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LETTER FROM THE EDITORS

Welcome to the *Academy of Accounting and Financial Studies Journal*, an official journal of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The *AAFSJ* is a principal vehicle for achieving the objectives of the organization. The editorial mission of this journal is to publish empirical and theoretical manuscripts which advance the disciplines of accounting and finance.

Dr. Michael Grayson, Jackson State University, is the Accountancy Editor and Dr. Denise Woodbury, Southern Utah University, is the Finance Editor. Their joint mission is to make the *AAFSJ* better known and more widely read.

As has been the case with the previous issues of the *AAFSJ*, the articles contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

The Editors work to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. They will continue to welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

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Michael Grayson, Jackson State University

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LEASING AGREEMENTS AND THEIR IMPACT ON FINANCIAL RATIOS OF SMALL COMPANIES

Thomas R. Noland, The University of Houston

ABSTRACT

Current accounting standards specify two ways of reporting leased assets. Operating leases are viewed as true leasing agreements. Owners simply report the cost of the lease payments made in the current period as rental expense. If, on the other hand, the owner enters into a non-cancelable lease agreement that extends through most of the asset's useful life, the lease agreement must be capitalized. These reporting requirements have resulted in operating lease agreements being the contract of choice for small businesses.

The classification rules of leasing agreements currently depend on arbitrarily-established limits set by the Financial Accounting Standards Board in 1976. This approach has been highly criticized because it focuses on the contract rather than the way in which the underlying asset is being used

The Financial Accounting Standards Board periodically reexamines this issue and, at one point, issued a special report supporting a position that leases should be viewed in terms of property rights, rather than ownership rights. Under this approach, many lease contracts that are currently reported as operating leases would be capitalized.

To show the potential impact of this approach, I use a set of 273 privately-held companies in the trucking industry. Descriptive analyses show the potential impact of leases. These results are applicable to industries where leased equipment comprise sizable portions of companies' fixed assets and illustrate the economic impact of leasing on the profitability and liquidity of the business.

INTRODUCTION

The Financial Accounting Standards Board (FASB), in conjunction with the International Accounting Standards Committee (IASC) and the accounting standards boards of Australia, Canada, New Zealand, and the United Kingdom, issued in 1996 a report entitled *Accounting for Leases: A New Approach*. The report discusses the perceived deficiencies in existing lease accounting standards in the US, especially with respect to the recording of operating leases by the lessee.

The report points out that current reporting rules require the capitalization of lease contracts based on the benefits and risks of ownership, raising concerns that the economic substance of the leasing transaction is often lost through the writing of contracts to suit the self-interests of the parties

involved. The report suggests a new approach for the recognition of leases by lessees that focuses on the property rights and obligations created under lease contracts. This new approach would be more consistent with the FASB and IASC conceptual frameworks. Under the property rights approach, the focus is on whether the entity controls the future economic benefits generated by the leased asset, rather than whether the entity owns the leased asset. The decision to capitalize is based on qualitative, rather than quantitative criteria that are difficult to manipulate through contracting. This would require many long-term leases that currently fit the definition of operating leases to be capitalized on the lessee's balance sheet.

This issue is relevant to entrepreneurial research because (1) the ratios used in this study are often used by creditors in evaluating potential borrowers and in debt covenants, (2) accounting numbers are used in valuation and performance measurement by investors and (3) market evidence is consistent with investors viewing leases as property rights (Beattie, Goodacre and Thompson, 2000(a) and 2000(b)). Several studies provide empirical evidence suggesting that following the lease disclosure rule change requiring capitalization of certain leases (FASB 1976), firms substituted operating leases for capital leases to avoid the effects of capitalization. Imhoff, Lipe and Wright (1993) present evidence consistent with the assertion that adjustments for operating leases are not made to financial ratios in determining management bonuses. This implies that the accounting method choice for leased assets and the resulting impact on important financial ratios have the potential to materially influence at least some financial statement users.

Empirical evidence of market behavior is consistent with the popularly-accepted notion that analysts and investors often view leases in a manner similar to the position taken in the jointly-issued report. Beattie, Goodacre and Thompson (2000(b)), Ely (1995) and Imhoff, Lipe and Wright (1993) present results that support the treatment of leases as property rights. This implies that, from the investors' and creditors' perspectives, many leasing agreements may be more appropriately recorded as capital leases. Under current accounting standards, however, investors must convert the financial statement numbers on a firm-by-firm basis. This makes a conversion of benchmark industry averages impractical in many cases and suggests that the effects of lease capitalization may be only partially impounded in the stock prices of some companies.

The objective of this paper is to provide evidence on the potential impact of the capitalization of leases on the financial statements of small and mid-sized individual companies and on industry averages. The trucking industry was chosen for the analysis because leasing contracts, currently reported as operating leases, represent an important form of financing the primary income-producing assets of many companies within the industry. Data from disclosures to the Interstate Commerce Commission (ICC) were used in the analysis because *all* trucking companies (both publicly-traded and privately-held) with greater than \$3 million in gross revenues were required to file reports. ICC motor carrier classifications were used to appropriately identify a specific industry segment. The companies used in the data analysis were private, closely-held entities and the reporting methods were standardized across companies.

This study offers a unique perspective on the impact of lease capitalization because the data are from private or closely-held firms. Prior research on lease capitalization (such as Imhoff, Lipe and Wright 1991 and 1997) has focused on the mechanics of constructive lease capitalization. Discussion of the financial statement impact has been limited to an analysis of a small group of large, publicly traded companies. There is no data in the existing literature on the potential impact of lease capitalization on the financial statements of private companies. The results provide important information about the impact of more rigorous standards covering lease capitalization. The results of this study are applicable to any industry where short-term leasing is prevalent.

The next section provides a brief background of the leasing environment. This is followed by a section describing the data set and a section explaining the determination of a typical leasing agreement for the industry. An analysis of the impact of capitalization of leasing agreements on key financial ratios is provided. The final section concludes.

THE LEASING ENVIRONMENT

Lease financing provides a significant source of funds to businesses acquiring property, plant and equipment. Leasing now provides approximately one-eighth of the world's annual equipment financing requirements, and leasing in the U.S. alone amounted to \$140.2 billion in 1994 (London Financial Reporting Group 1996).

One potential benefit of leasing is that it promotes efficient and economical asset management. It secures necessary service capacity over the term of the lease and provides management with the flexibility to respond to changes in those needs. Management can respond to changes in fixed asset requirements resulting from business and economic changes more quickly if the assets are leased, rather than owned. Leasing can also allow managers to try different types of equipment to find the most productive configuration, although lease financing is often more expensive than other types of debt financing.

One of the major concerns of the current reporting standards covering lease agreements is the possibility of off-balance-sheet financing. By utilizing operating leases, companies may realize the future economic benefits of assets without recording either the asset or the obligation of lease payments. The cost of the lease is recognized as a level charge on the income statement and the leased asset is not included in the calculation of leverage or liquidity ratios. Companies also avoid the risk of reported losses due to asset impairment (SFAS No. 121).

Current leasing standards determine whether leases are capitalized based on the risks and rewards of ownership, rather than the conceptual framework concept of future economic benefits. The lessee accounts for the contract as a capital lease, recording both the asset and the liability, if a non-cancelable lease meets one or more of the following requirements: (1) the lease transfers ownership of the property to the lessee, (2) the lease contains a bargain purchase option, (3) the lease term is equal to at least 75 percent of the estimated useful life of the leased property, (4) the present

value of the minimum lease payments is at least 90 percent of the fair market value of the leased property.

The proposed approach in the 1996 FASB report is based on the application of the IASC Framework definitions of assets and liabilities. The focus of the approach "is on the capacity of the enterprise to control future economic benefits rather than on whether the entity 'owns' the underlying physical resource (p.15)." The lessee acquires a contractual right to the future economic benefits generated by the leased property and incurs a contractual obligation to compensate the lessor for the use of the leased property over the lease term. The asset and liability recognized would reflect the period for which the property is controlled and the related obligation is undertaken. The report predicts that, if this approach were adopted, the vast majority of lease contracts in the US would be reported as capital leases.

DATA

For the analysis, data from a very specific segment of the U.S. trucking industry are utilized. Data were obtained from required disclosures to the now-defunct Interstate Commerce Commission (ICC). Each year, Class I and Class II motor carriers were required to file annual reports with the ICC using uniform reporting criteria. Class I motor carriers are defined as any carrier with greater than \$10 million in gross revenue. Class II motor carriers are defined as any carrier with between \$3 million and \$10 million in gross revenues. Companies with less than \$3 million in gross revenues are not required to report.

The data set has two very important features that lend itself well to a cross-sectional analysis of the potential effects of leasing contracts on financial statements. First, the leasing of major income producing assets is common in the industry. Within the industry segment analyzed, half of the companies leased a minimum of 44 percent of the tractors in their operating fleets. Cross-sectional comparisons are strengthened by an unusual degree of uniformity within the industry. There little variability in leasing agreements across companies within identified industry segments, simplifying the procedure used to capitalize operating leases. The ICC financial reporting requirements are also highly standardized (with a standardized set of accounts) and allow very little variation in accounting method choices across companies, facilitating cross-company ratio comparisons.

Second, it is possible to identify a very specific segment within the industry. For example, there are separate classifications for general carriers and several types of specialized carriers. In addition, general carriers are divided between "truckload" and "less than truckload." Finally, the database identifies Class I and Class II carriers. For the sample, Class II *Truckload General Carriers* are used. This sample has both upper and lower bounds on size and consists of companies that provide essentially the same services. Because the U.S. federal government required disclosure of all Class I and Class II carriers, the data set includes every firm of comparable size within this

segment. All firms within the final sample are privately held. Finally, the required disclosures include certain operating data, such as the number of leased tractors, the number of owned tractors, etc, that are not required disclosures in SEC filings or annual reports.

Table 1 provides descriptive data for the selected sample. The sample consists of *all* Class II *Truckload General Carriers* that reported owned or leased tractors in 1994. There were a total of 273 companies in this category. Table 1 reports the mean, standard deviation and quartile values for sales (gross freight revenues), income before taxes, current assets, net carrier operating property, total assets, current debt, and total debt in thousands of dollars. These values are used in the subsequent ratio calculations. Net carrier operating property is used to calculate the return on transportation assets. Carrier operating property includes all the *owned* equipment and facilities the carrier needs to operate the truck line, including land, buildings, trucks, tractors, trailers, forklifts, shop and garage equipment and computers. Table 1 also reports descriptive statistics on the number of tractors in the fleets and the percentage of tractors owned by each company.

Variable	Sample Size	Mean	Standard Deviation	Q1	Median	Q3
Sales	273	\$7450	\$2879	\$4994	\$6707	\$9197
Income before Taxes	273	\$284	\$441	\$45	\$140	\$398
Current Assets	273	\$1083	\$766	\$615	\$901	\$1396
Net Operating Property	273	\$1323	\$1549	\$261	\$795	\$1739
Total Assets	273	\$2649	\$2307	\$1219	\$1948	\$3506
Current Liabilities	273	\$811	\$621	\$377	\$648	\$1087
Total Debt	273	\$1645	\$1579	\$547	\$1183	\$2239
Current Ratio	273	3.89	26.19	0.94	1.37	2.13
Debt Ratio	273	0.64	0.32	0.45	0.65	0.81
Return on Trans. Assets	273	2.69	18.37	0.05	0.19	0.57
Profit Margin	273	0.04	0.05	0.01	0.02	0.05
Total Tractors in Fleet	273	57	35	36	50	71
Percentage of Tractors Owned	273	56%	41%	8%	69%	100%

EFFECTS OF A TYPICAL LEASING AGREEMENT ON FINANCIAL STATEMENTS

In practice, constructive recognition of operating lease obligations is typically achieved with extremely simplified global decision rules. *Graham and Dodd's Security Analysis* (Cottle et al., 1988) suggests one such approach. The off balance sheet liability from operating leases is estimated

by multiplying the current period's rent expense by eight. Imhoff, Lipe and Wright (1993) cite several instances of the use of this method in practice.

To estimate the impact of lease capitalization on the financial statements, I employ a global conversion technique modified to take into account specific characteristics of leasing contracts of companies contained in the sample. Detailed footnote information necessary for the Imhoff, Lipe and Wright method was not available. The estimation technique uses information concerning fleet size and type included in the ICC disclosure, but not typically included in annual reports. The very specific nature of the regulations governing load size and the high degree of specialization of companies within the industry means that there is little possible variation in tractor leasing terms. Detailed information was gathered on typical leasing contracts within the industry. Trucking industry periodicals were consulted to obtain information on the average costs of tractors and the usual lease terms, such as down payment requirements, monthly payment structures, interest rates, tractor ownership at lease termination, and guaranteed residual values. Interviews were also performed with operators within the industry and loan officers specializing in the trucking industry.

The results of this investigation are as follows. The length of the lease is determined by the length of the warranty on the tractor, three years. There is extremely little variation in available interest rates due to intense competition among lenders. The waiving of large down payments was typical for companies of this size within the industry. Variations in payment terms were limited and did not have a material effect on the reported numbers on the annual financial statements. The contracts also fit the current definition of operating leases. They run for less than 75% of the estimated life of the equipment and the present value of the payments is less than 90% of the fair value of the equipment. There is an active market for used equipment, utilized by very small trucking companies and independent operators.

Table 2: Annual Summary of a Standard Industry 36-Month Leasing Agreement

Year	Cash Payment	Interest Payment	Principal Payment	Remaining Balance of Lease Obligation
Year 1	\$ 38,401	\$ 7,748	\$ 30,652	\$69,348
Year 2	38,401	5,452	32,949	36,399
Year 3	38,400	2,002	36,399	0
Total	15,202	15,202	100,000	

The terms of the lease are assumed to be a 36-month term with a 10 percent interest rate on lease payments with a present value of \$100,000. Payments are assumed to be made at the beginning of each month, with the first payment made at the beginning of Year 1. There is no down payment beyond the first month's lease payment, and the asset reverts to the lessor at the termination of the lease.

As a result of the investigation, the following typical industry leasing terms for a tractor are used in the analysis: (a) each lease has a 36-month term and is non-cancelable, (b) ownership of the

equipment reverts to the lessor at the termination of the lease, and there is no guaranteed residual value, (c) the present value of the lease payments is \$100,000, the implicit interest rate is 10%, there are level lease payments over the 36-month term of the lease, and there is no required down payment beyond the first month's lease payment, (d) the term of the lease is less than 75% of the estimated useful life of the asset and the present value of the lease payments is less than 90% of the fair value of the asset. Table 2 reports an annualized summary of the 36-month amortization table, assuming that the contract was entered into at the beginning of Fiscal Year 1.

Panel A of Table 3 shows the expense reported in each year of the lease assuming either a capital lease or an operating lease. Note that, while the effect on income in the second year is minimal, capital leasing would report higher expenses in the first year and lower expenses in the last year. This is the result of the fact that the interest contained in each lease payment declines with time. Therefore, if leasing patterns are not uniform (e.g., a large proportion of leases are entered into on a three-year cycle), capital leasing could increase income volatility.

Panel A Income Statement Effect					
Year	Capital Lease			Operating Lease	Difference
	Depreciation Expense	Interest Expense	Total Expense	Rent Expense	
Year 1	\$ 33,333	\$ 7,748	\$ 41,081	\$ 38,401	\$2,680
Year 2	33,333	5,452	38,785	38,401	384
Year 3	33,334	2,002	35,336	38,400	(3,064)
Total	100,000	15,202	115,202	115,202	0
Panel B Balance Sheet Effect					
Year	Book Value of Asset	Current Debt	Long-Term Debt	Total Debt	Difference
Year 1	\$66,667	\$32,949	\$36,399	\$69,348	(\$2,681)
Year 2	33,333	36,399	0	36,399	(3,066)
Year 3	0	0	0	0	0

Panel B of Table 3 reports the balance sheet impact of lease capitalization using the previously stated assumptions. The table reports the book value of equipment, the current and long-term portions of debt, and total debt. Note that the debt to asset ratio is always greater than one, since early lease payments consist of greater proportions of interest (see table 2). The magnitude of these differences is positively related to the length of the lease. More extreme differences were reported by Imhoff, Lipe and Wright (1991) when they examined long-term leases ranging from 10 to 30 years.

POTENTIAL IMPACT OF LEASE CAPITALIZATION

The impact of lease capitalization is analyzed by comparing the differences in key financial ratios before and after capitalization of the leasing contracts. The potential impact of lease capitalization is measured both by the effects on industry averages and by comparisons between a sub sample that primarily leases operating equipment and a sub sample that primarily owns operating equipment. To expand on this analysis, two distinct leasing strategies are considered, uniform leasing and cyclical leasing. The first strategy minimizes the potential income statement effects, while the other strategy accentuates these effects.

First, a uniform leasing policy is assumed to minimize the impact on the lessee's income statement. Leasing contracts are staggered to minimize the variability of interest expense recognized from year to year. Under a uniform leasing policy, leased tractors with the present value of lease payments of \$100,000 each at the inception of the lease would have an average (expected) book value of \$50,000 each. The average (expected) value of the remaining lease obligation over the 36-month period is determined to be \$50,673 and the average current liability would be \$33,782.

Consistent with prior research (e.g., Imhoff, Lipe and Wright 1991, Ely 1995), the debt ratio (a leverage ratio that can be used to evaluate risk) and the return on assets (a profitability ratio) are examined. Ely points out that financial statement users, such as analysts, are interested in assessing a company's risk. They do not appear to focus on risks of ownership, but treat all leases as giving rise to assets and liabilities, which is consistent with the property rights approach. The debt ratio is often used by creditors, either in the decision to grant credit, or in the determination of interest rates. For return on assets, the net carrier operating property is used in the denominator, which is consistent with industry practice. This is a measure of turnover of operating assets, and the objective is to generate as many dollars of revenue per dollar of property as possible. The current ratio is also examined. The current ratios for firms in this industry would be particularly affected by lease capitalization, since that portion of the lease payment due within the coming year would be classified as a current liability and the lease is of relatively short duration (three years).

Second, a cyclical leasing policy is assumed, where leasing contracts are entered into every three years. The impact of the fluctuating expenses reported on the income statement is measured by changes in the profit margin assuming firms were (a) in the first year of three-year contracts for the leased tractors in their fleets, or (b) in the third year of three-year contracts for the leased tractors in their fleets. The profit margin (defined as income before taxes divided by gross revenues) is used to measure the relative impact of the income statement effect of lease capitalization. Referring to panel A of table 3, the total expense recognized under a capital lease would be \$2,680 higher per tractor in the first year of a three-year contract than the rent expense recognized under an operating lease. In the third year of the contract, the total expense recognized under a capital lease would be \$3,064 less per tractor than the rent expense recognized under an operating lease.

Industry averages

Changes in industry averages are reported in table 4. The original numbers reported in the data set were generated with leasing contracts reported as operating leases. The change in the ratio resulting from capitalization is defined as:

$$(\text{Capital Lease Ratio} - \text{Operating Lease Ratio}) / \text{Operating Lease Ratio}$$

The averages reported in table 4 show the *change* in the ratio caused by capitalization as a percentage of the original ratio using operating leases. All differences are statistically significant at the 0.05 level. The three ratios reported in panel A are analyzed assuming a uniform (as opposed to cyclical) leasing program. The profit margin and debt ratios were windsorised to minimize the impact of outliers and to facilitate economic interpretation of the reported means. This procedure has the effect of providing a more conservative interpretation of the impact of capitalizing leases.

Table 4: Changes in Industry Averages Resulting from Lease Capitalization					
Panel A Changes in Selected Ratios Assuming Uniform Leasing Patterns					
Ratio	Sample Size	Mean	Standard Error	t-test Statistic	Two-tailed p-value
Current Ratio	273	-0.4098	0.0205	-20.03	0.00
Debt Ratio	273	0.2188	0.0184	11.89	0.00
Return on Transportation Assets	273	-0.4469	0.0234	-19.07	0.00
Panel B Changes in Profit Margin Assuming Cyclical Leasing Patterns					
Year	Sample Size	Mean	Standard Error	t-test Statistic	Two-tailed p-value
Year 1	273	-0.4024	0.0403	-9.98	
Year 3	273	0.4602	0.0461	9.98	0.00
Note: The change in the ratio is defined as: (Capital Lease Ratio - Operating Lease Ratio) / Operating Lease Ratio. The Mean x 100 is equal to the percentage change in the ratio due to capitalization of leasing contracts.					

The structure of the tests allows for an economic interpretation of the reported means. If the leased tractors were capitalized, the current ratio for this industry segment would decline by approximately 41 percent. Likewise, the debt ratio would increase by approximately 22 percent, and the return on transportation equipment would decrease by 45 percent. These differences are not only significant in the statistical sense, but also in the economic sense. Industry benchmarks are often used in the evaluation of firm performance. Imhoff, Lipe and Wright (1991) note that many services that provide industry information (Dun & Bradstreet, Value Line, etc.) do not routinely adjust industry averages for non-capitalized leases. If users estimate the financial statement impact of lease

capitalization for the individual firm, without taking into consideration the impact of capitalization on industry averages, they would receive a distorted view of company performance. These results point to the fact that consideration of the percentage of leased equipment in service, both at the firm level and at the industry level, could have a profound impact on financial decisions and evaluations of both internal and external users through their interpretation of key financial ratios.

Recall from the discussion of table 3 that the income statement effects from the capitalization of leases result in timing differences only, and do not affect the total expense recognized over the life of the lease. By establishing a uniform leasing program, companies could minimize the income statement impact of capitalization. If it is assumed that leasing is done on a cyclical basis, rather than a uniform basis, capitalization would result in more volatile earnings numbers.

In panel B of table 4, it is assumed that leases are entered into every three years. Panel B reports differences in the profit margins caused by capitalization during the first and third years of the leasing cycle. In the first year, the capitalization expense is higher than the lease payments. This would cause an average decrease in the profit margin of 40 percent. Alternatively, in the third year of the leasing agreements, the capitalization expense is lower than the lease payments. This would cause an increase in the profit margin of approximately 46 percent. While there is evidence that leasing patterns in this industry are entered into on a cyclical basis, the leasing pattern for some firms may not be this extreme. This analysis provides an indication of the *potential* impact of capitalized cyclical leasing agreements on reported income for the average firm in the sample.

Intra-industry comparisons

To better understand the impact of leasing on the interpretation of reported financial statement numbers, sub samples are compared based on the degree individual companies utilize leased equipment. This is not unlike the analysis in Imhoff, Lipe and Wright (1991), except that they compare individual companies, while I compare sub samples of companies.

For the analysis, the companies are ranked based on the ratio of owned tractors to total tractors and the top one-third of the sample is compared to the bottom one-third of the sample. Those companies that rely the least on leasing owned over 91 percent of the total tractors in their fleets. Those companies that rely the greatest on leasing owned less than 24 percent of the tractors in their fleets.

Panel A of table 5 compares the current ratio, the debt ratio, and the return on transportation assets between the two groups. The ratios for this analysis were winsorised to minimize the impact of outliers. In addition, non-parametric tests were performed on the original values. The results of the non-parametric tests were consistent in sign and statistical significance with the parametric t-tests reported in the table. Note that when leasing agreements are recorded as operating leases, the average current ratio for those companies utilizing leasing agreements is higher than for those companies with minimal leasing. The current ratio for those companies whose dominant form of

financing is via leasing drops dramatically when leases are capitalized. In fact, the average current ratio for these companies is slightly more than one quarter of the average current ratio for companies that predominantly own tractors, once leases are capitalized. This is the result of the substantial current liability reported for lease payments due within the coming year and is a function of the relatively short leasing agreements used in the industry.

A similar situation is observed with the debt ratio. When leasing agreements are recorded as operating leases, the debt ratios between the two groups are approximately the same (0.67 for leasing companies and 0.63 for owning companies). This implies that both types of companies are equally leveraged. Once the lease agreements are capitalized, those companies that rely primarily on leasing for financing their fixed assets show a dramatic increase in their debt ratios to 0.89. Thus, capitalization of leasing agreements results in the appearance that those companies relying primarily on leased tractors are much more highly leveraged than their counterparts that primarily own the tractors in their fleets.

Finally, the ranking of the return on transportation equipment between the two groups of firms is reversed once the leases are capitalized. Companies that rely primarily on leasing show a much higher return on transportation assets than companies that primarily own their transportation assets (1.17 to 0.19, respectively) when the operating leasing method is used. The return for the companies relying primarily on leasing drops to a more realistic value of 0.05 once the leases are capitalized. In this case, the return on transportation assets is not particularly meaningful unless leases are capitalized.

Panel B of table 5 compares the profit margins between the two groups of firms assuming, first, lease contracts are accounted for as operating leases and, second, lease contracts are accounted for as capital leases with companies entering into the lease contracts on a three-year cycle. When lease contracts are accounted for as operating leases, the profit margin for those companies relying primarily on leasing is about two-thirds that of companies that primarily own the tractors in their fleets (2.4 percent and 3.9 percent, respectively).

When lease contracts are capitalized and are assumed to be entered into on a three-year cycle, the profit margin for those companies relying on leased tractors fluctuates over the life of the contracts. In the first year of the contract, when lease payments consist primarily of interest, the profit margin for these companies drops to 0.3 percent. In the third year of the contract, when the lease payment consists of minimal interest, the profit margin would be 4.7 percent. This is consistent with the findings of Imhoff, Lipe and Wright (1997) on long-term leases, although the effects are more extreme for short-term leases.

Table 5: Intra-Industry Comparison Based on Degree of Leasing									
Panel A Comparison of Ratios Assuming Uniform Leasing Patterns									
Operating Lease						Capital Lease			
Dominant Form of Financing	Sample Size	Mean	Standard Error	t-test Statistic	p-value	Mean	Standard Error	t-test Statistic	p-value
Current Ratio									
Lease	91	1.7883	0.1034	1.99	0.05	0.3770	0.0171	10.73	0.00
Own	91	1.5003	0.1010			1.4679	0.1003		
Debt Ratio									
Lease	91	0.6672	0.0338	0.71	0.47	0.8876	0.0134	7.43	0.00
Own	91	0.6347	0.0307			0.6389	0.0306		
Return on Transportation Assets									
Lease	91	1.1695	0.1848	5.23	0.00	0.0540	0.0058	4.69	0.00
Own	91	0.1912	0.0284			0.1878	0.0280		

TABLE 5 - continued					
Panel B Profit Margin: Operating Lease vs. Capital Lease with Cyclical Leasing Patterns					
Dominant Form of Financing	Sample Size	Mean	Standard Error	t-test Statistic	p-value
Profit Margin: Operating Lease (Constant Income Statement Impact)					
Lease	91	0.0240	0.0027	2.64	0.01
Own	91	0.0387	0.0049		
Profit Margin: Year 1 of Capital Lease and Cyclical Leasing Pattern					
Lease	91	0.0032	0.0026	6.37	0.00
Own	91	0.0384	0.0049		
Profit Margin: Year 3 of Capital Lease and Cyclical Leasing Pattern					
Lease	91	0.0474	0.0030	1.45	0.15
Own	91	0.0390	0.0049		
Notes: Nonparametric test results were consistent in direction and level of significance. The dominant form of financing was determined in the following manner. Companies were ranked based on the percentage of total tractors their fleets that they owned. The companies that primarily leased tractors owned less than 24 percent of the total tractors in their fleets. The companies that primarily <i>owned</i> tractors owned greater than 91 percent of the total tractors in their fleets.					

CONCLUSION

This paper provides evidence of the potential impact of lease capitalization in an industry where leasing of the primary income-producing assets is prevalent. The fact that there is a change in the ratios analyzed once leases are capitalized is not surprising. However, the potential *magnitude* of this change on industry averages and intra-industry comparisons is substantial, despite the use of conservative assumptions. The leased tractors, only, are considered in the analysis. In many cases, companies may also lease trailers, trucks, and a large portion of office and maintenance equipment.

As expected, the impact of capitalization on industry averages is that the averages look less favorable (lower current ratio and return on assets, higher debt ratio). This would make company performance, where the company's leasing contracts have been capitalized, look more favorable when compared to industry averages. Since the conversion of industry averages is impractical in cases where there are many companies within the industry, users must estimate the conversion under the current reporting standards. Companies that relied primarily on leasing appeared to be in a comparable or more favorable financial position prior to lease capitalization when compared to their counterparts that owned the majority of their assets. Once leases were capitalized at the conservatively estimated values, companies that relied primarily on leasing were generally in a less favorable financial position than their counterparts.

One potential negative impact of lease capitalization, as proposed in the FASB report, is that it may lead to more volatility in reported earnings, especially in industries where leasing agreements are entered into on a cyclical basis. This may be of particular concern for companies where computers and computer systems comprise a material percentage of their depreciable assets. Leasing of computers is very popular in many industries, and the leasing agreements would be of similar duration to the contracts observed in the trucking industry. An interview with a former salesman of a major computer company revealed that leasing agreements of the industry were typically less than five years. While leases were written on individual items or groups of items, the leasing patterns of customers were generally cyclical to address compatibility issues. The potential problems with income volatility observed in this study may be indicative of many industries in the future, as computers make up a greater portion of companies' income-producing assets.

The analysis in this paper shows that the capitalization of leasing contracts has a profound impact on both benchmark industry averages and intra-industry comparisons and could alter decisions made by current and potential investors and creditors. Uniform application of lease capitalization consistent with the property rights approach would provide additional information to financial statement users.

If the property rights perspective is used, then consideration should be given to whether the decline in the book value of the assets should mirror the decline in the reported leasing obligations. For standard leases in the trucking industry, the lessee contracts for the *right* to use the property and does not assume the typical risks and rewards associated with ownership. If the time value of money

concept is relevant to the obligations incurred, it may also be appropriately applied to the rights obtained in the contract. This would suggest that a present-value depreciation method, such as is sometimes used by utilities, be used for the reported asset. This depreciation approach would minimize the negative impact of capitalization on the debt ratio, especially for companies in industries where typical leasing contracts are of longer duration.

The impact of capitalization on the current ratio may be reduced if the portion of the asset to be depreciated within the coming year is classified as a current item. This is consistent with the interpretation of the leasing agreement as a contracting of property rights, rather than of ownership rights. The lessee has contracted for the right to use specific property to generate future economic benefits. That portion of the right that will expire within the coming year would meet the definition of a current asset. If this approach were taken, the decrease in the industry average current ratio after capitalization that is reported in table 4 would be 12 percent, rather than 41 percent.

REFERENCES

- Beattie, V., A Goodacre, S. Thompson (2000). Operating Leases and the Assessment of Lease-Debt Substitutability. *Journal of Banking and Finance*, 24(3), 427-470.
- Beattie, V., A Goodacre, S. Thompson (2000). Recognition vs. Disclosure: An Investigation of the Impact on Equity Risk using UK Operating Lease Disclosures. *Journal of Business Finance and Accounting*, 27(9), 1185-1224.
- Brealey, R., and S. Myers (1988). *Principles of Corporate Finance, (Third Edition)*. New York: McGraw-Hill Inc.
- Cottle, C., R. F. Murray and F. E. Block (1988). *Graham and Dodd's Security Analysis*. New York: McGraw-Hill Inc.
- El-Gazzar, S., S. Lilien, and V. Pastena (1986). Accounting for Leases by Lessees. *Journal of Accounting and Economics*, 8, 217-237.
- Ely, K. M. (1995). Operating Lease Accounting and the Market's Assessment of Equity Risk. *Journal of Accounting Research*, 33(2) (Autumn), 397-415.
- Financial Accounting Standards Board. (1976). *Statement of Financial Accounting Standards No. 13*. Accounting for Leases. Norwalk, CN: FASB.
- Financial Accounting Standards Board. (1980). *Statement of Financial Accounting Concept No. 3*. Elements of Financial Statements of Business Enterprises. Norwalk, CN: FASB.
- Financial Accounting Standards Board. (1995). *Statement of Financial Accounting Standards No. 121*. Accounting for the Impairment of Long-lived Assets and for Long-lived Assets to be Disposed of. Norwalk, CN: FASB.
- Financial Accounting Standards Board. (1996). *Financial Accounting Series Special Report (No. 163-A)*. Accounting for Leases: A New Approach. Norwalk, CN: FASB.

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- Imhoff, E., R. Lipe and D. Wright (1991). Operating Leases: Impact of Constructive Capitalization. *Accounting Horizons*, (March 1991), 51-63.
- Imhoff, E., R. Lipe and D. Wright (1993). The Effects of Recognition versus Disclosure on Shareholder Risk and Executive Compensation. *Journal of Accounting, Auditing and Finance* (Fall), 335-368.
- Imhoff, E., R. Lipe and D. Wright (1991). Operating Leases: Income Effects of Constructive Capitalization. *Accounting Horizons*, (June 1997), 12-32.
- Imhoff, E. and J. Thomas (1988). Economic Consequences of Accounting Standards: The Lease Disclosure Rule Change. *Journal of Accounting and Economics*, 10(4), 277-310.
- London Financial Group Leasing Report. 1996. *World Leasing Yearbook*. London: Euromoney Publications.
- Ou, J. and S. Penman (1989). Financial Statement Analysis and the Prediction of Stock Returns. *Journal of Accounting and Economics*, 11(3), 295-329.
- Peasnell, K. 1996. Using Accounting Data to Measure the Economic Performance of Firms. *Journal of Accounting and Public Policy*, 15, 291-303.
- Penman, S. 1992. Return to Fundamentals. *Journal of Accounting, Auditing and Finance*, 7 (new series)(4), 465-483.

THE SURVIVAL OF FIRMS THAT TAKE SPECIAL CHARGES FOR RESTRUCTURINGS AND WRITE-OFFS

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ABSTRACT

In light of recent, well-publicized corporate failures, financial reporting practices are increasingly being scrutinized. One area of scrutiny includes special charges for restructurings and write-offs. This study investigates the survival of firms that take restructuring charges and write-offs. We examine whether the survival of these firms is associated with management's choice of labeling (i.e., restructuring charge or write-off) as well as with the amount and purpose of the charge. Using a sample of large negative special charge announcements during 1986-1992 and 1996-1998, we find that firms reporting smaller charges survive longer than those with larger charges, regardless of any business actions for improvement mentioned. We also find evidence of a decreasing probability of survival for firms using the label of "restructuring" for the charge. These results are consistent with the popular media perception that managers often seek to mask their firms' true performance using special charge labeling.

INTRODUCTION

Financial reports may describe special or unusual charges, which are economic events beyond the normal ongoing economic activities of an enterprise (Ante 2003; Gallagher 2004). As used herein, a "special charge" is (or should be) the description of a loss related to an event that is unusual or infrequent in the context of the enterprise (Stice, Stice, & Skousen 2004). Examples of such special charges are the write-down or write-off of assets or a corporate restructuring.

