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Diversification

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EDITORIAL NOTES

The continuing goal of the *Journal of the Northeastern Association of Business, Economics and Technology (JNABET)* is the publication of general-interest business and economics articles that demonstrate academic rigor, while at the same time are readable and useful.

We want to remind our readers of two recent events that demonstrate the growing stature of *JNABET*. First, *Cabell's Directory of Publishing Opportunities* has named *JNABET* a "Cabell's Commendable Journal." Second, *JNABET* is now available through the EBSCO Host research database, which we expect will dramatically increase our readership and the citations of our authors.

JNABET currently has two co-editors-in-chief. Dr. John Walker performed all final editing to the articles in this edition. Dr. Stephen Liedtka coordinated the review process for all articles submitted to the *Journal*, with assistance from Professor Henry Check, who is the associate editor for *JNABET*'s accounting and finance papers. Professor Check teaches at Penn State—Lehigh Valley and has done many excellent reviews for us in the past. He was the "referee of the year" for *JNABET* in 2008 and joined our editorial staff in 2010.

Dr. Kevin Roth, editor-in-charge of production and distribution of *JNABET*, stepped down after the completion of the 2009 edition of *JNABET*. We thank Kevin for his many years of outstanding service to the *Journal*. We are fortunate to have Kevin's continued involvement on the NABET board.

The current acceptance rate for *JNABET* is roughly 35%. We have strived to accept only high-quality research, while at the same time maintaining *JNABET* as a realistic publishing outlet for business and economics faculty throughout the Pennsylvania State System of Higher Education (PASSHE) and the Northeastern United States. Our editorial review board members and referees are the key to this process. They have been challenged to help "grow" papers that have significant potential by providing authors with thorough, critical review comments. Consistent with this objective, we generally require two to three rounds of review prior to accepting articles for publication.

The Fall 2010 edition of the *Journal* reflects the commitment of numerous volunteers. We especially thank the officers of the Northeastern Association of Business, Economics and Technology and the many editorial review board members and referees (listed on the next page) who reviewed articles for this edition.

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COMMERCIAL BANKS AND SECURITIES UNDERWRITING: THE IMPACT ON RISK, RETURN, AND DIVERSIFICATION

Victoria Geyfman

ABSTRACT

The Gramm-Leach-Bliley Act (GLBA) of 1999 repealed the restrictions of the Glass-Steagall Act of 1933 and formally allowed qualified financial holding companies (FHCs) to offer an expanded array of financial services, such as insurance, merchant banking, and securities underwriting. Recent studies examine post-GLBA performance of FHCs to learn whether this development has led to improved profitability and diversification benefits. They find only limited improvements, accompanied by increased levels of risk. However, these conclusions should be tempered, at least for the investment banking activities, due to the fact that some banks offered these services prior to 1999. Thus potential synergies between commercial banking and investment banking activities could have been exhausted prior to the passage of the GLBA. I test this hypothesis using a unique detailed data set for bank holding companies (BHCs) and their securities underwriting affiliates during the 1990s and conclude that during that period, BHCs that expanded into securities activities were more diversified and less likely to fail relative to their stand-alone commercial banking and securities underwriting subsidiaries.

INTRODUCTION

In 1999, the Gramm-Leach-Bliley Act (GLBA), also known as the Financial Services Modernization Act, was signed into law. The act repealed the Depression-era restrictions of the Glass-Steagall Act of 1933 that explicitly prohibited banks from expanding into nonbank activities, such as securities underwriting and insurance. Recent studies, including those of Stiroh (2004), Stiroh and Rumble (2006), and Yeager, Yeager, and Harshman, (2007), examine whether the promise of more diversified revenues and improvements in the risk–return frontier was realized following the passage of the GLBA. These studies conclude that there are either no or only limited diversification benefits resulting from expansion into nontraditional business lines, but these benefits, if they exist, are accompanied by the increased exposure to riskier nonbank activities.

Consequently, the authors cast doubt on banks' interest to participate in nontraditional bank activities. They conjecture that either bank managers have overstated the potential diversification gains, did not take into consideration the impact of expansions on risk-adjusted returns, had other, nonprofit maximizing motives, or that all the possible synergies between traditional and nontraditional banking activities were exhausted prior to the GLBA. This last explanation is particularly relevant for banking organizations that were involved in securities underwriting activities, also known as Section 20 activities, prior to 1999. Thus, this paper assesses whether there were positive effects on risk, return, and diversification due to the banks'

participation in securities underwriting during the 1990s, which may help explain the reasons for the banks' interest in such activities.

The major impetus for the repeal of the Glass-Steagall Act of 1933 was research that reported diversification benefits with no deleterious effects on parent bank holding companies' safety and soundness resulting from their expansion into nonbank lines of business (Saunders & Cornett, 2003). Wall and Eisenbeis (1984), Boyd and Graham (1988), Allen and Jagtiani (1996), Saunders and Walter (1996), among others, examined the correlation between firms' returns to look for evidence of diversification benefits. Other studies assessed failure risk (Boyd & Graham, 1988; White, 1986). White used information from the 1930s to show that commercial banks involved in securities underwriting were less prone to failures during the Great Depression and were also more diversified than their counterparts owing to the weak correlation between earnings in commercial and investment banking.

The subprime mortgage financial crisis that began in 2007 has led some to question the wisdom of the GLBA. Investment banks and the investment banking subsidiaries of universal banks suffered billions of dollars of losses as home foreclosures mounted. Most of the losses impacted noninterest trading revenue because when the securitization pipeline shut down in 2007, these banks held billions of dollars of risky subprime trading assets that had to be written down. Although this paper does not directly address the question of whether GLBA should be repealed, it does explore the risk, return, and diversification benefits that accrue to universal

banks relative to their stand-alone subsidiaries. This study investigates risk-return characteristics of BHCs that participated in securities underwriting by using various accounting-based measures, such as volatility of returns, risk-adjusted return, and probability of failure. This study provides evidence that shows that prior to the GLBA, BHCs with securities affiliates were more diversified and less likely to fail relative to their commercial and investment banking subsidiaries. These results help us answer the question of why banking organizations were eager to participate in securities activities prior to 1999, a question that eludes many researchers who attempt to study this issue retrospectively by using the post-GLBA market data.

HISTORICAL PERSPECTIVE

Before the 1929 stock market crash, banks in the U.S. were allowed to engage in corporate securities activities such as underwriting and distribution of corporate bonds and equities. However, after nearly a third of all banks failed during 1930–1933, a Congressional committee determined that a major cause of failure of thousands of banks was conflicts of interest resulting from combining commercial banking activities and investment activities. Later research by White (1986), Benston (1990), Kroszner and Rajan (1995), and Puri (1996) challenged these findings.

The Glass-Steagall Act of 1933 made it unlawful for national and state member banks to engage in investment banking activities and at the same time receive demand, time or savings deposits.¹ The intent of Congress was to reestablish public confidence in the banking system, to ensure safety and soundness by protecting banks from market fluctuations, and to prevent conflicts of interest by prohibiting nonbank affiliations. Section 20 of the act required member banks to eliminate any affiliations with organizations “engaged principally in the issue, flotation, underwriting, public sale, or distribution at wholesale or retail or through syndicate participation of stock, bonds, debentures, notes, or other securities” (12 U.S.C. § 377).

After the 1930s, the securities brokerage activities of banks remained fairly limited. In 1987, after several court cases in which banks challenged the grey areas of the Glass-Steagall Act, the Federal Reserve Board allowed BHCs to establish separate Section 20 affiliates that could conduct ineligible securities activities, such as commercial paper

¹ The Banking Act of 1933, commonly referred to as the Glass-Steagall Act, 48 Stat. 162, is codified at various sections of Title 12 of the United States Code, as amended.

underwriting, mortgage-backed security (MBS) underwriting, and municipal revenue bond underwriting. But there were still financial and informational restrictions in place, such as the revenue cap of ten percent (25 percent as of 1997). Firewalls were also enforced between a BHC and its securities affiliate to mitigate potential conflicts of interest. In 1999, the Gramm-Leach-Bliley Act was signed into law. The act repealed the restrictions on banks affiliating with securities and insurance firms and allowed BHCs to convert to financial holding company (FHC) status and engage in additional activities as long as they were determined to be “financial in nature.”

DIVERSIFICATION AND RISK: EMPIRICAL TESTS

In theory, the combined production of commercial and investment banking could enhance or hurt a BHC’s risk and return. On the one hand, the increased potential for diversification through expansion into other lines of business, such as securities and insurance activities, may reduce risk of BHCs (Saunders & Cornett, 2003). On the other hand, when viewed in isolation, some nonbank activities may be riskier than traditional activities (Kwan, 1998; Stiroh, 2004; Stiroh & Rumble, 2006). However, according to standard portfolio theory, if the returns on various lines of businesses are less than perfectly correlated, there is a potential to reduce risk through diversification. For example, the ability to cross-sell a variety of financial services to the existing customer base may reduce banks’ marginal costs, reduce exposure to any particular sector, and enhance revenue and income streams. One recent study finds evidence of synergies by showing that firms with previous bank relationships are likely to choose that BHC as their underwriter and that BHCs offer significant fee discounts to those firms with previous lending relationships (Yasuda, 2005).

Like the theory, the empirical evidence on universal banking is mixed. Because U.S. regulations banned universal banking until recently, a majority of empirical studies use hypothetical mergers between bank holding companies and securities firms to create synthetic universal banks (Boyd & Graham, 1988; Boyd, Graham, & Hewitt, 1993). Simulation studies, however, fail to capture potential synergies from a firm’s endogenous response to a real merger. The methodology adopted in this study uses proprietary, subsidiary-level accounting data collected from the Federal Reserve to test whether any risk and return benefits accrued to BHCs that participated in securities activities prior to passage of the Financial Holding Company Modernization Act of 1999.

Data and Descriptive Statistics

The data used in this study consist of confidential financial statements for domestic BHC subsidiaries engaged in ineligible securities underwriting and dealing (Federal Reserve, FR Y-20 Reports) and FDIC Call and Income Reports for commercial bank subsidiaries controlled by the same holding companies. All data were annualized. Because we are testing the risk–return relationships prior to the GLBA, the sample period is from 1990—the first year FR Y-20 data were collected—through the end of 1999, when the passage of the Gramm-Leach-Bliley Act allowed a qualified BHC to convert to FHC status and not file the FR Y-20 report.

Over the sample period, there were 77 Section 20 companies, of which 53 companies were domestic (chartered in the U.S.), affiliated with 44 distinct domestic bank holding companies. The analysis is based on domestic BHCs because the information on foreign BHCs is, in most instances, incomplete. Table 1 lists the number of Section 20 securities affiliates for each year, their average asset sizes, capital ratios, and the share of the consolidated total assets accounted for by the securities subsidiaries during the period between 1990 and 1999. The average asset size of a securities underwriter rose from \$3.1 billion in 1990 to \$11.3 billion in 1999 (adjusted for inflation), while an average asset size of a consolidated company with a Section 20 subsidiary rose from \$71.7 billion to \$164.3 billion over the same period. Only the largest BHCs appear to have had security subsidiaries (the average size of a top-100 bank holding company for 1990 was \$28.9 billion and \$53.6 billion for 1999). The average ratio of consolidated total assets of Section 20 subsidiary to total BHC assets was about four percent.

The Portfolio Model

To examine potential diversification benefits of securities activities to a BHC, I use a simple modern portfolio model, in which banking and nonbanking activities are treated as individual assets in the portfolio of the BHC. The shares w and $(1 - w)$ represent the assets the BHC has invested in nonbanking and banking activities, respectively. The goal is to examine the return correlations between nonbanking and banking activities. The expected return and the variance of return for the BHC's portfolio can be written as:

$$\mu_{BHC} = w\mu_{nb} + (1 - w)\mu_b \quad (1)$$

$$\sigma_{BHC}^2 = w^2\sigma_{nb}^2 + (1 - w)^2\sigma_b^2 + 2w(1 - w)\sigma_{nb,b} \quad (2)$$

where σ_i^2 is the variance of returns ($i = nb, b, BHC$), $\sigma_{nb,b}$ is the covariance between nonbanking and banking activities, which can also be expressed as $\rho_{nb,b}\sigma_{nb}\sigma_b$, where $\rho_{nb,b}$ is the correlation between the returns on the banking and nonbanking activities. In order for the nonbanking activities to provide diversification gains, σ_{BHC}^2 must be less than σ_b^2 . Assuming that σ_{nb}^2 is greater than σ_b^2 (a result that is substantiated by findings in Table 2), a necessary condition for BHC variance reduction is that $\rho_{nb,b}$ be less than one.

According to Table 2, for the entire sample period the coefficient of variation of returns (measured by the standard deviation of return on assets, ROA, divided by the mean of ROA, and used as the indicator of activity risk) was the highest for Section 20 affiliates, 4.30, compared to 0.55 for commercial bank subsidiaries, and 0.38 for the consolidated BHCs. This measure of risk suggests that the securities affiliates were riskier compared to both commercial bank subsidiaries and their consolidated BHCs. The correlation coefficient between returns of commercial banks and securities subsidiaries is negative (-0.02), but not statistically different from zero. Thus, these findings support previous research that concludes that prior to the GLBA, banks that combined commercial and investment banking activities enjoyed diversification benefits. However, according to recent studies, such benefits were probably exhausted during the pre-GLBA period (Stiroh, 2004; Yeager, Yeager, & Harshman, 2007), perhaps due to a dissipating first-mover advantage or because investment banking activities were far riskier than traditional banking activities, and the increased risk more than offset the diversification benefits.

To check the robustness of these results, Table 3 shows findings on risk and expected return for BHCs with securities affiliates that reported continuously for at least nine years during the sample period. Results indicate that for surviving firms only, the coefficient of variation of the consolidated BHCs is the lowest, 0.39, compared to their commercial bank units' risk, 0.65, and the risk of securities underwriting activities, 1.77. Section 20 affiliates reported the highest risk, 2.04 percent, and the highest average return on assets, 1.15 percent. The table suggests that during the 1990s, BHCs that engaged in securities activities had higher returns and lower overall risk than their traditional commercial banking subsidiaries.

Z-Score

In addition to the stand-alone risk, I use another risk measure to assess how nonbank activities affected the risk of their consolidated bank holding companies during the 1990s. The z-score measures the probability of insolvency of each activity i (where $i = nb, b$) and the consolidated BHC, and it is an estimate of the number of standard deviations below the mean that profits would have to fall to make equity negative. The higher the value of z-score, the less likely it is that a company will fail. The z-score technique was previously used in studies of Meinster and Johnson (1979), Boyd and Graham (1988), and Whalen (2000).

The z-score measure is defined as $z_i = (\mu_i + k_i)/\sigma_i$. Assuming that returns are normally distributed, the components of the equation are as follows: μ_i = the expected ROA for activity i and BHC; σ_i = the standard deviation of ROA for activity i and BHC; and $k_i = E_i/A_i$, where E_i is the activity's (or BHC's) equity and A_i is the total assets. The risk of bankruptcy is stated as the situation when losses, or negative profits (π), exceed equity capital (E). Using our estimates of mean and standard deviation of returns for traditional banking, security affiliates, and consolidated BHCs, we can derive a z-score measure for each entity at each point in time. Alternatively, because we want a single measure of risk for each type of entity, we can use Table 2 to calculate z-scores for commercial bank subsidiaries, Section 20 subsidiaries, and consolidated BHCs that engaged in securities activities. Higher mean ROAs, higher capital ratios, or lower ROA standard deviations result in higher z-score values. Higher z-score values, in turn, reflect a lower estimated risk of insolvency.

The results are presented in Table 4. For an average BHC in the sample, the reported z-score is 19.34, while commercial banking and Section 20 subsidiaries report z-scores of 13.78 and 4.22, respectively. The higher the value of z-score, the less likely it is that a company will go bankrupt; therefore, we conclude that Section 20 affiliates that had the lowest z-score value were the most risky in the sample, while BHCs that combined traditional with nontraditional activities were the least likely to go bankrupt.

CONCLUSIONS

The Financial Services Modernization Act of 1999 formally allowed qualified financial holding companies to offer an expanded array of financial services, such as insurance, merchant banking, and securities underwriting. Recent studies that examine the evidence of enhanced revenue and diversification

benefits after 1999 conclude that these companies did not substantially benefit from newly permitted activities. However, even prior to 1999, some BHCs in this country have participated (on a limited basis) in securities underwriting. Thus, it is possible that synergies between traditional and nontraditional activities were captured prior to passage of the GLBA. Using real accounting data for entities that conducted both commercial and investment banking activities during that period, this study found that these BHCs were more diversified and less likely to fail relative to their stand-alone traditional and nontraditional banking subsidiaries. Even though the recent financial crisis has caused some analysts to question the decision to repeal the Glass-Steagall regulations that separated commercial and investment banking activities, the findings of this paper showed that banks may have had defensible reasons to be interested in participating in nontraditional banking activities, at least prior to 1999.

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Table 1
Characteristics of BHCs and Their Section 20 Subsidiaries

	Number of Section 20 Affiliates	Average Assets of Section 20 Affiliates*	Average Capital-to-Assets Ratio Section 20 (%)	Average Assets of BHC*	Average Capital-to-Assets Ratio of BHC (%)	Average Risk-Based Capital-to-Assets Ratio of BHC (%)	Ratio of Section 20 Assets to BHC Assets (%)
1990	19	3.06	13.26	71.71	5.66	12.48	3.15
1991	19	3.48	12.58	79.44	5.84	11.12	3.64
1992	17	4.91	15.79	87.97	6.61	12.64	4.62
1993	20	5.71	17.81	84.67	7.20	13.50	4.68
1994	22	6.38	15.46	92.98	7.29	12.90	4.66
1995	23	6.27	17.57	97.89	7.44	12.30	4.08
1996	23	7.25	19.45	123.00	7.53	12.60	4.07
1997	26	7.73	20.99	112.74	7.28	12.30	4.47
1998	35	7.35	18.75	172.44	7.38	11.79	3.84
1999	37	11.29	27.96	164.31	7.28	11.69	3.27

Balance-sheet data were averaged over the quarters in which Section 20 subsidiaries reported to derive an annual figure for Section 20 firms and their consolidated parent BHCs.

*Dollar values are in billions of 2000 dollars (used Bureau of Economic Analysis' GDP implicit price deflator, 2000=100).

Table 2
Risk and Return Measures for BHCs, Banks, and Section 20 Affiliates

	Mean Return (%)	Standard Deviation of Return (%)	Coefficient of Variation (σ/mean)	Pearson Correlation with Section 20 Subsidiaries (p-value)
ROA of BHCs with Section 20 Affiliates	1.15	0.44	0.38	—
ROA of Commercial Bank Subsidiaries	1.12	0.62	0.55	-0.02 (0.74)
ROA of Section 20 Subsidiaries	1.23	5.30	4.30	—

Mean and standard deviation of return for commercial bank subsidiaries and Section 20 subsidiaries are based on the annualized pooled time-series cross-section of domestic banking organizations from 1990 through 1999. The annualized ROA is defined as the ratio of annual net income to the average total assets during the year. N=212.

