2013

The Relationship Between Investments in Intangible Resources and Liquidation for Financially Distressed Firms

Richard A. Heiens
University of South Carolina - Aiken, richardh@uscb.edu

Robert T. Leach
University of South Carolina - Aiken

Paul D. Newsom
University of South Carolina - Aiken

The Relationship Between Investments in Intangible Resources and Liquidation for Financially Distressed Firms

Richard A. Heiens
University of South Carolina Aiken

Robert T. Leach
University of South Carolina Aiken

Paul D. Newsom
University of South Carolina Aiken

ABSTRACT

Working with a sample of manufacturing and non-manufacturing firms that filed for bankruptcy protection between 1980 and 2009, the current study examines the relationship between investments in intangibles and the likelihood that the bankrupt firm will either be reorganized or face liquidation. Results for the manufacturing sub-sample show that R&D is the only significant variable associated with liquidation. Over-investment in R&D appears to increase the likelihood of liquidation. Similarly, results for the non-manufacturing sub-sample show that over-investment in advertising appears to increase the likelihood of liquidation. Our conclusion is that firms that are forced to liquidate are often guilty of over-investing in intangible assets.

INTRODUCTION

Although marketing is a vital function for any firm, evidence increasingly suggests that the representation and influence of the marketing function in the boardroom is limited at best. For example, in a study involving 167 firms across a variety of industries, Nath and Mahajan (2008) discovered that only 25% of the firms in their sample had a chief marketing officer over the entire five year period studied. This is in sharp contrast to the 96.8% of firms that had a chief financial officer across all the years of observation. Perhaps the biggest weakness of marketing today, and the reason for the underrepresentation of marketing among the top management team, is the perception that marketers lack capabilities in analytics, finance, and related disciplines such as cost accounting (Verhoef and Leeflang 2009). The result is that marketers have been unable to account for the function's contribution to firm performance in a manner that is valued by stockholders and investors (O'Sullivan and Abela 2007). Therefore, there is an urgent need to enhance the marketing-finance interface, and to help the investment community to understand the value and relevance of the marketing discipline (Hanssens, Rust, and Srivastava 2009; Srinivasan and Hanssens 2009). Nevertheless, justifying the investments in marketing related

knowledge, skills, and capabilities is often challenging given that these unique firm resources are largely intangible. Yet, researchers and investors alike have increasingly begun to recognize that these intangible assets and capabilities have become the critical drivers of competitive advantage and shareholder value in our new knowledge based global economy (Dahmash, Durand, and Watson 2009; Haanes and Fjeldstad 2000). Nevertheless, are investments in intangible assets and capabilities always justified as a panacea for a struggling firm, or does there come a point when firms may actually over-invest in their intangible marketing or R&D capabilities?

One of the hallmarks of academic research in marketing is the tendency to exclusively focus on the factors that lead to organizational success. In marked contrast, research in the finance discipline has historically given a great deal of equal emphasis to the analysis and prediction of financial distress, an outcome of particular interest to investors (Altman 1968; Blum 1974; Ohlson 1980; Zmijewski 1984; Zavgren 1985). Whereas early studies on financial distress were designed to predict the occurrence of bankruptcy, it soon became apparent that the explanations were both myriad and context dependent. Consequently, researchers gravitated to the examination of already distressed firms and began to focus on the financial variables that play a role in the post-bankruptcy outcome (LoPucki 1983; Casey, McGee, and Stickney 1986). Specifically, what determines whether a bankrupt firm will be resurrected in a financial restructuring or will be liquidated and abandoned to the mercy of their creditors?

The current study, an exploratory examination of the relationship between investment in intangible market-based assets and post-bankruptcy outcomes for financially distressed firms, contributes to the growing marketing-finance interface in two important ways. First, we combine the analysis of intangible market-based assets, resources, and expenditures that contribute to firm capabilities with a focus on post-bankruptcy outcomes. Specifically, the current study investigates the role that intangible market-based assets, as measured through such variables as advertising, R&D, and goodwill, play in determining whether bankrupt firms will ultimately restructure or liquidate. In addition, we compare manufacturing firms to non-manufacturing firms, including service and retail firms, in order to determine if intangible market-based assets have a differential impact on post-bankruptcy outcomes for financially distressed firms across the two distinct industry sub-groups.