However, the term "special charges" is often abused when companies classify unpleasant losses (instead of unusual or infrequent losses) as special charges. The ploy used when managers mislabel unpleasant losses as special charges is to create a (misleading) impression that the losses in question are outside the norm and hence something for which management should not be held responsible. An egregious example cited by the Wall Street Journal is Motorola which, at the time of October 2002, was proposing to include special (hence theoretically unusual or infrequent) charges for the fifteenth consecutive quarter.

Therefore, announcements of special charges may confuse investors who are trying to evaluate how well firms have performed and how well they will perform in the future. Further, as suggested by anecdotal reports, managers' choice of labeling special charges as either "restructuring

charges" or "write-offs" may confuse investors even more. An example of the investing community's confusion about special charge announcements is found in the following Wall Street Journal excerpt: "A Wall Street analyst said, 'Every company we follow has a write-off. No one has any idea of what anyone is earning'" (Smith and Lipin 1996). Accounting regulators have shown concerns in line with this argument. The Wall Street Journal (January 22, 1999, A2) reported:

"The SEC said company executives concoct a rosy portrait of earnings growth through an assortment of illegal accounting maneuvers. Among other things, the SEC said, companies take excessive restructuring charges. The SEC believes many companies are going too far—taking excessive reserves or write-offs in order to manipulate their results and hide the real health of their business."

In this paper, we investigate whether the survival of firms making these special charges is associated with (1) the amount and purpose of the special charge, and (2) managers' labeling choices ("restructuring" or "write-off"). First, we analyze the association between the survival of firms that take restructuring charges or write-offs and the amount and specific purpose of the charge as described in the announcements. This analysis provides evidence on whether the survival of announcing firms is related to the economic substance of firms' restructuring charges or write-offs. Next, we investigate the relationship between the survival of announcing firms and the labeling of the charges described in the announcements. This analysis provides evidence about whether managers' choice of label (restructuring or write-off) is appropriate or is driven more by desires to cover bad operating performance.

We collected information about large negative special charge announcements from press releases during the 1986-1992 and 1996-1998 time periods (hereafter "early" and "later" for the 1986-1992 and 1996-1998 time periods, respectively). During the early period, there was little guidance from accounting authorities on special charges, allowing managers to exercise substantial discretion in determining when and to what extent special charges should be reported and announced. After increased pressure from the AICPA, SEC, and other organizations, the FASB attempted to limit management's discretion relating to special charge reporting by adopting EITF 94-3 in 1994 and SFAS 121 in 1995. Recently, the FASB adopted SFAS 144 and SFAS 146 in 2001. Although regulators have tried to limit the discretion available regarding special charges, considerable discretion regarding restructuring and write-off special charges persists.

The results provide evidence that firms that report larger amounts of restructuring charges/write-offs are less likely to survive than firms that report smaller charges and more likely to disappear in the short-term (four years or less).¹ Regarding the reported economic substance of the charges, we find little evidence of differences in specific actions mentioned between surviving and non-surviving firms. However, we do find a somewhat higher proportion of write-off firms that subsequently disappear in the short term making relatively more PP&E write-off announcements. In addition, among the firms that make restructuring charge announcements and then subsequently disappear in the short term, the majority include costs to eliminate or curtail product lines.

The rest of this paper is organized as follows. Section II examines relevant prior literature supporting the labeling and restructuring action hypotheses. Section III describes the sample selection methods and Section IV presents the results and analysis. Finally, Section V summarizes the contributions and limitations of the study.

PRIOR RESEARCH AND HYPOTHESIS DEVELOPMENT

Prior studies have provided insight into distressed firms' survival over time. Turetsky & McEwen (2001) investigated the association between distressed firms' survival and firm-specific attributes. Their study provides evidence that a firm's profitability, market risk, size, and financial leverage are significantly associated with whether the distressed firm will ultimately survive. Chen & Lee (1993) applied survival analysis to examine a sample of oil- and gas- producing companies at the onset of economic adversity. The intent of the study is to find out how long a firm can endure economic adversity before facing financial distress. The results of their study suggest that liquidity ratio, leverage ratio, operating cash flows, success in exploration, and size are significant factors affecting corporate endurance.

Prior studies relating to restructuring charges have examined firm performance (Atiase, Platt, & Tse 2001; Carter 2000), earnings management (Moehrle 2002; Weiss 1999), CEO compensation (Adut, Cready, & Lopez 2003), impact on stock price (Kross, Park, & Ro 1998; Bunsis 1997; Brickley & Van Drunen 1990) and on analysts' expectations (Chaney, Hogan, & Jeter 1999), and underlying management actions (Lopez 2002; Hogan & Jeter 1997). Other studies have examined the impact of write-off announcements on stock price (Hirschey & Richardson 2003; Francis, Hanna, & Vincent 1996; Elliott & Shaw 1988; Strong & Meyer 1987).

Prior research on the stock market response to the announcements of special charges provided mixed results regarding investors' interpretation of these special charges. Hirschey & Richardson (2003), Francis, Hanna, & Vincent (1996), Elliott & Shaw (1988), and Strong & Meyer (1987) provided evidence for negative overall market reactions to write-off special charge announcements. On the other hand, Kross, Park, & Ro (1998), Bunsis (1997), and Brickley & Van Drunen (1990) provided evidence for positive market reactions around the announcement date of restructuring charges.

Prior research has also provided some empirical evidence regarding the performance of special charge firms. Atiase, et al. (2001) found that the performance of restructuring charge firms is worse than that of non-restructuring firms in the pre-restructuring period, but it is better than that of non-restructuring firms in the post-restructuring period. Similarly, Carter (2000) found that restructuring firms realize improvements in future operating performance, but these improvements are not fully realized until at least three years following the restructuring. However, these studies may suffer from "survivorship bias" when evaluating the future performance of firms.

Our study is the first to consider the overall special charge –both restructuring charge and write-off - announcements. We also address whether management's labeling of special charges (restructuring or write-off), amount of charge, and specific restructuring actions as described in the announcements are related to a firms' future survival.

HYPOTHESIS DEVELOPMENT

Starting with reports in the national press that many special charge companies are improperly manipulating special charges to alter their true economic condition, our general hypothesis herein is that a lower rate of survival will be observed in these companies than is observed in a control group of related companies. More specifically, we propose four hypotheses: (1) companies which claim large special charges are more likely to disappear than firms claiming no special charges or very small special charges; (2) among companies claiming large special charges, those claiming the largest amounts are more likely to disappear and to disappear sooner; (3) among firms claiming special charges, those giving specific reasons for the charge are more likely to survive than those which do not; and, (4) firms taking a special charge for what is labeled a "restructuring" are less likely to survive than those taking a special charge for what is labeled a "write-off."

Our first research question is whether there is a relationship between the amount of special charge and the future survival of announcing firms. A large special charge (as a percentage of assets) suggests that firms have been experiencing more serious operating problems than those firms that report very small or no special charge. Therefore, the risks are perhaps greater and the probabilities for survival are less likely for these large special charge firms than for other firms. We therefore expect that firms which take large restructuring/write-off charges are not as likely to survive as firms which take very small, if any, restructuring/write-off charges. Therefore, the following hypothesis is proposed:

- H1a: Firms which announce large restructuring/write-off charges are not only more likely to disappear, but to disappear sooner than firms which take very small, if any, restructuring/write-off charges.

Additionally, and for the same reasons, we expect that among firms reporting large special charges, the higher the amount of restructuring or write-off charge, the less likely the firm will survive in the future. Therefore, we expect the amount of the charge (scaled by firm assets) to be negatively correlated with how long the firm will survive in the future. The following hypothesis is proposed:

- H1b: Among the firms reporting large special charges, firms which announce relatively larger restructuring/write-off charges are not only more likely to disappear, but to disappear sooner than firms that take relatively smaller restructuring/write-off charges.

Our third research question examines the relationship between the future survival of special charge announcing firms and specific business/accounting actions mentioned by management regarding the charges. Prior research has provided some empirical evidence regarding how investors responded to specific actions that management pledged to carry out in its' restructuring charge/write-off announcements. Hogan and Jeter (1997) examined the market returns around announcements for a sample of 128 restructuring charges taken over the period 1990 – 1992. They found an insignificant market reaction to the overall restructuring charge announcements, but they also found that the market responded positively to restructuring charges categorized as severance and other cash outlay charges, as long as there was no current period loss or recent management change. Lopez (2002) provides additional evidence that the components of restructuring charges are informative to analysts. His results indicate a significant relationship between the components of a restructuring charge and analysts' earnings forecast revision reactions.

Firms that include costs for specific actions (e.g., employee severance, eliminate product lines, consolidate operations, etc.) in their special charge may have better plans for dealing with their operating or competitive problems than firms that provide no such information. Thus, we hypothesize that firms making restructuring or write-off charges which include costs for specific actions in order to improve future operating performance are more likely to survive than firms that merely include costs to recognize their poor past operating performances (e.g., write off inventory, property, plant, and equipment, etc.). We propose the following hypothesis:

- H2: Firms that report restructuring or write-off special charges and mention specific actions geared toward future operating performance improvements are more likely to survive than firms that report charges that merely recognize poor past operating performances.

Our last research question investigates the relationship between the labeling of special charges and the future survival of announcing firms. Corporate managers' intentions regarding the labeling of special charges in terms of potential opportunism has received scant discussion in the literature. Even though restructuring charges and write-offs result in a similar reduction of current period earnings, the market may react differently to the type of label. The words or labels that a company uses can play a big part in how the financial press—and market—reacts to an announcement. In the early 1990's, for example, Hewlett-Packard's first-ever layoffs were reported as "restructuring" and "reassignments," etc., and caused little attention. Alternatively, IBM and Digital's "first ever layoffs" led to a flurry of negative articles (PR News 1997). Also, Forbes (Condon 1998) reports:

"Restructuring charges are today's favorite. A nice, fat write-off can help your stock. Despite its recent tightening of some accounting rules, the FASB has left definitions of 'one-time' and 'restructuring' vague. Management would be less than human if they did not exploit the ambiguities. So, other companies' executives say, 'What the heck, let's call it a restructuring'."

Even before EITF 94-3 and SFAS 121 were passed, the SEC had been looking closely at restructuring charge announcements. Robert Bayless, Chief Accountant of the SEC's Corporation-Finance division, warned the accounting profession in 1994 that many explanations of restructuring charges were "rather sparse and rather vague" and that some companies claim losses as restructuring charges when they are not (Harlan 1994). Consistent with accounting regulators' concerns, recent articles in the news media pointed out that corporate managers play the "words game" in addition to the "numbers game" with respect to announcing their earnings numbers to analysts and investors (Weil 2001).²

Our last hypothesis examines future survival of special charge announcing firms to investigate the association between firm survival and the labeling of announcement. Some firms may use the "restructuring charge" label to make their special charge look more positive than it really is. We measure the appropriateness of the labels by comparing the survival rates for firms making "restructuring charge" announcements versus "write-off" announcements. We extend the restructuring charge/write-off literature by examining whether managers are trying to opportunistically mask their firms' poor performance by using the "restructuring charge" label inappropriately. We therefore test the following hypothesis:

- H3: Firms that label special charges as restructuring charges are less likely to survive than firms that label their charges as write-offs.

SAMPLE SELECTION

We obtained a sample of announcements of large special charges made by corporate managers in the news media. Our sample periods cover seven years (1986-1992) prior to the adoption of EITF 94-3 and SFAS 121, and three years (1996-1998) subsequent to the implementation of these accounting guidelines. We use two different sample periods that are separated by a three-year break (1993-1995) during which the relevant accounting rules were adopted. The earlier sample period also allows us to observe firm survival over several more subsequent years than the later sample.

Using the annual Compustat database we identified 4,477 firm-year companies which reported special charges in excess of ten percent of their respective total assets (Table 1, column A) during the early and later time periods. Using the ten-percent cutoff requirement ensured that we would obtain special charges that are significant enough to affect investors' perception of the firms' future performance. Accounting regulators expressed concerns specifically about large negative special charges. For example, Arthur Levitt, Chairman of the SEC argued that if special charges are big enough then, theoretically, stock markets will look beyond a special one-time loss and focus only on future performance (Journal of Accountancy, December, 1998).³

<i>Year</i>	<i>A:</i> <i>Number of Firms Reporting Large Negative Special Charges</i> ¹	<i>B:</i> <i>Number of Restructuring Charge/Write-off Announcements</i> ²	<i>% (B/A)</i>	<i>% (B/924)</i>
1986	310	43	14%	5%
1987	275	24	9%	3%
1988	287	17	6%	2%
1989	306	27	9%	3%
1990	385	39	10%	4%
1991	424	105	25%	11%
1992	<u>428</u>	<u>102</u>	<u>24%</u>	<u>11%</u>
Subtotal (1986-1992)	2,415	357	15%	39%
1996	645	214	33%	23%
1997	715	174	24%	19%
1998	<u>702</u>	<u>179</u>	<u>25%</u>	<u>19%</u>
Subtotal (1996-1998)	2,062	567	28%	61%
Total	4,477	924	21%	100%

¹ The amount of negative special charges [Compustat #17] for these firms exceeded ten percent of their reported total assets [Compustat #6].

² We used Lexis-Nexis to search for the restructuring charge/write-off announcements made by the management of these large negative special charge firms.

In order to identify specific actions and labeling of special charges, we obtained news articles regarding special charge announcements from the Lexis/Nexis database. We identified 924 of the 4,447 companies (approximately 21 percent) which made restructuring/write-off announcements through the news media during these same sample periods (Table 1, column B). Of the two time periods (early vs. later), we found a greater frequency of restructuring charge/write-off announcements in the news media for the later time period. Specifically, we identified 357 out of 2,415 companies (approximately 15 percent) which made restructuring charge/write-off announcements during the early sample period compared to 567 out of 2,062 companies (approximately 28 percent) which made these same types of announcements during the later sample period. Notwithstanding the fact that our later sample period is 4 years less than our early sample period (7 years vs. 3 years for the early and later sample periods, respectively), 61 percent of our sample announcements were identified during the later sample period. Our findings therefore show

that there was an increase in the frequency of special charge announcements in the later sample period for companies taking special charges in excess of 10 percent of their total assets.

RESULTS

Table 2 reports sample and control group comparisons for some company variables for the year of and a year prior to the announcements. We obtained a control group of firms by matching by (1) year, (2) 4-digit SIC code, (3) finding firms which reported an insignificant amount of special charges, and (4) by size (i.e. total assets).⁴ Comparisons between the two groups show that sales and operating income after depreciation are not statistically different using a two tail t-test. However, as expected, when comparing the special items, the t-stat does show statistical significance (t-stat = 8.39). Additionally, sample firms are much more unprofitable, as measured by net income, in the year of announcement (t-stat = 9.12). The observed difference in net income between sample and control groups is, in addition to the special charges, a result of larger extraordinary & discontinued operations (t-stat = 2.07).

Variable	Sample Firms			Control Firms			<i>t-statistic</i>
	N	Mean	Median	N	Mean	Median	
Total Assets _{t-1}	900	531.9	66.9	825	449.5	49.7	-0.85
Total Assets _t	924	483.3	58	924	447.6	57.8	-0.4
Sales _{t-1}	896	486.2	50.4	821	370	42	-1.14
Sales _t	924	475.7	52.6	924	373.8	46.5	-1.02
Special Items _{t-1}	874	-17.8	0	805	-0.3	0	4.28***
Special Items _t	924	-89.2	-13.5	923	2.8	0	8.39***
Special Items _t / Total Assets _{t-1}	924	-0.39	-0.175	924	0.006	0	10.15***
OIADpre _{t-1}	899	27.7	0	826	32.6	2.3	0.68
OIADpre _t	920	24.7	-0.5	919	34.4	2.6	1.29
ExtDis _{t-1}	899	6.4	0	827	13.8	0	0.75
ExtDis _t	920	-2.5	0	920	14.2	0	2.07***
NI _{t-1}	899	-9.5	-0.8	826	22.2	1.8	4.21***
NI _t	919	-53.7	-10.8	920	23	2.4	9.12***
¹ Compustat Item Numbers: Total Assets (#6), Sales (#12), Special Charges (#17), ExtDis (Extraordinary Items & Discontinued Operations: #48), OIADpre (Operating Income After Depreciation: #178), and NI (Net Income: #172) ² The mean for the sample firms is statistically different from that of the control firms: ** Indicates statistical significance at the 0.05 level (two-tailed test) *** Indicates statistical significance at the 0.01 level (two-tailed test)							

Table 3: Future Survival Length: Sample and Control Group Comparisons				
Disappearance Year	Sample Firms		Control Firms	
	A: Number of Firms	%	B: Number of Firms	%
Panel A: Entire Sample Period (1986-1992 and 1996-1998) ¹				
0-1	21***	2.3%***	2***	0.2%***
1-2	79***	8.5%***	29***	3.1%***
2-3	120***	13.0%***	50***	5.4%***
3-4	92	10%	78	8.40%
0-4	312***	33.8%***	159***	17.2%***
4-16	209	22.60%	213	23.10%
Total Disappearances	521***	56.4%***	372***	40.3%***
Total Survivors	403***	43.6%***	552***	59.7%***
Total	924	100%	924	100%
Panel B: Early Sample Period (1986-1992)				
0-1	7***	2%***	0***	0%***
1-2	24***	6.7%***	8***	2.2%***
2-3	37***	10.4%***	11***	3.1%***
3-4	28	7.8%***	26	7.30%
0-4	96***	26.9%***	45***	12.6%***
4-16	147	41.20%	132	37%
Total Disappearances	243***	68.1%***	177***	49.6%***
Total Survivors	114***	31.9%***	180***	50.4%***
Total	357	100%	357	100%
Panel C: Later Sample Period (1996-1998)				
0-1	14***	2.5%***	2***	0.4%***
1-2	55***	9.7%***	21***	3.7%***
2-3	63***	14.6%***	39***	6.9%***
3-4	64	11.3%	52	9.20%
0-4	216***	38.1%***	114***	20.1%***
4-7	62*	10.9%*	80*	14.1%*
Total Disappearances	278	49.0%***	194	34.2%***
Total Survivors	289	51%***	373	65.8%***
Total	567	100%	567	100%
¹	Because the year 2002 is the most recent year available to obtain survival data, we are able to track survival length for up to 16 years for the 1986 firms, and up to 4 future years for the 1998 firms.			
²	T-test (two tailed test) reports that these proportions are statistically different between sample and control firms:			
**	Indicates statistical significance at the 0.05 level (two-tailed test)			
***	Indicates statistical significance at the 0.01 level (two-tailed test)			

H1a Results

Table 3 reports how many of the sample and control companies survived or disappeared subsequent to making a restructuring charge/write-off announcement. Year 2002 is the most recent year for which we were able to obtain survival data. Therefore, we also report results individually for each sample period (Table 3, Panel B and Table 3, Panel C for the early and later sample periods, respectively). For the early sample period we were able to observe from 10 to 16 future years for survival. Panel B shows that, for the early sample period, 68 percent of our sample companies disappeared within 16 years compared to only 50 percent of the control companies, with 27 percent of the sample firms disappearing in the first four years subsequent to making the restructuring charge/write-off announcement. Panel C shows that, for the later sample period, 49 percent of our sample companies disappeared within 6 years compared to only 34 percent of the control companies, with 38 percent of the sample firms disappearing within the first four years subsequent to making the restructuring charge/write-off announcement. For the entire sample period as shown in Panel A, approximately 56 percent of our sample firms disappeared compared to only 40 percent of the control firms which disappeared. For the early, later, and entire samples we found a statistically significant difference at the .01 level between firm disappearance in the sample and control groups for Years 0-3 individually, Years 1-4 collectively, and for the aggregate respective sample periods using the two-tail test. Therefore, H1a is supported by our study.

Table 4, Panel A reports the source of disappearance for the firms which ceased to exist subsequent to making a restructuring/write-off announcement. Twelve percent of the sample firms which disappeared vanished as a result of bankruptcy/liquidation compared to only 7 percent of the control firms. Sixty-six percent of our sample firms which disappeared vanished as a result of acquisition or merger while 74 percent of our matched control firms which disappeared vanished as a result of acquisition or merger. Both of these differences are statistically significant at the .01 level using the two-tail test (z -score = 2.33 and -2.58 for the bankruptcy and acquisition/merger source, respectively). This result is interesting in that it demonstrates that firms which make restructuring/write-off announcements are more likely to disappear as a result of bankruptcy compared to firms which don't make restructuring/write-off announcements. Additionally, firms which don't make restructuring/write-off announcements have a greater tendency to be acquired, or merged with, another firm compared to firms which do make restructuring/write-off announcements.

Table 4, Panel B is broken down into acquisition/merger, bankruptcy/liquidation, and other categories and shows how long the sample and control firms survived subsequent to making their restructuring/write-off announcement. We found a statistical significance at the .01 level (two-tailed test) that our sample firms were more likely to disappear within the first 4 years after having made the announcement as compared to our control firms (203 vs. 123, 47 vs. 9, and 62 vs. 25 for acquisition/merger, bankruptcy/liquidation, and other categories, respectively). Additionally, we found quantitatively similar findings for the aggregate years 0-16.

TABLE 4
Reason for Disappearance
For Entire Sample Period (1986-1992 and 1996-1998)

Panel A: Sample and Control Group Comparison

Group	Reason for Disappearance	Sample Firms			Control Firms		
		A: Number of Firms	% (A/924)	% (A/521)	B: Number of Firms	% (B/924)	% (B/372)
Disappearances	Acquisition or Merger	346	37%	66%***	277	30%	74%***
	Bankruptcy-Chapter 11	52	6%	10%***	21	2%	6%***
	Liquidation – Chapter 7	11	1%	2%	5	1%	1%
	Leveraged Buyout	1	0.10%	0.20%	1	0.10%	0.30%
	Now a Private Company	6	1%	1%	5	1%	4%
	No longer files with SEC, but still offers price data	22	2%	4%	14	2%	1%
	No longer files with SEC	<u>83</u>	<u>9%</u>	<u>16%</u>	<u>49</u>	<u>5%</u>	<u>13%</u>
	Total Disappearances	521	56%***	100%	372	40%***	100%
Survivors		<u>403</u>	<u>44%***</u>		<u>552</u>	<u>60%***</u>	
Total		924	100%		924	100%	

¹ T-test (two tailed test) reports that these proportions are statistically different between sample firms and control firms:

** Indicates statistical significance at the 0.05 level (two-tailed test)

*** Indicates statistical significance at the 0.01 level (two-tailed test)

Univariate Analyses for H1b, H2, and H3

Our sample consists of firms which reported a large amount of special charges (the firms' special charges exceeded 10 percent of their respective total assets). As exhibited in Table 5, we divided our sample firms first into two groups – the first group being composed of the firms which took the 50 percent largest special charges and the second group being composed of the firms which took the 50 percent smallest special charges. We then divided these two groups into two more groups – the third group being composed of the firms which took the top 25 percent largest special charges and the fourth group being composed of the firms which took the bottom 25 percent lowest special charges. In support of H1b, we found, for all groups, that the firms which took the relatively

larger special charges were more likely to disappear in an earlier time frame (within the first 4 years of having made the announcement) than were the firms which took the relatively smaller special charges (176 vs. 132 and 90 vs. 72 for the first and second group and the third and fourth group, respectively). These findings are statistically significant at the 1 percent level using a two-tailed test. Interestingly, we also found that for all groups, the firms which take the relatively smaller special charges are more likely to disappear in the long term (within 5 to 16 years after having made the special charge announcement) than are firms which take the relatively larger special charges. We feel that the impact of a special charge will most strongly affect a firm within a short time frame, with little, if any, affect being felt by firms in the long-term. Therefore, the fact that firms which take relatively smaller special charges are more likely to disappear in the long-term has little to do, if anything, with the special charge announcements we observed. So the results from the preliminary univariate analysis support H1b.

TABLE 4 (continued)
Reason for Disappearance
For Entire Sample Period (1986-1992 and 1996-1998)

Panel B: Future Survival Length

<i>Disappearance Year*</i>	<i>Sample Firms</i>			<i>Control Firms</i>		
	<i>Acquisition/ Merger</i>	<i>Bankruptcy/ Liquidation</i>	<i>Others¹</i>	<i>Acquisition/ Merger</i>	<i>Bankruptcy/ Liquidation</i>	<i>Others</i>
0-1	19***	1	1	0***	0	2
1-2	70***	6***	3	29***	0***	0
2-3	75***	17***	28***	41***	2***	7***
<u>3-4</u>	<u>39</u>	<u>23***</u>	<u>30**</u>	<u>53</u>	<u>7***</u>	<u>18**</u>
0-4	203***	47***	62***	123***	9***	25***
4-16	143	16	50	152	17	46
Subtotal	346***	63***	112***	275***	26***	71***
Total Disappearances	521***			372***		
Total Survivors	403***			552***		
Total	924			924		

¹ Other reasons include companies no longer filing with SEC, having disappeared through leveraged buyouts, or now being private companies.

² T-test (two tailed test) reports that these proportions are statistically different between sample firms and control firms:

** Indicates statistical significance at the 0.05 level (two-tailed test)

*** Indicates statistical significance at the 0.01 level (two-tailed test)

TABLE 5
The Relation between Survival Time and Special Charge Amount
For Entire Sample Period (1986-1992 and 1996-1998)

Disappearance Year	Top Bigger Charges 50%	Bottom Smaller Charges 50%	Top Biggest Charges 25%	Bottom Smallest Charges 25%
	Number of Firms			
0-1	8	13	3	7
1-2	43	36	20	17
2-3	69**	50**	36**	25**
3-4	<u>56***</u>	<u>33***</u>	<u>31*</u>	<u>23*</u>
0-4	176***	132***	90***	72***
4-16	86***	116***	42***	67***
Total Disappearances	262	248	132	139
Survivors	191	205	95	88
Total ²	453	453	227	227

- 1 T-test (two tailed test) reports that these proportions are statistically different between sample firms and control firms:
- * Indicates statistical significance at the 0.10 level (two-tailed test)
- ** Indicates statistical significance at the 0.05 level (two-tailed test)
- *** Indicates statistical significance at the 0.01 level (two-tailed test)
- 2 The analysis was done with the winsorized sample. Top and Bottom 1% of the sample firms were deleted for the analysis

In Table 6, we compare disappearance rates for firms which mentioned specific actions geared toward future operating performance improvements versus those which mentioned writing-off poor past operating performance. As shown, we did not find any statistically significant variances. This is quite interesting in that it suggests that the reported economic substance underlying the special charges does not have a statistically significant relationship with the future survival of our sample firms in the short- or long-term. Thus, our preliminary univariate analysis did not find any statistical significance to lend support to H2. Just because firms include charges for action plans to improve operating performance does not mean they will improve financial performance. Many variables affect financial performance, including the viability of the product, actions by competitors, the economy, etc.

In Table 7, we analyze the relationship between the survival time and the labeling of special charges. As shown, we did not find any statistically significant results. In sum, univariate tests fail

to reveal any significant association between the survival time and the labeling, as well as the economic substance of special charges.

Disappearance Year	Specific Write-off Activities ¹					Specific Restructuring Activities ²					
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)		
	WOinv	WOppe	WOint	WOGw	WOMis	Total	RCsev	RCcur	RCcon	RCnew	Total
0-1	4	6	2	2	5	19	5	8	2	0	15
1-2	10	16	3	7	19	55	17	26	13	1	57
2-3	17	25	9	8	16	75	31	40	20	0	91
3-4	<u>16</u>	<u>16</u>	<u>2</u>	<u>6</u>	<u>17</u>	<u>57*</u>	<u>12</u>	<u>21</u>	<u>6</u>	<u>1</u>	<u>40*</u>
0-4	47	63	16	23	57	206	65	95	41	2	203
4-16	32	47	10	18	38	145	48	58	29	3	138
Disappearance	79	110	26	41	95	351	113	153	70	5	341
Survivors	44	67	18	33	61	223	89	91	48	3	231
Total	123	177	44	74	156	574	202	244	118	8	572

¹ Items A - E are write-offs: (A) inventory write-off, (B) property, plant, and equipment write-off, (C) intangible write-off, (D) goodwill write-off, and (E) miscellaneous write-off.

² Items F - I are restructuring charges: (F) employee severance and termination, (G) eliminate or curtail product lines, (H) consolidate or relocate operations, and (I) new systems development or acquisition.

T-test (two tailed test) reports that these proportions are statistically different between sample firms and control firms:

* Indicates statistical significance at the 0.10 level (two-tailed test)

Multivariate Analyses for H1b, H2, and H3

In order to test our hypotheses, we also employ multivariate regression analyses to examine whether the survival of the announcement firms is significantly associated with amount, economic substance, and labeling of the special charges after controlling for other factors that could affect survival of the firms. In Table 8 we report the results of logistic analyses. The data used for this model include sample (restructuring charge/write-off) firms and control group firms. The dependent variable, Survival, denotes whether the firm eventually survived (coded as 1) or disappeared (coded as 0). Model 1a includes four independent variables: OperInc (operating income), Special (special charge amount), Size (total assets), and BkMk (book to market ratio). In addition to the operating income and size of the announcement companies, our variable of interest, Special, is significant at

the 10 percent level in explaining whether the firms will survive in subsequent years. The positive coefficient of 0.242 suggests that when the special charge amount is reduced, the probability of firms' survival will increase (note that special charge amounts have negative values).

Disappearance Year	A		B		C
	Labeled as Write-off	% (A/370)	Labeled as Restructuring Charge	% (B/350)	
0-1	10	2.70%	5	1.43%	1.2
1-2	30	8.11%	38	10.86%	-1.26
2-3	49	13.24%	52	14.86%	-0.62
3-4	33	8.92%	28	8.00%	0.44
0-4	122	32.97%	123	35.14%	-0.61
4-16	93	25.14%	95	27.14%	-0.61
Disappearance	215	58.11%	218	62.29%	-1.14
Survivor	155	41.89%	132	37.71%	1.14
Total	370	100%	350	100%	

¹ T-test (two tailed test) reports that these proportions are statistically different between sample firms and control firms:
 ** Indicates statistical significance at the 0.05 level (two-tailed test)
 *** Indicates statistical significance at the 0.01 level (two-tailed test)

Model 2a includes variables representing firms' specific actions regarding write-offs, as well as aforementioned four independent variables. Similar to the first model, Special is still significant at the 10 percent level. Among the variables representing specific actions of write-offs, only WOppe (write-offs of property, plant, and equipment) is significant in explaining whether the firms will survive in subsequent years at the 10 percent level. The coefficient of -0.306 suggests that when the firms announce special charges that are involved with writing off PP&E, the probability of firms' survival will decrease by 30.6 percent.

Table 8: Logistic Analysis

Table 8: Logistic Analysis					
$\text{Survival}_i = \beta_0 + \beta_1 \text{OperInc}_{t-1,i} + \beta_2 \text{Special}_{t,i} + \beta_3 \text{Size}_{t-1,i} + \beta_4 \text{MkBk}_{t-1,i}$ $+ \beta_5 \text{Woinv}_i + \beta_6 \text{Woppe}_i + \beta_7 \text{Wointan}_i + \beta_8 \text{Wogw}_i + \beta_9 \text{Womis}_i$ $+ \beta_{10} \text{RCsev}_i + \beta_{11} \text{RCcur}_i + \beta_{12} \text{RCcon}_i + \beta_{13} \text{RCnew}_i$ $+ \beta_{14} \text{LABELwo}_i + \beta_{15} \text{LABELrc}_i + U_i$					
Variable	Parameter	Parameter Estimates			
		Model 1a	Model 2a	Model 3a	Model 4a
Intercept	β_0	-0.276***	-0.183**	-0.113	-0.076
OperInc _{t-1}	β_1	-0.730**	-0.701**	-0.677**	-0.670**
Special _t	β_2	0.242*	0.249*	0.256*	0.273*
Size _{t-1}	β_3	0.00019***	0.00020***	0.00021***	0.00021***
MkBk _{t-1}	β_4	0.016	0.014	0.007	0.014
Woinv	β_5		-0.177		
Woppe	β_6		-0.306*		
Wointan	β_7		0.189		
Wogw	β_8		-0.073		
Womis	β_9		-0.056		
Resev	β_{10}			0.193	
Rccur	β_{11}			-0.567***	
Recon	β_{12}			-0.204	
Renew	β_{13}			-0.522	
LABELrest	β_{14}				-0.400***
LABELwo	β_{15}				-0.086
Likelihood Ratio Chi-sq		16.93***	21.03***	28.89***	23.59***
<p>Survival is a dichotomous variable: 1 indicates survival and 0 indicates disappearance.</p> <p>OperInc (Operating Income after Depreciation: <i>Compustat</i> Item #178), Special (Special Charges: #17), Size (Total Assets: #6), MkBk (Market to Book Ratio).</p> <p>Write-offs: Woinv (inventory write-off), Woppe (property, plant, and equipment write-off), Wointan (intangible write-off), Wogw (goodwill write-off), and Womis (miscellaneous write-off). Restructuring charges: RCsev (employee severance and termination), RCcur (eliminate or curtail product lines), RCcon (consolidate or relocate operations), and RCnew (new systems development or acquisition).</p> <p>* Indicates statistical significance at the 0.10 level (two-tailed test)</p> <p>** Indicates statistical significance at the 0.05 level (two-tailed test)</p> <p>*** Indicates statistical significance at the 0.01 level (two-tailed test)</p>					

Model 3a includes variables representing firms' specific actions regarding restructuring charges, as well as aforementioned four independent variables of OperInc, Special, Size, and BkMk. Similar to the first and second model, our interest variable, special charge amount is still significant at the 10 percent level. Among the variables representing specific actions of restructuring charges, only RCcur (restructuring charges of curtailing product lines) is highly significant at the 1 percent level. The coefficient of -0.567 suggests that when firms announce restructuring charges involving eliminating product lines, the probability of firms' survival will decrease by 56.7 percent.

Model 4a includes variables representing how firms labeled their special charges, either as restructuring charges or write-offs, in addition to variables of OperInc, Special, Size, and BkMk. Similar to the other models, special charge amount is still significant at the 10 percent level. Besides, LABELrest is very significant in explaining whether the firms will survive in subsequent years at the 1 percent level. The coefficient of -0.400 suggests that when firms label their special charges as restructuring charges, the probability of firms' survival will decrease by 40 percent. This finding documents decreasing probability for survival for firms using the label "restructuring," and suggests that investors need to be cautious with their perceptions of the word.

In sum, the results from logistic analyses reported in Table 8 provide evidence that build on the findings of prior research in restructuring charge/write-off literature. Atiase, et al. (2001) and Carter (2000) found that the performance of restructuring charge firms is better than that of non-restructuring firms in the post-restructuring period. However, these studies may suffer from "survivorship bias" when evaluating the future performance of firms. We find that firms reporting smaller amount charges survive longer than those with larger charges, regardless of any business actions announced. We also find evidence of decreasing probability for survival for firms using the label of "restructuring" for the charges. Special charge firms that label their charges as "restructuring charges" are more likely to disappear and more likely to disappear sooner.