Table 3

Risk and Return Measures for Surviving Firms (Nine or More Years of Continuous Reporting)

	Mean Return (%)	Standard Deviation of Return (%)	Coefficient of Variation (σ/mean)	Pearson Correlation with Section 20 Subsidiaries (p-value)
ROA of BHCs with Section 20 Affiliates	1.07	0.42	0.39	0.02 (0.83)
ROA of Commercial Bank Subsidiaries	0.96	0.62	0.65	0.06 (0.55)
ROA of Section 20 Subsidiaries	1.15	2.04	1.77	—

To check the robustness of results in Table 2, this table provides descriptive statistics for BHCs with Section 20 affiliates that reported for at least nine years between 1990 and 1999. Financial information is derived from quarterly Consolidated Reports of Condition and Income for 1990 through 1999 and annualized according to the methodology described in the text. N=123.

Table 4

Z-Score Measures of Risk

Entity	Average k (%)	Average ROA (%)	Standard Deviation of ROA (%)	Coefficient of Variation (σ/mean)	Z-Score $z_i = (\mu_i + k_i)/\sigma_i$
Consolidated BHC	7.33	1.15	0.44	0.38	19.34
Commercial Bank Subsidiary	7.42	1.12	0.62	0.55	13.78
Section 20 Subsidiary	21.13	1.23	5.30	4.30	4.22

The ratio k_i is equal to E_i/A_i , where E_i is the activity's (entity's) equity and A_i is assets (all annualized). ROA is the return on assets defined as net income over assets. The values in Table 4 are based on a pooled time-series cross-section of domestic BHCs with Section 20 subsidiaries from 1990 through 1999. The z-score measures the insolvency risk; the higher the z-score, the less likely it is that a company will fail.

Victoria Geyfman is an assistant professor of finance at Bloomsburg University. Her research interests include financial services industry and bank regulations, community banking, and issues of female representation and gender inequality.

ARE PROFESSIONAL AUDITORS OVERCONFIDENT IN THEIR ABILITIES TO MAKE ACCURATE GOING-CONCERN JUDGMENTS?

Kim L. Anderson

ABSTRACT

This paper examines the extent to which professional auditors are overconfident in their abilities to predict whether or not a company will continue as a going concern. According to auditing standards, auditors are required to determine if substantial doubt exists regarding an audit client's likelihood of continuing as a going concern for one year from the date of the financial statements being audited. Prior research indicates that auditors are prone to "hindsight bias" when making going-concern judgments. Hindsight bias is the tendency for individuals who have been provided the outcome of an event to overstate their abilities to have predicted that outcome in foresight. Prior research assumes that the presence of hindsight bias creates overconfidence, and that this overconfidence will adversely affect the accuracy of subsequent probability judgments made in foresight. This assumption has never been tested, however, and non-hindsight studies found in the confidence literature suggest that the assumption might not hold true for experienced professionals, such as auditors. Using an experimental methodology, this study finds that auditors are prone to hindsight bias, but finds no evidence that this bias leads auditors to be overconfident in their abilities to make accurate going-concern judgments.

INTRODUCTION

According to Auditing Standards (AICPA, 1988; AICPA, 1990), auditors are required to determine if substantial doubt exists regarding an audit client's likelihood of continuing as a going-concern for one year from the date of the financial statements being audited. This paper examines the extent to which professional auditors are overconfident in their abilities to make accurate going-concern judgments due to the presence of hindsight bias. Hindsight bias is the tendency for individuals who have been provided with the outcome of an uncertain event to systematically overstate their abilities to have predicted that outcome in foresight (Fischhoff, 1975). Furthermore, individuals deny that knowledge of the event's actual outcome has affected their predictions. Hindsight bias has been found to influence several audit judgments, including internal control evaluations (Reimers & Butler, 1992), audit opinion decisions (Reimers & Butler, 1992), preliminary analytical review judgments (Biggs & Wild, 1985; Heintz & White, 1989; McDaniel & Kinney, 1994; Kennedy, 1995), and going-concern judgments (Anderson, 2000; Anderson, 2006; Kennedy, 1993; Kennedy, 1995; Maddocks, 1989).

According to the psychological literature (e.g., Fischhoff, 1975; Hawkins & Hastie, 1990), the "knew-it-all-along" attitude created by hindsight bias creates overconfidence which impedes feedback learning, thereby reducing what individuals could potentially learn from the feedback provided by the outcome. If auditors believe they "knew all along" that a bankrupt company was going to fail, they will

not learn what they should from the outcome and will believe more often than they should that they could have actually predicted the outcome. It is assumed that hindsight bias will cause auditors to be overconfident in their abilities to accurately make subsequent going-concern judgments in foresight. This overconfidence may lead auditors to believe they have little reason to re-evaluate and improve their decision-making processes and evidence-gathering strategies regarding going-concern judgments.

The increasing scale of corporate bankruptcies and the current financial crisis make it more important than ever for auditors to learn from the feedback provided by actual bankruptcies and to avoid overconfidence when making these judgments. Of the 20 largest U.S. corporate bankruptcies since 1980, all but three occurred after the first quarter of 2001, with six occurring during 2009. The two largest, Lehman Brothers Holdings, Inc. and Washington Mutual, Inc., occurred during September 2008 (BankruptcyData.com, 2009). Also, many economists agree that the United States' economy is currently in the midst of the worst financial crisis since the Great Depression of the 1930s. This situation clearly creates the potential for a dramatic increase in the number of U.S. companies filing for bankruptcy. This places increasing pressure on auditors to accurately assess the going-concern status of their clients so that the appropriate audit opinion can be issued.

Case studies describing the facts surrounding recent U.S. bankruptcies are appearing in auditing textbooks and are being used in public accounting

firm training programs (Arens, Elder & Beasley, 2010). In order to learn as much as possible from the feedback provided by these case studies, it is critical that auditing students as well as professional auditors not be adversely affected by the presence of hindsight bias.

Prior psychological studies (e.g., Fischhoff, 1975; Synodinos, 1986; Powell, 1988; Hoch & Loewenstein, 1989) and auditing studies (e.g., Kennedy, 1993; Kennedy, 1995; Anderson, 2000; Anderson, 2006) have assumed that hindsight bias impairs future foresight judgments by creating overconfidence. This overconfidence is assumed to exist in all situations where hindsight bias is found to exist. It is assumed that this overconfidence creates an "I-knew-it-all-along" effect which reduces what is learned from the feedback provided, thereby leading to future judgment errors.

However, it is only an assumption that hindsight bias automatically impedes feedback learning in every situation by creating overconfidence. This assumption has not been subjected to empirical testing in either the psychological or accounting literature. In fact, due to this accepted untested assumption, prior psychological (e.g., Davies, 1987) and auditing (e.g., Anderson, 2006; Kennedy, 1995) studies have focused on developing debiasing strategies aimed at reducing hindsight bias. It has been suggested that these debiasing strategies be incorporated into audit training programs, which would be costly and may be unnecessary if in fact this untested assumption that hindsight bias always leads to overconfidence is not true.

In a recent study which examines the effects of hindsight bias on jurors' evaluations of auditor negligence, Peecher and Piercey (2008) found that for relatively high Bayesian posteriors, subjects' posterior judgments about auditor negligence were objectively better in hindsight than in foresight. In other words, they found that hindsight bias is potentially functional. Peecher and Piercey did not examine whether or not hindsight bias leads to overconfidence; however, their finding that hindsight bias does not always lead to dysfunctional judgments does lend credence to the need to empirically test whether or not hindsight bias leads to overconfidence.

Confidence studies found in the psychological literature (to be discussed further in the next section) provide a theoretical basis for questioning the assumption in the hindsight literature that hindsight bias always leads to overconfidence. These studies have found a negative correlation between the level of expertise and knowledge and the degree of overconfidence exhibited. Gigerenzer (1991) and Lichtenstein and Fischhoff, (1977) found that

subjects who knew less were overconfident; whereas, subjects who knew more were underconfident. These confidence studies do not involve hindsight bias, nor do they use auditors as subjects.

In short, determining whether or not hindsight bias does in fact cause auditors to be overconfident when making going-concern judgments is imperative in terms of guiding future hindsight research and in terms of developing cost effective audit training programs that will ultimately improve auditors' abilities to make accurate going-concern judgments. Before investing more resources toward additional hindsight debiasing research and toward altering existing auditor training programs, the assumption that hindsight bias always leads to overconfidence should be subjected to empirical testing. In an auditing experiment involving going-concern judgments, this paper finds no evidence that hindsight bias causes auditors to be overconfident in their going-concern judgments.

THEORY AND HYPOTHESES

Presence of Hindsight Bias

Fischhoff (1975) coined the term "creeping determinism" to describe the process he believed was responsible for hindsight bias. According to Fischhoff, "Upon receipt of outcome knowledge judges immediately assimilate it with what they already know about the event in question. In other words, the retrospective judge attempts to make sense, or a coherent whole, out of all that he knows about the event" (1975, p. 297). Because the process was hypothesized to be quick and unconscious, Fischhoff described the outcome information as "creeping" into the subject's mental representation of the event resulting in cognitive restructuring. The characteristic effect of creeping determinism is the proclivity to view a known outcome as nearly inevitable, as revealed in retrospective probability judgments, because of the seemingly unalterable sequence of events leading up to it (Hawkins & Hastie, 1990). The "creeping determinism" hypothesis is consistent with more of the hindsight literature results than any other explanation offered (Hawkins & Hastie, 1990).

Prior research reveals the presence of hindsight bias in several accounting settings. Financial statement users asked to assess a company's viability have been found to be prone to hindsight bias (Buchman, 1985). Jurors (Lowe & Reckers, 1994; Kadous, 2000; Kadous, 2001) and judges (Anderson, Jennings, Kaplan & Reckers, 1995; Anderson, Jennings, Lowe & Reckers, 1997) asked to evaluate the actions of auditors have also been found to be

prone to the bias. Brown and Solomon (1987) found that capital-budgeting decisions are influenced by outcome information. In an auditing study involving internal control evaluations and audit opinion decisions, Reimers and Butler (1992) found that auditors exhibit significant (insignificant) hindsight bias when provided with surprising (unsurprising) outcome information.

Consistent with these findings, Kennedy (1993, 1995) first predicted that auditors are prone to hindsight bias when making going-concern judgments. This hindsight effect in an audit setting has been replicated by Anderson (2000, 2002, 2006). Kennedy (1995) found that auditors exhibit the bias when making analytical review judgments. Anderson (2000) found that the number of years of experience does not affect the degree of hindsight bias exhibited by auditors; both experienced and inexperienced auditors are prone to hindsight bias to the same extent. These findings suggest that auditors, regardless of experience level, are prone to hindsight bias.

Based on these prior findings, this study predicts that auditors are subject to hindsight bias when making going-concern judgments. This is not an original hypothesis. However, before testing the impact of hindsight bias on auditor confidence, it is first necessary to determine if the auditor subjects in this study are in fact prone to hindsight bias, which leads to the first hypothesis:

H1: Auditors with outcome information will judge the reported outcome as more likely to occur than will auditors not provided with outcome information.

Hindsight Bias and Overconfidence

Past psychological research (e.g., Synodinos, 1986; Powell, 1988; Hoch & Loewenstein, 1989) and auditing research (e.g., Kennedy, 1993; Kennedy, 1995; Anderson, 2000; Anderson, 2006) assume that hindsight bias leads to overconfidence in probability judgments. It is argued that if individuals believe they knew all along the outcomes of uncertain events, then they will believe more often than they should that they could have actually predicted the outcomes (Hawkins & Hastie, 1990). It is assumed that such overconfidence will contribute to judgment errors when a decision maker is confronted with future foresight judgments. However, this is an assumption; it has not been empirically tested.

This assumption does have some support in the confidence literature involving non-hindsight studies. In these studies, confidence in one's knowledge is usually measured by requesting subjects to answer a

series of questions followed by a request to state their confidence in the correctness of their answers (Novarese, 2009; Van Den Steen, 2004; Klayman, Soll, Gonzalez-Vallejo & Barlas, 1999). In studies involving student subjects, the general finding is that subjects are overconfident, and they systematically overestimate the correctness of their answers (Rabin & Schrag, 1999; Russo & Schoemaker, 1992).

However, the confidence literature also finds that there is a negative correlation between the level of expertise and knowledge and the degree of overconfidence exhibited. Gigerenzer (1991) and Lichtenstein and Fischhoff (1977) found that subjects who knew less were overconfident; whereas, subjects who knew more were underconfident. Grimes (2002) found that greater experience and knowledge lead to lower confidence. Novarese (2009) found that as knowledge and performance levels increased, subjects went from being overconfident to being underconfident. Novarese (2009) concluded that a better capacity to evaluate what one knows due to experience can cause an awareness of what one does not know, thereby creating underconfidence.

Auditors have a high level of specialized knowledge and expertise pertaining to going-concern judgments. Experience is particularly important in connection with going-concern judgments given that such judgments are typically made by highly-experienced members of accounting firms. The confidence literature suggests that this experience would lead auditors to be underconfident when making going-concern judgments. The hindsight literature, on the other hand, assumes that hindsight bias always leads to overconfidence. This countervailing effect found in the confidence literature raises questions over the assumption that auditors subject to hindsight bias will be overconfident. Therefore it needs to be empirically tested, which leads to the following hypothesis:

H2a: Auditors with outcome information will be more confident in their probability judgments than will auditors without outcome information.

The current study also explores the extent to which the level of experience affects auditor confidence. Anderson (2000) found that the number of years of experience does not affect the degree of hindsight bias exhibited by auditors; both experienced and inexperienced auditors are prone to hindsight bias to the same extent. These findings suggest that auditors, regardless of experience level, are prone to the same amount of hindsight bias. The hindsight literature assumes that this would then lead to the same level of overconfidence between experienced and inexperienced auditors.

However, based on the findings in the confidence literature, it might be expected that the more experience auditors have, the less confidence they would exhibit. Thus, it would be expected that experienced auditors (i.e., partners and managers) would be less confident in their going-concern judgments as compared to inexperienced auditors (i.e., staff auditors). In short, the hindsight literature assumes no difference in the degree of overconfidence between experienced and inexperienced auditors, but the confidence literature suggests that inexperienced auditors would be more confident than experienced auditors. This study tests the assumption found in the hindsight literature leading to the following hypothesis:

H2b: Experienced auditors with outcome information will be no more or less confident in their probability judgments than will inexperienced auditors with outcome information.

RESEARCH METHOD

Experimental Design

In order to test the proposed hypotheses, one experiment was conducted. The basic design used is a 2×3 factorial. The two between-subjects factors are experience and outcome. The experience factor has two levels, high (i.e., managers and partners) and low (i.e., staff auditors). The outcome factor has three levels: no outcome, (i.e., the foresight condition), failure outcome (i.e., the hindsight condition—the company files for bankruptcy), and the success outcome (i.e., the hindsight condition—the company continues in business and does not file for bankruptcy). The dependent variables are the auditor's going-concern probability judgment (hereafter referred to as a viability judgment) and the auditor's confidence rating of their viability judgment.

Subjects and Procedure

The subjects were asked to judge the likelihood that a troubled company would or would not continue as a going concern. The sample of subjects consisted of 114 auditors from international public accounting firms. Given the findings in the confidence literature that there is a negative correlation between the level of expertise and knowledge and the degree of overconfidence exhibited, it is important that the current study uses auditors as subjects and not students.

Subjects were first segregated into two groups based on experience (experienced—managers and

partners; inexperienced—staff auditors) and then were randomly assigned to experimental conditions. Responses to the debriefing questionnaire revealed that the mean auditing experience for the experienced (inexperienced) auditors was 9.4 (1.4) years. Each subject received a packet of materials, consisting of a sealed envelope, a page of general instructions, and either five or six pages of case data (including a case review task). After completing the case review task, the written instructions indicated that the subjects were to open the sealed envelope. The envelope contained the outcome information (if provided), the viability judgment task, the confidence rating task, and the debriefing task. The subjects were not allowed to use reference materials and were required to work independently. The sealed envelope approach used in this study is commonly used throughout the hindsight literature as a means of disclosing the outcome information to subjects (e.g., Maddocks, 1989; Kennedy, 1995).

Case Review Task

The subjects were provided with a page of general instructions. They also received a narrative summary of pertinent information for a real, but disguised, chemical manufacturer and three years of financial data for that manufacturer. The narrative summary contained an equal number of adverse factors (cues pointing toward failure) and mitigating factors (cues pointing toward success). The financial data included the financial statements (i.e., a balance sheet, income statement, and statement of cash flows), a summary of financial highlights, and a set of financial ratios.

Table 1

Steps	Experimental Tasks
I	Review Case Data (Task #1)
II	Failure (Success) Outcome Provided to Subjects in Failure (Success) Outcome Condition
III	Viability Judgment Task (Task #2)
IV	Confidence Rating Task (Task #3)
V	Debriefing Questionnaire (Task #4)

Table 1 lists the experimental tasks that the subjects were asked to perform. The subjects' first task was to review the case data for Alpha Chemical, Inc. (the fictitious name given to a real chemical manufacturer). They were instructed to assume the

role of audit supervisor for the most recent Alpha audit. They were also told that the fieldwork had been completed, but the final audit opinion had not yet been written. They were to review Alpha's financial statements in an attempt to assess viability.

Viability Judgment Task

After reviewing the case data, subjects were instructed to begin the second task, the viability judgment. Before making their viability judgments, subjects in the failure outcome condition were informed that the company did file for bankruptcy during the last half of the year subsequent to the year under audit. Subjects in the success outcome condition were informed that the company did continue in existence as a going concern throughout the year subsequent to the year under audit. Subjects in the no outcome condition were not provided with any outcome information.

All subjects were instructed to assume that it was the last day of fieldwork for the year-end audit. They were reminded that at that time they would not have known whether the company was going to succeed or whether it was going to fail, so were told to ignore the fact that they now know the outcome. They were instructed to estimate the likelihood that the company would or would not continue as a going concern throughout the year subsequent to the year under audit by placing an "X" on a probability scale ranging from 0 percent (certain *not* to continue) to 100 percent (certain to continue).

Confidence Rating Task

Immediately following the viability judgment task, subjects were asked to rate their confidence in that judgment. Subjects were asked to rate their confidence in their viability judgment on a seven-point scale anchored on 0, not at all confident, to 6, extremely confident.

Debriefing Task

The final task for all subjects was completing a one-page debriefing questionnaire. Subjects were asked to indicate their number of years and months of experience, their current rank within their firm (partner, manager, staff), and the number of minutes they took in completing the experiment. They were also asked to indicate both the number of audit engagements they had been associated with in which substantial doubt existed regarding the client's ability to continue as a going concern and their degree of involvement in the going-concern evaluation of these clients. In addition, they were asked to rate their

degree of proficiency at evaluating a company's going-concern status. Finally, subjects in the failure outcome and success outcome conditions were asked to indicate the degree of influence, if any, the outcome information had on their viability judgments.

RESULTS

Results of Tests of Hypothesis 1

H1 predicted that, despite instructions to ignore outcome information, auditors with outcome information would judge the reported outcome as more likely to occur than would auditors not provided with outcome information. More specifically, auditors informed that the case company failed (continued) would be more likely to judge the continued viability of the company as being less (more) likely than the auditors not provided with outcome information. The means and standard deviations for the viability judgment dependent variable are presented in Table 2. The viability judgment scale ranged from 0 percent, the company is certain not to continue, to 100 percent, the company is certain to continue. Using a 0 percent to 100 percent probability scale is commonly used in the hindsight literature dating back to Fischhoff's first studies (Fischhoff, 1975; Fischhoff, 1977).

