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Please direct all comments to:

Editor:
Midwestern Business
and Economic Review

Bureau of Business and
Government Research

Dillard College of
Business Administration

Midwestern State University
3410 Taft Boulevard
Wichita Falls, Texas 76308-2099

Telephone: (940) 397-4661
Fax: (940) 397-4693

MIDWESTERN BUSINESS AND ECONOMIC REVIEW

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MIDWESTERN BUSINESS AND ECONOMIC REVIEW

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ABSTRACTS

TECHNOLOGY IN THE WORKPLACE: A HUMAN RESOURCE MANAGEMENT PERSPECTIVE

Recent innovations have made technology more mobile and concealable. Thus, many individuals now have constant, unauthorized access to the internet and e-mail at work. Today's human resources (HR) manager must be proactive in ensuring that sufficient policies and procedures exist to protect both the organization and its employees from inappropriate uses of this technology. This paper offers HR managers an overview of emerging innovations in technology and a number of suggestions for approaching this issue in the workplace.

THE HIDDEN COST OF LETTERS OF CREDIT

Letters of credit supposedly guarantee that the buyer's payment will be remitted to the seller on time, with the financial institution guaranteeing payment to the seller upon submission of the proper documents. This seems to be an ideal method of payment, but the facts don't bear this out. Nearly half of the letters of credit presented to financial institutions are initially refused, with the seller thus denied access to or use of his or her funds. This delay in receiving the funds adds a hidden cost to the use of letters of credit, and a windfall for the financial institutions.

MANAGERIAL INFLUENCE ON CASH POLICY: EVIDENCE FROM CEO DEATHS

The purpose of this paper is to study managerial influence on cash policy. This is the first attempt to study the impact of sudden change of CEO on cash policy of the firm. We examine the relation between the market reaction to the death of a CEO and subsequent change in cash policy of the firm. We find that when the market reaction to the news of CEO death is positive, the cash flow retention of the firm decreases and the capital expenditure increases under the new CEO; the opposite happens when the market reacts negatively to the news of the death. We hope these findings will lead to further research on the causes of this change.

MEASURING THE LOCAL ECONOMIC IMPACT OF A REGIONAL PUBLIC UNIVERSITY

State legislators and taxpayers want reassurance that government appropriations to universities are justified by direct and tangible outcomes in the short-run. Using best practices from the literature, we directly surveyed Central Michigan University's students, faculty and staff about their spending, estimated expenditures by the university's retirees and visitors and measured direct spending by the University. A regional economic model (i.e. IMPLAN) calculated the direct, indirect and induced spending impacts on Isabella County in the short-run. We find CMU's impact in the 2004-05 academic year was about $650 million in spending and 11,622 jobs created.

THE MARKET PERCEPTION OF MANDATORILY REDEEMABLE PREFERRED STOCK: SOME EMPIRICAL EVIDENCE

This study uses a market valuation model of a firm's common equity to measure the market's perception of mandatorily redeemable preferred stock (MRPS). Using a methodology similar to Landsman (1986), Barth, et. al. (1992), and the theoretical valuation model proposed in Ohlson (1995), the market value of common equity is regressed on the following independent variables: total assets, total liabilities, net income and MRPS. For a sample of firms reporting MRPS, regression coefficients are estimated cross-sectionally by year for 1999-2002. Results of the regression analysis suggest that the market views MRPS similar to debt. The coefficient for MRPS has the same magnitude as the coefficient for conventional debt in most cases. Results of this analysis lend support to Statement of Financial Accounting Standards No. 150, *Accounting for Certain Financial Instruments with Characteristics of Both Liabilities and Equity* (FASB 2003) which now requires that MRPS be reported in the liabilities section of the balance sheet.

MONITORING EXECUTIVES OF ACQUIRING FIRMS WEALTH EFFECTS, TENURE AND SHAREHOLDER OVERSIGHT

The present study examines the relationship between returns to shareholders of acquiring firms and a variety of owner-manager interest-aligning measures, including executive share and option ownership, executive tenure, board of director oversight, and outside ownership. The results suggest that (1) while CEO share ownership appears to align managerial and shareholder interests, stock options play little if any role in motivating CEOs to maximize shareholder interests; (2) CEO tenure (proxied by age and years spent with the firm) is negatively correlated with stock returns; and (3) the relative mix of share ownership and stock options held by rarely studied second-in-command executives significantly explains acquiring firm wealth changes. In addition, boards of directors (especially large ones) and individuals (or institutions) with significant ownership positions ineffectively monitor the wealth-changing actions of management.

PROACTIVITY AND TOLERANCE OF AMBIGUITY AMONG MICRO-ENTERPRISE ENTREPRENEURS

This paper discusses proactive behavior as associated with tolerance of ambiguity and other operational and personal characteristics of a large sample of micro-enterprise entrepreneurs. The findings reveal that associations do exist between proactive behavior, tolerance of ambiguity, and firm/owner characteristics.

TECHNOLOGY IN THE WORKPLACE: A HUMAN RESOURCE MANAGEMENT PERSPECTIVE

Katina Thompson, University of West Georgia
Thomas W. Gainey, University of West Georgia

INTRODUCTION

CNN Money recently named the job of Human Resources (HR) Manager one of the top five jobs in America, projecting a growth rate of 23.47% over the next ten years (Kalwarski, et. al., 2006). And, while the strategic importance of the HR has been well-established over the past two decades (Huselid, 1995; Wright & McMahan, 1992), many still associate the HR function with primarily administrative duties. However, the profile of today's successful HR manager is very different from the "personnel manager" of the mid-late, twentieth century. Indeed, HR managers now face such difficult issues as diversity in the workplace, globalization, and the rising cost of health care. Yet, perhaps the greatly challenge facing today's HR professional is the proliferation of technology into the workplace.

In the past, the workplace could largely be secured by using employee badges, gated parking facilities, and video monitoring systems. Employees could be somewhat isolated from outside influences and had relatively limited alternatives for contacting others during working hours. Today, however, technology brings the world into the workplace and exposes organizations to the world. Advances such as Intranets, firewalls, and Internet filters can provide some measure of security and limit a firm's exposure, yet this is effective only for technology provided and maintained by the organization. Devices such as cell phones, palms, iPods, and BlackBerries, which can be brought into the workplace and easily concealed, greatly increases the potential for employees to engage in behaviors that not only lead to significant productivity losses, but may also expose a company to lawsuits and corporate espionage (Towns, 2003; Mirchandani & Motwani, 2003). Certainly, today's HR professional must be technologically adept to make certain that policies and procedures exist that provide sufficient protection for both the employees and the organization.

One need only examine the results of recent research to appreciate the extent of the problem faced by organizations. Vault.com surveyed 1,439 workers regarding their Internet use. Thirty-seven percent of the respondents admitted that they constantly surfed the Internet during work hours (Young, 2004). Specifically, many of these employees were involved in activities such as online chatting, stock trading, and gambling, a phenomenon commonly referred to as cyber loafing. This excessive and inappropriate use of the Internet contributes to productivity losses and, potentially, increases the cost of maintaining sufficient resources. And, while these inefficiencies are a serious concern, it is important to recognize that emerging technology exposes the organization to far more serious threats. For instance, individuals involved in activities such as pornography or cyber stalking might expose an organization to unfavorable publicity or even lawsuits.

HR professionals have made some progress addressing these issues. In a survey of 224 U.S. companies, sixty percent admitted to disciplining employees for non-work related Internet use. Of those, thirty percent reported terminating workers for inappropriate use of technology in the workplace (Greenfield & Davis, 2002). However, as technology continues to become more mobile and less expensive, employees will find it much easier to bring devices into the workplace and engage in inappropriate activities.

This purpose of this paper is to help HR managers better understand the types of technology that may be encountered in the workplace, how this technology can be used by employees, and the HR professional's role in setting and enforcing limits on the use of technology.

ADVANCES IN TECHNOLOGY

Only a few years ago, employees' access to the Internet and e-mail at work was largely governed by the employer. While it has been suggested that even allowing employees access to Internet is essentially the same as, "putting a television on each worker's desk" (Greenfield & Davis, 2002), in the past the "channels" could be controlled and restricted. Today, however, innovations have resulted in a number of technological devices that are mobile, discreet and affordable. This means that workers can share, create, and access information quickly and inconspicuously.

One of the most popular devices used by employees is the cell phone. In fact, the use of cell phones is so common that some consumers are opting to use them even when traditional, land-line phones are available. And these cell phones continue to evolve. For instance, once considered too expensive for most individuals, camera phones are now issued free of charge by many providers when customers sign a two-year contract. And, in the workplace, cell phones can be used to transmit electronic images, e-mails, and instant messages. The more expensive versions even offer wireless Internet access, voice activation, and the capability to record others. Additionally, the small size and silencing features allow users to carry and utilize the devices in a discreet manner.

Personal digital assistants (PDA) or hand-held computers are also increasingly popular. Though they are relatively expensive, the accessibility that PDAs provide is appealing. For instance, PDAs offer Internet, email, and phone capabilities. The BlackBerry 7130e can even transmit text, digital images, and audio simultaneously using its Multimedia Messaging Service. Additionally, the BlackBerry can provide Internet access by connecting to a desktop or a laptop that is not otherwise connected. These devices provide tremendous connectivity and most are less than five inches long and three inches wide. However, even these devices will likely become increasingly affordable as technology continues to evolve. For instance, in May 2006, a new Ultra Mobile PC (UBPC) was introduced by Samsung Electronics (Baig, 2006). At only 1.7 pounds and under an inch thick, this new technology provides considerably greater power and capacity. Indeed, for just over $1,000, workers carry around a laptop in a purse or small bag.

A number of additional, inexpensive devices are available that could be problematic in the workplace. For example, for about $100, the DocuPen hand-held scanner has the ability to scan a page in eight seconds and to store 100 pages. Additionally, pocket-sized USB flash drives, which have largely replaced disk drives, have the capacity to store four gigabytes of data. Further, the newest iPod is capable of storing sixty gigabytes of music videos and surfing the internet. One can easily understand how employees can move information into and out of the workplace like never before.

TECHNOLOGY ABUSE IN THE WORKPLACE

As technology becomes more affordable and portable, it will increasingly be purchased by individuals and taken into the workplace. Below, we discuss a number of ways that this technology can be used inappropriately.

E-mail Abuse

Perhaps the most prolific type of abuse involves sending and receiving e-mails at work for non-business purposes. In fact, many employees use both their company e-mail account and their personal accounts to engage in e-mail abuse at work (Greenfield & Davis, 2002). And, while this behavior results in lost productivity, it may also lead to the transmission of offensive or confidential material to individuals both inside and outside of the organization (Churchman, 2003). E-mail abuse is widespread and has the potential to create numerous problems in organizations.

E-harassment

Unfortunately, as technology innovations emerge, some workers find ways to use this technology to create a hostile work environment for others. e-Harassment refers to on-line harassment that is sexually or racially motivated. Bombarding others with e-mails, using questionable screen savers or desktop images, and disseminating offensive jokes are just some of the ways that workers can experience e-harassment at work (Towns, 2003). Individuals who engage in this type behavior often leave a documentation trail that provides proof of their inappropriate behavior. However, by using distribution lists, the offender can sometimes reach many organizational members before they can be identified and stopped.

Pornography

One of the most prevalent and damaging types of e-harassment in the workplace involves employees using technology to view pornography. It is estimated that twenty percent of professional male employees access pornography at work (Siau, Nah, & Teng, 2002). And, according to researchers, sex is the most frequently searched topic on the Internet (Towns & Johnson, 2003). The ease and anonymity with which many types of pornographic images can be accessed, makes some employees brazen and reckless. Yet, viewing pornographic images in the workplace can have a significant impact on the organization and its various stakeholders.

For instance, browsing pornographic websites resulted in the dismissal of 40 employees at Xerox. Additionally, 50 employees were terminated and 200 were suspended without pay from Dow Chemical for distributing emails containing hard-core pornography and violent subject matter (Young, 2004). Not unexpectedly, researchers estimate that seventy percent of pornographic surfing happens during business hours (Towns, 2003). These statistics and related costs make it imperative that organizations regard the control of pornography a top priority.

Data Theft

Data security is increasingly becoming a major concern for organizations. Breaches at corporations such as CardSystems Solutions and ChoicePoint have resulted in millions of customers' records being exposed and lead to demands by consumers that their "personal" data be protected (O'Rourke, 2005). In a recent survey by the Computer Security Institute (CSI) and the Federal Bureau of Investigations (FBI), a dramatic increase in losses resulting from the unauthorized access of consumer and proprietary information was reported (Gordon, 2006). While one might believe that this information is being stolen by sophisticated programmers, O'Rourke (2005) notes that this may not be the case. In fact, given the ease with which individuals can use devices such as hand-held scanners and flash-drives, the theft of customer information from the workplace can often be performed quite easily and discretely.

POTENTIAL IMPACT OF TECHNOLOGY ABUSE

The impact of employees using and abusing technology in the workplace can be significant. Below we discuss three issues of great importance to HR managers.

Legal Liability Regarding Security

Federal regulatory policies such as Sarbanes-Oxley and HIPAA impose strict penalties and possible criminal prosecution

for companies that do not protect the integrity of their data. Many states now have specific laws regulating how personal information is stored and when consumers must be notified of compromises (O'Rourke, 2005). Indeed, the legal liability of data security issues is becoming too costly to ignore.

Clearly, the "bottom lines" of large corporations are being affected. Morgan Stanley and Swiss Bank UBS incurred judgments of $1.45 billion and $29.2 million, respectively, due to improper email retention (O'Rourke, 2005). Additionally, a Computer Crime and Security survey indicated that over $130 million in losses were reported by the 639 respondents (Gordon, 2006).

While handheld devices that can be taken into the workplace by employees pose an obvious threat, preventative measures can be taken. For instance, HR mangers can partner with the IS function to provide security training courses that cover company policies regarding the use of e-mail and the internet, and that stress the importance of username and password protection. In fact, research suggests that 84 percent of companies that utilize training sessions are subject to fewer data security breaches (McCarthy, 2006). Perhaps the fact that organizations let employees know that this issue is important and carefully monitored deters some individuals from engaging in risky behaviors.

Legal Liability Regarding Harassment

One of the primary concerns of HR managers regarding technology abuse relates to harassment. Given the proliferation of technology in the workplace, environments have been created which make it quite easy to send offensive jokes or images to co-workers. In fact, Greenfield & Davis (2002) found that twenty percent of employees reported receiving at least one potentially offensive email each month from others in the organization. Thus, it is quite likely that HR managers will have to periodically deal with individuals who feel that a hostile work environment has been created and that they are a victim. And, if employees can show that the organization was aware of the harassment and made little effort to prevent it, the consequences can be severe (Panko & Beh, 2002).

Even more troubling are cases involving child pornography which are becoming more prevalent as employees have greater access to technology. In the United States, the Child Pornography Prevention Act makes the possession, when known, of child pornography illegal. Should an employer discover that an employee has viewed or transmitted any form of child pornography, the organization's must submit evidence to federal authorities immediately (U.S. Code Collection, 1996). As evidenced in the United States vs. Matthews, the courts do not look favorably on the possession of child pornography for any reason (Boatright & Place, 2001).

Incidents of harassment are much more likely as technology continues to evolve. While monitoring and filtering software is somewhat effective on company-owned computers and networks, this protection cannot easy be extended to personal, handheld devices. Yet, HR managers must be proactive in establishing policies and providing training so that employees recognize the company's position on harassment and the disciplinary sanctions that will be imposed on those harassing others.

Compulsive Use of Technology

Researchers differ on whether the compulsive use of technology should be classified as an addiction. One argument suggests that the addiction is "… an impulse-control disorder that does not involve an intoxicant" (Young, 2004). That is, the compulsive use of technology might be compared to the addictive behavior of a compulsive gambler, where a chemical substance that alters the mood of the individual is not involved. In contrast, others suggest that technology is simply an avenue that supports other obsessions (Griffiths, 2003). Specifically, these researchers assert that those addicted to gambling, pornography, etc. simply use available technology as a means to support other addictions. Nonetheless, whatever the root cause, researchers agree that individuals with addictions involving technology can create significant problems in the workplace.