LITERATURE REVIEW AND RESEARCH QUESTIONS

Several theoretical frameworks have been developed to help explain the importance of a firm's intangible assets, resources, and expenditures. According to Market-Based Asset Theory, firms may employ a variety of methods to establish and perpetuate either relational or intellectual market-based assets. These include marketing expenditures to acquire and retain customers, develop brands, and create channel and other partnerships (Srivastava, Shervani, and Fahey 1998). Similarly, according to the Resource-Based Theory of the Firm, a company's resources and capabilities are the key to developing and maintaining competitive advantage. These resources and capabilities are driven by both tangible assets and, more importantly in today's information driven competitive landscape, intangible assets and expenditures (Barney, Wright, and Ketchen 2001). Unfortunately, in many instances, intangible assets cannot be evaluated by conventional methods due to the non-existence of a market price. When the cost or value of these

intangible assets can be clearly identified, however, they may be included in the balance sheet along with the firm's other assets. In other instances, their presence must be inferred from company expenditures, particularly expenditures on advertising, R&D, and acquired goodwill (Dutta, Narasimhan, and Rajiv 1999; Heiens, Leach, and McGrath 2007; Krasnikov and Jayachandran 2008).

Perhaps the most valuable intangible asset for any firm is the brand. Consequently, brands have received considerable attention in recent years, especially with regard to how the long-term value of a brand can be assessed and subsequently managed (Keller and Lehmann, 2009). Madden, Fehle, and Fournier (2006) demonstrate that strong brands deliver greater returns to stockholders and that they do so with less risk than strategies dependent on physical assets. As such, firms are well advised to either develop their own brand assets or seek to purchase other companies with established brands. It is generally agreed that advertising contributes to the creation of brand equity by enhancing the subjective, intangible, and emotive aspects of the brand (Broyles, Schumann, and Leingpibul 2009; Eng and Keh 2007; Keller 2003). In addition, R&D expenditures have the potential to enhance the objective, utilitarian, and tangible aspects of brand equity (Broyles, Schumann, and Leingpibul 2009; Keller, 2003). According to Broyles, Schumann, and Leingpibul (2009), there are numerous positive consequences to this resulting brand equity. These include the possibility that (1) consumers have reduced anticipated risk concerning a brand purchase, (2) consumers have higher confidence in the brand purchase decision, (3) consumers have higher anticipated satisfaction with the product, (4) consumers have reduced difficulty with the purchase decision process, and (5) there is a positive influence on purchase behavior. Considering these advantages, it can be expected that investments in intangible assets and capabilities should, even in the case of financially distressed firms, enhance a firm's ability to survive in the marketplace as a going concern.

Given the many theoretical frameworks supporting the relationship between investments in intangible assets and capabilities, in the present study we examine the impact of advertising expenditures, R&D expenditures, the balance sheet categories known as goodwill, "intangible assets", and "other intangibles", as well as the earnings multiple on post-bankruptcy outcomes. Specifically, is there a significant difference between the levels of these variables in firms that successfully restructure versus those firms that are ultimately liquidated?

Advertising

According to Haxthausen (2009) the creation of the advertising industry was essential to the development of the modern consumer brand. This is because advertising allowed for consistent communication of the brand promise to consumer markets. This brand promise is fundamental to a brand's identity and reputation, creating perceptions and expectations in the mind of the consumer which can strengthen the bonds between a firm and its customers (Srivastava, Shervani, and Fahey 1998). The purpose of advertising is to create brand equity and enhance firm value, and advertising can therefore be viewed as a form of investment in the intangible market-based assets of the firm (Keller 2003; Eng and Keh 2007). As such, expenditures on advertising, which are typically included in company income statements, may be used as a proxy for the presence of relational market-based assets.

When investing in strategically significant assets, firms need to accurately determine the most effective allocation of company resources. Perhaps the most obvious mistake that a firm can make is to under-invest in strategically significant assets (Myers and Majluf 1984). In the case of advertising, under-investing may lead to an erosion of brand equity and to a reduction in revenue. Thus, during the bankruptcy process, firms that under-invest in advertising may be more likely to be liquidated because potential acquirers may perceive the firms' products to have little or no brand equity. As a result, they may view the reorganization of these firms as unlikely to create a "new" firm that is a legitimate going concern.

The second equally important mistake that can be made by firms is over-investment in strategically significant assets. Just as under-investment may result in negative outcomes for the firm, over-investment may also lead to value destruction and a decline in firm value (Berger and Ofek 1995; Jensen 1986). When applied to advertising, over-investment may lead to a situation where the marginal benefit from advertising (increase in revenue) is outweighed by its marginal cost. Firms may increase investment in advertising because they do not want current and future levels of market-based assets to deteriorate or vanish. In the end, however, it is plausible that firms declaring bankruptcy may find that their increased investment in advertising is ineffective and a poor use of scarce company resources. Consequently, there is uncertainty regarding whether firms that successfully emerge from the bankruptcy process have significantly lower or higher levels of advertising expenditures than their counterparts which were ultimately liquidated. Considering the possibility that bankrupt firms failed to allocate the proper level of company resources to advertising, either through under-investing or over-investing, leads to the first research question.

Research Question #1: Does under- or over-investment in advertising help explain the outcome during the bankruptcy process?

