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THE EFFECT OF REGULATION ON STATEMENT DISCLOSURES IN THE 1915 MOODY'S MANUALS

Abstract: United States firms in the early 20th century were subject to public and private regulation. Forms of regulation included rate regulation and stock exchange listing requirements. These regulations created incentives to report income statement information. This study utilizes the *1915 Moody's Analyses of Investments* to test whether regulated firms in the United States reported more income statement information than unregulated firms. Rate regulation influenced utilities to report income statements more frequently than industrial companies. Stock market listing requirements also influenced the reporting of income statements. Therefore, the results indicate that both public and private regulations influenced financial reporting in the early 20th century. Another finding of the study is that income statements were more frequently reported than balance sheets for both railroads and utilities.

INTRODUCTION

The importance of income statement versus balance sheet information has increased over time. A major shift from the balance sheet to the income statement occurred during the 20th century as the income statement began to be used to assess the ability of a firm to generate wealth [Buckmaster and Jones, 1997; Jones and Aiken, 1994]. The need for financial reporting may be better understood by investigating the causes of this shift in emphasis.

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In the late 19th and early 20th centuries, the balance sheet was dominant because it provided information on the stewardship function of management and information about capital [Gilman, 1939]. These were important issues for early investors in stocks. They wanted a secure investment. Banks also sought information on collateral for loans [Corcell, 1989]. As the financing needs of corporations grew and reliance on equity issues for capital increased, the income statement grew in importance.

Competitive factors were significant in limiting operating and profit information. Profitable industries did not want to attract competitors or cause labor to demand higher wages [Michael, 1996]. Few details about income components were reported [Lee, 1979; Morris, 1984; Baldwin et al, 1992]. The 'British Secretive Model' with minimal disclosure and a balance sheet focus has been used to describe reporting at the turn of the 20th century in the United States [Michael, 1996].

In the 1870s, the public and other businesses were unhappy about what was perceived as excessively high fares by U. S. railroads [Ulen, 1980; Trebing, 1984]. The debate that grew out of these concerns resulted in railroad and utility regulation. The 1890s also saw the growth of individuals investing in stocks and the rise of organized U. S. stock exchanges to facilitate these investments [Navin and Sears, 1955; Bryer, 1993]. These exchanges then reacted to investor information needs and created listing requirements to regulate the information that listed companies had to provide investors [Sivakumar and Waymire, 1993; Normand and Wootton, 2001; Gross, 2002]. U.S. legislation was also passed to regulate the disclosures of listed companies [Previts and Bricker, 1994].

This paper examines the role that these forms of public and private regulation in the United States had on the amount and content of income statement and balance sheet disclosure for railroad, utility, and industrial companies. The study empirically tests whether these regulated industries provided more frequent income statements and greater amounts of income statement disclosures, looking at rate regulation and stock market listing requirements as separate types of regulation. The disclosure of revenue by rate-regulated industries is also examined. The paper examines whether regulation created pressure to disclose more income statement information. The current accounting history literature indicates that the income statement was not a prominent nor consistently provided statement in the U.S. until the 1920s. This study will add to the debate about when the income

statement became prominent and the factors that influenced its rise to prominence and usefulness. Therefore, the role that regulation played in the shifting focus from the balance sheet to the income statement orientation is examined.

United States company reports in the *1915 Moody's Analyses of Investments* are used to determine if income statements were more commonly provided and/or were more detailed for regulated versus unregulated companies. Moody [1915] reported the information that was made public by companies followed by his investment service. This public information was used to rate the bonds and stocks of companies for investment quality. Moody's reported on a large number of firms. The company reports are examined in this paper to determine whether an income statement and balance sheet were provided. Statistical tests are utilized to verify relationships. Large samples also enhance generalizability of the results. This empirical approach extends the literature base by using another methodology to examine the issue of the importance and prominence of income reporting. Different methodological approaches which find similar results make those conclusions more credible. Conversely, the use of alternative methodologies can often lead to different conclusions.

The results for rate regulation indicate that utilities were more likely to provide an income statement than industrial companies. The utility income statements were also significantly more detailed than the industrial statements. No significant differences were found for frequency or detail of income statements for railroads versus industrials or railroads versus utilities. Furthermore, while almost all railroad and utility income statements disclosed revenues, less than half of the industrials examined that provided an income statement reported revenue. Industrial companies were more likely to disclose a balance sheet than railroads or utilities. The industrial balance sheets were also significantly more detailed than those disclosed by railroads and utilities. Thus, rate regulation was shown to be a significant catalyst to the preparation and publication of an income statement, calling into question the conclusion of the predominantly descriptive literature that the income statement did not become prominent in the U.S. for another decade.

