A COMPARISON OF THE FINANCIAL CHARACTERISTICS OF U.S., U.K., GERMAN, AND FRENCH MANUFACTURING FIRMS

Ilhan Meric*
College of Business Administration, Rider University

Larry Prober
College of Business Administration, Rider University

Joe Kim
College of Business Administration, Rider University

Gulser Meric
College of Business, Rowan University

ABSTRACT

This article compares the financial characteristics of U.S. firms with the financial characteristics of U.K., German, and French firms in four major manufacturing industries by using the MANOVA (Multivariate Analysis of Variance) method with data for the January 1997-December 2001 period. The findings indicate that the financial characteristics of U.S. and European manufacturing firms are significantly different. The most significant differences are between U.S. firms and German firms. U.S. firms are generally more profitable and they have lower return-on-equity volatility risk in comparison with European firms.

Key Words: U.S., U.K., Germany, France, manufacturing firms, financial characteristics

INTRODUCTION AND LITERATURE REVIEW

Comparing the financial characteristics of different groups of firms has been a popular methodology in the finance literature. Altman (1968), Beaver (1968), Deakin (1972), Moyer (1977), Edmister (1972), and Dambolena and Khoury (1980) predict bankruptcy by comparing the financial characteristics of bankrupt and healthy firms.

*Corresponding author. College of Business Administration, Rider University Lawrenceville, New Jersey 08648 Tel.: (609) 895-5537 E-mail: meric@rider.edu

First Received: November 7th, 2004
Final Revision Accepted: July 30th, 2005

https://doi.org/10.51240/jibe.2005.1.4

Stevens (1973), Belkaoui (1978), Rege (1984), and Meric, Leveen, and Meric (1991) identify the financial characteristics of target companies, which are acquired, by comparing them with companies, which do not become the target of corporate takeovers. Hutchinson, Meric, and Meric (1988) and Meric and Meric (1992) identify the financial characteristics of listed companies, which achieve stock market quotation, by comparing them with companies without stock market quotation. Meric, Kyj, Welsh, and Meric (2000) compare the financial characteristics of Japanese *kieretsu*-affiliated and independent firms to identify the financial characteristics of *kieretsu*-affiliated firms. Kester (1986) and Wald (1999) compare the capital and ownership structures of firms in different countries.

In recent years, there has been a marked increase in the number of empirical studies that compare the financial characteristics of firms in different countries. Generally, there are two main objectives in these studies: The first objective is to provide information to corporate managers regarding the differences and similarities in corporate management practices in different countries. The second objective is to provide information to global investors by comparing the financial characteristics of firms in different countries.

Meric and Meric (1989, 1994) compare the overall financial characteristics of U.S. and Japanese manufacturing firms with data from 28 different industries. They combine the financial characteristics of the firms into principal component clusters and compare them with the multivariate analysis of variance (MANOVA) technique. They determine that the financial characteristics of U.S. and Japanese firms are significantly different in terms of liquidity, asset management, financial leverage, and profitability.

Some empirical studies focus on certain industries. Meric, Romeo, Marmon, and Meric (1997a) compare the financial characteristics of U.S. and Japanese firms in the machinery and equipment industry. Meric, Ross, Weidman, and Meric (1997b) compare the financial characteristics of U.S. and Japanese Chemical firms. Meric, Welch, Pritchard, and Meric (2000) compare the financial characteristics of U.S. and Japanese Electronics firms. All three studies use the MANOVA technique and determine that the financial characteristics of U.S. and Japanese manufacturing firms are significantly different.

Meric, Gishlick, McCall, and Meric (2003) find significant differences between the financial characteristics of U.S. and Canadian manufacturing firms. Meric, Weidman, Welsh, and Meric (2002) compare U.S., E.U., and Japanese manufacturing firms and find that their financial characteristics are significantly different. Meric, Prober, Eichhorn, and Meric (2004) compare the financial characteristics of manufacturing firms within the E.U. They conclude that, despite economic integration, the differences between the financial characteristics of firms in different E.U. countries persist. In all of these studies the MANOVA method is the statistical

technique of choice.

