

CHINA AND U.S. FINANCIAL RATIO COMPARISON

**Chunhui Liu
Grace O'Farrell
University of Winnipeg**

ABSTRACT

Financial ratios may be misinterpreted when comparing companies of different countries in making foreign direct investment (FDI) decisions due to differences in accounting standards, business practices, and economic environments. This study reexamined the potential differences in eleven major financial ratios between Chinese and U.S. companies previously studied in 1995. To improve the generalizability of the research findings, 60 Chinese companies from three major industries receiving the highest cumulative U.S. FDI were compared with a matched sample of 60 U.S. companies for year 2006.

The findings indicated lower current, quick, long term debt to total capital, asset turnover ratios, and gross profit margin but higher duration of payables. Many of the differences in these financial ratios could be explained by differences in accounting standards, business practices, and economic environments found in the two countries. The updated knowledge of the significant differences in ratios may help protect public investors' interests when decisions are made to invest in China for a promising return.

INTRODUCTION

Emerging markets have been a boon to many investors' portfolios (Zambell, 2007). Emerging markets are the markets in a transitional phase between developing and developed status such as those in the so-called BRIC countries: Brazil, Russia, India and China. Lipper, a Reuters company and a global leader in supplying mutual fund information, cited an average return of 32% for emerging market funds, 26% for international funds, and 12% for domestic funds in 2006 (Zambell, 2007). The MSCI/Barras Emerging Markets index has gained an average 12.4% a year over the past 15 years, vs. 11.1% a year for the S&P 500 with dividends reinvested (Waggoner, 2007). Due to the great potential of return, the investment into emerging markets has been on the rise. Morgan Stanley estimates that net portfolio inflows into emerging markets are \$50.2 billion (U.S.) in 2007, against \$15.2 billion in the same period a year ago and \$12.5 billion in 2005 (Saft, 2007). In addition, the emerging markets are also believed by many to be the markets of the future (Waggoner, 2007).

Out of all emerging markets, China is the most promising and attractive investment destination. China has been the fastest growing major nation in the past quarter of a century with an annual average GDP above 10%. Both successful exports and climbing domestic demand are driving this growth. In the United Nations Conference on Trade and Development (UNCTAD)'s World Investment Prospects Survey, the most attractive foreign direct investment (FDI) destination country for 2007-2009 is China. According to UNCTAD World Investment Report 2007, China continues to host the largest number of foreign affiliates in the world, accounting for one third of all foreign affiliates of transnational corporations (TNCs) worldwide and is among the front-runners with high FDI potential.

U.S. FDI in China has increased rapidly over the years. According to the Bureau of Economic Analysis in the U.S. Department of Commerce, U.S. annual capital outflows into China has almost quadrupled from \$1,323 million in 1994 to \$6,329 million in 2007 while income from such capital outflows has increased 85 times from \$68 million in 1994 to \$5,877 million in 2007. The 33rd largest bilateral outward FDI stock in 2005 was that from the United States into China according to UNCTAD World Investment Report 2007. As a result of the increased investment in China, U.S. investors need to be able to compare, analyze, and interpret the financial accounting information prepared under the Chinese accounting standards.

Investors and security analysts often analyze financial ratios to compare the strengths and weaknesses in various companies (Groppelli & Nikbakht, 2000). Ratio analysis is an integral part of the analysis of financial statements, which is a critical step before making any foreign investment (Reuvid & Li, 2000), because it quantifies a company's performance in many aspects such as the company's ability to make a profit (profitability), ability to pay off debts due within a year (liquidity), ability to pay off debts due after a year (solvency or stability), and the ability to manage financial resources (activity or efficiency). Financial ratios are often compared across companies and against industry standards to judge their relative strengths and weaknesses and for decision makers to take appropriate financing and investment decisions.