CONTRIBUTIONS AND LIMITATIONS

Firms continue to report many special charges, including restructuring and write-off announcements. Regulators have tried to limit the discretion available regarding special charges (for example, EITF 94-3, SFAS 121, and more recently SFAS 144, and SFAS 146). However, considerable discretion persists. Due to the subjective information content of these announcements, investors often have difficulty appropriately interpreting the future implications of these special charges. Managers' discretion over the amounts, what business actions include, and labels for these charges has led to debate over whether or not they are trying to mask their firms' poor performance. In this study, we extend the restructuring charge/write-off literature by investigating the relationship between firm survival and the amount, business action plans mentioned, and labeling of special charge announcements. Most of the results are consistent with the predictions made in the hypotheses. First, firms which announce large restructuring/write-off charges are not only more

likely to disappear, but to disappear sooner than firms which announce small, if any, charges. Also, among those firms that report large special charges, firms that report relatively larger amounts of restructuring charges/write-offs are not only more likely to disappear, but to disappear sooner than firms which announce relatively smaller charges. It seems reasonable that firms with bigger economic problems will not only tend to make special charges for higher amounts but also be less likely to survive in the short-term.

Second, firms reporting restructuring charges/write-offs that mention action plans for future operating performance improvements are not necessarily more likely to survive than firms reporting charges that merely recognize poor past operating performances. Just because firms include charges for plans to improve operating performance does not mean they will improve financial performance. Many variables affect financial performance, including the viability of the product, actions by competitors, the economy and industry, etc. These items are beyond the scope of this study but warrant further research.

Lastly, we investigate whether managers' decisions regarding the labeling of the announcements involve an intent that is consistent with opportunism. The results of our analysis provide evidence of decreasing probability of survival for firms using the label of "restructuring" for the charge. This finding may suggest more opportunism (and less credibility) in financial reporting during our sample period. As with other financial reporting methods, companies may be more likely to use the term "restructuring charge" inappropriately these days to alter Wall Street predictions.

The study is limited in that variables other than those tested in this research contribute to survival of special charge firms. However, this study does provide evidence that the higher the amount of special charge, the less likely the firm will survive, regardless of the business action plans for improvement mentioned. We also find evidence of increasing use of the term "restructuring charge" with increasing probability for disappearance.

Because many special charge firms have been taken over or merged after they made announcements, future research could examine their stock market performance in subsequent years. Also, future research could potentially evaluate the impact of SFAS 144 and 146 (which became effective in 2001) on the survival of restructuring charge/write-off announcement firms.

END NOTES

- 1 In this paper, we define "disappear" to include acquisition/merger or failure due to bankruptcy/liquidation. "Survive" is defined as not disappearing.
- 2 These reports specifically noted that the managers use special charges to create new terms regarding earnings, such as "operating earnings," "core earnings," or "pro-forma earnings" to favorably affect analysts' and investors perception of the firms (Weil 2001).

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- 3 In addition, the use of arbitrary cutoffs was necessary to ensure a reasonable workload for sampling. As we decrease the required percent of special charges relative to total assets, the number of companies increases sharply. For example, when five percent is used instead of ten percent, the number of firms increases by about two times. Also, when one percent is used instead of ten percent, the number of firms increases by about four times. In 1990, for instance, the number of firms is 385 when a ten percent cutoff is used. The number of firms increases to 642 when a five percent requirement is applied. The number increases further to 1,304 when a one percent cutoff is applied.
- 4 Control firms were selected by applying the following matching procedure. First, matching on the year, possible control firms were identified. Second, control firms were further identified initially by matching on the SIC code of four digits. Third, within the same industry and in the same respective year, companies that reported special charges of zero were selected. When we could not find zero amount of special charge firms, then we selected firms that recorded special charges close to zero within the range of less than - 1% of total assets (positive special charges were included; that is, control firms' special charges range from - 1 % to positive charges.) Finally, the control firm was chosen by selecting the firm closest to the sample firm in size. Size was measured by total assets, and control firms had to be within 50% of the sample firm on size.

REFERENCES

- Adut, D., Cready, W., and T. Lopez. (2003) Restructuring charges and CEO cash compensation: A reexamination. *The Accounting Review* (78): 169-192.
- Ante, S. (2003) The secret behind those profit jumps. *Business Week* Issue 3861 (12/08/2003): 50.
- Atiase, R., D. Platt, & S. Tse. (2001). *Operational restructuring charges and post-restructuring performance: The potential effects of write-off amounts on measured performance*. Working Paper, University of Texas at Austin.
- Brickley, J. & L. Van Drunen. (1990). Internal corporate restructuring: An empirical analysis. *Journal of Accounting and Economics* 12: 251-280.
- Bunsis, H. (1997). A description and market analysis of write-off announcements. *Journal of Business, Accounting and Finance* 24 (9/10): 1385-1400.
- Carter, M. (2000). *Operating and stock market performance following corporate restructurings*. Working Paper, Columbia University.
- Chaney, P. K., C. E. Hogan, & D. C. Jeter. (1999). The effect of reporting restructuring charges on analysts' forecast revisions and errors. *Journal of Accounting & Economics* 27 (3): 261-284.
- Chen, K. & C. J. Lee. (1993). Financial Ratios and Corporate Endurance: A Case of the Oil and Gas Industry. *Contemporary Accounting Research* 9 (2): 667-694.
- Condon, B. (1998). Pick a number, any number. *Forbes* 161 (6): 124-128.

- Elliott, J. & W. Shaw. (1988). Write-offs as accounting procedures to manage perceptions. *Journal of Accounting Research* 26 (Supplement): 91-119.
- Financial Accounting Standards Board (FASB). (1994). *Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity (including Certain Costs Incurred in a Restructuring)*. Emerging Issues Task Force Issue 94-3. Stamford, CT: FASB.
- Financial Accounting Standards Board (FASB). (1995). *Accounting for the Impairment of Long-Lived Assets to Be Disposed Of*. Statement of Financial Accounting Standards No. 121. Stamford, CT: FASB.
- Francis, J., J. Hanna, & L. Vincent. (1996). Causes and effects of discretionary asset write-offs. *Journal of Accounting Research* 34 (Supplement): 117-134.
- Gallagher, J. (2004). Profits hits and busts. *Traffic World* (11/01/2004): 1.
- Harlan, C. (1994). SEC wants explanations from firms planning to post restructuring losses. *Wall Street Journal* (February 25): B6.
- Hirschey M. and V. Richardson. (2003). Investor underreaction to goodwill write-offs. *Financial Analysts Journal* (59) Iss. 6: 75-84.
- Hogan, C. E., & D. C. Jeter. (1997). *The information content of restructuring charges: A contextual analysis*. Working Paper, Vanderbilt University.
- Kross, W., T. Park, & B. Ro. (1998). *The impact of operational restructuring announcements on stock price, risk, and trading volume*. Working Paper, Purdue University.
- Lane, W., S. Looney, & J. Wansley. (1986). An application of the Cox Proportional Hazards Model to bank failure. *Journal of Banking and Finance* 10: 511-531.
- Lopez, T. (2002). Evidence on the incremental information contained in the components of restructuring charges. *Journal of Business Finance and Accounting*. 29 (5/6): 613-660.
- Moehrle, S. (2002). Do firms use restructuring charge reversals to meet earnings targets? *The Accounting Review* 77 (2): 397-413.
- PR News*. (1997). Kodak's layoffs: Not a good snapshot of communication. Vol. 53 (No. 49, December 15).
- Smith, R., & S. Lipin. (1996). Are companies using restructuring costs to fudge the figures? *Wall Street Journal* (January 30): A1.
- Stice, J., Stice, E. K., & F. Skousen. (2004). *Intermediate Accounting 15th edition* Thomson South-Western: 181
- Strong, J. & J. Meyer. (1987). Asset writedowns: Managerial incentives and security returns. *Journal of Finance* 42 (July): 643-663.

Turetsky, H., & R. McEwen. (2001). An Empirical Investigation of Firm Longevity: A Model of the *Ex Ante* Predictors of Financial Distress. *Review of Quantitative Finance and Accounting* (June): 323-343.

Weil, J. (2001). What's the P/E ratio? Well, depends on what is meant by earnings. *Wall Street Journal* (August 21): A1.

Weiss, I. (1999). *Earnings management in response to an exogenous non-recurring item*. Working Paper, University of Chicago.

LOSING LIKE FORREST GUMP: WINNERS AND LOSERS IN THE FILM INDUSTRY

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ABSTRACT

There are a number of high-profile cases where films that by most standards of revenue minus cost are very successful, but are reported as providing net losses to the studios. Most of the public attention on these cases arises from lawsuits brought by participants who contracted to receive payment based on a percentage of the profit of the film.

This paper highlights some of the unique costing practices in the film industry and examines several of these well-known “losers” in light of the difference between the gross receipts of the film and the direct costs of production. It provides some insight into the difference between what would be considered a rational indirect cost allocation basis for other industries and the apparently erratic allocation process used in film.

The analysis includes an examination of the relationship between the gross receipts and the production costs of films in a number of categories that might be considered measures of success in the film industry.

INTRODUCTION

In 1999, entertainment accounts for less than one percent of the gross national product of the United States (Berton & Harris, 1999). Despite its small percentage, the film industry gains much attention in the nineties because of its finances (Cheatham, Cheatham, & Davis, 1996). Buzzwords like “creative accounting” are used, and some accountants assert, “The accounting department is the most creative part of Tinseltown” (Cheatham et al., 1996, p. 1). Several major disputes aid in bringing the film industry’s accounting practices into the limelight.

In one example (Pfeiffer, Capettini, & Whittenburg, 1997), the 1990 court case *Art Buchwald v. Paramount Pictures Corporation*, Art Buchwald claims that Paramount’s movie *Coming to America* is based on a film treatment that Buchwald wrote. Not surprisingly, since the studio had contracted with Buchwald to use the material, the court agrees and rules in Buchwald’s favor. It makes sense that he should receive the compensation set forth in his original contract with Paramount Pictures Corporation. In addition to a fixed fee, Buchwald’s original contract awards him a share of the net profits of the film. According to this account, the film is a box office success. However, Paramount, reports it as a lost \$18 million. Winston Groom, the author of the novel

Forrest Gump, contracts to receive \$350,000 and 3% of the net profits of the film for the rights to his book. When Groom tries to collect his 3%, he learns that Paramount is reporting a loss on the film. *Forrest Gump* earns millions at the box office in 1994, yet Paramount reports its profitability in the red. Also fueling the controversy is the fact that director Robert Zemeckis and actor Tom Hanks receives a percentage of the films fees, but they are awarded their money based on gross box office receipts instead of net profits (Pfeiffer, Capettini, & Whittenburg, 1997). Other popular films report losses, too. *Batman* shows a \$20 million loss, and net profit participants sue Warner Brothers. Net profit participants of the movie *JFK* go to court after no net profits are reported for the film. (Goldberg, 1997). *Rain Man*, *Dick Tracy*, *Ghostbusters*, *Alien*, *On Golden Pond*, *Fatal Attraction* are all films grossing over \$100 million in the 1990's for which no net profits were reported (Pheiffer, Capettini, & Whittenburg, 1997).

According to Cheatham, Cheatham, and Davis (1996), film costs contain four main components. First, *distribution fees* are paid to the distributor of the film. In many cases, film studios act as their own distributor (Pfeiffer, Capettini, & Whittenburg, 1997). If that is the case, the film studio simply pays itself this money, which usually is 20% to 27% of gross receipts. This method is simply a "positive cash flow item masquerading as an expense," according to Cheatham et al. (1996, p. 2). Pfeiffer et al. (1997), on the other hand, justify this as the studio earning a return for serving as the distributor of the film. In essence, the film studio generates revenue while the specific film incurs an expense.

In addition to distribution fees, *distribution expenses* are a cost of films, according to Cheatham et al. (1996). These expenses include promotion, advertising, physically moving the reels – everything that is needed to actually distribute the film. *Interest expenses* are attributed to a film when the film studio serves as the principal investor (Pheiffer et al., 1996). Investing in a film keeps the studio from investing in alternatives that will yield interest.

The actual production costs in a film are called the *negative costs*. Levine and Seigal (2001, p. 3) identify the following items included in negative costs:

Film costs include all direct costs incurred in the physical production of a film, such as the costs of acquiring the story and scenario (film rights to books, stage plays, or original screenplays); compensation of cast members, directors, producers, and extras; costs of set construction, operations, and wardrobe; costs of sound synchronization; costs of rental facilities on location; and postproduction costs (music, special effects, and editing). Negative costs also include allocations of production overhead and capitalized interest costs.

Not only do Cheatham, Cheatham, and Davis (1996) contend that the film industry reports too many costs that might not normally be considered properly product cost, they also contend that it fails to report what in other industries would be revenues. First of all, major revenue comes from box office receipts. According to Davis (1997), on average film studios receive 50% of gross box office receipts and the movie theaters receive the other 50%. More specifically, film studios use a

sliding scale to determine what percentage they will receive. Early in a film's release, film studios generally receive a large percentage of the box office receipts. For example, in the first two weeks, the film studio may receive 90%. At the sixth week, the percentage may be down to 60% and then drop to 10% by week twelve. The purpose of this sliding scale is to encourage movie theaters to show films for longer periods of time (Davis 1997).

Although gross box office receipts cannot likely be understated, supplementary income can. At the time "Hollywood Profits: Gone with the Wind?" (Cheatham, Cheatham, & Davis) is published in 1996, film studios only count 20% of videocassette sales as revenue for a film. Other ancillary income includes non-theatrical showings for groups such as airlines and armed forces, network television, music publishing, sound tracks, literary adaptations, computer games, and other merchandising like McDonald's happy meals. (Goldberg, 1997) Foreign markets are often minimized as well, in spite of the growing market (Cheatham, et al., 1996).

According to Cheatham, Cheatham, and Davis (1996), the combined effect of high expenses and low revenues result in understated profit. Goldberg (1997) seeks to unravel why film studios sanction this to happen. Goldberg focuses largely on gross profit participants, persons who receive a portion of gross profits for a film. Sought-after actors and directors are generally given a percentage of a film's gross profit in addition to a fixed sum of money. Studios offer gross profits to certain participants for several reasons. First, many actors require this kind of contract, and studios realize that actors draw audiences to movie theaters. A film featuring a popular star like Tom Cruise or Julia Roberts is much more likely to open well at the box office than a film featuring new talent. Even a director like Steven Spielberg can draw fans. Also, if an actor or director knows that his or her compensation is linked to the gross profitability of a film, he or she may be more likely to promote the film and go the extra mile to ensure its success at the box office (Goldberg, 1997).

Goldberg (1997) asserts that when gross profit participants become involved in films, net profits are likely to disappear. He cites examples like the 1993 movie *Indecent Proposal*, which reports a loss of \$35 million after paying its five gross profit participants. Star Robert Redford reportedly receives over \$20 million. Others cite similar examples like *Hook*, in which 40% of the film's gross profits were given to Julia Roberts, Dustin Hoffman, Robin Williams, and Steven Spielberg (Pfeiffer, Capettini, & Whittenburg, 1997). According to Goldberg (1997), *Indecent Proposal* and *Hook* are naturally doomed for net profit failure because of their large number of gross profit participants.

Lesser talent and participants often do not receive gross profit rights. Goldberg (1997) explains that Winston Groom, author of *Forrest Gum*, is a net profit participant. To net profit participants, Goldberg (1997) says that although the gross profit participants decrease the likelihood of receiving any percentage of the net profits, their involvement in a film may yield more profitable results for certain net profit participants. For example, although Winston Groom did not receive net profits, he experiences a huge increase in book sales after the release of the movie. Perhaps book

sales would not have been as large if a major actor like Tom Hanks had not been recruited to star in the film.

The intriguing conflict surrounding the motion picture industry in the 1990's understandably brings attention to the accounting methods and practices of Hollywood. Changes are made in costing methods specific to the film industry in an attempt to rectify any misreporting. In the nineties, the film industry is surrounded by major public concern and controversy relating to its accounting methods and practices. Consequently, in September 1995, the Entertainment and Sports Industry Committee of the California Society of Certified Public Accountants requests the Financial Accounting Standards Board investigate the film industry methods and practices arising as a result of their prior issuance, in December 1981, of Statement of Financial Accounting Standards Number 53 which governs the film industry.

In June 2000, the findings from the investigation prompted the Financial Accounting Standards Board to issue the Statement of Financial Accounting Standards Number 139. This new standard rescinds the Statement of Financial Accounting Standards Number 53 and amends three other regulatory statements. According to the Financial Accounting Standards Board, the decision to repeal the Statement of Financial Accounting Standards Number 53 is based on the following matters and concerns. First, the film industry is continuously changes that affect their financial position and financial reporting; particularly regarding revenue recognition as film revenue increase through ancillary forms such as DVD's, private showings, TV, and international markets; second, film studios apply the Statement of Financial Accountins Standards Statement 53 differently; and third, the accuracy of the film industry's financial statements are questionable (Financial Accounting Standard Board, 2000).

In August 2000, the American Institute of Certified Public Accountants (AICPA) issues a news release titled "AICPA Issues New Rules for Film Industry" that states three major changes now exists for the film industry. These include advertising expenses, film amortization, and abandoned projects. Some of these changes discussed by Berton and Harris (1999) include advertising costs are now to be amortized against revenues for the appropriate market rather than against revenues for a specific film. Film amortization is to be based on ten years rather than the twenty-year standard previously used by most film studios. Finally, abandoned projects cannot be written off to the overhead pool as commonly done before.

ANALYSIS

Special accounting provisions aside, the actual revenue and cost reported for films is not difficult to relate to other products. The production budget for films includes all the classifications of *actual* costs accountants would generally associate with direct costs of a film. In this respect it is not a budget in the normally accepted definition of the word, it is a report of actual costs. Gross receipts is a relatively concrete number analogous to what would be considered revenues in

accounting for most products, and is not amenable to easy “management.” Once these two terms are defined, the controversy may be simplified to a question of what indirect costs should be assigned to individual films and what costs should be borne by the studio. Since major participants in the success of a film are paid on gross receipts it seems likely that the less powerful providers of contract services for the film industry are forced to bear a disproportionate burden of indirect costs.

In general GAAP requires that indirect costs be assigned in rational and consistent manner (Hornigren, Foster & Datar, p. 486). In most products this rational and consistent manner would be based on some measure of the cost of the direct inputs. In spite of the film industry’s unique costing methods, an examination of the relationships between profitability and the success of films as measured by production costs and gross receipts offers interesting insight into whether or not some of these films that have been the center of controversy would have been considered profitable products using costing methods appropriate to most other products.

In this study, first, the top grossing films of each major film studio are studied. According to *Box Office Report* (2004), these film studios and specific films are as follows: Disney and Miramax, *The Lion King* (1994); DreamWorks, *Shrek* (2001); Fox, *Star Wars* (1977); MGM/United Artist, *Gone with the Wind* (1939); Paramount, *Titanic* (1997); Sony, *Spider-Man* (2002); Universal, *E.T. The Extra-Terrestrial* (1982); Warner and New Line, *The Two Towers* (2002).

Another way of selecting successful films is to examine films that have won the Academy Award for Best Picture. Intuitively, there should be some connection between the cost of a film and its quality. The Academy Award or Oscar for Best Picture is a surrogate measure for quality. This award is considered by many in the film industry to be the highest award that can be given to a film. Although not a strictly quantitative factor, many film studios do measure success of films by Oscar nominations and wins. The Best Picture Oscar winners for the past ten years are *Chicago* (2002), *A Beautiful Mind* (2001), *Gladiator* (2000), *American Beauty* (1999), *Shakespeare in Love* (1998), *Titanic* (1997), *The English Patient* (1996), *Braveheart* (1995), and *Forrest Gump* (1994) (*Academy Awards Database*, 2004).

For each of the films in the two categories data is obtained on gross box office receipts consisting of the United States gross receipts plus the foreign gross receipts (*ShowBIZ Data*, 2004) and production budget (*Internet Movie Database*, 2004).

After compiling the gross box office data, relevant ratios are computed to show the relationship between the gross box office receipts and the film budget. The ratio is computed by dividing box office gross by the production budget. A ratio or less than one indicates the film did not gross enough to cover its cost. High ratios indicate that the film makes a significant amount of gross profit above the film’s budget cost.

The data compiled for film studios’ top films reveal several significant findings. Table 1 shows that *Titanic* produced by Paramount in 1997 is the top grossing film for all major film studios. This is true domestically and internationally. It also showcases the fact that *Titanic* cost more money than any of the other films. This seems to suggest a larger budget can ensure large box office

sales. However examination of this very limited sample shows a significant variation in the relationship between the budget and the gross box office receipts. While *Titanic*'s return ratio is high, there are others significantly higher. *Star Wars*, *Gone with the Wind*, and *E.T.* have ratios over 50 compared to *Titanic*'s ratio of 9.17. Ironically, the films with the highest ratios also had the lowest budgets. They are all under \$12,000,000 as compared to *Titanic*'s \$200,000,000 budget. The three films with low budgets may be attributed to the fact that these three films are the three oldest of the eight films analyzed. Although *Star Wars* (1977) and *E.T.* (1982) are modern films produced not so long ago that inflation alone would offer an adequate explanation for the discrepancy. The high ratios might have another feasible explanation; these films all have multiple releases. The box office figures for *Star Wars*, *Gone with the Wind*, and *E.T.* actually represent two theatrical runs versus *Titanic*'s one. *Star Wars* is originally released in 1977 and re-released twenty years later in 1997. *Gone with the Wind* is re-released in 1989 for its fifty-year anniversary. *E.T.* was released again on its twentieth anniversary in 2002 (*ShowBIZ Data*, 2004). Without this additional information, the ratios seem unrealistic. A significant increase in profits occurs when film studios are able to capitalize on the success of a film through re-release. Inclusion of other films, which were either judged successful, but were not top grossing films or were not successful, would offer even more insight. For example the film *Dinosaur* from Disney, was budgeted the same amount as *Titanic* (\$200,000,000), but returned only \$354,600,000, or 1.77 times its cost.

Table 1 : Box Office and Budget Information for Top Films in Dollars

Film	U.S. Gross	Foreign Gross	Budget	Gross/Budget
<i>The Lion King</i>	310,785,532	545,000,000	79,300,000	6.65
<i>Shrek</i>	267,652,016	155,808,898	60,000,000	7.06
<i>Star Wars</i>	460,195,523	319,100,000	11,000,000	70.84
<i>Gone with the Wind</i>	198,933,802*	N/A	3,900,000	61.01*
<i>Titanic</i>	600,787,052	1,234,600,000	200,000,000	9.17
<i>Spider-Man</i>	403,706,375	380,900,000	139,000,000	5.64
<i>E.T.</i>	399,804,539	305,000,000	10,500,000	67.12
<i>The Two Towers</i>	340,478,898	577,400,000	139,000,000	6.60

* Foreign gross receipts for this film are not available and the ratio is based on domestic gross only.

Note: Data from *ShowBIZ Data* and *Internet Movie Database*

Film	Worldwide Gross	Budget	Gross/Budget
<i>Return of the King (2003)</i>	778,174,794	94,000,000	8.28
<i>Chicago (2002)</i>	306,664,505	45,000,000	3.00
<i>A Beautiful Mind (2001)</i>	295,256,996	60,000,000	4.92
<i>Gladiator (2000)</i>	454,364,866	103,000,000	4.41
<i>American Beauty (1999)</i>	336,104,047	15,000,000	22.41
<i>Shakespeare in Love (1998)</i>	252,241,322	25,000,000	10.09
<i>Titanic (1997)</i>	1,835,387,052	200,000,000	9.18
<i>The English Patient (1996)</i>	230,351,430	27,000,000	8.54
<i>Braveheart (1995)</i>	202,604,871	72,000,000	2.81
<i>Forrest Gump (1994)</i>	629,699,757	55,000,000	11.45

Note: Data from *ShowBIZ Data* and *Internet Movie Database*

The findings in Table 2 are similar to those found in Table 1. Table 2 analyzes data for Academy Award Best Picture Oscar winners. As shown in Table 2, the film with the largest budget was *Titanic* almost double the second ranked film, *Gladiator*, and slightly more than twice the budget of the third most expensive film *Return of the King*. These three most expensive films rang first, fourth, and third in level of gross receipts suggesting some correlation. The relationship is far from perfect though *American Beauty*'s budget is significantly lower than *Gladiator*'s budget, but according to Table 2, *American Beauty*'s ratios are much greater than *Gladiator*'s.

Based on Table 2, it appears films that win Academy Awards do well at the box office and have higher ratios of box office receipts to budgets. Regressing the cost against gross receipts reveals an Adjusted R Square of .64 with a positive intercept very close to zero and a positive slope of 6.55 indicating the cost of a film is a reasonably good predictor of its gross receipts.

To further analyze this relationship between profitability and success as determined by Academy Award wins, data is analyzed on the four most recent Oscar Best Picture winners compared to the other four films nominated for the award. The gross receipts on these films is the gross over the first ten weeks after their release.

Table 3: Academy Award Winners for Best Film Compared to Contenders

Year	Film (Winner listed first)	U.S 10-Week Gross	Budget	Budget/Gross
2003	<i>Lost in Translation</i>	28,061,165	4,000,000	7.02
2003	<i>Master and Commander</i>	92,076,135	150,000,000	0.61
2003	<i>Mystic River</i>	52,989,083	30,000,000	1.77
2003	<i>Return of the King</i>	361,118,894	94,000,000	3.84
2003	<i>Seabiscuit</i>	118,251,555	86,000,000	1.38
2002	<i>Chicago</i>	114,442,185	45,000,000	2.54
2002	<i>Gangs of New York</i>	74,621,519	97,000,000	0.77
2002	<i>The Hours</i>	26,531,638	25,000,000	1.06
2002	<i>The Two Towers</i>	330,338,275	139,000,000	2.38
2002	<i>The Pianist</i>	16,779,231	35,000,000	0.48
2001	<i>A Beautiful Mind</i>	138,929,921	60,000,000	2.32
2001	<i>Gosford Park</i>	33,387,034	15,000,000	2.23
2001	<i>In the Bedroom</i>	16,985,037	1,700,000	9.99
2001	<i>The Fellowship of the Ring</i>	287,573,505	93,000,000	3.09
2001	<i>Moulin Rouge!</i>	54,029,521	52,500,000	1.03
2000	<i>Chocolat</i>	40,062,665	103,000,000	0.39
2000	<i>Crouching Tiger, Hidden Dragon</i>	73,202,832	N/A	
2000	<i>Erin Brockovich</i>	121,529,105	15,000,000	8.10
2000	<i>Gladiator</i>	176,582,114	51,000,000	3.46
2000	<i>Traffic</i>	97,543,805	48,000,000	2.03

Note: Data from *ShowBIZ Data* and *Internet Movie Database*

A regression analysis of these data indicate that the gross receipts immediately after release of the film may not be as well predicted by the cost of the film as is longer-term receipts. The Adjusted R Square for this model is much lower at .27. The intercept is very large at 33,623,216 and the slope is 0.231, which indicates a less defensible model. These findings offer three very significant insights into the film industry and the relationship between profitability and the success

of films. First, a studio cannot guarantee box office success of a film by allocating a large budget to it. Although a substantial budget may lead to large profits as in the case of the 1997 film *Titanic*, the returns are far from assured and may actually be proportionally better on a less expensive film. Second, one way to increase profits is to re-release films. Studios should consider modeling the strategy used by Fox, MGM/UA, and Universal in their re-releases of *Star Wars*, *Gone with the Wind*, and *Spider-Man* respectively. Last, some film studios may view success beyond profits, in qualitative ways such as winning the Best Picture Academy Award.

Overall, the film industry's finances are unique, and success is hard to predict. However, regulators, auditors and those disputing payments on contracts do have some data to help assess the likelihood that the profit or loss claims of the studio are reasonable. The industry distinctiveness, in fact, initiated some accounting changes by regulatory authorities. These accounting regulatory changes and some specific legal conflicts showcased the creative accounting methods and practices sometimes used by film studios. Perhaps, now, after the issuance of Statement of Accounting Standards Number 139, the accounting and reporting will no longer be the most creative aspect of Hollywood.

REFERENCES:

- Academy Awards Database*. (2004). Retrieved February 24, 2004, <http://www.oscars.org/awardsdatabase/>.
- AICPA issues new rules for film industry. (2000). *Journal of Accountancy* [online serial], 190, <http://www.aicpa.org/pubs/jofa/aug2000/news3.htm>.
- Berton, L., & Harris, R. (1999). Reel-world accounting. *CFO*, 15, 34-40.
- Box Office Report*. (2004). Retrieved February 24, 2004, <http://www.boxofficereport.com>.
- Buchwald v. Paramount Pictures Corporation*, No C 706083, 1990 Cal. App. LEXIS 634, 13 U.S.P.Q.2D (BNA) 1497, January 31, 1990.
- Cheatham, C., Cheatham, L. R., & Davis D. A. (1996). Hollywood profits: gone with the wind? *CPA Journal*, 66, 32-42.
- Davis, C. E. (1997). Accounting is like a box of chocolates: a lesson in cost behavior. *Journal of Accounting Education*, 15, 307-318.
- Financial Accounting Standard Board. (2000). *Statement of Financial Accounting Standards No. 139*. Norfolk, Connecticut.
- Goldberg, V. P. (1997). The net profits puzzle. *Columbia Law Review*.

Horngren, C. T., Datar, S. M. Foster, G. (1998). *Cost Accounting A Managerial Emphasis*, Pearson Prentice Hall, Upper Saddle River, NJ.

Internet Movie Database, Inc. (2004). Retrieved February 24, 2004 from <http://www.imdb.com/>.

Levine, M. H., Siegel, J. G. (2001). Accounting changes for the film industry. *CPA Journal*, 71, 32-38.

Pfeiffer, G., Capettini, R., Whittenburg, G. (1997). Forrest Gump – accountant: a study of accounting in the motion picture industry. *Journal of Accounting Education*, 15, 319 - 344.

ShowBIZ Data. (2004). Retrieved February 24, 2004 <http://www.showbizdata.com/>.

PREDICTIVE ABILITY OF THE VALUATION ALLOWANCE FOR DEFERRED TAX ASSETS

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ABSTRACT

The valuation allowance for deferred tax assets is an estimate of the portion of deferred tax assets that is not realizable because of insufficient future taxable income. The valuation allowance account might contain forward-looking information on the management's estimates of a firm's future income. This study finds that a change in the valuation allowance provides incremental information beyond publicly available information in predicting one- and two-year-ahead income and cash flows. The predictive ability of the valuation allowance suggests that recognition of forward-looking information in financial statements has the potential to make these statements more informative.

INTRODUCTION

The primary objective of financial accounting is to provide external users with information about the financial health and profitability of the firm in a format that facilitates their decision-making (FASB, 1978). There is a demand for forward-looking information on the firm's future earnings and cash flows from users of financial reports, whose decisions depend primarily on estimates of the future. In December, 2002, the AICPA Board of Directors approved a new committee to explore how to enhance the delivery and content of business-related information. The committee argues that the current model does serve as an effective foundation from which business reporting should start; however, it focuses on the lagging indicators (i.e., information on past transactions) and lacks leading indicators (i.e., forward-looking information). Accounting standard-setters are, however, wary of permitting firms to use estimates or projections in generating their financial statement numbers because they may be unreliable. Inclusion of unverifiable numbers in the financial statements may provide opportunities to managers for managing earnings thereby reducing the value of financial statements to investors (Lang and Warfield, 1997).

Consequently, most forward-looking information used by firms in their internal decision-making is not reported in the financial statements (AICPA, 2002). One exception to this occurs when firms are required by SFAS 109 to disclose the valuation allowance for deferred tax assets on their balance sheets from 1992 onwards. The valuation allowance is an estimate of the portion of deferred tax assets that is not realizable because of insufficient future taxable income. If a manager receives positive information about future income, (s)he should decrease the valuation

allowance for deferred tax assets because a greater portion of the future tax benefits is likely to be realized. If a manager receives negative information about future income, (s)he should increase the valuation allowance because a smaller portion of the future tax benefits is likely to be realized due to lower taxable income in future years. Hence, the valuation allowance account might contain forward-looking information on managers' estimates of a firm's future income; a higher (lower) the valuation allowance would represent the manager's expectation of lower (higher) future income for a given level of deferred tax assets.

On the other hand, SFAS 109 requires changes in the valuation allowance for deferred tax assets to be included (as part of income tax expense or benefit) in income from continuing operations, which is used to measure the persistent component of earnings by many investors and financial analysts. Thus, the valuation allowance that is based on managers' unverifiable forecasts offers opportunities for earnings management. As an example of the effect of changes in the valuation allowance on earnings, consider the following from PR Newswire on November 10, 2003: "EZCORP, Inc. (Nasdaq: EZPW) announced today results for its fiscal fourth quarter and 2003 fiscal year, which ended September 30, 2003. For the quarter ended September 30, 2003, EZCORP is reporting net income of \$4,563,000 (\$0.36 per share) compared to net income of \$251,000 (\$0.02 per share) for the prior year comparable period. During the quarter, the company decreased its valuation allowance placed on its deferred tax assets by \$3,700,000 based on the Company's improved operating results and outlook for continued earnings growth. This had a favorable net income effect of \$3,700,000 (\$0.30 per share)."

Therefore, the valuation allowance for deferred tax assets has two potential characteristics: forward-looking information content and earnings management vehicle. Given this, there is a critical question that must be considered (Rhoades-Catanach, 2003); do we believe that, in practice, the valuation allowance for deferred tax assets is based on income prediction, its expected value, or some other amount (i.e., a judgmental value)? If the valuation allowance depends on the manager's expectation of future taxable income, it may contain not only public information (e.g., prior income) available to predict future income, but also the manager's private information that will convey new information on future income to financial statement users. Investigation of information content of the valuation allowance in predicting future income (or cash flows) may provide evidence on this issue. Prior studies (Amir et al., 1997; Ayers, 1998; Amir and Sougiannis, 1999) document an association between the valuation allowance for deferred tax assets and stock prices, but none of those studies have examined the association between the valuation allowance and future income (or cash flows). This study investigates the association of the valuation allowance with future income (or cash flows), and thus provides insight into the mechanism by which the valuation allowance is associated with stock prices.

