enterprise. Vollmers [2003] examines the role that hired managers played in supervising and reporting on the work activities of slaves in the North Carolina turpentine industry. The drivers' responsibilities included inspecting production output, insuring that each slave met his daily output quota. The overseer compiled daily production outputs and maintained an account book which contained records of slave production, supplies received and purchased, as well as miscellaneous cash payments including those to slaves. Tyson et al. [2004] focuses exclusively on the task control relationships between U.S. and British West Indies planters and their slaves. Their research indicates that U.S. plantation owners relied on two alternative methods of task control (ganging and tasking) for their African work force. However, their work did not seek to examine the role played by supervisory personnel and organizational structures that supported these relationships.

ARCHIVAL RESOURCES

This paper makes extensive use of the *Records of Ante-Bellum Southern Plantations: From the Revolution to the Civil War* [Stampp and Boehm, 1985]. This collection consists of selected microfilmed, primary-source material drawn from the University of South Carolina Library, the South Carolina Historical Society, the Duke University Library, the Maryland Historical Society, the Louisiana and Lower Mississippi Valley Collection, the Louisiana State University Libraries, and the University of Virginia Library. In particular, this paper draws on the Paul D. Weston Family Papers 1786-1869, Georgetown District, South Carolina; the Thomas Ashton Coffin Plantation Book 1800-1813, Beaufort District, South Carolina; and the Richmond Overseer Journal, 1859-1860, Charleston District, South Carolina. Also used were the Robert F.W. Allston Family Papers in *The South Carolina*

Rice Plantation as Revealed in the Papers of Robert F.W. Allston [Allston, 1945]. While the selection of these four collections of family papers was drawn from geographically diverse locations within the Carolinas Lowcountry, they do not reflect a randomly selected sample or a complete census of all mid-19th century rice plantations. Instead, these sources were chosen because of their participation in the tidal rice culture, the breadth of their records and correspondence, and their legibility. Hurmence [1989] provided a different perspective derived from the recollections of African Americans working as slaves in the Carolina rice fields. Hurmence recorded 27 oral histories of former slaves gathered during the Great Depression by the Federal Writers' Project. Olmsted [1856] toured the southern states starting in 1852 and reported on the management and operations of Mr. X's rice plantations in South Carolina.

DISCUSSION AND FINDINGS

Organizational Outcomes: This paper's contingency theoretical perspective predicts that superior organizational outcomes among 19th century tidal rice plantations are associated with a management control-system design that efficiently adapted to the key features of the organizational environment. Swan's [1973] analysis, based on a sample of 575 rice farms in 1859, reported that rice farming was, for most planters, an unprofitable venture. Roughly two-thirds of the sample farms reported an estimated rate of return below 6%, the assumed opportunity cost of capital. Moreover, more than one-third of sample farms, mostly small units, had negative net receipts. However, the largest 20% of the sample units, those plantations with annual production of at least 100,000 pounds of clean rice, accounted for 96% of the region's rice crop. Only this group of plantations earned an average rate of return in excess of the opportunity cost of capital with over 70% of large plantations at least this profitable.

In the economic and technological context of the mid-19th century rice industry, quantity production was possible only with the use of tidal-flow agricultural techniques, expansive land holdings, and the labor of hundreds of slaves. Robert F.W. Allston (1801-1864) was one of the mid-century's most successful rice planters. He owned and operated a network of seven plantations along the Pee Dee River near Charleston, South Carolina. His land holdings included more than 4,000 acres in rice land and another 9,500 acres of pasture and timber lands [Allston,

1945]. In 1827, Allston resigned as surveyor-general of South Carolina to take over full-time management of a large rice plantation, Chicora Wood, which he had inherited from his father. Chicora Wood served as a home base for his network of rice plantations. Rice production from these plantations exceeded 840,000 pounds of rice in 1850 and 1,500,000 pounds by 1860. Based on prevailing rice prices, his plantations' annual gross receipts generally exceeded $65,000 during the 1850s. The slave labor force that produced rice for him increased from 401 in 1850 to 630 by 1860.

While financial records documenting the full extent of Allston's operations were not available, Table 1 provides a summary of receipts, expenditures, and return on investment for Waverly Plantation for 1855-1857 [Allston, 1945, pp. 46-48]. Waverly Plantation included 587 acres of which about 150 acres were dedicated to tidal-flow rice cultivation. Next to the rice lands stood the plantation house, slave quarters, and a rice mill which

TABLE 1

Waverly Plantation Cash Receipts, Expenditures, and Capital Investments 1855, 1856, and 1857

		1855	1856	1857
Receipts				
	Crop Sales	$ 14,486.59	$ 8,824.56	$ 15,264.92
	Mill Earnings	7,325.53	13,382.78	15,786.32
Total Receipts		$ 21,812.12	$ 22,207.34	$ 31,051.24
Expenditures				
	Supplies	4,875.80	4,976.34	5,843.13
	Lumber and Fuel	2,747.25	4,839.55	10,076.37
	Mill Repairs	878.50	1,792.45	2,410.58
	Overseer's Wages	1,100.00	1,100.00	1,050.00
	Miller's Wages	580.14	800.00	900.00
	Slave Hire	780.00	925.00	1,504.31
	Medical Services	237.25	6.50	1,514.81
	Legal Services	4.00	4.50	10.00
	Taxes	231.71	218.31	249.60
	Interest on Advances	454.97	42.86	
	Interest on Bonds	839.47	839.47	1,419.01
	Miscellaneous	631.98		188.06
Total Expenditures		13,361.07	15,544.98	25,165.87
Net Receipts		$ 8,451.05	$ 6,662.36	$ 5,885.37
Capital Investment				
	Land	$ 62,074.78	$ 62,074.78	$ 62,074.78
	Slaves	17,731.76	17,731.76	23,388.76
	Other	7,062.13	7,757.26	8,965.16
Total Capital Investment		$ 86,868.67	$ 87,563.80	$ 94,428.70
Return on Investment		9.7%	7.6%	6.2%

Source: Allston [1945, pp. 46-48] (adapted)

"pounded" not only Waverly's crop but that of many other neighboring plantations. Beyond this area, there were many acres of cultivated lands dedicated to growing provision crops such as sweet potatoes, corn, and peas.

These financial records from a single plantation among Allston's larger properties indicate one of two sources of economies of scale suggested by Swan's [1973] broader findings. Larger rice producers were able to accumulate the capital needed to take advantage of new technologies. Historically, the husking and polishing of the rice harvest was one of the most time-consuming and labor-intensive aspects of its cultivation. By the 1830s, many of the larger plantations operated pounding and/or threshing mills driven by steam engines. Carney [2001] suggests that the mechanization of this process early in the 19th century greatly improved the productivity and profitability of rice cultivation. In addition, mill operations enabled large planters like Allston to diversify their revenue streams. Table 1 indicates that mill receipts exceeded those from rice sales for two of the three years presented.

The size of its slave labor force and the extent of its cultivated lands also provided a large Lowcountry rice plantation in that era with considerable economies of scope as well. Like Waverly, most large plantations reserved many acres of cultivated lands for provision crops and livestock. Olmsted [1856, p. 426] observed that:

> Mr. X allotted a half an acre of land to each family of negroes for a garden. They are at liberty to sell whatever they chose from the products of their gardens, and to make what they can by keeping swine and fowls. Mr. X's family has no supply of eggs and poultry than what is obtained by purchase from his negroes; they frequently, also, purchase game from them.

In March 1858, Allston executed a contract with his slaves to encourage them to raise hogs for his purchase [Allston, 1945, p. 350]. The profitability of these large rice plantations was considerably improved by their internal sourcing of produce and meat for their free and slave residents. While the bulk of Mr. X's 200 slave residents were "prime hands" who worked in the rice fields, Olmsted [1856, p. 426] observed that "Adjoining the mill-house were shops and sheds, in which blacksmiths, carpenters, and other mechanics, all slaves belonging to Mr. X, were at work." These skilled mechanics and artisans, such as carpenters, who built the irrigation trunks and maintained the houses and

fences; a blacksmith or two who did the iron works; coopers who made the barrels to contain the rice; and bricklayers, were able to produce virtually everything necessary to support the plantation's agricultural operations. These economies of scope supported and supplemented the large plantations' economies of scale [Swan, 1973]. The combined impact of these economies of scale and scope enhanced the profitability of large rice plantations by creating a largely self-sufficient economic enterprise.

Three Contingent Contextual Variables: This paper's conceptual model predicts that the profitability accruing to Allston and many other owners of large Lowcountry rice plantations were linked through an efficient management control-system design to three key contextual variables. These three contextual factors were the natural features of the Carolina Lowcountry, the demographic and cultural aspects of the West-African labor force who worked the rice fields, and the institution of chattel slavery. These contextual factors offer opportunities and challenges that motivated the control system design of the large rice plantations.

The Geographic Location, Climate, and Topography of the Carolinas Lowcountry: The geography, climate, and topography of the coastal regions of the Carolinas, Georgia, and northern Florida, later know as the Lowcountry, was a key contingent environmental factor leading to the development of the Carolinas tidal-rice culture and the plantation economy it nurtured. Rice was first grown successfully in South Carolina about 1680 when Henry H. Woodward planted seed given him by the captain of a Madagascar ship [Clifton, 1981b]. By the early 18th century, it became a major export crop of the lower South. Rice exports rose from 10,000 pounds in 1698 to over 20 million by 1730. The cultivation of rice with the tidal-flow method transformed the coastal southeast between 1783 and the early 19th century [Carney, 2001]. This highly productive method was practical only on the lower stretches of a few rivers from Cape Fear in North Carolina to the St. Johns in north Florida. Moreover, many of these rivers, primarily the Ashley, the Pee Dee, and the Waccamaw, served as highways for the bulk movement of agricultural produce and other goods to Charleston. Charleston became one of the leading seaports in the Western Hemisphere in the early 18th century. This major seaport gave local rice planters ready access to their customers in northern Europe and their slave laborers from West Africa and the West Indies.

The climate of coastal South Carolina and Georgia also proved equally suitable for the spread of tropical diseases such as malaria and yellow fever, diseases that thrived on the swampy coastal plain, especially around the flooded rice plantations. Early in the 18th century, the white planters adopted the custom of leaving their farms altogether during the rainy summer and autumn months when fever ran rampant. The white population in the region stayed relatively low, but the importation of African slaves increased as the rice plantations expanded. By 1708, there was a black majority in South Carolina, a unique situation among the North American colonies. In some coastal areas, 80-90% of the population was enslaved [Wood, 1974, p. 60].

The geography of South Carolina, together with the region's black majority, also encouraged the foundation and continuing existence of maroon communities of runaway slaves [Lockley, 2005]. The swampy topography offered many areas of refuge to maroons where they could carve out their lives free from white control. The dense woods between the swamps were impassible to slave hunters on horseback, forcing them to deploy themselves on foot in small groups where they were more vulnerable and less effective [Stroyer, 1898]. Yet, no maroon community could survive completely cut off from the outside world. While food could be grown, water was abundant, and shelter readily fashioned, maroon communities could not make metal goods or replenish shot and powder for guns [Lockley, 2005]. In short, these communities needed regular clandestine commerce either with plantation-based slave communities or white merchants for their long-term survival. However, these small communities could only survive by maintaining a modest size and shadowy existence. The bulk of the Lowcountry's slaves was forced to live on the plantation. Nevertheless, the presence of these communities reflected the limits of the planters' control over their workforce. They dared not press too hard lest their workers and valued property would simply walk away into the swamps to these communities [Olmsted, 1860].