Table 2
Means and Standard Deviations of Viability Judgments by Experience Level

OUTCOME (Experience High)			
	No	Failure	Success
Mean (%)	57.37	55.05	64.42
Standard Deviation (%)	17.19	17.66	18.67
N	19	19	19

OUTCOME (Experience Low)			
	No	Failure	Success
Mean (%)	63.95	53.68	69.58
Standard Deviation (%)	17.12	16.90	17.00
N	19	19	19

ANOVA Results—Interaction Effects

To test the effect of outcome information on auditors' viability judgments, a 2×3 (experience by outcome) ANOVA was performed. The experience factor has two levels (i.e., high and low), and the outcome factor has three levels (i.e., no, failure, and success). The ANOVA results are presented in Table 3. The two-way interaction between experience and outcome is not significant ($p=0.80$). However, the main effect of outcome is significant ($p=0.00$).

Table 3
ANOVA: Experience, Outcome and Interaction on Viability Judgments

Source of Variation	SS	DF	MS	F	Sig. of F
Experience	0.038	1	0.038	1.21	0.272
Outcome	1.308	2	0.654	20.91	0.000
Interaction	0.014	2	0.007	0.22	0.803
Error	3.377	108	0.031		
Total	4.737	113			

Simple Main Effect Tests

In order to determine the effect of outcome on auditor viability judgment, simple main effect tests consisting of a series of contrasts were conducted. The means contrasted are the combined means for the experienced and inexperienced auditors taken from Table 2. The combined mean viability judgments are summarized below:

No Outcome	60.66%
Failure Outcome	54.37%
Success Outcome	67.00%

In order to test H1, it is necessary to determine if the failure outcome mean viability judgment of 54.37 percent and the success outcome mean viability judgment of 67.00 percent are significantly different from the no outcome viability judgment of 60.66 percent. The failure outcome subjects' mean viability judgment of 54.37 percent is significantly less than the no outcome mean viability judgment of 60.66 percent ($p=0.05$, one-tail probability). This indicates that, despite instructions to ignore the outcome information, being informed that the company failed

caused the subjects in the failure outcome condition to judge continued viability as less likely than did the no outcome subjects. In other words, the failure outcome subjects were prone to hindsight bias.

In addition, the success outcome subjects' mean viability judgment of 67.00 percent is significantly greater than the no outcome subjects' mean viability judgment of 60.66 percent ($p=0.05$, one-tail probability). This indicates that, despite instructions to ignore the outcome information, being informed that the company continued caused the subjects in the success outcome condition to judge continued viability as more likely than did the no outcome subjects. In short, both the failure outcome and the success outcome subjects were prone to hindsight bias. This provides support for H1; auditors with outcome information judged the reported outcome as more likely to occur than did auditors not provided with outcome information.

Results of Tests of Hypothesis 2

H2a predicted that auditors with outcome information will be more confident in their viability judgments than will auditors without outcome information. H2b predicted that experienced auditors will be no more or less confident in their viability judgments than will inexperienced auditors. The means and standard deviations for the confidence rating dependent variable are presented in Table 4.

Table 4
Means and Standard Deviations of Confidence Ratings by Experience Level

OUTCOME (Experience High)			
	No	Failure	Success
Mean (%)	3.37	3.26	3.90
Standard Deviation (%)	1.42	1.15	1.45
N	19	19	19

OUTCOME (Experience Low)			
	No	Failure	Success
Mean (%)	3.37	3.32	3.90
Standard Deviation (%)	1.01	1.06	0.81
N	19	19	19

ANOVA Results

To test the effect of outcome information on auditors' confidence ratings, a 2×3 (experience by outcome) ANOVA was performed. The experience factor has two levels (i.e., high and low), and the outcome factor has three levels (i.e., no, failure, and success).

The ANOVA results are presented in Table 5. The two-way interaction between experience and outcome is not significant ($p=0.85$). The main effect of outcome is not significant ($p=0.12$), and the main effect of experience is not significant ($p=0.53$). A test of homogeneity of variance was conducted, and the assumption of homogeneity of variance was not rejected.

H2a predicting that auditors with outcome information will be more confident in their viability judgments than will auditors without outcome information is not supported. H2b predicting that experienced auditors will be no more or less confident in their viability judgments than will inexperienced auditors is supported.

Table 5
ANOVA: Experience, Outcome and Interaction on Confidence Ratings

Source of Variation	SS	DF	MS	F	Sig. of F
Experience	0.531	1	0.531	0.39	0.531
Outcome	5.711	2	2.855	2.12	0.121
Interaction	0.430	2	0.215	0.16	0.851
Error	145.790	108	1.350		
Total	152.462	113			

CONCLUSION

In light of the current economic crisis facing the United States, it is more important than ever for auditors to accurately assess the going-concern status of their clients and to issue the appropriate audit opinions. The purpose of this paper is to examine whether or not the presence of hindsight bias causes auditors to be overconfident in their abilities to make accurate going-concern judgments. Prior hindsight studies in both the psychological and accounting literature assume that hindsight bias automatically leads to overconfidence in future foresight judgments in virtually all situations. However, this assumption has never been subjected to empirical testing.

The main contribution of this study is that it does empirically test the assumption that hindsight bias leads to overconfidence. Using an auditing experiment involving going-concern judgments, this paper finds that, although the auditor subjects did exhibit hindsight bias as predicted, this bias did not lead the auditors to be overconfident in their judgments. In short, the current study finds no evidence of a confidence effect. Based on these findings coupled with the findings in the confidence literature, the hindsight literature should exercise caution in naively assuming that hindsight bias leads to overconfidence in all situations. Confidence is a complex construct, and there are several known factors such as existing knowledge and expertise that exacerbate or diminish overconfidence. These factors are likely present in the case of professional auditors making going-concern judgments.

If hindsight bias does not cause auditors to be overconfident when making going-concern judgments, then there is no need to devote resources toward changing existing audit training programs in an effort to eliminate hindsight bias as suggested by previous auditing research. It may also be unnecessary to continue conducting research studies aimed at developing debiasing strategies that eliminate hindsight bias. If hindsight bias does not lead to overconfidence, it may not be as dysfunctional as previously assumed. In fact, in a recent study examining the effects of hindsight bias on jurors' evaluations of auditor negligence, Peecher and Piercey (2008) found that for relatively high Bayesian posteriors, subjects' posterior judgments about auditor negligence were objectively better in hindsight than in foresight. In other words, they found that hindsight bias is potentially functional. Future hindsight research needs to continue examining the extent to which hindsight bias is functional versus dysfunctional. It is also important that in the area of auditor judgments that future research avoid the use of student subjects.

The results of this study must be interpreted in light of certain limitations. First, failure to find a significant confidence effect may be due to an insufficient sample size or the specific details of the experiment. Second, the study involves a sample of auditor subjects from international public accounting firms which limits the ability to generalize the results to smaller public accounting firms at the national, regional, and local levels. Third, it is difficult to determine whether the subjects were sufficiently motivated to concentrate on the experimental tasks and to complete the tasks as they would in practice. Fourth, the subjects did not have access to the array of information, resources, and consultations with others that would normally be available to them

during an actual audit. Also, the subjects may not have been able to relate to many situations in practice in which they are required to ignore known outcomes and state explicitly what judgments they would have made at some point in the past.

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AN OVERVIEW OF FRAMEWORKS FOR ANALYZING MARKETING ETHICS

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ABSTRACT

This paper categorizes published marketing ethics frameworks on five dimensions: "perspective" (domestic or international), "marketing discipline" (general marketing or specific sub-disciplines of marketing), "theoretical approach" (philosophical, religious, sociological or economic), "research intention" (normative or positive), and "viewpoint" (individual or organizational). This categorization reveals interesting and relevant knowledge gaps and yields suggestions for researchers, practitioners, and educators.

INTRODUCTION

Published marketing ethics frameworks have significant value for educators, practitioners, and researchers. Regarding their value for educators, Lacznik (1983, p. 16) observes that "...the frameworks provide perspectives which go beyond the proverbial ethical maxim. The frameworks represent quasi-models of intermediate sophistication that suggest a rationale for why particular moral choices are made." Thus, discussion and application of the frameworks in a marketing course can broaden student viewpoints and deepen their understanding of ethical issues. For marketing practitioners, the frameworks can help systemize thinking when ethical issues arise. And for researchers, "the frameworks may suggest some of the components necessary for the construction of a model describing ethical behavior in marketing" (Lacznik, 1983, p. 17). Thus, the frameworks help researchers develop richer theories and better empirical tests.

This paper categorizes published marketing ethics frameworks based upon "perspective" (domestic or international), "marketing discipline" (general marketing or specific sub-disciplines of marketing), "theoretical approach" (philosophical, religious, sociological or economic), "research intention" (normative or positive), and "viewpoint" (individual or organizational). The categorization should help readers better comprehend the potentially overwhelming volume of frameworks. The categorization also highlights knowledge gaps, and provides suggestions for researchers, practitioners, and educators.

MARKETING ETHICS IN THE HISTORICAL CONTEXT

There has always been a strong relationship between economic behavior of businesses and the expectations of society in any given period of time (Pusateri, 1988). This holds true for business codes of

conduct, which typically reflect the prevailing ethical thoughts of the relevant historical era. For example, in the U.S. economy, from the late 19th to early 20th century, religion provided an important framework that guided ethical behavior in business (Knouse, Hill and Hamilton III, 2007). Employees were required to follow *religion-based* codes of conduct through a system of gratification by their companies. Virtues like honesty, fairness and trust became the basis for ethical behavior in business (Lord, 1926).

Continual economic growth led to a revised view of ethical behavior in business. Many expected managers to not only be administrators of their companies' resources but also be role models in society (Heald, 2005). For instance, the spirit of patriotism heavily influenced the behavior of advertisers during World War II (Tansey & Hyman, 1993). However, critics of this expanded role of management argued that social concerns belonged to societal institutions and not to businesses. In this context, Friedman (1970) postulated that the only ethical boundaries of business should be criminal and civil laws. As a consequence, ethical codes tended to become *law-based*, and focused on procedures and practices pursued by people in higher management.

We are now living in the "ethics era" in which multiple organizational and societal stakeholders expect ethical behavior from business (Smith 1995). Since the last half of the 20th century, numerous large multinational corporations (MNCs) have existed whose individual annual revenue has been more than the GNP of some individual nations. The combined pressures of rapid globalization, stakeholder activism, and the publicizing of unethical behavior via the media and Internet have increasingly forced these MNCs to act in socially responsible ways (Kilbourne, 2004; Campbell, 2007). Furthermore, MNCs must take a cross-cultural perspective (Paul, Abhijit & Mukhopadhyay, 2006; Hamilton III & Knouse, 2001) as they integrate varying ethical standards in different countries into their own ethical behavior (Rallapalli, 1999). Overall, the ethical codes of conduct of MNCs

now tend to become *corporate social responsibility-based (CSR-based)*.

Reflecting the growing complexity of business, marketing ethics is an increasingly complex field of study. Numerous marketing ethics frameworks have been published to guide us. The frameworks differ greatly from each other, reflecting the complexity. Therefore, in the sections that follow, this paper categorizes marketing ethics frameworks based on five key distinguishing characteristics. The categorization should help us better understand potentially overwhelming volume of frameworks. The categorization also highlights knowledge gaps in the literature, and provides suggestions to fill the gaps.

CLASSIFICATION SCHEME FOR PUBLISHED MARKETING ETHICS FRAMEWORKS

We began by identifying five key dimensions on which recent marketing frameworks can be meaningfully categorized. As described below, these categories include perspective, marketing discipline, theoretical approach, research intention, and viewpoint.

Perspective: Domestic or International

As ethical frameworks tend to be culturally-relative, we first classified published studies according to whether the marketing perspective is *domestic* or *international*.

Marketing Discipline: General or Specific

Secondly, we classify the frameworks based upon whether the relevant marketing discipline, is *general* or *specific*. Here, the relevant concern is whether the framework identifies those *specific* areas in which marketers fail to behave in an ethical manner. We further categorize *specific* frameworks into the relevant marketing sub-disciplines of consumer behavior, marketing research, relationship marketing, strategic marketing, and professional selling (Robin & Reidenbach, 1987; Nantel & Weeks, 1996; Gaski, 1999).

Theoretical Approach: Philosophical, Religious, Sociological or Economic

Thirdly, the literature employs four different "theoretical approaches" to marketing ethics frameworks. *Philosophical* approaches are the most common (e.g., Hunt & Vitell, 1986). Some of the philosophical frameworks use a teleological (utilitarian) view that focuses on the consequences

resulting from an action. Under this perspective, an ethical person acts in a way that produces the greatest good for the greatest number of people (Hunt & Vasquez-Parraga, 1993) and, accordingly, the focus is on a social cost/benefit analysis. Business decisions, especially marketing decisions, have often been associated with a teleological viewpoint (Robin & Reidenbach, 1987).¹ Other philosophical approaches employ a deontological viewpoint, in which the *prima facie* ideals and/or statements of right and wrong direct ethical thinking (Nantel & Weeks, 1996). Even though most people would agree that a specific set of moral principles or values should govern the actions of marketing decision-makers, the real challenge is in identifying and agreeing to those commonly-accepted principles of right and wrong (Ferrell & Gresham, 1985; Carrigan, Marinova & Szmigin, 2005).

Other theoretical approaches have been borrowed from the disciplines of *religion* (Murphy, 1999), *sociology* (Dunfee, Smith & Ross Jr., 1999) and *economics* (Kennedy & Lawton, 1993). Their importance lies in the fact that the three disciplines provide varying constructs and justifications for ethical behavior. For example, a major premise of most religions is the promise of divine outcome after death if the suggested ethical human conduct is pursued. A sociological viewpoint carves out the role of power and dependency in avoiding ethical exploitation. Economics supports profit maximization, sometimes even at the expense of those who are not shareholders.

Research Intention: Normative or Positive

Marketing ethics frameworks further can be classified according to whether the research intention is *normative/prescriptive* (what ought to be) or *positive/descriptive* (what is) (Tsalikis & Fritzsche, 1989). A descriptive framework attempts to explain the decision-making process for problem situations having ethical content. A normative framework focuses on developing guidelines or rules to assist marketers in their efforts to behave in an ethical fashion. Both categories of research intention often are used in the literature (e.g., Dunfee, Smith & Ross Jr., 1999; Hunt, 1976). For example, Hunt and Vitell (1986) take a *descriptive* look at how individuals perceive ethical problems and find solutions to those

¹ "Deontological" and "teleological" terms were introduced by C.D. Broad in his book *Five Types of Ethical Theory* in 1930. A deontological approach to ethics is "rule-" or "duty-based," that is, its focus is on the inherent righteousness of an action that is based on a rule or duty. A teleological approach to ethics is "consequence-based," that is, its key issue is the amount of good or bad embodied in the consequences of an action.

problems. In contrast, Murphy (1999) argues from a *prescriptive* viewpoint on how a marketing manager should implement ethical behavior by acquiring a virtuous character. Both categories are important.

Viewpoint: Individual or Organizational

Finally, we classify marketing ethics frameworks according to whether they focus on ethical behavior from the "viewpoint" of the *individual* or the *organization*. Whereas the organizational frameworks take somewhat of a macro-perspective on ethical behavior (e.g., Rallapalli, 1999; Murphy, Laczniaak & Wood, 2007), the individual frameworks examine the microcosm of personal decision-making and its influencing factors (e.g., Ferrell & Gresham, 1985; Wotruba, 1990).

CLASSIFICATION RESULTS

Next, we identified marketing ethics frameworks that have been published during the last 25 years in the following academic journals: *Journal of Business Ethics*, *Journal of Human Values*, *Journal of Macromarketing*, *Journal of Marketing*, *Journal of Public Policy & Marketing*, *Journal of Personal Selling and Sales Management*, *Sloan Management Review*, and *European Journal of Marketing*. To identify these journals, we analyzed the reference lists of well-known frameworks of Hunt and Vitell (1986), Robin and Reidenbach (1987) and Rallapalli (1999). We also researched EBSCOhost database with key terms of marketing ethics and ethics frameworks.

Table 1 classifies recent marketing frameworks according to the categories described in the last section. To highlight certain key findings, we also regrouped the frameworks into a cube as shown in Figure 1. For this purpose, we made a more basic categorization of frameworks based on three main dimensions—perspective (*domestic* versus *international*), marketing discipline (*general* versus *specific*) and theoretical approach (*economic* versus *noneconomic*). The *philosophical*, *religious* and *sociological* theoretical approaches were regrouped into one noneconomic approach to cut down the otherwise 16 possible sub-cubes in the figure to eight sub-cubes and, thus, better highlight the remaining information. Specifically, the economic approach was kept separate as we believe that the primary motive of any unethical conduct in business context is usually economic (that is, money or greed at the individual level, and revenue enhancement or cost reduction at the organizational level).

DISCUSSION OF SELECTED MARKETING ETHICS FRAMEWORKS

We split the following discussion of published marketing ethics frameworks into the two sections, corresponding with the lower and upper halves of the cube in Figure 1. The bottom half of the cube presents ethical frameworks in the domestic context. The four domestic ethical framework subgroups are noneconomic/general, noneconomic/specific, economic/general and economic/specific. The upper half of the cube contains noneconomic ethical frameworks in the international context. The gray area as shown in Figure 1 indicates the knowledge gap concerning economic/general and economic/specific ethical frameworks. While summarizing the frameworks below, we also discuss their relevance and usefulness for researchers, educators and practitioners.

Noneconomic/General Frameworks in Domestic Context

In formulating a marketing ethics framework, Laczniaak (1983) blended three ethical frameworks published earlier in the literature. The first framework titled "the *prima facie* duties framework" is based on *prima facie* duties of people of sufficient ethical and mental maturity—such as fidelity, gratitude, justice, beneficence, self-improvement, and non-maleficence—toward the organization's stakeholders (Ross, 1930). The second business ethics framework, "the proportionality framework," contends that ethical decisions consist of three dimensions, the intention, means and outcome of an action (Garrett, 1966). These three dimensions together determine whether an action is ethical in a way such as the following: "If what I do, as a means or an end, is good, then I am not responsible for its unintended side effects" (Garrett, 1966). The third framework, "the social justice framework" (Rawls, 1971), states that rational and ethical men would choose a system which minimizes the maximum loss that could incur. The further principles of Rawls' theory of social justice are *liberty*, which advocates that people ought to be treated equally, and *difference*, which assumes that some inequality is justified to avoid damage to the least advantaged people in the society. This Laczniaak framework offers a series of moral and ethical tests that are based upon a combination of Ross's, Garrett's and Rawls' perspectives and that classify marketing actions as either ethical or unethical.

Ferrell and Gresham (1985) presented a contingency framework of ethical marketing at the individual decision-making level. Ethical dilemmas are influenced, first, by a person's background (e.g.,

the person's knowledge, values, attitudes and intentions) that, in turn, are impacted by the person's moral philosophy, education level, and cultural background. Second, opportunities that are derived from intra-organizational factors like professional codes of ethics, corporate policies, and reward and punishment systems bias an individual's ethical decision-making. Third, "significant others" factors—such as the behavior learned from differential association with people such as top management, organizational peer groups, and other people of higher social status in the organization—influence individual decision-making about ethical issues.