HR managers should be aware of the warning signs of Internet addiction. Employees who jeopardize their job or personal relationships, or those who have lied to others about the amount of time they spend on-line may be exhibiting signs of Internet addiction (Young, 2004). Additionally, psychologists have found that people who are shy, lonely, less confident, and lack the emotional and social skills associated with emotional intelligence may be prone to addictions involving technology (Chak & Leung, 2004; Engelberg & Sjoberg, 2004). While HR managers are not expected to treat these addictions, they may be able to identify potential problems at an early stage and recommend professional help.

SETTING BOUNDARIES IN THE WORKPLACE

Company policies must establish effective limits regarding the use of technology in the workplace. Limits on the use of email, the Internet, and personal digital devices are paramount to protecting both the integrity of the business and establishing an amiable work environment. While there are no strict guidelines for creating policies, one consideration should be the sensitivity of an organization's data. For instance, a firm that stores consumer data must protect itself from the threats posed by employees utilizing unauthorized technology. Specifically, company policies should clearly define a zero tolerance policy for any removal of company data and the sanctions that will be imposed on violators. Further, any employees proven guilty of the unauthorized removal or transmission of data should be quickly removed from the organization.

Other considerations in setting boundaries are the culture of the organization and the industry in which it operates. For instance, organizations that are heavily involved in technology or that promote a work hard/play hard atmosphere, might consider allowing employees greater access to technology for "personal

reasons." In fact, Oravec (2002) suggests that employers who do not expect employees to use the Internet for issues not related directly to their work completely misunderstand the nature of "workplace life." Thus, setting policies in a way that allows reasonable access to the Internet and other technology might be a useful. In fact, creating cybercafé atmospheres that are located in snack or break areas might be a reasonable alternative. This allows employees limited access during working hours and, because the areas are centrally located, may discourage abuse.

RECOMMENDATIONS FOR HR MANAGERS

As technology becomes more integrated in the lives and work of individuals, HR professionals must become more involved in making certain that negative influences are minimized within the workplace. Some general suggestions for HR managers are listed below.

- ***Define and Disseminate Organizational Policies Regarding Technology:*** The particular nature of an organization's policies and procedures regarding the use of technology in the workplace will vary greatly depending on the nature of both the business and its employees. However, regardless of the type of business, it is essential that policies and procedures be clearly stated and communicated to all employees. Because of the potential for employees to engage in inappropriate actions using technology, rules and sanctions should be clear. An organization's ability to show that they were proactive in establishing limitations will be useful if legal challenges surface.

- ***Consistently Enforce These Policies:*** As a general rule, once policies are established, they should be enforced in a consistent manner. Because of their position in the organization, it may be necessary to give some individuals more latitude in using technology than others. However, these differences should be clearly explained. If workers, who have limited access to the Internet and e-mail, see colleagues using these technologies for personal activities or entertainment, inequity issues will likely result. This may result in increased absenteeism, turnover, and lower productivity.

- ***Establish a Defined Schedule For Re-Analysis of Policies:*** Once policies and procedures are established and communicated to impacted personnel, they are often not properly maintained. For some issues this practice may be adequate. However, where technology is involved, HR professionals should frequently revisit policies and make certain that they adequately address the needs of the workplace. Often, establishing an expiration date forces organizations to re-examine policies and procedures that may be time-sensitive.

- ***Provide Technical Training to Managers and Supervisors:*** Not only is it important for HR professionals to understand emerging technology, it is also important to hold periodic meetings with other managers and supervisors to help them recognize the types of devices they may encounter among employees. It is possible that workers in an area may possess far more technological expertise than their immediate supervisors. This may allow the workers substantial discretion in how they use this technology and make them believe that their actions will not be challenged. While it may not be possible to make every manager a technology expert, all managers should have sufficient knowledge and skills to recognize potential inappropriate applications and the confidence to question behaviors that they believe may be detrimental to the organization and its employees.

- ***Recognize and Provide Treatment For Addiction:*** It is well-documented that individuals can become addicted to the Internet. And, with constant availability to the Internet, through both computers provided by the organization and hand-held devices brought in to the workplace, it is reasonable that managers will eventually encounter someone with an addiction. As with other mental health disorders, HR professionals should never attempt to treat these problems themselves, but should refer employees to professional sources of help. Many organizations rely on Employee Assistance Programs (EAPs) to provide treatment for many different types of personal issues. Thus, it seems prudent that HR professionals also promote EAPs to individuals that need help treating their technology-related addictions.

- ***Strengthen the Partnership With the Information Systems (IS) Function:*** For many years, HR has worked with IS to establish and maintain Human Resource Information Systems (HRIS) within organizations. This relationship has typically been characterized by HR explaining the applications needed and then relying on the expertise of IS to evaluate software and hardware, and then install and maintain systems. Today, however, HR and IS must partner to help each other understand the types of technology that may be used in the workplace and the implications of this technology for the organization and its workers. Both HR and IS must be proactive and willing to share information with each other to help provide a secure, yet technologically sufficient work environment.

CONCLUSION

Twenty years ago, HR professionals had little reason to be computer-savvy or concerned about employees' use of technology at work. Today, however, failing to respond to technological advances can lead to ominous consequences for the organization and its employees.

As hand-held devices become even more reasonably priced and popular among consumers, the problems faced by managers to control their use at work will likely become even more challenging. Because these devices are easily concealed and mobile, employees can take them from home into their work area with little difficulty. Employees can then disseminate messages, pictures, music, and videos to others in the organization quickly and confidentially with minimal effort. Employees working longer hours or those with certain personality traits may be even more inclined to "escape" the workplace on a regular basis and engage in activities that can lead to undesirable consequences for the organization.

Given the rapid changes and advances in technology, it is tempting to simply place the responsibility of all technology-related issues on the IS function. However, because employees are directly involved with this emerging issue, HR managers must be integrally and proactively involved in protecting the organization and in providing employees with a safe, pleasant work environment.

Indeed, the profile of today's HR manager has dramatically changed from the "personnel manager" of the past. Successful HR professionals remain up-to-date on technological innovations, consider the impact of this technology on the workforce, and partner with IS to ensure that practical policies and safeguards exist to protect the organization and its workers.

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THE HIDDEN COST OF LETTERS OF CREDIT

Daniel V. Davidson, Radford University
R. Wayne Saubert, Radford University

INTRODUCTION

"A letter of credit is a document typically issued by a bank or financial institution, which authorizes the recipient of the letter (the "customer") to draw amounts of money up to a specified total, consistent with any terms and conditions set forth in the letter. This usually occurs where the bank's customer seeks to assure a seller (the "beneficiary") that it will receive payment for any goods it sells to the customer" (Larson, 2004).

A letter of credit is usually seen as a device used to guarantee that the buyer's payment will be remitted to the seller on time and for the correct amount. The letter of credit is designed to ensure that if the buyer is unable to make payment as scheduled, the bank or financial institution will be required to cover any unpaid portion of the contract (*Investopedia*). This seems to be an ideal method of payment. The seller is assured that he or she will receive full payment in a timely manner, and the buyer is assured that he or she will receive the goods ordered as scheduled. However, the facts don't bear out this rosy picture. This paper will discuss some of the problems and some of the drawbacks in using letters of credit, and address some of the issues of which merchants who are considering the use of this payment method should be aware.

THE USES OF LETTERS OF CREDIT

There are two major types of letters of credit: commercial letters of credit, which are used in the sale of goods; and standby letters of credit, which are used as a secondary payment mechanism. In a commercial letter of credit an issuing bank agrees to make payment to a beneficiary (seller) on behalf of its applicant (buyer), upon presentation of a set of documents by the beneficiary as specified in the letter. The beneficiary expects to receive the funds upon proper presentation of the documents. In a standby letter of credit, a bank issues the letter on behalf of its customer to provide assurance of the customer's ability to perform under the terms of a contract. The parties to the transaction do not expect to draw upon the standby letter of credit (*Understanding and Using Letters of Credit, Part I*). Standby letters of credit are the most common type, used as security posted by corporations to insurance companies for workers compensation insurance and other self-insured obligations or to secure reinsurance obligations to the original insurer. Standby letters of credit present few problems, whereas commercial letters of credit are too often dishonored, at least upon initial presentation. As a result, this paper will address issues raised by the use of *commercial* letters of credit.

COMMERCIAL LETTERS OF CREDIT

Commercial letters of credit have a significant position in international trade. More than one *trillion* dollars in international trade is paid each year by letters of credit (Klein, 2006). Banks in the United States had issued and outstanding letters of credit worth more than five hundred *billion* dollars at the end of the second quarter in 2005 (Klein, 2006). Ten banks in the United States account for more than three fourths of the dollar volume of all letters of credit issued by U.S. Banks (Klein, 2006).

Letters of credit are regulated under a variety of laws, rules and regulations, depending upon the use for which the letter is issued. Domestically, Revised Article 5 of the Uniform Commercial Code governs letters of credit, as well as the Office of the Comptroller of the Currency's (OCC) Interpretation of 12 CFR 7.1017. Internationally regulation is provided by the International Chamber of Commerce (ICC), which developed and has followed Uniform Customs and Practices (UCP) 500 in dealing with letters of credit since 1993. The ICC will be changing over to newly enacted (October 23, 2006) UCP 600 in July of 2007. There are also International Standard Banking Practices (ISBP) and International Standby Practices (ISP) 98, found in ICC Publication 590 from 1998, which address letter of credit issues. Additionally, the United Nations has proposed its Convention on Independent Bank Guarantees and Standby Letters of Credit, although this convention has only been signed by seven nations and is only in effect in six nations (*Lex Mercatoria*).

THE "NORMAL" TRANSACTION – IN THEORY

A commercial letter of credit "is considered one of the most secure means of obtaining prompt payment for the sale of goods (Moses, 2006)." Discussions of the use of letters of credit often point out that the seller is assured of receiving payment and the buyer is assured that the goods are being, or have been, shipped, thus virtually guaranteeing the each party will receive the benefit of the bargain entered into by the parties.

A typical letter of credit transaction begins with two parties entering into a sale of goods contract, with the buyer agreeing to make payment for the goods by means of a letter of credit. The buyer will then arrange to have its bank open a letter of credit. Included in this arrangement will be a specification of which documents the seller must submit in order to receive payment. After these details have been incorporated into the letter, the buyer's bank will issue its irrevocable letter of credit

to the seller. (UCC Article 5, § 5-106(a) states that Letters of credit may be revocable, but only if the letter itself expressly so provides.) The document received by the seller will include all instructions regarding the submission of documents in order to receive payment. The buyer's bank will then send its irrevocable letter of credit and an accompanying draft (often a sight draft) to the seller's bank and request confirmation of the receipt and acceptance of the letter of credit by the bank.

Once the details for payment have been worked out and both banks have completed their preliminary steps, the actual performance of the contract occurs. The seller makes arrangements for shipping the goods to the buyer, arranges for clearing customs (if applicable), and gathers all the documentation required by the terms of the letter of credit for presentation to its bank. Upon completion of its tender of performance duties, the seller will take all the required documents to its bank, showing that it has fully complied with all aspects of the letter of credit. The bank will then review the documents and compare them to the list of requirement in the original letter. If all of the documents are present and in proper form, the seller's bank will send these documents to the buyer's bank. The buyer's bank, in turn, will review the documents and forward them to the buyer. The buyer can now use the document to claim the goods from the carrier. The buyer's bank pays the draft to the seller's bank, and the seller's bank deposits the funds into the seller's account or otherwise distributes them.

"Letters of credit shift the buyer's credit risk to the bank issuing the letter of credit. When a letter of credit is employed, the seller ordinarily can draw a draft against the bank issuing the credit and receive dollars by presenting proper shipping documents. Except for cash in advance, letters of credit afford the greatest degree of protection for the seller" (Cateora and Graham, 2007) "The great advantage of this system is that both the … importer [buyer] and the … exporter [seller] are likely to trust reputable banks even if they do not trust each other. Once the … exporter has seen the letter of credit, he knows that he is guaranteed payment and will ship the merchandise… The drawback for the importer is the fee she must pay the Bank… for the letter of credit. In addition, since the letter of credit is a financial liability against her, it may reduce her ability to borrow funds for other purposes" (Hill, 2007)

THE "NORMAL" TRANSACTION – REALITY

There is very little difference in the "normal" transaction between theory and reality. The parties enter into a contract for the sale of goods, and specify that payment is to be made by a letter of credit. They further agree that the letter of credit is to be paid upon submission by the seller of certain specified documents. The buyer/importer arranges for its bank to issue the letter of credit. The buyer's bank, in turn, communicates with the seller/exporter and with the seller's bank. All of the requirements and expectations are carefully spelled out and communicated to the seller and to the seller's bank in order for the seller to receive payment under the terms of the letter of credit. All that is required is that the seller supply the specific documents called for in appropriate form. Therein lies the rub. Too often the seller supplies documents that are deemed by the bank *not* to be in the appropriate form.

Letters of credit are honored under a strict compliance standard. Section 5-108(a) says, "An issuer shall honor a presentation that, as determined by the standard practices referred to in subsection (e), appears on its face strictly to comply with the terms and conditions of the letter of credit." This section goes on to state "an issuer shall dishonor a presentation that does not appear to so comply." This section, which is based on UCP 500 (the Uniform Customs and Practices of the International Chamber of Commerce), *requires* the issuing bank to dishonor any presentation of documents by the seller that does not *strictly* comply with the terms and conditions contained in the letter of credit. This means that the seller must make a *perfect tender* of the documents or the bank will not honor the letter of credit. UCC § 5-108(a) and UCP 500 are both straightforward, and sellers should obviously be aware of the strict compliance requirement. Since the seller should be aware of this strict compliance standard, perfect tender by the seller should be expected in the overwhelming majority of contracts involving the use of letters of credit. Yet the incidence of less-than-perfect tender of documents, and thus of nonpayment, is significant.

Britain's Midland Bank International and the Simplification of International Trade Procedures Board (SITPRO) found during one randomly selected three-week period that one of every two documentary presentations against a letter of credit was rejected (Moses, 2006). From this data it was estimated that letters of credit worth some five billion pounds were rejected upon their first presentation annually in Britain (Moses, 2006). More recently, and closer to home, the National Council on Trade Documentation showed initial failure rates as high as 77% in St. Louis and 75% in San Francisco, and as low as 40% at one New York bank. The Council found a 49% rejection rate for major companies, and found that the highest rejection rate was for companies doing business in the 50 to 100 million dollar range, with a failure rate of 63.3% (Moses, 2006).

These findings call into question the accuracy of such statements as "except for cash in advance, letters of credit afford the greatest degree of protection for the seller,"(Cateora and Graham, 2007) or "once the … exporter has seen the letter of credit, he knows that he is guaranteed payment and will ship the merchandise" (Hill, 2007). The data indicate that current beliefs about letters of credit and the treatment of letters of credit in contemporary textbooks are both in error to a significant degree. This, in turn, raises a question: is there an overstatement of the safety and reliability of the letter of credit? If so, sellers and exporters should be aware of this fact. If not, it implies that the data reflect a problem due to some other factor or factors that affect or interfere with the use of this method of payment.

STRICT COMPLIANCE, THE ROOT OF THE PROBLEM

"Letters of credit have been used for centuries to facilitate payment in international trade. Their use will continue to

increase as the global economy increases" (*Understanding and Using Letters of Credit, Part I*). Commercial letters of credit are intended to provide assurance to both parties in sales contracts, especially ones in which the parties are geographically separated, that the other party will perform as expected. However, the 50% rejection rate upon initial presentation found in England by SITPRO or the 49% rejection rate found in the U.S. by the National Council on Trade Documentation provide cause for concern, especially for sellers who expected to be paid upon presentation of documents to the bank.

Why is the rejection rate so high and what should be done to reduce the rate of rejections to a more appropriate level? In its *Letter of Credit Report,* SITPRO consulted with a number of banks regarding the use and acceptance of letters of credit. SITPRO also provided documents containing discrepancies to three of these banks, asking the bankers to record the reason(s) for rejection of the presentation. Interestingly, the top ten reasons for rejection were found to be due to an error by either the seller/exporter or a party hired by the seller/exporter. Table 1 contains a listing of the top ten reasons for rejection.