In this study, our objective is to make a contribution to the literature on inter-country comparisons by comparing the financial characteristics of U.S. manufacturing firms with the financial characteristics of manufacturing firms in the three largest European countries: the U.K., Germany, and France. There is fierce competition between U.S. firms and European firms to capture a greater market share in each other's local markets and in the world's other markets. Knowing how the financial characteristics of U.S. manufacturing firms compare with the financial characteristics of European firms would be helpful to corporate managers everywhere in the world in managerial decision-making. This study also provides useful information to global investors about the comparative financial characteristics of U.S. and European manufacturing firms in terms of liquidity, asset management, financial leverage (indebtedness), profitability, and risk.

DATA AND METHODOLOGY

The study covers the following four manufacturing industries: 1. Food and Kindred Products (SIC: 20); 2. Chemicals and Allied Products (SIC: 28); 3. Industrial Machinery and Equipment (SIC: 35); and, 4. Electronic and Electrical Equipment (SIC: 36). These are the four major manufacturing industries included in most recent studies of inter-country comparisons (see, e.g., Meric, Romeo, Marmon, and Meric 1997a, Meric, Ross, Weidman, and Meric 1997b, Meric, Welch, Pritchard, and Meric 2000, Meric, Weidman, Welsh, and Meric 2002, Meric, Gishlick, McCall, and Meric 2003, and Meric, Prober, Eichhorn, and Meric 2004).

The data of the study are drawn from the Disclosure/Worldscope database for the January 1997-December 2001 period. All the firms in the database with no missing data for the time period studied were selected and the country with the smallest number of usable firms is determined in each industry. An equal number of firms were picked randomly from the other three countries in the same industry to facilitate the cross-comparisons of the univariate and multivariate F-value statistics with the same degrees of freedom. The numbers of firms included in the study from the four manufacturing industries are presented in Table 1.

Table 1. Sample Used in the Study

SIC	Industry	Number of Firms				
		U.S.	U.K.	Ger.	Fra.	Total
20	Food & Kindred Products	14	14	14	14	56
28	Chemicals & Allied Products	18	18	18	18	72
35	Industrial Machinery & Equipment	17	17	17	17	68

36	Electronic & Electrical Equipment	18	18	18	18	72
	TOTAL	67	67	67	67	268

Multiple Discriminant Analysis (MDA) (Altman 1968, Stevens 1973, Belkaoui 1978) and Multivariate Analysis of Variance-MANOVA (Hutchinson, Meric, and Meric 1988, Meric, Leveen, and Meric 1991, and Meric, Ross, Weidman, Meric 1997b) are the two techniques most commonly used in previous studies to compare the financial characteristics of different groups of firms. In this study, we use the MANOVA technique to compare the financial characteristics of U.S., U.K., German, and French manufacturing firms.

Financial ratio values tend to fluctuate from year to year. The financial ratios of a firm computed with data for a single year may be influenced by some temporary unusual circumstances occurring in that year and they may not represent the true financial characteristics of the firm. Therefore, the financial ratios used in this study are five-year averages for the January 1997-December 2001 period. Approximately the first half of this time period was a bull market and the second half was a bear market in both the U.S. and Europe. Therefore, the sample period chosen can help avoid any distortions that may be caused by different market conditions in the U.S. and Europe. Furthermore, the fact that the sample period covers both a bull-market period and a bear-market period would help avoid bull-market or bear-market conditions dominating and distorting the results.

Nine well-known financial ratios are used in the study as measures of various financial characteristics of firms such as liquidity, asset turnover, financial leverage (indebtedness), profitability, and risk. The descriptions of the financial ratios used in the study are presented in Table 2. The U.K., Germany, and France are members of the European Union (E.U.) and they have similar accounting systems. The financial statements and accounting practices of U.S. firms and E.U. firms are also similar (Coopers and Lybrand 1993). This allows us to make meaningful comparisons with financial ratios.