For this investigation, this study collects 719 news releases of the valuation allowances for the period 1994-2002 from LEXIS/NEXIS. The empirical results provide evidence of incremental information content of the valuation allowance in predicting future income and cash flows; a change

in the valuation allowance for deferred tax assets contains incremental information (e.g., the manager's private information) beyond publicly available information in predicting one- and two-year-ahead income and cash flows. The remainder of this study is organized as follows: Section II develops hypotheses on information content of the valuation allowance in predicting future income (or cash flows). Section III explains research designs used to test these hypotheses. Section IV provides details on data collection and presents the empirical results. Section V contains concluding remarks.

HYPOTHESIS DEVELOPMENT

In February 1992, the FASB issued SFAS 109, Accounting for Income Taxes, superseding SFAS 96 and Accounting Principles Board (APB) Opinion 11. SFAS 96 and APB 11 required firms to recognize deferred tax liabilities for all taxable temporary differences; on the other hand, they allowed the recognition of deferred tax assets on deductible temporary differences and operating loss and tax credit carryforwards only to the extent that: (1) taxable income in prior years could be used to realize deferred tax assets, and (2) taxable income could be projected from the reversals of existing temporary differences. Opponents argued that such stringent recognition criteria could lead to misleading and overly conservative amounts recognized as deferred tax assets (Eaton and Williams, 1998). In response to this criticism, SFAS 109 permits the recognition of deferred tax assets for all deductible temporary differences and operating loss and tax credit carryforwards. However, if future taxable income is not expected to be high enough to utilize the deferred tax assets, a valuation allowance must be estimated and recognized to reduce the net deferred tax assets to the amount that is "more likely than not" to be realized (More-likely-than-not is intended to mean a likelihood of more than 50 percent).

Once a valuation allowance is established, it can be changed in subsequent periods if there are changes in circumstances that alter expectations about future taxable income expected to be available to realize a tax benefit. A manager should consider all evidence, both positive and negative, to determine whether the valuation allowance should be increased or decreased based on the weight of that evidence. Positive evidence (e.g., existing contracts or sales backlog, an excess of appreciated asset value over the tax basis of the firm's net assets, and a strong earnings history) reinforces the likelihood that deferred tax assets will be realized, and reduces the need for a valuation allowance. Conversely, negative evidence (cumulative losses in recent years, a history of operating loss or tax credit carryforwards expiring unused, losses expected in early future years, unsettled circumstances that, if unfavorably resolved, would adversely affect future operations and profit levels, and a carryback and/or carryforward period that is so brief that it would limit realization of tax benefits) reduces the likelihood that deferred tax assets will be realized, and increases the need for a valuation allowance.

As a result, a change in the valuation allowance for deferred tax assets should result from a change in the manager's judgment about the existence of sufficient taxable income to utilize the related deferred tax assets in future years. If a manager changes the valuation allowance in response to information on future income without bias (i.e., a manager increases or decreases the valuation allowance only in response to negative or positive information on future income), the change in the valuation allowance would likely contain information useful in predicting future income (or cash flows). In summary, since SFAS 109 requires managers to change the valuation allowance for deferred tax assets when they revise their estimates of future income, changes in the valuation allowance should be associated with future income (or cash flows) if managers follow SFAS 109 without bias.

H1: Changes in the valuation allowance for deferred tax assets are negatively associated with future income (or cash flows).

Since the FASB issued SFAS 109 in 1992, numerous papers (e.g., Bielstein and Trott, 1992; Read, 1992; Eaton and Williams, 1998) have discussed how to account for the valuation allowance for deferred tax assets, because the statement provides little direct guidance on how to compute the valuation allowance (Bielstein and Trott, 1992; Peavey and Nurnberg, 1993; Behn et al., 1998; Eaton and Williams, 1998; Miller and Skinner, 1998). SFAS 109 identifies four possible sources of taxable income available to realize deferred tax assets: (1) future reversals of existing taxable temporary differences, (2) future taxable income, (3) taxable income in prior carryback years if carryback is permitted, and (4) tax-planning strategies. In order to gain some insight into how firms are applying the requirements of SFAS 109, this study reviews prior studies that investigate the association between the valuation allowance for deferred tax assets and taxable income sources available to realize deferred tax assets. Table 1 summarizes the research designs and findings of these prior studies.

First, the column of "Taxable Temporary Differences" shows the valuation allowance for deferred tax assets is associated with the future reversals of existing taxable temporary differences. When the deferred tax liabilities exceed the deferred tax assets, there should be an excess of future taxable over deductible amounts, thus increasing the likelihood of realization of the deferred tax assets (Guenther and Sansing, 2003). Therefore, the valuation allowance for deferred tax assets is more likely for firms with net deferred tax assets than for firms with net deferred tax liabilities. As expected, a firm with more deferred tax liabilities than deferred tax assets records a smaller valuation allowance (Behn et al., 1998; Miller and Skinner, 1998; Burgstahler et al., 2002; Frank and Rego, 2003). Also, the column indicates that changes in the valuation allowance are positively (negatively) associated with changes in deferred tax assets (liabilities) (Visvanathan, 1998).

Table 1. Determinants of the Valuation Allowance for Deferred Tax Assets

Research Paper	Number of firm-years (Period)	Valuation Allowance	Income Sources Available to Realize Deferred Tax Assets			
			(1) Taxable Temporary Differences	(2) Future Taxable Income	(3) Carryforwards	(4) Tax Strategies
Behn et al. (1998)	322 (1993)	VA_t/DTA_t	$(-^s) DTL_t/DTA_t$	$(-^s) MB_t$ $(-^s) AvgE_{(t-2,t)}/A_t$	$(-^s) [DTA_t - NOL_t]/DTA_t$	$(-^s) TAX_t/OE_t$
Visvanathan (1998)	287 [S&P500] (1992-94)	$\Delta VA_t/P_t$	$(+^s) \Delta DTA_t/P_t$ $(-^s) \Delta DTL_t/P_t$			
Miller, Skinner (1998)	354 (1992-94)	VA_t/DTA_t	$(+^s) [DTA_t - DTL_t]/DTA_t$	$(-^s) AvgROA_{(t-3,t-1)}$ $(-) AF_t$	$(+^s) CF_t/DTA_t$	
	333 (1992-1994)	$\Delta VA_t/DTA_t$	$(+^s) \Delta(DTA_t - DTL_t)/DTA_t$	$(-^s) \Delta ROA_{(t-3,t-1)}$	$(+^s) \Delta CF_t/DTA_t$	
Burgstahler et al. (2002)	482 (1993-98)	$[VA_t/DTA_t] - [VA_{t-1}/DTA_{t-1}]$	$(-^s) \Delta DTL_t/\Delta DTA_t$	$(-) \Delta ROA_t$ $(-) \Delta MB_t$		
Schrand, Wong (2003)	235 [Banks] (1993)	$\Delta VA_t/DTA_t$	$(-) \Delta DTL_t$	$(-^s) \Delta E_{(t-2,t)}$ $(-) \Delta OE_{t+1}$	$(+^s) \Delta NOL_t$ $(+^s) \Delta OCF_t$	
Frank, Rego (2003)	1,882 (1993-01)	ΔVA_t	$(+^s) \Delta DTA_t - \Delta DTL_t$	$(-) \Delta ROA_{(t-2,t)}$		

Variable Definition:
 Δ_t = change in amounts from t-1 to t, $\Delta_{(t-i,t)}$ = change in amounts from t-i to t, $Avg(t-i, t)$ = average amounts over t-i and t,
A = total assets, AF = analyst forecasts, CF = carryforwards, DTA = deferred tax assets, DTL = deferred tax liabilities, E = earnings,
MB = market to book value of equity, NOL = net operating loss carryforward, OCF = other carryforwards, OE = operating earnings,
P = market value of equity, ROA = return on assets, TAX = income tax expenses, VA = the valuation allowance

Note:
(-) or (+) is a predicted sign of the association between the valuation allowance and an income source.
 $(-^s)$ or $(+^s)$ indicates that the association between the valuation allowance and an income source is empirically significant.

Second, a firm with more expected future taxable income is more likely to realize their deferred tax assets and hence will appropriately have a smaller valuation allowance for deferred tax assets. As shown in the column of "Future Taxable Income," prior studies adopted various proxies for managers' expectations of future taxable income, but they failed to find that the valuation allowance for deferred tax assets is consistently associated with proxies such as return on assets (Burgstahler et al., 2002; Frank and Rego, 2003), market to book value of equity (Burgstahler et al., 2002), realized operating earnings in future years (Schrand and Wong, 2003), and analysts' earnings forecasts (Miller and Skinner, 1998). On the other hand, a firm with more taxable income in prior and current years is likely to report a smaller valuation allowance (Behn et al., 1998; Schrand and Wong, 2003). The question remains whether a firm's valuation allowance for deferred tax assets depends on the manager's expectation of future taxable income or solely on its prior taxable income.

If the valuation allowance for deferred tax assets depends on the manager's expectation of future taxable income, it may contain the manager's private information, which will be useful for financial statement users. If the valuation allowance depends on prior income, which is already disclosed, it does not convey any new information to financial statement users about future income.

Third, Cross-sectional variation in the valuation allowance for deferred tax assets can occur because of differences in the sources of deferred tax assets. For instance, the deferred tax assets created by net operating loss carryforwards are less certain to be realized than such assets created by some deductible temporary differences because the net operating carryforward is normally created due to insufficient income. The column of "Carryforwards" presents that a firm with more deferred tax assets attributable to tax loss or tax credit carryforwards has a larger valuation allowance because of the limitation on the extent to which the tax benefits associated with carryforward items can be realized (Behn et al., 1998; Miller and Skinner, 1998; Schrand and Wong, 2003).

Finally, SFAS 109 considers tax-planning strategies as a source of income available to realize deferred tax assets. Tax planning strategies are as prudent and feasible actions that managers might not take ordinarily but would take to prevent an operating loss or tax credit carryforward from expiring unused. Since this type of information is usually proprietary and not disclosed by firms, most prior studies do not investigate the association between tax-planning strategies and the valuation allowance for deferred tax assets because Only Behn et al. (1998) use the firm's reported federal income tax expense divided by operating income as a proxy for tax-planning strategies. They assume that as a firm's effective tax rate increases, its ability to take advantage of potential tax savings increases (resulting in an increase in income after income tax expense). Consistent with their expectation, a firm with higher income tax expense (as a proportion of operating income) is likely to have a smaller valuation allowance.

Prior findings summarized in Table 1 imply that changes in the valuation allowance for deferred tax assets in part reflect publicly available information such as deferred tax assets (or liabilities) and prior earnings. If managers use private forward-looking information about future income, as well as public information provided in other accounts in determining the valuation allowance, then, in addition to publicly available information, changes in the valuation allowance will contain information that is useful in predicting future income (or cash flows). This study investigates whether changes in the valuation allowance for deferred tax assets contain useful information (e.g., managers' private forward-looking information) beyond public information summarized in other accounts in predicting future income (or cash flows).

- H2: Changes in the valuation allowance for deferred tax assets are negatively associated with future income (or cash flows) after controlling for other publicly available information.

RESEARCH DESIGN

Since SFAS 109 requires that the effects of changes in the valuation allowance for deferred tax assets ordinarily shall be included in income from continuing operations, income from continuing operations (E_t) is separated into "income from continuing operations before changes in the valuation allowance for deferred tax assets" ($EBVA_t$) and "changes in the valuation allowance for deferred tax assets" (ΔVA_t):

$$E_t \equiv EBVA_t - \Delta VA_t \quad (1)$$

In equation (1), $EBVA_t$ is a measure of the firm's operating performance in year t and ΔVA_t is partially a function of the manager's judgment about future income if the manager changes the valuation allowance for deferred tax assets without bias.

To illustrate how a change in the valuation allowance for deferred tax assets is a function of a manager's judgment about future income, consider the sections of SFAS 109. SFAS 109 states that firms should reduce deferred tax assets by a valuation allowance if, based on the weight of available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized (17). In determining the valuation allowance, SFAS 109 states that future realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income in future years (21). In situations where future realization of the deferred tax assets is unclear, application of judgment based on a careful assessment of all available evidence is required (98). Therefore, a change in the valuation allowance for deferred tax assets is a function of the manager's judgment about future income under SFAS 109, and thus may have information content useful in predicting future income (or future cash flows). This study estimates the following regression model to examine the predictive ability of changes in the valuation allowance for deferred tax assets:

$$E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \varepsilon_t \quad (2)$$

where,

E_{t+i} = income from continuing operations in year $t+i$

ΔVA_t = changes in the valuation allowance from year $t-1$ to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

* Each variable is scaled by the beginning market value of equity at year t .

If managers change the valuation allowance for deferred tax assets in response to information on future income that is not reflected in $EBVA_t$, α_1 will be negative. In the absence of any changes in the valuation allowance (i.e., $\Delta VA_t = 0$), E_t is positively associated with E_{t+i} (Ball and Watts 1972;

Albrecht et al. 1977; Watts and Leftwich 1977; Lev 1983; Finger 1994; Dechow et al. 1998; Dechow and Dichev 2002). Therefore, α_2 is expected to be positive.

The ability of current earnings (E_t) to predict future cash flows (CF_{t+i}) is well-known (e.g., Watts and Zimmerman 1986; Dechow 1994; Wang 1998; Beaver 1998; Dechow and Dichev 2002). Model (3) examines this predictive ability after controlling for current cash flow:

$$CF_{t+i} = f(E_t, CF_t) \quad (3)$$

Given equation (1), equation (3) can be rewritten as:

$$CF_{t+i} = f(EBVA_t, \Delta VA_t, CF_t) \quad (4)$$

In order to examine the predictive ability of ΔVA_t for future cash flows after controlling for current earnings and cash flow performance, the following regression model is estimated:

$$CF_{t+i} = \beta_0 + \beta_1 \Delta VA_t + \beta_2 EBVA_t + \beta_3 CF_t + \varepsilon_i \quad (5)$$

where,

CF_{t+i} = cash flows from operations in year $t+i$

ΔVA_t = changes in the valuation allowance from year $t-1$ to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

* Each variable is scaled by the beginning market value of equity at year t .

Consistent with prior research, I expect β_2 and β_3 to be positive. As discussed previously, β_1 should be negative if changes in the valuation allowance for deferred tax assets contain information on future cash flows that is not reflected in $EBVA_t$ and CF_t .

In order to test whether changes in the valuation allowance for deferred tax assets contain incremental information about future income beyond publicly available information (hypothesis $H2$), this study controls for the components of changes in the valuation allowance that is predictable from other financial statement variables. Consistent with prior studies (e.g., Burgstahler et al. 2002; Frank and Rego 2003), this study assumes that in the absence of earnings management, two factors determine a change in the valuation allowance for deferred tax assets: sources that create a change in future reversals of taxable temporary differences ($\Delta FUT_REVERSAL_{jt}$) and a change in the manager's expectation about future income (ΔFUT_INCOME_{jt}).

$$\Delta VA_t \equiv \delta_0 + \sum_i \lambda_i \Delta FUT_REVERSAL_t + \sum_j \mu_j \Delta FUT_INCOME_{jt} + \varepsilon_t \quad (6)$$

The source that creates a change in future reversals of taxable temporary differences is a change in net deferred tax liabilities because deferred tax liabilities, upon reversal, constitute taxable income that can be used to realize deferred tax assets. If a firm has an increase (decrease) in deferred tax liabilities relative to deferred tax assets, the valuation allowance should decrease (increase). As shown in Table 1, Visvanathan (1998), Miller and Skinner (1998), Burgstahler et al. (2002) and Frank and Rego (2003) have previously documented that changes in deferred tax liabilities (assets) are negatively (positively) associated with changes in the valuation allowance. Therefore, this study considers changes in deferred tax assets and liabilities as publicly available information on future income in determining changes in the valuation allowance for deferred tax assets.

Since SFAS 109 suggests that a strong earnings history and a history of operating losses are, respectively, positive and negative evidence of sufficient future income to realize deferred tax assets, managers should consider earnings and losses in prior years in determining the valuation allowance. Behn et al. (1998) and Schrand and Wong (2003) provide evidence of the negative association between the valuation allowance for deferred tax assets and earnings in prior years. This study uses earnings over the prior two years as a proxy for the manager's expectation of future income to predict a change in the valuation allowance for deferred tax assets. This study also adopts a change in the market value of equity as another proxy for a manager's expectation of future income because stock prices largely capture information before it is reflected in earnings (Beaver et al. 1980; Beaver et al. 1987; Collins et al. 1987; Freeman 1986).

Therefore, we can predict a change in the valuation allowance for deferred tax assets (ΔVA_t) by considering such public information as changes in deferred tax assets (ΔDTA_t) and liabilities (ΔDTL_t), earnings in each of the prior two years (E_{t-1} , E_{t-2}) and changes in the market value of equity (ΔMVE_t). The equation (6) is converted to a regression model as follows:

$$\Delta VA_t = \delta_0 + \lambda_1 \Delta DTA_t + \lambda_2 \Delta DTL_t + \mu_1 E_{t-1} + \mu_2 E_{t-2} + \mu_3 \Delta MVE_t + \varepsilon_t \quad (7)$$

Assuming that a change in the valuation allowance for deferred tax assets contains incremental non-public information (e.g., the manager's private information) in predicting future income, it should be associated with future income after controlling for the public information.¹ In model (8), a negative α_1 supports the hypothesis that changes in the valuation allowance contain useful information beyond publicly available information in predicting future income.

$$E_{t+1} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \alpha_3 \Delta DTA_t + \alpha_4 \Delta DTL_t + \alpha_5 E_{t-1} + \alpha_6 E_{t-2} + \alpha_7 \Delta MVE_t + \varepsilon_t \quad (8)$$

where,

E_{t+i} = income from continuing operations in year t+i

ΔVA_t = changes in the valuation allowance from year t-1 to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

ΔMVE_t = changes in market value of equity from year t-1 to t

* Each variable is scaled by the beginning market value of equity.

This study also tests the following regression model to examine the information content of ΔVA_t on future cash flows after controlling for current earnings, cash flow performance, and publicly available information:

$$CF_{t+i} = \beta_0 + \beta_1 \Delta VA_t + \beta_2 EBVA_t + \beta_3 CF_t + \beta_4 \Delta DTA_t + \beta_5 \Delta DTL_t + \beta_6 E_{t-1} + \beta_7 E_{t-2} + \beta_8 \Delta MVE_t + \varepsilon_t \quad (9)$$

where,

CF_{t+i} = cash flows from operations in year t+i

ΔVA_t = changes in the valuation allowance from year t-1 to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

E_{t-i} = income from continuing operations in year t-i

ΔMVE_t = changes in market value of equity from year t-1 to t

* Each variable is scaled by the beginning market value of equity at year t.

EMPIRICAL ANALYSIS

The sample for this study is drawn from a search for news releases in the PR Newswire file in LEXIS/NEXIS using the keywords “valuation allowance.”² PR Newswire delivers full-text, unedited news releases, including announcements of quarterly and annual earnings, dividends, and earnings forecasts. The wire is updated every 30 minutes by teleprinter directly to the newsrooms of wire services, broadcasters, newspapers and magazines. Therefore, PR Newswire plays a key role in dissemination of time-critical financial information.

Table 2 summarizes the data collection procedure. First, 719 news reports about annual valuation allowance from 1994 to 2002 were found. SFAS 109 became effective for fiscal years beginning after December 15, 1992; hence, to ensure consistent financial reporting this study

includes firms for the period 1994-2002. Second, 247 firm-years that are not listed on Compustat are excluded. Third, 218 firm-years are dropped because they do not have the necessary valuation allowance or deferred tax asset and liability data on their 10-Ks through LEXIS/NEXIS. Fourth, 11 firm-years are deleted because of missing data items needed to compute changes in the valuation allowance for deferred tax assets. The remaining 243 firm-years, which consist of 213 different firms, are narrowed differently for the various tests depending on the data items needed. The various columns in table 2 show the effects of these various data limitations.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
News releases of annual valuation allowance on PR newswire from 1994 to 2002	719	719	719	719	719	719	719	719
(Less) Firm-years that are not listed in Compustat	(247)	(247)	(247)	(247)	(247)	(247)	(247)	(247)
(Less) Firm-years that are not reported on 10-K through LEXIS/NEXIS	(218)	(218)	(218)	(218)	(218)	(218)	(218)	(218)
(Less) Missing data items for the valuation allowance change	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
	243	243	243	243	243	243	243	243
(Less) Missing data items for one-year-ahead income	(78)				(78)	(78)		
(Less) Missing data items for two-year-ahead income		(141)						
(Less) Missing data items for one-year-ahead cash flows			(92)				(92)	
(Less) Missing data items for two-year-ahead cash flows				(119)				(119)
(Less) Missing data items for current cash flows			(1)	(3)			(1)	(3)
(Less) Missing data items for public information					(23)	(23)	(20)	(15)
Sample size	165	102	150	121	142	90	130	106
Note:								
(a) Regression (2) of one-year-ahead income on changes in the valuation allowance and $EBVA_t$								
(b) Regression (2) of two-year-ahead income on changes in the valuation allowance and $EBVA_t$								
(c) Regression (5) of one-year-ahead cash flows on changes in the valuation allowance, $EBVA_t$, and current cash flows								
(d) Regression (5) of two-year-ahead cash flows on changes in the valuation allowance, $EBVA_t$, and current cash flows								
(e) Regression (8) of one-year-ahead incomes on changes in the valuation allowance, $EBVA_t$, and public information								
(f) Regression (8) of two-year-ahead incomes on changes in the valuation allowance, $EBVA_t$, and public information								
(g) Regression (9) of one-year-ahead cash flows on changes in the valuation allowance, $EBVA_t$, and public information								
(h) Regression (9) of two-year-ahead cash flows on changes in the valuation allowance, $EBVA_t$, current cash flows, and public information								

Table 3 shows the number of news releases mentioning the valuation allowance for 1994-1998 and for 1999-2002. It also presents the industry composition of the 243 observations (before being narrowed further for the various tests). A majority (74.9%) of the 243 announcements are for 1999-2002, and nearly three-quarters of the announcements pertain to firms in the manufacturing (51.03%) and service industries (21.4%).

Table 3. Sample Composition		
	Firm-Years	Percentage
1994-1998	61	25.10%
1999-2002	182	74.90%
Total	243	100.0%
Mining and Construction (SIC Code 10-17)	16	6.58%
Manufacturing (SIC 20-39)	124	51.03%
Transportation and Public Utilities (SIC 40-49)	11	4.53%
Wholesale Trade and Retail Trade (SIC 50-59)	16	6.58%
Finance, Insurance, Real Estate (SIC 60-67)	24	9.88%
Services (SIC 70-87)	52	21.40%
Total	243	100.00%

Table 4 reports descriptive statistics of 254 firm-years' variables that are listed in Compustat and reported on 10-K through LEXIS/NEXIS. The mean (median) earnings (E_t) and $EBVA_t$ are -\$7.2M (\$1.1M) and -\$7.9M (\$2.4M), respectively. The mean market value of equity of \$698.4M is about 40% of the \$1,735M mean market value of equity for the Compustat population over 1994-2001.³ These statistics imply that the average sample firms in this study are smaller than the Compustat firms and incurred losses over the sample period. The sample firms, on average, have the valuation allowance of \$40.4M for deferred tax assets of \$94.8M and deferred tax liabilities of \$56.5M.⁴ Their mean (median) change in the valuation allowance is \$-1.0M (\$0) and -7.53% (0%) of the beginning market value of equity.

Table 5 presents the correlations between the valuation allowance for deferred tax assets with other variables. The correlations are consistent with expectations. The valuation allowance is negatively correlated with future income and cash flows. It is also correlated with such public information, which may provide prediction of changes in the valuation allowance, as changes in deferred tax assets and liabilities, earnings in each of the prior two years and changes in the market value of equity.

Table 4. Sample Description

Variable	254 Firm-Years		Mean	Median	Standard Deviation	Minimum	Maximum
	Valid	Missing					
E_t	246	8	-7,235	1,120	219,872	-2,236,576	903,000
$EBVA_t$	246	8	-7,924	2,421	209,660	-2,235,961	902,957
MVE_t	244	10	698,465	74,044	1,955,898	1,646	19,039,686
ΔVA_t	254	0	-1,072	0	99,916	-1,055,700	662,000
DTA_t	254	0	94,829	19,148	223,731	294	2,030,100
DTL_t	243	11	56,530	1,666	247,778	0	3,391,000
VA_t	254	0	40,406	7,523	133,533	0	1,646,100
CF_t	230	24	62,447	4,660	220,214	-99,194	2,382,100
E_t / P_{t-1}	243	11	-.3243	.0200	1.1323	-10.74	.88
$EBVA_t / P_{t-1}$	240	14	-.1443	.0100	1.6942	-25.66	2.01
$\Delta MVE_t / P_{t-1}$	241	13	.2014	-.1200	1.3208	-.95	10.86
$\Delta VA_t / P_{t-1}$	243	11	-.0753	.0000	1.6674	-25.69	.97
$\Delta DTA_t / P_{t-1}$	243	11	.0493	.0100	.4151	-.86	5.58
$\Delta DTL_t / P_{t-1}$	242	12	-.0127	.0000	.1050	-.96	.29
CF_t / P_{t-1}	227	27	.1280	.0600	.3292	-.91	2.30

Variable Definition (Unit \$1,000):
 E_t = income from continuing operations in year t
 $EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t
 ΔVA_t = changes in the valuation allowance from year t-1 to t
 CF_t = cash flows from operations in year t
 MVE_t = market value of equity at year t
 DTA_t = deferred tax assets at year t
 DTL_t = deferred tax liabilities at year t
 P_{t-1} = beginning market value of equity at t

In order to investigate information content of the valuation allowance for deferred tax assets on future income, this study tests a regression model (2) of future income on changes in the valuation allowance and $EBVA_t$. Table 6 presents the estimation results for the regression model. First, $EBVA_t$, a measure of the firm's operating performance in current year, is positively associated with one-, two-, and three-year-ahead income, respectively. These results imply that $EBVA_t$ contains information content on future income, consistent with previous research on earnings' ability to predict future earnings (e.g., Ball and Watts 1972; Lev 1983; Finger 1994; Dechow and Dichev 2002). Second, ΔVA_t that is partially a function of the manager's judgment about future income is negatively associated with one- and two-year-ahead income, respectively, after controlling for

EBVA_t. The association supports that changes in the valuation allowance provide incremental information beyond EBVA_t in predicting one- and two-year-ahead income, as expected in Hypothesis *H1*. These results infer that an average manager changes the valuation allowance for deferred tax assets in response to expectation of future income. However, the explanatory power of ΔVA_t is no longer significant for three-year-ahead income although the predictive ability of EBVA_t is still significant. (Based on these findings, this study provides results for one- and two-year-ahead predictive ability of changes in the valuation allowance.) Kumar and Visvanathan (2003) also find that managers, on average, do not consider more than two-year-ahead earnings expectations in setting the valuation allowance for deferred tax assets.

Table 5. Variable Correlations

	Variable	Expected Sign	ΔVA _t		
			Pearson	Kendall	Spearman
Information Content on Future Income or Cash Flows	E _{t+3}	-	-.191**	-.152**	-.212**
	E _{t+2}	-	-.203**	-.340***	-.465***
	E _{t+1}	-	-.353***	-.311***	-.392***
	CF _{t+2}	-	-.377***	-.154***	-.218***
	CF _{t+1}	-	-.417***	-.128**	-.189***
Publicly Available Information on Future Income	ΔDTA _t	+	-.816***	.583***	.695***
	ΔDTL _t	-	.543***	-.081**	-.107**
	E _{t-1}	?	-.037	-.229***	-.301***
	E _{t-2}	?	.251***	-.011	.002
	ΔMVE _t	-	-.022	-.213***	-.312***

Variable Definition:

ΔVA_t = changes in the valuation allowance from year t-1 to t

E_t = income from continuing operations in year t

CF_t = cash flows from operations in year t

ΔDTA_t = changes in deferred tax assets at year t,

ΔDTL_t = changes in deferred tax liabilities at year t

EBVA_t = income from continuing operations before deferred-tax-allowance changes in year t

ΔMVE_t = changes in market value of equity at year t

***, **, * indicate significance at the .01, .05, and .10 levels, respectively for one-tailed tests.

Table 6. Predictive Ability of the Valuation Allowance for Deferred Tax Assets on Future Income

$$\text{Regression Model (2): } E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \epsilon_t$$

Dependent Variable	Sample Number	F value	Adjusted R Square	R Square Change	Coefficient (t value)		
					Constant	ΔVA_t	$EBVA_t$
E_{t+1}	165	29.784 ⁺⁺⁺	.149	.154 ⁺⁺⁺	.014 (.599)		.330 ^{***} (5.457)
		27.291 ⁺⁺⁺	.243	.098 ⁺⁺⁺	.026 (1.181)	-.379 ^{***} (-4.596)	.302 ^{***} (5.259)
E_{t+2}	102	4.982 ⁺⁺	.038	.047 ⁺⁺	.056* (1.430)		.352 ^{**} (2.232)
		4.484 ⁺⁺	.065	.036 ⁺	.061* (1.595)	-.274 ^{**} (-1.961)	.332 ^{**} (2.130)
E_{t+3}	82	6.371 ⁺⁺	.062	.074 ⁺⁺	.043 (.776)		.710 ^{***} (2.524)
		3.807 ⁺⁺	.065	.014	.052 (.937)	-.368 (-1.107)	.618 ^{**} (2.113)

Variable Definition:

E_{t+i} = income from continuing operations in year t+i

ΔVA_t = changes in the valuation allowance from year t-1 to t

$EBVA_t$ = income from continuing operations before changes in the valuation allowance in year t

Each variable is scaled by the beginning market value of equity at year t.

+++ , ++ , + indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests.

*** , ** , * indicate significance at the .01, .05, and .10 levels, respectively for one-tailed tests.

Table 7 shows the estimation results for a regression model (5) to investigate predictive ability of the valuation allowance on future cash flows. Like the association of the valuation allowance with future income, changes in the valuation allowance are negatively associated with one- and two-year-ahead cash flows. These results imply that changes in the valuation allowance provide incremental information beyond $EBVA_t$ in predicting one- and two-year-ahead cash flows. However, inclusion of current cash flows (CF_t) in the regression seriously undermines the predictive ability of the valuation allowance for future cash flows. After adding CF_t , ΔVA_t is marginally significant at the .10 level for one-year-ahead cash flows and is insignificant for two-year-ahead cash flows; $EBVA_t$ is still significant at .01 and .05 for one- and two-year-ahead cash flows, respectively. Whether changes in the valuation allowance provide incremental information in predicting one- and two-year-ahead cash flows is sensitive to the inclusion of current year cash flows in the regression.

Table 7. Predictive Ability of the Valuation Allowance for Deferred Tax Assets on Future Cash Flows

$$\text{Regression Model (5): } CF_{t+i} = \beta_0 + \beta_1 \Delta VA_t + \beta_2 EBVA_t + \beta_3 CF_t + \epsilon_t$$

Dependent Variable	Sample Number	F value	Adjusted R ²	Coefficient (t value)			
				Constant	ΔVA_t	EBVA _t	CF _t
CF _{t+1}	150	37.240 ⁺⁺⁺	.327	.204 ^{***} (4.577)	-.872 ^{***} (-5.054)	.730 ^{***} (5.929)	
	150	79.477 ⁺⁺⁺	.612	.027 (.728)	-.230* (-1.594)	.493 ^{***} (5.128)	1.129 ^{***} (10.448)
CF _{t+2}	121	15.487 ⁺⁺⁺	.194	.216 ^{***} (6.179)	-.595 ^{***} (-4.273)	.421 ^{***} (2.577)	
	121	54.456 ⁺⁺⁺	.572	.090 ^{***} (3.188)	-.086 (-.761)	.254 ^{**} (2.111)	.835 ^{***} (10.251)

Variable Definition:
 CF_{t+i} = cash flows from operations in year t+i
 ΔVA_t = changes in the valuation allowance from year t-1 to t
 EBVA_t = income from continuing operations before changes in the valuation allowance in year t
 Each variable is scaled by the beginning market value of equity at year t.
 +++, ++, + indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests.
 ***, **, * indicate significance at the .01, .05, and .10 levels, respectively for one-tailed tests.

Publicly available information on future income in predicting changes in the valuation allowance for deferred tax assets is identified in a regression model (7) to test a regression model (8) that examines whether changes in the valuation allowance contain incremental information content (e.g., managers' private information) on future income beyond the public information. Table 8 presents the estimation results of the regression models (7) and (8). The results regarding the association between changes in the valuation allowance and public information suggest that an average firm with increase (decrease) in deferred tax assets is likely to increase (decrease) its valuation allowance for deferred tax assets; on the other hand, an average firm with increase (decrease) in deferred tax liabilities or the market value of equity tends to decrease (increase) its valuation allowance for deferred tax assets; also, an average firm considers earnings in each of the prior two years in determining its valuation allowance for deferred tax assets. After controlling for the public information and EBVA_t, changes in the valuation allowance are still negatively associated with one- and two-year-ahead income. These results imply that changes in the valuation allowance contain useful information that may not be delivered by publicly available information to the market in predicting future income.

Table 8. Incremental Predictive Ability of the Valuation Allowance for Deferred Tax Assets on Future Income

$$\text{Regression Model (7): } \Delta VA_t = \delta_0 + \lambda_1 \Delta DTA_t + \lambda_2 \Delta DTL_t + \mu_1 E_{t-1} + \mu_2 E_{t-2} + \mu_3 \Delta MVE_t + \epsilon_t$$

$$\text{Regression Model (8): } E_{t+i} = \alpha_0 + \alpha_1 \Delta VA_t + \alpha_2 EBVA_t + \alpha_3 \Delta DTA_t + \alpha_4 \Delta DTL_t + \alpha_5 E_{t-1} + \alpha_6 E_{t-2} + \alpha_7 \Delta MVE_t + \epsilon_t$$

Dep Var	Sample Number	F value	Adjust R ²	Coefficient (t value)							
				Constant	ΔVA_t	EBVA _t	ΔDTA_t	ΔDTL_t	E _{t-1}	E _{t-2}	ΔMVE_t
ΔVA_t	210	18.794 ⁺⁺⁺	.299	.012 (.847)			.441*** (6.992)	-.369** (-1.851)	-.096** (-2.027)	.189*** (3.485)	-.025*** (-2.494)
E _{t+1}	142	10.105 ⁺⁺⁺	.311	.004 (.157)	-.213** (-1.906)	.298*** (4.494)	-.136 (-1.295)	-1.379*** (-2.578)	.106* (1.251)	-.200* (-1.456)	.035** (2.225)
E _{t+2}	90	3.612 ⁺⁺⁺	.170	.095** (.2155)	-.452** (-2.169)	.529*** (2.632)	-.116 (-.698)	-1.999*** (-2.366)	-.666*** (-2.844)	.082 (.399)	-.011 (-.433)

Variable Definition:

ΔVA_t = changes in the valuation allowance from year t-1 to t

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

E_{t-i} = income from continuing operations in year t-i

ΔMVE_t = changes in market value of equity from year t-1 to t

EBVA_t = income from continuing operations before changes in the valuation allowance in year t

Each variable is scaled by the beginning market value of equity.