TABLE 1: TOP TEN DISCREPANCIES LEADING TO REJECTION OF A LETTER OF CREDIT[15]

[*Note*: six of these reasons lie with the seller/exporter, and another three lie either with the seller/exporter or another party. Only one reason cannot be tied to the seller/exporter.]

Discrepancy	Reason	Responsibility
Inconsistent data	Different information between the different documents	Seller/Exporter
Absence of documents	Documents required by the letter of credit are missing	Seller/Exporter
Other	Other documentation reasons, not specifically noted	Seller/exporter or any third party, such as a carrier
Late presentation	Documents presented later than 21 days after shipment, or after the number of days stipulated in the letter of credit	Seller/exporter
Carrier not named carrier's signature missing	The name of the carrier on the airway bill is missing or the airway bill is not signed on behalf of the carrier	Carrier
Incorrect data	Information on the set of documents is not in conformity with the letter of credit	Seller/exporter
Letter of credit expired	Documents presented after the letter of credit has expired	Seller/exporter
Incorrect goods description	The goods description on the letter of credit differs from that on the documents presented	Seller/exporter
Incorrect or absent endorsement	The bills of lading, insurance certificate, or bill of exchange is not endorsed by the seller/exporter or another party	Seller/exporter or insurance company
Late shipment	Goods shipped after the last date given for shipment in the letter of credit	Seller/exporter or carrier

A significant number of rejections are due to the "strict compliance" requirement found in Article 5 of the UCC as well as in UCP 500. This requirement has historically been applied, as its name indicates, strictly and literally. *Any* discrepancy in the documents accompanying the presentation is sufficient to *require* the bank to refuse to pay the letter. Thus, any uncrossed "t" or undotted "i" was a potential impediment to the seller's ability to collect the agreed amount. Perhaps in prior eras, when international trade was not so prevalent, communication methods were not so rapid, and transportation alternatives were not so plentiful, the "strict compliance" rule did not present an undue burden. In this era, by contrast, the data show that the "strict compliance" rule does present an undue burden to sellers expecting, and often needing, to be paid upon initial presentation, only to have about half of those presentations refused. While the sellers are likely to be unhappy with this situation, the bankers are likely to be delighted. The *obligation* to reject any presentation that does not strictly comply with the terms of the letter of credit allows the bank to retain the funds – and to draw interest from those funds – until such time as the seller gets the documents in proper form to make a "perfect tender," strictly complying with the terms of the letter, and thus being paid for the goods sold. With literally hundreds of billions of dollars involved in letter of credit transactions annually, the potential windfall for the banks, and the commensurate loss for sellers, is substantial.

Banks make overnight loans from their reserves, receiving interest from these loans at the federal funds rate, a rate set through the Federal Reserve System. This federal funds rate varies daily. For example, during the last week of June, 2007 it ranged from 5.25% to 5.31% (Federal Reserve Board, H-15 Release). When a bank does not accept a letter of credit upon initial presentation, the bank retains the funds being held to cover the letter of credit until such time as the presentation strictly complies with the terms of the letter. During this period the bank can make overnight loans with those funds, receiving interest on these loans at the federal funds rates.

As mentioned previously, there is an average value of $500 billion dollars in letters of credit outstanding on any given day in the United States, of which 49% will not be accepted upon initial presentation. Thus, on an average day there will be $245 billion dollars held by U.S. banks that are held to cover outstanding letters of credit which have not been accepted upon the initial presentation. Assuming a constant federal funds rate of 5.25 percent, the banks will be able to generate an *additional* $35,729,167 dollars of interest revenue each day that the letter is unpaid after the initial presentation![1] If one assumes that the presenting party would receive a similar return on the funds, this is a loss of potential income for the sellers relying on letters of credit of the same $35.7 million per day.

There have been a dearth of cases addressing the issue of delayed acceptance of letters of credit, implying that the delays by the banks in accepting these letters is not so long that litigation is required before the seller receives its funds. Nevertheless, the "lost" revenues suffered by these sellers, and the "bonus" revenues received by the banks is cause for some concern, and some U.S. courts have addressed the strict compliance issue.

THE COURTS REINTERPRET STRICT COMPLIANCE

The courts, at least in the U.S., have begun to interpret "strict compliance" less onerously in an effort to reduce the problems faced by sellers in collecting on their letters of credit. This new "interpretation" seems to be intended to satisfy the spirit, if not the letter, of the agreement. A number of these cases indicate a growing desire by the courts to see that the beneficiary of a letter of credit gets paid if the beneficiary has performed his or her duty, and that "strict compliance" will be less than strictly enforced under the appropriate circumstances. Admittedly, there have been relatively few cases involving commercial letters of credit, the area of concern in this paper.

In *Banco Espanol de Credito v. State Street Bank and Trust Company*[2] the court was asked to resolve a dispute between an issuing bank which had refused to pay and a correspondent bank which had already paid the seller under the terms of the letter of credit. According to the court, "[t]he issue is whether State Street, whose letter of credit, as amended, called for the presentation of an inspection certificate by a named firm stipulating 'that the goods are in conformity with the order,' was justified in refusing to honor the drafts of Banco Espanol on the grounds that the inspection certificate did not meet the terms of the letter of credit."[3] In this case Supervigilancia Sociedad General de Control, S.A., the agency charged with inspecting the goods, inspected samples of the goods and certified that the samples were "in conformity with the order."[4] However, State Street Bank refused to honor the letter of credit, alleging that the terms of the letter required an inspection "of the entire shipment" rather than an inspection of samples. On the issue of strict compliance the court noted "that an issuing bank's duty to honor a demand for payment is, to some extent, determined by statute. The {UCC}… provides, in relevant part, that 'An issuer must honor a draft or demand for payment which complies with the terms of the relevant credit regardless of whether the goods or documents conform to the underlying contract for sale or other contract between the customer and the beneficiary."[5] As a general rule, documents submitted incident to a letter of credit must be strictly construed. This is due to the fact that in international transactions the accuracy of the documents, and not the condition of the goods, determines the duty to pay. However, *haec verba* ("these words" according to *the freedictionary.com*) does not absolutely control. The court pointed out that a number of legal scholars believe that the integrity of international transactions requires a balancing between rigid adherence to rules and fluidity and flexibility in ancillary matters. Here the buyer required an inspection of the goods, but inspecting all of the goods would have been unreasonable. A reasonable sample of the goods was inspected, and the inspector certified that the sample was conforming. The buyer had the right to expect no more, and the bank had no right to demand more. Accordingly, the inspection certificate conformed in all significant respects to the requirements of the letter of credit, and Banco Espanol was entitled to payment under the terms of the letter of credit.

A subsequent case from the same circuit, *Flagship Cruises, Ltd. v. New England Merchants Bank of Boston,*[6] followed the

precedent set in *Banco Espanol*, once again ruling that the strict compliance principle should not be applied. In this case a letter of credit was drawn in favor of Flagship Cruises, Ltd., "acting through its General Agent, Flagship Cruises, Inc."[7] The letter of credit authorized Flagship Cruises, Ltd. to draw up to $200,000 by sight draft, and requiring that all such drafts be marked "Drawn under NEMNB Credit No. 18506." Some time later a draft for $200,000 was prepared by Flagship Cruises, drawn on Merchants, referencing "No. 18506," and ordering payment to Flagship Cruises, Inc. Upon presentation to Merchants, the draft was refused, Merchants citing two discrepancies from the original letter of credit. According to Merchants, the draft had to be payable to Flagship Cruises, Ltd., not Flagship Cruises, Inc., so that the wrong payee was listed. Further, Merchants argued that the required language "Drawn under NEMNB Credit No. 18506" was absent, also in violation of the strict compliance requirement. The court rejected both arguments, asserting that the parties should relax the *strictissimi juris* (of the strictest right or law) comparison of letters of credit requirements and the documents submitted in seeking acceptance of the letters. According to the court, the draft, when read in conjunction with the covering letter submitted by Flagship, adequately identified the transaction and the payee. The original letter identified Flagship Cruises, Inc. as the General Agent of Flagship Cruises, Ltd., removing any doubt that Flagship Cruises, Inc. was a proper party to receive payment on behalf of the named beneficiary. The reference to "No. 18506" could not reasonably be interpreted as referring to anything other than "NEMNB Credit No. 18506" in this situation. Therefore, the court ruled for Flagship. In its opinion the court stated, "[w]e do not see these rulings as retreats from rigorous insistence on compliance with letter of credit requirements. They merely recognize that a variance between documents specified and documents submitted is not fatal if there is *no* possibility that the documents could mislead the paying bank to its detriment."[8]

In *Exotic Traders Far East Buying Office v. Exotic Traders, U.S.A., Inc.*[9] the court had to deal with a bank's refusal to accept two letters of credit due to small discrepancies in the presentation of the documents called for in the letters. In each of the letters of credit the seller was to send a telex one day prior to the shipment of the goods, and was to indicate that the goods were being shipped "F.O.B. Seoul." In both cases the seller sent the telex one day *after* the goods were shipped, and in both cases the telex indicated that the goods were shipped "F.O.B. Korea." The issuing bank refused to honor the letters due to these discrepancies, and the seller sued. The case hinged on one question: May the bank refuse to honor the demands for payment because of the variations between the documents presented and the literal terms of the letters of credit? The court pointed out that "Massachusetts requires that a demand for payment comply strictly with the terms of a letter of credit."[10] But the court also pointed out "two decisions of this circuit, however, make clear that a bank may not reject a demand for payment on the basis of a hypertechnical reading of a letter of credit."[11] After reviewing the facts and reviewing the precedents already established in the 1st Circuit, the court held that the variances were not sufficient in this case to justify the bank's refusal to pay. Neither of the discrepancies relied on by the bank were sufficient to mislead anyone. "Considered as a whole, and in context, the documents for each transaction comply with the terms of the respective letters of credit and could not have misled anyone... Accordingly, there was no valid reason for BayBank to refuse payment. Technical inconsistencies between the documents presented and those specified under a letter of credit do not justify the undermining of an otherwise valid commercial transaction."[12]

These cases, and others, indicate that "strict compliance" does not have to be quite as strict as has previously been thought. A recent note from *Commercial Lending Litigation News* pointed out that "some Midwestern courts are far more forgiving with regard to presentation requirements" (*'Strict Compliance'*) than others. The Kansas Court of Appeals decided that neither the misstatement of the debtor's name nor the failure to use a required phrase in a sight draft were sufficient to prevent a beneficiary from drawing against a sight draft.[13] However, an Iowa court found that the submission of a photocopy of a letter of credit, together with an affidavit that the original letter was lost or stolen, was not sufficient when the letter of credit required that the original letter of credit was one of the documents to be submitted in order for the beneficiary to receive payment.[14]

CONCLUSIONS

Commercial letters of credit have been used for well over a century as a preferred method of payment, especially in international sales of goods. The letter of credit is often viewed as the best alternative after cash in advance for a seller, in that the seller who complied with the terms of the letter was "guaranteed" that payment would be received as and when promised. However, in order to receive payment, the seller was required to comply strictly and exactly with the requirements of the letter of credit. Any discrepancy in the documents presented allowed the bank to refuse to honor the letter until such time as the beneficiary was able to strictly comply.

In an era during which communications, including "writings," are likely to be done electronically, and in an era when goods are often shipped by air, transactions occur much more rapidly. Additionally, international sales are more common, and the volume of goods and money crossing borders continues to grow. Literally hundreds of billions of dollars are exchanged annually through letters of credit, and approximately half of these letters are refused upon initial presentation. Delays in payments are harmful to sellers, negatively affecting cash flow and potentially jeopardizing the success, and even the existence, of the exporting or selling firm. On the other hand, such delays can be very advantageous and profitable to the bank that refused to honor the presentation. By dishonoring the letter of credit, the bank can continue to hold the money, and to receive a return from its short-term investment of the funds, until the exporter strictly complies with the terms of the letter. Thus, the bank is likely to be exceedingly strict in its interpretation of the terms of the letters of credit, while the exporter who desires receipt of its money is likely to favor a more flexible interpretation of the letter.

Courts are beginning to interpret "strict compliance" much less literally than it has been interpreted historically. Many contemporary courts have criticized banks for being "hypercritical" in reading letters of credit and examining the documents accompanying the letters. The courts seem to favor a more flexible approach in the treatment of document submissions accompanying a demand for payment. The courts are beginning to find that if the submission is not likely to confuse or mislead the bank, the submission is in strict enough compliance to justify accepting the documents and paying the letter of credit. Such an interpretation is consistent with the Official Comments to Article 5 of the UCC. Several court opinions show a tendency to follow the advice of a number of legal scholars, protecting the integrity of international transactions by seeking a balance between rigid adherence to the rules on the one hand, and fluidity and flexibility in ancillary matters on the other.

The International Chamber of Commerce recently adopted UCP 600, a new set of rules and regulations for the treatment of letters of credit. This new set of rules went into effect July 1, 2007. One of the changes in the UCP is a more relaxed interpretation of the "strict compliance" standards in handling letters of credit. However, some of these new rules under UCP 600 may well conflict with the established rules found in the International Standards of Banking Practices (ISBP) and the International Standby Practices (ISP) 98. It will be interesting to see how these new, relaxed standards affect the acceptance rate of letters of credit over the next several years, and thus whether letters of credit will continue to be the second most preferred method of payment from the point of view of the seller / beneficiary / exporter in the international sale of goods.

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FOOTNOTES

[1] ($245,000,000,000 * .0525)/360.

[2] 385 F.2d 230, 1967 U.S. App. LEXIS 4593 (1st Cir. 1967).

[3] *Id*.

[4] *Id*.

[5] *Id*.

[6] 569 F.2d 699, 1978 U.S.Appl. LEXIS 12950 (1st Cir. 1978).

[7] *Id*.

[8] *Id*.

[9] 717 F.Supp. 14, 1989 U.S.Dist. LEXIS 542 (1989).

[10] *Id*., citing *Banco Espanol de Credito v. State Street Bank and Trust Co*.

[11] *Id*., citing *Banco Espanol de Credito* and *Flagship Cruises, Ltd. v. New England Merchants National Bank*

[12] *Id*.

[13] *Carter Petroleum Products, Inc. v. Brotherhood Bank & Trust Co*., 97 P.2d 505 (Kan.Ct.App. 2004).

[14] *Grunwald et al. v. Wells Fargo Bank, N.A.,* No. 5-625 / 04-0641 (Iowa Ct. App. 11/23/05).

[15] *Report on the Use of Export Letters of Credit 2001/2002,* SITPRO (11 April 2003) at http://www.sitpro.org.uk/reports/lettcredr/index.html.

MANAGERIAL INFLUENCE ON CASH POLICY: EVIDENCE FROM CEO DEATHS

Ravi Jain, College of Management, University of Massachusetts Lowell
Saira Latif, College of Management, University of Massachusetts Lowell
Yash R. Puri, College of Management, University of Massachusetts Lowell

I. INTRODUCTION

The issue of entrenched CEOs and their discretionary control over a firm's cash reserves has gained greater importance in recent years in the light of recent corporate scandals. According to Jensen's agency theory (Jensen and Meckling 1976, Jensen 1986), left to their own devices, management will waste corporate resources on items that increase their personal utility at the expense of shareholder's wealth. Since the management has the largest amount of control over the cash reserves a company holds, it is quite intuitive to expect a change in the cash policy of a company once the CEO leaves the firm unexpectedly. Compared to a planned retirement or a well-anticipated move to another firm, the event of the death of a CEO provides a unique setting to study the effect of managerial discretion on cash policy. In the past, several studies have focused on the effect of the death of a CEO on a firm's stock performance and on the effect of corporate governance on cash (level and flows) in a company. This paper is the first attempt to tie these two phenomena together and study the effect of the death of a CEO on subsequent change in cash policies of a firm.

There is a large body of literature on CEO departure and its effect on the value of a firm. Ex-ante, we can expect the market reaction to a change in CEO to be either positive or negative depending on how the market perceives the management quality of the outgoing CEO. But it is difficult to capture that market reaction in an unbiased manner unless the change is unexpected and involuntary. For example, in the case of voluntary retirement, there is a considerable time and opportunity for the departing CEO to groom a possible replacement. Since this change is not unexpected, the market reaction to the change gets incorporated in the stock price of the respective firm over a long period of time. Moreover, since the change mostly occurs under the direction and guidance the outgoing CEO, management ramification of such a change are not expected to be drastic in the short run.