Stock market regulation (listing requirements) also influenced the likelihood of reporting an income statement. Companies listed on a stock exchange were more likely to report an income statement than unlisted companies. The detail of the income statement was shown to be greater for listed companies

as well. The results also indicate that listed companies are more likely to report a balance sheet and the balance sheet of listed companies is more detailed than those of unlisted companies. The results concerning the regulatory influence of listing requirements thus shows that they increased disclosure of both statements.

The next section of the paper discusses regulation as it affected income statement disclosure and develops hypotheses. The succeeding section discusses the data and methodology used to conduct the empirical tests. This is followed by a discussion of the results, summary and conclusion.

REGULATORY EFFECT ON INCOME STATEMENT DISCLOSURE

This study considers rate regulation for railroads and utilities and stock market listing requirements as external factors that influenced company reporting decisions. Both factors are referred to as regulations, but only rate regulation is a true regulation in the sense of being imposed by law. Stock market listing requirements are a form of self regulation that companies subscribe to on achieving stock exchange listing. Table 1 provides a summary of the various statutory rate regulations and New York Stock Exchange (NYSE) requirements, the dates they became effective, and the companies that were covered by the regulation.

Rate Regulation of Railroads and Utilities: Trebing [1984] defines economic regulation as control over prices and earnings and the restriction of entry/exit by enterprises within regulated markets. In the late 19th century, there were public outcries for economic regulation of railroads and utilities in the U.S. [Ulen, 1980]. A number of mid-west states passed the Grange Laws in the 1870s. These laws gave states the ability to regulate railroad rates. The rates were based on return on invested capital assets [Boockholdt, 1978]. The United States Supreme Court upheld the power of states to regulate prices of firms that possessed the economic power to exploit customers in *Munn vs. Illinois* [1877] [Trebing, 1984]. As a result, both railroads and public utilities became regulated industries.

Boockholdt [1978] notes that the use of these return on invested capital rate setting regulations coincides in time with the increased use of the retirement method of depreciation and a trend toward capitalizing rather than expensing new assets. While he did not empirically test this relationship, the correla-

TABLE 1
Regulatory Requirements to 1915

Regulation	Type of Company Applied To
<i>Rate Regulation:</i>	
1837 Virginia Law required railroads to submit annual report to state disclosing amount of stock, revenue, and profit/loss	Virginia Railroads
1870s Grange Laws allowed state rate setting, most based on return on assets	Railroads operating mostly in mid-west
Interstate Commerce Commission (ICC), 1887 established system for using accounting data to regulate rates	Railroads that transacted interstate commerce
Railroad Regulation Bill, 1905 developed an accounting rate of return to ensure fair return and fair rates	Wisconsin railroads
Hepburn Act, 1906 empowered the ICC to establish uniform chart of accounts	Railroad that transacted interstate commerce
Public Utility Law, 1907 allowed rates based on cost plus fair return	Wisconsin utilities
1909 ICC prescribed form of balance sheet for railroads	Railroads that transacted interstate commerce
Mann-Elkins Act, 1910 empowered ICC to regulate railroads based on accounting rate of return	Railroads that transacted interstate commerce
Various state laws created rate regulation of railroads and utilities by 1913	Railroads and utilities operating within state borders
<i>New York Stock Exchange Listing Requirements:</i>	
1866 created Committee on Stock List to create stock listing requirements	
1869 required issuers to provide annual financial report, to register shares in New York City, and use transfer agents	All listed companies
1895 recommended annual balance sheet and income statement	All listed companies
1900 required balance sheet and income statement	Newly listed companies only
1910 required interim reports, balance sheet audits, and disclosure of all material information	All listed companies
<i>Moody's Rating Requirement:</i>	
1909 required an income statement to receive a rating	All companies included

tion between a regulatory change and a change in accounting policies seems to have clearly existed. This change in accounting policies was such that it would tend to increase rates. This shows that rate regulation influenced accounting policy choice.

These early regulations did not solve the discontent over rates so further rate legislation was introduced. The Interstate Commerce Commission (ICC) was established in 1887. Henry Carter Adams, the ICC's first statistician, devised an accounting system that served as a basis for examining revenues, expenses, and earnings of railroads and utilities so that fair rates could be established [Trebing, 1984]. The significance of this regulation for this study is that it used data from the income statement to help establish rates.