Hunt and Vitell (1986) developed a "general theory" of marketing ethics. Their model is, perhaps, the most cited framework in the literature on marketing ethics. They suggest that an individual's ethical judgement is a function of deontological and teleological evaluations of a specific ethical problem. An individual's personal experiences, organizational and industry environment and cultural environment influence both ethical evaluations. The key issue in the deontological evaluation is the inherent righteousness of a *behavior*, whereas the key issue in the teleological evaluation is the amount of good or bad embodied in the *consequences* of the behavior. The teleological evaluation is affected by the importance of different stakeholders and how various consequences are perceived to influence them. An individual's ethical intention intervenes between ethical judgement and the actual ethical behavior that, in turn, is affected by numerous situational constraints. The actual consequences of the ethical behavior are later added to the individual's personal experiences which flow back into the future ethical evaluation processes. This model has been the focus of much discussion and empirical testing. Not all the variables stated above have been examined by subsequent studies, but some of those studies have, at least, partially confirmed the model (Singhapakdi & Vitell, 1990; Mayo & Marks, 1990). Furthermore, an empirical evaluation of the model in a professional selling context has demonstrated that managers' decisions to either discipline or reward the behavior of salespeople are guided primarily by deontological considerations and only secondarily by teleological factors (Hunt & Vasquez-Parraga, 1993). Later on, Hunt and Vitell (2006) advanced the model by (1) showing the potential of its blending with a normative ethical theory, (2) emphasizing that it is a *process* model, and not a *causal* model, and (3) demonstrating its usefulness for teaching marketing ethics in the classroom.

Ferrell, Gresham and Fraedrich (1989) synthesized the Ferrell and Gresham (1985)

contingency framework and the Hunt and Vitell (1986) framework mainly by incorporating teleological as well as the deontological moral evaluation processes. Future researchers will find this framework useful in developing testable hypotheses concerning the impact of an individual's moral philosophies and "significant others" in the organization upon the individual level ethical dilemmas concerning marketing issues such as price collusion, advertising deception, and falsification of research data.

Bommer, Gratto, Gravander and Tuttle (1987) proposed a conceptual framework for marketing ethics that guides the decisions underlying ethical or unethical actions. Those decisions are influenced by a decision-maker's social (religious values, humanistic values, cultural values, and societal values), legal and government (legislation, administrative agencies, and judicial system), work (corporate goals, policies and culture), professional (codes of conduct, licensing requirements, and professional meetings) and personal (peer group and family) environments. Moreover, attributes of the decision-maker, such as the individual's moral level, personal goals, motivation mechanism, position/status, life experiences, personality, and self concept, also influence ethical decisions. The decision process itself that ultimately leads to ethical or unethical behavior is influenced by the information acquired and processed, the decision-maker's cognitive processes, and perceived rewards and losses. This framework concerning the variety of factors underlying ethical behavior can be useful in academic settings, especially in courses that deal with ethical issues in business and industry.

Robin and Reidenbach (1993) provided a "workable ethical philosophy" for marketing issues in general. They argue that the ethical philosophy is constrained by the demands of society, the requirements of capitalism, and the limitations of human behavior and capacities. Their proposed workable ethical philosophy for marketing consists of a form of moral relativism (meaning that the moral justifications and judgements are not absolute, objective, and/or universal truths, but they are relative to some groups of people) that is bounded by constraints of time, history, and context (collectively labelled as "bounded relativism"), but can be tested or described empirically (labelled as "descriptive ethics") to assess if a behavior is ethical or unethical. This framework is useful for those future researchers who are interested in extracting ethical solutions for marketing issues from the discipline of philosophy.

Mascarenhas (1995) claimed that marketing responsibility is a responsibility of exchange. Although marketing managers should be committed

to doing good to all stakeholders, especially consumers (by providing high quality goods and services), there are factors (such as the marketer's duty for economic survival and seeking profits) that diminish as well as enhance the responsibility of marketing managers. Marketing responsibility has two dimensions—*accountability* (being answerable for one's behavior) and *commitment* (promise to duly perform one's part in a common undertaking). The fact that the marketing responsibility within the exchange process is based on accountability means that a marketing agent can be associated with an ethical or unethical action. Accountability is derived from exchange activities that are based on laws, contracts, agreements, and norms and standards, and, thus, marketing ethicality is based on a legal foundation. In addition, the company codes and industry norms and relationships are based on ethical or moral thinking and constitute another part of accountability. Contrary to accountability, *commitment* is something like an unwritten moral law based on human dignity, human trust, and conscience and can only be noticed by inference from observed behavior. Furthermore, marketing managers' decision-making is based on a mix of voluntary actions that enhance marketing responsibility and involuntary actions (done under duty constraint of survival or due to ignorance) that diminish the blame of unethical behavior. Marketing researchers can utilize this framework to investigate the role of a marketing executive's accountability and commitment in ethical marketing decisions.

Thompson (1995) developed his contextual model of ethical dilemma because little attention previously had been given to assumptions regarding the relationship between a marketer's perception of a moral dilemma and the marketer's *contextual* socio-cultural frame of reference. According to Thompson (1995), a marketing agent is embedded into a corporate-specific culture. The marketing agent's interpretations of ethical situations are biased by the competing multiple stakeholder interests such as stockholders' profit expectations, environmental concerns, employee welfare, societal goodwill, consumer safety, relations to suppliers and government agencies, and international concerns. These conflicting interests, if analyzed and handled carefully, eventually lead to a balanced societal evaluation of the marketing agent's actions and consequences that are also influenced by the multiple cultural meanings and value systems. The construction of such a culturally-situated moral point-of-view continues to facilitate the agent's future ethical decision-making challenges. In that this framework is culturally contextual, it can be applied to international cross-cultural contexts by future

researchers even though the framework is not explicitly international.

Noneconomic Specific Ethical Frameworks in Domestic Context

Robin and Reidenbach (1987) presented a normative conceptual model of marketing ethics with a focus on an organization's *strategic marketing planning* process. The authors make a case for parallel planning systems that integrate an organization's ethical and socially responsible plans and values into its strategic marketing plan. It is argued that corporations are a productive element of the society. That means they are to include social responsibility values—such as caring for organization family and integral publics, being helpful corporate members, obeying the law, being “good” corporate citizens, allocating resources for philanthropic purposes, and protecting and caring for the physical environment—in their plans. The suggested integration is philosophically-driven and implements teleological and deontological thinking into the strategic marketing planning process. At the first level of parallel planning integration, an organization's mission statement and ethical profiles guide the development of its marketing objectives. At the second level, the target market's identification is impacted by the public and stakeholders. At the third level, the actionable ethical core values oversee the development of marketing mixes. At the next level, enculturation and integration of ethical core values are introduced with the implementation of marketing strategy. The parallel planning process is then completed by monitoring and controlling for marketing and ethical effectiveness. Through the parallel system for integration of ethical and social responsibility plans into strategic marketing planning, Robin and Reidenbach (1987) present a proactive approach to marketing ethics, instead of just a few stopgap rules and codes of ethics that tend to operate as constraints.

Wotruba (1990) analyzed how individual *sales personnel* arrive at ethical decisions and what factors come into play when moral judgements are made and converted into decisions and action. In his framework, Wotruba (1990) describes the ethical decision/action process (EDAP) with four major parts. In part A (labelled as the moral decision structure), it is argued that, to behave morally in a given situation, a salesperson must (1) recognize alternatives, affected parties, and outcomes; (2) determine the morally-best alternatives based on ethical theories and moral judgement stages; (3) give priority to moral values and intend to do what is morally right; and (4) convert intentions into action

(decisions and/or behavior). In part B, the moral decision structure is flanked by antecedents, namely, the demographic, behavioral (psychological and cultural), and positional (type and level within the organization) characteristics of the decision-maker. In part C, the moral decision structure is affected by situational moderators such as corporate culture and policies, peers and referent others, superiors, competitors, customers and legislation. In part D, outcomes appear in the form of job performance, rewards/punishment, and feedback/learning. Next, the framework provides a conceptual scheme for guiding and assessing research in ethical decision-making of salespeople. It also serves as a useful guide for top management for uncovering possible causes of ethical problems resulting from the actions of sales personnel.

Malhotra and Miller (1998) presented a stakeholder-based descriptive conceptual model with a focus on *marketing research*. The ethical dilemmas in market research frequently revolve around the "stakeholders" of the research, namely, the general public, the actual respondents used in a study, the client, and the researcher. The rationale and foundation of the model are based on different philosophical theories, including ethical relativism, justice, objectivism, teleology, deontology, and hybrids of teleology and deontology, as well as some major existing marketing and business ethics conceptual models (Hunt & Vitell, 1986; Ferrell & Gresham, 1985). An ethical dilemma could arise during any of the six steps of the marketing research process: problem definition, developing an approach, formulation of research design, field work, data analysis, and report preparation and presentation. To address the ethical dilemma, a decision-maker goes through five stages: awareness of ethical dilemma, perception of the dilemma as influenced by the decision-maker's stage of cognitive moral development, ethical judgement based upon ethical theories (identified above), determination as reflected through intentions, and actions in terms of ethical or unethical behavior.

Ferrell, Johnston and Ferrell (2007) developed a framework for ethical decision-making in the *sales management* context. It examines the role that organizational factors and ethical intensity play in the ethicality of the implementation of sales processes. Individual factors such as personal moral philosophy and the stage of the individual's moral development are also incorporated in the framework. An organization's culture influences its sales activity (in the form of aggressive sales presentations, deceptive sales tactics, and omitted product information), which also is a driver for the intensity of the ethical issue. The latter itself leads to an ethical or unethical

decision; however, it is also flanked by individual factors as well as the sales ethical climate (codes, compliance, policy and supervision). Eventually, the evaluation of ethical outcomes is framed by "carrots and sticks" such as pay raises, bonuses, public recognition, as well as reprimands, pay penalties, and demotions that function as rewards and punishments and which, in turn, influence ethicality of employee behavior in the future. Sales ethics remains a complex area to understand, and this framework offers an opportunity for future research to investigate decision making in personal selling and sales management.

Economic General/Specific Ethical Frameworks in Domestic Context

Smith (1995), as an extension to Smith and Quelch (1993), presents a marketing ethics framework which is built on the criticism that marketers often rely on simple ethical maxims in their decision-making. The context is a normative framework for general organizational marketing ethics. Smith argues that, since the Second World War, society's expectations of marketers have gradually shifted from the *caveat emptor* position ("let the buyer beware," also implying profit maximization within legal constraints) to the *caveat venditor* position ("let the seller beware," also implying customer satisfaction). Thus, for today's "ethics era" of society, marketers are expected to follow codes of ethics of their firms, industries, and professional bodies, as well as ensure consumer sovereignty. Smith suggests a consumer sovereignty test (CST) for marketers as consumer sovereignty is the principal rationale for capitalism. Under the test, ethical marketers are to ensure that (1) consumers are capable of making sound decisions (for example, young children are not, because of vulnerability factors such as age, education or income), (2) consumers are provided adequate product information, especially the information that is not available from other sources, and (3) consumers have adequate choice and opportunity to switch to other suppliers in the case of dissatisfaction without incurring exorbitant switching costs. The framework is especially useful for practitioners as it offers benchmarks for evaluating the ethical dimensions of their consumer-focused marketing practices.

Kennedy and Lawton (1993) provide a descriptive examination of inter-organizational factors affecting marketing ethics in service organizations that have high levels of environmental contingencies. The framework partly relies upon reward, coercive and expert sources of economic power (French & Raven, 1959). As an organization's

control over resources needed by another organization increases, the controlling organization's reward, coercive, and expert power increases, which, in turn, increases the likelihood that the powerful organization will engage in unethical behavior affecting its weaker partner. In addition, both (1) the less powerful organization's dependence upon its exchange partner for its resources (caused by transaction-specific investments) and (2) uncertainty (environmental contingencies) increase the strategic vulnerability of the less powerful organization. This can lead to unethical behavior by the less powerful exchange partner. So, the organizational ethical decision-making is influenced by possession of power (control of resources) that results in attempts to take unfair advantage (in the form of unethical behavior) because of the strategic vulnerability of the less powerful exchange partner. In such a case, uncertainty and transaction-specific investments become strong moderating constraints. Future researchers may modify this framework to extend its application from service to manufacturing industries as inter-organizational dimensions play significant roles in the latter industry as well.

Noneconomic General/Specific Frameworks in International Context

Murphy (1999) and Williams and Murphy (1990) proposed the applicability of character and virtue ethics to international marketing. They argue that certain virtues and character traits are universal across cultures, and, thus, are applicable in both domestic and global contexts. The identification of these traits is based on two classes of Aristotle's widely-referenced virtues: intellectual (deliberative excellence and contemplative wisdom) and moral (courage, temperateness, liberality, and justice), and Thomas Aquinas' (a thirteenth century writer) four cardinal virtues: prudence (foresight), fortitude (moral courage), temperance (balance), and justice (fairness). Murphy (1999) takes a religious perspective and, although he focuses on *the individual* and the individual's own character traits, the overall viewpoint of the proposed ethical framework is *organizational*. He further argues that virtues are "good" habits and are acquired especially by practicing, witnessing, and imitating behavior of others and by aspiring for lifelong continual self-improvement. The international dimension is introduced as virtues and is examined in the context of a multiple-community setting. The simultaneous operation of international companies in multiple communities demands universal traits that can be applied across cultures. In both domestic and global contexts, core virtues that should be reflected in an

organization's marketing dealings are: integrity, honesty and moral courage; fairness and justice; trust, dependability, respect, and consideration; and empathy and caring. This general framework was later applied to *relationship marketing* by Murphy, Laczniak and Wood (2007). As the framework is supported by various examples of companies that follow the theory of virtue in marketing, this article can effectively generate classroom discussion.

Nill and Shultz II (1997) developed an international marketing ethics framework which is based on cultural relativism versus ethnocentrism. Managerial decisions in international and cross-cultural settings are influenced by conflicting values of various stakeholders, which have to be reconciled. The normative approach of the framework is based on dialogic idealism (that is, an *ideal* dialogue between affected participants, whose basis is cross-cultural norms) and communicative rationalism (the *actual* dialogue that leads to responsible consequences) as tools for finding ethical norms in marketing across cultures. This proposed framework combines deontological and teleological elements in order to generate acceptable norms of dialogue and action among multiple stakeholders. Nill and Shultz II (1997) further argue that an open dialogue among stakeholders from different cultures could foster mutual understanding and help companies base their ethical decisions on norms that, although not universally valid, are acceptable to all parties with vested interests. The framework offers motivation to companies operating in cross-cultural settings to enter into a dialogue on the willingness to act ethically and with communicative rationality.

Enderle (1998) introduced a normative framework for international marketing ethics from an organizational viewpoint. He points out that, out of the five commonly-known Philip Kotler marketing philosophies (Kotler, 2003), production, product, selling, marketing, and societal marketing, the last philosophy—that aims at balancing a marketer's goals of customer satisfaction, profitability, and social wellbeing—is nothing but an example of ethics-related marketing. This philosophy broadens the role of marketing onto different areas of social life, which in the end means the overall wellbeing of the society. The framework is useful for an international marketer as it assesses the role of general ethical guidelines such as practice honest communication, enhance human capabilities, foster creative intercultural diversity, promote sustainable growth and eco-efficiency, and respect and support, in principle, a host country's culture.

Dunfee, Smith and Ross Jr. (1999) developed a marketing ethics framework resting on social contracts theory. A social contract for business

provides for corporate legitimacy on the basis of the consent of those affected by business. The contract implies that corporations exist only through the cooperation and commitment of society. In the exchange process of marketing, stakeholders with conflicting interests in a cross-cultural setting assume a hypothetical unwritten agreement (known as global macro-social contract) that must not violate certain minimum global standards (known as *global hyper-norms*; for example, stakeholders must avoid deception and fraud and show respect for workers as human beings). In this context, ethical judgement is based on a decision-making process chain. In this process, after relevant communities (such as a home-country organization and a host-country organization in the context of international marketing) and their all ethical norms have been identified, the ethical norms are screened for legitimacy under the global hyper-norm test. Next, the remaining norms that are still in conflict are subject to mutually agreed upon priority rules (e.g., the extent of adverse effects on others and relative size of affected communities). Finally, ethical judgements are based on *dominant* legitimate norms. In case no such norms exist, the ethical judgement is based on any *legitimate* norm. Among other issues, the framework is relevant for practitioners addressing bribery in the context of global "contractors" under integrative social contracts (a hypothetical global macro-social contract and actual micro-social contracts between host- and home-country organizations) theory and its decision-making process.

Rallapalli (1999) introduced a model for the development of a global code of marketing ethics. A global code of marketing ethics should have normative guidelines in the form of core values of an organization for all its cross-cultural settings. Global codes of conduct that are developed in this way lead to fewer polycentric ethical conflicts and promote ethical conduct of a marketer that is behaviorally consistent. However, the potential moderating constraints that can impede the development of such a code are differences in the (1) moral reasoning at the individual level, (2) organizational ethical climate, (3) Hofstede's cultural dimensions (individualism/collectivism, power distance, uncertainty avoidance, and masculinity/femininity) of the society, and (4) level of economic development of the society. Though a universal code of marketing ethics does not exist in reality, the framework is still useful for MNCs in developing a company-specific code in the face of overwhelming ethical challenges in today's rapidly-advancing era of globalization.

Saeed, Ahmed and Mukhtar (2001) developed an Islamic framework of international marketing ethics and pointed out its capabilities and strengths. The

conceptual model follows the principle of value-maximization based on *equity* (just dealing) and *justice* (fair play) for the wider welfare of the society rather than the selfish pursuit of profit maximization. The deeply embedded religious background of the framework is based on the *Qur'an* (Islam's holy book) and the documented practices of the *Holy Prophet*. It is argued that the international marketing ethics should be based on the Qur'anic Commandments. The authors make a case for "global moral order" containing universal moral values irrespective of culture, creed, or religion, as well as for the design of an international marketing-mix primarily from an Islamic perspective. It is argued that the Islamic perspective of the framework, if adhered to, can establish, among other things, harmony and meaningful cooperation between international marketers and their Muslim target markets. The authors contend that, although self-regulation is preferred under Islamic rules, the regulatory institutions that enforce moral and ethical behavior should also exist as backups. The Islamic religion acts as a moral filter in this context. The framework is especially relevant for MNCs operating in Muslim markets and serving Muslim stakeholders, such as suppliers and distributors.

CONCLUSIONS, IMPLICATIONS AND IDEAS FOR FUTURE RESEARCH

It is apparent from the discussion of the cube above that the literature on marketing ethics contains a variety of frameworks. These marketing ethics frameworks rely heavily on the discipline of philosophy. Also, note that most of the studies in the cube are on its right side. This means that most of the ethical frameworks are in the area of *general* marketing and not *specific* to any sub-disciplines of marketing.

As evidenced by the cube, only a few marketing ethics frameworks use economic approaches. Further, no economic theory has been applied systematically in an international context to investigate marketing ethics of MNCs. These areas should be the focal point of future research efforts.