A West-African Labor Force: The creation of a tidal rice plantation required a substantial capital investment and a tremendous amount of back-breaking labor. Clifton [1981b, p. 278] reports from contemporary sources that acquiring the necessary slave force constituted more the half of the £2,000 cost of establishing a typical 1,000 acre rice plantation in the 18th century. In a world before modern earth-moving machinery, men with shovels and other hand equipment cleared riverside swamps of timber

and undergrowth, surrounded them with earthen levees, and then constructed an intricate system of dams, dikes, floodgates, ditches, and drains. Moreover, rice cultivation was an extremely labor-intensive activity, requiring continual labor inputs from many workers throughout the year. This enormous need for labor greatly encouraged the introduction of a slave labor force. South Carolina was a slave colony from its inception in the 16th century. Although the first Africans arrived in 1526 as part of a large Spanish expedition from the West Indies, planters who later emigrated from Barbados established large-scale slavery in the Carolinas on indigo and rice plantations. The Atlantic slave trade was at its height and agricultural laborers from West Africa were available in great numbers. Clifton [1981b] reports that the slave trade increased from an average annual importation of 390 slaves for the years 1721-1725 to almost 2,100 for the years 1731-1738.

From the earliest times, there was a close relationship between the technical skills of the African slaves imported into the region and rice cultivation. The South Carolina planters were, at first, completely ignorant of rice cultivation, and their early experiments with this specialized type of tropical agriculture were mostly failures. On the other hand, Carney [1996] noted that rice cultivation in West Africa dates back to at least 1500 B.C., and the methods of planting and processing the crop were already known to thousands of slaves brought to South Carolina with the onset of the transatlantic slave trade late in the 17th century. These African slaves brought knowledge from their homelands of different modes of rice cultivation, soil and water management, and milling, which they adapted to Lowcountry rice plantations. The Carolina planters soon recognized the advantage of importing slaves from the traditional rice-growing region of West Africa. Wood [1974, p. 60] reported that the prominent 18th century Carolina merchant Henry Laurens wrote: "…the Slaves from the River Gambia are preferr'd to all others with us [here in Carolina] save the Gold Coast.... next to Them the Windward Coast are preferr'd to Angolas." As a result, the Lowcountry rice planters largely adopted a system of rice cultivation that drew heavily on the labor patterns and technical knowledge of their African slaves by the late 18th century. In South Carolina and Georgia, the slaves simply continued with many of the methods of rice farming to which they were accustomed in Africa [Clifton, 1981b].

Wood [1974] noted that writers of the period remarked that there was no harder or unhealthier work possible than rice cul-

tivation. Working under a semi-tropical sun and standing knee deep in periodically flooded fields, Lowcountry slaves worked under brutal conditions and were regularly exposed to a host of water-borne diseases. Moreover, the high population density of the large rice plantations also meant these infectious diseases spread rapidly. These conditions helped to create mortality rates three times higher than those of slaves elsewhere in North America [Fogel and Engerman, 1974]. In addition, Dusinberre [1996] estimated that nearly two out of every three African-American children on rice plantations failed to reach their sixteenth birthday, and over a third of all slave children died before their first birthday. This high level of infant mortality and morbidity was probably the result of the mothers' chronic malaria and fatigue from the rigors of rice cultivation. Under these conditions, it is not surprising that few if any people, white or black, would freely chose to work in the Carolina rice fields. Carney [2001] noted that the large Carolina tidal rice plantations which produced great wealth for their owners for a century and a half completely disappeared two decades after the abolition of slavery.

Chattel Slavery – "America's Peculiar Institution": Slavery was therefore an essential ingredient in the successful establishment of cash-crop plantations in 18th century South Carolina. Slave traders in Africa soon learned that South Carolina was an especially profitable market for slaves. The rice planters there were willing to pay higher prices for slaves from the Rice Coast, the Windward Coast, Gambia, and Sierra Leone. In the second half of the 18th century, Bance Island was one of the major slave-trading operations on the Rice Coast of West Africa [Opala, 1986]. Richard Oswald was the principal partner in the London firm that operated Bance Island. Circa 1756, Oswald established a close personal and business relationship with Henry Laurens, one of the wealthiest rice planters and slave dealers in the South Carolina Colony. Laurens advertised the slaves and then sold them at auction to local rice planters for a 10% commission. For example, the Charleston *Evening Gazette* of July 11, 1785 advertised "a choice cargo of Windward and Gold Coast Negroes, who have been accustomed to the planting of rice" [Wood, 1974, p. 60].

The legal institution of chattel slavery in British North America became the basis of social control over African-American slaves. South Carolina passed a new slave code in 1740, more commonly known as the "Negro Act" [Sirmans, 1962]. The code, which was passed in response to the Stono slave rebel-

lion of 1739, remained largely unaltered until emancipation in 1865. The act also served as a model for the Georgia slave code of 1755. The new code reduced slaves to the status of chattel property. They were further denied any kind of protection under the law. Punishment for the murder of a slave by a white, for example, was reduced to a mere misdemeanor punishable by a fine. Moreover, much of the Negro Act was devoted to controlling minute aspects of a slave's life. For example, slaves were not allowed to dress in a way "above the condition of slaves." Blacks were prohibited from learning how to read and write and were not permitted to assemble. Blacks in violation of these provisions were subject to flogging or any other punishment that their owners deemed appropriate. Moreover, these oppressive laws were aggressively enforced, backed by the local law enforcement, state militia, and private slave catchers [Henry, 1913].

Management Control Structures and Practices in the Tidal Rice Culture: A century and a half of evolution of the Carolina tidal rice culture served to make the 1850s the zenith of the Lowcountry's large rice plantations. It is this time period that forms the temporal context for this study. The establishment of large-scale rice plantations on the tidewater regions of the Carolinas and Georgia required a massive engineering effort that was supported by an enormous investment in well-organized labor to achieve and maintain [Stewart, 1996]. The 18th century African slave trade brought thousands of slaves who formed this labor force and the majority of the region's population after the first decade of the 18th century. Many of these slaves possessed the expertise that facilitated a transfer of the tidal-flow rice cultivation technology from West Africa to the Carolinas [Carney, 1996]. Carney [2001] concluded that the task labor system was probably of African origin as it was already a feature of African slavery along the Upper Guinea Coast and its hinterlands during the transatlantic slave trade. Moreover, she also found evidence that some slaves possessed a special expertise that their masters lacked, enabling them to negotiate the customary patterns of work and reciprocity that evolved into the task labor system. Littlefield [1981] observed that this system initially evolved on the rice plantation of the Carolinas beginning in the 18th century. In addition, unlike tobacco which required continual attention from closely supervised workers throughout its cultivation, rice is a relatively hardy plant whose successful cultivation required only a few readily observable operations [Morgan, 1982]. Largely in place by the middle of the 18th century, the task system

on the Lowcountry's rice plantations prescribed specific daily expectations for each type of labor [Trinkley, 2005].

Work and Task Control in the Carolinas Rice Fields: By the mid-19th century, the daily tasks assigned to field hands were well defined by custom and practice. Olmsted [1856, pp. 435-436) observed that:

> All ordinary and regular work is performed *by task:* that is to say, each hand has his labor for the day marked out before him, and can take his own time to do it in… In hoeing rice, a certain number of rows, equal to one-half or two-thirds of an acre, according to the condition of the land; in sowing rice (strewing in drills), two acres; in reaping rice (if it stands well), three-quarters of an acre…

Sylvia Cannon recalled that on the plantation where she lived and worked, "All the fields were named and the driver just had to call on the horn and tell you what field to go work in that day" [Hurmence, 1989, p. 124]. A slave would be expected to weed, sow, or harvest that size field in one day. The daily assignment of tasks to individual slaves was based on their age, sex, and physical strength. James Sparkman, a Georgetown District planter, allocated tasks to each slave on his plantation based upon their physical strength, age, and health. Field hands were rated as one-quarter, one-half, three-quarters, or full hands. While the size of the task would remain fixed, allowances could be made for the individual and the work that he or she could be expected to complete on a given day. For example, a young woman who was ordinarily classified as a full-task hand might be reclassified as a quarter-task hand during the period of her convalescence from childbirth [Sparkman, 1945, p. 346].

Incentives and Punishment in the Carolina Rice Fields: The task labor system provided 19th century Lowcountry planters with a mechanism for rewarding productive field hands. Upon completing the day's task, field hands could effectively earn the opportunity to perform other work. They had the free time necessary to cultivate their own garden crops or perform plantation labor for which they were to be monetarily compensated. Olmsted [1856, p. 426] observed:

> As the negroes finished the labor required of them by Mr. X, at three or four o'clock in the afternoon, they can employ the remainder of the day in laboring for

> themselves, if they choose. Mr. X allotted a half an acre of land to each family of negroes for a garden. They are at liberty to sell whatever they chose from the products of their gardens, and to make what they can by keeping swine and fowls.

This capability afforded by the tasking system to gain greater control over their own lives and time was a powerful incentive for productivity and cooperation. Sam Polite, a Beaufort County field hand, recollected: "When you knock off work, you can work your land. Maybe you might have two or three tasks (a quarter acre) of land round your cabin what Master gave you for planting. You can have chicken, maybe hog. You can sell egg and chicken to store and Master will buy your hog. In that way, slave can have money for buy thing like fish and whatever he wants" [Hurmence, 1989, p. 78]. Beyond the half days of release the task system provided, a vacation of several days was given to all the plantation hands following the harvesting period (six to eight weeks), the one time of the crop season when the task system was not followed. Here, the entire plantation work force was busy from dawn to dusk and even on Sundays if the condition of the crop necessitated such a schedule [Trinkley, 2005].

Lowcountry planters supplemented the task-based incentives with a system of corporal and capital punishment to sanction those who failed to meet their daily tasks. Unlike free laborers of other times and places, the Lowcountry slaves could be brutally beaten legally, could not move about freely, or assert any economic rights. Sam Polite recalled further: "If a slave don't do task, they get licking with lash on naked back. The driver give the licking, but Master most always been there. Sometime maybe a slave [would] steal a hog or run away to the wood, then he get licking, too" [Hurmence, 1989, p. 77]. The punishment of slaves for their failure to meet their productivity objectives was not limited to whipping and corporal punishment. Slaves, after all, constituted a material proportion of their masters' net worth whose value would fall from extreme physical abuse. Roswell King [1828, p. 1], a planter and overseer, observed: "When I pass sentence myself, various modes of punishment are adopted; the lash, least of all – Digging stumps, or clearing away trash about the settlements, in their own time; but the most severe is, confinement at home six months to twelve months, or longer...." Prince Smith [Hurmence, 1989, p. 89] recalled that his master relied on three types of punishment to discipline unproductive or disobedient slaves. One method included confinement

to a small, unventilated room called the "sweat box." A second method was confinement to an open-air restraint called the "stock." Finally, a slave would be restrained with leg shackles for a period of several days.

Field hands had to do much more than meet their task productivity standards. Corporal punishment was also an integral part of an oppressive system of social control. Whippings were also administered for offenses such as theft, illicit slave meetings, or being off the plantation without a pass. The harshest punishments were reserved for attempting to run away. Elijah Green, a Charleston County house servant, recalled: "When slaves run away and their masters catch them, to the stockade they go, they'd be whipped every other week for a number of months. And for God's sake, don't let a slave be catch with pencil and paper. That was a major crime" [Hurmence, 1989, p. 63]. Joyner [1984] reported that one plantation owner sold each of his would-be runaways to different slave masters, ensuring that these men would be permanently separated from their wives and families. The rituals of whippings and other publicly administered forms of punishment were as much a part of the plantation compensation and incentive system as the rewards for faithful, productive service. When a master personally supervised or administered punishment, no less than when he distributed gifts or favors, he did so in rituals that emphasized his dominant position over his slaves.