However, ratio comparison of companies across countries may lead to significant misinterpretation. Financial ratios of Chinese companies may be subject to misinterpretation by U.S. investors due to differences in accounting principles, culture and institutional environments, business practices, and economic environments. China has fully adopted IFRS since January 1, 2007 while the U.S. is still using U.S. GAAP in financial reporting. Chinese culture is centered on relationships whereas American culture is centered on individuals. Besides the difference between collectivists versus individualists, Chinese people tend to be more conservative and risk-averse. China is a country with socialism in transition from a planned economy to a market economy whereas the U.S. is a country with market capitalism. GDP growth for China was estimated to be 11.4% in 2007 versus 2.2% for the U.S. as per the CIA World Fact Book.

Research has shown that such differences are likely to reduce the understandability and comparability of financial accounting information. Fuglister (1997) compared 11 financial ratios of 13 Chinese companies with U.S. companies matched by industry group and company size. The research found Chinese firms to have a lower asset turnover ratio, possibly due to their high growth nature, higher average collection period possibly due to overstated accounts receivable and the need to ensure stable employment, and lower debt to net worth ratio (contrary to what hypothesized) possibly due to the risk averseness of Chinese private shareholders.

Despite the potential differences in ratio comparison identified by Fuglister, the research findings are limited by the uncertain reliability of data and small size of sample firms (Fuglister, 1997). Because of such limitations, the findings might not be representative of firms of the two countries in general. In addition, as China has been rapidly changing in recent years, it is difficult to know if findings from 1995 data are still valid today.

The purpose of this research is to update and extend the former research with an improved method by comparing the 11 financial ratios of 60 Chinese firms from three major manufacturing industries receiving the highest cumulative U.S. FDI with a matched sample of U.S. companies by industry and company size. Both practicing and academic accountants have a common belief that international accounting harmonization could be achieved through a better understanding of differences in practices across countries (Beazley, 1968; Alhashim & Garner, 1973). Prather and Rueschhoff (1996) argue that comparative studies, especially those involving

developing countries, are particularly useful in developing models and theories concerning accounting harmonization. However, Davis-Friday and Rivera (2000) note that little research exists examining the accounting information from developing countries. Therefore, results of this study should be of particular interest to investors, analysts, standard-setters, and regulators, and will contribute to research on the feasibility of international accounting harmonization.

PREVIOUS RESEARCH

Several previous studies have examined and compared financial ratios among different countries. Significant differences have been found between financial ratios of Latin American (Etter, Lippincott, & Reck, 2006), and Italian (Hagigi & Sponza, 1990) companies with matched U.S. companies. Significant differences have also been found between financial ratios of Chinese companies and their matched Japanese companies (Liu & Wei, 2008).

Etter, Lippincott, and Reck (2006) found lower liquidity on the part of the Latin American companies likely due to the presence of significant short-term debt resulting from high inflation rates in those countries. Chinese companies are found to have lower liquidity than Japanese companies possibly resulting from a lower rate of provision for bad debts by Japanese companies and significantly heavier reliance on short-term debt among Chinese companies (Liu & Wei, 2008).

Hagigi and Sponza (1990) found that Italian companies had lower solvency ratios than U.S. companies. They attributed the higher debt to equity ratio in Italy to the lack of adequate regulation necessary to protect investors and to the desirable privacy offered by debt financing. They attributed the lower interest coverage ratio in Italy to the low profitability and heavy debt financing in Italian companies. On the other hand, Etter, Lippincott, and Reck (2006) found Latin American companies to have higher solvency than U.S. companies. Etter, Lippincott, and Reck (2006) argued that Latin American companies' effort in attracting foreign equity investment, their heavy use of retained earnings in financing expansions, and their special accounting practice such as little to no reporting of pension/post-retirement liabilities or deferred tax liabilities and no permission for capital lease accounting for lessees might contribute to lower debt to equity ratios. Chinese companies are found to have lower solvency than Japanese companies partially resulting from the significantly lower interest rates charged in Japan (Liu & Wei, 2008).