As noted earlier, most frameworks observed in the literature review are based on moral philosophy. As an exception, two ethical frameworks are noted that are based on economics (Kennedy & Lawton, 1993; Smith, 1995). Such a small emphasis on economic theory is rather surprising, especially when the primary motive of unethical conduct is usually economic in nature (i.e., profit). For example, some of the large powerful MNCs, while minimizing private costs and maximizing private benefits, pass on costs to the society in the form of negative

externalities whenever possible and through whatever available means, whether they are well-accepted or controversial. For example, western MNCs have dumped hazardous materials in less-developed countries (LDCs) because of the information asymmetry between LDCs and MNCs. Whereby the former have "weak" information about the consequences of hazardous materials and their danger to the society as their nationals are overall less-trained and educated, their legislation has weak and ineffective implementation, and their political economy is largely corrupt (Amine, 1996; Rallapalli 1999). In contrast, developed nations have "strong" information as facilitated by highly educated nationals, strict legal enforcement, and low levels of corruption. Thus, future research needs to utilize the theory of economics of information, transaction cost theory, and/or principal-agent theory to explore motives and consequences of unethical conduct in the stated and similar international contexts.

Implications for Practitioners and Educators

Educators are usually expected to raise students' consciousness about the ethical and socially responsible roles of the latter in society. Students should be provided with the accumulated knowledge and techniques of ethical decision-making as well as opportunities for development of ethics-driven thinking. The case-analysis teaching tool is frequently used by marketing educators for this purpose. This paper presents a variety of ethical frameworks that can be used by marketing educators to enhance case discussions. Examples of case topics and relevant ethical frameworks include service marketing (Kennedy & Lawton, 1993), relationship marketing (Murphy, Lacznia & Wood, 2007), marketing research (Malhotra & Miller, 1998), professional selling (Wotruba, 1990), strategic planning (Robin & Reidenbach, 1987), and international marketing (Enderle, 1998).

A careful perusal of the literature, as summarized here, demonstrates numerous managerial guidelines for practitioners. For example, Saeed, Ahmed and Mukhtar (2001) offer guidelines (based upon Islamic perspectives) to MNCs while dealing with Islamic suppliers and customers in foreign markets, while Rallapalli (1999) provides normative guidelines for the formulation of a global code of marketing ethics that leads to fewer polycentric ethical conflicts. The literature also provides suggestions for developing rational communication among stakeholders from different cultures to help companies base their ethical decisions on norms that are acceptable to all parties with vested interests (Nill & Shultz II, 1997).

The existence of numerous marketing ethics frameworks, as showcased and synthesized in the paper, shows that the academic world has been thoughtfully analyzing marketing ethics. The paper has identified numerous gaps in the literature concerning marketing ethics. Filling these gaps will lead to the type of comprehensive body of literature needed in today's complex world.

Ideas for Future Research

There are three distinct directions that future marketing ethics research could take:

1. **Religious-Based:** The religion-based literature review on marketing ethics frameworks indicates an attempt to integrate Islam into the global business ethics context (Saeed, Ahmed & Mukhtar, 2001). In addition to Islam, the two other major world religions are Christianity and Hinduism. Christianity emphasizes absolute rights and wrongs and, thus, has absolute standards of morality and ethics (for example, as emphasized in the *Ten Commandments*), whereas Hinduism suggests multiple paths to nirvana (salvation). Accordingly, what is right or wrong in Hinduism is path-specific and relative and, thus, based upon the nobility of intention of the act. Further, Christianity has about 1.7 billion adherents, and Hinduism has about 750 million adherents in the world. This significant number implies that MNCs not only deal with Christians in the western markets, they also do business with Hindus who are primarily located in India—an emerging market that has been attracting foreign capital and numerous MNCs since the early nineties. Given the global significance of Hinduism and Christianity, the tenets of these two major religions can be used to develop marketing ethics frameworks in an international context, which will be particularly helpful to international enterprises with Christians and Hindus as their target markets, expatriate employees, distributors, and/or suppliers.
2. **Marketing Sub-disciplines Based:** As noted earlier, the marketing ethics frameworks typically examine the ethicality of *general* marketing scenarios. However, the exceptions are a few frameworks that can be found in the context of some *specific* marketing areas such as marketing research (Malhotra & Miller, 1998), service marketing (Kennedy & Lawton, 1993), professional selling (Wotruba, 1990) and relationship marketing (Murphy, Lacznia & Wood, 2007). Two emerging areas of

marketing—direct marketing and online marketing—also need the conceptualization of ethical frameworks, as numerous ethical violations such as deception, fraud, invasion of privacy, identity theft, online insecurity, and exposure of controversial material to vulnerable or unauthorized audiences in these two areas of marketing are common. Furthermore, the ethical frameworks for some of the marketing sub-disciplines—such as marketing research (Malhotra & Miller, 1998) and strategic planning (Robin & Reidenbach, 1987)—are primarily based upon marketing processes and, thus, it is suggested that the ethicality of these and similar process-focused marketing topics (for example, new product development process) should be examined at every step of the process in future research.

3. **International Marketing-Based:** The synthesis of literature above in the international context shows that factors that ought to be included in ethical decision-making in international marketing are (1) universal core virtues and character traits that include integrity, moral courage, justice and fairness, and trust and dependability of decision-makers (Murphy 1999); (2) a rational dialogue on the willingness to act ethically among stakeholders with cross-cultural conflicting values (Nill & Shultz II, 1997); (3) the social marketing orientation of MNCs (Enderle, 1998); (4) the willingness to recognize and honor integrative social contracts (Dunfee, Smith & Ross Jr., 1999); and (5) religion-based moral values used to form international marketing mix (Saeed, Ahmed & Mukhtar, 2001). To form managerial guidelines for international businesses, future researchers need to identify the extent to which these factors are indeed considered by MNCs and the extent of their relative role in cross-cultural decision-making.

Another international research direction concerns the four “Ps” of marketing. Ethically controversial areas of the four Ps that ought to be conceptualized to develop frameworks include the sale of counterfeit products in emerging and less developed markets (product), use of violence and sex in advertising and promotion campaigns aimed at vulnerable audiences such as children (promotion), use of undesirable gray distribution channels in less developed markets (place), and price discrimination in international markets (price).

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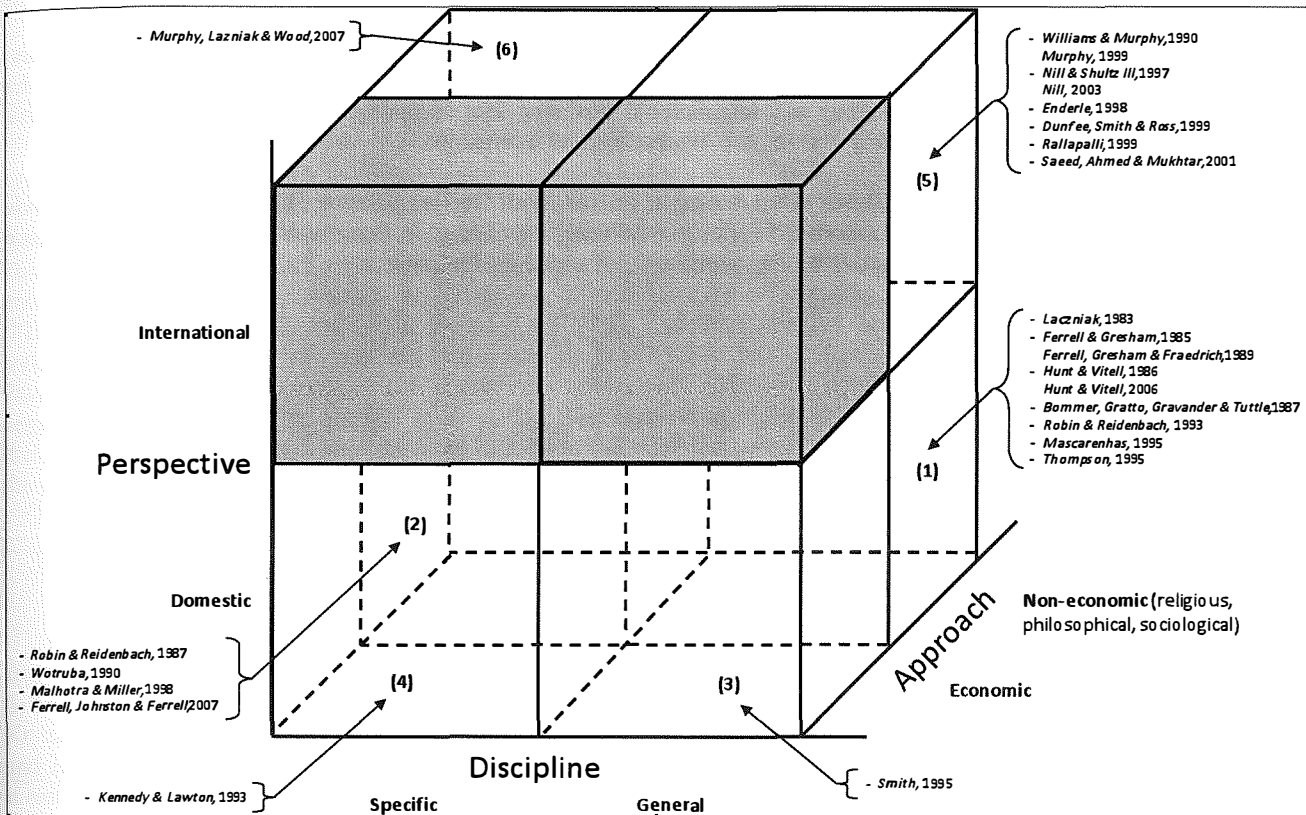
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Table 1: Characteristics of Selected Marketing Ethics Frameworks

Author(s)	Characteristics	Marketing perspective	Marketing discipline	Theory/approach used	Research intention	Viewpoint of ethical behavior
<i>Laczniak, 1983</i>		domestic	general	philosophical	normative	individual
<i>Ferrell & Gresham, 1985;</i> <i>Ferrell, Gresham & Fraedrich, 1989</i>		domestic	general	sociological/ philosophical	descriptive	individual
<i>Hunt & Vitell, 1986; Hunt & Vitell, 2006</i>		domestic	general	philosophical	descriptive	individual
<i>Bommer, Gratto, Gravander & Tuttle, 1987</i>		domestic	general	sociological	descriptive	individual
<i>Robin & Reidenbach, 1987</i>		domestic	strategic	philosophical	normative	organizational
<i>Williams & Murphy, 1990;</i> <i>Murphy, 1999</i>		international	general	philosophical/ religious	normative	individual/ organizational
<i>Wotruba, 1990</i>		domestic	sales	philosophical	descriptive	individual
<i>Kennedy & Lawton, 1993</i>		domestic	service	economic	descriptive	organizational
<i>Robin & Reidenbach, 1993</i>		domestic	general	philosophical	normative	individual
<i>Smith, 1995</i>		domestic	general	economic	normative	organizational
<i>Mascarenhas, 1995</i>		domestic	general	philosophical	descriptive	individual
<i>Thompson, 1995</i>		domestic	general	philosophical	descriptive	individual
<i>Nil & Shultz III, 1997; Nil, 2003</i>		international	general	philosophical	normative	organizational
<i>Enderle, 1998</i>		international	general	philosophical	normative	organizational
<i>Malhotra & Miller, 1998</i>		domestic	research	philosophical	descriptive	organizational
<i>Dunfee, Smith & Ross, 1999</i>		international	general	sociological	normative	organizational
<i>Rallapalli, 1999</i>		international	general	philosophical	normative	organizational
<i>Saeed, Ahmed & Mukhtar, 2001</i>		international	general	religious	normative	individual
<i>Ferrell, Johnston & Ferrell, 2007</i>		domestic	sales	sociological	descriptive	organizational
<i>Murphy, Laczniak & Wood, 2007</i>		international	relationship	philosophical/ religious	normative	individual/ organizational

Figure 1: Cube of Selected Marketing Ethics Frameworks



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RISKS, RETURNS, AND PORTFOLIO DIVERSIFICATION BENEFITS OF SECTOR INVESTMENTS

Ilhan Meric, Mitchell Ratner and Gulser Meric

ABSTRACT

In recent years, investors were able to make sector investments through exchange-traded sector index funds. However, sector investments and their portfolio diversification benefits have not been sufficiently studied. This paper evaluates the risks, returns, and portfolio diversification benefits of U.S. sector investments. Our findings indicate that investments in the oil & gas (OILGS), utilities (UTILS), basic materials (BMATR), telecommunication (TELCM), technology (TECNO), and industrials (INDUS) sectors provided positive abnormal returns with the realized returns exceeding the required returns during the October 2002 to September 2007 period. However, the financials (FINAN), healthcare (HLTHC), consumer services (CNSMS), and consumer goods (CNSMG) sectors had negative abnormal returns during the same period. The Markowitz mean–variance optimization analysis indicates that an optimal portfolio with allocations of 43.77% to the oil & gas sector, 28.50% to the utilities sector, 22.21% to the technology sector, and 5.52% to the telecommunications sector would have maximized the Sharpe (1966) ratio.

INTRODUCTION

Sector investments have received considerable attention in recent years (see Tuluca, Zwick, & Seiler, 2000; Ratner & Leal, 2005; He & Kryzanowski, 2007; Meric, Ratner, & Meric, 2005 and 2008). Exchange-traded sector index funds make it easy for investors to achieve sector diversification.¹ However, the risks and returns of sector investments and the portfolio diversification opportunities with sectors have not been sufficiently studied. In this paper, we use the Treynor (1965), Sharpe (1966), and Jensen (1968) methodologies to compare the risk–return performance of ten U.S. sectors. The capital asset pricing model (Sharpe, 1964) is used to determine the required rate of return on each sector based on its beta. Empirical studies show that betas lack intertemporal stability. Therefore, in practice, they are generally calculated with data for a maximum of five years. We calculate the sector betas with data for the five-year period from October 2002 to September 2007, and we evaluate the risk-versus-return tradeoff and portfolio diversification benefit of sector investments during this period. We employ the Markowitz (1959, 1976) mean–variance analysis to determine the weights and U.S. sectors that are included in an optimal portfolio that maximizes the Sharpe ratio.

METHODOLOGY

As in many previous studies, the S&P 500 stock price index is used as the market proxy for the U.S.

¹ For information about exchange-traded sector index funds see <http://www.sectorspdr.com>.

stock market. The market risk contribution of a sector index fund to a well-diversified portfolio is measured by the fund's beta defined as follows:

$$\beta_i = \frac{\text{Cov}(R_i, R_{sp})}{\sigma_{sp}^2} \quad (1)$$

where β_i is the beta (or market risk) of the index fund of sector i , R_i is the actual realized weekly return of the index fund of sector i , R_{sp} is the S&P 500 weekly index return, $\text{Cov}(R_i, R_{sp})$ is the covariance between the weekly returns of the index fund of sector i and the S&P 500 weekly index returns, and σ_{sp}^2 is the variance of the S&P 500 weekly index returns.

The market risk of an investor's portfolio is:

$$\beta_p = \sum_{i=1}^N w_i \beta_i \quad (2)$$

where β_p is the portfolio's market risk, w_i are the weights of the sector investments in the portfolio, and β_i is the beta of sector i . Therefore, the contribution of each sector investment to a well-diversified portfolio is measured by the sector's beta as determined by its covariance with the U.S. market index (assumed to be the S&P 500 index).

The investor's required return on the i^{th} sector index fund is:

$$R_{ri} = R_{rf} + (R_{sp} - R_{rf}) \beta_i \quad (3)$$

where R_{ri} is the required return on the sector index fund, R_{rf} is the risk-free return on a long-term U.S. Treasury bond, and $(R_{sp} - R_{rf})$ is the market risk premium.

DATA

Following the methodology used by Value Line,² we calculate the sector betas by using weekly return data for the five-year period. Weekly S&P 500 and sector index data are drawn from the *Datastream* database. Weekly price index returns are computed as the natural log difference in the indexes, $\ln(I_{i,t}/I_{i,t-1})$, where I stands for the index for industry i at time t .³ We use the data for the five-year period spanning from October 2002 to September 2007 in the calculation of the sector betas. This period is one of the most important recent bull markets. This period is chosen with the expectation that our findings may provide some valuable information to investors for similar future bull markets.

The 10-year Treasury bond interest rates are generally used in empirical studies for the risk-free rate in the required rate of return calculations. We obtain the 10-year Treasury bond rates from the Federal Reserve Bank⁴ for the calculation of each sector's required rate of return. The average annual interest rate on the 10-year Treasury bond is 4.39% for the period studied. Because realized and required return figures are yearly averages, the average annual interest rate for this period is used as the risk-free rate in the required rate of return calculations. The 10-year Treasury bond rate has been quite stable during the period studied; it was about 4.01% at the beginning of the period and about 4.52% at the end of the period.

Datastream categorizes industries, as defined by the *Financial Times Actuaries Index*, into the following ten sectors: basic materials (BMATR), consumer goods (CNSMG), consumer services (CNSMS), financials (FINAN), healthcare (HLTHC), industrials (INDUS), oil & gas (OILGS), technology (TECNO), telecommunication (TELCM), and utilities (UTILS). Our study covers all ten sectors.

SECTOR BETAS AND MARKET RISK

Beta measures a security's market risk and is a key component in the capital asset pricing model. In several recent studies, country betas are used as a measure of country market risk when studying global

portfolios (see Gangemi, Brooks, & Faff, 2000; Verma & Soydemir, 2006; Andrade & Teles, 2006). In a recent study, He & Kryzanowski (2007) use sector betas to study the cost of equity for Canadian and U.S. sectors. In this paper, we use sector betas to study the market risk and alphas of U.S. sectors. The issue of sector alphas has not been studied in the previous literature by using sector betas.

The beta (market risk) of a sector measures the contribution of investments in that sector to the market risk of a portfolio. Each sector's beta is calculated by regressing the sector's weekly index returns against the S&P 500 weekly index returns. The scatter diagram, the regression line (the characteristic line) fitted to the data, the regression equation, and the adjusted R^2 figure for each regression equation for each sector are presented in Figure 1.

The slope of the characteristic line is the estimate of the beta of the sector (i.e., the sector's market risk). The betas of all ten sectors are statistically significant at the 1% level. The statistics indicate that the technology (TECNO) and basic materials (BMATR) sectors have the highest betas (i.e., the highest market risk). The healthcare (HLTHC) and utilities (UTILS) sectors have the lowest betas (i.e., the lowest market risk).

The R^2 statistic shows the goodness of fit of the characteristic regression line (i.e., how well changes in market returns explain changes in sector returns). The oil & gas (OILGS) and utilities (UTILS) sectors have the lowest R^2 figures (i.e., the highest sector-specific risk). The financials (FINAN) and industrials (INDUS) sectors appear to have the highest R^2 figures (i.e., the lowest sector-specific risk).

Because the sector-specific risk can be diversified away, theory suggests that investors would require a risk premium for their sector investments based on the beta levels of the sectors. The sector beta figures are presented in column D of Table 1. By definition, the market risk (beta) of the S&P 500 index is 1.00.

REQUIRED RATES OF RETURN AND SECTOR ALPHAS

The required return on each sector is calculated by using the sector's beta and Equation (3). The calculation results are presented in Table 1. The figures in the table show that, because they have the highest betas, the technology (TECNO) and basic materials (BMATR) sectors have the highest required rates of return (15.42% and 15.17%, respectively). Oppositely, because they have the lowest betas, the healthcare (HLTHC) and utilities (UTILS) sectors

² See http://www.valueline.com/sup_glossb.html.