Functional Diversity and its Implications for Organizational Control: African-American slaves held a remarkable diversity of the jobs within the Lowcountry plantation economy. The black majority population and a physical climate that facilitated the spread of such diseases as malaria and yellow fever drastically limited the supply of free white skilled labor. Table 2 below summarizes the occupational distribution found on two Lowcountry rice plantations [Joyner, 1984]:

This diverse occupational structure had two major implications of interest. First, it drew a high level of productivity from the plantation's slave labor force. All slaves worked, men and women of all ages as well as children from age seven. While most slaves toiled in the rice fields, many others worked in workshops surrounding the fields and in the planter's residence. All these jobs either directly or indirectly contributed to the size of the annual harvest which, in turn, contributed to the plantation's profitability. Second, the presence of these non-field occupations offered opportunities for those slaves who were willing to work

TABLE 2

Distribution of Occupations among Slaves
Laurel Hill and Hagley Plantations, 1854

Occupation	Laurel Hill Plantation	Hagley Plantation
Field Hand	115	61
Drivers	3	1
Carpenters	10	3
Coopers	4	1
Carters	1	1
Bricklayers	1	0
Coachman	0	2
Engineer	3	0
Mill Hands	2	0
Mill Watchman	6	0
Cook	5	5
House Servant	6	9
Animal Minder	9	0
Stableman	1	0
Trunk Minder	1	1

Source: Joyner [1984, pp.61-62]

hard, not make trouble, or run away. Many advantages accrued to the few slaves who became skilled artisans. For example, Mr. X made it a practice to apprentice promising slave youngsters for training as skilled workmen [Olmsted, 1856, p. 427]. Mr. X relates the following brief biography of one of his favorite slave artisans:

> Being the son of a favorite house-servant, he had been, as a child, associated with the white family, and received by chance something of the early education of the white children. When old enough, he was allowed to learn the blacksmith's trade, in the plantation shop. Finally, his owner took him to a steam engine builder, and paid him $500 to have him instructed as a machinist. After he had become a skilled workman, he obtained employment as an engineer; and for some years continued in this occupation, and was allowed to spend his wages for himself. Mr. X eventually brought him, much against his inclinations, back to the plantations. Being

> allowed peculiar privileges, and given duties wholly flattering to his self-respect, he soon became contented; and, of course, was able to be extremely valuable to his owner.

This brief biography highlights many of the advantages that accrued to the few slaves who were able to become skilled artisans. First and foremost, they were largely able to avoid the unhealthy environment of the rice fields. Moreover, their command of these skills enabled slave mechanics to have greater autonomy over their work, the ability to travel unsupervised, and the opportunity to earn hard cash for their services [Olmsted, 1856]. As a consequence, black artisans commanded considerable status and prestige in the social hierarchy of the plantation's slave community. The continual striving for these relative advantages by some slaves reflected their determination to make the best of their subservient role under the slave regime.

The Lowcountry rice plantation was also a residential facility for the owner's family as well as for hundreds of slaves. Consequently, a number of slaves worked as cooks, domestics, and child-care attendants. Olmsted [1856, p. 421] observed that working in the "big house" offered many tangible rewards to the domestic slave as well: "The labor required of them was light, and they were treated with much more concern for their health and comfort than is usually given to free domestics. They live in brick cabins, adjoining the planter's house and stables, and one of these into which I looked, is neatly and comfortably furnished." Eating some of the food intended for the master's plate gave the domestic slave a better and more varied diet than his field counterpart. Domestic servants were also better dressed either as a function of their job duties or paternalistic hand-me-downs from the master to "his favorite gal" or "uncle." Finally, sleeping in a mansion or adjoining brick structures was usually warmer and drier than a night in the rudely constructed and maintained "Negro houses."

The Role of the Slave Driver: The position of driver was the highest position of authority and responsibility open to the rice-culture slaves [Clifton, 1981a]. The drivers' primary work activities involved the personal supervision of the field hands under their charge. Olmsted [1856, p. 432] accompanied Mr. X on daily rounds of his holdings and observed that, "We found several other gangs of negroes at work; one entirely of men engaging in ditching; another of women, and another of boys and girls,

listing an old corn-field with hoes. All of them were working by tasks, and were overlooked by negro drivers." P.C.J. Weston's [1786-1869, call #11/453] specimen overseers' contract included the following job description for his drivers: "Drivers are, under the Overseer, to maintain discipline and order on the place. They are to be responsible for the quiet of the negro houses, for the proper performance of tasks, for bringing out the people early in the morning, and generally for the immediate inspection of such things as the Overseer only generally superintends." As such, the drivers constituted the primary link between the management and task control systems on large rice plantations. The driver would get the hands to the fields in the mornings, organize the work gangs for the day, assign tasks, and excuse them upon the satisfactory completion of the day's labor. These slave drivers were also the primary means through which work quality and productivity standards were enforced upon the work activities of the field hands in the Lowcountry rice fields. Olmsted [1856, p. 437] observed:

> Before any field of work is entered upon by a gang, the driver who is to superintend them has to measure and stake off the tasks. To do this accurately, in irregular-shaped fields, must require considerable powers of calculation. A driver, with a boy to set stakes, I was told, would accurately lay out forty acres a day, in half-acre tasks. The only instrument used is a five-foot measuring rod. When the gang comes to the field, he [the driver] points out to each person his or her duty for the day, and then walk about among them, looking out that each proceeds properly.

The driver was also the primary mechanism through which general controls were applied to ensure that task productivity and quality standards were achieved by the field hands. Olmsted [1856, p. 436] noted that, "It is the driver's duty to make the tasked hands do their work well. If, in their haste to finish it, they neglect to do it properly, he 'sets them back,' so that carelessness will hinder more than it will hasten the completion of their tasks." Moreover, the driver's responsibilities extended beyond the fields into the slave quarters and community. It was the driver's duty to maintain order among the field hands and other slaves during their leisure hours, functioning as a policeman and magistrate. Finally, the drivers provided the planter and his hired manager with informational feedback on conditions in the rice fields as well as the slave community. A Santee River, South

Carolina, overseer reported that he required each of his three drivers to report to him each evening. During these meetings, each driver would report the work of the day just ended and learn what undertakings were scheduled for the next day [Richmond Overseer Journal, 1859-1860, call #34/184].

The region's generally unhealthy conditions and the small size of its white population played a major role of limiting free white participation in the drivers' ranks. It is also possible that the African origin of the tidal-rice technology and the supporting task labor system may have established a tradition of African slaves as labor supervisors or drivers on the rice plantations [Clifton, 1981a]. In any event, the qualities for which a driver received the greatest praise from a planter were intelligence, managerial skills, and practical knowledge of the intricacies of farming [Allston, 1945]. Olmsted [1856, p. 437] observed that Mr. X went even further on his plantations:

> Having generally had long experience on the plantation, the advice of the drivers is commonly taken in nearly all the administration, and frequently they are, *de facto*, the managers. Orders of the important points of the plantation economy, I have heard given by the proprietor directly to them, without the overseer's being consulted or informed of them; and it is often left with them to decide when and how long to flow the rice grounds – the proprietor and overseer deferring to their more experienced judgment.

Clearly, the driver's job conveyed considerable status and power. The drivers were often invested with their powers publicly amid great pomp and circumstance by their masters. For example, Daniel, Benjamin Allston's driver, was confirmed by a local bishop [Allston, 1945]. A Santee River, South Carolina overseer [Richmond Overseer Journal, 1859-1860, call #34/184] always required that his Negro driver dress better than the other slaves. He felt that his better clothes "caused him to maintain a pride of character before them which was highly beneficial. Indeed, I constantly endeavored to do nothing which would cause them to lose their respect for him." Consequently, if this overseer felt a need to discipline or reprimand one of his drivers, it was done in private. In summary, access to the power and status conveyed by the position of driver helped motivate many slaves to work hard and cooperatively with their masters.

The Overseer as COO and Managerial Accountant: Each year,

at the end of May, fearing malaria ("country fever"), the Lowcountry rice planters and their families with their entourage of domestic servants moved away from their plantations, not to return until the first week in November [Boyle, 2005]. The overseer was the pivotal figure who managed the planter's properties during the cultivation and harvesting seasons. Scarborough [1984] observed that the typical Lowcountry overseer was employed to provide absentee planters with on-site oversight and routine operational reporting during the cultivation and harvesting seasons. Key measures of overseer performance included births and deaths among the plantation population, the number of persons in the plantation's hospital, and the size and quality of the plantation's rice and provisions crop. Consequently, many overseers provided their employers with periodic written reports about the plantation's cultivation and harvesting activities as well as regular updates on their slaves' general health and mortality. Moreover, the Negro Act of 1740 required that a white man be present for "each assembly of 10 or more negroes" and more than 2,000 acres of land.

The relationships between plantation owners and their hired managers were routinely governed by a management contract. Allston retained William Thompson to work as his overseer from 1822 to 1839. While Thompson's tenure as overseer extended over 17 years, ended only by his death in 1838, his employment relationship with Allston was governed by a series of one-year contracts. According to his 1822 contract [Allston, 1945, pp. 245-247], Thompson was to oversee Allston's two plantations "and the negroes, stock, barns, and every species of property thereon, in a planter like manner…." While the contract enjoined Thompson "to exert himself to the utmost of his power for the interest of his employer with care, skill, fidelity, sobriety, and ability," as overseer he was expected to act "with moderation and humanity to the negroes." Thus, the first duty of the overseer was to take care of the slaves and the stock. Moreover, the phrase "planter like manner" suggests the overseer's primary duty was to be exercised in the spirit of the benevolent plantation owner with an eye to the long-term well being of the slaves and stock. Specifically, the overseer was explicitly forbidden by his contract from "striking a negro with a stick," and he could only administer any form of corporal punishment after first seeking and obtaining permission from the plantation owner or his family. Failure to do so would be grounds for dismissal. Next, he was to see to it that enough food was produced for use on the plantation to feed its human and animal population. Planters sought to have

their plantations self-sufficient through the growing of com and raising livestock. While the overseer was expected to maximize plantation production of its cash crop, rice, it is interesting to note that Thompson's contract contains no provisions related to that issue or the size of its seasonal agricultural output. His compensation was fixed at "the full sum of Five Hundred Dollars to be paid at the end of the term (year), & to allow him for the year, a negro woman to cook & wash, & a negro boy to wait on him."

Where Allston offered his overseer a concisely written contract consisting of three paragraphs, P.C.J. Weston [1786-1869, call #11/453] offered his overseers a contract consisting of 17 paragraphs. The contract specified the overseer's duties and obligations to his employer in very explicit and detailed terms. The first provision of the contract states that the overseer's primary objective "is to be, under all circumstances, the care and well being of the negroes." This state of well being, however, is explicitly defined paternalistically in terms of "obedience, order, and discipline." His secondary objective was to maintain the plantation's physical plant and livestock. His tertiary objective was to produce the largest possible crop of rice and provisions. The contract goes on to describe the nature, timing, amount, and appropriate mode of distributing the slaves' food rations in extensive detail. The overseer was to enforce a work holiday schedule including "Good Friday, or Christmas day, or any Sunday." Work was permitted on these days only as a punishment for some criminal offense or the failure to complete an assigned task. The contract also specified the appropriate timing and administration of punishment. Specifically, "it is desirable to allow 24 hours to elapse between the discovery of the offense and the punishment. No punishment is to exceed 15 lashes…Confinement is to be preferred to whipping." Finally, the overseer was expected to prepare weekly reports "from which the Proprietor [owner] will obtain most of the facts he desires…."