Regulation grew with the Populist/Progressive Reform Party movement from 1877-1920 [Trebing, 1984]. Governor LaFollette of Wisconsin (a Progressive Party member) and John Commons of the institutional school of economics at the University of Wisconsin were instrumental in the development of economic regulation. The goal of the Progressive Party was to bring about a rational deployment of public resources based on 'reasonable value' and 'rate of return' [Covaleski et al, 1995]. Under LaFollette, Wisconsin enacted the Railroad Regulation Bill, 1905, which established the Railroad Commission. The Commission developed an 'accounting rate of return' to regulate railroads to ensure a 'fair' return and 'fair' rates. In 1907, Wisconsin enacted the Public Utility Law where utility rates were to be based on cost plus 'fair' return [Covaleski et al, 1995].

In 1907, Commons wrote *Report to the National Civic Federation*, which explored many fundamental regulatory issues. This report led to accounting rate of return based regulation laws in at least 29 states and the Federal government by 1913 [Trebing, 1984]. Federal legislation in the form of the Hepburn Act, 1906 empowered the ICC to establish a uniform chart of accounts for railroads. This would lead to more standardized reporting to aid in rate setting [Boockholdt, 1978]. Subsequently, the Mann-Elkins Act, 1910 empowered the ICC to effectively regulate railroads based on accounting rates of return [Covaleski et al, 1995]. Regulatory pressures continued through 1917 when Federal attentions turned to war issues [Boockholdt, 1978].

The railroad and utility regulation of the early decades of the 20th century was focused primarily on rate regulation. It required entities to produce an income statement and share this with regulators. These regulations did not require companies to

provide this information to the general public; but with rates being based on costs, the information contained in the income statement could be inferred. Therefore, the utilities and railroads did not have a competitive reason to keep the income statement information secret. The 'British Secretive Model' of reporting was no longer useful within the regulatory environment faced by these companies [Michael, 1996].

Boockholdt [1978] implies that the early rate regulation influenced accounting policy choice. It is contended here that early 20th century regulation would have a similar effect on disclosure. Because these regulatory acts required charts of accounts (Hepburn Act, 1906) and formats for the balance sheet and income statement (Interstate Commerce Commission, 1909), standardized accounting by railroads resulted. These statements were then used by the companies to attract investors.

State laws by 1913 similarly regulated utilities. It is contended that the similarity in regulation between railroads and utilities would result in similar pressures on disclosure so that utilities would also report income statements.

Industrial corporations did not face any disclosure regulation other than that imposed by stock exchange listing requirements during the early 20th century [Sivakumar and Waymire, 1993]. As a result, these companies were still highly concerned with the competitive issues of disclosure and, therefore, would still operate under the 'British Secretive Model' of reporting, which limited disclosure. The lack of rate regulation and its influence on disclosures for industrial companies would result in industrial companies reporting income statements less frequently than railroads and utilities since railroads and utilities faced the rate regulation pressures to prepare and disclose income statements. Based on the existence of rate regulation for railroads and utilities and lack thereof for industrial companies, the following hypothesis states:

H1: Rate-regulated companies were more likely to disclose an income statement than industrial companies.

Stock Market Listing Requirements: As the economy grew, companies had a greater need for venture capital [Corcell, 1989]. These funds needed to come from investors. Railroads were the first companies to rely on outside investors. After 1850, railroads in the U.S. needed investors to provide means to acquire major fixed assets to operate [Boockholdt, 1978]. The growth of the railroads at this time made them a reasonable investment for small investors. However, other more risky companies also

needed capital to grow. Small investors were uncertain about these companies. While railroads sold at seven to ten times earnings, industrials sold at three times earnings. However by the 1880s, railroads had matured so the need for more capital had declined [Navin and Sears, 1955].

Capitalizing on this situation, professional financiers developed trusts [Bryer, 1993]. Commencing in 1882, these trusts allowed investors to rely on and have faith in the investment banker or firm promoting the trust [Bricker and Chandar, 1998]. Trusts represented both regulated and unregulated industries. Trading in trusts was significant (150,000 trust shares per week) and drew attention to industrials as investment opportunities. Many of these trust companies became corporations or holding companies in the 1890s. Also, during the 1890s, many mergers created large companies that imitated the trusts [Navin and Sears, 1955]. These corporations began trading their shares of stock, giving small investors the ability to acquire stocks in companies other than railroads [Bryer, 1993].

The growth of interest in owning stocks of individual companies created a need for easy exchange of shares. Organized exchanges existed earlier, but it was not until later in the 19th century that a market for industrial securities existed [Navin and Sears, 1955; Baskin, 1988]. The New York Stock Exchange (NYSE) established its first listing requirements in 1866. To be listed on the NYSE, a company had to have a transfer agent, register their stock in New York City, and provide an annual financial report [Normand and Wootton, 2001; Gross, 2002].