Etter, Lippincott, and Reck (2006), and Hagigi and Sponza (1990) found U.S. companies to have higher activity ratios in general. Etter, Lippincott, and Reck (2006) attributed the lower inventory turnover in Latin American companies to overstock inventory carried as a result of import restrictions, currency restrictions, underdeveloped transportation systems, and underdeveloped infrastructure; revaluation of inventory due to inflation; and FIFO cost flow assumptions taken in Latin American companies. Hagigi and Sponza (1990) noted that lower inventory turnover in Italy resulted from high inventory levels kept to avoid underutilization of an immobile labor force at high labor costs. Liu and Wei (2008) attributed the lower Chinese inventory turnover ratio in comparison to Japanese inventory turnover to the accounting practice of carrying inventory at cost and to the high logistic cost in China which encouraged overstock inventory. Etter, Lippincott, and Reck (2006) argued that the lack of efficiency in collecting receivables, the emphasis on exports, currency restrictions on both local and foreign funds, and the inclusion of finance charges in receivable balances resulted in lower receivable turnover in Latin American companies. Hagigi and Sponza (1990) noted that lower receivable turnover in

Italy was related to the longer collection period due to lower interest charges on receivables in Italy.

Hagigi and Sponza (1990) found the return on assets ratio for Italian companies lower than U.S. companies likely due to overstated assets from capitalized financing costs incurred for purchase and credit sales. On the other hand, Etter, Lippincott, and Reck (2006) found Latin American companies had higher profit margins due to higher selling prices due to inflation in a protected and less competitive market; lower labor cost due to lower employee wages, benefits, and pensions; and different accounting practices which may lead to lower expenses such as capitalizing research and development expenditures, no use of LIFO, and little accounting for deferred income tax liabilities. For the asset turnover ratio, Fuglister (1997), Etter, Lippincott, and Reck (2006) attributed the lower asset turnover in Chinese and Latin American companies to the large investment in fixed assets by high growth companies whose current sales do not reflect expected capacity levels. Etter, Lippincott, and Reck (2006) indicated that revaluation of asset values for inflation could be another contributing factor. They also noted the capitalization of research and development and the capitalization of leased assets might also affect asset turnover ratio.

These studies noted significant differences in many financial ratios between the companies of different countries. Furthermore, the researchers attributed many of the results to differences in accounting practices, business practices and economic environments between the countries under comparison. Given the differences in accounting principles, business practices, and economic environments between Chinese and U.S. companies, it is anticipated that significant differences should exist between their financial ratios. Such differences need to be revealed so that U.S. investors' financial interests can be protected.

Due to the lack of empirical analysis of differences between Chinese and U.S. accounting standards, Fuglister (1997) explored the potential ratio differences between Chinese and U.S. firms. During the fall of 1995, graduate students in an international accounting class at Wuhan University in Wuhna, China, performed ratio analysis on 13 Chinese companies. Subsequently, in the spring of 1996, graduate students in an international accounting class at Cleveland State University performed ratio analysis on 13 U.S. companies matched by industry and size to the Chinese companies. The differences between the ratios for the Chinese and U.S. firms were then statistically analyzed. The study revealed lower asset turnover in Chinese companies possibly due to the large investment in fixed assets by high growth companies whose current sales did not reflect expected capacity levels. Chinese firms were also found to have longer average collection periods, likely due to their efforts toward providing stable employment. Companies are often flexible with their collection of accounts receivable in order to ensure a continuing stable commercial relationship with the buyer and to aid in the maintenance of a stable employment base. The study also found that Chinese firms had lower debt to net worth ratios (contrary to hypothesis 1) and higher interest coverage ratios, possibly due to the shift from debt to equity financing in China with more Chinese companies going public, Chinese aversion to borrowing, and the risk averseness of Chinese shareholders.

Though Fuglister's study contributed in revealing potential differences in financial ratios between Chinese and U.S. firms due to differences in their business practices and culture, the generalizability of the study was limited by the uncertainty of data reliability and small sample size as recognized by the researcher (Fuglister, 1997). The research design was exploratory in nature, so the 13 sample Chinese firms were selected for no specific reason other than the students' interest. Such a design limited the generalizability and usefulness of the research

findings by general U.S. investors. In addition, in the face of rapid change in China, the research findings based on 1995 data may not be applicable to investors today.