Research and Development

For many firms, product innovation is a necessary activity as they pursue economic profits. Firms that develop new and innovative products are better able to increase price and earn higher profits. However, competitors will develop substitutes and imitations that will eventually erode the initial higher profits from an innovative product. Thus, firms continually seek innovative products and product features that will help make their products relatively more desirable to consumers than those of their competitors. One important measure of the internal investment by firms in intangible capabilities related to product innovation is R&D expense. Expenditure on R&D is the most frequently used measure of a firm's R&D capability, and evidence suggests that R&D capability has a strong, positive association with firm performance (Krasnikov and Jayachandran 2008). In fact, Kasnikov and Jayachandran (2008) suggest that investments in R&D are so important that they may be likely to minimize a firm's chance of failing in the marketplace, making an empirical investigation of the relationship between R&D expenditures and the outcome of the bankruptcy process an interesting test of their proposition.

Nevertheless, there are two major mistakes that a firm can make with regard to their R&D expenditures. These mistakes include both under-investing and over-investing in R&D. Under-investing may result in firms failing to launch their new products promptly, causing the market opportunity to deteriorate or vanish, and one plausible reason that can explain why firms go bankrupt is that they have under-invested in R&D. Thus, during the bankruptcy process, firms that under-invest may be more likely to be liquidated because potential acquirers may believe that the bankrupt firm's future growth opportunities are limited, making the reorganization of the firm unlikely to create a "new" firm that is a legitimate going concern.

The second-equally important-mistake is over-investing in R&D. Firms may increase investment in R&D because they want to develop new technical knowledge that may allow them to design superior products and services (Krasnikov and Jayachandran 2008). In the end, however, it is plausible that firms declaring bankruptcy may find that their increased efforts to develop innovative products are ineffective. Consequently, during the bankruptcy process, firms that over-invest in R&D may be more likely to be liquidated. Considering the possibility that bankrupt firms failed to allocate the proper level of company resources to R&D, either through under-investing or over-investing, leads to the second research question.

Research Question #2: Does under- or over-investment in R&D help explain the outcome of the bankruptcy process?

Goodwill, "Intangible Assets" and "Other Intangibles"

Rather than create value internally by investing in advertising or R&D, firms can choose to create value externally by acquiring other firms which have previously invested in effective advertising or R&D. Perhaps acquiring firms recognize that their internal advertising and R&D efforts are ineffective, and seek other methods to create value and grow. One of the advantages of this approach is that whereas the costs to internally generate intangible assets are normally expensed on the income statement as incurred, intangible assets acquired during a business acquisition are recorded on the balance sheet at fair market value. As a distinct type of intangible asset, goodwill typically comes into play only in an acquisition, and represents the amount of money a company has paid or would pay over the fair value of the net assets to acquire another company. Goodwill created during a business acquisition is capitalized on the balance sheet, but internally generated goodwill is not.

Lang and Stulz (1994) find that firms searching for growth opportunities via external acquisitions are often poor performers relative to firms that do not and, as in the case of advertising and R&D expenditures, the mistakes made by these firms may fall into one of two categories, under-investing or over-investing in external growth opportunities through business acquisitions. If firms offer too little for the external growth opportunities available, they may fail to acquire the necessary market-based assets to be competitive, which would be reflected in low levels of goodwill or intangibles on the balance sheet. On the other hand, over-paying for the external growth opportunities has the potential to produce excessive levels of goodwill or intangible assets on the balance sheet. Either of these mistakes could lead to the destruction of

firm value and it is plausible that bankrupt firms which engage in a growth strategy dependent on external acquisitions consistently make one of these types of mistakes.

Consequently, there is uncertainty regarding whether firms that successfully emerge from the bankruptcy process have significantly lower or higher levels of goodwill or intangibles on their balance sheets than their counterparts that are liquidated. Considering the possibility that bankrupt firms failed to allocate the proper level of company resources to external growth opportunities, either through under-investing or over-investing, leads to the third research question.

Research Question #3: Does under- or over-investment in external growth opportunities (as measured by goodwill, "intangibles, or "other intangibles") help explain the outcome during the bankruptcy process?

Earnings Multiple

One additional variable that can be used to evaluate the future opportunities for financially distressed firms is the earnings multiple. The earnings multiple is the inverse of the price-to-earnings (P/E) ratio. Firms with lower earnings multiples are viewed as having more future growth opportunities, while firms with higher earnings multiples are viewed as having less. We use the earnings multiple instead of the P/E ratio because bankrupt firms tend to have negative earnings, and the economic interpretation of a negative P/E is problematic. Since stock prices are non-negative, the earnings multiple overcomes this problem and the economic interpretation is straightforward. Whereas the previous variables (i.e., advertising expenses, R&D investments, goodwill, and intangibles) look at specific categories of intangible market-based assets or capabilities, the earnings multiple is a more general measure of future growth opportunities. It does not attribute the creation or destruction of firm value to any specific firm activity, but is instead simply a measure of future opportunities. We therefore include the earnings multiple to capture possible future growth opportunities that the market values, but are missed by the more specific measures employed. It is reasonable to expect bankrupt firms with practical future growth opportunities to look more attractive to potential acquirers and therefore have a greater ability to successfully reorganize during the bankruptcy process and create a legitimate going concern. This possibility leads to the final research question.