Table 2. Financial Ratios Used in the Study

Symbol	Financial Ratio
Liquidity	
CR	Current Ratio = Current Assets / Current Liabilities
QR	Quick Ratio = (Current Assets - Inventories) / Current Liabilities
Asset Turnover	
INVT	Inventory Turnover = Sales / Inventories
TAT	Total Assets Turnover = Sales / Total Assets

Financial Leverage	
EQR	Equity Ratio = Total Common Equity / Total Assets
Profitability	
PROF	Operating Profit Margin = Operating Profit / Sales
ROA	Return on Assets = Net Income / Total Assets
ROE	Return on Common Equity = Net Income / Common Equity
Risk	
CV	Coefficient of Variation = Standard Deviation of ROE / Average ROE

MANOVA TESTS

Food and Kindred Products Industry

The MANOVA results for the "Food and Kindred Products" industry are presented in Table 3. The multivariate test statistics show that the overall financial characteristics of U.S. firms are significantly different from the overall financial characteristics of German and French firms in this industry. The multivariate F-value figures indicate that the differences between U.S. firms and German firms are more significant than the differences between U.S. firms and French firms. However, the differences between the overall financial characteristics of U.S. firms and U.K firms are not statistically significant.

Table 3. MANOVA Statistics for the Food and Kindred Products Industry

Ratio	Mean and Standard Deviation*				Univariate F-value Statistics					
					U.S. vs. U.K.		U.S. vs. Ger.		U.S. vs. Fra.	
	U.S.	U.K.	Ger.	Fra.	F	Sig.	F	Sig.	F	Sig.
Liquidity										
CR	1.24	1.13	1.85	2.08						
	(0.72)	(0.65)	(0.90)	(1.44)	0.18	0.68	3.91	0.06	3.82	0.06
QR	0.65	0.63	1.12	1.54						
	(0.46)	(0.23)	(0.75)	(1.51)	0.01	0.91	4.14	0.05	4.55	0.04
Asset Turnover										
INVT	6.47	8.28	10.57	8.67						
	(3.43)	(5.53)	(6.78)	(5.41)	1.08	0.31	4.08	0.05	1.65	0.21
TAT	1.19	1.18	1.51	1.20						
	(0.29)	(0.70)	(0.91)	(0.49)	0.00	0.96	1.60	0.22	0.01	0.94
Financial Leverage										
EQR	0.33	0.46	0.33	0.41						
	(0.21)	(0.18)	(0.13)	(0.17)	3.13	0.09	0.00	0.97	1.22	0.28
Profitability										
PROF	0.15	0.12	0.01	0.05						
	(0.07)	(0.11)	(0.03)	(0.05)	0.44	0.51	49.13	0.00	20.89	0.00

ROA	0.12	0.07	0.04	0.04						
	(0.05)	(0.04)	(0.03)	(0.02)	6.18	0.02	23.93	0.00	23.54	0.00
ROE	0.28	0.16	0.09	0.08						
	(0.14)	(0.13)	(0.09)	(0.05)	6.42	0.02	18.33	0.00	25.73	0.00
Risk										
CV	0.37	0.83	0.77	1.29						
	(0.17)	(0.96)	(0.94)	(1.53)	3.07	0.09	2.48	0.13	4.97	0.04
Multivariate F-value Statistics					**0.98**	**0.49**	**5.00**	**0.00**	**3.28**	**0.02**

* The figures in parentheses are the standard deviations.

The univariate test statistics indicate that German firms and French firms have significantly higher liquidity levels as compared with U.S. firms. The inventory-turnover ratio is also significantly higher in German firms than in U.S. firms. However, the financial leverage levels of U.S. firms and European firms are not significantly different. The U.S. profitability ratios are generally significantly higher than European profitability ratios. However, the U.S. and U.K. profit margin ratios are not significantly different. The coefficient-of-variation (CV) test statistics show that the French return-on-equity ratios are significantly more volatile than the U.S. return-on-equity ratios, i.e., French firms are riskier than U.S. firms.