The case of involuntary firing of a CEO is often preceded by a considerably long period of bad market performance for the stock of the firm in question. Thus, not only is the change not unexpected but the market reaction to the change is always biased since any change is deemed a positive signal by the investors. (See Hermalin and Weisbach (2005) for a detailed discussion on this issue.)

The change in top management might also stem from the situation where the outgoing CEO chooses to take a position at another firm. If the outgoing CEO makes this decision as a pre-emptive move against imminent firing, it takes us back to the case of actual firing of a CEO. If the CEO chooses to make the move because of a better offer by another firm, there is again a possible bias in market reaction to the news, albeit, in the opposite direction compared to the case of firing of a CEO. The reason for this is that a CEO with a very strong recent performance track is more likely to attract better job offers from competing firms.

For this study we chose to examine the situation where the change at the CEO level is due to the death of the outgoing CEO. This event provides us with a relatively more parsimonious setting to link the change in management to subsequent change in cash policy of a firm. Since this change is unexpected, we do not have any ex-ante position on the direction of the market reaction to the news. We can, therefore, expect to find both positive and negative market reaction to the news and that reaction to be concentrated in relatively shorter period of time, to be statistically captured by a standard event study methodology. If we are able to capture both types of reaction (positive and negative), then we can relate that reaction to the subsequent change in cash policies of the firm.

The rest of the paper is organized as follows: We present a review of the related literature in Section II, develop the hypotheses in Section III, present data and methodology in Section IV, discuss the results in Section V, and provide conclusions in Section VI.

II. LITERATURE REVIEW

The existing studies done on the market reaction to the event of CEO death is consistent with our hypothesis that such reaction can be either positive or negative. It also confirms our intuition that most other circumstances leading to a change in CEO bias the direction of market reaction to only one direction. Among the earlier studies on the issue of CEO death, Worell, Davidson, Chandy and, Garrison (1986) did not find any significant relationship between immediate stock market performance of a firm and the death of its CEO. Etebari, Horrigan and, Landwehr (1987) find positive abnormal returns around the announcement date for the sudden death of a CEO. Edrington and Salas (2005) document abnormal returns as a result of unexpected CEO death and find that the impact is greater for entrenched management. Hayes and Schaefer (1999) compare the stock market impact of CEO departures when the departure is due to a move to another firm versus that due to sudden death. They find a significant and economically significant (3.82% returns around the announcement period) positive relationship between the performance of a firm and the sudden death of a CEO.

Most recently, Borokhovich, Burnarski and, Harman (2005) study the impact of the death of a CEO and firm value with respect to the percentage ownership of the deceased CEO in the stock of their respective firms. They find a positive relationship between changes in firm value and the announcement of the death of the CEO; more strongly so for CEOs holding less than 20% outstanding shares of their firms. These apparently contradictory results encouraged us to design our study which makes use of the cross-sectional dispersion in results to study its relation to the subsequent change in cash policy of the firms in the sample.

The question of why firms maintain a certain level of cash is quite complex. Firms might retain more cash for capital expenditure if they are constrained in terms of their ability to raise external cash. For example, see Myers and Majluf (1984), Fazzari, Hubbard, and Preston (1988) or, more recently, Alti (2003), and Almeida, Campello and Weisbach (2004). Even for constrained firms, their cash sensitivity does not stay constant over time. Acharya, Almeida, and Campello (2005) argue that the constrained firms retain more of their cash flow during states when the correlation between operating cash flows and investment opportunities is low (that is, the hedging need is high).

Firms with entrenched management might also retain relatively higher levels of cash. For example, Dittmar, Mahrt-Smith and Servaes (2003) find that cash levels are higher in firms with low investor protection and therefore with higher potential for agency problem. Proxy fights also play a role in determining the level of cash, as documented by Faleye (2004). Other factors like the size of the firm (Frazer 1964), macroeconomic factors or tax considerations (Hartzell, Titman, and Twite (2005)) can also play a role in determining the size of cash a company retains inside.

Our focus in this paper is to study the change that takes place after the CEO of a firm dies. How the previous management came upon the old cash management policy as practiced by the deceased or earlier CEOs is beyond the scope of this paper. The studies cited above can give the reader a starting point to research this issue further. The most direct and recent work on a link between cash and corporate governance was reported in Dittmar and Mahrt-Smit (2005). They show that the market value of cash retained by a poorly managed firm is much less than its notional or face value, whereas that of a well-managed firm is higher than its notional value.

III. TESTABLE HYPOTHESES

Since the death of a CEO while on the job is involuntary and unexpected, we hypothesize that the market reaction to this news can either be positive or negative. If the deceased CEO represents the type of management that compounds the agency problem at the firm, the market reaction to the change will be positive and vice-versa. If this intuition is true then we can relate the change in firm's cash policies to the event of CEO's demise. In summary, our hypothesis can be described as:

H1a: Significant relation between the excess return around the death of its CEO and change in cash retention for the firm during the period following immediately afterwards.

H1b: Significant relation between the excess return around the death of its CEO and change in cash holdings of the firm during the period following immediately afterwards.

H1c: Significant relation between the excess return around the death of its CEO and change in capital expenditure for the firm during the period following immediately afterwards.

We do not specify the direction of the relationship for these hypotheses. Such an attempt entails taking a much broader stance on the governance issues related to a firm and is beyond the scope of this study. This paper is the first step toward relating the event of the death of a CEO to the change in cash policy of the firm without going into the question of quality of management of either the outgoing or the new CEO. We hope to explore the question of why the relationship might be positive or negative in future research.

IV. DATA AND METHODOLOGY

We collect a sample of 117 CEO deaths from news announcements in Lexis-Nexis for the period 1989 to 2001. Our initial sample is reduced to 92 observations after removing financial firms and firms for which all the relevant data needed for our analysis is not available. Table 1 provides a time-series analysis of our sample. The sample points are quite evenly distributed over this time period, reducing the chance of the study results being biased due to the sample belonging to only a certain phase of economic cycle.

The purpose of this study is to examine the relation between the market reaction at the time of CEO's death and subsequent change in cash policy. Thus, we first measure the market reaction and then we measure changes in cash policy. Finally, we examine the relationship between the market reaction and subsequent changes in cash policy. We also measure the change in capital expenditure and study its relationship with the market reaction at the time of death.

a. Market reaction

We calculate cumulative abnormal returns (CAR) around a three day window, i.e., 0 to +2 days. Day 0 is defined as the day of the death of the CEO. We include two days after the death in the event-window to capture the full effect of news as it gets incorporated in the price. To calculate abnormal returns we use the standard event-study methodology. Predicted values of returns are calculated using parameters estimated over 100 trading days (-110 to -10) before the death. We require firms to have at least 60 observations in this 100 day window. Abnormal return is calculated as the difference between the actual return and the predicted return. CAR represents the cumulative abnormal return over the three day window.

b. Change in Cash Policy

We calculate changes in three variables subsequent to CEO's

Table 1
Time-Series Distribution of Sample

This table reports the time-series distribution of a sample of 92 CEO deaths occurring from 1989 to 2001.

YEAR	NO.
1989	9
1990	7
1991	7
1992	4
1993	8
1994	8
1995	7
1996	10
1997	11
1998	2
1999	6
2000	6
2001	7
Total	92

death: cash flow retention (cash flow sensitivity of cash), level of cash holdings, and capital expenditure. The change is calculated for a three year period after the death. To calculate the change in each of these variables we use data for seven years (-3 years to + 3 years) around the year of the death. We follow Acharya, Almeida, and Campello (2005) in defining all variables.

The change in cash flow retention is calculated as following:

$$\Delta CASHHOLDINGS_{i,t} = \alpha_{i,t} + \beta_1 CASHFLOW_{i,t} + \beta_2 LNSIZE_{i,t} + \beta_3 MBRATIO_{i,t} + \beta_4 CASHHOLDINGS_{i,t-1} + \beta_5 POSTDEATH_{i,t} + \beta_6 CFL\_POSTDEATH_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, ΔCASHHOLDINGSi,t is the annual change in cash and other liquid securities (Compustat # DATA 234) divided by total assets (Compustat # DATA 6), $CASHFLOW_{i,t}$ is the cash flow measure defined as gross operating income (Compustat # DATA13) minus depreciation (Compustat # DATA14) minus interest expense (Compustat # DATA15) minus taxes (Compustat # DATA16) minus payments to equity holders (Compustat # DATA19 + Compustat # DATA21) divided by total assets, $LNSIZE_{i,t}$ is log of total assets, $MBRATIO_{i,t}$ is the market-to-book ratio defined as total assets plus market value (Compustat Data #25 × Compustat Data # 24) minus book value of equity (Compustat Data # 60) minus deferred taxes (Compustat Data # 74) divided by total assets, $CASHHOLDINGS_{i,t-1}$ is the lagged cash holdings, $CFL\_POSTDEATH_{i,t-1}$ is product of $CASHFLOW_{i,t}$ and a dummy variable (POSTDEATH) that takes a value of one in the three years after the death and zero otherwise. Thus, the coefficient on CFL_POSTDEATH (β_5) captures the change in cash flow retention.

The change in level of cash holdings is calculated as following:

$$CASHHOLDINGS_{i,t} = \alpha_{i,t} + \beta_1 CASHFLOW_{i,t} + \beta_2 LNSIZE_{i,t} + \beta_3 MBRATIO_{i,t} + B_4 CASHHOLDINGS_{i,t-1} + \beta_5 CASH\_POSTDEATH_{i,t} + + \varepsilon_{i,t} \quad (2)$$

where, $CASHHOLDINGS_{i,t}$ is cash holdings (Compustat # DATA1) divided by total assets, $CASH\_POSTDEATH_{i,t}$ is a dummy variable equal to one for three years after the death of the CEO and zero otherwise. All other variables are as defined above. Thus, the coefficient on CASH_POSTDEATH (β_5) captures the change in the level of cash holdings.

The change in level of capital expenditure is calculated as following:

$$CAPEXTOASSETS_{i,t}) = \alpha_{i,t} + \beta_1 CASHFLOW_{i,t} + \beta_2 LNSIZE_{i,t} + \beta_3 MBRATIO_{i,t} + \beta_4 CAPEXTOASSETS_{i,t-1} + \beta_5 CAPEX\ POSTDEATH_{i,t} + + \varepsilon_{i,t} \quad (3)$$

where, $CAPEXTOASSETS_{i,t}$ is the annual capital expenditure (Compustat # DATA128) divided by total assets, $CAPEX\_POSTDEATH_{i,t}$ is a dummy variable equal to one for three

years after the death of the CEO and zero otherwise. All other variables are as defined above. Thus, the coefficient on CAPEX_POSTDEATH (β_5) captures the change in the annual capital expenditure.

c. Relation between the market reaction and subsequent change in cash policy

We do a multivariate analysis to study the relation between the market reaction and subsequent change in cash policy. Since our objective is to study the relation between the market reaction and subsequent change in cash policy, we use the market reaction (CAR) as the dependent variable and change in cash policy variables (CFL_POSTDEATH, CASH_POSTDEATH, AND CAPEX_POSTDEATH) as independent variables. Thus, the relation is as following:

$$CAR_i = \alpha_i + \beta_1 LNSIZE_i + \beta_2 MB_i + \beta_3 CASHFLOW_i + \beta_4 CASHHOLDINGS_i + \beta_5 CAPEXTOASSETS_i + \beta_6 C\_POSTDEATH_i + \varepsilon_i \quad (4)$$
$$i = 1, 2, \ldots, 92$$

For the rest of the variables those listed below are used as averages over the 3 years *before* the CEO's death:

1. LNSIZE is the natural log of the size of firm i
2. MB is the ratio of market to book value ratio for firm i
3. CASHFLOW is the ratio of cash flow to total assets ratio for firm i
4. CASHHOLDINGS is the ratio of cash holdings to total assets for firm i.
5. CAPEXTOASSETS is the ratio of capital expenditure to total assets for firm i

We ran four different versions of the above described regression model with the variable C_POSTDEATH taking on (only one of the three for the first three models and all three as three separate variables for the fourth model) the following values averaged over three years *after* the death of the CEO:

6. CFL_POSTDEATH is the change in cash flow sensitivity
7. CASH_POSTDEATH is the change in cash holdings
8. CAPEX_POSTDEATH is the change in capital expenditure

Variables 1 through 5 are control variables meant to capture the effect of particular firm characteristics other than our variables of interest on CARs. Our main focus lies with variables 6 through 8. Finally, all variables are winsorized at the 1 percent level.

Table 2 reports the descriptive statistics for our sample. The mean (median) values for variables used in analysis are as following: market reaction 0.74 % (-0.14%), average of log of asset size 4.96 (4.96), average of the market-to-book ratio 2.27 (1.32), average cash flow to asset ratio -0.06 (0.01), average of cash to asset ratio 0.17 (0.09), average capital expenditure to assets ratio 0.08 (0.06), change in cash flow sensitivity -1.02 (0.00), change in cash holdings 0.00 (0.00), and change in capital expenditure 0.01 (0.00). The summary statistics show that our database represents firms with varied characteristics in terms of size and other variables and is not biased towards a particular type.

Table 2
Descriptive Statistics

This table reports the descriptive statistics for a sample of 92 CEO deaths occurring from 1989 to 2001. CAR is cumulative abnormal return for a three day window (0 to +2) around the CEO's death, LNSIZE is the three year average of the log of total asset size prior to the death of CEO, MB is the three year average of the market-to-book ratio prior to the death of CEO, CASHFLOW is the three year average of cash flow to total assets ratio prior to the death of CEO, CASHHOLDINGS is the three year average of cash holdings to total assets ratio prior to the death of CEO, CAPEXTOASSETS is the three year average of annual capital expenditure to total assets ratio prior to the death of CEO, CFL_POSTDEATH is the change in cash flow retention subsequent to the CEO's death, CASH_POSTDEATH is the change in cash holdings subsequent to the CEO's death, CAPEX_POSTDEATH is the change in annual capital expenditure subsequent to the CEO's death. All variables are winsorized at the one percent level.

Variable	N	Mean	Std Dev	25th percentile	Median	75th percentile
CAR (%)	92	0.74	9.24	-2.88	-0.14	3.76
LNSIZE	92	4.96	2.17	3.56	4.96	6.22
MB	92	2.27	5.79	1.00	1.32	1.81
CASHFLOW	92	-0.06	0.35	-0.02	0.01	0.06
CASHHOLDINGS	92	0.17	0.21	0.03	0.09	0.24
CAPEXTOASSETS	92	0.08	0.07	0.03	0.06	0.09
CFL_POSTDEATH	92	-1.02	20.33	-1.25	0.00	0.00
CASH_POSTDEATH	92	0.00	0.29	-0.04	0.00	0.04
CAPEX_POSTDEATH	92	0.01	0.14	-0.03	0.00	0.01

Table 3
Correlation Matrix

This table reports the correlation matrix of variables used in our analysis. The sample consists of 92 CEO deaths occurring from 1989 to 2001. CAR is cumulative abnormal return for a three day window (0 to +2) around the CEO's death, LNSIZE is the three year average of the log of total asset size, MB is the three year average of the market-to-book ratio, CASHFLOW is the three year average of cash flow to total assets ratio., CASHHOLDINGS is the three year average of cash holdings to total assets ratio, CAPEXTOASSETS is the three year average of annual capital expenditure to total assets ratio, CFL_POSTDEATH is the change in cash flow retention subsequent to the CEO's death, CASH_POSTDEATH is the change in cash holdings subsequent to the CEO's death, CAPEX_POSTDEATH is the change in annual capital expenditure subsequent to the CEO's death. All variables are winsorized at the one percent level. P-values are reported below the correlation figures.