Research Question #4: Does the earnings multiple of financially distressed firms help explain the outcome during the bankruptcy process?

DATA AND METHODOLOGY

In order to examine our research questions, we collected a sample of publicly traded firms that filed for Chapter 11 bankruptcy protection from January 1980 up to year end December 2009. The 2009 cutoff date was chosen to ensure that sufficient time would be available for the final bankruptcy outcome to be established. Working from a list published by the Office of the General Counsel of the Securities and Exchange Commission, we started with an initial set of the publicly traded bankrupt firms over the entire 30 year time period. Detailed information

concerning relevant dates along the bankruptcy timeline as well as company outcomes were obtained from *LEXIS/NEXIS* company news reports as well as 10-K and 8-K reports gathered from *EDGAR*. Financial data were primarily collected from the COMPUSTAT® research database for up to four years prior to the bankruptcy filing date.

Excluded from consideration in our sample were firms that operated in (1) a regulated industry (health-care, utilities, airline or other transportation industries) or the financial services industry (banks, mortgage or real estate concerns, insurance companies); (2) those for which very little or even no company information was available; (3) those filing Chapter 11 more than once; (4) those which filed a straight Chapter 7 with the sole intention of liquidating; (5) those which did not trade on any exchange (NYSE, AMEX, NASDAQ) or pink sheets prior to the bankruptcy filing; (6) those with no COMPUSTAT data prior to the filing; (7) miscellaneous filers (foreign-based companies operating and trading in the U.S., non-profit organizations, those using Chapter 11 as a tool to facilitate an expedient acquisition with a pre-determined suitor, and cases that were officially dismissed by a bankruptcy court); or (8) those still in Chapter 11 proceedings as of the end of the second quarter of 2011. This left us with a final sample of 406 firms.

The final sample was initially divided into two categories. The first category consisted of those firms which successfully negotiated a plan of reorganization that was confirmed by a bankruptcy court. These firms, referred to as “alive” firms, ultimately exited bankruptcy and continued to operate in the marketplace. The second category consisted of those firms that either voluntarily or involuntarily liquidated. Firms in this category ceased to exist at some point after the Chapter 11 filing. Those firms that did not successfully emerge from the bankruptcy process as ongoing organizations are referred to as “dead” firms. Table 1 shows the distribution of firms used in our sample by outcome and year, which is consistent with the distribution of firms in other bankruptcy studies (Altman 1993; Datta and Iksandar-Datta 1995; Giammarino 1989; Warren and Westbrook 2009).

Table 1
Distribution of Bankruptcy Outcome

	Type of Bankruptcy Outcome					
Year Bankruptcy Filed	Successfully Emerged: "Alive"		Did not Successfully Emerge: "Dead"		Total	
	Number	(%)	Number	(%)	Number	(%)
1980	5	2	3	2	8	2
1981	5	2	2	1	7	2
1982	13	5	1	1	14	3
1983	10	4	1	1	11	3
1984	8	3	5	3	13	3
1985	14	6	3	2	17	4
1986	10	4	9	6	19	5
1987	8	3	7	5	15	4
1988	11	4	4	3	15	4
1989	12	5	12	8	24	6
1990	13	5	9	6	22	5
1991	11	4	8	5	19	5
1992	14	6	8	5	22	5
1993	9	4	4	3	13	3
1994	2	1	5	3	7	2
1995	7	3	4	3	11	3
1996	14	6	5	3	19	5
1997	12	5	5	3	17	4
1998	8	3	4	3	12	3
1999	9	4	5	3	14	3
2000	13	5	10	6	23	6
2001	7	3	9	6	16	4
2002	2	1	2	1	4	1
2003	11	4	8	5	19	5
2004	6	2	3	2	9	2
2005	3	1	4	3	7	2
2006	4	2	0	0	4	1
2007	2	1	3	2	5	1
2008	2	1	8	5	10	2
2009	6	2	4	3	10	2
Total by Outcome	251		155		406	
Percentage by Outcome	62		38		100	