Chemicals and Allied Products Industry

The MANOVA results for the "Chemicals and Allied Products" industry are presented in Table 4. The multivariate F-value figures show that the overall financial characteristics of U.S. firms are significantly different from the overall financial characteristics of U.K., German, and French firms at the one-percent level. The multivariate test statistics indicate that the most significant differences are between U.S. firms and German firms.

Table 4. MANOVA Statistics for the Chemicals and Allied Products Industry

Ratio	**Mean and Standard Deviation***				**Univariate F-value Statistics**					
					U.S. vs. U.K.		**U.S. vs. Ger.**		**U.S. vs. Fra.**	
	U.S.	**U.K.**	**Ger.**	**Fra.**	**F**	**Sig.**	**F**	**Sig.**	**F**	**Sig.**
Liquidity										
CR	1.59	1.72	2.40	1.58						
	(0.72)	(0.79)	(1.09)	(0.57)	0.27	0.61	7.06	0.01	0.00	0.99
QR	0.96	1.10	1.49	1.08						
	(0.52)	(0.54)	(0.85)	(0.42)	0.64	0.43	5.20	0.03	0.59	0.45
Asset Turnover										
INVT	3.97	4.25	4.75	4.95						
	(1.65)	(1.82)	(3.29)	(1.99)	0.25	0.62	0.81	0.38	2.61	0.12
TAT	0.87	1.08	1.27	0.82						

	(0.25)	(0.31)	(0.75)	(0.34)	4.89	0.04	4.64	0.04	0.28	0.60
Financial Leverage										
EQR	0.41 (0.12)	0.48 (0.14)	0.40 (0.14)	0.41 (0.14)	2.39	0.13	0.08	0.78	0.01	0.94
Profitability										
PROF	0.18 (0.06)	0.09 (0.04)	0.05 (0.03)	0.07 (0.06)	25.58	0.00	61.69	0.00	29.92	0.00
ROA	0.11 (0.05)	0.06 (0.04)	0.07 (0.03)	0.07 (0.04)	7.75	0.01	7.93	0.01	8.04	0.01
ROE	0.24 (0.13)	0.14 (0.12)	0.15 (0.08)	0.13 (0.08)	5.27	0.03	6.12	0.02	9.25	0.01
Risk										
CV	0.60 (0.44)	1.04 (0.93)	0.62 (0.43)	0.78 (0.90)	3.24	0.08	0.01	0.91	0.58	0.45
Multivariate F-value Statistics					**5.03**	**0.00**	**7.88**	**0.00**	**7.03**	**0.00**

* The figures in parentheses are the standard deviations.

The univariate test statistics show that German firms have significantly higher liquidity levels as compared with U.S. firms. The total-assets-turnover ratios are also significantly higher in U.K. and German firms than in U.S. firms. The financial leverage levels of U.S. firms and European firms are not significantly different. All profitability ratios are significantly higher in U.S. firms than in European firms. The coefficient-of-variation (CV) test statistics indicate that the volatility of the return-on-equity ratio is not significantly different in U.S. and European firms.

Industrial Machinery and Equipment Industry

The MANOVA results for the "Industrial Machinery and Equipment" industry are presented in Table 5. The multivariate F-value figures show that the overall financial characteristics of U.S. firms are not significantly different from the overall financial characteristics of U.K. and French firms in this industry. However, the overall financial characteristics of U.S. firms are significantly different from the overall financial characteristics of German firms at the one-percent level.

Table 5. MANOVA Statistics for the Industrial Machinery and Equipment Industry

Ratio	Mean and Standard Deviation*				Univariate F-value Statistics					
					U.S. vs. U.K.		U.S. vs. Ger.		U.S. vs. Fra.	
	U.S.	U.K.	Ger.	Fra.	F	Sig.	F	Sig.	F	Sig.
Liquidity										
CR	1.87 (0.84)	1.85 (0.72)	2.23 (0.61)	1.99 (0.61)	0.01	0.93	1.98	0.17	0.20	0.66