By 1902, large numbers of corporations (both industrials and regulated companies) were trading on organized exchanges leading to diverse ownership [Navin and Sears, 1955]. It was estimated that in 1899, there were 500,000 shareholders on the NYSE [Gross, 2002]. To provide for an active market, investors needed to be comfortable about making purchase decisions. When trusts and holding companies were common, investors relied on the investment banker, underwriter, or promoter to determine the investment quality of the trust or holding company [Bricker and Chandar, 1998]; but by the turn of the 20th century, investors were buying individual companies. To make these purchases, individuals needed more information about the individual companies or guidance from professionals through stock ratings. A prerequisite of a thriving, modern equity market was developed financial reporting to provide the necessary information for investors to make informed decisions [Baskin, 1988].

As the stock exchanges grew in importance as a tool to raise capital, more companies became willing to disclose greater information and adhere to more stringent listing requirements (regulations imposed by the stock exchange). In 1895, the NYSE recommended that all listed companies provide an annual report containing both a balance sheet and an income statement. Prior to that, only a balance sheet was required. In 1900, newly listed companies were obliged to issue an annual report containing a balance sheet and income statement, hold an annual meeting, and distribute proxy statements [Gross, 2002]. In 1910, additional listing requirements were introduced for providing interim reports, restricting the use of certain accounting policies, requiring balance sheet audits, and requiring the disclosure of material information [Sivakumar and Waymire, 1993]. Whereas NYSE listed companies were required to provide income statements and significant amounts of disclosure, unlisted companies were not under the same obligation. In fact, the NYSE traded unlisted companies. The only disclosure requirement for those companies was a balance sheet [Sivakumar and Waymire, 1993].

Increased information made it possible to analyze companies for investment purposes, but the average middle-class investor could not understand the disclosures that were being provided [Merino and Neimark, 1982]. This situation created the need for professionals in finance to help investors evaluate the various investment alternatives [Bryer, 1993].

In the 1890s, analyst services like Poor's and Moody's started to provide published information about companies [Sivakumar and Waymire, 1993]. John Moody provided analysis that compared the relative investment quality of various railroad securities in 1909. These reports included letter rating symbols for public securities—the first analyst ratings provided to the U.S. public [Moody's.com, 2001]. The ratings were for railroads only until 1913 when industrial and utility companies were added [Moody's.com, 2001]. To receive a rating, Moody required that the company provide an income statement [Moody, 1915].

A rating was important to attract small investors and was thus important to companies listed not only on the NYSE, but on any of the other smaller stock exchanges. The need to attract investors to acquire investment capital encouraged companies to seek a stock exchange listing. The listing requirements of these exchanges became a form of self regulation for listed companies. Because of the increased disclosure requirements of listing and the importance of analysts' ratings, companies seeking

investment capital through stock markets would be more likely to disclose an income statement than unlisted companies. Therefore, the following hypothesis states:

H2: Stock exchange listed companies were more likely to disclose an income statement than unlisted companies.

DATA AND METHODOLOGY

To examine the extent of income statement disclosure by industrial and rate-regulated companies in the early part of the 20th century, the *1915 Moody's Analyses of Investments* was chosen as the data source. *Moody's* was selected because it provides a broad range of public companies. The 1915 edition was chosen because it was the earliest edition to include a substantial representation of industrial companies that comprised the non-rate regulated sample.

The *1915 Moody's* included 5,334 companies. A random sample of 533 companies was drawn from the manual. From this sample, companies were eliminated if they did not have public ownership or were incorporated outside the United States. A large number of the companies (283 of the sample) were wholly owned subsidiaries of another company. Five of the sample companies were foreign. This left a sample of 68 railroads, 85 utilities, and 92 industrial companies. Of these, 68 were listed on an organized exchange and 177 were unlisted.

The pages covering each company were examined to determine whether an income statement and balance sheet were provided. To examine the amount of detail provided in the financial statements, the size of the statements was measured by placing an overhead transparency on the page that had been sectioned off into 20 x 25 blocks. The number of blocks that each statement occupied was recorded. Using size as a proxy for extent of disclosure is a common content analysis technique similar to that used by Gray et al [1995]. The disclosure of revenue and whether the stock traded on an organized exchange was also noted.

Chi-square tests were performed to determine if the frequency of disclosing an income statement or revenue within the income statement was greater for railroads and utilities compared to industrial companies in order to test the influence of rate regulation on financial reporting. Chi-square tests were also used to determine if the frequency of issuing an income statement differed between listed and unlisted companies. The tests

were also performed on the balance sheet to determine if balance sheet disclosure was influenced by rate regulation or stock market listing.