While the overseers' periodic plantation activities and status reports have shared common topics, they varied greatly in their form. Franklin Collins, an overseer on the Chicora Woods Plantation, sent Allston a series of weekly reports summarizing plantation activities during 1858 [Allston, 1945, p. 262]. These weekly reports were a collection of seven summaries of daily activity. These brief summaries covered such diverse activities as the distribution of the slaves' food rations (always done on Sunday), the conduct of regular Sunday worship services, a listing of sick slaves (always done on Saturday), a description

of a whipping (e.g., "Punished Jacob, 39 strips"), a description of food production activities (e.g., "Sam Picking Potatoes"), as well as a description of the day's cultivating activities (e.g., "All Hands Hoeing rice"). E.W. Rose, an overseer on Thomas Coffin's [1800-1813, call #34/199] rice plantation in the Beaufort District of South Carolina kept a day book in which daily tasks and Sunday ration distributions were recorded. Dr. Benjamin Huger owned 155 slaves on the Richmond Plantation on the Cooper River near Charleston, South Carolina. His overseer, whose name is not noted in the archival record, maintained an exhaustive journal on plantation activities from 1859 to 1860 [Richmond Overseer Journal, 1859-1860, call #34/184]. A typical daily journal entry would routinely include a reference to the day's weather (e.g., "The weather was fine"), a description of the day's work activities (e.g., "All hands thrashed rice"), and a roll call of sick slaves (e.g., "three sick"). His daily journals also chronicled the production of food for the plantation such as the cultivation of corn and potatoes or the care and slaughter of pigs and chickens. The distribution of rations (e.g., "gave allowance of potatoes and 'small' rice to the hands") was also noted. Within the year's chronicles, only one instance of corporal punishment (e.g., "Stanley was beat") was noted. His journals also provided an accounting of the Richmond Plantation's November 1859 rice harvest between the barrels of "market" rice, "seed" rice (for next year's planting) , and "negro" or "small" rice (rations for the slaves).

A review of these three plantations' correspondence did not reveal any form of quantitative objective setting, financial budgeting, or formal operational planning that are fundamental elements of contemporary management control systems. The planters' normative expectations represented the standards against which the overseers' performance would be judged. For example, P.C.J. Weston's [1786-1869, call #11/453] specimen overseers' contract included the following paragraph:

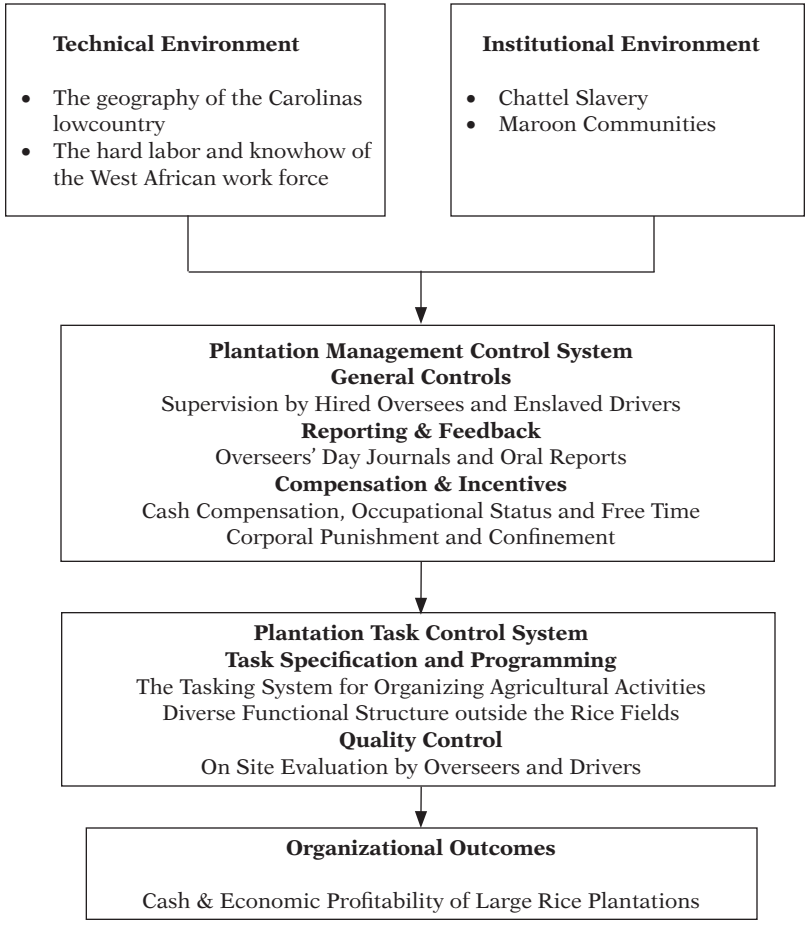
> The Proprietor wishes particularly to impress on the Overseer the criterions by which he will judge his usefulness and capacity. *First* – by the general well being of the negroes; their cleanly appearance, respectful manners, active and vigorous appearance; their completion of their tasks well and early; the small amount of punishment; the excess of births over deaths; the small number of persons in the hospitals, and the health of the children. *Secondly* – the condition and fatness of the

> cattle and mules; the good repair of all the fences and buildings, harness, boats, flats, and ploughs; more particularly the good order of the banks and trunks, and the freedom of the fields from grass and volunteer. *Thirdly* – the amount and quality of the rice and provision crops.

Figure 2 below graphically summarizes the application of this study's conceptual model of management control-systems design for large 19th century Carolinas Lowcountry rice plantations.

FIGURE 2

A Contingency Theory Model of Management Control Design for Large Mid-19th Century Carolinas Tidal-Rice Slave Plantations



The overseers' periodic reports provided the bottom-up communications necessary to close the feedback cycle of the control process. The plantations' absentee owners used this feedback to obtain a view of their plantation's productive activities and the state of its physical and human resources. These journals and narrative reports also helped the planters to assess their managerial stewardship. Generally, the content of these reports focused on non-financial metrics of agricultural cultivation, crops harvested, or measures of human activities (slave births, death, etc.). A review of several overseers' reports revealed very limited attempts at labor cost accounting. Monetary metrics of costs and revenues do not appear to be a part of the overseers' operational reporting activities. Reports from factors and sales agents appear to be the planters' primary sources of financial information about their plantations' productivity [Allston, 1945, pp. 357, 409]. The findings suggest that rice planters relied on the general controls of personal supervision by their overseers and drivers and the feedback of written and face-to-face reports from their white and black managers to maintain control of their agricultural operations.

CONCLUSIONS

This paper presents a model of management control-systems design whose fit to three key contextual factors explains the favorable organizational outcomes that demonstrate the design's effectiveness. These three key contextual variables – the natural features of the Carolinas Lowcountry, the hard labor and agricultural knowhow of the West-African slaves who worked the rice fields, and the institution of chattel slavery itself – described the work to be done and the technology to be employed. Large ante-bellum rice plantations utilized a characteristic control design that enabled them to be very profitable economic enterprises. The South Carolina Lowcountry planters' control was characterized by a hierarchical organizational structure, the tasking system of labor organization, a diverse functional structure, and an elaborate system of positive and negative incentives to motivate their slave workers. Plantation owners typically delegated operating authority to overseers and drivers during the crucial cultivation and harvesting seasons. The overseers provided the owners with periodic reports summarizing the plantation's agricultural operations and regular written updates on the health and social status of the plantation's slave population. Most overseers delegated considerable supervisory authority to

the drivers in order to control the plantation's agricultural and supporting activities. The drivers established daily performance standards for the plantation's field hands and measured their performance relative to these standards to complete the task control cycle. The use of the tasking system offered the agricultural workers with a clear short-term incentive for productivity. The expedient completion of a field hand's daily task offered a brief but welcome respite from the brutal Carolina sun or the opportunity to earn cash income from growing staple crops or raising livestock. Other slaves performed key roles in these complex manufacturing, residential, and agricultural enterprises. While there were no good jobs for a slave under chattel slavery's regime, skilled slave artisans and domestics enjoyed generally better lives than those toiling in the fields. Consequently, many slaves worked cooperatively with their masters to achieve these opportunities. Ultimately, all slaves were men and women who were aggressively denied the most basic human rights. As such, those who failed to meet task performance standards, racist behavioral expectations, or tried to run away were subject to brutal punishment such as confinement, whippings, or hanging.

This paper makes two major contributions to the accounting history literature through its focus on the organizational control structure of a group of large ante-bellum slave plantations. Existing accounting history literature pays only passing attention to the management control process of large slave plantations which were among the largest commercial enterprises in the mid-19th century U.S. This paper closely examines both the relationship between plantation owners and managers as well as the communication that closed the control feedback loop. Additionally, this paper departs from the current focus of contemporary accounting history literature on American slavery solely as unskilled laborers and inert objects of their masters' activities. The West-African origins of tidal-flow agricultural technology and the tasking labor-control system were major contextual factors in the control systems of these large rice plantations. The activities of slave drivers were central to managerial, task, and social control on the plantation. Though backed fully by the overwhelming power of the state and a dominant culture of white supremacy, white planters were not all powerful. They needed to elicit the active cooperation of their slave workers and managers if their agricultural holdings were to run efficiently and effectively. The planters in the Lowcountry rice culture used both the crushing oppression of ante-bellum chattel slavery as well as an integrated system of controls and incentives to obtain

the managerial talents and skilled labor from their enslaved workers. Their hard labor, skills, and talents were an integral factor in the profitability of large mid-19th century rice plantations.

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SPROUSE'S WHAT-YOU-MAY-CALL-ITS: FUNDAMENTAL INSIGHT OR MONUMENTAL MISTAKE?

Abstract: We critically evaluate Sprouse's 1966 *Journal of Accountancy* article, which prodded the FASB towards a balance-sheet approach. We highlight three errors in this article. First, Sprouse confuses necessary and sufficient conditions by arguing that good accounting systems must satisfy the balance-sheet equation. Second, Sprouse's insinuation that financial analysts rely on balance-sheet analysis is contradicted by contemporary and current security-analysis textbooks, analysts' written reports, and interviews with analysts. Third, and most crucially, Sprouse does not recognize that the primary role of accounting systems is to help managers discover and exploit profitable exchange opportunities, without which firms cannot survive.

INTRODUCTION

"Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back" [Keynes, 1936, p. 383].

"If man is not to do more harm than good in his efforts to improve the social order, he will have to learn that in this, as in all other fields where essential complexity of an organized kind prevails, he cannot acquire the full knowledge which would make mastery of the events possible" [Hayek, 1975, p. 442].