This research is to extend Fuglister's research with up-to-date data and a larger sample size of randomly selected Chinese firms from three manufacturing industries receiving the highest cumulative U.S. FDI with a matched sample of U.S. companies by industry and company size. This research may contribute to protecting public investors' interests and helping them to make sound investment judgments by identifying the potential financial ratio differences between Chinese and U.S. companies not due to performance differences. This research may also contribute to the future efforts in the harmonization of international accounting policies and practices.

RESEARCH METHOD

The financial ratios are calculated for firm year 2006 based on financial data collected from Mergent Online.

According to the Bureau of Economic Analysis in the U.S. Department of Commerce, the Chinese industry receiving the largest amount of U.S. cumulative direct investment from 1994 to 2006 is the manufacturing industry. Since the top three manufacturing industries receiving U.S. cumulative direct investment have been chemicals, computers and electronic products, and transportation equipment, Chinese sample firms are taken from these three industries. As these companies are also from the industries that received a significant percentage of U.S. direct equity investment, they should be of particular interest to investors, analysts, standard-setters, and regulators.

A total of 60 Chinese firms were represented: 30 sample Chinese firms were randomly selected from the chemicals industry, 17 from the computers and electronic products industry, and 13 from the transportation equipment industry to reflect the relative percentage of investment into these three major manufacturing industries in 2006. Each industry was identified through its NAICS code. The sample Chinese companies were matched with similar U.S. companies based on company size (sales revenue) and industry classification (SIC code). No significant difference was found in sales revenue for the overall matched sample. Table 1 gives the profile of companies selected.

After the companies were selected and their financial data gathered, 11 financial ratios were calculated for the U.S. and Chinese samples. The formulas for these ratios are provided in the Appendix.

Due to the non-normal distribution of the data, the two-tailed, nonparametric, Wilcoxon Sign-Rank Test was used to compare the ratios from Chinese companies against those from their respective matched U.S. companies.

EMPIRICAL RESULTS AND DISCUSSION

Table 2 reports the results of the ratio comparisons of the Chinese and U.S. companies. Significant differences are identified between Chinese and U.S. companies in liquidity ratios, solvency ratios, activity ratios and profitability ratios.

Table 1
Profiles of Companies Compared

Prim. NAICS codes	Industry SIC codes and descriptions	Frequency
325 Chemical Manufacturing	2812 Alkalis and chlorine	2
	2819 Industrial inorganic chemicals, nec	6
	2821 Plastics materials and resins	4
	2833 Medicinals and botanicals	6
	2834 Pharmaceutical preparations	22
	2836 Biological products except diagnostic	6
	2851 Paints and allied products	4
	2873 Nitrogenous fertilizers	2
	2875 Fertilizers, mixing only	2
	2841 Soap and other detergents	2
2899 Chemical preparations, nec	4	
334 Computer and Electronic Product Manufacturing	3651 Household audio and video equipment	2
	3661 Telephone and telegraph apparatus	2
	3669 Communications equipment, nec	4
	3674 Semiconductors and related devices	8
	3677 Electronic coils and transformers	2
	3679 Electronic components, nec	8
	3829 Measuring & controlling devices, nec	2
	3822 Environmental controls	4
3845 Electro-medical equipment	2	
336 Transportation Equipment Manufacturing	3711 Motor vehicles and equipment	8
	3714 Motor vehicle parts and accessories	12
	3743 Railroad equipment	2
	3751 Motorcycles, bicycles, and parts	2
	3799 Transportation equipment, nec	2
Total number of companies compared		120

Table 2
Mean Financial Ratios of 2006 for Chinese and U.S. Companies (Wilcoxon Sign-Rank Test, Two-Tailed Test)