Table 2
Comparison of Means

Table 2				
Normalized univariate results				
panel a:	All Firms n=412			
	Mean		Mean Difference Alive minus	
Variable	Alive	Dead	Dead	p value
R&D expense/total assets	0.0409	0.0690	-0.0281	0.0768
advertising expense/total assets	0.0187	0.0376	-0.0189	0.0064
goodwill/total assets	0.0483	0.0301	0.0182	0.0626
intangibles/total assets	0.0732	0.0733	-0.0001	0.9906
other intangibles/total assets	0.0277	0.0440	-0.0163	0.1397
earnings multiple	-2.6647	-1.2093	-1.4554	0.0090
panel b:	Manufacturing firms only n=168			
	Mean		Mean Difference Alive minus	
	Alive	Dead	Dead	p value
R&D expense/total assets	0.0716	0.1436	-0.0720	0.0286
advertising expense/total assets	0.0183	0.0249	-0.0066	0.4461
goodwill/total assets	0.0628	0.0366	0.0263	0.1460
intangibles/total assets	0.0838	0.0717	0.0121	0.5886
other intangibles/total assets	0.0272	0.0351	-0.0079	0.5848
earnings multiple	-1.6830	-1.1356	-0.5474	0.1672
panel c:	Non-manufacturing firms only n=126			
	Mean		Mean Difference Alive minus	
	Alive	Dead	Dead	p value
R&D expense/total assets	0.0400	0.0227	0.0173	0.4219
advertising expense/total assets	0.0288	0.0674	-0.0386	0.0121
goodwill/total assets	0.0568	0.0221	0.0347	0.0653
intangibles/total assets	0.0918	0.0747	0.0171	0.5651
other intangibles/total assets	0.0350	0.0548	-0.0198	0.3896
earnings multiple	-2.2204	-1.1425	-1.0778	0.0879

ANALYSIS

Comparison of Means- All Firms (panel a)

In order to control for firm size, we normalized the data by constructing a ratio for each variable. Specifically, we divided each variable by total assets. In addition, we broke the sample into two additional sub-groups, manufacturing and non-manufacturing. The manufacturing sample consists of firms with a two-digit standard industrial classification code (SIC) from 20 to 39. The non-manufacturing sample consists of firms with a two-digit SIC from 70 to 88 (service) and 52-59 (retail). Table 2 shows the comparison of all firms (*panel a*), manufacturing firms (*panel b*) and non-manufacturing firms (*panel c*) for year -1, the last fiscal year prior to filing for bankruptcy.

The first significant outcome that can be observed in *panel a* of Table 2 is that the advertising expenditures of "dead" firms is greater than that of "alive" firms. This result indicates that firms which over-invest in advertising are more likely to be liquidated. Similarly, although the difference is not statistically significant at the .05 level of confidence, the R&D expenditures of "dead" firms appears to be greater than that of "alive" firms. This result may also suggest that bankrupt firms which are ultimately liquidated invest too much in R&D as well. In summary, firms that ultimately failed appeared to have over-invested in their quest to develop intangible market-based assets as compared to firms that were successfully reorganized post-bankruptcy.

Table 2 also indicates that the level of goodwill found on the balance sheets of "alive" firms is greater than that of "dead" firms. Although not statistically significant at the .05 level of confidence, this result seems to suggest that firms which successfully exit Chapter 11 bankruptcy have invested more in external growth opportunities than those which do not. Conversely, the result also supports the idea that firms which are ultimately liquidated during the bankruptcy process either fail to pursue external growth opportunities or offer too little for those opportunities, subsequently failing to acquire them. As a consequence, these firms report little or no goodwill on the balance sheet. The results for "Intangibles" and "Other Intangibles" are not significant. Finally, the earnings multiple of "alive" firms is lower than that of "dead" firms. This suggests that firms with stronger earnings multiples look more attractive to potential acquirers, making them better able to avoid liquidation during the bankruptcy process.

Comparison of Means- Manufacturing Firms SIC 20-39 (panel b)

Results for the sub-sample of manufacturing firms show that R&D is the primary determinant between "alive" and "dead" firms. Specifically, manufacturing firms that invest more in R&D are more likely to be liquidated. This is a counterintuitive finding given that, in the case of manufacturing firms, R&D expenditures are positively associated with productivity (Frantzen 2003; Islam and Shazali 2011). One interpretation of these results is that financially distressed firms may have over-invested in R&D, and this over-investment, rather than enhancing their productivity, actually increases their chances of being liquidated. The results for all other variables for the sub-sample of manufacturing firms are not significant.

Comparison of Means-Nonmanufacturing Firms SIC 52-59 and 70-88 (panel c)

Results for the sub-sample of non-manufacturing firms show that advertising is the primary determinant between "alive" and "dead" firms. Specifically, firms that invest more in advertising are more likely to be liquidated. This is also a counterintuitive finding given that advertising enhances brand value and, in turn, is positively related to shareholder value (Conchar, Crask, and Zinkhan 2005; Madden, Fehle, and Fournier 2006). Nevertheless, it appears as if bankrupt firms that over-invest in advertising not only fail to enhance shareholder value, but actually destroy long-term shareholder value. Although the results for goodwill and the earnings multiple appear promising, these results are not statistically significant. Overall, it appears that for non-manufacturing firms, over-investment in advertising, as compared to the successfully reorganized bankrupt firms in the sample, increases the likelihood of liquidation. In addition, it may be possible that increased investment in external growth opportunities through acquired goodwill may, under some instances at least, increase the likelihood of avoiding liquidation during the bankruptcy process.