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Soon after it was established, the Financial Accounting Standards Board (FASB) adopted an asset-liability approach supplanting the previous revenue-expense approach summarized by Paton and Littleton [1940]. Statement of Financial Accounting Concepts No. 6 [FASB, 1985a] begins by defining assets and liabilities and discusses income measurement only secondarily as reflecting changes in assets and liabilities. Many FASB standards are strongly influenced by this balance-sheet primacy perspective. Storey and Storey [1998, p. 76], who claim that the asset-liability approach is "the most controversial, and the most misunderstood and misrepresented, concept in the entire conceptual framework," argue that (p. 83):

> The revenue and expense view is still deeply ingrained in many accountants' minds, and the first reaction to an accounting problem is to think about 'proper matching of costs and revenues.' Time will be needed for them to become accustomed to thinking first about effects of transactions or other events on assets or liabilities (or both) and then about how the effect on assets and liabilities has affected revenues, expenses, gains, or losses. Many will be able to make that adjustment only with difficulty, and a significant number simply will make no attempt to do so, clinging instead to the revenue and expense view. The FASB's experience suggests that a long tradition of *ad hoc* accounting principles has fostered a propensity to resist restraints on flexibility, especially those that limit an enterprise's ability to decide what can be included in income for a period. (*emphasis* in original)

While a decade has passed since Storey and Storey penned these words, the revenue-expense view has not disappeared from the accounting lexicon [Barth, 2008, pp. 1,166-1,169].

The FASB's asset-liability approach stems from an influential article by Robert T. Sprouse, titled "Accounting for What-You-May-Call-Its" [Storey and Storey, 1998, pp. 51-69].[1] Dr. Sprouse was an original member of the FASB (1973-1985), its

[1] Dr. Sprouse's 2007 obituary noted that his "work had an enormous impact on the development of the board's conceptual framework. His 1966 article, "Accounting for What-You-May-Call-Its," in the *Journal of Accountancy,* laid the groundwork for the FASB's asset-liability approach." Dr. Sprouse's obituary can be found at www.gsb.stanford.edu/news/headlines/sprouseobit.html. Dr. Sprouse was president of the American Accounting Association (1972-1973) before joining the FASB.

longstanding Vice Chairman (1975-1985), and his ideas shaped the FASB's vision. The unanimous passage of SFAS 2 [FASB, 1974] and SFAS 5 [FASB, 1975a] signaled the FASB's commitment to the primacy of the "asset-and-liability view" over the traditional "revenue-and-expense view" [Zeff, 2005, p. 20]. The FASB Conceptual Framework that was largely written during Dr. Sprouse's FASB tenure enshrined this view for future U.S. standard setting. Because Sprouse [1966] was a formative factor in the current "asset-liability" approach to recognition and the "fair-value" approach to measurement, we re-evaluate its core arguments.[2]

Sprouse [1966, p. 45] makes two specific claims. First, accounting's foundation lies in the traditional balance-sheet identity that Assets = Liabilities + Equities. Second, if the balance-sheet identity is valid, it implies that balance-sheet accounts that are inconsistent with specific definitions of assets and liabilities are fallacious. Sprouse's key assertion is an "if-then" proposition that acceptance of the balance-sheet equation implies that it is the starting point for identifying a valid accounting system. To support his claim that investors emphasize the balance sheet, Sprouse cites the importance given to a "safety" measure in a recent edition of Graham and Dodd's *Security Analysis*.

Sprouse's claims have been widely, although not universally, accepted. Despite several recent critiques of the asset-liability approach [e.g., Benston et al., 2007; Penman, 2007; Dichev, 2008; O'Brien, 2009; Palmrose, 2009], it pervades the new Conceptual Framework project of the FASB and the International Accounting Standards Board (IASB), and if left unchallenged, will likely shape U.S. and international accounting standards for decades to come.[3] We revisit Sprouse's original paper and

[2] Soon after Sprouse [1966] was published, the Accounting Principles Board (APB) began a project in September 1968 to have marketable securities reported at fair value on the balance sheet. Intense lobbying against the proposal by financial firms led to the SEC rapidly distancing itself from the APB's position (during September 1971 to March 1972), which contributed to the APB's demise [Horngren, 1973, pp. 63-64]. Early FASB standards such as SFAS 8 [FASB, 1975b] resuscitated the fair-value approach by requiring unrealized gains and losses from foreign currency transactions and translations to flow through earnings, provoking strong opposition from firms and rapid modification of standards [e.g., SFAS 52, FASB, 1981].

[3] Although our focus is on the FASB, the IASB has advocated the balance-sheet approach more forcefully in recent years. The IASB maintains a webpage for the new Conceptual Framework at www.iasb.org/Current+Projects/IASB+Projects/Conceptual+Framework/Conceptual+Framework.htm.

develop three critiques (in ascending order of importance): (1) Sprouse commits a logical error by not distinguishing between necessary and sufficient conditions; (2) the evidence Sprouse cites actually supports the claim he seeks to refute; namely, that readers of financial statements place primary emphasis on the income statement; and (3) the asset-liability approach leads to an accounting system based on classificational double-entry, which erodes the direct link between accounting by double-entry and the economic function of a profit-seeking firm.[4]

In making his claims, Sprouse confuses necessary with sufficient conditions. He correctly states that a double-entry system that violates the balance-sheet identity is fallacious since a violation of the identity implies that the sum of all debits does not equal the sum of all credits. But, this merely restates the long-recognized value of double-entry as a recording system with built-in accuracy checks for a given classification of assets, liabilities, and equities [e.g., Ijiri, 1975]. However, Sprouse's proposition can say nothing about whether one classification scheme is better than another. So long as accountants follow double-entry when journalizing and posting transactions, the balance-sheet identity must hold for any asset, liability, and equity definitions. Furthermore, it is far from self-evident that the balance sheet should comprise exactly and only these three categories.

Sprouse commits a second interpretational error when he suggests that investors primarily demand balance-sheet information. Sprouse [1966, p. 45] quotes a definition of "safety" from Graham and Dodd's *Security Analysis* to support his claim that some investors seek information on assets and liabilities. However, Sprouse simply misreads this classic text when he infers that investors' interest in investment "safety" warrants greater accounting emphasis on the balance sheet. Graham and Dodd measure "margin of safety" using earning power, which they derive without using the balance sheet. Furthermore, a broader reading indicates that Graham and Dodd emphasize income-statement analysis over balance-sheet analysis. In other words, Sprouse's claim of balance-sheet primacy is roundly rejected by the very text he quotes to support his argument. Even more

[4] We use the term financial-statement "readers" because we have in mind people who actually read financial statements and disclosures and then act upon that information. This stands in contrast to some prototypical "user" that has been self-constructed by standard setters and bears little resemblance to economic actors who make decisions in markets [Young, 2006].

damning, Horngren [1955b] had previously documented that financial analysts overwhelmingly focused on the income statement in their investment analyses.

A third issue is subtler but of far greater significance. Sprouse's balance-sheet primacy view essentially proposes an accounting framework based on classificational double-entry. Such a system ignores the causality recognized when resource increments and decrements associated with exchange are simultaneously linked through the debit and credit of a journal entry [Ijiri, 1975, pp. 80-84]. A classificational, double-entry system does not align accounting measurement with a firm's economic function, which is to discover profitable exchange opportunities in a world of uncertainty and costly knowledge [Coase, 1937; Hayek, 1945, 1968]. The historical-cost accounting system with an income-measurement focus has evolved over centuries to help firms make better decisions when competing with other firms and other economic institutions [Mises, 1952; Ball, 1989]. Emphasizing balance-sheet measurement rather than the value created through profit-seeking exchange transactions is a monumental mistake because it undermines each firm's survival in competition with other organizations. While an immediate result is that the accounting system will not reflect a firm's "business model" [Dichev, 2008], the far bigger problem is that the accounting system no longer facilitates successful exchange and productive division of labor, which support successful market economies [Smith, 1776].

Mr. Sprouse's legacy is now forever linked with the ultimate success of the FASB-IASB Conceptual Framework. We believe several legacies are possible. One is that the asset-liability approach will survive over the long haul and will eventually be viewed as having improved the quality of financial reporting worldwide. In this case, Sprouse [1966] will be hailed, in spite of its limitations, for persuasively articulating an important view of accounting that beneficially redirected standard setting. An alternative legacy is that the FASB will not survive, in part because the asset-liability approach lessens financial-reporting quality. In this case, Sprouse will be remembered as a progenitor of what we view as dysfunctional accounting. A third possibility is that accountants are condemned to cycling between balance-sheet and income-statement approaches, evidenced by the income-statement approach of the 1930s itself supplanting an earlier balance-sheet focus [Hendriksen, 1970; Waymire and Basu, 2007]. Yet another alternative is that the debate will turn out to be moot because future financial-reporting improvements

will lead to a radically different reporting environment where readers can customize financial statements using any approach they want. We, of course, cannot distinguish these possibilities absent a crystal ball that allows us to peer into the future. Nonetheless, since old ideas are frequently revived as times change, we advise accountants to preserve their copies of Paton and Littleton [1940] in case the income-statement approach is again resurgent.

The rest of the paper is organized as follows. We detail Sprouse's claims in the next section, and then discuss the issues of necessary versus sufficient conditions, evidentiary support, and problems associated with classificational double-entry in the following three sections respectively. A final section contains our concluding thoughts on the legacy of Sprouse [1966].

A BRIEF REVIEW OF SPROUSE'S CLAIMS

The opening paragraph of Sprouse [1966] claims that American accounting students start their education with the balance-sheet identity:

> For most of us, among the very first subjects we were exposed to in the study of accounting was the *fundamental accounting equation* and the nature of its components – assets, liabilities and owners' equity. Slightly different terminology may have been used or it may have been stated in a slightly different way, but there never has been any doubt about the substance or the fundamental importance of the accounting equation: Assets equal liabilities plus owners' equity. Indeed, the accounting equation is a truism – yet it is an extraordinarily meaningful and useful one. The statement of financial position lists the entity's resources and the claims against those resources; the difference is the owners' equity. If one accepts the validity of the fundamental accounting equation, every account necessarily falls into one of those three categories – assets or liabilities or owners' equity – and an accounting analysis that ends up with anything that does not fit *any* of those three categories is necessarily fallacious. (*emphasis* in original)

We critically examine Sprouse's "if-then" proposition that if we accept that the balance-sheet identity as universally valid (at least under double-entry bookkeeping [DEB]), then accounting systems that fail to maintain the balance-sheet identity must be

fallacious.[5]

After recognizing that mid-1960s accounting practice emphasized income measurement, Sprouse [1966, p. 45] argues that attaching primary importance to income measurement could have negative consequences for financial statement users:

> If this were only a matter of assuaging accounting theoreticians' sensibilities, it could be chalked up as merely another conflict between what teachers teach and what practitioners do. On the other hand, if one is prepared to admit that users of financial statements often attach importance to the reported relationship between liabilities and assets and to the reported earnings per share, this is a matter of considerable significance to both practitioners and academicians.

Sprouse [1966, pp. 45-46] quotes the concept of "safety" from the most recent edition of *Security Analysis* [Graham et al., 1962] to support this latter claim, saying:

> We may reasonably assume that those who are concerned with the relationship of liabilities and assets (or, stated another way, the relationship of debt and equity) are interested in liabilities as obligations to convey assets or perform services – obligations representing a future demand on assets. This is the essence of financial position. For example, a leading reference in security analysis presents the following 'principle': 'Safety is measured not by a specific lien of contractual rights, but by the ability of the issuer to meet all its obligations.' Accordingly, where what-you-may-call-its appear among the liabilities, the analyst is forced to do the accountant's job of determining whether such accounts are actually contra assets or an element of stockholders' equity. Unfortunately, the analyst's reclassification is almost certain to be based on less information than was available to the accountant.