Category	Financial Ratios	Chinese Mean	U.S. Mean	Z-Stat
Liquidity	Current ratio	1.38	4.00	-5.35 **
	Quick ratio	1.08	3.25	-4.56 **
Solvency	Debt to net worth ratio	1.97	1.37	-1.19
	Long term debt to total capitalization	0.06	0.18	-2.55 *
	Interest coverage ratio	21.96	18.92	-1.37
Activity	Collection period	85.84	60.57	-2.15 *
	Inventory turnover	8.77	7.64	-1.38
	Duration of payables	94.71	58.06	-2.43 *
Profitability	Asset turnover	0.67	1.10	-3.45 **
	Net profit margin	10.64	0.02	-2.14 *
	Gross profit margin	0.88	2.34	-2.67 **

*denotes significant difference at $p < 0.05$; ** denotes significant difference at $p < 0.01$

Liquidity Ratios

Chinese companies are found to have lower liquidity as both quick ratio [(current assets – inventory)/current liabilities] and current ratio [current assets/current liabilities] are significantly higher for U.S. companies. Such findings attest to Fuglister’s expectation that short-term debt is preferred to long-term debt in China (Chen, 2004). What this means to U.S. investors is that one should expect liquidity ratios of Chinese firms to be significantly lower than what one might expect of similar sized, similar industry U.S. firms. When taking an investment decision, a U.S. investor might need to consider liquidity ratios in Chinese firms of 1 to 1.5:1 as approximately equivalent to 3 to 4:1 in U.S. firms, due to differences in the underlying assumptions in the ratio.

Wilcoxon Sign-Rank Tests of current liabilities/total assets and current liabilities/total liabilities reveal a significantly higher percentage of current liabilities in the total financing for Chinese companies at $p < 0.01$ as illustrated in Table 3. Table 3 provides empirical evidence for the heavy reliance on short-term debt in China. On average, about 60 percent of total assets were financed through current liabilities in China while only 26 percent of total assets were financed through current liabilities in the U.S.

Table 3
Short-term Debt in Total Financing (Wilcoxon Sign-Rank Test, Two-Tailed Test)

	China Mean	U.S. Mean	Z-Stat	
Current liabilities/Total assets	0.60	0.26	-5.23	**
Current liabilities/Total liabilities	0.90	0.73	-3.78	**

** denotes significant difference at $p < 0.01$

The small sample size used in Fuglister’s research (1997) did not identify such significant difference even though the proposed hypothesis about lower Chinese current ratio is still valid today.

Solvency Ratios

Similar to Fuglister’s research, Chinese companies are found to have significantly lower long term debt to total capital ratio as Chinese banks lend short term to avoid the risk of interest rate variations (Fuglister, 1997). Such a bank preference plays a significant role because in China, enterprises rely heavily on bank loans rather than on equity financing (Davidson, Gelardi, & Li, 1996). The risk adverse Chinese culture’s effect identified more than ten years ago is still apparent today.

Unlike Fuglister’s research, no significant difference is found in interest coverage ratio [earnings before interest and tax/interest expense] between Chinese companies and U.S. companies. Fuglister proposed higher Chinese interest coverage ratios than their U.S. counterparts because of the cheaper interest cost commonly expected of short-term borrowing which is much more heavily relied upon in China. However, higher Chinese earnings before interest and tax may create movement in the opposite direction. Therefore, the profitability difference between companies of the two countries which was not identified in Fuglister’s research but recognized in this research may partially explain such a difference. In addition, with the U.S. Federal government’s recent interest rate cuts to avoid recession and the Chinese government’s rise in interest rates to fight against inflation, interest rate differences between these two countries is expected to change constantly through time. Therefore, it is advisable to

keep such changing economic conditions in mind when comparing the interest coverage ratios of companies in the two countries.

Activity Ratios

Chinese companies are found to have a higher duration of payables [accounts payable / daily purchases] and higher collection period [accounts receivable / daily sales] than their U.S. counterparts. Such differences may be a result of the social pressure to ensure stable employment (Davidson, Gelardi, & Li, 1996). Chinese suppliers tend to extend credit to maintain long-term relationships with their customers in the relation-oriented culture. The phenomenon of triangle debts still exists in China. In addition, repayment extensions may be granted to stabilize the employment base (Choi et al., 1983).

