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The Determinants of Profitability in the Liquor Industry[ϖ]

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This paper uses several measures of profitability to examine the determinants of profitability for the liquor industry. Following Leahy (1998), this paper tests the proposition that profitability is related to the functions performed and risks assumed by a company. Specifically, three measures of profitability are examined and related to proxies for the functions performed and/or risks assumed by those manufacturers. The results vary according to the measure of profitability employed, i.e., the significance of the independent variables may depend on the profitability measure employed. These findings support those of Leahy (1998), who found that the results did not vary systematically according to estimation method. **JEL: D4, L6.**

1. Introduction

A great deal of research has been done on the determinants of profitability in manufacturing (see Schmalensee, 1989). The focus of this debate has been on the appropriate measure of profitability. Most of the prior work in this area has been on inter-industry studies of profitability with the exception of Leahy (1998), which examines the profitability of distributors. As in Leahy (1998), this study focuses on inter-firm determinants of profitability, but for a manufacturing industry, i.e., that of Standard Industrial Classification (SIC) code 2085—Distilled and Blended Liquors.

This paper uses several measures of profitability to examine the determinants of profitability for this industry. The SIC Manual (1987) defines this industry as consisting of establishments primarily engaged in manufacturing alcoholic liquors, cordials, and alcoholic cocktails (SIC, p. 80).

2. Methodology

Following Leahy (1998), this paper tests the proposition that profitability is related to the functions performed and risks assumed by a company. Specifically, three measures of profitability are examined and related to proxies for the functions performed and/or risks assumed by those manufacturers. The three profitability measures used and their definitions are as follows:

1) Gross margin = gross profit / sales
2) Operating margin = operating profit / sales
3) Berry Ratio = gross profit / operating expenses[1]

The gross margin relates a company's gross income to its sales. Gross income reflects in part the value added by a manufacturer. The operating margin relates a company's operating income after depreciation to its sales. Operating income is a measure of the reward that a manufacturer earns for its functions. The Berry ratio relates a company's value added (gross margin) to the cost of providing the manufacturing function. The average values of these profitability measures are shown in Table 1.

[1] The Berry ratio was developed by Dr. Charles Berry in conjunction with the U.S. tax court case DuPont de Nemours & Co., v. U.S. (1978). This case involved transfer pricing between a U.S. parent company and a foreign subsidiary distributor of chemicals.

Table 1: Average Values of Profit Level Indicators, 2000

Gross Margin (%)	Operating Margin (%)	Berry Ratio
39.9	11.1	0.46

Using 2000 data for all active non-American Depository Receipt liquor manufacturers contained in SIC code 2085 having greater than \$50 million in sales for which all data were available from the Thomson Financial database, the basic model estimated is as follows:

$$PM = b_0 + b_1 SGA/SALES + b_2 INV/COGS + b_3 AR/SALES + b_4 AP/COGS + b_5 DEP/SALES + e \quad (1)$$

where:

PM = profitability measure, i.e., gross margin, operating margin, or Berry ratio

SGA/SALES = selling and general administrative expenses / net sales

INV/COGS = inventory / cost of goods sold

AR/SALES = accounts receivable / net sales

AP/COGS = accounts payable / cost of goods sold

DEP/SALES = depreciation / net sales

e = an error term with mean zero and constant variance

The SGA/SALES variable is designed to capture the effect of a company's operating expenses on profitability. A manufacturer with a high ratio of operating expenses to sales expends more effort per sales dollar and is expected to earn higher profits as a result. This ratio also provides a measure of the risk assumed from the manufacturer's contractual obligations.

The INV/COGS variable measures the impact of inventory levels with respect to cost of goods sold on profitability. This impact includes the risk associated with taking title and carrying inventory. The sign of the coefficient of this variable cannot be predicted in advance. On the one hand, higher inventory levels are a drain on profitability. On the other hand, a distributor with higher inventory levels is also providing a valuable function and undertaking a risk that should enhance profitability. We cannot tell in advance which of these forces is more important.