QR	1.23	1.22	1.19	1.41						
	(0.80)	(0.62)	(0.53)	(0.54)	0.01	0.95	0.03	0.86	0.54	0.47
Asset Turnover										
INVT	6.76	5.16	3.56	6.25						
	(5.91)	(3.14)	(1.28)	(3.43)	0.98	0.33	4.77	0.04	0.09	0.76
TAT	1.09	1.18	1.26	1.27						
	(0.48)	(0.26)	(0.21)	(0.48)	0.55	0.46	1.90	0.18	1.25	0.27
Financial Leverage										
EQR	0.43	0.46	0.31	0.44						
	(0.20)	(0.12)	(0.14)	(0.13)	0.37	0.55	4.00	0.05	0.06	0.80
Profitability										
PROF	0.12	0.08	0.03	0.07						
	(0.05)	(0.04)	(0.04)	(0.08)	5.14	0.03	31.37	0.00	4.36	0.05
ROA	0.09	0.06	0.05	0.08						
	(0.05)	(0.05)	(0.04)	(0.07)	1.29	0.27	4.82	0.04	0.11	0.74
ROE	0.18	0.13	0.14	0.16						
	(0.10)	(0.11)	(0.12)	(0.13)	1.95	0.17	1.67	0.21	0.47	0.50
Risk										
CV	1.14	1.25	1.64	2.09						
	(0.89)	(1.66)	(1.51)	(2.67)	0.06	0.80	1.38	0.25	1.97	0.17
Multivariate F-value Statistics					**2.13**	**0.07**	**8.35**	**0.00**	**1.70**	**0.15**

* The figures in parentheses are the standard deviations.

The univariate test statistics indicate that the liquidity and total-assets-turnover ratios are not significantly different in U.S. and European firms. However, the inventory-turnover, equity, and return-on-assets ratios are significantly lower in German firms than in U.S. firms. The profit margin ratio is significantly higher in U.S. firms than in European firms. However, the return-on-equity ratio and the volatility of the return-on-equity ratio are not significantly different in U.S. and European firms.

Electronic and Electrical Equipment Industry

The MANOVA test statistics for the "Electronic and Electrical Equipment" industry are presented in Table 6. The multivariate test statistics show that the overall financial characteristics of U.S. firms are significantly different from the overall financial characteristics of U.K. and German firms at the one-percent level. The multivariate F-value statistics indicate that there are more significant differences between U.S. firms and German firms than between U.S. firms and U.K. firms. However, the overall financial characteristics of U.S. firms and French firms are not significantly different in this industry.

Table 6. MANOVA Statistics for the Electronic and Electrical Equipment Industry

Ratio	Mean and Standard Deviation*				Univariate F-value Statistics					
					U.S. vs. U.K.		U.S. vs. Ger.		U.S. vs. Fra.	
	U.S.	U.K.	Ger.	Fra.	F	Sig.	F	Sig.	F	Sig.
Liquidity										
CR	2.83 (1.35)	2.06 (1.35)	2.86 (1.79)	1.92 (0.62)	2.94	0.10	0.00	0.96	6.64	0.02
QR	2.07 (1.22)	1.38 (1.27)	1.67 (1.40)	1.30 (0.48)	2.75	0.11	0.84	0.37	6.20	0.02
Asset Turnover										
INVT	4.67 (1.36)	4.37 (1.72)	4.26 (1.48)	5.78 (4.09)	0.34	0.57	0.74	0.40	1.18	0.29
TAT	0.91 (0.29)	1.28 (0.52)	1.31 (0.41)	1.15 (0.27)	7.06	0.01	11.67	0.00	6.46	0.02
Financial Leverage										
EQR	0.61 (0.19)	0.49 (0.16)	0.37 (0.15)	0.45 (0.13)	4.09	0.05	17.83	0.00	8.03	0.01
Profitability										
PROF	0.14 (0.12)	0.07 (0.06)	0.01 (0.08)	0.07 (0.05)	5.65	0.02	15.18	0.00	6.15	0.02
ROA	0.10 (0.08)	0.06 (0.05)	0.04 (0.04)	0.06 (0.05)	4.64	0.04	7.55	0.01	4.33	0.05
ROE	0.16 (0.10)	0.09 (0.10)	0.09 (0.13)	0.10 (0.08)	4.08	0.05	3.38	0.08	3.27	0.08
Risk										
CV	1.04 (0.80)	1.82 (1.56)	2.55 (1.76)	1.20 (1.24)	3.58	0.07	10.93	0.00	0.22	0.64
Multivariate F-value Statistics					**3.51**	**0.01**	**6.82**	**0.00**	**1.42**	**0.23**

* The figures in parentheses are the standard deviations.