	CAR	LNSIZE	MB	CASHFLOW	CASHHOLDINGS	CAPEXTOASSETS	CASH_POSTDEATH	CFL_POSTDEATH
LNSIZE	0.04							
	0.6900							
MB	0.21	-0.22						
	0.0408	0.0313						
CASHFLOW	0.08	0.40	-0.54					
	0.4561	<.0001	<.0001					
CASHHOLDINGS	-0.10	-0.47	0.32	-0.56				
	0.3433	<.0001	0.0017	<.0001				
CAPEXTOASSETS	0.05	0.11	0.03	0.15	-0.15			
	0.6585	0.2851	0.8057	0.1487	0.1528			
CASH_POSTDEATH	0.05	0.15	-0.04	0.05	-0.14	-0.25		
	0.6693	0.1475	0.7068	0.6032	0.1871	0.0161		
CFL_POSTDEATH	-0.12	0.03	0.06	-0.01	0.06	0.02	-0.09	
	0.2370	0.7830	0.5805	0.9118	0.5813	0.8551	0.3944	
CAPEX_POSTDEATH	0.14	0.04	0.02	-0.05	-0.05	0.27	-0.25	0.02
	0.1681	0.6714	0.8557	0.6332	0.6337	0.0089	0.0151	0.8306

Table 3 reports the correlation matrix for variables used in our analysis. The market reaction is positively related to the size of the firm, market-to-book ratio, cash flow to asset ratio, capital expenditure to assets ratio, change in cash holdings subsequent to the death, and change in capital expenditure to asset ratio subsequent to the death of the CEO. It is negatively related to the cash holdings to assets ratio and change in cash sensitivity subsequent to the death of the CEO. The change in cash flow retention is positively related to the size of the firm, the market-to-book ratio, cash holdings to assets ratio, and capital expenditure to assets ratio. It is negatively related to the cash flow to assets ratio and change in cash holdings. The change in cash holdings is positively related to the firm size, cash flow to assets ratio. It is negatively related to the market-to-book ratio, cash holdings to assets ratio, capital expenditure to assets ratio, change in cash flow retention subsequent to the death of the CEO, and change in capital expenditure subsequent to the death of the CEO. The change in capital expenditure is positively related to firm size, market-to-book ratio, capital expenditure to asset ratio, and change in cash flow retention subsequent to the death of the CEO. It is negatively related to cash flow to assets ratio, cash holdings to assets ratio, and change in cash holdings to assets ratio subsequent to the death of the CEO. These correlations do not indicate multicollinearity.

V. Results

The summary results for our estimate of equation 4 are given in table 4. As noted earlier, we ran four different versions of equation 4 in our regression analysis. All four versions had five pre-death independent variables to control for the firm specific versions. The first three versions, or model 1 through 3, had only one independent variable from the post-death period: CFL_POSTDEATH, CASH_POSTDEATH and, CAPEX_POSTDEATH, respectively. The fourth version or model 4 included all three post-death variables.

Among the five pre-death control variables, LNSIZE, CASHHOLDINGS and, CAPEXTOASSETS came out to statistically insignificant in all the four versions of the model. CASHHOLDINGS, however, kept a consistent (negative) sign in all the four models. The control variable MB was highly significant in all the four models. The size of its coefficient was also very consistent throughout the whole analysis. The control variable CASHFLOW was positive and significant in all versions at the five percent level. Both the significant control variables – MB and CASHFLOW – have a positive relationship with the dependent variable, CAR. That is, the higher the mean market to book value for a firm in the three years before the death of the CEO and the mean cash flow to assets ratio in the same period, the higher the cumulative abnormal returns in the period immediately after the news of the death of the CEO. In other

Table 4
Multivariate Analysis

This table reports the multivariate analysis of the relation between the announcement return (at the time of CEO's death) and susbsequent change in cash policy of a firm. The relation is as following:

$$CAR_i = \alpha_i + \beta_1 LNSIZE_i + \beta_2 MB_i + \beta_3 CASHFLOW_i + \beta_4 CASHHOLDINGS_i + \beta_5 CAPEXTOASSETS_i + \beta_6 C\_POSTDEATH_i + \varepsilon_i \quad (4)$$

where, CAR is cumulative abnormal return for a three day window (0 to +2) around the CEO's death, LNSIZE is the three year average of the log of total asset size, MB is the three year average of the market-to-book ratio, CASHFLOW is the three year average of cash flow to total assets ratio., CASHHOLDINGS is the three year average of cash holdings to total assets ratio, CAPEXTOASSETS is the three year average of annual capital expenditure to total assets ratio, CFL_POSTDEATH is the change in cash flow retention subsequent to the CEO's death, CASH_POSTDEATH is the change in cash holdings subsequent to the CEO's death, CAPEX_POSTDEATH is the change in annual capital expenditure subsequent to the CEO's death. All variables are winsorized at the one percent level.Standard errors adjusted for Heteroskedasticity and Auto-correlation using the Newey-West (1987) method are used to calculate p-values (reported below the coefficients.)

	DEPENDENT VAR = CAR			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	0.41	0.80	1.20	0.78
	0.9229	0.8507	0.7756	0.8564
LNSIZE	-0.01	-0.07	-0.07	-0.07
	0.9891	0.8882	0.8832	0.8817
MB	0.60	0.58	0.60	0.61
	<.0001	<.0001	<.0001	<.0001
CASHFLOW	6.12	5.94	6.68	6.97
	0.0385	0.0512	0.0142	0.0108
CASHHOLDINGS	-3.66	-4.05	-3.75	-2.69
	0.5553	0.5233	0.5162	0.6659
CAPEXTOASSETS	-1.01	0.02	-7.08	-5.15
	0.8891	0.9983	0.4940	0.6427
CFL_POSTDEATH	-0.06			-0.06
	0.0005			<.0001
CASH_POSTDEATH		1.17		1.98
		0.8039		0.6550
CAPEX_POSTDEATH			10.95	12.04
			0.0759	0.0752
ADJ R-SQUARE	0.06	0.04	0.07	0.07

words, firms with growth opportunities and firms generating a larger current period cash flow experienced a positive market reaction at the news of death.

Our main variables of interest are the variables related to the cash policy after the death of the CEO, that is, CFL_POSTDEATH, CASH_POSTDEATH and, CAPEX_POSTDEATH. The coefficient of CFL_POSTDEATH is negative and highly significant in both models: model 1 with CFL_POSTDEATH as the only post-death variable in model 1 and; model 4 with all three post-death variables. This implies that CARs and CFL_POSTDEATH are inversely related, or, in other words, if the market hails the changeover to the new CEO as a positive change for the firm, the company under the new CEO reduces its cash flow retention and vice-versa. The result confirms our first hypothesis H1a. It is interesting to note that the sign of CFL_POSTDEATH is the opposite of the sign for the comparable control variable CASHFLOW which belongs to the pre-death period.

Interestingly, the CASH_POSTDEATH variable came out to be highly insignificant in both models which had this variable included. As can be confirmed from the correlation matrix given in Table 3, is not because of CASH_POSTDEATH being multi-collinear with any other independent variable. Thus, the event of CEO death and subsequent changes in cash reserves are not related in any statistically significant way. This finding is contrary to our second hypothesis (H1b). In our future research, we intend to explore the reasons behind this trend in more detail.

The coefficient for CAPEX_POSTDEATH is a very large positive value compared to the other coefficients in both the models: the one with CAPEX_POSTDEATH as the only C_POSTDEATH variable and the one with all three variables 6 through 9. It is also significant at 10% level of confidence. The results for this variable confirm our third hypothesis (H1c).

VI. CONCLUSION

In this paper we studied the effect of sudden change in top management as a result of the death of the CEO on the cash policy of a firm. We found that the firms where such a change is taken to be a positive sign (positive CARs), the cash policy of the firm in the period immediately afterwards results in less retention of cash flows and more expenditure on capital budgeting and vice-versa for the case where market reaction to the event of death is negative.

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MEASURING THE LOCAL ECONOMIC IMPACT OF A REGIONAL PUBLIC UNIVERSITY

Christopher Bailey
Gregory A. Falls
Paul A. Natke
Philip B. Thompson

INTRODUCTION

Publicly funded universities have a political interest in quantifying their economic impact to state legislatures (e.g., Edwards, 1987). When state economies falter and state tax collections decrease, state governments are forced to restrain spending growth to match the changes in state revenues. Higher education is a common target of spending reductions. First, higher education accounts for a significant portion of state discretionary spending and, second, state universities have alternative sources of funding—student tuition, external grants and fund raising income. In the early 2000s, state universities have experienced slow growth or outright cuts in state revenue appropriations. A number of universities have undertaken economic impact studies in recent years (e.g., Jafri et al, 2004; University of Waterloo, 2001) to argue for a halt to the decline.

Michigan, heavily dependent on the manufacturing sector, has been hit hard by the slow recovery of the early 2000s. The state government has cut spending and the state's universities have seen a reduction in the absolute level of funding. For example, according to the National Education Association (Center for the Study of Educational Policy 2006), of the twelve states with the largest cuts in state higher education appropriations over the period FY2001-FY2006, six (Illinois, Iowa, Michigan, Missouri, Ohio, and Wisconsin) are in the Midwest. These six states have collectively experienced a 5.9% cut in higher education funding over the five-year period, as compared to the 13.1% average increase seen in the other 44 states. Michigan experienced a 9.2% decline in state higher education appropriations over the period.

These conditions create a need for universities to demonstrate their economic importance. Universities provide the education needed to reverse the long run economic fortunes of many states through human capital formation and research related activities which create new business opportunities. They also create amenities for local residents which improve the quality of life and complement local economic development efforts. Universities also have a short run impact on local economies through direct spending by the university, its students, employees, retirees and visitors. Businesses' employment, revenue and profits are directly affected by the volume and mix of spending flows associated with the university. In those cases where the university is large relative to the size of the local community, the university can be the anchor for local economic activity.

We primarily focus on the local economic impacts of a university although most previous studies also assess the impacts on the state economy. Measurement of the state-wide impacts usually makes the comparison of the university's current economic impact to the case where the university does not exist. Often this comparison assumes that if the university did not exist, its students and employees would move to another state to seek education and employment. We believe that Central Michigan University's (CMU) closing would simply mean a reallocation of students and employees to other universities in the state's higher education system. First, about 94 percent of CMU's undergraduate students come from the state of Michigan. Second, these students' next best alternative is another one of the 16 publicly-funded universities in the state because of the differentials between in-state tuition and out-of-state or private college tuition. The CMU Admissions Office claims that the biggest competitors for CMU undergraduate students are Michigan State University and Grand Valley State University. Third, given that Michigan is virtually surrounded by the Great Lakes, many students would have to travel considerable distances to attend a university in a bordering state. The relatively high cost of travel would discourage students from seeking an out-of-state university. Although this study focuses on the local impacts of CMU, we also provide some overall measures of the state-wide impacts using the most severe assumption that all students and employees would leave the state. These are provided for direct comparison with other economic impact studies.

It is important to accurately measure the direct spending of the various groups associated with a university. Loveridge (2004) concludes that greater errors in estimating impacts are caused by inaccurate measurement of direct spending than by the incorrect choice of economic model. We surveyed samples of CMU students and employees to directly measure their spending patterns. Our surveys also provide a greater level of spending detail than is often seen in other studies. We employed a web survey for employees and got a response rate similar to those expected on mail survey methods. Students were used to conduct the telephone survey of student spending which, we believe, increased the response rate and improved the accuracy of responses.[1] We estimated spending by university retirees and visitors from information from CMU offices closely associated with these groups[2].

THE ECONOMIC IMPACT OF UNIVERSITIES

The economic impact of a university may be measured from a short-term or a long-term perspective and in terms of tangible or intangible benefits. The long-term benefits measure the impact of universities on the stock of physical and human capital and its consequences on economic development through enhanced productivity of workers and the development of new technologies. The intangible effects include the cultural refinement of the population and the improvement in the quality of life of a community. The long-run and intangible benefits, although real, are harder to quantify than short-run tangible benefits. The literature suggests three ways to measure a university's impact on the local economy: 1) the correlation of "high-tech" activity at universities and the location decisions of business firms (e.g. Black, Church and Holley, 2004; University of Arkansas, 2002); 2) the university's role in promoting specific economic growth processes, such as local labor market effects and business start-ups (e.g. Beeson and Montgomery, 1993; Hedrick, Hanson and Mack, 1990); and 3) regional economic models to measure the impacts of direct spending on economic activity (e.g. University of Waterloo, 2001; Williams 1989).

The first two approaches are of limited usefulness in our study. In the last few years CMU been successful in attracting a few small "high-tech" firms to locate in a research park near campus but the number of jobs created by these firms has been very small when compared to the CMU's "core business" of higher education. The second approach is favored when promoting local economic development efforts. Twenty thousand well-educated students clearly increase the supply of labor in the local economy, decrease wages and attract specific types of employers.

The third approach is more comprehensive in measuring how a university connects, in the short run, to local households, governments and businesses through direct expenditures and indirect effects on income and employment. Most studies in this tradition measure the short term *quantitative* impact of a university on local spending and employment rather than the *qualitative* impacts. Measuring the magnitude of the economic impacts can promote communication between a university and external groups. It can allay fears by local government about perceived losses of revenues (universities often pay no local property taxes) while increasing the demand for government services. State legislators and taxpayers want to be reassured that the government appropriations to these institutions are justified by direct and tangible outcomes in the short run.

An input-output model, commonly used to estimate the short-run economic impacts of universities[3], has several advantages. First, it can track the spending and employment impacts for up to 500 industries per geographic area. This detail is important because, for example, a dollar spent on a haircut generates a greater impact on local income and employment than a dollar spent on bananas. Second, the crucial input-output coefficients are determined by state and national data making them less susceptible to manipulation by the modeler.

The input-output model also has disadvantages. First, it ignores supply and demand conditions in input markets by assuming a fixed relationship between an industry's inputs and outputs. For example, increased spending on retail merchandise by college students could raise rental rates on commercial property but the input-output model assumes no change in business owners' behavior. Second, the input-output model's estimated multipliers are larger than those estimated by models which incorporate the effects of changing supply and demand conditions. Third, the industry detail it provides may be misleading. Many small geographic areas (e.g. counties) do not have all 500 sectors represented in the model. If reliable data is not available for an industry in a specific county, it is often replaced by national norms. Therefore, the input-output coefficients may not represent true local conditions.

RESEARCH DESIGN

We use the input-output approach, specifically IMPLAN (Minnesota IMPLAN Group, 1999) since it is common in the literature and provides a reasonable estimate of local economic impacts. IMPLAN tracks all transactions between industries, businesses and consumers. Purchases and sales are adjusted for in-state versus out-of-state, or in-region versus out-of-region sources, and are then summed to arrive at estimates of total impacts arising from an initial expenditure.

The model estimates the economic impacts of expenditures through backward linkages (e.g. purchases of inputs, supplies, and services) and forward linkages (e.g. value-added economic activities such as preparation and processing of inputs). The *direct impacts* of spending consist of spending by all university-related groups: CMU buying goods and services from outside vendors and spending by employees, students, retirees and visitors. *Indirect impacts* consist of goods and services purchased by the firms which supply inputs consumed by the university. *Induced impacts* consist of increased household purchases of goods and services in the region by indirect employees (e.g. suppliers of goods and services to the university). The model generates multipliers which estimate the total levels of output, income and employment created by the direct spending. For example, the output multiplier is the ratio of total output (i.e. the sum of direct, indirect and induced impacts from spending) to direct impact.

To illustrate the concept of the multiplier, consider an increase in the student population at CMU. Assume the university is increasing its enrollment by 1,000 students per year and hiring 50 new workers with a total payroll of $800,000 per year. These salaries and the local spending by the 1000 new students are the direct spending impacts on the region. However, the production of more college education requires more production on the part of suppliers to the university industry, e.g. food services. These related industries would need to hire more workers, say 20 workers, with the total payroll of $250,000 per year. The additional workers in these industries will spend the largest part of their incomes creating additional sales, revenues and profit for sectors such as food, housing, medical services, etc. Those sectors would need to hire more workers (for example,

15 with a total increase in payroll of $200,000) to meet the higher demand for their products. Assuming, for simplicity, that these are the only additional spending affects in the region, the employment of 50 additional workers at the university led to a total employment of 85 (50+20+15) workers. The employment multiplier in this case is 85/50 = 1.7. Similarly, a total income of $1.25 million resulted from the initial payroll of $800,000 by the university and the income (or spending) multiplier is 1.25/0.8 = 1.56.