The AR/SALES variable measures the impact of a company's credit function on profitability. This impact includes the risk associated with extending credit. It is expected that the higher the ratio of accounts receivable to sales, the greater the manufacturer's profitability. Otherwise, there would be no reason for the company to provide this function.

The AP/COGS variable is designed to capture the effect of borrowing on the profitability of a company. It also measures the manufacturer's ability to negotiate the terms of purchases. The impact of this variable on profitability depends upon how the business is financed. If the manufacturer has to borrow to make up for accounts payable, then the higher the ratio of accounts payable to cost of goods sold, the lower the expected profitability. If, on the other hand, the business is financed through retained earnings, then the higher the ratio of accounts payable to cost of goods sold, the higher the expected profitability if the cost of using retained earnings is less than the cost of borrowing. We cannot tell in advance which of these forces is more important.

Lastly, the DEP/SALES variable measures the extent of depreciation with respect to sales, which the company carries. It measures the effect of differences in the costs and risks associated with the technology employed by the manufacturer on profitability. As with the INV/COGS and AP/COGS variables, the sign of the coefficient of this variable cannot be predicted in advance. The higher the level of depreciation, the higher are the costs of the company and therefore, the lower is the expected profitability. On the other hand, the greater the depreciation, the greater the risk associated with the functions performed by the manufacturer and the higher the expected profitability.

3. Regression Analysis

The results of the estimation of equation (1) are shown in Table 2.

Table 2: Regression Results for Liquor Manufacturers, 2000[a]

	Gross Margin	Operating Margin	Berry Ratio
Intercept	0.077* (1.07)	0.124 (2.15)	0.098 (0.90)
SGA/ Sales	0.74 (4.84)	-0.167 (1.36)	0.746* (3.24)
Inv/ COGS	0.149** (2.58)	0.139* (3.02)	0.254* (2.93)
AR/ Sales	-0.238 (1.15)	-0.440** (2.65)	0.498 (1.60)
AP/ COGS	0.317*** (1.84)	0.209 (1.52)	0.452*** (1.75)
Dep/ Sales	1.309 (1.13)	0.915 (0.99)	1.97 (1.13)
R^2	0.77	0.41	0.68
F	12.58	2.64	7.98
N	25	25	25

* Significant at the 1 percent level

** Significant at the 5 percent level

*** Significant at the 10 percent level

a t-statistics in parentheses.

As can be seen from Table 2, the gross margin and Berry Ratio results for liquor manufacturers show that the SGA/SALES, INV/COGS, and the AP/COGS variables are significant determinants of profitability. In these cases, the coefficients of the SGA/SALES and INV/COGS variables are both positive. The former result suggests that the expected return associated with undertaking additional functions and risk outweighs the costs associated with higher levels of selling and general administrative expenses. The latter result suggests that the effect of the greater risk associated with the inventory function performed by the distributor outweighs the drain on profitability associated with higher inventory levels. The coefficient of the AP/COGS is also positive. This result suggests that the effect of the additional cost associated with having greater accounts payable is outweighed by the impact of the lower cost associated with using retained earnings to finance the business.

The operating margin results for the liquor manufacturers again show the coefficient of the INV/COGS variable to be a positive and significant determinant of profitability. In addition, the AR/SALES variable is a significant determinant of profitability. The sign of the coefficient of this variable, however, is negative, contrary to expectations. To the extent that accounts receivable includes bad debt, it is possible that the latter would exert a negative influence on profitability. No breakout of the data is possible to examine this possibility.[2] The coefficients of the SGA/SALES and the AP/COGS variables are no longer significant in this equation.

2 It is possible that profitability increases with the level of AR/SALES up to a point and thereafter decreases. However, no evidence of a quadratic relationship between these variables was found.