³ Betas calculated using price index returns and stock returns are highly correlated. Most companies, like Bloomberg, use price index returns. Some companies, like OSIRIS, use stock returns. See London Business School, http://www.london.edu/assets/documents/theschool/SubjectGuide/Obtaining_betas_v4_Jan2009_RM.pdf.

⁴ We obtain the 10-year Treasury bond rates from the Federal Reserve Bank website: <http://www.federalreserve.gov>.

have the lowest required rates of return (9.57% and 10.32%, respectively).

The realized average annual returns of the ten sectors are presented in column F of Table 1. The results in the table indicate that the realized returns in the oil & gas (OILGS), utilities (UTILS), basic materials (BMATR), telecommunication (TELCM), technology (TECNO), and industrials (INDUS) sectors exceeded the required returns. However, the realized returns of the financials (FINAN), healthcare (HLTHC), consumer services (CNSMS), and consumer goods (CNSMS) sectors were less than the required returns.

The sector alpha (i.e., the difference between the realized rate of return and the required rate of return) shows the return benefit or detriment to the investor from investing in a given sector. The results indicate that the highest positive alphas are in the oil & gas (11.78%) and utilities (5.61%) sectors. The basic materials (3.65%), telecommunication (2.27%), technology (1.63%), and industrials (1.56%) sectors also have positive alphas. However, the investments in the consumer goods (-4.63%), consumer services (-2.05%), healthcare (-1.81%), and financials (-0.76%) sectors have negative alphas.

GRAPHICAL ANALYSIS

The alpha results are also presented in graphical form on the security market line (SML) in Figure 2. The horizontal axis of the graph measures the beta and the vertical axis measures the required and realized returns. The SML intersects the vertical axis at the risk-free rate, where the beta (market risk) is zero. The SML shows the required rate of return at different beta levels. It slopes upward indicating that investors require higher returns at higher levels of market risk (beta). The slope of the SML is the market risk premium ($R_{sp} - R_{rf}$).

The realized rate-of-return figures for the ten sectors are plotted in Figure 2. If the realized rate of return of a sector is higher than the required rate of return at the sector's beta level (as measured on the SML), the plot point representing the sector's realized rate of return is positioned above the SML. The area below the SML is where the sectors with realized returns less than the required returns are found.

Because they have a positive alpha, the realized-rate-of-return plot points representing the oil & gas (OILGS), utilities (UTILS), basic materials (BMATR), telecommunication (TELCM), technology (TECNO), and industrials (INDUS) sectors are above the SML. By definition, the S&P 500 index is fairly valued and it is positioned on the SML (see Jensen, 1968). The financials (FINAN), healthcare

(HLTHC), consumer services (CNSMS), and consumer goods (CNSMS) sectors have a negative alpha and the realized-rate-of-return plot points representing these sectors are below the SML.

The vertical distance between the plot point representing each sector and the SML is the sector's alpha, i.e., the difference between the realized return and the required return. The graph demonstrates that the oil & gas (OILGS) sector provides the largest alpha (11.78%), and the plot point representing this sector is positioned well above the SML. The consumer goods (CNCMG) sector has the largest negative alpha (-4.63%). The plot point representing this sector is positioned substantially below the SML.

ALPHAS WITH MONTHLY RETURNS

Monthly returns are also often used in practice for calculating betas. Empirical studies show that data frequency can influence beta values and stock market analysis results (see Draper & Paudyal, 1995; Nagayasu, 2008). In this section of our study, we use monthly rather than weekly returns in the calculation of the sector betas to see if our findings would change significantly. The betas calculated using weekly and monthly return data are presented in Table 2. As found when we used weekly return data, all the beta figures calculated using monthly return data are statistically significant at the 1% level.

The beta figures found using monthly data appear to be quite similar to those calculated with weekly data, with some notable differences. The technology (TECNO) and basic materials (BMATR) sectors again have the highest betas (i.e., the highest market risk). The healthcare (HLTHC) and utilities (UTIL) sectors again have the lowest betas (i.e., the lowest market risk). With monthly data, the consumer goods (CNSMG), healthcare (HLTHC), consumer services (CNSMS), telecommunication (TELCM), utilities (UTILS), and technology (TECNO) sectors have slightly higher betas, whereas the oil & gas (OILGS), basic materials (BMATR), industrials (INDUS), and financials (FINAN) sectors have slightly lower betas compared with the betas calculated with weekly data.

The betas calculated with weekly and monthly return data are not statistically different. The Pearson correlation coefficient between the betas from weekly data and monthly data is 0.96 and is significant at the 1% level. Moreover, the difference of means t-test indicates that the mean values of the betas from weekly data and monthly data are not statistically different at the 1% significance level.

The sector alphas calculated with betas based on monthly data are presented in Table 3. The ranking of the sectors in terms of alphas changes slightly when

using the betas from monthly data. The oil & gas (OILGS), utilities (UTIL), and basic materials (BMATR) sectors again have the largest positive alphas, whereas the healthcare (HLTHC), consumer services (CNSMS), and consumer goods (CNSMG) sectors again have the negative alphas. However, although the financials (FINAN) sector has a small negative alpha based on the beta derived from weekly data, it has a small *positive* alpha when the beta derived from monthly data is used. The technology (TECNO) and industrials (INDUS) sectors are ranked fifth and sixth, respectively, with betas from weekly data among firms with a positive alpha. The order is reversed as they are ranked sixth and fifth, respectively, with betas from monthly data.

COMPARING SECTORS WITH PERFORMANCE MEASURES

In this section of our study, we compare the relative performance of the ten U.S. sector portfolios with three widely used portfolio performance measures (see Reilly & Brown, 2008). For the Treynor (1965) method, a higher Treynor ratio (*TR*) indicates a better portfolio performance. The *TR* statistic for sector *i* is calculated as follows:

$$TR_i = \frac{(R_i - R_{rf})}{\beta_i} \quad (4)$$

For the Sharpe (1966) method, a higher Sharpe ratio (*SR*) indicates a better portfolio performance. The *SR* for sector *i* is calculated as follows:

$$SR_i = \frac{(R_i - R_{rf})}{\sigma_i} \quad (5)$$

where σ_i is the standard deviation of the sector *i*'s returns.

For the Jensen (1968) method, a higher alpha indicates a better portfolio performance. Jensen's α_i for sector *i* is calculated as follows:

$$\alpha_i = R_i - [R_{rf} + (R_{sp} - R_{rf}) \times \beta_i] \quad (6)$$

If the sector's realized return is greater than the return required by investors based on the sector's beta, α_i is a positive figure. A high positive α_i indicates a superior sector performance. The α_i values from the sector portfolios are presented in column G of Tables 1 and 3.

The rankings of the ten sector portfolios using the Treynor, Sharpe, and Jensen measures, based on weekly betas, are presented in Table 4. The rankings of the ten sectors are quite similar using the three

methods. A recent study by Eling & Schuhmacher (2007) also shows that using the Treynor, Sharpe, and Jensen portfolio performance measures results in virtually identical rank ordering across hedge fund portfolios.

The Pearson correlation coefficients between the Treynor, Sharpe, and Jensen performance measures are very high. It is 0.89 between the Treynor and Sharpe measures, 0.99 between the Treynor and Jensen measures, and 0.92 between the Jensen and Sharpe measures. All three correlation coefficients are statistically significant at the 1% level.

MEAN-VARIANCE OPTIMIZATION

In this section of the study, we use the Markowitz (1959, 1976) mean-variance approach to determine the optimal portfolio with the ten sectors based on the Sharpe (1966) ratio. A brief description of the Markowitz optimization procedure is presented in the Appendix. The optimization model produces a sector allocation that maximizes the portfolio's Sharpe ratio. To demonstrate the potential benefit of sector diversification, an optimal efficient portfolio is derived with data for the period studied.

Table 5 compares the optimal portfolio results to the S&P 500 index benchmark. The investment in the S&P 500 index has a mean return of 12.62%, a standard deviation of 11.65%, and a Sharpe ratio of 0.71. The optimal sector portfolio that maximizes the Sharpe ratio allocates 43.77% of the funds to the oil & gas sector, 28.50% of the funds to the utilities sector, 22.21% of the funds to the technology sector, and 5.52% of the funds to the telecommunication sector. The sector portfolio mean is 19.53%, with a standard deviation of 13.91%, and a Sharpe ratio of 1.09. The sector portfolio has a slightly higher standard deviation (13.91% versus 11.65%). However, it has a considerably higher Sharpe ratio (1.09 versus 0.71) due to a substantially higher mean return (19.53% versus 12.62%).

CONCLUSIONS

In this paper, we examine the risks, returns, and portfolio diversification benefits of U.S. sector investments. We calculate each sector's market risk (beta) by regressing the sector's index returns against the S&P 500 index returns for the period spanning October 2002 to September 2007. The Pearson correlation coefficient and the difference of means *t*-test results indicate that the betas calculated with weekly and monthly returns data are not significantly different.

The capital asset pricing model is used to determine the required rate of return on each sector

based on its beta. The sectors' realized annual returns are compared with their required rates of return based on their market risks. The sector alpha, as measured by the difference between the realized return and the required return, is the highest for the oil & gas and utilities sectors. The basic materials, telecommunication, technology, and industrials sectors also have positive alphas. However, the healthcare, consumer services, and consumer goods sectors have negative alphas, with the realized returns less than the required returns. The financials sector is found to have a small negative alpha based on the weekly return beta and a small positive alpha based on the monthly return beta.

We rank the sectors with the Treynor, Sharpe, and Jensen portfolio performance measures. The Pearson correlation coefficients indicate that the three measures are highly correlated. The oil & gas, utilities, and basic materials sectors have the best performance and the healthcare, consumer services, and consumer goods sectors have the worst performance during the sample period.

We use Markowitz mean-variance analysis to determine the composition of an optimal sector portfolio based on the Sharpe ratio. The findings indicate that an optimal portfolio with allocations of 43.77% to the oil & gas sector, 28.50% to the utilities sector, 22.21% to the technology sector, and 5.52% to the telecommunications sector would maximize the Sharpe ratio.

Sector investments have not received sufficient attention in the literature. This paper compares the performance of ten major U.S. sectors during the October 2002 to September 2007 period. Using the Sharpe ratio, we demonstrate that investing in an optimal portfolio of sectors can provide substantial diversification benefit and superior return performance compared with investing in only one sector or the broad market index.

There is no guarantee that the past performance of the sectors will be repeated in the future. However, the past performance of the sectors may give valuable insights to investors about their future performance.

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APPENDIX

Portfolio (mean–variance) optimization is a commonly used technique to determine the most efficient allocation of assets. An optimization procedure must be based on some criteria such as minimum risk or maximum expected return. Rather than subjectively specifying a given levels of risk or return, we determine the allocation of U.S. sector investments that maximizes the value of the Sharpe ratio along the efficient frontier.

A variety of statistical software packages contain an algorithm that produces optimal portfolios—the user needs to enter the data and select the optimization criteria (e.g., minimum variance portfolio or maximum Sharpe ratio). In Excel, begin with a worksheet containing the historical returns of the ten U.S. sectors. Calculate the variance–covariance (var–cov) matrix between the sectors. The var–cov matrix contains the variances in its diagonal elements and the covariances in its off-diagonal elements, and serves as the foundation of the optimization process. Use the Excel functions variance [=VAR()] and covariance [=COVAR()] to construct the variance–covariance matrix:

$$vc = \begin{bmatrix} \sigma_x^2 & cov_{yx} \\ cov_{xy} & \sigma_y^2 \end{bmatrix}$$

where *vc* represents the *var–cov* matrix with two assets (in our case, a 10×10 matrix is required). Matrix multiplication [=MMULT()] will simplify the process, but requires additional understanding of matrices (see Beninga, 2008, for a detailed description of the optimization procedure using Excel). Calculate the mean return (R_i) for each sector using [=AVERAGE()].

The optimal portfolio contains the investment allocation to each sector that produces the maximum Sharpe ratio:

$$MAX (SR_p) = \frac{(R_p - R_{rf})}{\sigma_p}$$

$$\text{subject to: } \sum_{i=1}^N w_i = 1 \text{ and}$$

$$w_i \geq 0, \quad i = 1, \dots, N$$

where $(R_p - R_{rf})$ represents the risk premium of the portfolio and σ_p is the portfolio standard deviation. No short sales are allowed (weights must have nonnegative values) and sector allocation weights must sum to 1.0. Disallowing short sales is a practical constraint and is consistent with the established literature (see Roll, 1977; Roll & Ross, 1977). While excluding short sales likely results in a sub-optimal portfolio, the inclusion of short selling would also necessitate additional constraints such as limitations on short sales, availability of sector ETFs to short sell, and SEC limitations on short sales.

Three additional calculations need to be constructed in the spreadsheet—the portfolio mean, portfolio standard deviation, and a Sharpe ratio of the portfolio. The optimal solution is calculated in Excel using the SOLVER function in the data analysis tools. In the SOLVER window, specify a target cell (the value of the Sharpe ratio) in the Excel spreadsheet that the SOLVER will maximize subject to the constraints noted above. To obtain the Sharpe ratio, the SOLVER will execute a calculation for the portfolio mean and standard deviation. The portfolio mean (R_p) is calculated by matrix multiplication of the selected sector weights by the individual sector mean returns. The portfolio standard deviation (σ_p) is determined as the square root of the matrix multiplication of the *var–cov* matrix with the sector weights. The SOLVER will iteratively vary the allocation weights among all of the sectors and recalculate the Sharpe ratio until the maximum Sharpe ratio is achieved. The final iteration will produce the sector weights that maximize the Sharpe ratio.

Table 1
Sector Alphas with Betas Calculated Using Weekly Return Data

Sectors	A	B	C	D	E	F	G
	Risk-Free Rate	Market Rate of Return	Market Risk Premium (B-A)	Sector Betas	Required Rate of Return A+(B-A)(D)	Realized Rate of Return	Alpha (F-E)
OILGS	4.39%	12.62%	8.23%	0.91	11.88%	23.66%	11.78%
UTILS	4.39%	12.62%	8.23%	0.72	10.32%	15.93%	5.61%
BMATR	4.39%	12.62%	8.23%	1.31	15.17%	18.82%	3.65%
TELCM	4.39%	12.62%	8.23%	1.05	13.03%	15.30%	2.27%
TECNO	4.39%	12.62%	8.23%	1.34	15.42%	17.05%	1.63%
INDUS	4.39%	12.62%	8.23%	1.14	13.77%	15.33%	1.56%
SP500	4.39%	12.62%	8.23%	1.00	12.62%	12.62%	0.00%
FINAN	4.39%	12.62%	8.23%	1.01	12.70%	11.94%	-0.76%
HLTHC	4.39%	12.62%	8.23%	0.63	9.57%	7.76%	-1.81%
CNSMS	4.39%	12.62%	8.23%	1.03	12.87%	10.82%	-2.05%
CNSMG	4.39%	12.62%	8.23%	1.11	13.53%	8.90%	-4.63%

In this table, alpha is calculated for each sector by finding the difference between the realized rate of return (column F) and the required rate of return (column E). The required rate of return is calculated by using Equation (3): $R_{ri} = R_{rf} + (R_{sp} - R_{rf}) \beta_i$. The sector betas (β_i) are calculated by regressing the weekly sector index returns for the October 2002 to September 2007 period against the weekly market index returns during the same period. The average annual market rate of return (R_{sp}) for the five-year period studied is 12.62% (column B). The average annual interest rate on the 10-year Treasury bond for the same five-year period is 4.39%. Because realized and required returns are yearly averages for the October 2002 to September 2007 period, the average annual interest rate for this period is used as the risk-free rate (R_{rf}) in the required rate of return calculations. The market risk premium ($R_{sp} - R_{rf}$) is 8.23% (column C). The required risk premium on each sector is determined by the product of the market risk premium and the sector's beta. The required risk premium for each sector is added to the risk-free rate to find the required rate of return on the sector.

Table 2
Betas Calculated with Weekly and Monthly Data

Sectors	Weekly Betas	Monthly Betas
OILGS	0.91	0.88
UTILS	0.72	0.76
BMATR	1.31	1.26
TELCM	1.05	1.12
TECNO	1.34	1.38
INDUS	1.14	1.09
FINAN	1.01	0.93
HLTHC	0.63	0.65
CNSMS	1.03	1.14
CNSMG	1.11	1.18

The sector betas are calculated by regressing the weekly (monthly) sector index returns for the October 2002 to September 2007 period against the weekly (monthly) market index returns for the same period. The difference of means t-test indicates that the betas calculated with weekly and monthly returns data are not significantly different.

Table 3
Sector Alphas with Betas Calculated Using Monthly Return Data

Sectors	A	B	C	D	E	F	G
	Risk-Free Rate	Market Rate of Return	Market Risk Premium (B-A)	Sector Betas	Required Rate of Return A+(B-A)(D)	Realized Rate of Return	Alpha (F-E)
OILGS	4.39%	12.62%	8.23%	0.88	11.63%	23.66%	12.03%
UTILS	4.39%	12.62%	8.23%	0.76	10.64%	15.93%	5.29%
BMATR	4.39%	12.62%	8.23%	1.26	14.76%	18.82%	4.06%
INDUS	4.39%	12.62%	8.23%	1.09	13.36%	15.33%	1.97%
TELCM	4.39%	12.62%	8.23%	1.12	13.61%	15.30%	1.69%
TECNO	4.39%	12.62%	8.23%	1.38	15.75%	17.05%	1.30%
FINAN	4.39%	12.62%	8.23%	0.93	12.04%	11.94%	0.10%
SP500	4.39%	12.62%	8.23%	1.00	12.62%	12.62%	0.00%
HLTHC	4.39%	12.62%	8.23%	0.68	9.98%	7.76%	-2.22%
CNSMS	4.39%	12.62%	8.23%	1.14	13.77%	10.82%	-2.95%
CNSMG	4.39%	12.62%	8.23%	1.18	14.10%	8.90%	-5.20%

In this table, an alpha is calculated for each sector by using sector betas calculated with monthly return data. The sector betas (β_i) are calculated by regressing the monthly sector index returns for the October 2002 to September 2007 period against the monthly market index returns during the same period. Each sector's alpha is the difference between the realized rate of return (column F) and the required rate of return (column E). The required rate of return is calculated by using Equation (3): $R_{ri} = R_{rf} + (R_{sp} - R_{rf}) \beta_i$. The risk-free rate (column A), the average annual market rate of return (column B), and the market risk premium (column C) are the same as in Table 1. The sector required rate of return figures in column E in Tables 1 and 3 are slightly different because the betas calculated with monthly data are slightly different from the betas calculated with weekly data.

Table 4
Sector Performance Rankings with the Treynor, Sharpe and Jensen Methods

Sectors	Treynor Ratio	Rank	Sharpe Ratio	Rank	Jensen's Alpha	Rank
OILGS	0.212	1	0.960	1	0.118	1
UTILS	0.160	2	0.820	2	0.056	2
BMATR	0.110	3	0.790	3	0.037	3
TELCM	0.104	4	0.642	6	0.023	4
TECNO	0.094	6	0.683	5	0.016	5
INDUS	0.096	5	0.741	4	0.016	6
FINAN	0.075	7	0.577	7	-0.008	7
HLTHC	0.053	9	0.350	9	-0.018	8
CNSMS	0.062	8	0.481	8	-0.021	9
CNSMG	0.041	10	0.230	10	-0.046	10

The Treynor ratio (TR) is defined as $TR_i = (R_i - R_{rf}) / \beta_i$. The Sharpe ratio (SR) is defined as $SR_i = (R_i - R_{rf}) / \sigma_i$. Jensen's alpha (α_i) is defined as $\alpha_i = R_i - [R_{rf} + (R_{sp} - R_{rf}) \beta_i]$. R_i is the sector's realized rate of return. R_{rf} is the risk-free rate. $(R_i - R_{rf})$ is the sector risk premium. R_{sp} is the market rate of return. $(R_{sp} - R_{rf})$ is the market risk premium. β_i is the beta of the sector. σ_i is the standard deviation of the sector returns.