In other words, Sprouse unilaterally assumes that some users are interested in a balance-sheet approach to valuation, and then further insinuates that some such users are financial analysts using the quotation as evidence. Sprouse next discusses

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[5] One definition of a "fallacy" from Merriam-Webster's Online Dictionary is "a false or mistaken idea." We infer that Mr. Sprouse used the term fallacious to communicate the idea that accurate, high-quality accounting would not result when the balance-sheet identity was not maintained.

three contemporary accounting controversies where amortization of poorly defined balance-sheet components resulted in artificially smoothed income. Sprouse [1966, p. 52] concludes by recommending development of a conceptual basis for accounting consistent with the asset-liability approach:

> The emergence of the three kinds of what-you-may-call-its discussed here underscores the crucial need for the kind of fundamental analytical framework the Accounting Principles Board was created to provide and utilize. In the absence of established fundamentals – fundamentals such as the nature of assets and the nature of liabilities, fundamentals that hopefully would lead logically and consistently to sound solutions to accounting's many problems – one is forced to predict that, as new accounting problems arise, the number of what-you-may-call-its will tend to increase.

To summarize, Sprouse asserts that a balance sheet containing only well-defined assets, liabilities, and owners' equity is the hallmark of a valid accounting system since the balance-sheet identity is a fundamental accounting relation. Quoting Graham and Dodd's *Security Analysis*, Sprouse next infers that at least some users and analysts demand information on assets and liabilities and that effective security analysis requires better balance sheets. To achieve this, he recommends the development of a conceptual framework that starts by defining what he regards as the fundamentals – assets and liabilities.

SPROUSE'S CONFUSION BETWEEN NECESSARY AND SUFFICIENT CONDITIONS

In this section, we consider the implications of the claim that *if* an accounting system fails to maintain the balance-sheet identity, *then* the resultant system is fallacious. This statement is true in that it establishes a necessary condition for accounting under double-entry, but it is not a sufficient condition. The balance-sheet equation can hold for any number of classificational, double-entry systems with fundamental differences in how assets, liabilities, and equities are defined. For instance, the balance-sheet equation can hold regardless of whether convertible debt is classified as all equity, all liability, placed in a mezzanine equity section, or arbitrarily allocated between equity and liabilities.

DEB requires that the sum of debits is equal to the sum of credits for each transaction or event recorded by a journal entry,

and that this identity extends to the sum of debits and credits for multiple transactions. Thus, a trial balance struck among existing accounts will maintain the total debits = total credits identity so long as all individual entries and postings maintain this identity. Further, this identity holds regardless of which specific "nominal" accounts are pulled into the income statement. The balance-sheet identity will hold for a system where all R&D expenditures are immediately expensed as in SFAS 2 [FASB, 1974], one where research costs are expensed but development costs are capitalized as in SFAS 86 [FASB, 1985b] for software costs, or one where all R&D costs are capitalized as assets.

The balance-sheet equation will hold even if incorrect measures are used. Consider a firm that pays $10,000 cash to acquire a machine that is expected to last five years. Assume also that other firms purchased identical assets at the same time, but did not pay identical prices, perhaps because of differences in negotiating skill or information acquired through market search.[6] For simplicity, assume that transaction prices in this asset market are uniformly distributed between a minimum of $10,000 and a maximum of $14,000. That is, the firm bought the machine for $2,000 less than the average price of $12,000 at the same point in time.

The standard journal entry for this transaction would involve a debit to a Long-Term Asset and a credit to Cash. After this entry, the balance sheet identity is maintained since assets are increased by $10,000 for the machine but reduced $10,000 for the decrease in cash.

Suppose instead that this transaction had been recorded as follows:

Long-Term Assets (A)	12,000	
Gain on machine acquisition (OE)		2,000
Cash (A)		10,000

This journal entry would establish the long-term asset at its fair value of $12,000 (i.e., the average of exchange prices in market transactions consummated at the same time) with part of the offset going to an equity account for the gain. This entry would increase total assets by $2,000 (the difference between the long-term asset increase and the cash decrease) and owners' equity would increase by $2,000.

Both treatments for this transaction maintain the balance-sheet identity even though the totals of assets and equities differ.

[6] Price heterogeneity can persist under competition when buyers have heterogeneous information on the distribution of offer prices [Stigler, 1961].

We cannot evaluate whether one treatment for the asset acquisition is more appropriate than the other by merely comparing consistency with the balance-sheet identity. Rather, that evaluation requires separate definitions of asset, liability, and equity, and the definitions of these terms (along with definitions of income) will determine whether the specific classifications applied within DEB are sensible.

The balance-sheet identity will hold even if every alternate transaction is not recorded and even if fictitious transactions are recorded. Both a cash-basis accounting system and the U.S. tax-accounting system meet the balance-sheet equation. Put differently, there is nothing magical about a balance sheet that balances so long as DEB is being applied, and Sprouse's balance-sheet primacy would not ensure good accounting.

THE EVIDENTIARY BASIS FOR SPROUSE'S CLAIMS OF BALANCE-SHEET PRIMACY

We next evaluate Sprouse's evidence for his claim that some investors demand information primarily about assets and liabilities. Sprouse quotes *Security Analysis*, "Safety is measured not by a specific lien of contractual rights, but by the ability of the issuer to meet all its obligations," to insinuate that at least some analysts focused primarily on the balance sheet. Sprouse is correct that Graham and Dodd considered "safety" to be of first-order importance in financial analysis, but he incorrectly projects on to the second half of the quoted sentence his belief that security analysts use the balance sheet to measure safety. We claim that Sprouse misreads *Security Analysis* because Graham and Dodd measure "ability to meet obligations" using "earning power" rather than net-asset values.

Unfortunately for Sprouse, Graham and Dodd's primary "margin of safety" measure makes no reference to the balance sheet. In *The Intelligent Investor*, Graham [1973, pp. 277-287] summarizes the margin of safety as indicative of an investment-grade security. In describing this concept in connection with bonds and preferred stocks, Graham states:

> All experienced investors recognize that the margin-of-safety concept is essential to the choice of sound bonds and preferred stocks. For example, a railroad should have earned its total fixed charges better than five times (before income tax), taking a period of years, for its bonds to qualify as investment-grade issues. This *past* ability to earn in excess of interest requirements consti-

> tutes the margin of safety that is counted on to protect the investor against loss or discomfiture in the event of some *future* decline in net income. (*emphasis* in original)

Graham [1973, pp. 278-279] advocates a similar approach for common stocks by stating that a common stock's margin of safety "lies in an expected earning power considerably above the going rate for bonds." Graham's primary measure of "safety" for both bondholders and stockholders is a *coverage ratio calculated using income statement data and requires no data from the balance sheet*. Sprouse's suggestion that an investment's "safety" is better measured by balance-sheet analysis than income-statement analysis is clearly inconsistent with Graham's views.

The idea that margin of safety should be measured primarily in terms of net-asset values instead of earning power is generally absent in the original edition of Graham and Dodd [1934]. Graham and Dodd cite "margin of safety," "safety," or "risk" on 39 separate pages, according to the book's index. None of these citations make sole reference to corporate net assets or other balance-sheet measures, eight make reference only to corporate earnings, and three make reference to both earnings and net-asset measures. Graham [1973, p. 278] does describe an alternative measure of margin of safety for a bond or preferred stock based on market values of securities, but this clearly is labeled as an alternative measure and is reported only after discussion of the income-based measure of margin of safety.

A broader review of *Security Analysis* is also inconsistent with a greater emphasis on the balance sheet than the income statement. Table 1 tabulates data on the contents of Graham and Dodd [1934]. Panel A indicates that the book runs 729 total pages with the core of the book conveyed in 52 chapters. Panel B indicates that Graham and Dodd devote roughly equal parts of the text to an analysis of bonds and preferred stocks (39% of total pages) and common stocks (40% of total pages). Within the chapters on common stocks, income-account analysis precedes balance-sheet analysis, and income analysis commands more than double the space (135 pages for the income statement, 57 for the balance sheet).[7]

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[7] After noting an earlier historical emphasis on net tangible asset book value, Graham and Dodd [1934, pp. 491-494] recognize that book value plays an important, but secondary, role to earnings: "Before we discard completely this time-honored conception of book value, let us ask whether it may ever have practical significance for the analyst. *In the ordinary case, probably not.* But what of the

TABLE 1

Description of Contents for *Security Analysis* by Graham and Dodd [1934]

A: Page Counts for Book Components in *Security Analysis*

Component	Number of Pages
Preface & Table of Contents	5
Introduction	13
Main Text (in 52 Chapters)	603
Appendix	83
Index	25
TOTAL	729

B: Chapter and Page Counts for Parts of Main Text in *Security Analysis*

	Title	# Chapters	# Pages
I.	Survey and Approach	5	50
II.	Fixed-Value Investments	16	173
III.	Senior Securities with Speculative Features	5	62
IV.	Theory of Common-Stock Investment: The Dividend Factor	4	51
V.	Analysis of the Income Account: The Earnings Factor in Common-Stock Valuation	11	135
VI.	Balance-Sheet Analysis: Implications of Asset Values	4	57
VII.	Additional Aspects of Security Analysis, Discrepancies between Price and Value	7	75
	TOTAL	52	603

Similarly, Graham and Dodd [1934] ascribe greater importance to earnings and its coverage of interest than net-asset position in evaluating bonds and preferred stocks. As regards industrial bonds, Graham and Dodd [1934, p. 85] state that "the investor would seem to gain better protection against adverse developments by confining his industrial selections to companies which meet the two requirements of (1) dominant size, and (2) substantial margin of earnings over bond interest."

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extraordinary or extreme case?....Book value deserves at least a fleeting glance by the public before it buys or sells shares in a business undertaking…Let the stock buyer, if he lays claim to intelligence, at least be able to tell himself, first, how much he is actually paying for the business, and secondly, what he is actually getting for his money in terms of tangible resources." (*emphasis* added)

This statement is generalized subsequently as the "present-day investor is accustomed to regard the ratio of earnings to interest charges as the most important specific test of safety" [Graham and Dodd, 1934, p. 105]. The emphasis on coverage of capital charges applies also to preferred stocks [see Graham and Dodd, 1934, pp. 158, 168].[8]

Our re-examination of Graham and Dodd's text is inconsistent with Sprouse's inference that financial analysts should or actually do place greater emphasis on the balance sheet than the income statement. Nor were Sprouse's views consistent with prevailing security analysis. For his Ph.D. dissertation, Horngren [1955a] surveyed the investment analysis literature, scrutinized 123 written analyst reports, and interviewed 51 financial analysts to understand the information use of financial analysts. American financial analysts behaved largely as Graham and Dodd recommended. Horngren [1955b, p. 576] reported:

> The income statement is regarded as the most important reflector of the operations of the firm. There is a definite tendency to think in terms of 'normal earning power,' but all components of the statement are examined carefully…The most important ratio is considered to be the percent of net operating profit before income taxes to sales.