CONCLUSIONS

Recently, there has been a call for marketers to adopt measurement methods and performance metrics that can better demonstrate marketing's contributions to the investment community (Petersen, McAlister, Reibstein, Winer, Kumar, and Atkinson 2009; Rust, Amber, Carpenter, Kumar, and Srivastava 2004; Srinivasan and Hanssens 2009). This is especially important given the intangible nature of many of the most important marketing related skills, resources, and capabilities. Petersen et al. (2009) propose shareholder value or stock price as the ultimate value metrics for marketers to adopt, yet the present study takes a different approach by looking at the flip side of success, the likelihood of terminal failure in the form of post-bankruptcy firm liquidation. While stockholders and managers alike may be interested in identifying the intangible market-based assets associated with positive performance outcomes in order to justify the value of their investments in marketing, they should be even more cognizant of the factors that could be associated with the worst possible outcome, the complete and irreversible destruction of firm value.

Focusing on an extensive sample of financially distressed firms from two separate industry categories, manufacturing versus non-manufacturing, several specific research questions were investigated. The first issue involved comparing restructured firms ("alive" firms) to those that were ultimately liquidated ("dead" firms) with regard to the amount spent on advertising, which was normalized as a percentage of total assets. Secondly, we looked at R&D expenditures as a percentage of total assets. In addition to these internal growth options, we also looked at the level of firm investments in external growth opportunities, as measured by the balance sheet categories known as goodwill, "intangible assets", and "other intangibles". In order to control for firm size, these variables were also normalized as a percentage of total assets. Finally, we looked at the inverse of the P/E ratio, the earnings multiple, as a general measure of future growth opportunities. Summing up the results, it appears that R&D and advertising have the potential to significantly explain the outcome of the bankruptcy process, and that the two sub-samples of industrial categories behave differently with regard to the influence of these explanatory

variables. For the sub-sample of manufacturing firms, only R&D consistently helps explain the outcome of the bankruptcy process. On the other hand, for the sub-sample of non-manufacturing firms, only advertising consistently helps explain the outcome of the bankruptcy process.

For manufacturing firms, conventional wisdom would suggest that investments in R&D would be most likely to lead to the development of intangible capabilities that could boost firm performance. Similarly, in the case of service and retail firms, it should be expected that investments in advertising would be able to build the intangible market-based assets vital to success. Nevertheless, our findings show that manufacturing firms that over-invest in R&D are actually more likely to be liquidated. Similarly, service and retailing firms that over-invest in advertising are also more likely to be liquidated. It may be that firms in each sub-sample that have ultimately failed and been liquidated have made the mistake of investing too much in the area that should be most likely to actually enhance their performance. Therefore, the managerial implications of our findings are clear. The aggressive allocation of scarce company resources to investments in market-based assets or unique capabilities that would in normal circumstances enhance their performance may perhaps, in the case of financially stressed firms, best be described as "too much of a good thing", or at least too much of what should be a good thing.

Although most studies that have looked at the impact of advertising on performance have focused on the absolute level of advertising expenditures, it has been long realized that no two dollar investments produce equal results. Instead, the actual impact of the expenditures is more meaningful, and the ability to design advertising campaigns with maximum productivity and efficiency is crucial to overall success (Kinnucan and Yuliang 1999; Pritchett, Lui, and Kaiser 1998). Unfortunately, a great proportion of total advertising expenditures are wasted in ineffective campaigns (Abraham and Lodish 1990; Lodish, Abraham, Kalmenson, Livelsberger, Lubetkin, Richardson, and Stevens 1995). The same can probably be said for R&D expenditures. Therefore, rather than simply increasing the level of spending on intangibles, managers should instead seek to enhance the effectiveness of those intangible investments. In fact, it is highly possible that one reason for our sample to be in financial distress in the first place is that their spending has not produced successful results. The dollar value of their investments in market-based assets does not make up for their lack of effectiveness, and any additional increases would be likely to further perpetuate an ineffective and inefficient allocation of financial resources.