4. Conclusion

This paper has examined the determinants of profitability of liquor manufacturers. As in Leahy (1998), the results vary according to the measure of profitability employed, i.e., the significance of the independent variables may depend on the profitability measure employed. The obvious conclusion to draw about this empirical research is that these findings support those of Leahy (1998), who found that the results did not vary systematically according to estimation method.

References

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Thomson Analytics, Thomson Financial database. See http://www.thomson.com/financial for further details.

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Book Review

UNCTAD (2002) - World Investment Report 2002: Transnational Corporations and Export Competitiveness. United Nations: New York & Geneva. PP 350. ISBN 92-1-112551-0.

The 2002 edition of the World Investment Report (henceforth WIR 2002) bears the title "Transnational Corporations and Export Competitiveness." WIR 2002 represents the work of numerous economist and researchers. The report was prepared under the direction and supervision of Karl P. Sauvant and was led by Anh-Nga Tran-Nguyen. Other members of the team included Victoria Aranda, Americo Beviglia Zampetti, Kumi Endo, and many more experts in the financial field. Sanjaya Lall was principal consultant and adviser for the project. Furthermore numerous experts from outside the United Nations also provided help in order to help produce the WIR 2002.

As has become a tradition with previous editions of the WIR, the 2002 issue comes in an attractive format, offering numerous colourful diagrams, tables, and indices. The report in itself is divided into three main parts. These are Trends in International Production, TNCs and Export Competitiveness, and Promoting Export Orienting FDI. In addition there is a preface by Kofi Annan, the Secretary- General of the United Nations and an overview by Rubens Ricupero, the Secretary-General of the United Nations Conference on Trade and Development.

Over the past decade TNCs have become major players in international trade. The 2002 estimates suggest the existence of 65,000 TNC and around 850,000 foreign affiliates. TNCs have been providing much needed additional resources to the 'local' economy of the nations they have served and have facilitated access to many markets that had simply not existed previously. There are many examples of TNCs that have contributed to the lowering of unemployment rates. In 2001 foreign affiliates accounted for nearly 54 million employees, which is almost double the number for 1990. Over the same decade outward FDI increased form $1.7 trillion to $6.6 trillion and their sales managed to reach $19 trillion for 2001, which was twice the value of world exports. Each of these figures shows the important potential and role that TNCs have and can play for world development.

Part I of WIR 2002 contains four chapters. These are Global Trends, Benchmarking FDI Performance and Potential, Regional Trends, and the Largest Transnational Corporations. Chapter One looks at the trends in FDI flows and developments in international production. According to the overall picture, while FDI had sharply decreased in 2001, which can be explained by the economic recessions that had struck many of the major economies, in the long run FDI flows have been increasing. The chapter gives figures for FDI inflows and outflows for each of the major economic groups: developed markets, economies in transition, and less developed countries (LDCs). In the second part of the chapter the significance of foreign affiliates in their host countries is emphasized.

The following chapter presents two new indices: the Inward FDI Performance Index and the Inward FDI Potential Index. The former demonstrates whether a country receives more or less FDI than it is expected to receive. The latter shows what is the potential of a country to attract FDI.

The third chapter gives in-depth information for FDI relating to different regions. These are the developed countries (US, EU, Japan, Canada, etc.); developing countries from Africa, Asia, the Pacific, Latin America and the Caribbean; the countries from Central and Eastern Europe; and finally the least developed countries worldwide.

The final chapter in the first part deals with the performance and significance of the largest TNCs worldwide or from developing countries only. It looks at their structure, the different industries where they act, and how they have grown over the past decade.

Part II and III present different structures. The former contains two chapters, which discuss international production systems and patterns of export competitiveness. Each chapter presents several case studies in order to support the neo-liberal ideas of free trade as a method of development. Chapter five looks at several specific TNCs such as Intel and Toyota, and chapter six concentrates on successful export competitiveness for several developing countries.