Activity ratios of collection periods and duration of payables are significantly longer in Chinese firms than U.S. firms. This finding can be directly related to expected repayment terms in each country. For example, net 60 may be the more usual terms provided by suppliers in the U.S. for these types of industries. In contrast, net 90 may be the more expected repayment terms between Chinese firms. As such, potential investors should expect to find similar significant differences in these benchmark ratios when comparing similar sized, similar industry firms in China versus in the U.S. Investors may be well advised to consider repayment terms of net 90 to be the benchmark for these ratios in China versus the more standard net 60 expected in the U.S.

Profitability Ratios

Chinese companies are found to have lower gross profit margins [(sales – cost of sales)/sales] and asset turnover ratios [revenue/average total assets].

Export policies which tend to keep prices low might contribute to lower profit margins. According to the country analysis briefs of the Energy Information Administration, China's exports were 35% of total GDP while the U.S.' exports were only 8% of GDP in 2005. From 1978 to 2006, the Chinese export proportion to the world exports rose from 0.8% to 8%. German Chancellor Angela Merkel cited the study finding of the Swiss Prognos Institute that "in 2009, China will replace the world export champions for the past half century, Germany and the U.S., at the top of the league table" in her opening address at the World Economic Forum on January 24, 2007. China's export policy and low pricing strategy may have contributed to the significantly lower gross profit margins of Chinese companies.

Despite their lower gross profit margins, Chinese companies also have lower asset turnover than U.S. companies. Fuglister (1997) attributed the lower asset turnover in Chinese companies to the large investment in fixed assets by high growth companies whose current sales do not reflect expected capacity levels. Wilcoxon Sign-Rank Test results listed in Table 4 empirically attest to Fuglister's argument as fixed asset turnover [revenue/average fixed assets] in China is significantly lower than that in U.S while Chinese companies' fixed assets are a significantly higher proportion of total assets than those of U.S. companies. In addition, the different accounting practice for depreciating fixed assets or long-term assets may be another reason for Chinese companies' lower asset turnover ratios. As Winkle, Huss, and Chen (1994) indicated, fixed assets are mostly depreciated using the straight-line method in China whereas U.S. companies may choose to use other depreciation methods such as accelerated depreciation which normally depreciates fixed assets' values quicker with a higher depreciation rate. Such

differences in accounting practices may lead to higher total assets and thus lower asset turnover in Chinese companies in the early years of fixed assets' useful life.

Table 4
Fixed Assets and Return (Wilcoxon Sign-Rank Test, Two-Tailed Test)

	China Mean	U.S. Mean	Z-Stat	
Fixed assets/Total assets	0.33	0.18	-4.36	**
Revenue/Average fixed assets	3.70	11.14	-4.99	**

** denotes significant difference at $p < 0.01$

SUMMARY AND CONCLUSIONS

This study reexamines the potential differences in financial ratios between Chinese and U.S. companies with 60 matched pairs of companies from three major manufacturing industries most attractive to U.S. investors for the year 2006. In general, Chinese companies are found to have lower current, quick, long term debt to total capital, asset turnover ratios, and gross profit margins but higher duration of payables. This study confirms some research findings from more than 10 years ago by Fuglister but also reveals many significant differences in ratios that were not identified in the previous study possibly due to a much smaller sample size used in that study. Eight out of eleven ratios compared revealed significant differences between Chinese firms and U.S. firms in the same industry.

Clearly, potential U.S. investors cannot rely on standard ratio benchmarks that are based on U.S. GAAP and expect to be able to apply them directly to evaluating firms in China or other foreign countries. As discussed in depth in this paper, the underlying assumptions are different, rendering direct comparability inappropriate and potentially misleading. One needs to factor in differences in accounting standards, business practices, and cultural and economic environments and preferences into this equation and make investment judgments based on these more well-rounded decision criteria.

In addition, this study identifies significant improvements made in disclosure concerning interest expense, depreciation, land rent, and aging of accounts receivable in Chinese financial statements since the previous study was made. Detailed information can be found in the notes to financial statements. About 90% of Chinese companies provide detailed information about interest expense in the note for finance charges and about land rent in the note for intangible assets. Besides, more than 80% of the Chinese companies studied also provide more information than U.S. companies on the useful years and rate of depreciation for different categories of fixed assets and rate of provision for doubtful accounts receivable of different age periods.