Finally, the current study sets the stage for additional future research. As perhaps the only study in the marketing literature to examine the relationship between investments in intangible assets and capabilities and the outcome of the bankruptcy process, there is clearly more work to be done. Foremost would be the need to utilize additional metrics of our market-based assets and intangible capabilities that do not rely on the financial measures found in the income statements and balance sheets. Although Srivastava, Shervani and Fahey (1998) recognize that perhaps the simplest approach to valuing assets is on the basis of their costs, future studies should use a wider variety of nonfinancial measures of intangible marketing-related assets. For instance, rather than using advertising expenditures as a proxy for brand equity, more direct measures of this significant market-based asset should be employed. In fact, measures that take into consideration the productivity of firm investments, rather than simply their dollar value, have the potential to yield dramatically different results. Likewise, the use of R&D expenditures as a

proxy for a firm's ability to develop new products and services could also be supplanted by a more direct measure of this important capability. Finally, although our measures were designed to account for firm size, the fact remains that smaller firms are more likely to be associated with liquidation whereas larger firms are more likely to be restructured post-bankruptcy. Perhaps future studies can more fully account for the impact of firm size on post-bankruptcy outcomes or can investigate differences by more specific lines of trade.

REFERENCES

Abraham, M. and L.M. Lodish (1990), "Getting the Most out of Advertising and Trade Promotion," *Harvard Business Review*, May-June, 50-63.

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

Barney, J., M. Wright, and D.J. Ketchen, Jr., (2001), The Resource-Based View of the Firm: Ten Years After 1991. *Journal of Management.* 27, 625-642.

Berger, P.G. and E.Ofek (1995), "Diversification's Effect on Firm Value," *Journal of Financial Economics*, 37, 39-65.

Blum, M. (1974), "Failing Company Discriminate Analysis", *Journal of Accounting Research*, 12 (No.1), 1-25.

Broyles, S. A., D.W. Schumann, and T. Leingpibul (2009), "Examining Brand Equity Antecedent/Consequence Relationships," *Journal of Marketing Theory and Practice*, 17 (No.2), 145-161.

Casey, C.J., V.E. McGee, and C.P. Stickney (1986), "Discriminating Between Reorganized and Liquidated Firms in Bankruptcy," *The Accounting Review*, 6, (No.2), 249-262.

Conchar, M.P., M.R. Crask, and G.M. Zinkhan (2005), "Market Valuation Models of the Effect of Advertising and Promotional Spending: A Review and Meta-Analysis," *Journal of the Academy of Marketing Science*, 33 (No.4), 445-460.

Dahmash, F., R.B. Durand, and J. Watson (2009), "The Value Relevance and Reliability of Reported Goodwill and Identifiable Intangible Assets," *The British Accounting Review*, 41, 120-137.

Datta, S. and M.E. Iskandar-Datta (1995), "Reorganization and Financial Distress," *Journal of Financial Research*, 18, 15-32.

Dutta, S., O. Narasimhan, and S. Rajiv (1999), "Success in High Technology Markets," *Marketing Science*, 18 (No.4), 547-568.

Eng, L.L. and H.T. Keh (2007), "The Effects of Advertising and Brand Value on Future Operating and Market Performance," *Journal of Advertising*, 36 (No.4), 91-101.

Frantzen, D. (2003), "The Causality Between R&D and Productivity in Manufacturing: An International Disaggregate Panel Data Study," *International Review of Applied Economics*, 17 (No.2), 125-146.

Giammarino, R. (1989), "The Resolution of Financial Distress," *Review of Financial Studies*, 2, 25-47.

Haanes, K. and Ø. D. Fjeldstad (2000), "Linking Intangible Resources and Competition," *European Management Journal*, 18 (No.1), 52-62.

Hanssens, D.M., R.T. Rust, and R.K. Srivastava (2009), "Marketing Strategy and Wall Street: Nailing Down Marketing's Impact," *Journal of Marketing*, 73 (November), 115-118.

Haxthausen, O. (2009), "Valuing Brands and Brand Investments: Key Learnings and Future Expectations," *Journal of Brand Management*, 17 (No.1), 18-25.

Heiens, R.A., R.T. Leach, and L.C. McGrath (2007), "The Contribution of Intangible Assets and Expenditures to Shareholder Value," *Journal of Strategic Marketing*, 15 (May-July), 149-159.

Islam, S. and S.T. Syed Shazali (2011), "Determinants of Manufacturing Productivity: Pilot Study on Labor-Intensive Industries," *International Journal of Productivity and Performance Management*, 60 (No.6), 567-582.

Jensen, M.C. (1986), "Agency Costs of Free Cash Flow, Corporate Finance and Takeovers," *American Economic Review*, 76, 323-329.

Keller, K.L. (2003), *Strategic Brand Management: Building, Measuring, and Managing Brand Equity*, 2nd ed., Upper Saddle River, NJ: Prentice Hall.

_____ and D.R. Lehmann (2009), "Assessing Long-Term Brand Potential," *Journal of Brand Management*, 17 (No.1), 6-17.

Kinnucan, H.W. and Y. Miao (1999), "Media-Specific Returns to Generic Advertising: The Case of Catfish," *Agribusiness*, 15 (No.1), 81-99.

Krasnikov, A. and S. Jayachandran (2008), "The Relative Impact of Marketing, Research-and-Development, and Operations Capabilities on Firm Performance," *Journal of Marketing*, 72 (No.4), 1-11.