Tests were also performed to determine if rate regulation and listing requirements influenced the amount of detail in financial statement disclosure as measured by the size of the financial statements. Because of the large number of companies not reporting an income statement, the size data was not normally distributed. Therefore, the Mann-Whitney test was used to compare the size of the income statement among railroad, utility and industrial companies and listed and unlisted companies. The Mann-Whitney tests were also conducted on balance sheet size to examine the influence of rate regulation and stock market listing requirements on balance sheet reporting as well.

ANALYSIS OF RESULTS

Table 2 provides descriptive statistics for the sample. This table shows that most companies reported some statements. Only 13.9% of companies failed to provide Moody with any statements. Just over half (54.7%) of the companies disclosed both an income statement and a balance sheet. Approximately 80% of the sample reported an income statement. This finding is inconsistent with the conclusion in the existing literature that the income statement did not become a consistently reported item in the U.S. until the 1920s [Skinner, 1987; Buckmaster and Jones, 1997]. In fact, for the sample as a whole, the income statement is much more commonly reported than the balance sheet. The fact that only 60% of the sample reported a balance sheet is inconsistent with the conclusion in the literature that almost all U.S. firms published a balance sheet [Brief, 1987]. Railroads were the least likely to report a balance sheet, and utilities were the most likely to report an income statement.

Rate Regulation of Railroads and Utilities: Revenue was reported in most railroad and utility income statements. This is probably an artifact of the Hepburn Act, 1906 which established a uniform chart of accounts for railroads. The income statements for regulated railroad and utility companies were very similar. They started with revenue and included operating expenses. Some listed other expense items such as fixed charges, depreciation, interest, or taxes. Almost all companies disclosed 'net income'. The account title given to this number varied among the companies. (Surplus over charges, balance, surplus, net income, net

TABLE 2
Descriptive Statistics for Sample

	Industrials	Railroads	Utilities	Entire Sample
No statement	12.0%	17.6%	12.9%	13.9%
Income statement	73.9%	82.4%	85.9%	80.4%
Balance sheet	81.5%	36.8%	56.5%	60.4%
Both statements	67.4%	36.8%	55.4%	54.7%
Revenue	32.6%	79.4%	84.7%	63.7%
Mean income statement area	60.68	69.38	78.79	69.38
Standard deviation income statement area	48.89	47.22	59.79	52.86
Mean balance sheet area	92.98	47.76	71.28	72.90
Standard deviation balance sheet area	58.65	66.94	75.77	69.44
Mean total area	408.00	478.10	530.02	469.80
Standard deviation total area	204.50	390.64	388.90	335.14
Number of companies	92	68	85	245

earnings/profit, and total income were among the titles used.) These statements were clearly recognizable as single-step income statements. The industrial companies were less likely to report income statements. Less than half of the industrials which reported income reported revenue. Most industrial income statements did not follow a consistent format across companies. The inclusion of payments to bond sinking funds was often reported as an expense. Thus, industrial income statements, when provided, were not as well organized or as informative as the income statements of regulated companies.

The amount of statement coverage varied significantly among companies within each industry grouping as indicated by the standard deviation of the areas reported in Table 2. Utilities provided the most detailed income statement disclosures and the greatest overall Moody's coverage. Industrials had the most detailed balance sheets. Consistency in the form and content of railroad and utility income statements was most striking. This was certainly a by-product of regulation which required use of a common chart of accounts (Hepburn Act, 1906) and the need for regulators to use consistent numbers in rate setting. The chart of accounts helped standardize income reporting.

To test H1, Chi-square tests were performed to determine if the frequency of disclosing income significantly varied across industry groups. When industrials, railroads, and utilities were

considered together, the Chi-square was not significant (p -value = 0.12). The industries were then compared individually. The Chi-square comparing the frequency of income statements for railroads and industrials was not significant (p -value = 0.206). Thus, railroads were not more likely than industrials to report an income statement. Utilities were shown to be significantly more likely to report an income statement than industrials (p -value = 0.048). Utilities and railroads did not report income statements at a different frequency (p -value = 0.551). Thus, H1 was supported with respect to utilities only. Utilities were more likely to report net income than industrials, but railroads were not. As Boockholdt [1978] contends in relation to earlier railroad regulation and accounting policy choice, these results show that later rate regulation of utilities provided a catalyst to change reporting and issue an income statement when a large number of unregulated companies chose not to report income. The fact that railroads were not reporting income more frequently than unregulated companies is surprising. The railroads faced similar rate regulation pressure as the utilities. The existing literature also contends that railroads were the leaders in financial reporting [Boockholdt, 1978], but these results indicate that utilities were more likely to report income.