With the growth of financial markets and businesses in China, there are tremendous investment opportunities for U.S. investors. The results and subsequent discussion in this study suggest that a successful and comprehensive analysis of Chinese financial ratios can only be conducted with an understanding of the underlying accounting standards, business practices, and economic environments which influence them. In addition, instead of comparing financial ratios of Chinese firms against those of U.S. firms, investors may benefit more from comparing financial ratios of a Chinese firm of interest against those of its competitors or against industry averages or standards in China.

The research findings of this research may be limited by its sample size. Future research may conduct longitudinal analysis on ratio differences between China and U.S. to identify any

change in such differences due to international accounting harmonization efforts from both countries.

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About the Authors:

Chunhui Liu is an assistant professor at the University of Winnipeg. Her current research interests include international accounting harmonization, emerging markets, ecommerce, and computer-user interface. Dr. Liu has been published in *International Journal of Human Computer Studies* and *Information & Management*. She has presented papers in these fields in numerous academic conferences including the IABPAD conference.

Grace O'Farrell is a faculty member in the Department of Business and Administration at the University of Winnipeg. Her current research interests include international accounting harmonization, cost/benefit analysis of employee benefit programs, and person-organization fit. She has published in the *Ivey Business Journal*, *HR Professional Magazine*, and *the Journal of Drug Issues*. She has presented papers at a multitude of academic conferences including the IABPAD conference.

APPENDIX

Financial Ratios

Category	Ratio	Formula used	Description
Liquidity	Current ratio	= $\frac{\text{Current assets}}{\text{Current liabilities}}$	Used to analyze the ability to repay short-term debts.
	Quick or Acid test ratio	= $\frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$	
Solvency	Interest coverage ratio	= $\frac{\text{Earnings before interest and tax}}{\text{interest expense}}$	Used to analyze the ability to repay long-term debts.
	Debt to net worth Or debt to equity	= $\frac{\text{Total debt}}{\text{Total shareholders' equity}}$	
	Long-term debt to total capitalization	= $\frac{\text{Long-term debt}}{(\text{Long-term debt} + \text{shareholders' equity})}$	
Activity	Average collection period	= $\frac{365 * \text{Receivables}}{\text{Annual credit sales}}$	Used to analyze the ability to manage financial resources.
	Inventory turnover	= $\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	
	Duration of Payables Or Days Payables	= $\frac{365 * \text{Accounts payable}}{\text{Purchases}}$	
Profitability	Asset turnover	= $\frac{\text{Sales}}{\text{Total Assets}}$	Used to analyze a firm's use of its assets and control of its expenses to generate an acceptable rate of return
	Net profit margin	= $\frac{\text{Net profit after tax}}{\text{Sales}}$	
	Gross profit margin	= $\frac{(\text{Sales} - \text{Cost of goods sold})}{\text{Sales}}$	

The ratios selected for analysis are the same ones studied by Fuglister, 1997.

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About the Authors:

Benjamin B. Boozer, Jr. received his Ph.D. from Auburn University in 2008. He is a Business Consultant with the Center for Economic Development and an Adjunct Professor of Finance in the College of Commerce and Business Administration at Jacksonville State University in Jacksonville, AL. He has published in several scholarly journals, including the *Journal of Business and Economic Perspectives*, *Journal of International Business Research*, *Journal of Legal, Ethical, and Regulatory Issues*, *International Journal of Business Research*, and *International Journal of Business and Public Administration*.

Keith Lowe received his Ph.D. from The University of Alabama in 2007. He is an Assistant Professor of Statistics in the College of Commerce and Business Administration at Jacksonville State University in Jacksonville, AL. He has published in several scholarly academic journals, including the *E-Business Review*, *Journal of International Business Research*, *Journal of Legal, Ethical, and Regulatory Issues*, *Journal of Educational Leadership*, *Journal of Education Research*, and the *International Journal of Business Research*.