+++ , ++ , + indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests.

***, **, * indicate significance at the .01, .05, and .10 levels, respectively for one-tailed tests.

Table 9 shows the estimation results of a regression model (9) that tests incremental predictive ability of the valuation allowance on future cash flows. After controlling for the public information and EBVA_t, changes in the valuation allowance are negatively associated with one- and two-year-ahead cash flows, suggesting that they provide incremental information on future cash flows beyond publicly available information including EBVA_t in predicting future cash flows. After adding current year cash flows, the explanatory power of ΔVA_t is no longer significant for future cash flows. These results consistent with the estimation results of a regression model (5); whether changes in the valuation allowance provide incremental information in predicting future cash flows is sensitive to the inclusion of current year cash flows in the regression.

Table 9
Incremental Predictive Ability of the Valuation Allowance for Deferred Tax Assets on Future Cash Flows

Regression Model (9)

$$CF_{t+i} = \beta_0 + \beta_1 \Delta VA_t + \beta_2 EBVA_t + \beta_3 CF_t + \beta_4 \Delta DTA_t + \beta_5 \Delta DTL_t + \beta_6 E_{t-1} + \beta_7 E_{t-2} + \beta_8 \Delta MVE_t + \epsilon_t$$

Dep Var	Sample Number	F	Adjust R ²	Coefficient (t value)								
				Constant	ΔVA_t	EBVA _t	CF _t	ΔDTA_t	ΔDTL_t	E _{t-1}	E _{t-2}	ΔMVE_t
CF _{t+1}	131	12.608 ⁺⁺	.385	.215*** (4.174)	-.600*** (-2.666)	.845*** (6.171)		-.240 (-1.138)	-2.676*** (-2.479)	-.206 (-1.217)	-.484** (-1.699)	.015 (.470)
	130	29.831 ⁺⁺	.641	.025 (.554)	-.075 (-.409)	.605*** (5.538)	1.087*** (9.113)	-.077 (-.474)	-1.417** (-1.653)	-.043 (-.329)	-.540*** (-2.430)	-.025 (-1.002)
CF _{t+2}	109	4.711 ⁺⁺⁺	.194	.232*** (5.850)	-.429*** (-2.485)	.465*** (2.567)		-.110 (-.690)	-1.267** (-1.594)	-.138 (-.966)	-.377** (-1.893)	-.009 (-.352)
	106	26.361 ⁺⁺	.659	.079*** (2.669)	-.049 (-.403)	.393*** (3.104)	.868*** (11.052)	.068 (.634)	-.174 (-.317)	-.089 (-.948)	-.312** (-2.272)	-.040*** (-2.378)

Variable Definition:

CF_{t+i} = cash flows from operations in year t+i

ΔVA_t = changes in the valuation allowance from year t-1 to t

EBVA_t = income from continuing operations before changes in the valuation allowance in year t

ΔDTA_t = changes in deferred tax assets from year t-1 to t

ΔDTL_t = changes in deferred tax liabilities from year t-1 to t

E_{t-i} = income from continuing operations in year t-i

ΔMVE_t = changes in market value of equity from year t-1 to t

Each variable is scaled by the beginning market value of equity.

+++ , ++ , + indicate significance at the .01, .05, and .10 levels, respectively for two-tailed tests.

*** , ** , * indicate significance at the .01, .05, and .10 levels, respectively for one-tailed tests.

CONCLUSION

Under SFAS 109, a manager should change the valuation allowance for deferred tax assets in response to both private forward-looking information and publicly available information about future income. Therefore, changes in the valuation allowance contain useful non-public information (e.g., managers' private information) beyond public information in predicting future income (or cash flows) if managers follow SFAS 109 without bias. This study provides evidence of incremental predictive ability of the valuation allowance for deferred tax assets. Changes in the valuation allowance are associated with future income and cash flows after controlling for publicly available information. These results imply that managers, on average, change the valuation allowance in response to information on future income, following SFAS 109. However, the explanatory power of changes in the valuation allowance is limited to a two-year horizon. It should be kept in mind that

the sample for these tests contains a large number of firm-years with incentives to manage earnings. Managers' opportunistic manipulation of the valuation allowance in these years significantly weakens the predictive ability of the valuation allowance for future income and cash flows. The findings of this study have mixed implications for accounting standard setters and regulators. The predictive ability of the valuation allowance found here suggests that mandating recognition of forward-looking information in financial statements has the potential to make these statements more informative. On the other hand, the limited predictive ability of the valuation allowance, which is also found here, implies managers' ability to fool investors through opportunistic manipulation. Thus, forward-looking information has the potential to make the financial statements not only more but also less informative. An avenue for future research is to investigate whether the users of financial statements are able to extract value-relevant information from the valuation allowance with recognizing earnings management effects on the valuation allowance.

ENDNOTES

- 1 See Jennings (1990) to review research design that examines the incremental information content of one accounting income variable conditional on one or more other income variables.
- 2 Since none of providers of firms' financial information (e.g., Standard and Poor's) provides the valuation allowance account, I manually collected the valuation allowance information through PR Newswire.
- 3 Frank and Rego (2003, 35) provide some descriptive statistics for the Compustat population.
- 4 In general, more than half of the firms reporting deferred tax assets record some amounts of related valuation allowance (Comiskey and Mulford 1994; Petree et al. 1995; Behn et al. 1998).

REFERENCES

- Accounting Principles Board (APB). 1967. *Opinion No. 11: Accounting for income taxes*. New York, NY: American Institute of Certified Public Accountants.
- AICPA. 2002. New business model beginning to emerge – Timeliness, Reliability, Transparency to be improved. *The CPA Letter* 82.10.
- AICPA Special Committee on Financial Reporting. 1994. *Improving business reporting – A customer focus: Meeting the needs of investors and creditors*, from <http://www.aicpa.org/members/div/acctstd/ibr/index.htm>.
- Albrecht, W., L. Lookabill, and J. McKeown. 1977. The time-series properties of annual earnings. *Journal of Accounting Research* 15: 226-244.

- Amir, E., M. Kirschenheiter, and K. Willard. 1997. The valuation of deferred taxes. *Contemporary Accounting Research* 14. 4: 597-622.
- Amir, E., and T. Sougiannis. 1999. Analysts' interpretation and investors' valuation of tax carryforwards. *Contemporary Accounting Research* 16.1: 1-33.
- Ayers, B. 1998. Deferred tax accounting under SFAS No. 109: An empirical investigation of its incremental value-relevance relative APB No. 11. *The Accounting Review* 73. 2: 195-212
- Ball, R., and R. Watts. 1972. Some time series properties of accounting income. *Journal of Finance* 27. 663-682.
- Beaver, W. 1998. *Financial reporting: Accounting revolution*, 3rd ed. Prentice-Hall, Inc. New Jersey.
- Beaver, W., R. Lambert, and D. Morse. 1980. The information content of security prices. *Journal of Accounting and Economics* 2: 3-28.
- Beaver, W., R. Lambert, and S. Ryan. 1987. The information content of security prices: A second look. *Journal of Accounting and Research* 25. Supplement: 1-36.
- Behn, B., T. Eaton, and J. Williams. 1998. The determinants of the deferred tax allowance account under SFAS No. 109. *Accounting Horizon* 12.1: 63-78.
- Bielstein, M., and E. Trott. 1992. The new approach to accounting for income taxes. *Strategic Finance* 74.2: 43-47.
- Burgstahler, D., W. Elliott, and M. Hanlon. 2002. How firms avoid losses: Evidence of use of the net deferred tax asset account. Working Paper, University of Washington.
- Chandra, U., and B. Ro. The association between deferred taxes and common stock risk. *Journal of Accounting and Public Policy* 16. 3: 311-333.
- Collins, D., S. Kothari, and J. Rayburn. 1987. Firm size and the information content of prices with respect to earnings. *Journal of Accounting and Economics* 9 (July): 111-138.
- Comiskey, E., and C. Mulford. 1994. Evaluating deferred-tax assets: Some guidance for lenders. *Commercial Lending Review* 9.3 (Summer): 12-25.
- Dechow P., and I. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77: 35-59.
- Dechow P., S. Kothari, and R. Watts. 1998. The relation between earnings and cash flows. *Journal of Accounting and Economics* 25: 133-168.
- Eaton, T., and J. Williams. 1998. Valuing deferred tax assets under SFAS 109. *Strategic Finance* 79.9: 46-50.
- Financial Accounting Standards Board (FASB). 1978. *Statement of Financial Accounting Concept No. 1: Objectives of Financial Reporting by Business Enterprises*. Norwalk, CT: FASB.

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- Financial Accounting Standards Board (FASB). 1987. *Statement of Financial Accounting Standards No. 96: Accounting for income taxes*. Norwalk, CT: FA
- Financial Accounting Standards Board (FASB). 1992. *Statement of Financial Accounting Standards No. 109: Accounting for income taxes*. Norwalk, CT: FA
- Finger. 1994. The ability of earnings to predict future earnings and cash flow. *Journal of Accounting Research* 32.2: 210-223.
- Frank, M., and S. Rego. 2003. Do managers use the valuation allowance account to manage earnings around certain earnings target? Working paper, University of Iowa.
- Freeman, R. 1986. The association between accounting earnings and security returns for large and small firms. *Journal of Accounting and Economics* 9: 195-228.
- Guenther D., and R. Sansing. 2003. The valuation relevance of reversing deferred tax liabilities. Working Paper. University of Colorado.
- Jennings, R. 1990. A note on interpreting "incremental information content." *The Accounting Review* 65.4: 925-932.
- Journal of Accountancy. 1994. Focus on: Recommendations of the Special Committee On Financial Reporting. *Journal of Accountancy* 178.4:41-46.
- Kumar, K. R., and G. Visvanathan. 2003. The information content of the deferred tax valuation allowance. *The Accounting Review* 78. 2: 471-490.
- Lang, M., and T. Warfield. 1997. Response to the FASB invitation to comment, "Recommendations of the AICPA Special Committee on Financial Reporting and the Association for Investment Management and Research." *Accounting Horizon* 11.1: 139-156.
- Lev, B. 1983. Some economic determinants of time series properties of earnings. *Journal of Accounting and Economics* 5 (April): 31-48.
- Miller, G., and D. Skinner. 1998. Determinants of the valuation allowance for deferred tax assets under SFAS No. 109. *The Accounting Review* 73. 2: 213-233.
- Peavey, D., and H. Nurnberg. 1993. FASB 109: Auditing considerations of deferred tax assets. *Journal of Accountancy* 175.5: 77-81.
- Petree, T., G. Gregory, and R. Vitray. 1995. Evaluating deferred tax assets. *Journal of Accountancy* 179.3: 71-77.
- Read, W. 1992. The FASB's new rules: Here we go again? *Business Credit* 94.4: 14-16.
- Rhoades-Catanach, S. 2003. Discussion of valuation of a firm with a tax loss carryover. *Journal of The American Taxation Association* 25.Supplement: 83-86.

Schrand, C., and F. Wong. 2003. Earnings management using the valuation allowance for deferred tax assets under SFAS No. 109. *Contemporary Accounting Research* 20.3: 579-611.

Visvanathan, G. 1998. Deferred tax valuation allowance and earnings management. *Journal of Financial Statement Analysis* 3.4: 6-10

Watts, R., and R. Leftwich. 1977. The time-series of annual accounting earnings. *Journal of Accounting Research* 15: 253-171.

Watts, R., and J. Zimmerman. 1986. *Positive Accounting Theory*. Englewood Cliffs, NJ: Prentice-Hall.

INDIVIDUAL INVESTORS, ELECTRONIC TRADING AND TURNOVER

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ABSTRACT

We examine how changes in individual investors' cost for information and trading costs affect stock turnover, i.e., the portion of outstanding stock that trades during a specific period of time. We also test how individual investors with relatively short investment horizons affect turnover. We find that stock turnover increases when electronic trading becomes available to individual investors and that, while turnover is negatively correlated with individual investors' equity ownership, it is positively correlated with the level of electronic trading by individuals. This confirms the theory that investors trade relatively more actively when their costs of trading decline and provides further evidence that, when investors have the same trading costs and access to information, differences in their investment objectives leads to differences in their contribution to stock turnover.

INTRODUCTION

Not many years ago, it was widely predicted that the internet would transform business in very dramatic ways. Litan and Rivlin (2001) project that business cost savings due to internet use would add 0.2-0.4% to U.S. productivity. They did not attempt to quantify the effects of consumer gains due to greater convenience, wider product mix or enhancements in customization, or the productivity increases in the computer or software industries. Freund and Weinhold (2002) associate a 1.7% increase in the growth of U.S. exports of services with a 10% growth in internet use. Cooper, Dimitrov and Rau (2001) report that in 1998 and 1999 a corporate name change suggesting the company's business is internet related is sufficient to produce abnormal returns averaging in excess of 50%. While the bursting of the "tech bubble" may have tempered the expectations to some degree, there is little question that the internet has affected many aspects of business. This paper examines how reduced trading costs and improved access to information associated with electronic trading affects stock turnover, the portion of a company's stock that trades during a given period of time.

It is not surprising that mechanisms designed to reduce trading costs or enhance payment or settlement systems should affect financial markets. Financial institutions have long made use of electronic trading and payments systems and the advent of the internet likely had limited effect on

these firms' trading. See, e.g. Greenspan (1996) and Flannery (1996). The difference the internet made in financial markets is in extending electronic trading opportunities to individual investors. This commenced with E Trade Financial Corp. (formerly E Trade Group Inc.). E Trade, formed in 1982, initially offered electronic brokerage services to securities firms, but in 1992, the company began offering electronic trading services directly to individuals through CompuServe and AOL. After going public in 1996, trading was even more widely available via the company's internet site. See Scripophily.com's E*Trade Certificate Vignette. Electronic trading through E Trade increased monotonically until the first quarter of 2000 when it peaked at nearly one quarter of a million trades per day, and has averaged about 120,000 trades per day since. Table 1 presents the average number of trades submitted daily through E Trade beginning in 1992. (The data is annual for 1992 through 1996 and quarterly thereafter.) Note that while initially E Trade was the sole electronic trading source, competing providers quickly appeared. As a result, later years' E Trade data indicates only a portion of total electronic trading. See, e.g., Laise and Mauldin (2005).

Table 1: Trades processed by E Trade Financial Corp.	
Period	Average daily trades
1992	100
1993	194
1994	869
1995	2335
1996	6350
1997 1st Q	14283
2nd Q	16300
3rd Q	24100
4th Q	24606
1998 1st Q	26181
2nd Q	29200
3rd Q	30500
4th Q	43035
1999 1st Q	70200
2nd Q	80635
3rd Q	80130
4th Q	132350

Period		Average daily trades
2000	1st Q	226064
	2nd Q	166528
	3rd Q	144082
	4th Q	144635
2001	1st Q	130401
	2nd Q	113464
	3rd Q	87100
	4th Q	91852
2002	1st Q	81679
	2nd Q	82216
	3rd Q	89600
	4th Q	96169
2003	1st Q	86716
	2nd Q	116663
	3rd Q	132561
	4th Q	140126
2004	1st Q	157035
	2nd Q	127433
	3rd Q	97404
	4th Q	136133
2005	1st Q	134770
	2nd Q	134770

Date source: E Trade Financial Corporation 10-K and 10-Q reports filed with the S.E.C.

Availability of electronic trading reduces individual investors' trading costs and, at the same time, the internet improves individual access to information. These gave rise to a new type of trader, the "day trader", who pursued a trading strategy similar to that of a market professional, but without the benefit (or fixed cost) of exchange membership. We consider how stock turnover is affected by lower trading costs for individual investors, enhanced access to information, and individual investors' investment horizons. The literature suggests that these factors affect turnover but empirical studies have focused on institutional investors rather than individuals. The development of electronic trading permits us to investigate this additional facet of equity turnover.

Turnover increases when the market generates more information, Covrig and Ng (2004), and when investors' access to information improves, Pollock and Rindova (2004) and Karolyi (2004). Roewenhorst (1999) shows this result in emerging markets. Stock turnover is positively correlated with the standard deviation of returns and with firm beta, both of which are associated with volatility of information about the firm. Turnover is negatively correlated with firm size, consistent with the proposition that information about smaller firms is less accessible. In addition to the rate at which information is generated and the availability of information, the uniformity of interpretation of available information affects stock turnover. The more homogeneous investors' expectations are the lower turnover will be. Domowitz, Glen and Madhavan (2001) confirm the positive correlation between firm size and stock turnover in emerging markets, but find that the correlation is negative in developed markets. They suggest this result occurs because in developed markets intensity of analysts following of large firms leads to greater conformity in interpretation of information.

Transactions costs are inversely related to stock turnover. Wider bid ask spreads are associated with lower turnover. Atkins and Dyl (1997). Turnover is positively correlated with ownership by institutional investors with lower trading costs. Badrinath, Kale and Noe (1995). Covrig and Ng (2004) also find that trading by low-trading-cost investors has a greater effect of volume autocorrelation than trading by high-trading-cost investors.

There is also a relationship between investor objectives and turnover. The larger portion of a stock held by investors with a relatively long investment horizon the less frequently those shares trade resulting in lower stock turnover. Armstrong and Gardner (2005) demonstrate that greater equity ownership by households reduces stock turnover. This is consistent with the idea that in general individual investors have a relatively longer investment horizon than financial institutions. In the case of financial institutions, ownership of equity by some institutions increases stock turnover, while ownership by others reduces it. Different financial institutions have differing investment horizons.

This paper examines how changes in individual investors' access to information and transactions costs affects stock turnover. We also consider the effect of differing investment horizons for different individual investors. We use regression analysis to examine stock turnover, controlling specifically for advances in technology which beginning in the early 1990's provided individual investors with enhanced information availability and reduced their actual costs of trading and for trading by individual investors with relatively short holding periods, as well as for those other factors that affect stock turnover. Our results indicate that while individual investors' holdings of stock generally reduce turnover, trading by individual investors with relatively short investment horizons cause stock turnover to increase. We also find evidence that lower transactions costs for individual investors and improved access to information increases stock turnover on NASDAQ but only to a limited extent on the New York Stock Exchange. This suggests that individual investors relying on lower trading costs may tend to concentrate their trades in certain types of securities.

The next section describes the sample and our methodology. Section III presents the results and Section IV concludes.

SAMPLE AND METHODOLOGY

We examine both share turnover and dollar turnover for the seventy two quarters from 1985 through 2002, the last year for which all the data is available. Our analysis uses O.L.S. regression with share turnover and dollar turnover on both the New York Stock exchange and NASDAQ as dependent variables. Share turnover is the ratio of shares traded during the quarter to the number of shares outstanding. We annualize this number by multiplying it by the number of trading days in the year and dividing by the number of trading days in the quarter. We compute dollar turnover similarly using dollar trading volume for the quarter and total share value. Share and dollar volume data, shares outstanding and share value come from the New York Stock Exchange and NASDAQ. Independent variables to control for factors unrelated to electronic trading include: average broker/dealer commissions per share traded to control for transactions costs; total market value of equity, average standard deviation of the Dow Jones Industrial Average, and the average interest rates on federal funds to control for information, and share holdings of households, financial institutions and non-U.S. investors for the quarter. In a separate regression, we use instead the change in the equity holdings of households, of financial institutions that increase their holdings during the quarter, of financial institutions that reduce their holdings during the quarter and of non-U.S. investors. These variables control for the effects of these groups' differing investment horizons. Data on market value of equity and holdings and changes in holdings comes from the Federal Reserve. Data on broker/dealer commissions is from the S.E.C.

The data for holdings by the various groups of investors and change in those holdings exhibits multicollinearity because the total holdings for all groups change only due to new issues and repurchases and those changes are much less than aggregate holdings. Similarly, aggregate changes in holdings are near zero, with increased holdings by one group offset by decreases in other groups' holdings. To account for this, the independent variable used in our regression analysis is excess holdings rather than total holdings (and excess change in holdings rather than actual change in holdings). The excess holding for financial institutions for a quarter is the residual for that quarter obtained by regressing actual financial institution holdings as the dependent variable on total market value of equity as the independent variable. For households, we use the residuals from regressing household holdings (as the dependent variable) on total market value of equity and holdings of financial institution regression (as independent variables). Excess holdings for the non-U.S. investors are residuals from regressing non-U.S. investor holdings (as the dependent variable) on total market value of equity, financial institution holdings, and household holdings (as independent variables). The order is chosen to reflect average size of holdings in decreasing order. In the analysis that uses change in holdings, we similarly compute excess change in holdings for financial

institutions that increase their holdings, households, financial institutions that reduce their holdings and non-U.S. investors (with the order selected by decreasing average absolute change in holdings). We use two variables to observe the effects of change in individual investors' trading costs and access to information and of differences in individual investor investment horizons. We use a binary variable that equal to zero in quarters before the fourth quarter of 1992 and one thereafter. The year 1992 is the first year that individuals have direct access to electronic trading mechanisms. Since financial institutions have access to electronic trading systems prior to this time, the dummy variable captures the effect of individuals' lower trading costs and improved access to information.

We control for the effect of differing objectives among individual investors by including as an independent variable the average daily electronic trades executed by E Trade during the quarter. Since individual investors with very short investment horizons (such as "day traders") must exercise more control over their trading costs than long horizon investors in order to realize desired returns, trades submitted electronically are more likely to include their trading activity than that of individual investors with longer investment horizons. This data comes from reports filed by E Trade Financial Corp. with the S.E.C. (We also perform the regression analysis use alternative data on average daily electronic trades from Piper Jaffray for a shorter period of time, the first quarter of 1997 through the second quarter of 2000. Results using that data (not reported) are similar to those we obtain using the E Trade data.)

Table 2 set forth descriptive statistics for our data. For each of the dependent and independent variables, it presents the mean and the standard deviation of the variable, as well as its minimum and maximum values.

RESULTS

We expect electronic trading to lead to increases in stock turnover. Theory suggests that lower transactions costs should increase turnover. Better access to information should also cause greater turnover unless investors' interpretation of the information is more uniform than when they had more limited access. Both of these suggest that the coefficient for the electronic trading binary variable should be positive.

We also expect a positive coefficient for the electronic trading volume variable. We anticipate that that variable will capture the effect of trading by individual investors with relatively short investment horizons. Such trading should be associated with greater stock turnover.

Table 3 presents the results of our analysis of turnover on the New York Stock Exchange; with share turnover as the independent variable in panel A, and dollar turnover in panel B. Table 4 present the results for NASDAQ.

Results for share turnover and dollar turnover on both the New York Stock Exchange and NASDAQ confirm our expectations regarding electronic trading. The dummy variable is always positive; it is significant for both share and dollar turnover on NASDAQ, but not significant for

NYSE. Higher stock turnover is associated with lower individual trading costs and improved access to information. This is particularly true for NASDAQ where individual investor influence is likely to be more important because of the smaller, newer companies trading there.

Table 2: Descriptive statistics (quarterly data 1985-2002).				
	Mean	Std. dev.	Maximum	Minimum
NYSE share turnover	0.656	0.170	1.110	0.428
NYSE dollar turnover	0.649	0.158	1.037	0.408
NASDAQ share turnover	1.670	0.806	3.857	0.655
NASDAQ dollar turnover	2.104	1.032	5.662	0.879
Daily electronic trades	29001	50671	226064	0
Broker/dealer commissions per share (%)	0.0035	0.0012	0.0057	0.0014
Market value of domestic corporations (x106)	7277695	4781646	17851628	1821439
Std. dev. of daily Dow Jones Industrial Average	97.55	86.37	378.33	12.06
Average federal funds rate (%)	5.63	1.95	9.81	1.34
Holdings by investor groups (x106)				
Financial institutions	3817060	2702226	9384467	891737
Households	3742231	2334498	9245400	898614
Non-U.S. investors	640245	528258	1681652	105713
Change in investor group holdings (x106)				
Financial institutions with increase	45751	30342	150070	5624
Households	-38097	31817	22436	-148765
Financial institutions with decrease	-18822	13872	-919	-62344
Non-U.S. investors	9323	15074	66486	-8504

Even after controlling for the effects of lower trading costs and better information access, electronic trading volume also increases stock turnover on both markets. The increase is significant for both share and dollar volume on NASDAQ and for dollar volume on NYSE. This suggests that individual influence on NYSE turnover is greater for higher priced stocks. That may indicate that

day traders focus on higher valued NYSE stocks; perhaps because they are more liquid or more volatile than other NYSE stocks.

Table 3: Regression of NYSE turnover on electronic trading (investor holdings).

Ordinary least squares regression in which the dependent variable, share turnover (in Panel A), is the ratio of total shares traded on the New York Stock Exchange during the quarter to the total shares outstanding multiplied by the number of trading days in the year and divided by the number of trading days in the quarter. Dollar turnover, the dependent variable in Panel B, is computed in the same manner using the dollar value of total shares traded during the quarter and the total value of shares outstanding. Independent variables are broker/dealer commissions per share, market value of domestic equity, standard deviation of daily Dow Jones Industrial Average for the quarter, average federal funds interest rate for the quarter, the excess change in holdings of corporate equity by financial institutions, households and non-U.S. investors, a binary indicator variable indicating whether electronic trading is available to individual investors (0 before 1992 4th quarter and 1 thereafter), and average number of daily trades executed by E Trade Financial Corp.

	Panel A.		Panel B.	
	Share turnover		Dollar turnover	
Parameter	Coefficient	T statistic	Coefficient	T statistic
Intercept	0.35	3.180***	0.33	3.007***
Broker/dealer commissions	3758	1.901*	3758	1.888*
Market value of equity ($\times 10^{-8}$)	1.28	1.846*	0.74	1.062
Standard deviation of the DJIA ($\times 10^{-4}$)	7.51	3.558***	7.44	3.491***
Federal funds rate ($\times 10^{-3}$)	-6.21	-1.109	-2.1	-0.034
Equity ownership by:				
financial institutions ($\times 10^{-7}$)	3.35	5.739***	2.56	4.354***
households ($\times 10^{-8}$)	8.07	0.405	0.24	1.209
non-U.S. investors ($\times 10^{-2}$)	-2.15	-0.929	-0.86	-0.370
Electronic trading dummy	0.045	1.104	0.045	1.109
Daily electronic trades ($\times 10^{-7}$)	6.71	1.419	0.12	2.409**
	F= 42.48***	Adj R ² = .840	F= 34.55***	Adj R ² = .810

***significant at the 1% level

**significant at the 5% level

*significant at the 10% level

Table 4: Regression of NASDAQ turnover on electronic trading (investor holdings).

Ordinary least squares regression in which the dependent variable, share turnover (in Panel A), is the ratio of total shares traded on the NASDAQ during the quarter to the total shares outstanding multiplied by the number of trading days in the year and divided by the number of trading days in the quarter. Dollar turnover, the dependent variable in Panel B, is computed in the same manner using the dollar value of total shares traded during the quarter and the total value of shares outstanding. Independent variables are broker/dealer commissions per share, market value of domestic equity, standard deviation of daily Dow Jones Industrial Average for the quarter, average federal funds interest rate for the quarter; the holdings of corporate equity by financial institutions, households and non-U.S. investors, a binary indicator variable indicating whether electronic trading is available to individual investors (0 before 1992 4th quarter and 1 thereafter), and average number of daily trades executed by E Trade Financial Corp.

Parameter	Panel A.		Panel B.	
	Share turnover		Dollar turnover	
	Coefficient	T statistic	Coefficient	T statistic
Intercept	1.68	6.279***	2.69	4.124***
Broker/dealer commissions	-11508	-2.391**	-34486	-2.942***
Market value of equity (x10 ⁻⁸)	2.83	1.683*	-0.60	-0.146
Standard deviation of the DJIA (x10 ⁻⁴)	6.37	1.240	1.85	0.148
Federal funds rate (x10 ⁻²)	-4.62	-3.115***	2.22	0.614
Equity ownership by:				
financial institutions (x10 ⁻⁷)	-0.51	-0.356	3.03	0.875
households (x10 ⁻⁷)	11.3	2.338**	9.63	0.792
non-U.S. investors (x10 ⁻²)	-8.13	-1.443	-17.51	-1.276
Electronic trading dummy	0.327	3.326***	.443	1.851*
Daily electronic trades (x10 ⁻⁶)	6.64	5.762***	8.87	3.161***
	F= 179.6***	Adj R ² = .958	F= 44.60***	Adj R ² = .847

***significant at the 1% level

**significant at the 5% level

*significant at the 10% level

Results for other independent variables conform generally to our expectations. Turnover increases with market value of equity and with the standard deviation of the Dow Jones Industrial Average. The coefficient on the former is significant in both regressions that use share turnover as the dependent variable; the coefficient on the latter is significant for both regressions using NYSE

turnover. These results confirm that stock turnover increases with the amount of information that is generated.

Coefficients associated with the equity holdings of different investors groups generally have the expected sign but are not statistically significant. One significant result, the coefficient for excess financial institution holdings is positive and significant in the NYSE regressions, is consistent with results found elsewhere in the literature. The larger the portion of equity held by financial institutions, with lower costs of trading and better access to information, the greater the stock turnover. The other significant result, a significantly positive correlation between stock turnover and excess household equity holdings in the NASDAQ share turnover regression, differs from Armstrong and Gardner (2005) which finds that household holdings have a significantly negative effect on stock turnover. A possible explanation is that when individuals investors have access to electronic trading, excess household holdings occur because of electronic trading.

Turnover is negatively correlated with the fed funds rate and is significant for share turnover on NASDAQ. We had expected this variable to be positive as higher interest rates are associated with economic expansion. The result may indicate that during our sample period, when the economy is expanding, investors' tend to hold stocks longer than when the economy is contracting. The fact that this relationship is strongest for share turnover on NASDAQ, that is, for lower priced stocks that trade in a market dominated by growth stocks, further suggests that this result reflects trading activity associated with development and bursting of the "tech bubble".

The coefficient for commissions per share is negative and significant for NASDAQ as expected. However, that coefficient is significantly positive in the regressions for the NYSE. This may indicate that after electronic trading becomes available to individual investors, the variables associated with electronic trading capture all the increased stock turnover. Non-electronic trading generates higher broker/dealer commissions. The stock turnover that remains after controlling for electronic trading is non-electronic and is as a result positively correlated with commissions.

Tables 5 and 6 present the results of regressions where we substitute the change in holdings of financial institutions, households and non-U.S. investors for the level of those investors' holdings. These results confirm our observations from the investors' equity holding regressions. Stock turnover is positively correlated with the level of electronic trading and the coefficient is usually statistically significant. The binary indicator variable for availability of electronic trading is positive except for the NYSE share turnover regression. It is significant only in the NASDAQ share turnover regression. When we control for changes in the holdings of various investor groups (that is, for the net results of their trading), the ability of individual investors to trade electronically has little effect on stock turnover, but their actual electronic trading activity increases stock turnover. Results for other independent variables generally conform to our expectations. Stock turnover increases as financial institutions increase their equity holdings and declines as they reduce them. Broker/dealer commissions are negatively correlated with stock turnover.

Table 5: Regression of NYSE turnover on electronic trading (change in holdings).

Ordinary least squares regression in which the dependent variable, share turnover (in Panel A), is the ratio of total shares traded on the New York Stock Exchange during the quarter to the total shares outstanding multiplied by the number of trading days in the year and divided by the number of trading days in the quarter. Dollar turnover, the dependent variable in Panel B, is computed in the same manner using the dollar value of total shares traded during the quarter and the total value of shares outstanding. Independent variables are broker/dealer commissions per share, market value of domestic equity, standard deviation of daily Dow Jones Industrial Average for the quarter, average federal funds interest rate for the quarter; the holdings of corporate equity by financial institutions that increase their equity holdings during the quarter, financial institutions that reduce their equity holdings during the quarter, households and non-U.S. investors, a binary indicator variable indicating whether electronic trading is available to individual investors (0 before 1992 4th quarter and 1 thereafter), and average number of daily trades executed by E Trade Financial Corp.

Parameter	Panel A.		Panel B.	
	Share turnover		Dollar turnover	
	Coefficient	T statistic	Coefficient	T statistic
Intercept	0.86	5.764***	0.81	5.686***
Broker/dealer commissions	-1282	-0.561	-774	-0.356
Market value of equity ($\times 10^{-8}$)	-2.40	-2.859***	-2.50	-3.111***
Standard deviation of the DJIA ($\times 10^{-4}$)	7.05	2.312*	6.33	2.184**
Federal funds rate ($\times 10^{-2}$)	-1.90	-2.388**	-1.28	-1.698*
Change in equity ownership by:				
financial institutions (increase) ($\times 10^{-6}$)	2.86	2.754***	3.09	3.133***
financial institutions (decrease) ($\times 10^{-6}$)	-6.20	-3.066***	-6.30	-3.296***
households ($\times 10^{-6}$)	0.67	0.599	-0.05	-0.043
non-U.S. investors ($\times 10^{-1}$)	1.19	2.349**	0.89	1.851*
Electronic trading dummy	-0.012	-0.248	0.004	0.087
Daily electronic trades ($\times 10^{-6}$)	1.88	3.034***	1.86	3.129***
	F=26.18***	AdjR ² =.780	F=24.65***	AdjR ² =.769

***significant at the 1% level

**significant at the 5% level

*significant at the 10% level

Table 6: Regression of NASDAQ turnover on electronic trading (change in holdings).

Ordinary least squares regression in which the dependent variable, share turnover (in Panel A), is the ratio of total shares traded on the NASDAQ during the quarter to the total shares outstanding multiplied by the number of trading days in the year and divided by the number of trading days in the quarter. Dollar turnover, the dependent variable in Panel B, is computed in the same manner using the dollar value of total shares traded during the quarter and the total value of shares outstanding. Independent variables are broker/dealer commissions per share, market value of domestic equity, standard deviation of daily Dow Jones Industrial Average for the quarter, average federal funds interest rate for the quarter; the excess change in holdings of corporate equity by financial institutions that increase their equity holdings during the quarter, financial institutions that reduce their equity holdings during the quarter, households and non-U.S. investors, a binary indicator variable indicating whether electronic trading is available to individual investors (0 before 1992 4th quarter and 1 thereafter), and average number of daily trades executed by E Trade Financial Corp.