Table 3 reports the results of the Mann-Whitney tests on the amount of detail in income statements. The results are the same as for the analysis of frequency; utilities provided significantly more income statement disclosures than industrial companies. Railroads did not provide more disclosure than either industrials or utilities. These results show that the income statements provided by utilities were not only more frequent, but also more detailed. Railroads did not have more income statement disclosure than industrials. One possible explanation for the finding that railroads were not reporting income more frequently and with more detail is the period studied. Many of the railroads in the sample were inter-urban transit railways. These lines were already facing pressures from the automobile. As the prospects of these railways began to decline, the tendency may have been to reduce disclosure.

The Chi-square and Mann-Whitney tests were conducted to determine if balance sheet frequency or size varied significantly among the industries examined and thereby to consider the entire reporting picture. Considering all three industries together, a significant difference was found for frequency of reporting balance sheets (p -value = 0.000). Industrials were significantly more likely to report a balance sheet and railroads were least

TABLE 3
Rate Regulation: Total Area of Income Statement
(Mann-Whitney Test)

	Industrial vs. Railroads	Industrial vs. Utility	Railroad vs. Utility
Industrial median	70	70	
Railroad median	72		72
Utility median		76	76
p-value	.12	.01**	.20

P-values are one-sided for industrial vs. railroad and industrial vs. utility and two-sided for railroad vs. utility.

** 5% significance

*** 1% significance

likely. Comparing railroads and industrials showed a significant difference (p-value = 0.000) with industrials reporting balance sheets significantly more frequently. Industrials were also more likely than utilities to disclose a balance sheet (p-value = 0.000). Utilities were more likely than railroads to disclose a balance sheet (p-value = 0.015). Thus, industrials were significantly more likely than railroads or utilities to disclose a balance sheet and railroads were less likely than industrials or utilities to disclose a balance sheet. These results on the lack of balance sheet disclosure are interesting when compared to the findings reported in the extant literature. This literature discusses how common balance sheets were [Brief, 1987] and how they were the focus of reporting in the early 20th century [Morrison, 1935; Skinner, 1987].

The findings reported in this study show that a significant number of companies that provided income statements did not provide balance sheets and that this practice was particularly pronounced in the railroad sector, where regulation may have directed focus on company evaluation almost entirely on the income statement. This result again stresses the important impact that regulation had on accounting during this period. At this time, railroads were also considered to be the leading industry for financial reporting [Boockholdt, 1978]. The results here seem to indicate that utilities rather than railroads were the leaders as utilities more often provided a complete set of financial statements.

Table 4 examines the amount of detail in the balance sheet using Mann-Whitney tests. These results show that the balance

sheets of industrial firms were larger than those of both railroad and utility firms. The difference in balance sheet size between railroad and utility companies was insignificant. These results are generally consistent with those for the frequency of reporting for the balance sheet.

TABLE 4
Rate Regulation: Total Area of Balance Sheet
(Mann-Whitney Test)

	Industrial vs. Railroads	Industrial vs. Utility	Railroad vs. Utility
Industrial median	108	108	
Railroad median	0		0
Utility median		76	76
p-value	0.00***	0.03**	0.07

P-values are two-sided

** 5% significance

*** 1% significance

Chi-square tests were used to examine the reporting of revenue. Considering all types of companies together, significant differences were found for reporting revenue (p-value = 0.000). Industrials were less likely than other firms to report revenue. Comparing railroads and industrials showed that railroads were significantly more likely to report revenue than industrials (p-value = 0.000). This result also holds for utilities relative to industrials (p-value = 0.000). Utilities and railroads were equally likely to report revenues (p-value = 0.393). Regulated companies were more likely than industrials to report revenue.

Given the lower frequency of industrials to provide income statements, this result is not surprising. However, the significant differences still hold when a subsample of only those companies reporting an income statement was considered. Industrials were still significantly less likely than either railroads or utilities to report revenue (p-value = 0.000 for both).

Overall, these results indicate that rate-regulated companies, especially utilities, were providing more complete information on company performance than industrial companies in 1915. Rate regulation provided incentives to publish income statements and include more detail within the income statements that were published.

Stock Market Listing Requirements: Among the sample of companies selected, trading on an unlisted basis (72.2%) was more common than being listed (27.8%). A company was considered to be listed if it traded on any organized exchange. While it is not known what listing requirements existed for all local exchanges, the scrutiny of the listing process is assumed to encourage more complete reporting for listed companies regardless of the exchange listed on. If exchanges other than the NYSE did not require income statements, then the inclusion of these other exchanges as listed securities will only bias against the hypothesis being found significant. Of the companies in the sample that were unlisted, 137 disclosed an income statement and 40 did not. For the listed companies in the sample, 60 disclosed income statements and eight did not. To determine if income statement disclosure was statistically more common for listed companies (H2), a Chi-square test was performed. The results indicate that listed companies were more likely to disclose an income statement (p-value = 0.028). Thus, the stock exchange listing requirements were acting as a regulation to encourage the listed companies to disclose an income statement.