Lang, L.H. P. and R.M. Stulz (1994), "Tobin's Q, Corporate Diversification and Firm Performance," *Journal of Political Economy*, 102, 1248-1280.

Lodish, L.M., M. Abraham, S. Kalmenson, J. Livelsberger, B. Lubetkin, B. Richardson, and M.E. Stevens (1995), "How T.V. Advertising Works: A Meta-Analysis of 389 Real World Split Cable T.V. Advertising Experiments," *Journal of Marketing Research*, 32 (No.2), 125-139.

LoPucki, L.M. (1983), "The Debtor in Full Control-System Failure Under Chapter 11 of the Bankruptcy Code?," *American Bankruptcy Law Journal*, 57, 99-126.

Madden, T.J., F. Fehle, and S. Fournier (2006), "Brands Matter: An Empirical Demonstration of the Creation of Shareholder Value Through Branding," *Journal of the Academy of Marketing Science*, 34 (No.2), 224-235.

Myers, S.C. and N.S. Majluf (1984), "Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have," *Journal of Financial Economics* 13, 187-221.

Nath, P. and V. Mahajan (2008), "Chief Marketing Officers: A Study of Their Presence in Firms' Top Management Teams," *Journal of Marketing*, 72 (No.1), 65-81.

Ohlson, J. A. (1980), "Financial Ratios and the Probabilistic Prediction of Bankruptcy," *Journal of Accounting Research*, 18 (No.1), 109-131.

O'Sullivan, D. and A.V. Abela (2007), "Marketing Performance Measurement Ability and Firm Performance," *Journal of Marketing*, 71 (No.2), 79-93.

Petersen, J. A., L. McAlister, D.J. Reibstein, R.S. Winer, V. Kumar, and G. Atkinson (2009), "Choosing the Right Metrics to Maximize Profitability and Shareholder Value," *Journal of Retailing*, 85 (No.1), 95-111.

Pritchett, J.G., D.J. Liu, and H.M. Kaiser (1998), "Optimal Choice of Generic Milk Advertising Expenditures by Media Outlet," *Journal of Agricultural and Resource Economics*, 23 (No.1), 155-169.

Rust, R.T., T. Ambler, G.S. Carpenter, V. Kumar, and R.K. Srivastava (2004), "Measuring Marketing Productivity: Current Knowledge and Future Directions," *Journal of Marketing*, 68 (No.4), 76-89.

Srinivasan, S. and D.M. Hanssens (2009), "Marketing and Firm Value: Methods, Findings, and Future Directions," *Journal of Marketing Research*, 46 (June), 293-312.

Srivastava, R.K., T.A. Shervani, and L. Fahey (1998), "Market-Based Assets and Shareholder Value: A Framework for Analysis," *Journal of Marketing*, 62 (No.1), 2-18.

Verhoef, P.C. and P.S.H. Leeflang (2009), "Understanding the Marketing Department's Influence Within the Firm," *Journal of Marketing*, 73 (No.2), 14-37.

Warren, E. and Westbrook, J. L. (2009), "The Success of Chapter 11: A Challenge to the Critics," *Michigan Law Review*, 107 (No.4), 603-641.

Zavgren, C.V. (1985), "Assessing the Vulnerability to Failure of American Industrial Firms: A Logistic Analysis," *Journal of Business Finance and Accounting*, 12 (No.1), 19-45.

Zmijewski, M.E. (1984), "Methodological Issues Related to the Estimation of Financial Distress Prediction Models," *Journal of Accounting Research*, 22 (No.1), 59-82.

ABOUT THE AUTHORS

Richard A. Heiens earned his Ph.D. in Marketing from Florida State University in 1993. He is currently serving as the Water F. O'Connell Palmetto Professor of Marketing at the University of South Carolina Aiken. He has published his research in a variety of academic journals, including the *Strategic Management Journal*, the *Journal of Business and Industrial Marketing*, the *Journal of Strategic Marketing*, and the *Academy of Marketing Science Review*.

Robert T. Leach earned his Ph.D. in Finance from Kent State University in 1997. He is currently serving as a Professor of Finance at the University of South Carolina Aiken, and also serves as an Affiliate Instructor of Finance at the University of Arkansas. He has published his research in a variety of academic journals, including the *Journal of Banking and Finance*, the *Journal of Business Finance and Accounting*, the *International Journal of Intelligent Systems in Accounting, Finance, and Management*, and *Wirtschafts Politische Blätter*.

Paul D. Newsom earned his Ph.D. in Finance from the University of Arkansas in 2003. He also holds a B.S. in Pharmacy from Butler University. In his academic career, he has served as an Assistant Professor of Finance at Valparaiso University and is currently serving as an Assistant Professor of Finance at the University of South Carolina Aiken.