The univariate test statistics indicate that the liquidity ratios are significantly higher in U.S. firms than in French firms. Although the inventory-turnover ratio is similar in both U.S. firms and European firms, the total-assets-turnover ratio is significantly higher and the equity ratio is significantly lower in European firms than in U.S. firms. The profitability ratios are generally significantly higher in U.S. firms than in European firms. The coefficient-of-variation (CV) test statistics show that the German return-on-equity ratios are significantly more volatile than the U.S. return-on-equity ratios, i.e., German firms are significantly riskier than U.S. firms.

MANOVA Tests with Data for All Four Industries

In this segment of the study, the MANOVA tests are applied to the combined

sample of 268 firms from all four industries to compare the overall financial characteristics of U.S. manufacturing firms and European manufacturing firms. The findings are presented in Table 7. The multivariate test results show that the overall financial characteristics of U.S. firms are significantly different from the overall financial characteristics of U.K., German, and French firms at the one-percent level. The multivariate F-value statistics indicate that the most significant overall difference is between U.S. firms and German firms.

Table 7. MANOVA Statistics for All Four Industries

Ratio	Mean and Standard Deviation*				Univariate F-value Statistics					
					U.S. vs. U.K.		U.S. vs. Ger.		U.S. vs. Fra.	
	U.S.	U.K.	Ger.	Fra.	F	Sig.	F	Sig.	F	Sig.
Liquidity										
CR	1.92 (1.11)	1.72 (0.97)	2.37 (1.23)	1.88 (0.85)	1.25	0.27	4.86	0.03	0.05	0.82
QR	1.26 (0.96)	1.11 (0.82)	1.39 (0.96)	1.32 (0.81)	1.01	0.32	0.57	0.45	0.14	0.71
Asset Turnover										
INVT	5.39 (3.66)	5.36 (3.53)	5.53 (4.45)	6.28 (3.96)	0.00	0.96	0.04	0.84	1.83	0.18
TAT	1.00 (0.35)	1.18 (0.46)	1.33 (0.61)	1.10 (0.43)	6.30	0.01	14.47	0.00	2.09	0.15
Financial Leverage										
EQR	0.45 (0.21)	0.47 (0.15)	0.35 (0.14)	0.43 (0.14)	0.52	0.47	10.29	0.00	0.47	0.50
Profitability										
PROF	0.15 (0.08)	0.09 (0.07)	0.03 (0.05)	0.07 (0.06)	19.27	0.00	101.5	0.00	43.70	0.00
ROA	0.10 (0.06)	0.06 (0.04)	0.05 (0.04)	0.06 (0.05)	17.72	0.00	35.08	0.00	18.51	0.00
ROE	0.21 (0.13)	0.13 (0.11)	0.12 (0.11)	0.12 (0.09)	16.43	0.00	22.29	0.00	23.85	0.00
Risk										
CV	0.81 (0.71)	1.26 (1.35)	1.43 (1.48)	1.33 (1.74)	5.84	0.02	9.53	0.00	5.27	0.02
Multivariate F-value Statistics					**5.67**	**0.00**	**18.89**	**0.00**	**6.56**	**0.00**

* The figures in parentheses are the standard deviations.

The univariate test statistics indicate that the liquidity level is generally similar in U.S. and European firms. However, German firms have significantly higher current ratios and financial leverage as compared with U.S. firms. The inventory-turnover ratios are not significantly different in U.S. and European firms. However, the total-

assets-turnover ratios are significantly higher in U.K. and German firms than in U.S. firms. All three profitability ratios are significantly higher in U.S. firms than in European firms at the one-percent level. The coefficient-of-variation (CV) test statistics indicate that the volatility of the return-on-equity ratio is significantly higher in European firms than in U.S. firms, i.e., European firms have significantly higher risk levels in comparison with U.S. firms.