Parameter	Panel A.		Panel B.	
	Share turnover		Dollar turnover	
	Coefficient	T statistic	Coefficient	T statistic
Intercept	2.02	6.692***	3.52	4.767***
Broker/dealer commissions	-11792	-2.558**	-39495	-3.500***
Market value of equity ($\times 10^{-8}$)	0.49	0.295	-6.90	-1.688*
Standard deviation of the DJIA ($\times 10^{-4}$)	-4.50	-0.728	0.79	0.053
Federal funds rate ($\times 10^{-2}$)	-5.56	-3.472***	-0.47	-1.119
Change in equity ownership by:				
financial institutions (increase) ($\times 10^{-6}$)	6.58	3.144***	9.31	1.818*
financial institutions (decrease) ($\times 10^{-6}$)	-7.40	-1.822*	-4.10	-0.414
households ($\times 10^{-6}$)	3.17	1.399	2.08	0.376
non-U.S. investors ($\times 10^{-1}$)	0.56	0.544	5.47	2.183*
Electronic trading dummy	0.30	3.188***	0.31	1.357
Daily electronic trades ($\times 10^{-6}$)	7.19	5.764***	10.10	3.321***
	F= 172.5***	Adj R ² = .960	F= 42.73***	Adj R ² = .855

***significant at the 1% level

**significant at the 5% level

*significant at the 10% level

As in the regressions using investor holdings, stock turnover is negatively correlated with fed funds rates. In these regressions, stock turnover is also negatively correlated with market value of equity. We expect this result occurs because, in this regression, changes in investor groups' holdings captures the effect of information on stock turnover; specifically that financial institutions on average increase their holdings in response to the information reflected in overall market value.

Results from regressions using electronic trading reported by Piper Jaffray (not reported) are similar but have generally fewer significant coefficients. This is likely due to the shorter time period for which that data is available, fourteen quarters beginning in 1997.

CONCLUSION

We examine how changes in individual investors' information and trading costs and differences among individual investors' investment objectives horizon affect share and dollar turnover. We find that as information becomes available to individuals through electronic media and as electronic trading mechanisms become available, turnover increases. This is consistent with the theory that turnover is inversely correlated with transactions costs and positively correlated with information. That increase occurs even when we control for changes in equity holdings of individuals and financial institutions. We also find that trading activity by individual investors that have relatively short investment horizons also increases stock turnover. That is, the investment objectives of individual investors affect stock turnover. This result is similar to that found by Armstrong and Gardner (2005) for financial institutions.

This study suggests some opportunities for further research. It is possible that other proxies exist for day trading volume, especially in later years when the number of competing electronic trading services grows. A different proxy for short investment horizon trading by individuals might assist in explaining some of the unexpected results. Our results also suggest that studies that do not account for stock turnover due to electronic trading by individuals (sample periods that include years before and after 1992) may omit important information regarding the cause of observed turnover. In addition, we find some evidence that the effects of changes in trading costs may differ across different classes of stock or in different markets. Further study is needed to determine how different types of stock, such as, small company and large company or value and growth stocks, respond to changes in the various factors that affect turnover.

REFERENCES

- Armstrong, V.S. & N.D. Gardner (2005). Financial Institution Objectives and Turnover, *Academy of Accounting and Financial Studies Journal*, 9(3), 13-28.
- Atkins, A.B. & E.A. Dyl (1997). Transactions costs and holding periods for common stocks, *Journal of Finance*, 52(1), 309-325.

- Badrinath, S.G., J.R. Kale & T.H. Noe (1995). Of shepherds, sheep and the cross-autocorrelation in equity returns, *Review of Financial Studies*, 8(2), 401-430.
- Scripophily.com's E*Trade Certificate Vignette (n.d.). Retrieved August 18, 2005, from <http://www.scripophily.net/etrade.html>.
- Cooper, M.J., O. Dimitrov & P.R. Rau (2001). A rose.com by any other name. *Journal of Finance*, 56(6), 2371-2388.
- Covrig, V. & L. Ng (2004). Volume autocorrelation, information and investor trading. *Journal of Banking & Finance*, 28(9), 2155-2174.
- Domowitz, I., J. Glen & A. Madhavan (2001). Liquidity, volatility and equity costs across countries and over time, *International Finance*, 40, 221-255.
- Flannery, M.J. (1996). Technology and payment: Deja vu all over again. *Journal of Money, Credit and Banking*, 92(4), 965-970.
- Freund, C. & D. Weinhold (2002). The internet and international trade in services. *American Economic Review*, 92(2), 236-240.
- Greenspan, A. (1996). Remarks on evolving payment system issues. *Journal of Money, Credit and Banking*, 28(4), 689-695.
- Karolyi, G.A. (2004). The role of American Depository Receipts in the development of emerging equity markets. *The Review of Economics and Statistics*, 86(3), 670-690.
- Laise, E & W. Mauldin (2005). Hook the right broker. *SmartMoney*, 14 (8),. Retrieved August 18, 2005 from <http://www.smartmoney.com/brokers/index.cfm?story=2005-intro>
- Litan, R.E. & A.M. Rivlin (2001). Projecting the economic impact of the internet. *American Economic Review*, 91(2), 313-317.
- Pollock, T.G. & V.P. Rindova (2003). Media legitimation effects in the market for initial public offerings. *Academy of Management Journal*, 46(5), 631-642.
- Roewenhorst, K.G., 1999, Local return factors and turnover in emerging stock markets, *Journal of Finance*, 54(4), 1439-1464.

ACCOUNTING FOR DATA: A SHORTCOMING IN ACCOUNTING FOR INTANGIBLE ASSETS

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ABSTRACT

In today's economy and in the future, intellectual capital and the proper use of information will be critical to the success of many firms. Data has been called the raw material of information. Data can be aggregated, disaggregated, sorted, and subjected to a variety of mathematical and logical manipulations. Data can be added to a system, removed, bought, sold and used. Data can be enhanced making it more valuable and it can be made less valuable with repeated use and with the passage of time. Because data is a critical firm resource, one expects the cost of data to be accounted for and to appear on the firm's balance sheet with other firm assets. However, depending on the data's genealogy, the cost of the data may never be shown as an asset.

If data is purchased it finds its way to the balance sheet, however, if the data is developed internally Accounting Principles Board (APB) Opinion No. 17 prevents it from being capitalized as an asset. The authors argue that the exclusion of internally developed assets, (particularly data) from the balance sheet can mislead investors, and managers. The authors believe that the exclusion is unnecessary -- that data meets the definition of an asset. Problems persist in the management of data. The authors believe that placing a value on data and including it in the firm's balance sheet will contribute to management's capability to manage it.

INTRODUCTION

In most twenty-first century firms data is a critical resource. This fact is substantiated by The National Archives & Records Administration study, 2001 Cost of Downtime Survey Results (2002). The study reported that ninety-three percent of companies losing their data center for 10 days filed for bankruptcy within one year, and that forty-percent of the companies surveyed reported their survival was at risk if their data center was lost for seventy-two hours. Financial statement users have come to expect critical resources to be represented on a firm's balance sheet as an asset. However, it is very likely that if the critical resource is internally developed data, it will not be reported anywhere on the company's balance sheet or in its financial statements. In fact, stockholders and other financial statement users may be unaware of the data's existence. This exclusion of a critical firm resource from the balance sheet seems to be at conflict with Financial Accounting Standards Board (FASB) Concepts Statement No. 1, "Objectives of Financial Reporting

by Business Enterprises," that states financial reporting should provide information that is useful to present and potential investors and creditors in making rational investment, credit and similar decisions (1978).

Data is a critical firm resource and is just one component of an information system. Data is separable from the information system used to process it. Lawrence (1999, p. 3) defines data as "symbols, images, sounds and ideas that can be encoded, stored and transmitted." More generally, data are facts about an entity when an entity is a person, place or thing. Facts about a customer entity are categorized as attributes of the entity. The attribute of interest may include the customer's name, address, telephone number, age, sex, income, any number of purchasing habits and more. Data are aggregated, disaggregated, sorted, and/or subjected to a variety of mathematical and logical manipulations.

Processed data presented to a user in a meaningful context becomes information. Information is clearly produced from data, making data the raw material in an information manufacturing process (Goodhue, Quillard and Rockart, 1988; Sabherwal and King, 1991; Levitin and Redman, 1998). The value of information is a function of how the information is used and the subsequent outcome. Because information has value, data also has value. Data can be added to a system, removed, bought, sold, and used. Data can be enhanced, making it more valuable, and it can be made less valuable with repeated use and with the passage of time. Data is in fact a critical organizational resource and should be treated as such.

This paper specifically addresses accounting for data and more generally accounting for intangible assets. The paper begins by reviewing the definition of an asset and continues by reviewing the relevant accounting standards. The paper then compares and contrasts the characteristics of data with those of an asset. The paper concludes with the recommendation to account for data as an asset

Several current and past accounting standards discuss the uncertainty of future economic benefits and contribute to the analysis of how we should account for data. The relevant standards are the Concepts Statements by the FASB that relate to the definition of an asset, Accounting for Research and Development Costs, Accounting for Software Development, and Accounting for Intangible Assets.

During the 1970s and 1980s, the FASB issued several concepts statements to guide the development of accounting and reporting principles for use by U.S. companies. At least four of the statements provide insight into our subject.

According to FASB Concepts Statement (SFAC) No. 1, *Objectives of Financial Reporting by Business Enterprises*, the objective of financial reporting is to provide useful information. The characteristics of accounting information that make it useful are identified and discussed in FASB SFAC No. 2, *Qualitative Characteristics of Accounting Information*. The key characteristics Statement No. 2 identifies and discusses are:

1.	benefits of the information disclosure should exceed cost
2.	the information should be relevant
3.	the information should be reliable
4.	the information should be comparable
5.	the information should be material.

SFAC No. 5, *Recognition and Measurement in Financial Statements of Business Enterprises*, states in paragraph 63 that an item should be recognized in a financial statement if it meets the following criteria:

1.	The item meets the definition of an element of financial statements (definition criterion);
2.	The item has a relevant attribute measurable with sufficient reliability (measurability criterion);
3.	Information about the item can make a difference in user decisions (relevance criterion); and
4.	The information pertaining to the item must be representationally faithful, verifiable, and neutral (reliability criterion).

SFAC No. 6, *Elements of Financial Statements*, defines an asset. It states that, "assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events." The statement continues by identifying three essential characteristics of an asset:

1.	it embodies a probable future economic benefit that involves a capacity to contribute directly or indirectly to future net cash flows,
2.	a particular entity can obtain the benefit and control others' access to it, and
3.	a transaction or event has already occurred that gives the entity the right to, or the control over the benefit.

That an entity be required to have the right to control the benefits the item produces before the organization can record the item as an asset seems straight forward. The most important characteristic of an asset is its capacity to provide future economic benefits that generate net cash inflows. Future economic benefits can be realized through exchanging the asset for something of value, or through use of the asset toward some productive end. A unit of Product X held in finished goods inventory is an asset, because there is a high likelihood that it can be exchanged for currency.

Equipment used to produce Product X, though not held for the express purpose of selling it in the future, is an asset because it is used to manufacture product X. Its productive use in making Product X creates future economic benefits for the owner in the form of revenues produced from the sale of Product X. Raw materials are assets for the same reason as equipment, because they provide future economic benefits in the way of revenues generated from the sale of finished products made from the raw materials. Future economic benefits can also come in the form of more efficient production that will result in decreased cost.

In October 1974, The Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standard (SFAS) No. 2, "Accounting for Research and Development Cost." The standard requires all Research and Development cost to be expensed as incurred. Research and development are defined, in part, by paragraph 8 of the standard as follows:

Research is planned search or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing a new product or service or a new process or technique or in bringing about a significant improvement to an existing product or process. Development is the transition of research findings or other knowledge into a plan or design for a new product or process or for a significant improvement to an existing product or process whether intended for sale or use. It includes the conceptual formulation, design, and testing of product alternatives, construction of prototypes, and the operation of pilot plan.

In the discussion of the reasons research and development costs are required to be expensed, paragraph 45 of the standard states that they fail to satisfy the measurability test for accounting recognition. The measurability criterion will be discussed later in the paper, but requires the future economic benefits of an asset be identified and objectively measured.

In August 1986, the FASB issued SFAS No. 86 to establish standards to account for the costs of computer software to be sold, leased, or otherwise marketed as a separate product or part of a product or process. SFAS No. 86 requires all cost incurred to establish the technological feasibility of a computer software product to be sold, leased or otherwise marketed are research and development cost and should be expensed when incurred. Costs incurred after technological feasibility has been established should be capitalized. The Board required technological feasibility to be established before the costs are capitalized because of the uncertainty of the future economic benefits. FAS No. 86 does not address accounting for the cost of computer software created for internal use because it was not considered a significant problem.

It is noteworthy the definition of an asset does not make reference to physical objects, but rather to future economic benefits. It is the ability of an asset to produce future benefits that is key, not that it is tangible. In fact, many assets are intangible. Intangible assets are generally defined by the FASB as current and noncurrent assets that lack physical substance. The accounting for intangible assets has been the subject of three different standards and has caused much recent controversy.

In 1953, Accounting Research Bulletin (ARB) No. 43 was published by the Committee on Accounting Procedure of the AICPA. ARB 43 discussed accounting for Intangible Assets; however, in the first paragraph it excluded from its consideration the problems of accounting for intangibles developed in the regular course of business. The ARB did state, in paragraph four, that "The initial amount assigned to all types of intangibles should be cost, in accordance with the generally accepted accounting principles that assets should be stated at cost when they are acquired."

In 1970, the Accounting Principles Board (APB), issued Opinion No. 17, "Intangible Assets". Paragraphs 6 and 11 of the Opinion describe Generally Accepted Accounting Principles (GAAP) prior to the Opinion's issuance. Paragraph 11 of the Opinion states, "Costs incurred to develop specifically identifiable intangible assets are often recorded as assets if the periods of expected future benefit are reasonably determinable. Costs of developing other intangible assets are usually recorded as expenses when incurred." Paragraph 15 of the Opinion appraises the procedure by stating that the cost of developing intangible assets with lives that are indeterminate are not distinguishable from current costs of operations and are, therefore, not assignable to specific assets. In paragraph nine, the APB concluded, "that a company should record as assets the costs of intangible assets acquired from others and record as expenses the costs to develop intangible assets which are not specifically identifiable."

APB Opinion No. 17 required intangible assets purchased from others to be capitalized and internally developed intangible assets that were not specifically identifiable to be expensed. The opinion was silent on internally developed intangible assets that were specifically identifiable. However, it became accepted practice in the U.S. to expense all intangible assets that were internally produced as evidenced by the FASB's, *Proposal for a New Agenda Project: Disclosure of Information about Intangible Assets Not Recognized in Financial Statements* (2001) which states:

Intangible assets are generally recognized only if acquired, either separately or as a part of a business combination. Intangible assets that are generated internally, and some acquired assets that are written off immediately after being acquired, are not reflected in financial statements, and little quantitative or qualitative information about them is reported in the notes to the financial statements.

Many argue that the economy today is fundamentally different from the economy of fifty or even thirty years ago and that traditional financial accounting concepts do not capture the essence of the new economy. It has been argued that the new economy is driven by intellectual capital, or in many instances by intangible assets. This movement to a knowledge economy prompted criticism of APB No. 17. This criticism led to the study of the issue and a new accounting standard.

In September 2001, the FASB issued Statement No. 142, "Goodwill and Other Intangible Assets." SFAS No. 142 superseded APB Opinion No. 17 and changed the accounting for some intangibles. The statement does not require the amortization of the intangible asset, but requires an annual test to determine its value. The intangible asset must then be written down to its value.

However, SFAS No. 142 left unchanged the provision in APB No. 17 related to internally developed intangible assets. Paragraph 2 of SFAS No. 142 states:

This statement supersedes APB Opinion No. 17, Intangible Assets; however, it carries forward without reconsideration the provisions in Opinion 17 related to internally developed intangible assets. The Board did not reconsider those provisions because they were outside the scope of its project on business combinations and acquired intangible assets.

In the FASB Exposure Draft, "Business Combinations and Intangible Assets," an appendix included an extensive list of intangible assets that, if present, should be recognized in a business combination separately from goodwill. Included in that list are: rights, computer software and licenses, computer programs, information systems, program formats, unpatented technology, databases, research and development, lists, and files and records. From the standard and the exposure draft, it is clear that if data is purchased from an outsider, it should be accounted for as an intangible asset according to the rules set forth in SFAS No. 142. What is not clear, is why a purchased asset and an internally developed asset are accounted for differently.

Concepts statements No. 1, 2, 4, and 5 provide guidance on the recognition of an item as an asset in a business enterprise's financial statement by listing the criteria that must be met. Additional guidance can be gleaned from other issued standards. From SFAS No. 2, we see that the future economic benefits provided must be measurable. SFAS No. 86, requires that in developing software for sale, the technological feasibility must be proved before cost can be capitalized. The application of APB Opinion No. 17 prohibited internally developed intangible assets from being capitalized. SFAS No. 142 continued to ignore internally developed intangible assets but requires externally purchased intangibles to be periodically reviewed for value and written down accordingly.

Recognition is the formal process whereby an item is incorporated into the financial statements of a business enterprise. As previously discussed, SFAC No. 5 outlined the four criteria an item must meet to be included in a financial statement as an asset in accordance with generally accepted accounting principles. The four criteria assume that the benefits of including the item exceed the cost of including the item in the financial statements. Data meets all the requirements of SFAC No. 5 to be recognized as an asset in a financial statement.

Recall that an asset is a probable future economic benefit obtained or controlled by an entity as a result of past transactions or events. Given that data are raw materials used in information manufacturing their probable future economic benefits are tied to the value of information which is related to the information's use. Information is not a resource for which we have markets to readily establish an economic value; however, there is little question whether information is valuable.

Whether one subscribes to normative theories of information value, economic theories of information value, or neither, nearly everyone recognizes that information has value (West and Courtney, 1993). Lawrence (1999, p. 7) states, "information produces value for an organization

when it improves the solutions to decision problems whose outcomes are consequential to the organization." Many products are produced without knowing the exact future value (prices) of the products because of the economic characteristics of markets wherein they are sold (i.e. prices are quite uncertain for commodities when production decisions are made). One problem already noted with establishing the value of information is there are not well developed market mechanisms for establishing its value (Stigler, 1961; West and Courtney, 1993, Lawrence, 1999). The uncertainty often inherent in markets and in future prices received for products does not keep firms that produce those products from considering raw materials as inventory, and including the cost of that inventory in the cost of the finished product. Raw material inventory is but one type of inventory that contributes to the inventory value that appears in the asset section of a manufacturing company's balance sheet.

Because one cannot establish with certainty the exact value of information created with data, it does not follow that data are not capable of producing future economic benefits. Data provide future economic benefits. Just as the cost of raw material made its way to the balance sheet, the cost of internally developed data can also make its way to a balance sheet through standard cost accounting procedures.

Another part of the definition criteria is that an asset must arise from a past transaction or event. Whether the firm purchased the data, accumulated the data itself, or some combination of the two, the data is most often owned and is/can be controlled by the firm. In fact, the value of data arises from its use. Today, data management approaches, tools, and techniques make control of company data far more effective than ever before. Firms can, with appropriate data management tools, control access to and the use of data, maintain the data more effectively to be sure the value of the data is maintained or enhanced, and use the data more effectively (as in knowledge management systems, data warehouses, data mining, etc.) to maximize its potential to produce future economic benefits. Although the value of data is directly related to its use and the outcomes of management's decisions, it can and does produce future economic benefits. In addition, data can certainly be obtained and controlled by an entity as a result of past transactions or events. Accordingly, data meets the definition criterion of an asset.

An attribute is measured reliably, if when measured in the same manner repeatedly, it produces identical or nearly identical results. The measure that is applied in placing a value on most assets in organizations is historical cost. Standard cost accounting procedures can produce reliable historical cost figures for data just as they have for many other assets, i.e., inventory and fixed assets. FAS No. 142 also provides a tool with which to value data. Just as one will now evaluate the carrying cost of all intangible assets for impairment of value, data should be evaluated accordingly. Standard cost accounting procedures and a periodic evaluation for impairment of value can result in an asset with a value that is measurable.

Because data is used in decision making the cost of data is relevant. The resources an organization devotes to data management communicate something about the organization to both

external and internal decision makers. The value or cost of data an organization owns may be particularly important to investors in the new knowledge economy. An organization's data can also be used internally to help management better utilize its resources. Most organizations spend money storing, protecting and managing data that is simply not worth their effort. Estimating the costs of data would help internal decision makers make more rational choices about managing the data resource itself and its complementary resources such as data storage. If organizations better understood the costs of data, and could compare those costs to the potential benefits of the data, they might make better decisions about what to acquire, what to maintain, and what to remove from organizational systems. The above points suggest that data costs are important in the context of internal decision making, certainly in the domain of information resource management and data management.

The value of the data asset is also important to those outside an organization attempting to get an accurate picture of the value of an organization, or its propensity to perform now or in the future. For example, suppose the world's number one retailer, were to completely lose all of its retail data for the last 5 years. Would it affect their ability to perform in coming years? Is the data valuable? Would the news of the loss of its data influence investors' perceptions of the company's likely future performance? Would current or potential investors be interested in the cost of re-creating, to the extent possible, that data? Is the cost of the company's data assets important to external as well as internal decision makers? The answer to all the above questions is certainly yes. It takes little imagination to conceive of organizations that would be significantly hampered by the loss of data. Knowledge of an organization's data assets can be valuable and important to investors. It is interesting that an insurance claim to recover losses experienced due to the loss of company data cannot be filed. Insurance companies do not know-how to place a value on the data and so do not insure it (Korzeniowski, 1985; Conry-Murray, 2002). Insurance companies will insure an information system, but they will not insure data; however, data can be lost to such a system with the system itself remaining intact. With the rise of cybercrime, knowing the value of data and being able to insure data is likely more important than ever before.

Today, business networks, or virtual organizations are becoming increasingly common. Would an existing Virtual business have an interest in the data assets possessed by potential partners? Assume one potential partner had significantly more data (quantity) than other potential partners, and that was clear from the dollar values placed on the data assets of all potential partners. Assume, also the potential partners were roughly equal in every other respect including the quality of their respective data assets. The value of the data assets (firm with greatest quantity, given same quality, would have data with greater value) could influence the decision of the Virtual business regarding which firm to select as a partner? We expect this may also be the case in more traditional mergers and acquisitions. Knowledge of the cost of data can be consequential in decision making for internal and external decision-makers, therefore, data costs meet the relevance criterion for recognition as an asset.

Reliable information is verifiable, neutral, and it represents faithfully the value of the phenomenon it supposedly represents. A measure is verifiable to the extent it is based on sound underlying evidence. The evidence, when viewed objectively by competent accountants, would lead them to essentially the same conclusion. Again, we point out that standard cost accounting procedures have been used successfully in the past to produce verifiable, neutral, and representationally faithful measures of phenomenon. Standard cost accounting procedures can be used to cost data. Periodic examinations for impairment of value in accordance with FAS No. 142 will keep the information reliable.

Prior to the issuance of SFAS No. 142, the FASB published a special report in its Financial Accounting Series by Wayne Upton (April, 2001), "Business and Financial Reporting, Challenges from the New Economy." One section (Chapter 4) of Upton's report deals with intangible assets. Upton concluded, "There is no conceptual basis in the definition of an asset for applying different recognition rules to intangible assets purchased from outsiders and the same assets created internally. Different recognition rules, if appropriate, require some other justification." SFAS No. 142 addresses the accounting for purchased data and requires it to be capitalized, but did not consider accounting for internally developed data. Therefore, APB Opinion No. 17, issued over thirty years ago, remains the authoritative source for principles related to accounting for internally produced data.

Many accountants and users of financial statements agree with Upton, in that the genealogy of an intangible asset should be irrelevant to its recognition on a balance sheet. The same rules and definitions should be applied to all intangible assets. The case at hand makes a good argument. Data is in fact an asset and should be accounted for as such whether developed internally or purchased from an outside entity.

CONCLUSION

There is a difference in the accounting for purchased data and internally developed data. The definition of an asset and accounting standards related to data were reviewed herein, only to conclude that differences in how we account for data based on its genealogy is illogical and unnecessary. Internally developed data meets the definition of an asset. The value of data is relevant, and can be adequately measured. Therefore, the accounting profession should be willing to recognize internally developed data as an asset. There is a need for discussion and research into this important area. As we move forward into the information age, data will become more important, not less important. Organizations have, are, and will continue to search for ways to better manage this critical resource. Problems persist in management of the data resource, and measurement is a key to making progress in addressing many of those problems. Placing a value on data and reflecting it in a firm's balance sheet will contribute to management's capability to manage it. Measuring the value of data is a "doable" task, and one that begs attention now.

Stigler, in his often quoted article on the Economics of Information (1961), stated that knowledge is power. Because data is the raw material of information, and information the foundation of knowledge, it follows that data has value. Expanding on Stigler's work, Lawrence (1999) added considerably to the body of knowledge surrounding the economics of information, but has had little impact on the way information is managed in organizations, or the way data is managed. Placing a value on data and presenting it in a firm's balance sheet will surely impact the management of a critical firm resource by holding management accountable for the asset. Excluding the value of data from a firm's balance sheet does not serve management, stockholders or potential stockholders.

REFERENCES

- American Institute of Certified Public Accountants (AICPA,). (1953). Restatement and Revision of Accounting Research Bulletins, *Accounting Research Bulletin* No. 43. New York, NY: AICPA.
- AICPA (1970). Intangible Assets, *APB Opinion* No. 17. New York, NY: AICPA.
- Conry-Murray, A. (2002-April 5). Strategies and Issues: Deciphering the Cost of a Computer Crime, *NetworkMagazine.com*. Accessed on: 8/12/2002.
- Financial Accounting Standards Board (FASB). (1974). Accounting for Research and Development Costs, *Statement of Financial Accounting Standard* No. 2. Norwalk, CT: FASB.
- FASB. (1978). Objectives of Financial Reporting by Business Enterprises, *Statement of Financial Accounting Concepts* No. 1. Norwalk, CT: FASB.
- FASB. (1980). Qualitative Characteristics of Accounting Information, *Statement of Financial Accounting Concepts* No. 2. Norwalk, CT: FASB.
- FASB. (1984). Recognition and Measurement of Financial Statements of Business Enterprises. *Statement of Financial Accounting Concepts* No. 5. Norwalk, CT: FASB.
- FASB. (1985). Elements of Financial Statements, *Statement of Financial Accounting Concepts* No. 6. Norwalk, CT: FASB.
- FASB. (1985). Accounting for the Cost of Computer Software to be Sold, Leased, or Otherwise Marketed, *Statement of Financial Accounting Standard* No. 86. Norwalk, CT: FASB.
- FASB. (1999). Business Combinations and Intangible Assets, *Proposed Statement of Financial Accounting Standards*, Norwalk, CT: FASB.
- FASB. (2001). Proposal for a New Agenda Project: Disclosure of Information about Intangible Assets Not Recognized in Financial Statements, *Statement of Financial Accounting Standard* Norwalk, CT: FASB.

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- FASB. (2001). Goodwill and Other Intangible Assets, *Statement of Financial Accounting Standard* No. 142. Norwalk, CT: FASB.
- Goodhue, D.L, Quillard, J.A. & Rockart, J.F. (1988). Managing the Data Resource: A Contingency Perspective, *MIS Quarterly* 12(3), 373-392.
- Korzeniowski, P. (1985). Firms Run into Obstacles to Insure MIS Data, *Computerworld*, 19(51), 4-5.
- Lawrence, D.B. (1999). *The Economic Value of Information*, New York: Springer-Verlag.
- Levitin, A.V. & Redman, T.C. (1998). Data as a Corporate Resource, *Sloan Management Review*.
- Sabherwal, R. & King, W.R. (1991). Toward a Theory of Strategic Use of Information Resources, *Information and Management*, 20(3), 191-212.
- Stigler, G. J. (1961). The Economics of Information. *The Journal of Political Economy*, 69(3), 213-225.
- The National Archives & Records Administration (2002), 2001 Cost of Downtime Survey Results, www.ontrack.com/datarecovery/cost.asp.
- Upton, W. S. (2001). Business and Financial Reporting, Challenges from the New Economy, *Financial Accounting Standards Board*, April.
- West, L.A. & Courtney, J.F. (1993). The Information Problems in Organizations: A Research Model for the Value of Information and Information Systems, *Decision Sciences*, 24(2), 229-251.

BUSINESS FAILURE PREDICTION IN RETAIL INDUSTRY: AN EMPIRICAL EVALUATION OF GENERIC BANKRUPTCY PREDICTION MODELS

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ABSTRACT

This paper investigates whether generic bankruptcy prediction models can maintain their validity when applied to firms from an individual industry, namely, the retail industry. The literature suggests that the classification accuracy of generic models is reduced considerably when they are applied to samples drawn from an individual industry. Our study re-estimates two generic bankruptcy prediction models, one by Ohlson (1980) and one by Shumway (2001), with a mixed industry sample of 354 over-the-counter (OTC) traded small firms during the 1990s. Given the limited sample size for the retail industry, both models are validated with an ex post classification test by reclassifying the sample used to estimate the models, while Lachenbruch's U method (1967) is utilized to overcome the problem of classification bias. Our results indicate that the generic models by Ohlson (1980) and Shumway (2001) are modestly robust in classifying bankruptcy incidence of retail firms one year prior to bankruptcy, but the classification accuracy levels decrease sharply as the lead-time from bankruptcy increases. Overall, the classification accuracies for the retail industry sample are lower than those for the mixed industry sample.

INTRODUCTION

Business failures are anxiety provoking events. Irrespective of one's nature of association with the business, such as whether they are stockholders, creditors, labor unions, governmental bodies, employees, customers or suppliers, they are likely to deem business failures both, costly and stressful. Since the pioneering work by Beaver (1966) and Altman (1968), numerous contributions have been made to the development and refinement of bankruptcy prediction models over the last forty years. Generally the bankruptcy prediction models are initially estimated with cross-sectional data of firms from different industries, and then the validity of resulting models are evaluated by classifying firms into bankrupt or nonbankrupt. The reliance on the data collected from several industries to develop a model, however, is likely to ignore the heterogeneity of the observations, and therefore could introduce bias in the estimation of a model's parameters. Extant literature (e.g., Mensah 1984; Platt and Platt 1990; Platt and Platt 1991; Platt et al. 1994; McGurr and DeVaney 1998) has indicated that numerous factors including many micro as well as macro economic inputs,

such as business product cycle, interest rates, and preferences for and uniqueness of capital structure, have different impact on the operations of individual industries, and consequently affect the success of a bankruptcy prediction model when applied to each industry. Accordingly, one relevant inquiry would be to ascertain if a unique bankruptcy prediction model is needed for each individual industry instead of relying on generic models. McGurr and DeVaney (1998) have in fact recommended "... that future failure studies use single industry samples to enhance their predictive accuracy" (p.169).

The primary goal of this paper is to evaluate the effectiveness of two successful generic bankruptcy models by Ohlson (1980) and Shumway (2001) in discriminating between bankrupt and nonbankrupt firms from an individual industry, namely, the retail industry. To further control industry bias, this study avoids large and established conglomerate firms traded on the New York Stock Exchange (NYSE) and/or the American Stock Exchange (AMSE), which are found in the majority of predecessor studies, since these conglomerates often operate across multiple industries. Instead, the sample of firms utilized in this empirical investigation is comprised of 354 over-the-counter (OTC) traded small firms with an average asset size of less than \$37 million. Both Ohlson's (1980) and Shumway's (2001) models are first re-estimated with the cross-sectional data of OTC firms. Then, the re-estimated generic models are validated by classifying the retail industry specific sample, while Lachenbruch's U method (1967) is adopted to overcome the problem of classification bias.

Our study extends the previous work, while offering some distinguishing features. First, as discussed above, the sample consists of a group of small OTC firms. Only the firms with assets less than \$130 million are included in this study. The average assets of the bankrupt firms and the nonbankrupt firms are \$36.4 million and \$35.9 million, respectively. Furthermore, by limiting the firm size to this magnitude, we have increased the probability that our sample firms belong to one unique industry (e.g., the retail industry) rather than operating across multiple industries. Second, we contribute to the bankruptcy prediction studies of individual industries by introducing Lachenbruch's U method (1967), which is utilized to examine the possible classification bias, while such bias is not taken into consideration by the existing relevant literature. Furthermore, the validity of models is tested up to three years prior to bankruptcy. Third, this study spans over just the decade of the 1990s, and as a result, reduces the plaguing issue of extracting and pooling the data from several decades. The narrow window of the study coupled with the re-estimation of the two models also helps in reducing the "time bias" (McGurr and DeVaney 1998). Fourth, the sample of 354 mixed industry firms in this examination is considerably larger than those in most previous studies. The process of re-estimating models with the relatively large sample size should enhance the capturing of the temporal nature of the data so as to improve the reliability of the models for validation test. Fifth, the process of matching of bankrupt and nonbankrupt firms is based on three dimensions, namely, the asset size, the industry and the timing of the financial reporting.

The remaining paper is organized in five sections. A brief review of the relevant literature is the subject of the second section. The methodology and the data utilized are described in the third

section. The empirical findings are discussed in the fourth section. The last section contains a summary of the paper.

RELEVANT LITERATURE

Some of the earliest studies comparing failed and nonfailed firms can be traced to the 1930s due to the experience of the depression. Beaver (1966, 1968) utilized univariate analysis approach to determine the ability of financial ratios to predict firm failure. Using multivariate discriminant analysis (MDA), Altman's bankruptcy prediction model (1968) relied on a linear combination of five financial ratios from the data of sample firms one year prior to bankruptcy. A composite index called Z-score was used to classify bankrupt and nonbankrupt firms. The MDA method has also been utilized by Deakin (1972), Edmister (1972) and Blum (1974), among others.

Recent bankruptcy prediction studies apply the logistic regression analysis (logit) to overcome the potential deficiencies of the MDA technique (Eisenbeis 1977). While the variable coefficients in a discriminant analysis have a limited use, the coefficients of variables in a logit function are interpretable. Ohlson (1980), Zavgren (1985), Gentry et al. (1985), Platt and Platt (1990, 1994), Shumway (2001), He, et al. (2005), and He and Kamath (2005) are some examples of studies which have utilized the logit methodology. Ohlson's bankruptcy prediction model (1980) relied on eight financial ratios, representing liquidity, profitability, leverage and solvency. The classification results show that Ohlson's model was able to identify about 88 percent of 105 bankrupt firms accurately one year before bankruptcy.