The final part of WIR 2002 deals with successful policy measures, which will allow the economies to open themselves and thus to attract FDI while sustaining an export oriented trade policy. Both chapters in this part rely heavily on neo-classical trade theories and give guides on how to identify the comparative advantage or segmenting the market for export oriented FDI. Also a brief coverage on the WTO and the latest news the Doha talks are included.

WIR 2002 ends with two annexes, which provide various statistical data from UNCTAD's latest research. Furthermore there is a list of additional literature that deals with UNCTAD publications on TNCs and FDI. Finally there is a questionnaire that is designed for improving the future reports.

Altogether, another impressive WIR from UNCTAD in terms of its general detail and use of case study material.

Petar Kanev

NEW feature for the BNE!

From time to time the BNE will provide a preview of a full Book Review with a much shorter Book Note. The first of these Book Notes on Joseph Stiglitz's ***Globalization and its Discontents*** *appeared with Issue No. 59 and was written by Alieu Senghore. The full Book Review on that book authored by Professor Mak Arvin appeared with Issue No. 60 of the BNE. Both of these and much else can be downloaded for free at* *www.richmond.ac.uk/bne/*

Forthcoming Conferences and Call for Papers:

September 17-18: The International Network for Economics Research (INFER) is organizing a conference with the theme Environmental Economics: Institutions, Competition, Rationality in Wuppertal, Germany. The conference aims to explore new methodological frontiers in the field of environmental economics. The conference welcomes contributions on all facets of these issues, especially including papers on: The interrelation of environmental and institutional economics; environmental economics, industrial organization, and evolutionary market competition; international environmental governance beyond the state; the economics of federalism in environmental policy: states and laws between competition and harmonization; environmental management "under the shadow of the law": analysis of a public role for the private sector; new insights from environmental research and consequences for economic analysis: land economics, material flows economics; rationality and policy instruments: economic and legal incentives for sustainable behaviour; new modelling approaches in environmental economics.

Further information from Dr. Oliver Budzinski, Philipps-University of Marburg, Am Plan 2, D-35032 Marburg, email: budzinski@wiwi.uni-marburg.de.

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November 5, 2004: The International Network for Economics Research (INFER) is organizing a conference with the theme Migration and labour markets in the light of the social sciences in Saarbrucken, Germany. The conference theme relates to the interplay between migration and labour markets. Immigrants are active as employees, employers and self-employed within labour markets; they contribute to and benefit from public social programmes, and their social integration or segregation is reflected in their position on the labour markets. At the same time, labour market structures can be essential determinants of a decision for or against migration. The current relevance of the topic, e.g. for the German society, becomes evident in mass-media reports virtually every day. Further information from Dr. Henrik Egbert, Universität des Saarlandes, Germany, e-mail: h.egbert@mx.uni-saarland.de

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January 7-9, 2005: The annual meeting of the Transportation and Public Utilities Group (TPUG) of the American Economic Association (AEA) will be held in conjunction with the AEA annual meetings in San Diego, California. The TPUG invites papers in areas related to transportation, energy, telecommunications, and water and wastewater. Highly technical papers are not appropriate for the sessions sponsored by TPUG. Further details from Professor Thomas M. Corsi at the Robert H. Smith School of Business, University of Maryland, 3533 Van Munching Hall, College Park, MD 20742-1815, USA.

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January 7-9, 2005: The North American Economics and Finance Association invites submissions for it flagship publication the *North American Journal of Economics and Finance* published by Elsevier Science (http://www.naefa.org/Journal.htm). The Association invites colleagues to participate in its 2005 meetings as indicated above. Further details may be obtained from professor Edward Kane at Boston College, Chestnut Hill, MA – 02467, USA, e-mail: edward.kane@bc.edu

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January 7-9, 2005: The National Economic Association (NEA) will be holding its annual meeting in Philadelphia in conjunction with the meetings of the Allied Social Science Association. The organizers are making a call for papers, sessions, or suggestions for the program. They ask that you submit abstracts for papers or proposals for complete panels in all areas that advance the study and understanding of the economic challenges confronting the black community. Among the topics they are especially interested in are the following:

Growth, Development, International Trade, and Economic Inequality; Labour Market Dynamics across Groups; The Political Economy of Macroeconomic Policy; Technology Gaps: Sources, Implications, and Remedies; Wealth Accumulation: Barriers and How-to; The Spatial Distribution Economic Activity and African-American Housing; People of African Descent and the Production of Knowledge; Institutionalised Religion and Economic Activity; Poverty and Income Distribution; Education Reform.