The results of IMPLAN's input-output calculations should be carefully interpreted since they consider the interrelationships among all industries within a target area. Therefore, it is incorrect to separately compute the total impacts from two sources of spending, e.g. student and employee spending, and sum the results to get the total effect. Instead, the correct approach is to sum the spending of the two groups and then use IMPLAN to calculate the total impact of the combined spending.

LITERATURE REVIEW

Caffrey and Isaacs (1971) began the process of identifying the appropriate framework for conducting an economic impact study of a university. They emphasized the importance of a properly defined impact area to simplify data gathering and the interpretation of the economic impacts of university spending. The size of the impact area, the diversity of industries there, the dependence on resources outside the defined economic impact area, and rural/urban characteristics all have an effect on the size of the multiplier. Weisbrod and Weisbrod (1997) also cautioned that changing the definition of the study area can dramatically alter the measured total impact of spending.

Many impact studies follow the Caffrey and Issacs approach. Some use primary data from surveys of students, employees, visitors and retirees to determine their level of spending and identify the distribution of this spending across expenditure categories (e.g., Beck et al 1993; Goldman, 1986; Jafri et al 2000 and 2004; Moskoff, Maurath and Warren, 1980; Rosen, Strang and Kramer, 1985; Sam Houston State University, 1999; University of Waterloo, 2001; Williams 1989). Some studies use secondary data (e.g. collected by government agencies) to determine the level and the distribution of spending, i.e. setting local behavior equivalent to national norms. Among the studies that do not use direct survey data are Bleaney et al (1992); Clower and Weinstein (2005); Edwards (1987); Felsenstein (1996); Hughes (1994); James Madison University (1996); Texas A&M University – Corpus Christi (1998).

The treatment of multipliers also differs substantially. Some papers look at other economic impact studies and select a "reasonable" number (see Bleaney et al 1992; Sam Houston State University, 1999; University of Colorado 2000; Williams, 1989). Other studies rely on regional input-output models to estimate the multiplier effects (e.g., Clower and Weinstein 2005; Felsenstein 1996; Hughes 1994; Jafri et al 2000 and 2004; James Madison University 1996; Texas A&M University--Corpus Christi, 1998; University of Waterloo, 2001).

The geographical area also varies across studies. The University of Colorado (2000) study assessed the state-wide economic impacts of its four-campus system. Field and Weber (1996) used a similar approach for the five-campus University of Massachusetts system. Beck's (1993) study of the two-campus Southern Illinois University system focused on a 36-county impact area. Price Waterhouse Coopers estimated the economic impact of the University of Waterloo (2001) on the regional economy.

A local focus is also a common theme. The study at Texas A&M – Corpus Christi (1998) used two different local multipliers – one for university operating expenses and one for construction expenses. A 1999 study by Sam Houston State University (Texas) used a single multiplier for all local expenditures. Jafri et al (2004) estimated the impact of Tarleton State University (Texas) by creating a different multiplier for three types of spending: by visitors, for new construction and by retirees of the university. Virginia Commonwealth University (1992) only reported direct spending thereby ignoring any multiplier effects. The James Madison University (1996) study assessed the short-term impact of spending and employment for a two-county area as well as the state of Virginia.

Table 1 displays the output and employment multipliers of some economic impact studies separated by the geographic region of analysis. The output multipliers varied at the state level from 1.32 to 2.40, at the regional level from 1.46 to 2.18, and at the local level from 1.37 to 2.75. There was greater variation in the estimated employment multipliers: state level 1.46 to 4.63, regional level 1.34 to 2.47, and local level 1.34 to 3.38. Elliott, Levin and Meisel (1988) have cautioned that studies producing regional or local output multipliers greater that two might be suspect. Eliminating the Tarleton State study (Jafri et al, 2000) considerably narrows the variation in the employment multipliers. The largest multiplier for the state level drops to 2.18 (from 4.63) and for the local level to 2.26 (from 3.38).

Our study uses many of the best practices suggested by the literature. Elliott, Levin and Meisel (1988) have concluded that the choice of a multiplier is crucial, but not necessarily easy, and the most appropriate multiplier would be from an input-output model of the local economy. To increase the accuracy of the initial spending figures, we generally use direct survey and university budget information rather than relying on secondary sources. Beck et al (1995, 26) suggested that "the efficacy of tailored regional input-output models may be considerably enhanced when primary survey data are used", a conclusion supported by Loveridge (2004).

THE UNIVERSITY AND SURROUNDING AREA

The main campus of Central Michigan University (CMU) has operated in Mount Pleasant for over 100 years and become an integral part of the local community. Central Michigan University has 19,792 students (Fall 2004 semester) on the Mount Pleasant campus in its 38 academic departments, including some with doctoral programs. CMU is the fourth

Table 1: Summary of Multipliers from a Sample of University Impact Studies

	Estimate of total output multiplier*	Estimate of employment multiplier*
State-wide impact		
Central Michigan University (2006)	1.60	1.38
Central Michigan University (2001)	1.46	1.63
University of Colorado (2000)	1.90	1.80
James Madison University (Virginia) (1996)	2.17	1.46
University of Massachusetts (Field and Webber 1996)	2.40	1.98
Tarleton State University (Texas)		
Jafri 2000	1.70	4.63
Jafri 2004	2.01	2.04
Texas Woman's University (Clower 2005)	1.57	
Regional-level impact		
Central Michigan University: 3 counties (2001)	1.57	1.78
Southern Illinois University		
SIU-Carbondale: 36-county region (Beck 1993)	2.00	
SIU-Carbondale: 19 county region (Beck 1993)	1.78	
SIU-Edwardsville: 14 county region (Elliott 1986)	1.75	
University of Waterloo (Ontario) (2001)		
Region (Value added multiplier)	0.84	1.34
Province (Value added multiplier)	1.46	1.65
Local-level impact		
Central Michigan University: 1 county (2006)	1.57	1.57
Central Michigan University (2001)	1.40	1.25
Georgia State University:1 county (Posey 1983)	1.60	
James Madison University (Virginia): 2 counties (1996)	1.59	1.34
Northwestern University (Illinois): 1 county (Felsenstein 1996)	2.49	1.55
Sam Houston State University (Texas): 1 county (1999)	1.70	
Southern Illinois Medical School: 1 county (Moskoff 1990)	1.99	
St. Cloud State (Minnesota): 3 counties (Edwards 1987)	2.12	
Tarleton State University (Texas): 1 county		
Beatty 1995	1.47	
Jafri 2000	1.48	3.38
Jafri 2004	1.50	1.53
Texas A&M - Corpus Christi: 1 county (1998)	2.75	

*Output multipliers are measured as total spending effects divided by initial direct spending. The employment multiplier is measured as the total number of jobs created divided by initial direct jobs created.

largest institution by enrollment among Michigan's 15 public universities and the 49th largest among 4-year public universities in the United States.

Profiles of Isabella County, of which Mt. Pleasant is the county seat, Michigan, and the U.S. are presented in Table 2. The 2000 U.S. Census put the county population at 63,351 with the majority of those in the City of Mount Pleasant (about 26,000) and Union Township, which surrounds the city. Population growth was much faster in Isabella County than in the rest of the state (16% vs. 6.9%) over the period 1990-2000. The three largest employers in the county are the Soaring Eagle Resort and Casino[4], CMU, and government services (city, county and state offices).

In the last 10 years, the Mount Pleasant and Isabella county economy has been transformed into a service center by offering 1) higher education services through Mid-Michigan Community College, the Saginaw Chippewa Tribal College and CMU; 2) a growing retail sector including many national chain stores; 3) an increasing number and variety of health services; and 4) entertainment at the Soaring Eagle Resort and Casino, which hosts entertainment and sporting events and has rapidly expanded its gaming activities.

STUDENT SPENDING

A telephone survey on student spending patterns was administered by The Center for Applied Research and Rural Studies (CARRS) at CMU using college students as interviewers. The survey results provided a per-student spending figure for various categories of spending. We estimated total spending by students under the assumption that the survey respondents were representative of the student population.

The student survey resulted in a data set composed of 503 completed interviews for an overall response rate of 22 percent.[5] Surveyed students were asked about the amount they spent in various categories in Isabella County when CMU is in session. Respondents living off campus but not at home with their parents were asked about monthly expenditures for rent, communication services (telephone, local cell phone, cable and internet access) and other utilities (e.g. natural gas and electricity). All surveyed students were given the opportunity to identify up to two additional types of spending that they incurred on a regular basis and up to two out-of-the-ordinary expenses they had incurred during the Fall 2004 semester.

Table 3 shows the results of the IMPLAN models that analyze student spending. Total student spending, which is the direct effect, estimated from the surveys amounted to $164,130,454. The secondary effects, which include both indirect and induced effects, sum to $66,897,338 for Isabella County. Thus, the total student impact as shown in Table 3, amounted to $231,027,792 for the county model. The implied output/income multiplier is 1.4 while the employment multiplier is about 1.3 for Isabella County.

EMPLOYEE SPENDING

Employees of the University were contacted via e-mail and encouraged to complete a web survey instrument. The e-mail messages were sent to all employees, including those in CMU's 60 off-campus program centers. To help identify which respondents worked on the main campus, they were asked to identify their state and county of residence. An open survey format was used for a three-week period. Twenty-five percent (832 responses) of the CMU employees contacted by the e-mail completed the on-line survey. Of these respondents, ninety

Table 2: Profile of Isabella County, Michigan and the United States

Category	Isabella County	State of Michigan	United States
Population, 2000	63,351	9,938,444	281,424,602
Population, percent change, 1990-2000	16.00%	6.90%	13.1%
Persons under 25 years old, percent, 2000	50%	35%	35%
Persons 65 years old and older, percent, 2000	9.00%	12.30%	8%
White persons, percent, 2000	91.50%	80.20%	81%
Median value of owner-occupied units, 2000	$91,800	$115,600	$119,600
Persons per household, 2000	2.55	2.56	2.62
Median household income, 1999	$34,262	$44,667	$41,994
Persons below poverty, percent, 1999	20.40%	10.50%	11.9%
Unemployment Rate, 1990	6.10%	7.70%	5.6%
Unemployment Rate, 2000	2.80%	3.70%	4.0%
Per Capita Personal Income, 1990	$14,038	$18,329	$19,477
Per Capita Personal Income, 2000	$20,538	$29,127	$29,845

Table 3:Results From IMPLAN Models, 2004-05 academic year

A) Total Output/Income Results for Each Group and Multipliers

	Geographic Area			
	Isabella County		State of Michigan	
Group	Output	Multiplier	Output	Multiplier
Students	$231,027,792	1.40	$276,865,658	1.70
Employees	$135,074,675	1.40	$214,526,452	1.64
University Non-Payroll	$225,563,192	1.50	$271,222,776	1.75
Retirees	$24,196,432	1.40	$39,271,369	1.60
Visitors	$44,560,768	1.35	$53,510,503	1.60
Total	**$650,816,958**	**1.40**	**$837,739,001**	**1.60**

B) Total Employment Results for Each Group and Multipliers

	Geographic Area			
	Isabella County		State of Michigan	
Group	Employment	Multiplier	Employment	Multiplier
Students	3,670	1.30	3,475	1.50
Employees	2,627	1.22	3,020	1.38
University Non-Payroll	4,445	1.27	4,667	1.36
Retirees	361	1.28	459	1.46
Visitors	1,023	1.16	941	1.26
Total	**11,622**	**1.25**	**12,070**	**1.38**

Note: Totals may not equal to the sum of the groups because of the way the IMPLAN model tracks spending across industries. See the discussion in the Research Design section.

percent lived in Michigan and 64 percent lived in Isabella County. Out-of-state employees were eliminated from the sample.

The survey asked employees to identify their household income and how much they spent in the local area (Isabella County) during a typical week for things such as recreation (e.g., at restaurants, at movie theaters, or for sports activities), groceries and general retail merchandise. The survey did not ask for expenditures in these categories that occurred outside of Isabella County. Employees were also asked about monthly expenses for items such as gasoline, housing, utilities, personal services and charitable contributions. Expenses that typically are paid only a few times per year (e.g., medical services, home repairs or appliances) were also recorded. Other questions sought to determine the number of persons in the household, household income, county of residence, and visitor characteristics (number of visits and spending amounts while visiting).

Table 3 shows the estimated impact of employee spending. "Employees" include all employees (faculty, staff, administrators, etc.) working at least half time in the state of Michigan. Thus our results underestimate the impact of employee spending since we ignore employees working less than twenty hours per week. Students were not classified as employees even if they worked half-time for the university. Employees were classified as either local residents (identified by a home address with an Isabella County zip code) or out-of-county residents and estimated spending was divided into that taking place in Isabella County and that taking place outside the county. The Isabella County model was built using only that spending assumed to have occurred in Isabella County. Employees spent $96,059,624 in Isabella County and $34,408,000 in Michigan, outside of Isabella county. The secondary effects sum to $39,015,051 for the Isabella County study area. The implied output/income multiplier for Isabella County is 1.4 and the corresponding employment multiplier associated with CMU employee spending is 1.22.

Table 4: Visitor Direct Spending, 2004-05 academic year	
Visit/Visitor Type	Estimated Annual Spending
Total by visitors of students	$10,237,543
Total by visitors of employees	$1,320,266
Intercollegiate Athletic Visitors	$308,687
Event Attendees	$21,294,900
Total	**$33,161,396**

UNIVERSITY NON-PAYROLL SPENDING

University non-payroll spending covers a wide variety of purchases but the largest categories are supplies, equipment, deferred maintenance and spending under Grants and Contracts. Rather than attempt to discern how to best categorize all of this spending, we elected to classify it overall as "Government spending-Education" in the IMPLAN model. Two more specific categories were identified for a portion of spending: New Government Facilities, which covers CMU's capital budget, and Restaurants/bars, which includes CMU's spending for eating places on campus, primarily residential dining halls.

The University Non-Payroll lines of Table 3 show the local economic impacts for this type of spending. The direct effects of spending are $153,384,656 and the secondary effects sum to $72,178,536 for the Isabella County study area. The implied output/income multiplier is 1.5 for Isabella County model while the employment multiplier is 1.3.

CMU RETIREE SPENDING

Many CMU employees remain in the central Michigan area upon retirement. Some, primarily faculty members, reside in the central Michigan area only because of their employment at CMU. Other CMU retirees, mostly non-faculty staff members, may have already been area residents and therefore employed elsewhere in central Michigan had they not been employed at CMU. Their retirement benefits from alternative employers, however, would probably not have been as large as CMU benefits. For these reasons it is necessary to consider CMU retiree income as an impact of CMU on the local and state economy.

It is difficult to precisely measure CMU retiree income since CMU does not directly pay its retirees. The CMU Human Resources Office provided the research team with a rough estimate of the average CMU retiree's income, given assumptions about accumulated private retirement funds and Social Security payments. Retirees are assumed to have an average annual income of $30,000.

We did not attempt to survey retirees on their spending habits because the lack of reliable address information would have made this a costly effort and possibly imparted a bias to the responses. An alternative approach is to rely on secondary estimates. Tarleton (Texas) State University (Jafri et al, 2004) provides a reasonable breakdown of retiree spending by general spending category from an annual survey of retired university employees.[6] These spending patterns are applied to 588 CMU retirees in Isabella County. Total Isabella County CMU annual retiree income is $17,640,000, while those living in other Michigan counties receive $6,630,000 annually.

The Retiree lines of Table 3 estimate the full impact of retirees' spending. The direct effects are $17,640,000 in Isabella County while the secondary effects sum to $6,556,432.The output/income multiplier is 1.4 and the employment multiplier is 1.28 for Isabella County.

VISITOR SPENDING

Table 4 presents estimates on the amount of spending by visitors to CMU students or employees, visiting intercollegiate athletic teams and attendees at events scheduled on campus. For all types of visitors it was assumed that spending was split between lodging and food, but the actual assumed percentage split varied by visitor type. The exact methods used to derive these estimates for each group are available from the authors. While there may be overlaps between these various groups, available data does not allow us to estimate the extent of this overlap. In the student and employee surveys the groups were asked about the number of visits they typically had per semester (students) or per year (employees). They were also asked to estimate the amount these visitors spent during an average visit.