Over time, the wisdom of relying solely on financial statement based ratios to evaluate the financial health of any business was challenged. Zavgren (1985), for example, was skeptical about the capability of financial ratios to capture some of the dynamic firm-specific attributes, given the presence of time lag in receiving the financial information. Such concerns led to investigations of relationship between market behavior and bankruptcy incidence by Aharony et al. (1980), Clark and Weinstein (1983), Katz et al. (1985), and Queen and Roll (1987). Given a semi-strong efficient market, the capital market mechanism might be better suited for broader financial and nonfinancial information, such as solvency deterioration, sales growth decline, or global competition. As a result, the market should be able to assimilate such unfavorable information in a real time, and will alter the prices of securities of any firm to account for the likelihood of impending troubled days ahead, possibly, well before the eventual bankruptcy. The findings in event studies conducted by Aharony et al. (1980) and Clark and Weinstein (1983) revealed that stock returns became significantly negative about three years before the bankruptcy declaration.

Shumway's bankruptcy prediction model (2001) successfully illustrated the benefits of teaming financial statement based ratio variables with the market driven variables for the purposes of predicting bankruptcy. The two market variables in the study exhibited strong segregating ability along with the two financial ratios, while displaying low correlations among variables. Shumway's

model reported higher prediction accuracy one year before bankruptcy for a holdout sample, as compared to the benchmark models, which are solely based on financial statement ratios.

By and large, that the bankruptcy prediction models have been developed using cross-sectional data from different industries, the question about their effectiveness in distinguishing bankrupt firms from nonbankrupt firms for industry specific samples has been raised. Platt and Platt (1990) recommended that industry-relative ratios should be used in lieu of the absolute financial ratios for the purposes of model development. The authors contended that such a consideration would produce better classification rates as the industry-relative ratios help stabilize the predictive ability of the model. Altman (1993), however, did not embrace the industry-relative ratio concept for the purpose at hand because of the time lag in obtaining the industry relative data.

McGurr and DeVaney (1998) evaluated the effectiveness of five well-known models developed with the mixed industry data in classifying bankruptcy for a sample of retail firms. The findings confirmed the authors' assertion in that the generic models are likely to be less successful in discriminating between bankrupt and nonbankrupt firms from the retail industry, as compared to the classification results reported for the mixed industry samples in the original studies. They concluded that "... mixed industry failure prediction models appear to have a limited usefulness in a review of retail firm financial health due to the effect of industry, population, and time biases" (p.175).

He and Kamath (2005) attempted to test the McGurr and DeVaney contention with an improved methodology using re-estimated generic models to predict bankruptcy for a holdout sample of firms belonging to the Equipment and Machinery Manufacturing (EMM) industry. The empirical findings showed that the models performed marginally better for a holdout sample of firms from the EMM industry than for the mixed industry holdout sample, up to three years prior to bankruptcy, and thereby contradicted the commonly held view.

METHODOLOGY AND DATA

Models and Variables

The present study can be viewed as an extension of the McGurr and DeVaney study (1998) because both studies focus on the retail industry. The primary objective here is to examine the effectiveness of two generic bankruptcy prediction models estimated with the mixed industry sample data in discriminating between bankrupt and nonbankrupt firms from an individual industry. Two selected models are by Ohlson (1980) and by Shumway (2001) utilizing the logit methodology. While Ohlson's model utilizes eight financial statement based ratios, Shumway's model uses a combination of two financial ratios and two market driven measures. The variables of these two models are described in Table 2. The size variable, which was used by both models and found to be

a significant predictor in both original studies, is not used in our estimations because the size effect is controlled through the pair matching procedure adopted in this study.

Sample and Data

For a failed firm to be considered for inclusion in this study, it has to file bankruptcy during the period of 1990-1999, the firm was traded on OTC market and the total assets of the firm are less than \$130 million one year before bankruptcy. The search for the bankrupt OTC firms and their petition dates is conducted with the help of *Moody's OTC Industrial Manual*, *Moody's OTC Unlisted Manual* and *National Stock Summary*. Financial firms (SIC code 6000-6999) are excluded from our sample due to differences in accounting reporting.

The financial data needed to compute the variables for the two chosen models comes from the *Compustat Research File*, *Moody's OTC Industrial Manual* and *Moody's OTC Unlisted Manual*. The market data of Shumway's model is collected from the *CRSP*, *Compustat* and *OTC Daily Stock Price Record* by Standard & Poor. The Industrial Index of OTC Market Indicator collected from *OTC Daily Stock Prices Record* by Standard & Poor is used as the proxy for the market index until 1993 and the Industrial Index of Nasdaq Market Indicator collected from *Nasdaq Daily Stock Prices Record* by Standard & Poor is used as the proxy for the post-1993 period.

In an attempt to predict a firm's bankruptcy up to three years prior to bankruptcy, one year pre-bankruptcy financial data is defined as the data within a firm's most recent fiscal year but with no less than six months prior to the date of its bankruptcy filing. Thus, for a firm with a December 31 fiscal year ending, and filing for bankruptcy on March 20, 1999, the financial data of one year before bankruptcy would be the data for the year ending December 31, 1997. If the bankruptcy filing had taken place on August 6, 1999, the financial data of the year ending December 31, 1998 would be adopted as the one year before bankruptcy data. Similarly, the market data would also be lagged at least six months before bankruptcy filing. Even though the 6-month lag could have an undesirable effect on the predictive power of the models, such a convention we believe, substantially increases its practicality and therefore its appeal to practitioners.

Matching Criteria

A nonbankrupt firm is matched with a bankrupt firm by industry, asset size and fiscal year. The industry matching is accomplished by the same first two digits of the SIC codes of the firms. Our restriction of the OTC firm with the asset size less than \$130 million itself lends strong support for size matching. Utmost efforts are made to match each nonbankrupt firm as closely as possible to a bankrupt one as per book value of total assets one year before bankruptcy. To assure that the financial statements are reported by the matching firms in the same period, the fiscal year ends of the matching nonbankrupt firms have to be within three months of the same for the bankrupt firms.

Resulting Sample

Our final overall sample consists of 354 OTC firms, i.e., 177 matched pairs of bankrupt and their counterpart nonbankrupt firms. The asset distributions of the two groups are summarized in Panel A of Table 1. The average assets of the bankrupt firms are \$36.41 million as compared to \$35.93 million of their counterparts. Of the 354 matched firms, about 75 percent of the firms have total assets of less than \$50 million, and 92 percent of the firms have assets of less than \$100 million, one year before bankruptcy. In comparison, the sample in the McGurr and DeVaney study (1998) consisted of 56 bankrupt retail firms from 1989 to 1993. The asset size of sample companies in their study ranged widely from \$3.2 million to \$8.3 billion. In some of the retail groups, the mean total assets of the failed and nonfailed firms deviated by more than 75 percent (see Table 2 of McGurr and DeVaney, 1998). Furthermore, due to the small sample size, they were not able to re-estimate the original five models developed with the data utilized from the 1940s to the 1980s. As a result, it is not clear if the loss of classification accuracy of these models in retail industry was a result of the industry bias or time bias of test period or both.

Table 1. Asset Distribution of OTC Sample Firms, 1990-1999						
Panel A – Asset Distribution of the Overall Sample (\$000)						
	Number	Minimum	Maximum	Mean	Standard Deviation	<i>p</i> -value
Bankrupt firms	177	1278	128290	36405	33284	
Nonbankrupt firms	177	2463	127990	35930	30980	
<i>t</i> -test of size difference						0.889
Panel B – Asset Distribution of the Retail Industry Sample (\$000)						
	Number	Minimum	Maximum	Mean	Standard Deviation	<i>p</i> -value
Bankrupt firms	20	5273	126926	58223	39820	
Nonbankrupt firms	20	4802	127295	52623	38491	
<i>t</i> -test of size difference						0.654

As noted, this paper focuses on prediction of bankruptcy in an individual industry, the retail industry (SIC code 5200-5999). The sub-sample is comprised of 40 retail firms. The asset size distributions are shown in Panel B of Table 1. The average assets of the bankrupt firms in the retail industry are \$58.22 million as compared to \$52.62 million of the nonbankrupt firms. The *t*-statistic shows that paired firms are matched closely in size, for the overall sample as well as the retail industry sub-sample.

The He and Kamath study (2005) was able to utilize the re-estimated generic models to predict bankruptcy for a holdout sample of the EMM industry on an *ex ante* basis, since they had a larger EMM industry sub-sample. However, the sub-sample of 40 retail firms in this study is not large enough to be split in order to accommodate a holdout sample for prediction purpose. Accordingly, the entire sample of 354 firms is used to re-estimate the models. These models are then used to reclassify the 354 mixed industry firms and the 40 retail industry firms, respectively, on an *ex post* basis. Given the existence of numerous unique aspects of the retail industry as compared to the other industries, our a priori expectation is that these two generic models by Ohlson (1980) and Shumway (2001) will not be able to distinguish bankrupt firms from nonbankrupt firms of the retail industry, as effectively as for the firms from the mixed industries.

EMPIRICAL FINDINGS

Re-estimation of the Models

Since the data setting in this study is different from the ones in the original studies of Ohlson (1980) and Shumway (2001), we first re-estimate these models by using the sample of 354 mixed industry firms in 1990s. The re-estimated Ohlson and Shumway models with the data of one year prior to bankruptcy are presented in Table 2.

The findings of Table 2 indicate that both re-estimated models with 354 mixed industry firms are statistically significant at the 0.01 level one year prior to bankruptcy, and thus, display a strong ability to discriminate bankrupt firms from nonbankrupt firms. Further analysis of the results for Ohlson's model shows that the four variables are statistically insignificant, which are denoted in the table by underlining the p-values. The results of Shumway's model appear to be more favorable. The signs of the coefficients of each of the four variables display the expected relationships with the probability of bankruptcy, and the chi-square statistics indicate that all four variables in this model contribute in a statistically significant fashion toward bankruptcy prediction.

Validation of the Models

Given that there are only 40 firms from the retail industry in our sample, we do not have the luxury of utilizing a holdout sample for the prediction test. Accordingly, the re-estimated models are validated by classification test for the retail industry. Both Ohlson's and Shumway's models, which are re-estimated with one year prior to bankruptcy data of 354 mixed industry firms of the 1990-1999 period in Table 2, are now used to reclassify the 354 mixed industry firms and the 40 retail industry firms for one, two and three years before bankruptcy, respectively. The classification results of each model are reported in Tables 3 and 4.

Table 2. Re-estimation of the Models with the Data of 354 Mixed Industries Firms, 1990-1999				
	Estimated Coefficient	Standard Error	Chi-square Statistic	<i>p</i> -value
<i>Ohlson's Model at 1 Year prior to bankruptcy</i>				
Constant	-3.757	0.796	22.271	.000
NITA	-3.693	1.705	4.690	.030
TLTA	5.798	1.105	27.516	.000
WCTA	-1.289	0.998	1.669	<u>.196</u>
CLCA	-0.098	0.188	0.273	<u>.602</u>
FUTL	0.004	0.238	0.000	<u>.988</u>
CHIN	-0.758	0.331	5.235	.022
OENEG	-0.484	1.376	0.124	<u>.725</u>
INTWO	2.143	0.533	16.166	.000
Model			295.935	.000
<i>Shumway's Model at 1 Year prior to bankruptcy</i>				
Constant	-5.379	0.721	55.636	.000
NITA	-6.117	1.666	13.487	.000
TLTA	5.307	0.927	32.740	.000
ERR	-2.36	0.477	24.467	.000
SDR	8.371	2.258	13.739	.000
Model			321.065	.000
Where,				
NITA	= Net income/total assets,			
TLTA	= Total liabilities/total assets			
CLCA	= Current liabilities/current assets			
FUTL	= Fund provided by operations/ total liabilities			
CHIN	= $(NIt - NIt-1) / (NIt + NIt-1)$, where NIt is net income for the most recent period. The denominator acts as a level indicator. The variable is thus intended to measure change in net income			
OENEG	= One if total liabilities exceeds total assets, zero otherwise			
INTWO	= One if net income was negative for the last two years, zero otherwise			
ERR	= Excess rate of return (i.e., a firm's rate of return minus the market's rate of return)			
SDR	= Standard deviation of residual (Residual = a firm's realized rate of return minus its expected rate of return)			
Note: Firm size, which shows the statistical significance as a predictive variable in both original models, is not used in this study because the size effect is controlled by a pair-matching procedure.				

Table 3. Classification Results with Re-estimated Ohlson's Model				
Panel A. Classification of 354 mixed industry firms and 40 retail industry firms				
	Actual	Total Number	Classified Status	
	Status	of the Sample	B	NB
<i>Mixed Industries</i>				
Year 1	B	177	151 (151)	26 (26)
	NB	177	17 (19)	160 (158)
Year 2	B	177	124 (124)	53 (53)
	NB	177	22 (24)	155 (153)
Year 3	B	177	113 (112)	64 (65)
	NB	177	29 (31)	148 (146)
<i>Retail Industry</i>				
Year 1	B	20	14 (14)	6 (6)
	NB	20	2 (2)	18 (18)
Year 2	B	20	7 (7)	13 (13)
	NB	20	1 (1)	19 (19)
Year 3	B	20	10 (10)	10 (10)
	NB	20	2 (2)	18 (18)
Panel B. Classification Error Rates and Accuracy Levels of 354 mixed industry firms and 40 retail industry firms				
		Year 1	Year 2	Year 3
<i>Mixed Industries</i>				
Type I error		15% (15%)	30% (30%)	36% (37%)
Type II error		10% (11%)	12% (14%)	16% (18%)
Overall error		12% (13%)	21% (22%)	26% (27%)
Overall accuracy of classification		88% (87%)	79% (78%)	74% (73%)
<i>Retail Industry</i>				
Type I error		30% (30%)	65% (65%)	50% (50%)
Type II error		10% (10%)	5% (5%)	10% (10%)
Overall error		20% (20%)	35% (35%)	30% (30%)
Overall accuracy of classification		80% (80%)	65% (65%)	70% (70%)
Note: 1) B-bankrupt firms; NB-nonbankrupt firms 2) Type I error = misclassification of bankrupt firms 3) Type II error= misclassification of nonbankrupt firms 4) Cutoff value = 0.5 5) Year 1 means 1 year before bankruptcy, and so on. 6) The classification results using Lachenbruch's U method are reported in the parentheses.				

Table 4. Classification Results with Re-estimated Shumway's Model				
Panel A. Classification of 354 mixed industry firms and 40 retail industry firms				
	Actual Status	Total Number of the Sample	Classified Status	
			B	NB
<i>Mixed Industries</i>				
Year 1	B	177	163 (161)	14 (16)
	NB	177	15 (15)	162 (162)
Year 2	B	177	120 (120)	57 (57)
	NB	177	20 (20)	157 (157)
Year 3	B	177	101 (101)	76 (76)
	NB	177	24 (24)	153 (153)
<i>Retail Industry</i>				
Year 1	B	20	16 (16)	4 (4)
	NB	20	1 (1)	19 (19)
Year 2	B	20	5 (5)	15 (15)
	NB	20	1 (1)	19 (19)
Year 3	B	20	8 (8)	12 (12)
	NB	20	4 (4)	16 (16)
Panel B. Classification Error Rates and Accuracy Levels of 354 mixed-industry firms and 40 retail industry firms				
		Year 1	Year 2	Year 3
<i>Mixed Industries</i>				
Type I error		8% (9%)	32% (32%)	43% (43%)
Type II error		8% (8%)	11% (11%)	14% (14%)
Overall error		8% (9%)	22% (22%)	28% (28%)
Overall accuracy of classification		92% (91%)	78% (78%)	72% (72%)
<i>Retail Industry</i>				
Type I error		20% (20%)	75% (75%)	60% (60%)
Type II error		5% (5%)	5% (5%)	20% (20%)
Overall error		12% (12%)	40% (40%)	40% (40%)
Overall accuracy of classification		88% (88%)	60% (60%)	60% (60%)
Note:	1) B-bankrupt firms; NB-nonbankrupt firms 2) Type I error = misclassification of bankrupt firms 3) Type II error= misclassification of nonbankrupt firms 4) Cutoff value = 0.5 5) Year 1 means 1 year before bankruptcy, and so on. 6) The classification results using Lachenbruch's U method are reported in the parentheses.			

Panel A of Table 3 reports that Ohlson's re-estimated model is able to classify 151 bankrupt firms and 160 nonbankrupt firms of the 177 pairs mixed industry firms correctly, one year prior to bankruptcy. Thus, Ohlson's model misclassifies 26 bankrupt firms as nonbankrupt (known as Type I error) and 17 nonbankrupt firms as bankrupt (known as Type II error). These figures translate into an overall classification accuracy of 88 percent with 12 percent of Type I error and 7 percent of Type II error, one year prior to bankruptcy. As we attempt to classify bankruptcy two and three years before bankruptcy, the results show a pattern of declining classification accuracy. When Ohlson's re-estimated model is used for classifying 40 retail firms, the comparable figures reported in Panel B of Table 3 are markedly lower at 80, 65 and 70 percent in each of the three years before bankruptcy.

The overall classification results of Shumway's model displayed in Table 4 exhibit a similar pattern between the mixed industry firms and the retail firms. The overall classification accuracy levels for the 354 mixed industry firms are 92, 78 and 72 percent. While the comparable figure for the 40 retail firms indicates modest stability with classification accuracy of 88 percent for one year before bankruptcy, the figures are significantly lower at 60 percent each for two and three years prior to bankruptcy. The disappointing results are largely attributed to an unusually high level of Type I errors as we move further away from the time of bankruptcy filing. Shumway's model reports 20, 75 and 60 percent Type I errors for the retail industry sample for one, two, and three years prior to bankruptcy, while the corresponding Type I error with Ohlson's model are 30, 60, 50 percent.

Since the classification accuracy rates would be upwardly biased under the classification test, Lachenbruch's U method (1967) is adopted to evaluate the robustness of the re-estimated models. In a nutshell, this approach is an iterative process aimed at obtaining a classification accuracy rate which is not adversely affected by the *ex post* classification bias. As per this method, in each iteration, one pair of matched bankrupt and nonbankrupt firms is held out from the overall 177 pairs of sample firms and the remaining 176 pairs are utilized to derive the bankruptcy model. The model developed is then used to classify the pair of the holdout firms. This scheme is repeated until every pair of observations goes through the process of being held out and classified. The classification results and accuracy rates for each of three years prior to bankruptcy under Lachenbruch's U method for the 354 mixed industry firms and the 40 retail industry firms are reported in the parentheses in Table 3 for Ohlson's model and Table 4 for Shumway's model, respectively. The results obtained are practically identical to those contained in the original classification test. Thus, the re-estimated Ohlson and Shumway models used in the classification test for the retail industry are rather robust and the classification accuracy rates are not found to be upwardly biased.

SUMMARY

This paper is aimed at evaluating the classification effectiveness of two successful generic bankruptcy prediction models in discriminating between bankrupt and nonbankrupt firms belonging

to an individual industry. The retail industry is the focus of this inquiry similar to that of McGurr and DeVaney (1998). To fulfill our goal, we utilize financial statement ratio based model by Ohlson (1980) and financial and market information based model by Shumway (2001). The sample in this empirical study is made up of 354 mixed industry firms, including 40 retail firms, traded on OTC market over the recent decade of 1990s. The average assets of 354 firms are less than \$37 million, one year prior to bankruptcy. Each of the 177 bankrupt firms is matched with a nonbankrupt firm from the same industry of comparable asset size as well as the timing of its financial reports.

The Ohlson and Shumway models are re-estimated with data of the entire sample of 354 mixed industry firms from the 1990-1999 period. These models are then used to classify the probability of bankruptcy of the 354 mixed industry firms and the 40 retail industry firms, respectively. Our study improves the classification methodology by utilizing Lachenbruch's U method to overcome the potential introduction of an upward bias in the classification process.

Begley et al. (1996) concluded that the re-estimated models by Altman (1968) and Ohlson (1980) with data in a recent period could not classify the bankrupt firms as well as the respective models had in the original studies. Our results are definitely not in agreement with Begley et al. (1996). Instead, we find that with the recent data of small OTC firms, the re-estimated models of both Ohlson (1980) and Shumway (2001) display classification accuracies which are very much comparable to those reported in the original studies.

The classification accuracy levels of both models for the retail industry, however, are significantly lower than those for the mixed industries, particularly, as the lead-time from bankruptcy increases. The finding that the usefulness of generic bankruptcy prediction models is reduced when applied to an individual industry matches with the priori expectation. McGurr and DeVaney (1998) had suggested that the possible causes of such reductions are "industry, population, and time biases". While the population bias can never be fully eliminated, the time bias was well controlled due to the short time span of the data used in the study. Thus, our methodology was predominantly geared toward evaluating the industry bias. Accordingly, we find that the mixed industry based bankruptcy prediction models lose their effectiveness substantially when applied to an individual industry, such as, the retail industry.

Overall, the findings for the retail industry in our study concur with the expectation that the generic bankruptcy prediction models would lose predictive accuracy when applied to an individual industry, but are at odds with the results presented by He and Kamath (2005), where they reported impressive classification and prediction accuracies for the equipment and machinery manufacturing (EMM) industry with help of generic models. One possible explanation of our finding is that the re-estimated models were highly influenced by the large percentage of manufacturing firms in the sample. The breakdown of 354 sample firms shows that only 130 (37 percent) firms are from service industries, including 40 retail firms (11 percent). Given the diametrically opposite findings of our study to what reported by He and Kamath (2005), further research is called for in the area of

applying generic bankruptcy prediction models to classify/predict the bankruptcy of firms from individual industries.

REFERENCES

- Aharony, H. J., P. Charles & I. Swary, (1980). An analysis of risk and return characteristics of corporate bankruptcy using capital market data. *Journal of Finance* 35, 1001-1016.
- Altman, E. I, (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *Journal of Finance* 23, 589-609.
- Altman, E. I, (1993). *Corporate financial distress and bankruptcy: a complete guide to predicting and avoiding distress and profiting from bankruptcy, Second Edition* (New York: John Wiley & Sons, Inc)
- Beaver, W. H, (1966). Financial ratios as predictors of failure. *Journal of Accounting Research* 4 (supplement), 71-111.
- Beaver, W. H, (1968). Market prices, financial ratios, and the prediction of failure. *Journal of Accounting Research* 6, 179-192.
- Begley, J., M. Jin & S. Watts, (1996). Bankruptcy classification errors in the 1980s: an empirical analysis of Altman's and Ohlson's models. *Review of Accounting Studies* 1, 267-284.
- Blum, M, (1974). Failing company discriminant analysis. *Journal of Accounting Research* 12, 1-25.
- Clark, T. A. & M. I. Weinstein, (1983). The behavior of the common stock of bankrupt firms. *Journal of Finance* 38, 489-504.
- Deakin, E. B, (1972). A discriminant analysis of predictors of business failure. *Journal of Accounting Research* 10, 167-179.
- Edmister, R. O, (1972). An empirical test of financial ratio analysis for small business failure prediction. *Journal of Financial and Quantitative Analysis* 7, 1477-1493.
- Eisenbeis, R. A, (1977). Pitfalls in the application of discriminant analysis in business, finance, and economics. *Journal of Finance* 32, 875-900.
- Gentry, J. A., P. Newbold and D. T. Whitford, (1985). Classifying bankrupt firms with funds flow components. *Journal of Accounting Research* 23, 146-160.
- He, Y., R. Kamath, & H. Meier, (2005). An Empirical Evaluation of Bankruptcy Prediction Models for Small Firms. *Academy of Accounting and Financial Studies Journal* 9 (1), 1-23.

- He, Y., & R. Kamath, (2005). Bankruptcy Prediction of Small Firms in Individual Industries with the Help of Mixed Industry Models. *Asia-Pacific Journal of Accounting & Economics* 12 (1), 19-36.
- Katz, S., S. Lilien & B. Nelson, (1985). Stock market behavior around bankruptcy model distress and recovery predictions. *Financial Analysts Journal* 41, 70-74.
- Lachenbruch, P.A, (1967). An almost unbiased method of obtaining confidence intervals for the probability of misclassification in discriminant analysis. *Biometrics* 23, 639-645.
- McGurr, P. T. & S. A. DeVaney, (1998). Predicting business failure of retail firms: an analysis using mixed industry models. *Journal of Business Research* 43, 169-176.
- Mensah, Y. M, (1984). An examination of the stationarity of multivariate bankruptcy prediction models: a methodological study. *Journal of Accounting Research* 22 (1), 380-395.
- Ohlson, J. A, (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research* 18, 109-131.
- Platt, H. D. & M. B. Platt, (1990). Development of a class of stable predictive variables: the case of bankruptcy prediction. *Journal of Business, Finance and Accounting* 17 (1), 31-51.
- Platt, H. D. & M. B. Platt, (1991). A note on the use of industry-relative ratios in bankruptcy prediction. *Journal of Banking and Finance* 15, 1183-1194.
- Platt, H. D., M. B. Platt & J. G. Pedersen, (1994). Bankruptcy discrimination with real variables. *Journal of Business, Finance and Accounting* 21 (4), 491-510.
- Queen, M. and R. Roll, (1987). Firm mortality: using market indicators to predict survival. *Financial Analysts Journal* 43, 9-26.
- Shumway, T, (2001). Forecasting bankruptcy more accurately: a simple hazard model. *Journal of Business* 74, 101-124.
- Zavgren, C. V, (1985). Assessing the vulnerability of failure of American industrial firms: a logistic analysis. *Journal of Business, Finance and Accounting* 12, 19-45.

A REVIEW OF CIVIL WAR TAX LEGISLATION AND ITS INFLUENCE ON THE CURRENT U.S. INCOME TAX SYSTEM

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ABSTRACT

The purpose of this paper is to review and compare income tax legislation passed during the Civil War by both the Union and the Confederacy. The major tax act for the Confederacy was titled "An Act to lay taxes for the common defense and carry on the Government of the Confederate States." This legislation was passed on April 24, 1863 and represented the most comprehensive tax system employed by the Confederacy. The most significant Union tax law was termed the "National Tax Law as approved June 30, 1864." These two major pieces of legislation are compared and contrasted by examining the types of taxes introduced, rates of tax, and various deductions and exemptions allowed.

This paper reviews the many aspects of Civil War taxation legislation that remain in effect today. In particular, numerous income inclusions, exclusions, and deductions found in these 1860's acts continue to exist in our current Internal Revenue Code. These early pieces of tax legislation continue to provide guidance in generating tax receipts to fund our current war efforts in Afghanistan and Iraq.

INTRODUCTION

The Civil War created a desperate financial situation for both the Union and Confederate governments. The mere reinstatement of excise taxes would not be sufficient to fund the war effort for either side. For this reason, new types of taxes, which were considered unnecessary in the past, were enacted into law. The major innovative tax of the period was the individual income tax. This tax was based on concepts that the typical taxpayer was not familiar with and did not readily understand including the principles of self-assessment and voluntary compliance. However, both the Union and Confederacy realized that a personal income tax was the only alternative that would produce the large amount of funds required to fund military operations.

The Union enacted tax legislation in 1861, 1862, and 1864 with each version becoming more comprehensive in nature. When the Civil War began, Congress passed the Revenue Act of 1861 on

August 5, which proved to be a poor first attempt at tax legislation. The law reinstated excise taxes on various goods and also introduced a tax on personal incomes (U.S. Treasury Fact Sheet, OPC-77). The income tax rate of 3% was applied to income in excess of \$800 per year (the exemption amount). This exclusion eliminated tax for all but the wealthy. For example, a private in the U.S. Army, during most of the Civil War, earned only \$13 per month or under \$200 per year, so he would pay no income taxes (Revised Regulations for the Army of the United States, 1861).

Although the 1861 act committed the country to income taxation, there were no income taxes actually assessed under this law (Hill, 1894). The 1861 income tax was never enforced or collected and was replaced by new legislation on July 1, 1862. The first major Internal Revenue Act in 1862 required taxpayers “to make a list or return” of the items of income that were being taxed (Doris, 1963). An “Assistant Assessor,” who had the right to increase the amount of tax due for the year, audited the taxpayer in an effort to add credence to the system. The concept of a graduated or progressive tax was also strange to taxpayers who were comfortable with fixed rate excise taxes.

The new concepts of voluntary compliance, self-assessment, and progressive tax rates created a system that the typical taxpayer found difficult to understand and comply with. During the spring of 1862, the Federal government’s monetary needs were escalating as the public debt increased about two million dollars per day (Ibid). On July 1, 1862, the Revenue Act of 1862 was passed which included excise taxes on playing cards, gunpowder, feathers, telegrams, leather, pianos, yachts, billiard tables, perfumes, drugs, patent medicines, beer, and whiskey (U.S. Treasury Fact Sheet, OPC-77). This new act retained the personal income tax included in the 1861 law with some significant adjustments.

The income tax regulations in the 1862 law were revised to include the concept of “ability to pay.” This was the first situation where progressive tax rates were employed by the Federal government. Personal incomes from \$600 to \$10,000 were taxed at the prior year’s 3% rate. For taxpayers with incomes in excess of \$10,000, the tax rate increased to 5% (Ibid). A rate of 7-½ % was initially included in the bill but was removed because many in Congress felt that rate to be excessive (Hill, 1894). Taxpayers were given a \$600 standard deduction, which eliminated income tax for the typical laborer.

An additional feature of the 1862, and later the 1864 act, was based on the principle of “stoppage at the source.” This new concept required employers to regularly withhold income taxes from employees who had income in excess of \$600 per year. This concept was also extended to the payers of interest and dividends. By using this technique, the government was able to quickly extract taxes from the general public for use in the war effort. The 1862 act created the Office of the Commissioner of Internal Revenue in the Treasury Department (Parnell, 1980). This created the original organizational structure for our current Internal Revenue Service.

An interesting feature of the 1862 act was that income was calculated based on the calendar year. Initially the assessment was due by May 1st of the following year with payment due on or before June 30th (Hill, 1894). This created a significant problem for the government due to the

amount of lag time before the taxpayers paid taxes. It was not until the Act of 1867 that assessments were due March 1st with payments expected on or before April 30th. During the Civil War period when funds were desperately needed for the war effort, it was poor administration to delay collections for such a lengthy period.

Another major problem resulting from this new form of taxation was the difficulty of determining the actual income of the taxpayer. The assessor and collector relied on taxpayer's written lists or returns, which would have been extremely difficult to verify and audit. If a taxpayer refused to make a list or return, the assessor was required to prepare one "according to the best information based on an examination of such person or his books or accounts or any other evidence" (Ibid). This process required the assessors to play the role of private investigator. A 50% penalty was assessed to any taxpayer who refused to prepare a list or return. If a fraudulent return was proven, the penalty increased to 100% of the tax due thereby doubling the tax liability (Ibid).

The 1862 revenue act created a foundation for additional legislation that would soon follow in 1864. During the first full year of collections under the 1862 law, about twenty million dollars of income taxes were raised. This, however, was less than the thirty million dollars collected as excise taxes on distilled spirits (Hill, 1894).

The most significant piece of income taxation during the Civil War was the National Tax Law approved on June 30, 1864. This legislation will be reviewed in detail and compared to the Confederate version enacted on April 24, 1863. Each of these tax laws contains major proposals intended to raise significant amounts of money for the war effort. At this point in the war, both sides realized the huge costs of funding their respective armies as they moved great distances across the country.

The 126 page National Tax Law included much more than an income tax. Its basic components, in addition to the income tax, included the following:

1. Taxes on Spirits, Ale, Beer, and Porter
2. License Fees for All Professions
3. Duties on Manufacturers and Products
4. Legacies and Distributive Shares Tax (An estate tax)
5. Stamp Duties (On a wide variety of products).

The Confederacy enacted their first tax legislation in 1861. It was simply a minor tariff act that raised only \$3.5 million dollars over four years (Tax.org, 2000). Later that year, a small direct tax of ½% was introduced on real and personal property. The majority of funds raised by the Confederacy were through the issuance of bonds. A \$15 million dollar bond issue sold out quickly the same year. However, a later \$100 million dollar issue sold very slowly causing cash flow problems as the Confederacy increased its military operations.

During the first year of the war, the Confederate government raised only 2% of its revenues through taxes. The vast majority of funds were generated through the issuance of treasury notes (75%) and bonds (23%) (Ibid.). The Confederacy issued over \$1.5 billion in paper money, which tended to depreciate quickly. At the same time, all of the southern states issued state, county, and city notes. These bills were often poorly printed and served to encourage counterfeiting. The extensive use of paper money, instead of internal taxation of the citizens, caused inflation that exceeded 9000% in the South by the end of the war (Ibid.)

By the beginning of 1863, the Confederate government realized that a major piece of tax legislation was required. Therefore, on April 24th, the act to “lay taxes for the common defense and carry on the Government of the Confederate States” was enacted. This was an extremely comprehensive package, which included an income tax, a business inventory tax, excise and license duties, taxes on wholesalers and retailers, and a tax-in-kind that applied to numerous agricultural products. The delay in the enactment of this type of revenue producing legislation negatively affected the ability of the Confederacy to promptly raise needed funds for military operations.

OVERVIEW OF UNION AND CONFEDERATE TAX LEGISLATION

The comparison of the Union and Confederate tax legislation will be completed utilizing a number of perspectives. First, a review of the basic requirements of each law will be completed. Second, details related to the individual income tax will be reviewed. Finally, the Confederate taxes-in-kind program will be studied. This unique type of tax was logical for the primarily agriculturally oriented South.

The appendix of this paper includes tables, which compare numerous tax regulations of each system. References included in this paper relate to the coding system found at the end of each table. In most cases, the section number of each piece of tax legislation serves as the supporting reference. As far as general tax information is concerned, the first consideration is to whom the tax applied. The Union act applied to “individuals, partnerships, firms, associations, and corporations” (Sec. 11). The Confederate plan was also extensive as it related to “every person, co-partnership, association or corporation” (TB Sec.1). The Union tax legislation was enacted to continue through 1870 (Sec. 119), while the Confederate law was only effective through 1865 (unless repealed sooner) (Sec. 18). Both versions of the tax legislation were enacted with a very short life expectancy.

The Union and Confederate tax acts both included penalties for false returns. Similar to the negligence and fraud penalties that exist today, these laws contained very severe repercussions for violations. The Union plan imposed fines of up to \$1,000 or imprisonment up to one year, or both (Sec. 15). The Confederate system stated if it is found “that the statement of estimate of income and profits rendered by the taxpayer does not contain more than 4/5 of the true and real amount of his taxable income and profits” the taxpayer can be liable for taxes due plus a penalty of an additional 10% (Sec. 8).

Each side also included penalties for nonpayment of tax. The Union act required a 10% additional tax penalty if the payment was from one to ten days late. The penalty increased after ten days as the tax collector charged a twenty-cent issue fee plus mileage of four cents per mile to the taxpayer's location in an attempt to settle the debt. The collector was a government agent who actually received the tax dollars and deposited them to the taxpayer's account with the government. The collector, within twenty days after receiving the annual collection list from the assessors, had to "give notice, by advertisement published in each county in his collection district in one newspaper printed in that county and in at least four public places in each county of the unpaid tax of each delinquent taxpayer" (Sec. 28). After an additional ten days, if the tax remained unpaid, the collector had the right to "seize property and sell the goods, chattels, or effects of the persons" owing the tax (Ibid.).