The previous section indicated that rate regulation was an adequate inducement for utility companies to report income statements. To determine if stock market listing requirements encourage all types of companies to disclose income statements, the Chi-square test was performed on the industrial, railroad, and utility subsamples separately. Industrials that were listed were significantly more likely to report an income statement than unlisted industrials (p-value = 0.002). However, listing status did not influence whether railroads (p-value = 0.342) or utilities (p-value 0.378) reported an income statement. These results indicate that the stock market listing requirement only acted as a regulatory influence on income statement reporting for those companies that did not already report income because of rate regulation. However, for those companies not required by law to prepare an income statement, the stock market listing requirements did act as an adequate incentive to report income. Thus, those listing requirements regulated the disclosures of companies seeking to be listed, supporting H2.

Table 5 shows the results of the Mann-Whitney test on the detail of the income statement for listed and unlisted companies. The results are similar to those for frequency in that listed companies reported a more detailed income statement than unlisted companies. This again indicates the significant influence that stock market listing requirements had on company disclo-

sure. The NYSE had a listing requirement about disclosing all material information, which would be expected to result in listed companies reporting more information. This was supported by the results. Also, to get small investors to invest in their shares, companies needed to provide information for individuals to make investments decisions.

TABLE 5
Stock Market Listing Requirements: Total Area of
Income Statement (Mann-Whitney Test)

	Listed vs Unlisted
Listed median	76
Unlisted median	72
p-value	0.00***

P-value is one-sided.

** 5% significance

*** 1% significance

The frequency of reporting balance sheets and their size was also examined for listed and unlisted companies. For the unlisted companies, 89 reported a balance sheet and 88 did not. Only nine listed companies did not report a balance sheet and 59 listed companies did report a balance sheet. Listed companies were shown to be significantly more likely to report a balance sheet (p-value = 0.000) for the Chi-square test. Thus, listing requirements that required a balance sheet did significantly influence the disclosure of the statement. To examine whether this effect occurred for industrials, railroads, and utilities, the chi-square test was repeated for each industry separately. The results indicate that for all industries listed companies were more likely to report a balance sheet (p-value = 0.004 for industrials; p-value = 0.009 for railroads; p-value = 0.032 for utilities). This result is very interesting when considered in tandem with the results from rate regulation. Stock market listing requirements influenced all types of companies (rate regulated or not) to report a balance sheet, but only influenced non-rate regulated companies to report an income statement. Rate regulation was focused on the income statement. Thus, the rate regulation did not encourage regulated companies to provide a balance sheet. However, for those rate-regulated companies that chose to be listed on a stock exchange, the stock exchange listing require-

ments acted as a regulation to disclose a balance sheet as was required for listing status.

The size difference for the balance sheet across listed and unlisted companies was tested with a Mann-Whitney test. The results are reported in Table 6. Listed companies reported significantly more detailed balance sheets than unlisted companies. Thus, the stock market listing requirements that stipulate the disclosure of a balance sheet not only encouraged companies to disclose a balance sheet, they also encouraged a more detailed balance sheet. This increased level of detail may have resulted from the listing requirements concerning the disclosure of all material information that unlisted companies did not have to satisfy.¹

TABLE 6
**Stock Market Listing Requirements: Total Area of
Balance Sheet (Mann-Whitney Test)**

	Listed vs Unlisted
Listed median	114
Unlisted median	18
p-value	0.00***

P-value is two-sided.

** 5% significance

*** 1% significance

Taken together, the results reported here indicate that various forms of regulation motivated the management of companies to disclose income statements and, to a lesser extent, balance sheets, in the early part of the 20th century. Regulatory effects were an important force in encouraging companies to provide adequate disclosure. The results indicate that these

¹The tests reported in this section were repeated using only the 36 NYSE listed companies in the sample. The results were generally the same for the tests that could be performed. The only exception occurred with the test for the importance of listing for industrials to report a balance sheet. NYSE listed industrial companies were not more likely than other industrial companies to report a balance sheet, while the body of the paper indicates that listing on any exchange did create a significant difference with listed companies reporting a balance sheet more frequently. The paper reports all listed companies because of the increased power of the test with the larger sample size and the ability to run all tests. There are only four NYSE listed railroads all of which report income statements and balance sheets. This resulted in an inability to run tests separately for railroads when the NYSE only sample is used.

regulatory measures helped bring about more complete and consistent financial reporting.