Previts et al. [1994] apply content analysis to more recent sell-side U.S. financial analysts' reports and find that income-statement-related terms or phrases appear three times as often as combined references to balance-sheet and cash-flow terms.[9] Francis et al. [1997] find that at corporate presentations to the New York Society of Security Analysts, management most

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[8] As with common stocks, Graham and Dodd assigned a clearly secondary role to balance-sheet analysis for other securities like industrial bonds. Graham and Dodd [1934, p. 151] state: "For reasons already explained, a company's statement of its *fixed assets* will not ordinarily carry much weight in determining the soundness of its bonds. But the *current-asset* position has an important bearing upon the financial strength of nearly all industrial enterprises, and consequently the intending bond purchaser should give it close attention. It is true that industrial bonds which meet the stringent tests already prescribed will in nearly every instance be found to make a satisfactory working-capital exhibit as well, but a separate check is nevertheless desirable in order to guard against the exceptional case." (*emphasis* in original)

[9] Breton and Taffler [2001] find that U.K. analyst reports are four times as likely to include profitability information as balance-sheet information, and analyst stock recommendations are significantly positively associated with the profitability information but not with the balance-sheet information.

frequently discusses revenues and earnings, and security analysts ask most frequently about sales revenues, earnings, and output prices. During conference calls, security analysts most frequently request data on recent operating performance components such as revenues and costs and forecasts of future revenues and costs [Tasker, 1998a].[10] Chen et al. [2002] report that only about one-third of firms voluntarily disclose balance sheets in their quarterly earnings announcements, suggestive of lower demand for balance-sheet data.

Furthermore, analysts prefer earnings computed without a balance-sheet focus.[11] As Black [1980, p. 19] trenchantly observes:

> Users of financial statements – analysts, stockholders, creditors, managers, tax authorities and even economists – really want an earnings figure that measures value, not change in value. Analysts, for example, want an earnings number they can multiply by a standard price-earnings ratio to arrive at an estimate of the firm's value. Accordingly, the ideal set of accounting rules is one that makes the price-earnings ratio as constant as possible. The main thing lacking in present accounting practice is the recognition that this has been the goal all along.

Consistent with this claim, Philbrick and Ricks [1991], Gu and Chen [2004], and others report that in constructing "street earnings," financial analysts routinely discard non-recurring, income-statement items (called special items by Compustat) that are generated by GAAP attempts to measure the balance-sheet accurately.[12] Demirakos et al. [2004] analyze the contents of analysts' reports and find that the most common valuation models are based on price-earnings multiples, whereas book-value-of-

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[10] Tasker [1998b] summarizes the transcripts of two typical quarterly conference calls which clearly show that analysts usually focus on recent operating performance and prospects for future revenues and costs.

[11] Gilman [1941] surveyed 300 bank credit analysts to determine the importance of the lower-of-cost-or-market inventory valuation rule for credit analysis. Of the 176 respondents (58.7% of 300), 131 (74.4% of 176) replied that they would be satisfied with both balance sheet and income statement reported at cost if the lower-of-cost-or-market inventory valuation number was also disclosed parenthetically on the balance sheet or in a footnote. The survey results appear inconsistent with a single-best, balance-sheet format.

[12] Financial analysts also state that they are unlikely to find the capitalization of intangible assets on the balance sheet to be useful despite the FASB's and the IASB's claims that analysts want this information [e.g., Elwin, 2008].

equity multiples or asset multiples are rarely used. Asquith et al. [2005] find that members of *Institutional Investor*'s All-American Research Team are far more likely to use models based on earnings, cash flow, or sales (99%) than market-to-book (25%). In short, both Graham and Dodd's textbook and analysis of contemporary security-analyst behavior suggest that Sprouse's evidence provides a very shaky foundation for balance-sheet primacy in the current conceptual framework.

THE ASSET-LIABILITY APPROACH AND CLASSIFICATIONAL DOUBLE-ENTRY

We now discuss how *classificational* double-entry inherent in the asset-liability approach is likely misaligned with the economic function of accounting. Our argument derives from the frequently overlooked importance of *causal* double-entry in the discovery and exploitation of profitable exchange transactions, which is the most important reason that firms even exist. We trace the economic arguments for a focus on income measurement from modern economists like Ijiri [1975] and Hicks [1939] back to the writings of Adam Smith and his contemporaries. We discuss historical research showing that earnings power was used for valuing firms even earlier. Finally, we draw on Coase [1937], Mises [1949], and others to explain why a historical transaction-based income-statement approach is vital for entrepreneurial decision making.

Ijiri [1975, pp. 51-69] identifies three concepts inherent to economic performance measurement under double-entry accounting (DEA). *Control* represents the extent to which an organization has economic control over the use of resources, and *quantities* refer to an ability to quantify differing degrees to which resources exist. The third, and most important, concept is *exchanges*, which includes "not only exchanges in a market, but also exchanges in production which may be considered exchanges between the entity and nature" [Ijiri, 1975, pp. 60-61]. *Exchanges* is a foundational concept in accounting because of "the perceived cause-and-effect relationship between a sacrifice (a decrement) and a benefit (an increment), namely the benefit cannot be obtained without the sacrifice." While a classificational, double-entry system is built with only the *control* and *quantities* concepts, a causal double-entry system also incorporates the powerful *exchanges* concept.

Ijiri [1975, pp. 81-84] argues that the causal relation between benefit and sacrifice inherent to reciprocal exchange,

manifested in debit and credit, is the essence of DEA and is associated with powerful cognitive forces that alter how we view exchange:

> There are two entirely different reasons why debit should equal credit. One is that both are based on different classifications or descriptions of the same object. We call this type of double-entry *classificational double-entry*. For example, the double-entry bookkeeping system is often taught by starting with the fundamental equation assets = equities, because the two are considered to be different classifications of the same set of resources, one based on the types of assets and the other based on claims upon them.
>
> The other type of double-entry is what we may call *causal double-entry*, where the value of an increment (debit) is set equal to the value of a decrement (credit), as in (Dr.) Inventories $100: (Cr.) Cash $100. Here the same set of resources is not classified from two viewpoints. This entry clearly involves two different resources, cash and inventories. They are tied together because of the cause-and-effect relationship between the increment and the decrement….
>
> Apparently, double-entry can enormously affect our perception of economic events. Under a so-called single-entry system, a cashier can keep his record quite independently from a warehouse bookkeeper who records inventories and inventory changes. But an accountant who is trained in double-entry bookkeeping cannot treat a decrease in cash or an increase in inventories independent of each other. A decrease in cash alone cannot be recorded unless he finds a proper debit account. In doing so, he is led to recognize the cause-and-effect relationship of changes in resources. Eventually, he acquires the habit of always looking at a change in relation to other changes rather than in isolation…. Thus, it should be remembered that the real significance of double-entry bookkeeping compared to single-entry bookkeeping is not in dual classification or the computational double-check (what a triviality!), but in the power of double-entry to make us look into the cause-and-effect relationship among the changes in the resources controlled by the entity.

In contrast, economic exchange is, at best, a secondary element of the asset-liability approach. This approach starts by defining and measuring assets and liabilities with the resultant re-

sidual being equity; i.e., wealth. Income is the change in wealth that arises from either an exchange transaction or another event that alters the store of wealth. Thus, income measurement under the asset-liability approach must capture both the effects of exchange transactions as well as holding gains and losses. This measure appears superficially consistent with a theoretical view of income posited by Hicks [1939], and has been cited as a basis for the FASB and the IASB conceptual frameworks [Schipper and Vincent, 2003; Barth, 2008, p. 1,168].

Hicks' [1939, p. 173] first measure of income ("Income No. 1") is "the maximum which can be spent during a period if there is to be an expectation of maintaining intact the capital value of prospective receipts (in money terms)."[13] However, Hicksian income is defined only for a world of complete and perfect markets and is less useful for a firm operating in costly incomplete markets. Hicks [1939, pp. 193-196] describes a firm's decision as the "establishment of a *production plan*," with an optimal production plan maximizing the "surplus of receipts over costs," or the capitalized value of all future expected surpluses in a multiperiod setting. Within this context, Hicks defines business profit as surplus of receipts over costs less charges from prior commitments less depreciation (or plus appreciation). Thus, Hicks posits that the firm chooses production plans to increase profits which arise from interactions in product and factor markets.[14]

Hicks [1939, pp. 179] specifically excludes unrealized gains and losses from such planning, saying: "The income which is relevant to conduct must always exclude windfall gains; if they occur, they have to be thought of as raising income for future weeks (by the interest on them) rather than as entering into any effective sort of income for the current week. Theoretical confusion between income *ex post* and *ex ante* corresponds to practical confusion between income and capital." Hicks explains that decisions should be based on real rather than nominal income,

[13] In considering complications from interest rate and consumption price changes, he also developed two other income constructs. Hicks [1939, p. 174] defines "Income No. 2" as "the maximum amount the individual can spend this week, and still expect to be able to spend the same amount in each ensuing week" and "Income No. 3" as "the maximum amount which the individual can spend this week, and still expect to be able to spend the same amount *in real terms* in each ensuing week." (*emphasis* in original)

[14] Bromwich et al. [2010] and Jameson [2005] critique the application of Hicks [1939] to practical matters of income measurement, and point out that Hicks advocated an earnings power focus in practice. Klamer [1989, pp. 179-180] points out that Hicks himself was uncertain as to how income should be measured.

implying that variations in prices should be excluded from calculation of capital values, which is exactly opposite to the FASB/IASB fair-value measurement approach.

A concern with Hicks [1939] and neoclassical economics more generally is that it does not explain the nature and role of accounting within profit-seeking firms that operate in markets that are themselves dependent on complex economic institutions. The balance-sheet approach takes market values as given rather than resulting from the interaction of profit-seeking individuals. Kohn [2004, p. 314] summarizes limitations of the "value paradigm" that relies on neoclassical economics as follows:

> The approach of the value paradigm, like that of traditional mathematical theory in the natural sciences, is a special approach that is valid only in a subset of cases.
>
> We can be more specific if we divide the domain of economic theory according to the three basic questions addressed by Adam Smith: How are relative prices determined? How is economic activity coordinated? What are the causes of economic growth? The special approach of the value paradigm is reasonably successful when applied to the first of these questions. It is not unrealistic to think of the forces that determine prices, at least in the short run, as being relatively powerful and rapid, relying as they do primarily on trading and arbitrage. In these circumstances, the assumption of trading equilibrium is a fruitful simplification – fruitful because it permits the greater precision and logical clarity of mathematical reasoning. However, when applied to questions of coordination and growth the assumption of trading equilibrium is not at all realistic….
>
> To reiterate, there is nothing wrong with the theory of value as a theory of value. Indeed in many ways it is the crown jewel of economics. The problem is with the value paradigm – that is, with the attempt to extend assumptions that are appropriate to the theory of value to areas of economics where they are not appropriate. The theory of value is a special or partial theory, not a general theory.

Kohn [2004] suggests that Adam Smith's *Wealth of Nations* is a useful starting point for thinking about economics. Smith's [1776, p. 17] hypothesis is that specialized division of labor, coupled with opportunities for market exchange, generates human wealth [Kimbrough et al., 2008]. This foundational insight helps us better understand why economic institutions emerge to

foster favorable performance outcomes (e.g., higher total output) [Stigler, 1951; Buchanan, 1964; North, 2005; Smith, 2008]. Accounting is likely one such institution that has evolved to facilitate mutually beneficial exchange that increases the wealth of the transacting parties [Waymire and Basu, 2007; Basu et al., 2009; Waymire, 2009].

The Wealth of Nations was a seminal event in the development of economics as a scientific discipline [Samuelson, 1948, p. 136]. It is thus interesting to consider what Smith thought about valuation and performance measurement. Smith asserted that a nation's economic progress was measured by productive activity that enabled greater consumption. Smith [1776, p. 1] states his view, which was contrary to prevailing orthodoxy, in his opening sentence:

> The annual labor of every nation is the fund which supplies it with all the necessaries and conveniences of life which it annually consumes, and which consist always of either in the immediate produce of that labor, or in what is purchased with that produce from other nations.[15]

The Wealth of Nations provides a conceptual basis for economic performance measures such as Gross Domestic Product (GDP) [Samuelson, 1948, p. 11].[16] GDP is directly measured using a "product approach" by summing the "values added" by each enterprise in the society after adjusting for taxes and subsidies.[17] The "value added" by a given enterprise is the sales of its final goods or services less the cost of intermediate goods used to produce final output [Samuelson, 1948, pp. 232-234]. In other words, Smith [1776] argued for an income-statement approach whose focus was on wealth creation in place of a balance-sheet approach focused on wealth storage.