Further details may be obtained from Professor Philip N. Jefferson NEA 2005 Program Chair, Department of Economics, Swarthmore College, Swarthmore, PA 19081, USA, Fax: (610) 328-7352, e-mail: pjeffer1@swarthmore.edu

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James Gapinski: 'Expectation Adjustment Time'.

William Boyes and Michael Marlow: 'Smoking Bans and the Coase Theorem'.

∫ **Andrew Henley**: 'What is the Role of Business Ethics in a Competitive Economy?'

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Sample of book reviews published since November 1999. Most of these are available on the BNE web-site:

Krugman, P. *The Accidental Theorist - And Other Dispatches from the Dismal Science. Published by Penguin Books 1999. Reviewed by* ***Parviz Dabir-Alai****.*

Gowan, P. *The Global Gamble - Washington's Faustian Bid for World Dominance. Published by Verso 1999. Reviewed by* ***Brian Grogan****.*

Shiller, R.J*. Irrational Exuberance. Published by Princeton University Press 2000. Reviewed by* ***Ivan K. Cohen****.*

Bauer, P. *From Subsistence to Exchange and other essays, with an Introduction by Amartya Sen. Published by Princeton University Press 2000. Reviewed by* ***Walter Elkan****.*

Schmidt-Hebbel, K. and L. Servén*, editors. The Economics of Saving and Growth: Theory, Evidence, and Implications for Policy. Published by Cambridge University Press for the World Bank 1999. Reviewed by* ***Mak Arvin****.*

UNCTAD – FDI Determinants and TNC Strategies: The Case of Brazil*. United Nations: New York and Geneva, 2000. Reviewed by* ***Yemi Babington-Ashaye.***

Allen J. Scott*. Global City-Regions: Trends, Theory, Policy. Published by Oxford University Press 2001. Reviewed by* ***Ismail Shariff.***

Hans-Peter Kohler. *Fertility and Social Interaction: An Economic Perspective. Published by Oxford University Press 2001. Reviewed by* ***Geeta Gandhi Kingdon.***

Ha-Joon Chang. *Kicking Away the Ladder: Development Strategy in Historical Perspective. Published by Anthem Press, 2002. Reviewed by* ***Richard Palser.***

B. Mak Arvin*, editor. New Perspectives on Foreign Aid and Economic Development. Published by Praeger, 2002. Reviewed by* ***Carmen A. Li****.*

Caroline M. Robb. *Can the Poor Influence Policy? Participatory Poverty Assessments in the Developing World. Published by the World Bank, 2001. Reviewed by* ***Takayoshi Kusago.***

Joseph Stiglitz. *Globalization and its Discontents. Published by Penguin Books, 2002. Reviewed by* ***B. Mak Arvin.***

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Amartya Sen
http://www.nobel.se/economics/laureates/1998/sen-autobio.html

Brad DeLong
http://www.j-bradford-delong.net/Index.html

Robert E. Hall
http://www.stanford.edu/~rehall/

Paul Krugman
http://www.wws.princeton.edu/~pkrugman/

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Many of those listed are academic reviewers, some are keen supporters of the philosophy underlining the work of the BNE and a few are simply unsung heroes working behind the scenes. These friends and colleagues have often made several key contributions over this period. All this work is much appreciated and helps in keeping the content of every issue accessible, relevant and stimulating for its readers:

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