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Jeffrey Archambault

Marshall University, archambault@marshall.edu

Marie E. Archambault

Marshall University, archambaultm@marshall.edu

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Jeffrey J. Archambault
MARSHALL UNIVERSITY
and
Marie E. Archambault
MARSHALL UNIVERSITY

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
<i>Corporate-Governance Factors:</i>			
H1	Listing Status	+	+
H2	Board Control	-	-
H3	State of Incorporation	+	+
<i>Operating Factors:</i>			
H4	Complexity	+	+
H5	Longevity	-	-
H6	Profitability		+
H7	Size	+	+
<i>Financing Factors:</i>			
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

²See 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 exchange³

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

³The 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 R² 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-

⁴Total 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 divided 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 divided by total assets. Total Assets (in millions) = total assets divided 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 divided 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

Variable	Part 1	Part 2		Part 3	
	Correlation	Multi-variate		Multi-variate	
	Coefficient	Coefficient	t-Stat	Coefficient	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 multicollinearity. However, standard tests for multicollinearity, both correlation matrices and variance-inflation factors, indicate that no strong multicollinearity 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

⁵Results 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

Variable	Part 1	Part 2		Part 3	
	Correlation	Multi-variate		Multi-variate	
	Coefficient	Coefficient	t-Stat	Coefficient	t-Stat
Constant		-0.96	-0.98	0.52	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

Variable	Part 1	Part 2		Part 3	
	Correlation	Multi-variate		Multi-variate	
	Coefficient	Coefficient	t-Stat	Coefficient	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

⁶Results 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

Variable	Part 1	Part 2	
	Correlation	Multi-variate	
	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

Variable	Part 1	Part 2		Part 3	
	Correlation	Multi-variate		Multi-variate	
	Coefficient	Coefficient	t-Stat	Coefficient	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
<i>Corporate-Governance Factors:</i>					
Traded on Exchange	+		+	+	+
Percentage of Board that are Officers	-	-	-	-	
Incorporated in Delaware or New Jersey					
<i>Operating Factors:</i>					
Subsidiaries	+		+		
International Operations		+		+	+
Age of Company		-			
Return on Assets			+	NA	NA
Total Assets	+		+	+	NA
<i>Financing Factors:</i>					
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 than 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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