Table 5
Markowitz Mean–Variance Portfolio Optimization:
U.S. Sector Allocation Compared with the S&P 500 Index

Sectors	Sector Allocation	S&P 500
OILGS	43.77%	10.90%
BMATR	0.00%	3.50%
INDUS	0.00%	10.80%
CNSMG	0.00%	11.30%
HLTHC	0.00%	11.60%
CNSMS	0.00%	10.40%
TELCM	5.52%	3.20%
UTILS	28.50%	3.60%
FINAN	0.00%	15.70%
TECNO	22.21%	18.80%
Portfolio Mean	19.53%	12.62%
Portfolio Std. Dev.	13.91%	11.65%
Sharpe Ratio	1.09	0.71

The Markowitz (1959, 1976) mean–variance approach is used to determine the optimal sector portfolio based on the Sharpe (1966) ratio: $SR_p = (R_p - R_f) / \sigma_p$. (See the Appendix.)

The sectors and their weights in the S&P 500 index are from <http://www.bloomberg.com>. The sector names in the S&P 500 index are slightly different. The percentages for the sectors do not add up exactly to 100.00% because of rounding in the individual sector percentages.

Figure 1
The Characteristic Lines for the Sectors

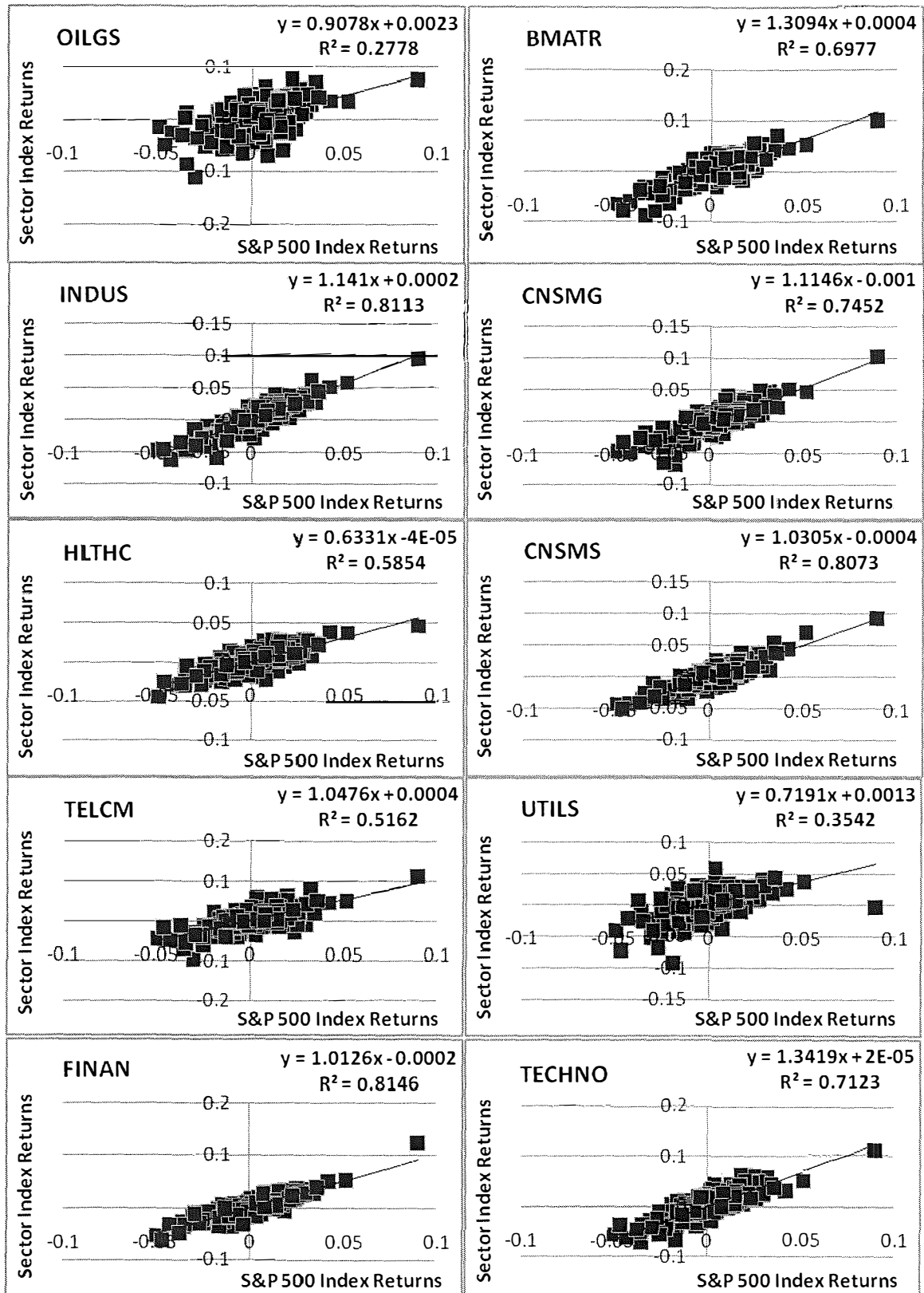


Figure 2
Sectors with Positive and Negative Alphas

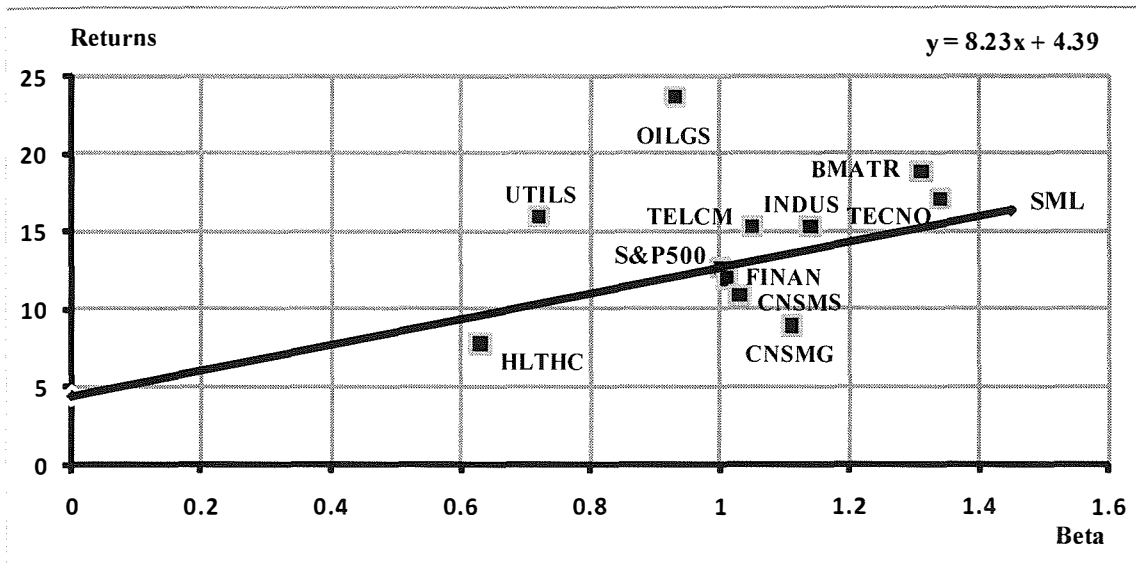


Figure 1
The Characteristic Lines for the Sectors

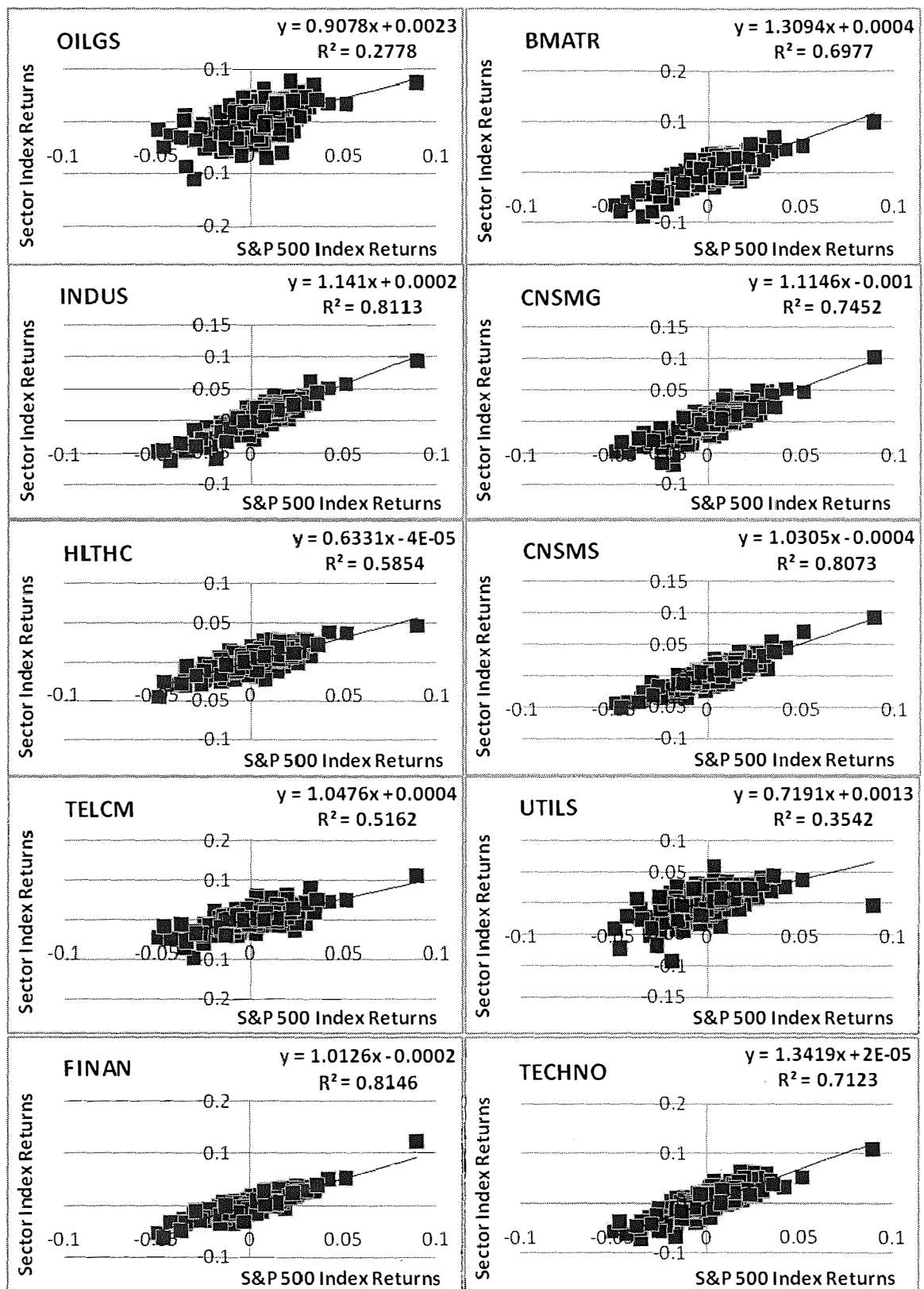
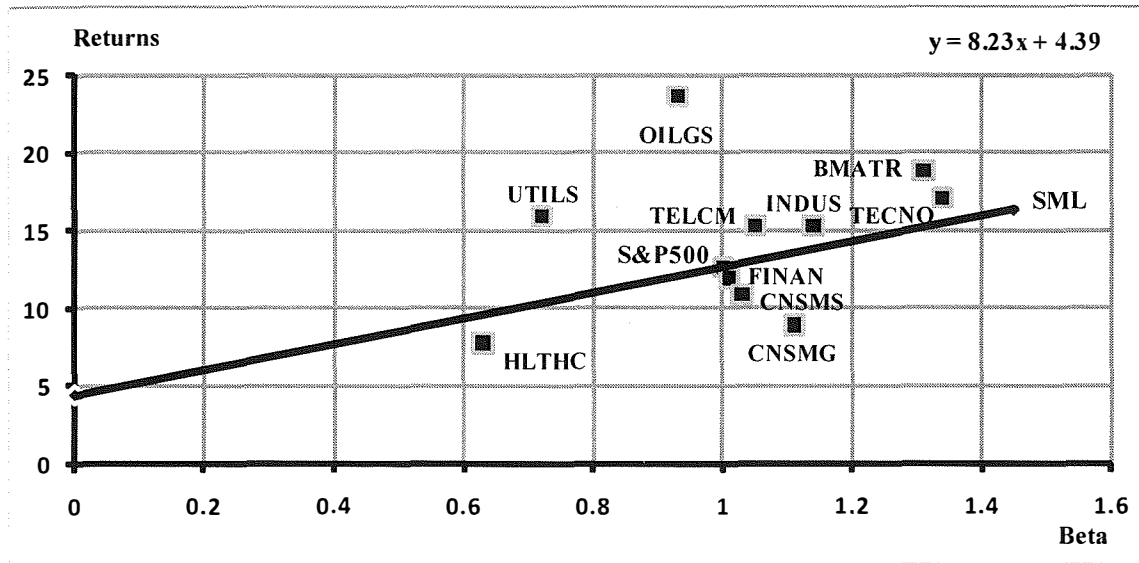


Figure 2
Sectors with Positive and Negative Alphas



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DIRECT MEASURES OF CREDIT RATIONING, 2002–2010

Clifford F. Thies and Bruce Gouldey

Abstract

We look at three time series of credit rationing from 2002 to 2010. These include periodic surveys of bank loan officers, trade credit managers and small businesses concerning the availability and non-price terms of credit. We find that the availability and non-price terms of credit tightened prior to 2008, and became very tight during 2008 for private-sector borrowers. These conditions continued for some time. These data corroborate various anecdotal observations and one-time surveys conducted during 2008. But, being time series, these data give us some idea of how tight credit became relative to prior times.

INTRODUCTION

Among the phenomena observed during the recession of 2007–'09 are very low interest rates in the money market and widespread reports of the lack of credit for private-sector borrowers, especially those in the small business sector. This pair of observations challenges macroeconomic models that presume the existence of an interest rate (characterized as “the interest rate”) that connects real and financial markets and may have contributed to the frustration of fiscal and monetary policy. Is it possible for credit to be unavailable when it is cheap? And if so, how is it possible for it to be unavailable when it is cheap? This paper begins with a review of the theory and history of credit rationing since the Great Depression. It then examines the anecdotal and one-time survey evidence concerning credit rationing during the 2007–'09 recession, and tracks three time series of credit rationing over the period 2002–'10.

LITERATURE REVIEW

According to the theory of credit rationing as developed by Stiglitz and Weiss (1981), lenders do not extend the full amount of credit that would reflect a fair assessment of the information available at the time of contracting. Instead, because of adverse selection and moral hazard, they limit or “ration” credit to borrowers. Blinder (1987) develops a model in which credit rationing varies over the course of a business cycle.

Bernanke (1983), in his analysis of the Great Depression, describes the non-availability of credit to business in spite of the low interest rates on short-term U.S. Treasury securities that prevailed at the time as a “non-monetary” effect of monetary policy. Hamilton (1987), tracking the difference between medium grade and high grade corporate bonds and other such spreads during the 1930s, argues that credit to private-sector borrowers was tight even

though interest rates on Treasury securities were low. Baum and Thies (1989), in their review of the monetary dynamics of the Great Depression, uncover a semiannual survey of real estate agents showing that the percent saying that loans were wanting for money indicates that credit tightened in late 1929 and again in late 1931, and then stayed tight through late 1933.

Following the development of the theory of credit rationing, several researchers attempted to econometrically identify credit rationing using post-WWII time series data. The first several disequilibrium studies (Ito & Ueda, 1981; King, 1986; McCallum, 1991; Sealy, 1979) found evidence of credit rationing, while later studies (Kuglar, 1987; Ramey, 1993) did not.

Thies (1989), using responses to a quarterly survey of bank loan officers conducted by the Federal Reserve from 1967 to 1984, incorporated a directly-observed measure of credit rationing into a small structural model. He found that, prior to the deregulation of interest rates on bank deposits and the widespread adoption of variable-rate lending, tightness in money markets was transmitted to credit markets mostly through more limited availability and stricter non-price terms of credit. Following deregulation, interest rates on bank loans came to reflect tightness in money markets.

Interest in credit rationing suddenly revived during 2008. As in the retrospective studies of the Great Depression, certain observers noticed a dichotomy between low interest rates on U.S. Treasury securities and credit market conditions for private-sector borrowers. While money markets appeared to be flooded with liquidity, businesses, especially small businesses, appeared to be starved for lack of credit.

ANECDOTAL EVIDENCE

Tozzi (2008) documents anecdotal evidence of credit tightening for small businesses. Udell (2009) defines nine lending technologies for small businesses. These technologies include relationship lending, factoring of accounts receivable, and trade credit. These lending technologies are employed by large and small banks, commercial finance companies and trade credit issued by suppliers. During the financial crisis, the supply of credit was reduced in all nine categories, as large banks faced capital constraints, numerous small banks failed, a significant commercial finance company (CIT) experienced a liquidity crisis, and suppliers' access to working capital loans was limited.

James (2009) reports that use of bank credit lines by private companies is particularly curtailed during economic downturns, more so than by publicly-traded firms. During the third quarter of 2008, when the commercial paper market dried up, publicly-traded firms continued to borrow by drawing down their bank credit lines. On the other hand, private companies have no access to the commercial paper market and rely on bank lines of credit and trade credit. James reports that because of more restrictive liquidity and debt coverage covenants, small businesses have less access to their lines of credit than do public companies during a recession.

In the 2009 4th Quarter survey of CFOs conducted by the Fuqua School of Business of Duke University, a question was added to the usual set asking whether banks were more, less or about as willing to make loans to their firm as compared to before the financial crisis. Fifty-two percent of CFOs at smaller firms (less than \$100 million in revenue) indicated that banks were less willing, while only 33 percent at larger firms (more than \$500 million in revenue) so indicated. Forty-nine percent of CFOs at private firms indicated that banks were less willing, while only 28 percent at publicly-traded firms so indicated (Duke/*CFO Magazine* 2009: 258).

Market interest rates indicate a significant flight to quality during 2008. Figure 1 juxtaposes the BBB-AAA spread against the 3-month constant maturity Treasury rate from 2002 to 2009. It shows the run-up in money market rates engineered by the Federal Reserve prior to the recession of 2007-'09, followed by their reduction, even to near zero toward the end of 2008. Through 2007, the BBB-AAA spread remained relatively constant. Then, the spread rose sharply and only returned to something like its pre-2008 level in late 2009.

Looking at bank loan rates, Figure 2 shows that both the prime interest rate and the average interest rate reported by small businesses were rising during

the mid 2000s when the Fed was raising money market rates. While both rates fell along with money market rates during the late 2000s, the difference between them was greater at the end of the decade than it was at the beginning, about 3.5 points versus about 2 points, after having been squeezed to something like 100 basis points during the run-up in rates.