ANALYSIS OF THE FINDINGS AND CONCLUSIONS

In this study, we have compared the financial characteristics of U.S. firms with the financial characteristics of U.K., German, and French firms in four major manufacturing industries by using the MANOVA (Multivariate Analysis of Variance) technique with data for the January 1997-December 2001 period. The multivariate test statistics indicate that the overall financial characteristics of U.S. manufacturing firms and European manufacturing firms are significantly different.

The most significant differences are between U.S. firms and German firms in all four industries. It is not likely that the differences are due to the presence of firms with East German origin in the sample. The unification of West Germany and East Germany took place in 1990. The inefficient East German firms are likely to have adopted the more efficient manufacturing technologies in West German firms during the 1990s. The fact that the characteristics of German firms are different from the characteristics of U.K. and French firms imply that, despite economic and financial integration, the differences in country-specific firm characteristics persist within the European Union.

The liquidity ratios measure the ability of the firm to meet its maturing obligations. The liquidity of U.S. firms is significantly lower than the liquidity of German and French firms in the "Food and Kindred Products" industry and significantly lower than the liquidity of German firms in the "Chemicals and Allied Products" industry. U.S. firms could increase their liquidity in these industries to improve their ability to meet maturing obligations.

The findings indicate that the inventory-turnover ratios in U.S. firms are not significantly different from the inventory-turnover ratios in U.K. and French firms. However, the U.S. inventory-turnover ratios are significantly higher in the "Industrial Machinery and Equipment" industry and significantly lower in the "Food and Kindred Products" industry in comparison with German firms.

Total-assets-turnover ratios are generally higher in European firms than in U.S. firms. Firms in all three European countries have significantly higher total-assets-turnover ratios as compared with U.S. firms in the "Electronic and Electrical Equipment" industry. German firms also have significantly higher total-assets-turnover ratios in comparison with U.S. firms in the "Chemicals and Allied

Products" industry. A high total-assets-turnover ratio appears to be an important European superiority as compared with their U.S. counterparts. It appears that U.S. firms could further improve their profitability by increasing their total assets turnover rates.

European firms appear to use more financial leverage in comparison with U.S. firms. All three European countries have significantly higher debt ratios (i.e., significantly lower equity ratios) as compared with U.S. firms in the "Electronic and Electrical Equipment" industry. German firms also have significantly higher debt ratios as compared with U.S. firms in the "Chemicals and Allied Products" industry. These findings indicate that U.S. firms could improve their profitability by increasing their debt ratios. However, a high debt ratio indicates a high level of financial risk. These findings also imply that European firms have more financial risk as compared with U.S. firms.

U.S. manufacturing firms are generally more profitable than European manufacturing firms. In European firms, the high total-assets-turnover rates affect their total asset returns and the high financial leverage levels affect their equity returns favorably. Therefore, the U.S. superiority in profitability is mainly due to the significantly higher profit-margin ratios of U.S. firms in comparison with European firms. Since it is difficult for firms to increase their profit margins by raising product prices in competitive global markets, the high level of U.S. profit margins can be attributed to the ability of U.S. firms to keep their manufacturing costs low in comparison with their European counterparts.

The volatility of the return-on-equity ratio affects the firm's stock price adversely. Therefore, the return-on-equity volatility risk is important both to corporate managers and to investors. The findings indicate that the volatility of the return-on-equity ratio is significantly higher in European manufacturing firms than in U.S. manufacturing firms. European manufacturing firms appear to have more return-on-equity volatility risk in comparison with U.S. manufacturing firms.

REFERENCES

Altman, E. I. 1968. Financial Ratios, Discriminant Analysis, and the Prediction of Corporate Bankruptcy. *Journal of Finance* 23 (4): 589-609.