Robert Hamilton, a contemporary of Adam Smith, intro-

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[15] Smith's purpose in writing *The Wealth of Nations* was to discredit the contemporary economic orthodoxy of mercantilism [Sowell, 2006, pp. 5-13]. Mercantilism advocated the accumulation of wealth as reflected in the store of monetary assets such as gold, and can be viewed as a distant precursor of the balance-sheet approach.

[16] The argument favoring total output as a macroeconomic performance measure predates Smith; e.g., William Petty suggested this measure in the 17th century (en.wikipedia.org/wiki/William_Petty).

[17] A summary of GDP measurement is available at en.wikipedia.org/wiki/Gross_domestic_product, and the national income accounts used by the U.S. government are described in BEA [2009]. Marcuss and Kane [2007] provide a review of the historical development of the U.S. national-income accounts.

duced the idea of residual income (but not the term itself) by arguing that a firm must earn more than its cost of debt and equity capital to create wealth [Mepham, 1983]. Hamilton [1777, Part V, Chapter III, Section 8] states:

> In all commercial countries there is a fixed rate of interest, and the merchant's gain should only be estimated by the excess of his gross profits above the interest of his stock. The latter may be obtained with little risk or trouble; the former alone is the reward of his industry and the compensation for his hazard. And, if the profit of his trade be less than his stock would have yielded at common interest, he may properly account it a losing one.

Hamilton [1777, Part V, Chapter V, Section 27] emphasizes the relevance of income measurement for managerial decision making, saying: "When a person is engaged in several branches of manufacture, whether on different materials, or on the same materials through successive stages, he should keep his books in such a manner as to exhibit the gain or loss on each." This recommendation is explained by modern economic analyses.

A firm adds value by generating greater net gains from specialized labor than could be attained solely through a set of production decisions executed via a series of market transactions. Coase [1937, pp. 390-391] states this proposition as:

> The main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism. The most obvious cost of 'organizing' production through the price mechanism is that of discovering what the relevant prices are…. (i)t is important to note the character of the contract into which a factor enters that is employed within a firm. The contract is one whereby the factor, for a certain remuneration (which may be fixed or fluctuating), agrees to obey the directions of an entrepreneur *within certain limits*. (*emphasis* in original)

The entrepreneur thus performs a discovery function that includes developing products, identifying customers, and organizing production.[18] These functions are performed within the

[18] Cheung [1983] suggests that the costs of using the market to coordinate production include the number of heterogeneous transactions required, the costs to consumers of knowing all attributes of a product, the costs of measuring those attributes, and the problem of defining prices in a joint task involving collaboration between two factors.

context of a competitive process that creates strong incentives to exploit knowledge pertinent to the firm's local circumstances [Hayek, 1945, 1968]. Consequently, the defining event in a competitive process where transactions result from the entrepreneur's actions is the successful consummation of exchange with a customer. Accounting facilitates discovery of consumer preferences and more efficient means for satisfying those preferences [Vatter, 1950; Demski and Feltham, 1976; Kaplan and Norton, 1996]. Causal DEA can thus be an extraordinarily powerful tool for identifying and quantifying the consequences of exchange interactions between a firm, factor suppliers, and the eventual consumers of the firm's output.

Surviving historical records shows that entrepreneurs and financiers for the last several centuries have evaluated firms using variants of earning power [e.g., Bryer, 2000; Toms, 2010]. Merchants in feudal England frequently computed gross profits on individual transactions to decide their prices [Grassby, 1995, p. 236]. Robert Loder of Romney Marsh calculated the rate of return on capital using a single-entry bookkeeping system, and by 1611 was calculating residual income [Bryer, 2000]. In 1654, the East India Company reported the rates of return on capital for all of its early voyages to its stockholders [Chaudhuri, 1965, p. 209]. Several examples of similar computations in agriculture, coal, textiles, and mining have been documented over the next two centuries [e.g., Toms, 2010]. Thomas Hall in 1834-1835 was discounting forecasted profits using a 12.5% interest rate, an early example of discounted cash-flow analysis [Fleischman and Parker, 1997]. To summarize, there is a long English history of computing profits using historical cost to aid in running the business and for investors to evaluate the firm.

The "fatal flaw" in classificational double-entry is that it expands the set of conditions that call for entries to the books of account. This cuts the link between the accounts and the causal forces that generate transactions. A classificational system permits changes to the accounts for a broad range of counterfactual circumstances beyond the set of consummated transactions. In other words, "fair value" measurements reflect gains that may never be realized because the assumed transactions will never occur.

To clarify, a journal entry resulting from a consummated transaction encodes several simultaneously determined attributes of a transaction. Obvious attributes include the price and quantity for which a transaction is consummated. A less obvious but far more important attribute of any consummated transac-

tion is the *underlying decision to transact*. This decision is of vital importance in a world where it takes skill and effort to discover favorable opportunities to transact with customers and factor suppliers. Stated differently, the decision to transact reflects an entrepreneur's decision to "cause" the consummation of a specific transaction, when the firm's *raison d'être* is to identify and transact value-increasing exchanges.[19]

The accountant's focus on consummated transactions, with an emphasis on objective, verifiable evidence of arm's length exchange, is the likely "reason for the persistent use of historical cost in accounting over many centuries" [Ijiri, 1983, p. 79]. The need for objective and verifiable evidence of consummated transactions is a guiding feature of the framework of Paton and Littleton [1940, pp. 18-21; see Ijiri, 1980, pp. 622-623]. Paton and Littleton [1940, p. 10] assert the primacy of historical-cost-based income measurement derived from repeated application of the revenue-realization and expense-matching principles. These principles applied to objective verifiable evidence align recognition of "effort and accomplishment" [Paton and Littleton, 1940, pp. 14-18; Ijiri, 1980, p. 623; Ball, 1989].

So, what do we believe is lost by eroding the foundation of double-entry built on causality in exchange? Over the centuries, various scholars have written of the interdependent changes wrought by double-entry accounting on human cognition and the development of modern capitalist organizations [Sombart, 1919; Weber, 1927; Schumpeter, 1942; Mises, 1949; Ijiri, 1975, pp. 81-84].[20] The notion that double-entry reflects the causality of action in exchange was reinforced over 450 years after Pacioli [1494] by Mises [1949, p. 231] when he stated:

> It was economic calculation that assigned to measurement, number, and reckoning the role they play in our quantitative and computing civilization….Monetary cal-

[19] When the FASB and the IASB proposed removing stewardship as an objective of financial reporting in their Preliminary Views [FASB, 2006] consistent with their focus on balance-sheet valuation, an overwhelming majority of respondents preferred to retain stewardship or accountability, consistent with a contracting perspective.

[20] Pacioli noted such effects when he wrote of the need for accurate records and accounts "so that one may get, without loss of time, all the particulars as to the debit and also the credit of all of them, as business does not deal with anything else. This is very useful, because it would be impossible to conduct business without due order of recording, for without rest, merchants would always be in great mental trouble" [Pacioli, 1494, p. 1, quoted by Carruthers and Espeland, 1991, p. 36].

> culation reaches its full perfection in capital accounting. It establishes the money prices of available means and confronts this total with the changes brought about by action and by the operation of other factors. This confrontation shows what changes occurred in the state of acting men's affairs, and the magnitude of those changes; it makes success and failure, profit and loss ascertainable….Our civilization is inseparably linked with our methods of economic calculation. It would perish if we were to abandon this most precious intellectual tool of acting. Goethe was right in calling bookkeeping by double entry 'one of the finest inventions of the human mind.'

Thus, a classificational system like that advocated by Sprouse severs the link between accounting and economic exchange, which is the fundamental focus of economic activity.

CONCLUDING OBSERVATIONS ON THE LEGACY OF THE ASSET-LIABILITY APPROACH

Sprouse [1966] is important neither because of its conceptual insights nor because of its unpersuasive evidence. Rather, the article matters mainly because it shaped the FASB's rhetoric and subsequent standard-setting approach and today's international standard-setting agenda. Sprouse's misinterpretation of Graham and Dodd's *Security Analysis* foreshadows the FASB and IASB misinterpretation of Hicks [1939]. Sprouse and the two Boards are equally culpable in ignoring actual security-analyst behavior when advocating their preferences, relying instead on made-up "users" [Young 2006]. Thus, the current FASB/IASB Conceptual Framework [FASB, 2006] is justifiably seen as a direct descendant of Sprouse [1966].

Sprouse and the two Boards ignore the implications (or are unaware) of one of the major stylized facts of U.S. financial reporting history – the shift from a balance-sheet approach to an income-statement approach during 1900-1930. The shift to an income-statement approach is usually attributed to the information needs of a massive influx of individual investors into U.S. equity markets during this era [e.g., Hendriksen, 1970, pp. 51-55].[21] If individual equity investors are primarily interested in balance-sheet information, then this shift should not have occurred when it did. Sprouse and the two Boards never address

[21] U.S. shareholders more than tripled in number between 1900 and 1923 with greater middle-class participation [Warshow, 1924].

this salient historical evidence that contradicts their core assumption of investor information needs. More broadly, Sprouse and the two Boards ignore the historical development of the revenue-expense approach, both in theory and practice, which we survey in this paper. If financial accounting has emerged over many generations to maintain consilience with the biologically evolved human brain [Dickhaut et al., 2010], then an abrupt change to a fair-value-based, asset-liability approach might well make financial reports less useful to actual human readers.

Contrary to the theoretical ruminations of Sprouse, security analysts to this day rely primarily on earnings forecasts in valuing firms. However, today's analysts can construct their earnings forecasts only after adjusting for many more non-recurring items that the FASB has introduced into the income statement. Although SFAS 130 [FASB, 1997] introduced a broader, comprehensive income concept that includes even more non-recurring items, analysts show no interest in forecasting it or using it in their analyses. We believe that the FASB's shift in focus to the balance sheet has created bigger problems than merely whether financial analysts have to adjust for new income statement "thingamajigs" instead of balance sheet "what-you-may-call-its." We claim that the lack of analyst interest in the FASB-mandated, non-recurring items is symptomatic of a monumental mistake in the asset-liability approach; specifically, it is misaligned with the reasons that firms exist and the resulting demand for *causal* double-entry accounting as an economic institution.[22] In other words, while the asset-liability approach is constructively rational, i.e. deduced from assumptions that work in a theoretical model, it is unlikely to be ecologically rational in the sense of improving firms' survival prospects in the complex real world [Sargent, 2008; Smith, 2008].

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[22] Despite much cajoling by the FASB for its preferred format, most U.S. firms do not display comprehensive income at the bottom of the income statement. For example, Pandit and Phillips [2003] find that out of a random sample of 100 NYSE-listed firms with fiscal year-ends on or after December 31, 2002, only two firms reported comprehensive income as a component of their income statements (nine reported it in a separate statement, and the remaining 89 within a statement of changes in owners' equity). Despite the complete disinterest from preparers and users, the FASB and the IASB plan to mandate that all firms replace the income statement with a statement of comprehensive income [FASB, 2008].

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- the role of management practices in creating visions of organization and strategy;
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