The Confederate legislation was evidently patterned after the Union act because it also included an additional 10% penalty for taxes paid after the due date. Within twenty days the collector was to inform individual taxpayers of their disregard to pay taxes. After an additional ten days, the collector for the Confederacy also had the right to seize property and sell it to pay the tax (AA Sec. 16). Both sides attempted to collect taxes due within a fairly short time utilizing the threat that the taxpayer's property could be seized and sold to make the required payment.

If personal property was sold at auction to pay the tax, both Union and Confederate acts utilized a similar procedure. The Union plan allowed the government to keep all proceeds that "cover the tax due, necessary and reasonable expenses of sale, and a 5% commission" (Sec. 28). Any additional amount raised above this figure was returned to the owner of the property. The Union legislation exempted the following property similar to the concept of a standard deduction today. The exempt property of the taxpayer included "tools of the trade, one cow, arms and provisions, household furniture and apparel for the family" (Ibid.). This, in effect, functioned as a list of assets necessary to provide the taxpayer and his family with the necessities of life.

The Confederate tax law also allowed the government to keep all proceeds to cover the tax due, necessary and reasonable expenses of sale, and a 5% commission. Any additional funds raised, similar to the Union plan, were returned to the taxpayer (AA Sec. 16). In many situations, the sale of personal property was not sufficient to eliminate the taxpayer's balance due, so the assets seized and sold next included pieces of real estate.

Both Union and Confederate laws allowed for the sale of real property if the taxpayer did not own sufficient personal property to eliminate the tax deficiency. The Union act allowed the government to sell the real property and keep funds equal to taxes due plus a 10% penalty and an officer's fee of \$10. The Confederate system allowed an amount equal to the tax due plus an additional 20% penalty.

In the event that a taxpayer lost land and buildings in a tax sale, both plans allowed for the repurchase of the property within a limited time period. The Union plan permitted the taxpayer to redeem the land within one year of the tax sale. The price equaled the cost paid by the purchaser plus

20% interest (Sec.30). The Confederate plan called for the same 20% interest payment but allowed for a redemption period of two years following the date of the tax sale (AA Sec. 19). In effect, both governments considered the temporary financial situation of the taxpayer and allowed for redemption of property sold for taxes within a reasonable period of time.

Section 118 of the Union legislation described the “duty” of the taxpayers to make a “list or return under oath or affirmation” of the amount of his or her income. This list or return was sent to the assessor or assistant assessor in the area. Taxpayers were allowed, under oath or affirmation, to report to assessors that their income was less than \$600 annually. These individuals would then be exempt from income duty. This section also provided for the appeal of a tax due decision made by the assistant assessor. The taxpayer would then present their case to the assessor in the district whose decision would be final. This is similar to the system employed today with taxpayers appealing from local to district IRS offices in an effort to resolve a tax dispute.

Both North and South utilized the positions of assessor and collector in the tax administration process. The taxpayer would self-report income or asset values and the assessor would calculate the amount of tax due. Thereafter, citizens would actually make payment of the tax due to the collector. This system was intended to separate the function of establishing the amount of the tax (authorization) and collecting the tax (custody). The actual summarization of income earned or assets owned (recordkeeping) was completed by the taxpayer. In effect, the basic internal control concept of segregation of duties was accomplished utilizing this procedure.

Finally, the last general topic relates to the filing date of the returns. Under the Union legislation, tax returns had to be filed on or before the first Monday of May following the end of the tax year (Sec. 11). Under the Confederate version, income and profits from the previous year were to be assessed and ascertained as of January 1st starting in 1864. Payment of tax was expected on that date. It is clear that the Confederate government was in desperate need of funds and attempted to collect revenues as soon as possible. The Union, on the other hand, did not require a filing and payment until four months later.

The items discussed above provide the reader with an overview of both tax systems. It is interesting to note that many aspects of the Union and Confederate plans are nearly similar. Many of the details found in the Union 1862 tax act are reflected in the system proposed by the Confederacy in 1863. It appears that, rather than reinventing a complete tax system, the south assumed a tax policy that appeared to be working well for the enemy. The next portion of this paper reviews specific details of income tax legislation.

INDIVIDUAL INCOME TAX REGULATIONS

Both sides realized that duties and property taxes would not raise sufficient funds to finance the war effort. Therefore, the income tax became the “innovative” tax of the Civil War. This tax was applied by the Union to “all individuals residing in the United States or any citizens of the United

States living abroad” (Sec. 116). This is similar to our current tax structure where U.S. citizens are taxed on their worldwide income regardless of their current residence. The Confederate income tax applied to “the income and profits derived by each person, joint stock company and corporation, employment or business whether registered or not” (Sec. 7). This very comprehensive statement was clearly meant to apply the income tax to all forms of business entities.

Both tax plans provided certain exemptions to the taxpayer. For example, the Union law exempted any taxpayer making less than \$600 per year (Sec. 118). This included the vast majority of taxpayers during the Civil War period. Tax was due from only wealthy individuals who were typically professionals or officers in the military. Sec. 118 also exempted a taxpayer who had paid the tax due in another state or county prior to moving to his current location.

The Confederate system was more complicated. It was based upon exemptions for both income and property owned. For example, “no taxes shall be imposed by virtue of this act on the salary of any person receiving a salary not exceeding one thousand dollars per annum” (TB Sec. 6). The salaries of military and naval personnel were exempt from the income tax regardless of amount. For non-salaried wage earners, incomes not exceeding \$500 were exempt. In addition to income considerations, the Confederate system allowed exemptions in its “tax in kind” program that is discussed later in this paper.

Tax rates imposed by both the Union and the Confederacy utilized a progressive structure, which was revolutionary. In earlier years, a flat tax system applied in cases of personal and real property taxes and duties. The Confederacy utilized one tax schedule for salaries and another for other incomes. Salaried taxpayers paid a 1% tax on income up to \$1,500 and a 2% tax on salaries exceeding that amount. As mentioned earlier, if the salary was less than \$1,000 no tax was due.

The Confederacy utilized another tax table for other sources of income apart from salaries. For other income, an exemption of \$500 applied. Incomes in excess of the \$500 exemption amount were taxed as follows:

Income Level	Tax Rate
\$501-\$1,500	5%
\$1,501-\$3,000	5% on first \$1,500 and 10% on excess
\$3,001-\$5,000	10%
\$5,001-\$10,000	12.5%
\$10,001 & Above	15%

This was a very progressive tax rate schedule considering that the citizens had never experienced such a system. This tax table applied to all income other than salaries, rents, manufacturing, and sales of merchandise that utilized other specified rates.

The standard Union tax rate schedule applied to “any kind of property rents, interest, dividends, salaries, and income from any profession, trade, employment, or vocation” (Sec. 116).

The exemption amount was \$600. The less progressive tax rate schedule for the Union included the following rates:

Income Level	Tax Rate
\$601-\$5,000	5%
\$5,001-\$10,000	7.5%
\$10,001 & Above	10%

There was a significant difference in the maximum tax rates of the Union and the Confederacy. The South employed a top marginal rate that was 50% above that of the North. With the much larger population, the Union decided to maintain a fairly conservative maximum tax rate. This, no doubt, created fewer complaints by top wage earners in the North compared to those in the South.

Another interesting feature of the income tax regulations is seen in the deductions allowed in the Union legislation. For example, all forms of federal, state, and municipal taxes, except for the Federal income tax, were allowed as deductions against income. The law also exempted salary or pay received for services in the “civil, military, naval, or other services of the United States, including senators, representatives, and delegates in Congress.” The reason for this exemption is that Sec. 123 of the legislation requires the U.S. paymaster to withhold taxes when salaries were paid. Taxes were withheld at a rate of 5% on income that exceeded the \$600 exemption.

Another deduction was allowed for dividends received from any “bank, trust company, savings institution, insurance, railroad, canal, turnpike, canal navigation, or slack-water company” (Sec. 117). The government encouraged the purchase of stock in these industries by allowing for tax-free dividend receipts. Finally, an exemption was allowed to a taxpayer for the “rent of the homestead used or occupied by himself or his family.” This is an unusual feature considering our current system allows no deduction for rental payments. Each of these exemption/deductions was subtracted from total income in order to determine a taxable income figure.

An unusual feature of the Union law is the regulation on gains or losses on the sale of real property held for one year or less. If the real estate was sold at a gain, the taxpayer was required to add this profit to his or her taxable income. In the event of a loss on the sale of the property, a deduction was allowed against taxable income. If the real estate was held for more than one year, neither the gain nor loss on its sale affected the income of the taxpayer (Sec. 116). This provided an incentive for taxpayers to hold land and buildings for more than one year if they were appreciating in value.

The final page of the National Tax Law included Public Resolution No. 59. It was a special income duty that was to be levied, assessed and collected on October 1, 1864 (National Tax Law, 1864). This was in addition to the regular income tax discussed in the 1864 legislation. The special assessment was an additional 5% tax on income in excess of \$600 for the previous year 1863. This

created a total tax rate of 8% (3% regular rate for 1863 plus 5% special income duty) on incomes between \$600 and \$10,000. This rate increased to 10% on incomes in excess of \$10,000 (5% regular rate for 1863 plus 5% special income duty). The serious need for cash to supply the war effort created a special “double” tax situation.

Both the Union and Confederate legislation incorporated numerous other types of tax in addition to the newly instituted income tax. These included numerous assessments for business licenses, business profits taxes, and duties. Also, the Confederate tax system utilized a special “taxes in kind” program.

CONFEDERATE TAXES IN KIND

Since the southern states were primarily agricultural, it was logical for the Confederate government to realize that cash held by its citizens may not be as abundant as meats, grains, and other crops. For this reason, their tax legislation included a “taxes in kind” program. This allowed residents of the South to pay their taxes in the form of animals and crops raised rather than in cash. Since many residents had invested much of their cash in bonds, nothing but highly discounted Confederate treasury notes were available for the payment of debts. This tax in kind program, therefore, appeared to be a viable alternative for the government. The Confederate Army had to be fed and this type of tax provided a dependable supply of meats and produce to meet their needs.

Section 10 of the tax legislation and an amendment dated December 28, 1863 provided the details of this program. One aspect of the program pertained to the minimal inventory of products that was allowed to each taxpayer to satisfy basic family needs. The law provided for a family reserve of either 50 bushels of sweet potatoes, or 50 bushels of Irish potatoes, or 100 bushels of corn, or 50 bushels of wheat, or 20 bushels of peas or beans. The idea behind this policy was to allow each family enough food so they were not left in a starvation situation.

The amount of “taxes in kind” due to the Confederacy amounted to one-tenth of the farmer’s production of each crop or animal raised. The law stated that individuals “must pay and deliver to the government 1/10 of the wheat, corn, oats, rye, buckwheat, rice, sweet or Irish potatoes, or hay and fodder” produced during the year (Sec. 10). In addition, 1/10 of the sugar or molasses made was a required tax when the farmer produced more than 30 gallons. Also, 1/10 of any peas, beans, cotton, wool, and tobacco grown constituted the tax in kind (Ibid.). If a farmer slaughters hogs, the in kind tax was “an equivalent of 1/10 of the cured bacon calculated at the rate of 60 pounds of bacon for each 100 pounds of total pig weight” (Amendment 12/28/1863).

For the most impoverished of farmers, there were a number of exemptions from the tax in kind. This included a \$500 net worth limitation (Sec. 10 I). For very small farms where its owner had assets worth less than this exemption amount, no in kind tax was required. This exemption increased by \$100 for each minor child that the family head had living with him (Sec. 10 II). The \$100 allowance was granted in situations where the family head had either lost or had disabled

children due to military service. In situations where the family head was a widow “of any officer, soldier, or seaman”, the net worth exemption was increased to \$1,000. The intent was to provide some relief to women who now had to operate the farm without their husbands.

Two special exceptions were included in this law. First, if the taxpayer’s crop was either “taken or destroyed by the enemy,” the district collector made payment for the taxpayer of the tax due. This was included in an amendment dated February 13, 1864 due to many Union campaigns taking place in southern states. Another exception pertained only to 1863 due to the large crop of sweet potatoes. Taxpayers could elect to pay taxes due in cash rather than with 1/10 of their sweet potato crop. In most cases, the Confederate Army needed all types of meats and produce raised, but in this situation soldiers were receiving too many sweet potatoes. This is the only indication of a particular crop that was so abundant that the army could not utilize existing supplies.

With the exception of the Confederate “tax in kind,” the income tax provisions of the North and South during the Civil War were very similar. The current income tax system in the United States contains a significant number of regulations that were originally introduced by this Civil War legislation. The final portion of this paper reviews the numerous provisions that continue to fund our governmental operations and the Iraqi war effort in 2005.

INFLUENCE ON THE CURRENT U.S. INCOME TAX SYSTEM

As a conclusion to this paper, the authors want to emphasize how significantly the tax legislation of the 1860’s continues to influence our current Internal Revenue Code (IRC). The concepts of income inclusions, exclusions, deductions, penalties, and tax credits have served this country well in raising funds needed to operate the government and finance our current war efforts in Afghanistan and Iraq. The following tax regulations that were introduced by the Civil War tax legislation of the 1860’s have proved valuable enough to be retained in our current system.

The critically important concepts of self-reporting and self-assessment were introduced during the Civil War and continue to be employed today. The Internal Revenue Act in 1862 required taxpayers “to make a list or return” of the items of income that were being taxed. Taxpayers today continue to self-report and determine the amount of their income and deductions. The principle of “voluntary compliance” was also introduced in the 1860’s and continues in our current system as most taxpayers voluntarily file their returns.

Two other concepts that continue to be an integral part of our current tax system include progressive tax rates and the ability to pay principle. The tax legislation of 1862 considered the taxpayers ability to pay their taxes. With this in mind, income was taxed at a lower percentage rate for low income earners. This concept states that the amount of tax that a taxpayer can pay increases with the amount of their earnings. The 1862 law contains only 3 and 5% tax rates. These concepts continue to be utilized in 2005 with marginal tax brackets of 10%, 15%, 25%, 33%, and 35%. Married taxpayers earning more than \$326,450 in 2005 find themselves in the top tax bracket of

35%. Congress has continued to believe that upper income taxpayers have the “ability to pay” tax at a higher rate than lower income individuals.

The tax legislation of 1862 and 1864 introduced another concept that has proven valuable enough to be retained. This is the practice of “stoppage at the source” where wage earners have income taxes withheld from their earnings prior to receiving their paychecks. These Civil War tax laws required taxes to be withheld by employers on employees with income in excess of \$600. This allows taxpayers to “pay as they earn” and provides two benefits. First, the employee is not faced with a huge balance due at the end of the year since taxes are paid in small installments throughout the year. Second, the government receives the tax dollars on a timely basis and does not have to wait several months to collect the funds.

The general principle of collecting taxes on an annual basis was also introduced by the Civil War legislation. Taxpayers assessed their income during the calendar year and were required by the 1862 legislation to pay the balance due by June 30. This date proved to be too generous resulting in our current final payment date of April 15.

These early pieces of tax legislation also introduced the concept that the income tax must be paid by not only individuals but also any form of business. Section 11 of the National Tax Act required that taxes be paid by “Individuals, Partnerships, Firms, Associations, and Corporations.” This continues to be true in our current tax system as individuals, proprietorships, partnerships, and corporations must pay taxes on their earnings.

The concept of “comprehensive income” was also introduced during the Civil War. This concept states that income tax is due on all types of earnings unless that item is specifically excluded. Section 116 of the National Tax Act required taxes on “Annual gains, profits, or income, whether derived from any kind of property, rents, interests, dividends, salaries, or from any profession, trade, employment, or vocation.” The current IRC requires income to be paid on virtually any type of income with the exception of a few exclusions such as municipal interest income. Therefore, this policy continues to be valuable today as taxpayers report most types of receipts on their Form 1040.

Tax penalties were also included in the tax legislation of the 1860’s. Section 15 of the National Tax Act included fines of up to \$1,000 and one year in prison for filing a false return. In addition, fines for non-payment of tax resulted in a 10% late payment penalty. After thirty days, the National Tax Act contained a system for auctioning a taxpayer’s personal and real property to satisfy the tax lien. These penalties and numerous others continue to be included in our current IRC. In particular, the negligence and fraud penalties have been expanded in an effort to collect overdue taxes. Finally, the current penalty on substantial understatement of tax was included in the Civil War legislation. Section 8 of the Confederate law stated that if the “taxpayer does not report more than 4/5 of their true and real income,” the tax due on the understatement plus an additional 10% penalty was imposed. In the current IRC, this penalty of substantial understatement has been increase to 20%. Finally, the current IRC includes the most severe penalty when fraud is involved. If a

fraudulent underpayment of tax can be proved by the IRS, an additional 75% of the underpaid taxes are owed as a fraud penalty. In summary, penalties continue to be an important component of our tax law.

Two key deductions continue to be included in our tax system that had their roots in the Civil War legislation. They include the standard deduction and personal exemptions. In particular, the National Tax Act included an exemption of \$600 per working individual. This compares today to a standard deduction of approximately \$5,000 (single) and a personal exemption of a little more than \$3,000. This concept was introduced in the early legislation to insure that lower income individuals would owe no tax. This continues to be the case today for singles who earn less than \$8,000 (the total of the standard deduction and personal exemption). No tax is due for these low income taxpayers.

A final income tax provision that the authors would like to review is the development of income deductions. Section 117 of the National Tax Act allowed a deduction for “all national, state, or municipal taxes other than the federal income tax.” This continues to be important to taxpayers today who itemize their deductions. Our current Form 1040-Schedule A allows for the deduction of numerous taxes such as real estate and state income taxes. The National Tax Act was even more generous than current law as it allowed a deduction for “the amount paid for rent on a residence occupied by the taxpayer or his family.”

The items reviewed above are but a few of the tax provisions that were initially introduced during the 1860’s and continue to provide benefits in today’s income tax system. In addition to income taxes, the National Tax Act imposed other taxes that continue currently. For example, this early legislation introduced the concept of “sin taxes.” The Federal Government continues to collect significant taxes on the sale of alcoholic beverages. The 1864 law included a substantial tax on “spirits, ale, beer, and porter.” The concept of taxing alcoholic beverages and tobacco products remains a major fund raiser for the government.

As stated earlier, there are an extremely large number of income tax provisions that were originally introduced in the 1860’s and continue to be utilized today. The authors have only reviewed a small portion of the regulations that have proven valuable for nearly 150 years. It is without question that we can learn much from our history. The situation confronting the government during the Civil War is similar to our current war condition. Income tax funds continue to be desperately needed for both the Iraqi war effort and the hurricane disaster cleanup on the Gulf of Mexico coast.

CONCLUSION

One of the goals of this paper is to provide the reader with an overview of the very comprehensive tax legislation enacted by both the Union and the Confederacy during the Civil War. In an effort to raise sufficient funds to finance the war, both the Union and the Confederacy resorted

to new forms of taxation such as the income tax. Income taxes were a very difficult concept for the bulk of 1860's taxpayers to understand. This situation continues today as the majority of U.S. taxpayers utilize a paid preparer to complete their tax returns.

The authors also want to emphasize the large number of income tax principles and practices that were initially introduced during the Civil War era and continue to be included in our current Internal Revenue Code. The concepts of self-assessment, progressive tax rates, comprehensive income, deductions from income, and many other tax principles were introduced by the 1860's legislation. These practices continue to serve our country in the process of generating sufficient tax revenues to finance government operations that include both a war effort as well as major hurricane relief operations on the Gulf of Mexico coast.

REFERENCES

- Confederate States of America (1863). *The Tax Act of 24th April, 1863, As Amended*. Electronic Edition, Property of the University of North Carolina at Chapel Hill, available at the following site: <http://docsouth.dsi.internet2.edu/taxasses/taxasses.html> Call number 63 Conf. (Rare Books Collection, UNC-CH).
- Doris, Lillian (1963). *The American Way In Taxation: Internal Revenue, 1862-1963*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Hill, Joseph A. (1894). The Civil War Income Tax. *The Quarterly Journal of Economics*. Volume VIII, July 1894, p.416-452.
- National Tax Law as Approved June 30, 1864* (1864), New York, NY: Beadle and Company.
- Parnell, Archie (1980). *Congress and the IRS: Improving the Relationship*. Fund for Public Policy Research, Washington, D.C.
- Revised Regulations For The Army Of The United States, 1861* (1861). Philadelphia, PA: J.G.L. Brown, Printer.
- Tax.org – Tax Information Worldwide, retrieved from <http://tax.org/>, tax history museum section – 1861 to 1865.
- United States Treasury, “Fact Sheet OPC-77 – History of the Tax System in the United States”, retrieved from <http://www.ustreas.gov/opc/opc0077.html>

APPENDIX – GENERAL INFORMATION		
	National Tax Act (Union)	Confederate States of America
Required to Pay Taxes	Individuals, Partnerships, Firms, Associations, and Corporations (Sec. 11)	“Every person, co-partnership, association or corporation.” (TB Sec 1)
Filing Date	On or before the first Monday of May (Sec. 11)	January 1 st starting in 1864 (Sec. 7 VI)
Duration of Act	Through 1870 (Sec. 119)	Through 1865 unless repealed sooner (Sec. 18)
Penalty for False Return	Fine no greater than \$1,000 or imprisonment not more than one year, or both (Sec. 15)	If it is found “that the statement or estimate of income and profits rendered by the taxpayer does not contain more than 4/5 of the true and real amount of his taxable income and profits,” the tax payer can be held liable for the taxes due as well as an additional 10% (Sec.8)
Penalty for Non-Payment	A. If paid less than 10 days late: 10% additional upon tax due B. If still not paid after ten days, the collector must notify the individual, adding a .20 issuing fee, as well as mileage and the 10% additional fee. C. After an additional ten days the collector had the right to seize property to pay the tax. (Sec. 28)	A. Failure to pay taxes when due is an additional 10% upon the taxes already due B. It is then the duty of the tax collector to notify the individual within 20 days of the tax payers’ neglect to pay C. If still not paid after an additional 10 days, the collector has the right to seize property to pay the tax (AA Sec. 16)
Seizing Property to Pay Taxes—Personal Property	All items sold at public auction and government has the right to keep all proceeds that cover the tax due, necessary and reasonable expenses of the sale, and a 5% commission. Any remainder is returned to the owner of the seized property. All individuals are exempt from the sale of tools of his trade, one cow, arms and provisions, household furniture kept for own use and the apparel of his family. (Sec. 28)	All items sold at public auction and government has the right to keep all proceeds that cover the tax due, necessary and reasonable expenses of the sale, and a 5% commission. Any remainder is returned to the owner of the seized property. (AA Sec. 16)
Seizing Real Property to pay taxes	Authorized to sell property if personal property is not sufficient to cover the taxes due. Sold at cost of taxes due, 10% penalty, expenses associated with the sale, and an officer’s fee of \$10. Owner of seized property has the right to redeem the land within one year after sale for the cost paid by the purchaser plus 20% interest. (Sec. 30)	Authorized to sell property if personal property is not sufficient to cover the taxes due. Sold at cost of taxes due with an additional 20%. Owner has the right to redeem the land within two years by paying the collector the cost plus 20% interest per year. (AA Sec. 19)
For purposes of this table the Confederate Acts will be cited as follows: 1. Sec. - represents the Tax Act of April 24, 1863 2. TB - represents the Tax Bill 3. AA - represents the Assessment Acts		

APPENDIX – INCOME TAXES		
	National Tax Act (Union)	Confederate States of America
Who must pay	All individuals residing in the United States or any citizens of the United States living abroad (Sec. 116)	“The income and profits derived by each person, joint stock company and corporation from every occupation, employment or business, whether registered or not.” (Sec. 7)
Exemptions	<ol style="list-style-type: none"> 1. Anyone making less than \$600 per year. 2. Anyone who can prove he has already paid somewhere else (Sec. 118) 	<ol style="list-style-type: none"> 1. Property of each head of household \$500 2. Each minor \$100 3. Each son in the military or who had been killed in the military, \$500 4. Property of any widow of anyone killed during military service or where there is no widow the family \$1,000 5. Property of officers, soldiers, etc. “actually engaged in the military” or have been disabled, \$1,000 None of these exemptions apply to anyone whose assessed property is greater than \$1,000. (TB Sec. 5, I, II, III)
What is taxed and included in personal income	<p>“Annual gains, profits, or income, whether derived from any kind of property, rents, interests, dividends, salaries, or from any profession, trade, employment, or vocation.” (Sec. 116)</p> <p>Included in personal income:</p> <ol style="list-style-type: none"> 1. Interest above all that paid on all notes, bonds, and mortgages etc. (Sec. 117) 2. “All income or gains derived from the purchase and sale of stocks or other property, real or personal, and the increased value of livestock” (Sec. 117) 3. “Amount of sugar, wool, butter, cheese, pork, beef, mutton, or other meats, hay and grain, or other vegetable or other production of the estate of such person sold.” (Sec. 117) 	<p>Tax of 1% due on all salaries not exceeding \$1,500, and a 2% tax on the excess over that amount. All salaries of people in the military are exempt from the tax. No tax is due when salary is \$1,000 or less. (Sec. 6)</p> <p>Individuals will be taxed 10% on all profits made only in 1862 from the purchase and sale of “flour, corn, bacon, pork, oats, hay, rice, salt, or iron, or the manufactures of iron, sugar, molasses made of cane, leather, woolen cloths, shoes, boots, blankets and cotton cloths.” This tax does not apply to any purchases or sales from “the regular course of business.” (Sec. 9)</p> <p>Value of property real or personal and mixed unless otherwise stated, 5%. (TB Sec. 1, I)</p>
		<p>“Value of gold and silver wares and plate, jewels, jewelry, and watches, 10%.” (TB Sec. 1 II)</p> <p>“Value of shares or interests held in any bank, banking company or association, canal, navigation, importing or exporting, insurance, manufacturing, telegraph, express, railroad, and dry dock companies, and all other joint stock companies, 5%.” (TB Sec. 2)</p> <p>“Upon amount of all gold and silver coin, gold dust, gold or silver,” 5%.</p> <p>“All monies held abroad or upon the amount of all bills of exchange,” 5%. (TB Sec. 3 I)</p> <p>“Upon the amount of all solvent credits, and of all bank bill, and all other papers issued as currency, exclusive of non-interest bearing Confederate treasury notes, and not employed in a registered business, the income derived from which is taxed, 5%.” (TB Sec. 3 II)</p> <p>Also, on the tax “on bonds of the Confederate States heretofore issued, shall in no case exceed the interest on the same, and such bonds, when held by or for minors or lunatics, shall be exempt from the tax in all cases where the interest on the same shall not exceed \$1,000.” (Sec. 8)</p>

APPENDIX – INCOME TAXES																										
	National Tax Act (Union)	Confederate States of America																								
When is tax due?	Levied May 1 st and payable is due June 30 th until 1870. (Sec. 119)	Due on January 1 st starting in 1864. (Sec. 7 VI)																								
Tax brackets	<table border="0"> <thead> <tr> <th>Income</th> <th>Tax %</th> </tr> </thead> <tbody> <tr> <td>\$0-600</td> <td>none</td> </tr> <tr> <td>\$601-5,000</td> <td>5%</td> </tr> <tr> <td>\$5,001-10,000</td> <td>7.5%</td> </tr> <tr> <td>\$10,001+</td> <td>10%</td> </tr> </tbody> </table> <p>The tax is determined in such a way that the first \$600 earned is not taxed, the excess over that until \$5,000 is taxed at 5%, the excess over that until \$10,000 is taxed at 7.5%, etc.</p> <p>Only one deduction of \$600 allowed for the combined income of all individuals in a household (Sec. 116)</p>	Income	Tax %	\$0-600	none	\$601-5,000	5%	\$5,001-10,000	7.5%	\$10,001+	10%	<p>For all other occupations the tax is as follows:</p> <table border="0"> <thead> <tr> <th>Income</th> <th>Tax %</th> </tr> </thead> <tbody> <tr> <td>\$0-500</td> <td>none</td> </tr> <tr> <td>\$501-1,500</td> <td>5%</td> </tr> <tr> <td>\$1,500-3,000</td> <td>5% on first \$1,500 and 10% on excess</td> </tr> <tr> <td>\$3,001-5,000</td> <td>10%</td> </tr> <tr> <td>\$5,001-10,000</td> <td>12.5%</td> </tr> <tr> <td>\$10,001 +</td> <td>15%</td> </tr> </tbody> </table> <p>(Sec. 7)</p> <p>This bracket is used on all income other than from salaries, rents, manufacturing, navigations, shipbuilding, and sales of merchandise.</p>	Income	Tax %	\$0-500	none	\$501-1,500	5%	\$1,500-3,000	5% on first \$1,500 and 10% on excess	\$3,001-5,000	10%	\$5,001-10,000	12.5%	\$10,001 +	15%
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Deductions	<ol style="list-style-type: none"> All national, state or municipal taxes other than the national income tax (Sec. 117) “Salary or pay received for services in the civil, military, navel, or other service of the United States, including senators, representative, and delegates in Congress above the rate of \$600 per year.” (Sec. 117) Income from dividends on shares in any “bank, trust company, savings institution, insurance, railroad, canal, turnpike, canal navigation, or slack-water company” as well as the income from bonds in these companies. (Sec. 117) Amount paid for rent occupied by himself or his family (Sec. 117) 																									
Real Estate	Gains from sales of real estate within the year are added to income and losses are deducted from annual income. (Sec. 116)																									
Dividends	<p>Banks or company issuing the dividends in script or money shall pay a duty of 5%, which is deductible and withholdable from the account holders. (Sec 120)</p> <p>Any company who refuses to provide a list of the dividends payable will be penalized with a fine of \$1,000. (Sec. 120)</p>	<p>“All joint stock companies and corporations shall reserve 1/10 of the annual earning, set apart for dividend and reserved fund, to be paid to the collector of the Confederate tax, and the dividend then paid to the stockholder shall not be estimated as a part of his income for the purposes of this act.” (Sec. 7 VI)</p> <p>In addition, when the annual earnings “shall give a profit of more than 10 and less than 20%, 1/8 of said sum so set apart shall be paid as a tax, and in the case said sum so set apart shall give a profit of more than 20% on their capital stock paid in, 1/6 thereof shall be reserved and paid.” (Sec. 7, VI)</p>																								
Salaries of government employees—withholding	Any salaries exceeding \$600 to officers in the military branches or members of Congress shall be levied a duty of 5%, which the government may deduct and withhold from the payment of the individual. (Sec. 123)																									
Special Income Duty	In addition to the income tax already levied and collected on October 1, 1864 on the gains, profits, or income for the year ended December 31, “next																									

APPENDIX – INCOME TAXES		
	National Tax Act (Union)	Confederate States of America
	preceding the time herein named.” The duty will be “5% on all sums exceeding \$600.” In addition, “in estimating the annual gains, profits, or income as aforesaid, for the foregoing special income duty, no deductions shall be made for dividends or interest received from any association, corporation, or company, nor shall any deduction be made for any salary or pay received.” (Public Resolution No. 59)	
Payment Options		<p>“Secretary of the Treasury may prescribe regulations to enable any tax-payer to pay into the treasury, in advance such sum as he may choose on account of taxes to accrue against him, and to obtain therefore a certificate bearing interest at the rate of 5% a year until his taxes are payable, but such certificate shall not be transferable.” (AA Sec. 42)</p> <p>“When cotton or other property subject to taxation in money, shall have been burned or otherwise destroyed,” the taxpayer may ask for the tax to be removed from what is due or refunded. (Amendment 2/13/1864)</p>
Penalties	Anything not received for an additional 10 days after June 30 th will be assessed an additional 10%. (Sec. 119)	Any person providing a “false or fraudulent list or statement, with intent to defeat or evade the valuation” will be fined up to \$500 as well as the cost of the trial. (AA Sec. 9)
<p>For purposes of this table the Confederate Acts will be cited as follows:</p> <ol style="list-style-type: none"> 1. Sec. - represents the Tax Act of April 24, 1863 2. TB - represents the Tax Bill 3. AA - represents the Assessment Acts 		

APPENDIX – TAXES IN KIND		
	National Tax Act (Union)	Confederate States of America
Reserves Allowed		<ol style="list-style-type: none"> 1. 50 bushels of sweet potatoes 2. 50 bushels of Irish potatoes 3. 100 bushels of corn or 50 bushels of wheat 4. 20 bushels of peas or beans in total (Sec. 10)
Taxes in Kind Due		<ol style="list-style-type: none"> 1. Individuals “must pay and deliver to the government 1/10 of the wheat, corn, oats, rye, buckwheat or rice, sweet and Irish potatoes, and of the cured hay and fodder.” (Sec. 10) 2. In addition 1/10 of the sugar, molasses made of cane or sorghum, when the farmer produces “more than 30 gallons,” cotton, wool, and tobacco. (Sec. 10) 3. 1/10 of the peas, beans, and ground peas produced during the year. (Sec. 10) 4. Any farmer that slaughters hogs will be charged a tax in kind “an equivalent for 1/10 of the same in cured bacon, at the rate of 60 pounds of bacon to the 100 weight of pork.” Government also has the authority to demand salt pork instead of the bacon (Amendment 12/28/1863)
Exemptions		<ol style="list-style-type: none"> 1. Each family head not worth more than \$500 (Sec. 10 I) 2. “Each family head with minor children, not worth more than \$500 for himself and \$100 for each minor living with him, and \$500 in addition thereto, for each minor son he has living, or may have lost, or had disabled in the military.” (Sec. 10 II) 3. “Each officer, soldier, or seaman, in the army or navy, or who has been discharged therefrom for wounds, and is not worth more than \$100.” (Sec. 10 III) 4. “Each widow of any officer, soldier, or seaman, not worth more than \$1,000.” (Sec. 10 IV) 5. Farmers are also exempt if they do not produce more than 50 bushels of Irish potatoes, 200 bushels of corn, 20 bushels of peas and beans, 10 pounds of wool or more than 15 pounds of ginned cotton. (Sec. 10 IV)
Exceptions		<ol style="list-style-type: none"> 1. Any time the crop to be paid is “taken or destroyed by the enemy the district collector may remit the tax.” (Sec. 2, Amendment 2/13/1864) 2. For the year 1863, the producers of sweet potatoes may pay the tax in kind with cash (Amendment 12/28/1863)
Penalties		If the farmer does not deliver the goods by the due day, “he shall be liable to pay five times the estimated value of the portion aforesaid.” (Sec. 10 IV)
<p>For purposes of this table the Confederate Acts will be cited as follows:</p> <ol style="list-style-type: none"> 1. Sec. - represents the Tax Act of April 24, 1863 2. TB - represents the Tax Bill 3. AA - represents the Assessment Acts 		

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