Estimated spending by visiting intercollegiate athletic teams was obtained using information supplied by the CMU Athletic Department regarding Mid-America Conference travel squad limits, the number of other personnel that usually accompany a team, typical per diem food allowances, estimated lodging costs and the number of CMU home games in the various NCAA sports during the 2004-2005 academic year.

The estimate for the last category of visitors (attendees at events scheduled on campus) was calculated by assuming that these visitors spend $75 per person in the local area while attending an on campus event. This dollar estimate is based on figures from the local visitors' bureau. An estimate of the number of attendees at on-campus activities was obtained from the CMU University Events office.

The Visitor portion of Table 3 shows the results of the IMPLAN models that analyze visitor spending. The direct output/income effect is $33,161,397 while the secondary effects sum to $11,393,389 for the Isabella County study area. The implied output/income multiplier is 1.35 while the employment multiplier is 1.16.

TOTAL SPENDING IMPACTS

The Total lines of Table 3 shows the results of the IMPLAN models that analyze the impacts of spending by all five groups considered in this paper. The approach was to add spending across groups to obtain total spending in each category and then use IMPLAN to estimate the overall impact. Most spending

Table 5: Total Direct Spending Summary by IMPLAN Categories, 2004-05 academic year

Type	IMPLAN Category	Spending in Isabella County	Spending outside the county	Total Spending	Percent of total spending
Electricity	30	$6,647,473	$1,490,758	$8,138,230	1.6
Natural gas	31	$6,647,473	$1,490,758	$8,138,230	1.6
Home remodeling	35	$2,052,069	$1,533,016	$3,585,085	0.7
CMU's Capital Budget	38	$4,400,000	$0	$4,400,000	0.9
Vehicle purchases	401	$7,790,100	$7,797,056	$15,587,156	3.1
Furniture/Appliances	402	$1,296,206	$1,195,758	$2,491,964	0.5
Home repair	404	$1,444,143	$871,114	$2,315,257	0.5
Food (in grocery stores)	405	$26,903,650	$861,900	$27,765,550	5.5
Gasoline purchases	407	$12,080,697	$0	$12,080,697	2.4
Gen. Merchandise Stores	410	$25,045,114	$0	$25,045,114	5.0
Miscellaneous retail	411	$33,197,880	$7,782,376	$40,980,256	8.1
Telecommunications	422	$14,894,708	$1,711,064	$16,605,772	3.3
Insurance Agents and Brokers	428	$2,042,529	$931,486	$2,974,015	0.6
Rents and mortgage payments	431	$74,607,799	$10,670,300	$85,278,099	16.9
Legal services	437	$264,194	$160,026	$424,219	0.1
Accounting and Bookkeeping	438	$264,194	$160,026	$424,219	0.1
Doctors and Dentists	465	$3,863,190	$1,127,121	$4,990,311	1.0
Other medical	466	$882,000	$331,500	$1,213,500	0.2
Misc. Amusement and Recreation	478	$8,879,185	$198,900	$9,078,085	1.8
Hotels/lodging	479	$18,454,460	$1,198,307	$19,652,768	3.9
Eating/Drinking	481	$55,638,891	$730,936	$56,369,827	11.2
Auto repair	483	$4,232,041	$464,100	$4,696,141	0.9
Computer/data processing services	484	$1,554,552	$0	$1,554,552	0.3
Misc. Personal Services	490	$2,468,915	$0	$2,468,915	0.5
Other non-profit orgs.	492	$5,793,575	$0	$5,793,575	1.1
St. & Local Gov't-Education	503	$142,149,095	$0	$142,149,095	28.1
St. & Local G-non-Educ. (P. Tax)	504	$882,000	$331,500	$1,213,500	0.2
	Total	**$464,376,132**	**$41,038,000**	**$505,414,132**	**100.1**[1]

[1] Does not sum to 100 percent due to rounding.

occurred in Isabella County but a substantial amount (9 percent) took place elsewhere in Michigan. The spending outside of Isabella County represents spending by employees based in off-campus centers (e.g. in the Detroit area), spending by on-campus employees who live outside of Isabella County and retirees residing in the state and some non-Isabella spending by on-campus employees (e.g. rent and mortgage payments).
Table 5 shows the 27 industry categories from IMPLAN chosen to classify expenditures, the total direct spending in each, the split of each between Isabella County spending and spending outside of the county, and the percent of total spending for each of the 27 industry categories. The major spending categories are state and local government taxes (28.3 percent), rent and mortgage expenses (16.9 percent), general merchandise and miscellaneous retail (13.1 percent), eating and drinking (11.2 percent), and food/groceries (5.5 percent).

The secondary effects, which include both indirect and induced effects sum to $186,440,830 for Isabella County for the annual period July 1, 2004 through June 30, 2005. The implied overall output/income multiplier is 1.4 and the employment multiplier is 1.25 in the county model.

SUMMARY

The spending generated by Central Michigan University's students, employees, visitors, retirees, and general operations has a significant impact on the economies of Isabella County and the State of Michigan. The total spending by each of the first two groups is derived from surveys. This distinguishes our study from others that rely more heavily upon assumptions about spending patterns. In the Isabella county model the total output/income impact of CMU's presence is about $650 million, which gives a multiplier of 1.40. Total job creation in the local model is approximately 11,600, which implies a multiplier 1.25. Both of these multipliers on the low end of the range of those reported in Table 1.

This result suggests that multipliers can vary substantially from state-to-state and county-to-county depending on the specific composition of business activity in a geographical location or the method used to estimate the multipliers. Isabella County, for example, is a rural county heavily dependent on a university for its economic well-being and lacks diversification in its economic base. Such a county is likely to create fewer local jobs and income than a more diversified local economy. The same conclusion would hold for a state with a little diversification in its economic base.

The method of estimating the multipliers can also vary substantially. Some studies rely on national data or estimates from other states to derive their own conclusions about the economic impact of universities. Some authors may deliberately choose the largest credible multipliers to increase the magnitude of their reported impacts or rely on estimates from secondary sources as a way to minimize the cost of creating a report.

The mix of spending may also alter the size of the economic impacts. Some types of expenditures will generate greater impacts because they affect industries which are more closely integrated with the local economy. Properly modeling the interactions among local businesses is important for an accurate measurement of impacts as is the identification of expenditure patterns which become the data fed into any input-output model.

Further refinements could be made in the data collection process to improve the response rates to surveys, improve the classification of expenditures and reduce the proportion of "miscellaneous" spending, reduce the self-selection bias inherent in surveys which rely on volunteers (e.g. our employee survey), and reduce the bias created by self-reported data. Additional improvements could be made by measuring the qualitative impacts of a university such as a better-trained labor force, the quality and quantity of volunteer services, improvement in the local quality of life and other intangible benefits.

Economic impact studies of universities have improved over the last thirty years. What remains to be done is an assessment of how these studies have been used to influence the political and social decisions regarding higher education and the measurement of how successful have been these efforts at maintaining or increasing public support. Are these studies merely self-serving reports that government servants heavily discount or ignore in political debate over allocation of public finances or are they powerful documents that shift the nature of political debate and the allocation of financial resources to the benefit of those universities who undertake the effort to write them?

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NOTES

1. Elliot (1988) suggests that a mail survey will yield better results than a telephone survey for faculty and staff while the survey method (phone versus mail) has no impact on the responses by students. They recognize possible sources of response bias by employees: 1) the reluctance to divulge information to a student caller; 2) issues of confidentiality: the identity of the respondent is known with a phone interview whereas a mail survey is likely to have code numbers instead of names on the response forms; 3) respondents might be reluctant to reveal substantial outside income since they are employed "full time" at the university.

2. We also feel obligated to reveal that funding for conducting the surveys was provided by the CMU administration who hoped to use the results, in part, for public relations purposes. The administration, recognizing the productivity benefits of specialization and division of labor, only provided a small amount of funding and did not attempt to influence the methodology or the finished product.

3. The typical assumptions made by input-output models are: 1) production is linearly homogeneous in outputs and inputs; 2) input proportions remain fixed regardless of the scale of operations; and 3) the supply of inputs is elastic and infinite. These assumptions help to explain why input-output models typically have larger multipliers than computable general equilibrium models which incorporate feedback mechanisms, e.g. rising demand for labor increases wages and reduces the growth in production and employment.

4. The Soaring Eagle Resort and Casino is one of the largest gaming operations in the Midwest. It includes a 500-room hotel, over 4300 slot machines, 38 blackjack tables, 60,000 square feet of meeting space, two restaurants and entertainment venues. The operations attract thousands of people to the Mount Pleasant area each week.

5. The response rate was calculated as the number of complete surveys (503) divided by the total attempted phone calls (2250). Total attempted calls included calls met with no answer, a busy signal, an answering machine, a wrong number, an out of service number, those not home at the time of the call, those not available until after the survey period and immediate refusals to participate. A copy of the survey questions may be obtained from the authors. Supporting documentation for this section and the others that follow also are available from the authors. An eight-page appendix provides greater detail about how the responses to the spending survey questions were assigned to the spending categories available in the IMPLAN software program and describes the sources of data and assumptions made to generate the data for direct spending by CMU, visitor spending and retiree spending.

6. The distribution of retiree spending across categories was as follows: mortgage payments (27%), food (13%), auto payments (9%), auto repairs (7%), insurance (7%), utilities (6%), property taxes (5%), medical (5%), fast food (5%), home repair (4%), recreation (3%), and miscellaneous (9%). See Jafri et al (2004) for a more complete description.

THE MARKET PERCEPTION OF MANDATORILY REDEEMABLE PREFERRED STOCK: SOME EMPIRICAL EVIDENCE

Douglas K. Schneider, College of Business, East Carolina University
Mark G. McCarthy, College of Business, East Carolina University
Mark W. Rieman, College of Business, East Carolina University

INTRODUCTION

As part of its comprehensive agenda to address financial reporting controversies related to financial instruments with characteristics of both debt and equity, the Financial Accounting Standards Board (FASB) has issued Statement of Financial Accounting Standards No. 150 (FAS 150), *Accounting for Certain Financial Instruments with Characteristics of Both Liabilities and Equity* (FASB 2003). The new standard was effective for the first interim period starting after June 15, 2003 and for any financial instrument subject to FAS 150 issued or modified after May 15, 2003. One of the financial instruments subject to FAS 150 is mandatorily redeemable preferred stock (MRPS), an instrument that obligates the issuer to redeem or repurchase the shares of MRPS from the holders at a future date.

Prior to the issuance of FAS 150, MRPS was subject to the SEC Accounting Series Release No. 268 "Redeemable Preferred Stock" (ASR 268) issued in 1979. ASR 268 did not allow MRPS to be reported in the equity section of the balance sheet, but did not require it to be classified as a liability either. This resulted in MRPS being reported in what is sometimes referred to as the "mezzanine" section of the balance sheet between liabilities and stockholders' equity.

MRPS appears to possess more of the characteristics of debt than equity. The redemption feature is mandatory upon the issuer, i.e., the issuer has a legal obligation to repurchase the shares from the holder at a stipulated redemption amount and cannot easily escape the obligation. In addition, the dividends related to MRPS are usually cumulative, which, similar to interest payments from a bond, must ultimately be paid and cannot be avoided. The redemption and cumulative dividends features of MRPS resemble a bond. Thus, FAS 150 requires MRPS to be treated as a debt instrument and be reported as "shares subject to mandatory redemption" in the liability section of the balance sheet and requires that the dividend distribution be treated as interest expense. The FASB felt that information concerning a company's obligations to transfer assets or issue shares is enhanced by FAS 150 and presents a more reliable picture of an entity's capital structure (Journal of Accountancy, 2003).

The financial reporting impact of FAS 150 on issuers of MRPS will be an increase in liabilities and the resulting deterioration in debt-to-equity and debt-to-asset ratios. Bond and loan covenants could thus be affected by the new accounting standard. In addition, net income will be reduced due to dividends being deducted as interest expense. The issuance of FAS 150 raises the question as to how investors have perceived MRPS? The objective of this study will address this issue by examining the market perception of MRPS.

REVIEW OF PRIOR STUDIES

Several previous studies examined the nature of MRPS. Kimmel and Warfield (1995) provided evidence on the economic substance of MRPS, a specific type of commonly issued hybrid security. Using the relationship between firm leverage and systematic risk, they demonstrated that MRPS does not have an impact on systematic risk similar to debt, even with mandatory redemption payments. Also, unless MRPS has voting rights similar to that of common stock, it does not demonstrate a relationship with systematic risk similar to that of equity either. Therefore, the authors felt that dichotomous classification of these hybrid securities would lack representational faithfulness.

A variation of MRPS is investigated by Frischmann, et al. (1999). Their study examined innovations in preferred stock over the period 1993-1996. They found that a type of redeemable preferred stock, trust-preferred securities (TPS), had dominated all other types of new issues during the period, representing 60% of all new issues.

A TPS is created by the formation of a wholly owned subsidiary, usually a business trust or limited partnership, which is treated as a pass-through entity for federal tax purposes. The subsidiary, structured to meet the federal income tax criteria for treatment as a partnership, issues preferred shares. The proceeds of this issuance are then transferred to the parent company in the form of a loan. Each month the parent pays the interest on the loan to the subsidiary, which in turn is used to pay the dividends to the preferred stockholders. While the subsidiary cannot be consolidated for tax purposes, the interest paid to the subsidiary is tax deductible by the parent but not taxable to the subsidiary because it is a partnership.

TPSs not only have the desired traits of a redeemable preferred stock, but they also have considerable tax advantages resulting from its debt-like structure. The hybrid characteristics and growing popularity of TPSs have resulted in increased use of a mezzanine section in corporate balance sheets.

At the time the FASB was considering a proposed settlement in dealing with MRPS suggesting that they should be listed in the liabilities section of a balance sheet. Frischmann, et al. (1999) concuded that one of the major charges for the FASB

on this issue was to maintain representational faithfulness and classifying MRPSs with their hybrid characteristics as liabilities would be in error.

One potentially important question related to this area is: Does the market view MRPS similar to debt? This study uses a market valuation model of a firm's common equity to measure the market's perception of MRPS as debt. Using a methodology similar to Landsman (1986) and Barth, et. al., (1992), the market value of common equity is regressed on the following independent variables: total assets, total liabilities, net income, and MRPS. Examination of the coefficients should provide evidence on whether market participants perceive MRPS and conventional debt the same or differently when assessing the market value of common equity.

The remainder of the paper is organized as follows. The next section discusses general research design issues including motivation for the current methodology. The remaining sections describe the sample selection, discussion of the results, additional analysis and finally a summary.

RESEARCH DESIGN

The research design in this paper will be based on the following theoretical identity:

$$\mathbf{MVE} = \alpha_o + \alpha_1 \mathbf{MVA} + \alpha_2 \mathbf{MVL} \qquad (1)$$

where;

MVE = market value of the firm's shareholders' equity
MVA = market value of the firm's assets
MVL = market value of the firm's liabilities

Equation 1 is a form of the standard accounting equation, which holds that a firm's equity (or net assets) equals total assets less total liabilities. When equity, assets, and liabilities are stated in terms of book values, α_o, α_1, and α_2 take on the values 0, 1, and -1 respectively. When equity, assets, and liabilities are stated in terms of market values, however, the same relationship may not necessarily hold. In fact, the Miller and Modigliani (1966) model of capital market equilibrium suggests that the market value of the residual claim (equity) may exceed the market value of the firm's assets less the market value of the firm's liabilities. Equation 1, stated in terms of market values, allows for this possibility.

Given the research question regarding the market's perception of MRPS, equation 1 can be restated to allow the amount of a firm's MRPS to affect the market value of equity. The relationship becomes:

$$\mathbf{MVE} = \alpha_o + \alpha_1 \mathbf{MVA} + \alpha_2 \mathbf{MVL} + \alpha_3 \mathbf{MVMRPS} \quad (2)$$

where;

MVE = market value of the firm's common equity
MVA = market value of total assets
MVL = market value of liabilities
MVMRPS = market value of mandatorily redeemable preferred stock.

Given the prior freedom in reporting requirements, some firms reported MRPS as part of total liabilities, other firms excluded MRPS from liabilities and reported the amount between liabilities and equity in the firm's balance sheet.