But, the price of credit might not fully reflect credit market conditions. If credit is less available or if the non-price terms of credit are stricter, credit may be tight even though it may appear to be cheap. Furthermore, anecdotal evidence and one-time surveys conducted during the financial crisis do not tell us how credit conditions changed. Fortunately, going into 2008, there were several on-going surveys of market participants capturing information concerning the availability and non-price terms of credit.

THE SURVEYS

Going into 2008, there were at least three periodic surveys of non-price credit conditions: (1) a revived quarterly survey of bank loan officers conducted by the Fed (Lown, Morgan, & Rohatgi, 2000), (2) a monthly survey of credit managers (i.e., those who authorize and collect upon trade credit) conducted by the National Association of Credit Managers (NACM), and (3) a monthly survey of small businesses conducted by the National Federation of Independent Business (NFIB). Together, these surveys give a nearly complete picture of credit market conditions. Some characteristics of these surveys are shown in Table 1.

The revived Fed survey asks, among other questions, whether standards of credit worthiness and various loan terms changed during the most recent quarter for commercial and industrial loans to small, medium-sized and big businesses. Analogous questions concern commercial and residential real estate mortgages and consumer credit.

The NACM survey asks its members ten questions concerning changes in trade credit conditions. Four questions concern "positive" conditions (e.g., credit approvals) and the other six "negative" conditions (e.g., accounts over the terms allowed for payment, such as net 60 days). The questions might, alternately, be described as: sales, four conditions reflecting prospective assessments of credit quality at the time of contracting, and five conditions reflecting *ex post*, performance-based aspects of credit quality.

The NFIB survey asks three questions concerning credit availability: two involving changes in availability and another as to whether borrowing

needs are met. The survey also asks about the level and change in interest rates.

Figures 3 to 6 track various responses to these surveys during the period 2002 to 2010. The period corresponds roughly to one business cycle, i.e., the growth phase following the recession of 2001 and the recession of 2007–'09.

Figure 3 tracks two indices formed from the responses to the Fed's survey of senior bank loan officers, one pertaining to large businesses, and the other to small and medium-sized businesses. The indices each equal twice the percent of loan officers responding that the standard of creditworthiness for commercial and industrial loans was substantially tightened during the prior quarter plus the percent responding that the standard was moderately tightened minus the percent responding that the standard was moderately loosened minus twice the percent responding that the standard was substantially loosened. The difference in weights (two versus one) is designed to capture the difference between "substantially" tighten or loosen, versus "moderately" tighten or loosen. Potentially, the indices range from -200 to +200, where -200 would indicate that all banks are substantially loosening the standard of creditworthiness, +200 would indicate that all banks are substantially tightening the standard, and zero would indicate no change, on average, in the standard.

The two indices show that banks tightened credit for both large and small firms well into the growth phase, through 2003. The indices then show that banks moderately loosened credit from 2003 to 2007. Then, upon the onset of the recession of 2007–'09, they show that banks began to tighten credit. During 2008, banks were substantially tightening credit; and, they continued to further tighten credit, albeit moderately, during the subsequent year. It is likely that some bias may be present in the responses of senior bank loan officers, such as a tendency to overstate tightening and understate loosening (Thies, 1989).

Figure 4 tracks three indices formed from the responses to the NFIB's survey of small businesses. The first relates to the change in the availability of credit during the prior three months and is equal to the percent saying that obtaining credit became "harder" minus the percent saying it became "easier." The second, analogous to the first, relates to the expected change in availability during the next three months. The third is the percent saying their borrowing needs are not met.

All three of these indices appear to fluctuate about a low number from 2002 to mid 2007. With regard to the past and expected future change in credit availability, the low but positive level about

which their indices fluctuated might indicate that the responses are biased, small businesses tending to understate easier availability and overstate harder availability. Throughout the recession of 2007–'09, the indices of past and expected changes in credit availability indicate that credit availability became increasingly harder. The percent of small businesses saying that their borrowing needs are not met rose from a range of 4%–6% to a range of 8%–10% during 2008–'09.

Figures 5 and 6 track six components of the index formed from the responses to the NACM's survey of credit managers. Each measure is scaled from 0 to 100 so that less than 50 represents deterioration, 50 no change, and greater than 50 improvement. These indices appear to fluctuate above 50 during 2002–2006. Then, prior to the onset of the recession, they appear to fall to that mark. The indices continue to fall at a moderate rate following the start of the recession. Then, during 2008, they plummet and then just as sharply recover. Remembering that these are indices of changes in credit conditions, the recovery of the indices initially only meant that credit conditions were deteriorating at a slower rate. Only by the end of 2009 were the indices generally at 50, meaning that credit conditions had leveled out.

SUMMARY

Despite declining interest rates, senior bank loan officers reported tightening of credit conditions from the onset of the recession of 2007–'09, which tightening reached its apex during 2008. Small businesses reported that the availability of credit was becoming harder during the recession, and that the percent whose borrowing needs were not being met roughly doubled from 2007 to 2009. Credit managers indicate some deterioration in credit conditions going into the recession, and a sharp decline during 2008. Because of the possibility of bias in the responses and unresolved differences among survey responses, the only thing that can be said with certainty is that, during 2008 and continuing perhaps through 2009, non-price terms of credit, e.g., the standard of creditworthiness required for loan approval, were indicative of credit rationing to private-sector borrowers even while money markets were awash with liquidity.

Future research would do well to reconcile the differences observed in the several survey time series, if this is possible, and to incorporate these data into a structural model of the credit market. In addition, using these and perhaps other periodic surveys, it may be possible to track the dynamic path of the demand for credit and, so, differentiate

between the possibilities that we were observing the demand for credit (not merely the realized amount of borrowing) continually falling more than was expected by policy makers versus the effects of credit rationing.

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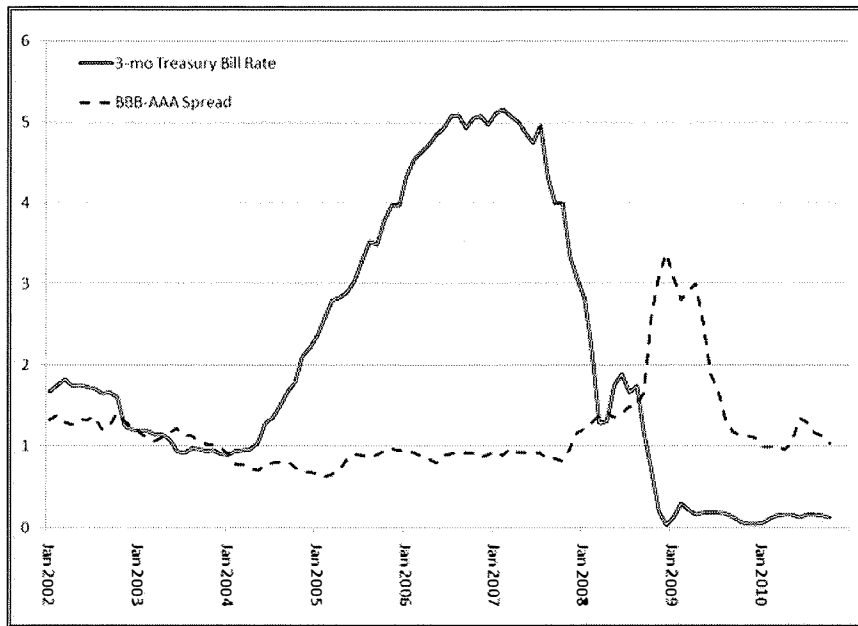
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Table 1: Selected Characteristics of Contemporary Surveys of Credit Conditions

Survey Taker	Target Population	Began	Frequency	Sample size
Federal Reserve	Bank Loan Officers	1991	quarterly	50
NFIB	Small Business Persons	1972	monthly	800
NACM	Credit Managers	2002	monthly	400

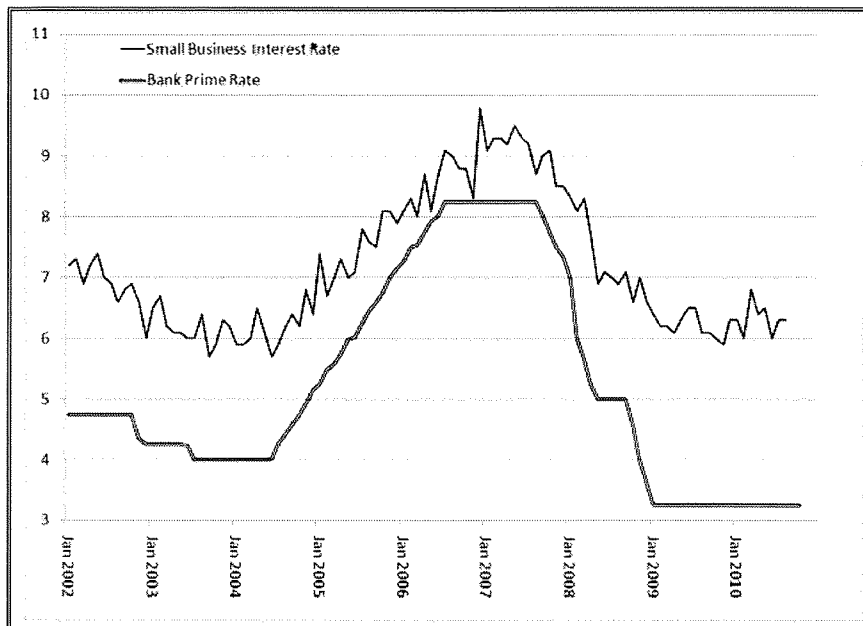
Note: The NFIB survey has been monthly since 1991. Previously it was quarterly.

Figure 1: Market Interest Rates



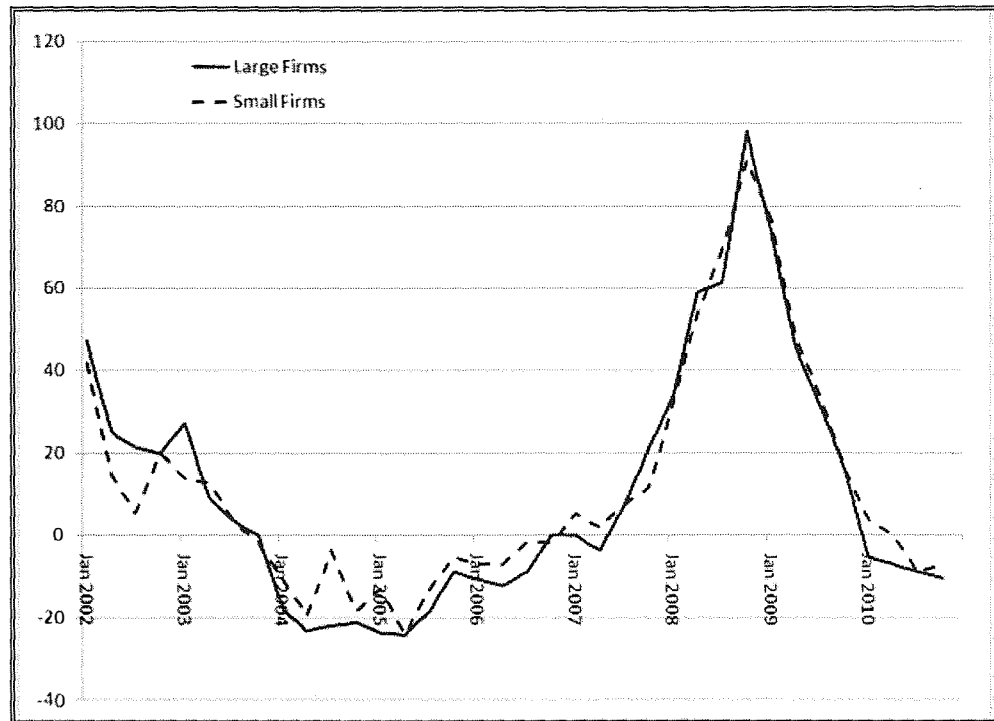
Source: Federal Reserve

Figure 2: Small Business Interest Rates from the NFIB Survey of Small Business



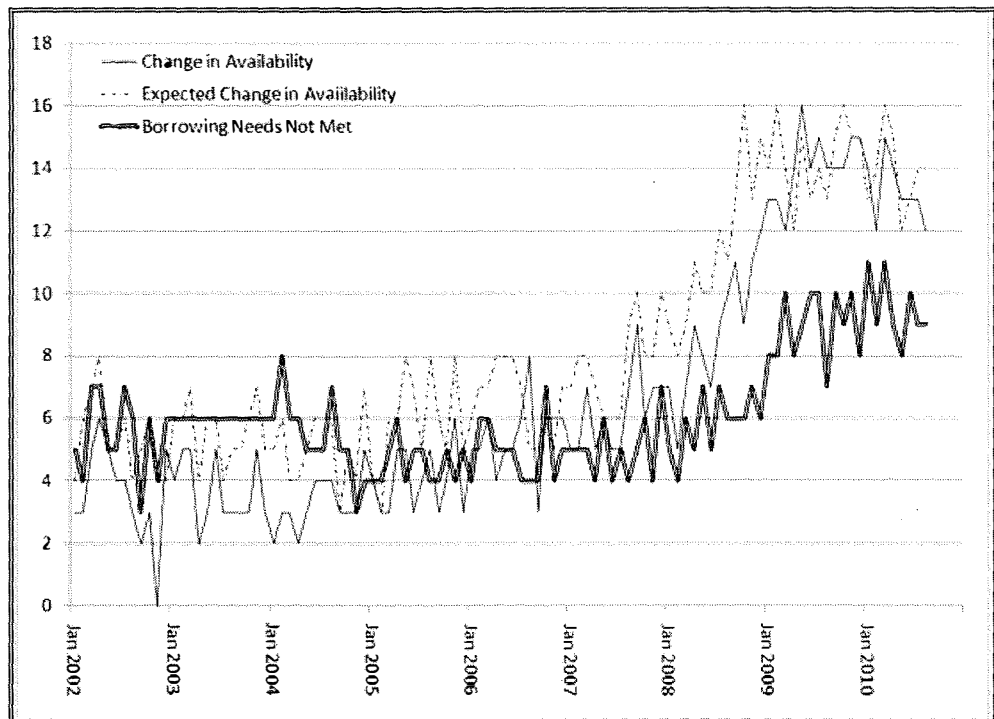
Source: Federal Reserve; NFIB

Figure 3: Index of Changes in Standards of Creditworthiness for Commercial and Industrial Loans



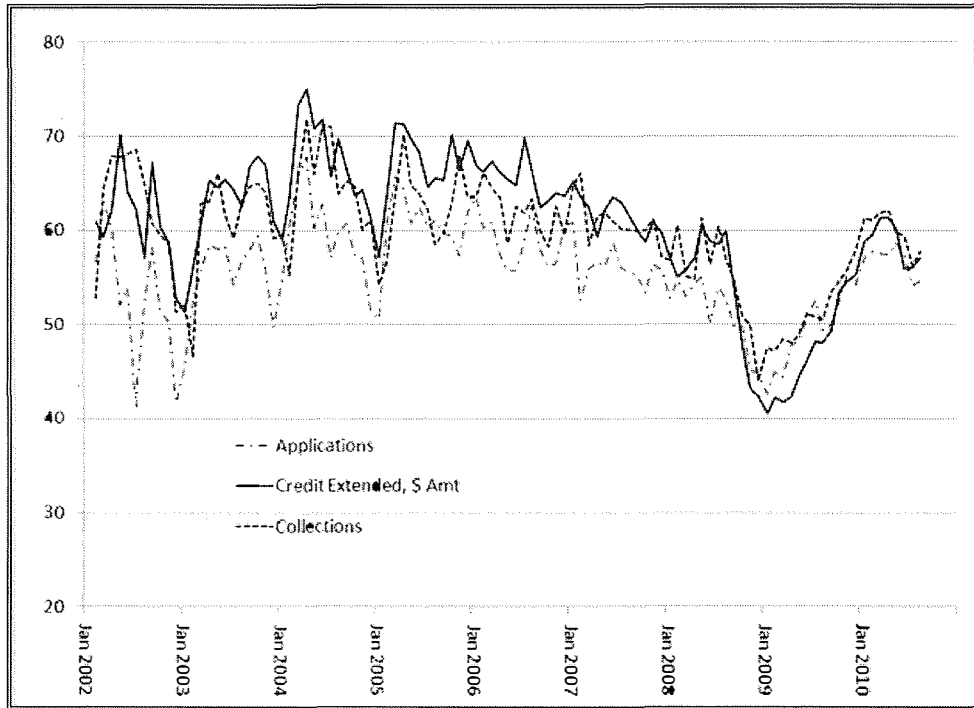
Source: Federal Reserve survey of senior bank loan officers

Figure 4: Small Business Credit Conditions



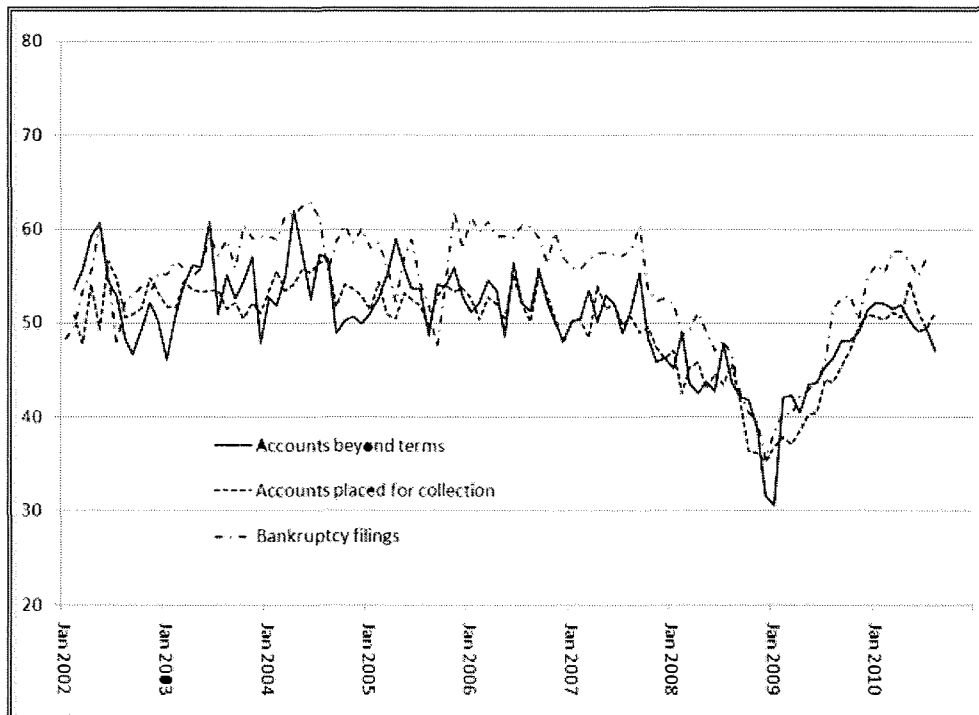
Source: NFIB survey of small business

Figure 5: Changes in Favorable Trade Credit Indicators



Source: National Association of Credit Managers

Figure 6: Changes in Unfavorable Trade Credit Indicators



Source: National Association of Credit Managers

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