A limitation of this study is that the results cannot be generalized to other periods where different pressures existed on reporting. Neither can the results be generalized to companies operating in other countries where regulatory pressures were different. For instance, currently the SEC regulations would dominate those of rate regulation. Likewise, Boockholdt [1978] notes that rate regulation was not aggressively pursued during World War I. Thus, the effect of rate regulation on statement disclosure may not be detected during that period because of poor enforcement. The paper also fails to consider other forces that may have acted as regulatory influences.

SUMMARY AND CONCLUSIONS

This study has examined the effect of rate regulation and stock market listing requirements on the frequency and size of income statement and balance sheet disclosures by companies in the *1915 Moody's Analyses of Investments*. The results strongly support the hypotheses that both types of regulation influenced reporting. Thus, regulatory pressures influenced company reporting practices and helped to move company reporting to a more complete and consistent model.

Rate regulation laws required regulated industries to provide income statements to regulators. This study hypothesized that rate regulated companies would be more likely to publicly report income statements because they were already provided for the regulators. The results, with respect to rate regulation, showed that utilities were more likely than industrials to report income and that the income statement disclosures were larger for utilities than those for industrials. The analysis also showed that both railroads and utilities were more likely to disclose revenues than industrial companies. Industrials, however, were more likely to disclose a balance sheet and have more comprehensive balance sheet disclosure.

Stock exchanges impose listing requirements on companies choosing to list on the exchange. These regulations are essentially voluntarily entered into rather than imposed by law; but, nonetheless, these regulations are hypothesized to influence statement disclosures. The NYSE required the reporting of both an income statement and balance sheet by 1915. Unlisted companies did not face this requirement. Therefore, stock market listing would increase the likelihood of reporting both income

statements and balance sheets. The NYSE also required disclosure of all material items. This requirement would tend to increase the size of financial statements. The results of this study supported these hypotheses. Listed companies were more likely to report income statements, although this effect was only significant for industrial companies when examined by industry. Also, the likelihood of disclosing a balance sheet increased when a company traded on an exchange. The size of both statements also increased among listed companies relative to unlisted companies.

These results provide empirical support to the literature that discusses the leading role of regulated industries in reporting income [Boockholdt, 1978; Bryer, 1993]. The most surprising result was the infrequency of U.S. firms to disclose a balance sheet in 1915. This finding is inconsistent with the assertion in the literature that almost all firms published a balance sheet [Brief, 1987] and that it was the only necessary statement [Gilman, 1939; Skinner, 1987; Kendig, 1993]. The results reported here indicate that regulation was a significant influence on the reporting of income by companies in the early 20th century. Greater detail in the income statement was also a by-product of regulation. The format of rate-regulated company income statements was generally consistent across firms, using a single-step presentation. In contrast, industrial firm income statements lacked a consistent format and often omitted important disclosures (such as revenue). Thus, rate regulation also had an impact on the format and content of income statement disclosures.

Regulation was a significant force in the evolution of financial statement disclosure at the turn of the 20th century. Utility companies seemed to be the leaders in financial disclosure. They were the most likely to provide an income statement. This income statement almost always provided details about revenue and operating expenses. The majority of utilities also reported a balance sheet. The balance sheets were not standardized. The biggest contribution of early 20th century rate regulation on accounting was in encouraging a consistently formatted, detailed income statement that was subsequently made available for investors to use in financial statement analysis.

The stock exchange listing requirements were shown to only be associated with increased income statement reporting for industrials, which were not rate-regulated. Thus, the stock exchange listing requirements played a major role in encouraging these companies to report income. The stock market listing requirements also resulted in more frequent balance sheet

disclosures for all types of companies. This was the only regulation that required balance sheets. Therefore, the stock exchange listing requirements were a key regulatory influence in encouraging complete financial statement disclosure.

The results of this study also call into question the conclusion by some previous authors that the income statement did not become a consistent, prominent, and useful disclosure until after 1920 [Skinner, 1987; Buckmaster and Jones, 1997]. The income statement was more commonly disclosed than the balance sheet by the entire sample considered in the current study. Analysts used income statement information to provide advice to investors [Moody, 1915]. In fact, since ratings would not be provided without an income statement, it was viewed by Moody as a necessary statement. Regulation played an important role in bringing income statement information to the status of usefulness before 1920.

The impact of regulation on the format of the income statement is also very evident. Rate-regulated company statements followed a consistent and informative format, disclosing revenues and operating expenses. Without this regulatory pressure, industrial statements lacked consistency as well as detail. Thus, regulation played a very significant role in the growing prominence and disclosure of income by American companies in the early 20th century.

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