Beaver, W. H. 1968. Alternative Financial Ratios as Predictors of Failure. *Accounting Review* 43 (1): 113-122.

Belkaoui, A. 1978. Financial Ratios as Predictors of Canadian Takeovers. *Journal of Business Finance and Accounting* 5 (1): 93-108.

Coopers & Lybrand (International). 1993. *International Accounting Summaries: A Guide for Interpretation and Comparison*. 2nd edition. New York: John Wiley & Sons, Inc.

Dambolena, I. G., and S. J. Khoury. 1980. Ratio Stability and Corporate Failure.

Journal of Finance 35 (4): 1017-1026.

Deakin, E. B. 1972. A Discriminant Analysis of Predictors of Business failure. *Journal of Accounting Research* 10 (1): 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 (2): 1477-1493.

Hutchinson, P., I. Meric, and G. Meric. 1988. The Financial Characteristics of Small Firms which Achieve Quotation on the UK Unlisted Securities Market. *Journal of Business Finance and Accounting* 15 (1): 9-19.

Kester, W. C. 1986. Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Firms. *Financial Management* 15 (1): 5-16.

Meric, G., L. Kyj, C. Welch, and I. Meric. 2000. A Comparison of the Financial Characteristics of Japanese Kieretsu-Affiliated and Independent Firms. *Multinational Business Review* 8 (2): 26-30.

Meric, G., S. S. Leveen, and I. Meric. 1991. The Financial Characteristics of Commercial Banks Involved in Interstate Acquisitions. *Financial Review* 26 (1): 75-90.

Meric, G., and I. Meric. 1992. A Comparison of the Financial Characteristics of Listed and Unlisted Companies. *Mid-Western Journal of Business and Economics* 7 (1): 19-31.

Meric, I., H. E. Gishlick, C. W. McCall, and G. Meric. 2003. A Comparison of the Financial Characteristics of U.S. and Canadian Manufacturing Firms. *Midwestern Business and Economic Review* 31 (1): 25-33.

Meric, I., and G. Meric. 1989. A Comparison of the Financial Characteristics of U.S. and Japanese Manufacturing Firms. *Financial Management* - FM Letters - 18 (4): 9-10.

Meric, I., and G. Meric. 1994. A Comparison of the Financial Characteristics of United States and Japanese Manufacturing Firms. *Global Finance Journal* 5 (1): 205-218.

Meric, I., L. Prober, B. Eichhorn, and G. Meric. 2004. Integration and the Financial Characteristics of Manufacturing Firms in the European Union. *American Business Review* 22 (2): 88-96.

Meric, I., G. Romeo, R. Marmon, and G. Meric. 1997a. A Comparison of the Financial Characteristics of U.S. and Japanese Machinery and Equipment Manufacturing Firms. *International Review of Economics and Business* 44 (3): 695-704.

Meric, I., L. Ross, S. Weidman, and G. Meric. 1997b. A Comparison of the Financial Characteristics of U.S. and Japanese Chemical Firms. *Multinational Business Review* 5 (2): 23-27.

Meric, I., S. M. Weidman, C. N. Welsh, and G. Meric. 2002. A Comparison of the Financial Characteristics of U.S., E.U., and Japanese Manufacturing Firms.

American Business Review 20 (2): 119-125.

Meric, I., C. Welsh, R. Pritchard, and G. Meric. 2000. A Comparison of the Financial Characteristics of U.S. and Japanese Electronics Firms. *Asia Pacific Journal of Management* 17 (1): 175-185.

Moyer, R. C. 1977. Forecasting Financial Failure: A Re-examination. *Financial Management* 6 (1): 11-17.

Rege, U. P. 1984. Accounting Ratios to Locate Take-over Targets. *Journal of Business Finance and Accounting* 11 (3): 301-311.

Stevens, D. L. 1973. Financial Characteristics of Merged Firms: A Multivariate Analysis. *Journal of Financial and Quantitative Analysis* 8 (2): 149-158.

Wald, J. K. 1999. How Firm Characteristics Affect Capital Structure: An International Comparison. *Journal of Financial Research* 22 (2): 161-187.