The inclusion of MVL and MVMRPS allows for a comparison between the two variabales. First, it allows for the possibility that redeemable preferred stock may or may not be viewed as an obligation of the firm or a claim on the firm's net assets. A negative value for the coefficient α_3 would indicate a negative effect on market value of equity, a situation similar to the theoretical effect of conventional liabilities. Second, if the coefficient for α_3 is negative, separate variables for MVL and MVMRPS allows the determination of whether market participants implicitly assign different coefficients to MRPS and conventional liabilities when assessing the market value of common equity.

The research design of Equation 2 has been used in prior studies examining the market's perception of various pension cost components. Barth, et. al., (1992) examined whether market participants implicitly assign different coefficients to the components of pension cost in determining security prices. Following an approach similar to Equation 2, they regressed the market value of common equity on the various non-pension and pension-related components of net income. The regressions were estimated cross-sectionally on a year-by-year basis. Statistical tests were performed to determine: (1) whether the regression coefficients for the pension cost components were significantly different from one another, and, (2) whether the pension component coefficients were significantly different from the non-pension related coefficients. Comparing the coefficient values for various non-pension and pension cost components they found: (1) the coefficients for the pension cost components did generally differ from one another, and, (2) the coefficients for the pension-cost components were generally higher than the coefficients for the non-pension cost components.

Landsman (1986) also used a market valuation model similar to Equation 2 to examine whether pension fund assets and liabilities are valued by the securities markets as corporate assets and liabilities. The market value of common equity was regressed on the following four independent variables: non-pension assets, pension assets, non-pension liabilities and pension

liabilities. This approach allowed pension and non-pension assets and liabilities to have separate empirical coefficient values. By comparing the coefficient values for the independent variables, evidence was obtained regarding two main research questions: (1) whether the market valued pension assets similar to non-pension assets, and, (2) whether the market valued pension liabilities similar to non-pension liabilities. Results showed similar coefficients for pension and non-pension assets and for pension and non-pension liabilities, indicating that pension fund "property rights," (ownership of pension assets and liabilities), lie fully with the firm.

According to Ohlson (1995), the market value of a firm's equity might be explained better by a model that includes both parts of financial accounting: a stock concept of value (book value) and a flow concept of value (earnings adjusted for dividends or 'clean surplus' Ohlson (1995)). Ohlson also suggests that there are other factors in determining a firm's stock price. This is also referred to in Landsman (1986) with the presence of a large intercept coefficient. Landsman attributes the large intercept value to omitted variables and measurement error. Based on Ohlson's model, an income variable should be included in estimating the value of a firm. Therefore, the model employed in this study is:

$$\mathbf{MVE} = \alpha_o + \alpha_1 \mathbf{ASSET}_i + \alpha_2 \mathbf{LIAB}_i + \alpha_3 \mathbf{NI}_i + \alpha_4 \mathbf{MRPS}_i + \varepsilon \quad \mathbf{(3)}$$

where ASSET is the book value of the firm's assets and LIAB is the book value of the firm's liabilities. Market values for these two variables are unobservable. In addition, if Ohlson's (1995) model is valid, then book values are the appropriate explanatory variables for the market value of the firm. NI is net income before extraordinary items, MRPS is the total mandatorily redeemable preferred stock reported by the firm and MVE is the total market value of the common equity. MVE is calculated by multiplying the number of shares of common stock outstanding at fiscal year-end by the stock price at fiscal year-end.

As stated earlier, the purpose of estimating Equation 3 is to determine the extent to which market participants view MRPS as being similar to conventional debt. An examination of the coefficient for MRPS would provide evidence as to whether market participants view MRPS as a claim on the firms' net assets. In addition, a comparison of the coefficients of MRPS and LIAB provide evidence as to what extent market participants view MRPS as similar to conventional debt in pricing a firm's equity. Specifically, the following questions are examined:

(1) Is the coefficient for α_4 negative, indicating that the market views MRPS as having a negative impact when assessing the value of the firm's common equity?

(2) Is the coefficient for α_4 similar statistically to α_2, indicating that the market views MRPS similar to conventional debt when assessing the market value of the firm's common equity?

Evidence regarding these questions will provide information as to the market's perception of MRPS.

The valuation model of Equation 3 is estimated each year after deflating all variables by the number of shares of common stock outstanding at year-end, adjusted for stock splits and dividends. This adjustment is to compensate for the presence of heteroscedastic disturbances in the model estimated using undeflated variables. If heteroscedasticity is present, then the standard errors are understated, resulting in higher t-statistics. T-statistics which are higher than their true values can lead to the conclusion that a variable is significant in explaining the variation of the dependent variable, when in fact it may be insignificant. Heteroscedasticity does not cause the coefficient estimates to be unbiased, but does effect the standard errors and therefore the t-statistics. Barth and Kallapur (1984) provides evidence that the standard errors based on White (1980) closely approximate the true standard errors, regardless of whether the regression error variances are heteroscedastic.

SAMPLE

The sample included all firms reporting MRPS greater than zero and a positive net income before extraordinary items for any given year during the period 1999 to 2002.[1] Thus, the coefficients for Equation 3 can be estimated cross-sectionally for four annual time periods. Descriptive statistics for the sample of firms are presented in Table 1. Shown are the sample size[2] for each year, mean, median, minimum observation and maximum observation for the following variables: total market value of common equity, book value of total assets, book value of total liabilities, income available to common stockholders before extraordinary items, and book value of MRPS.

The sample sizes vary from 161 firms in 2002 up to 194 in 2000. The per share values across all years do not yield unexpected results. Each year the mean and median market values, MV, are greater than the book value of the firm, the difference between ASSET and LIAB. As is expected, most firm's stock sells for more than its book.

Table 2 presents the ratio of MRPS to assets and MRPS to liabilities. The mean ratio of MRPS to assets varies from 4.49% in 1999 to 6.47% in 2002. As is typical with cross-sectional descriptive data, the data are skewed to the right, with mean values being consistently larger than medians. A more consistent measure of the ratio of MRPS to assets is seen in the median values each year, which are consistently about 1-2%. Similar results are seen for the ratio of MRPS to liabilities. The mean values are in the 11-15% range while the median values are around 2-4%.

RESULTS

Regression results for the estimation of Equation 3 are presented in Panel A of Table 3. Presented for each year are the coefficient estimates for α_o, α_1, α_2, α_3. and α_4 from Equation 3, with the respective t-statistics and p-values. In addition, an f-test is performed each year to test the hypothesis that the coefficient for MRPS (α_4) is equal to the coefficient for conventional debt, LIAB (α_2). As stated earlier, the main issue being addressed in this study is whether (and to what extent) market participants view MRPS as similar to conventional debt when assessing the market

TABLE 1

DESCRIPTIVE STATISTICS
(Deflated - $ per share)

Year (N)	Variable	Mean	Median	Minimum	Maximum
1999	MV	20.38	17.66	0.07	112.94
(177)	ASSET	46.90	37.32	0.04	259.61
	LIAB	35.51	24.84	0.03	224.60
	NI	1.45	1.26	0.01	7.94
	MRPS	1.16	0.42	0.01	11.63
2000	MV	20.79	16.85	0.03	128.49
(194)	ASSET	52.62	38.87	0.01	321.79
	LIAB	40.47	26.69	0.01	286.94
	NI	1.63	1.23	0.01	17.86
	MRPS	1.48	0.35	0.01	20.57
2001	MV	18.86	17.01	0.21	64.13
(167)	ASSET	48.85	30.29	0.31	277.75
	LIAB	37.69	20.19	0.04	261.53
	NI	1.28	1.01	0.01	5.21
	MRPS	1.22	0.29	0.01	16.30
2002	MV	16.36	13.80	0.06	96.96
(161)	ASSET	50.16	27.49	0.04	255.85
	LIAB	38.77	18.28	0.01	237.52
	NI	1.23	1.12	0.01	4.92
	MRPS	1.31	0.49	0.01	11.26

MV - market value of common stock
ASSET - book value of assets
LIAB - book value of liabilities
NI - net income before extraordinary items
MRPS - mandatorily redeemable preferred stock

value of the firm's common equity. Other things being equal, an increase in liabilities should have a negative effect on the market value of the firm's common equity. This has been demonstrated in numerous studies; see Landsman (1986). If MRPS is viewed as a claim on assets, with other things being equal, an increase in MRPS should also have a negative effect on the value of the firm's common equity value. The hypothesis that the effect on market value is the same for MRPS and conventional debt is examined using a chi-square test. A chi-square value with a probability greater than .05 indicates that the coefficients for α_2 and α_4 are not significantly different from each other at the 5% level.

From Panel A of Table 3, for each of the four years, the coefficient for ASSET is positive and significant and the coefficient for LIAB is negative and significant. This is consistent with theory and prior research using this model. The estimated coefficient for NI is positive and significant which is also expected. The greater a firm's net income, the higher the stock price.

The variable of interest, MRPS, is negative each year and is significant in three of the four years using White's standard errors. Only in 2002 is the MRPS coefficient not significant. These results suggest that the market perceives these instruments as a claim on the assets of the firm.

Chi-square tests of equality of the estimated coefficients LIAB and MRPS are presented in Panel B of Table 3. These results indicate that the coefficients for MRPS and LIAB are significantly different at the .05 level only in 1999. For the remaining three years, 2000, 2001 and 2002, there is not a significant difference in the magnitude of the coefficients for LIAB and MRPS. These results suggest that market participants view MRPS similar to conventional debt, the new reporting requirement mandated for FAS 150, when assessing the value of the firms' common equity.

ADDITIONAL ANALYSIS

In the regression model estimated above, as expected, there was a high degree of multicollinearity between the ASSET and LIAB variables. The lowest variance inflation factor (VIF) observed was 38.11 on LIAB in 1999. To mitigate the effect of multicollinearity on the model, ASSET and LIAB were netted together to yield a new variable, NET, which represents the net assets of the firm. The results for this reduced model regression are presented in Table 4 and are somewhat consistent with the full model. MRPS is significant in two of the four years when applying White's standard errors. The largest VIF in this model was 2.02 suggesting that multicollinearity may not be an issue (Neter, J., W. Wasserman and M.H. Kutner 1985).

TABLE 2

MANDATORILY REDEEMABLE PREFERRED STOCK AS A PERCENTAGE OF TOTAL ASSETS

Year	N	Mean	Median	Minimum	Maximum
1999	177	4.49%	1.25%	0.01%	42.10%
2000	194	5.46%	1.49%	0.01%	67.28%
2001	167	5.26%	1.37%	0.01%	75.15%
2002	161	6.47%	2.25%	0.01%	81.21%

MANDATORILY REDEEMABLE PREFERRED STOCK AS A PERCENTAGE OF TOTAL LIABILITIES

Year	N	Mean	Median	Minimum	Maximum
1999	177	11.45%	2.27%	0.01%	648.85%
2000	194	13.90%	2.27%	0.01%	542.29%
2001	167	14.38%	2.06%	0.01%	628.54%
2002	161	15.30%	3.61%	0.01%	278.90%

TABLE 3

PANEL A
REGRESSION RESULTS

$$MVE = \alpha_o + \alpha_1 ASSET_i + \alpha_2 LIAB_i + \alpha_3 NI_i + \alpha_4 MRPS_i + \varepsilon_i$$

Year	Variable	Estimated Coefficient	Standard Error	t-statistic	p-value	Adj. R^2 (N)
1999	INTERCEPT	8.619	1.942	4.43	.0001	.3922
	ASSET	0.776	0.161	4.82	.0001	(177)
	LIAB	-0.862	0.173	-4.98	.0001	
	NI	5.692	1.143	4.98	.0001	
	MRPS	-1.956	0.400	-3.99	.0001	
2000	INTERCEPT	7.407	1.523	4.86	.0001	.5421
	ASSET	0.905	0.149	6.07	.0001	(194)
	LIAB	-0.966	0.161	-6.00	.0001	
	NI	4.585	1.108	4.13	.0001	
	MRPS	-1.774	0.504	-3.52	.0001	
2001	INTERCEPT	5.174	1.108	4.78	.0001	.5933
	ASSET	0.754	0.154	4.89	.0001	(167)
	LIAB	-0.791	0.156	-5.07	.0001	
	NI	6.086	1.406	4.32	.0001	
	MRPS	-0.929	0.452	-2.05	.0404	
2002	INTERCEPT	0.767	0.817	0.93	.3524	.7230
	ASSET	0.842	0.101	8.33	.0001	(161)
	LIAB	-0.864	0.104	-8.30	.0001	
	NI	6.265	1.169	5.35	.0001	
	MRPS	-0.685	0.509	-1.34	.1802	

PANEL B
TEST OF COEFFICIENT EQUALITY: LIAB = MRPS

YEAR	LIABILITY COEFFICIENT	MRPS COEFFICIENT	CHI-SQUARE	P-VALUE
1999	-0.862	-1.956	7.73	0.0054
2000	-0.966	-1.744	3.24	0.0720
2001	-0.791	-0.929	0.10	0.7537
2002	-0.864	-0.685	0.14	0.7129

ASSET - book value of assets
LIAB - book value of liabilities
NI - net income before extraordinary items
MRPS - mandatorily redeemable preferred stock

TABLE 4
REGRESSION RESULTS
ASSETS AND LIABILITIES NETTED

$$ME = \beta_0 + \beta_1 NET + \beta_2 NI + \beta_3 MRPS + \varepsilon$$

Year	Variable	Estimated Coefficient	Standard Error	t-statistic	p-value	Adj. R^2 (N)
1999	INTERCEPT	8.510	2.049	4.15	.0001	.3462
	NET	0.585	0.170	3.44	.0006	(178)
	NI	5.024	1.111	4.52	.0001	
	MRPS	-1.943	0.441	-4.40	.0001	
2000	INTERCEPT	6.879	1.668	4.12	.0001	.5245
	NET	0.789	0.161	4.90	.0001	(194)
	NI	4.243	1.331	3.18	.0014	
	MRPS	-1.774	0.412	-4.30	.0001	
2001	INTERCEPT	4.994	1.178	4.23	.0001	.5799
	NET	0.592	0.176	3.36	.0008	(168)
	NI	6.355	1.361	4.67	.0001	
	MRPS	-0.766	0.449	-1.70	.0892	
2002	INTERCEPT	0.736	0.852	1.03	.3030	.7210
	NET	0.799	0.103	7.75	.0001	(161)
	NI	6.021	1.126	5.34	.0001	
	MRPS	-0.687	0.494	-1.39	.1646	

NET - book value of assets less book value of liabilities
NI - net income before extraordinary items
MRPS - mandatorily redeemable preferred stock

TABLE 5

PANEL A
REGRESSION RESULTS
POOLED SAMPLE – FULL MODEL

$$ME = \beta_0 + \beta_1 ASSET + \beta_2 LIAB + \beta_3 NI + \beta_4 MRPS + \varepsilon$$

Variable	Estimated Coefficient	Standard Error	t-statistic	p-value	Adj. R^2 (N)
INTERCEPT	6.811	1.038	6.56	.0001	.4922
ASSET	0.852	0.113	7.53	.0001	(709)
LIAB	-0.907	0.114	-7.95	.0001	
NI	4.512	0.814	5.54	.0001	
MRPS	-1.300	0.296	-4.39	.0001	

ASSET - book value of assets
LIAB - book value of liabilities
NI - net income before extraordinary items
MRPS - mandatorily redeemable preferred stock

PANEL B
REGRESSION RESULTS
POOLED SAMPLE – REDUCED MODEL

$$ME = \beta_0 + \beta_1 NET + \beta_2 NI + \beta_3 MRPS + \varepsilon$$

Variable	Estimated Coefficient	Standard Error	t-statistic	p-value	Adj. R^2 (N)
INTERCEPT	3.931	2.303	1.70	.0892	.5318
NET	1.091	0.314	3.47	.0006	(710)
NI	3.148	1.248	2.52	.0059	
MRPS	-1.292	0.402	-3.21	.0014	

NET - book value of assets less book value of liabilities
NI - net income before extraordinary items
MRPS - mandatorily redeemable preferred stock

TABLE 6

PANEL A
REGRESSION RESULTS
NET INCOME OMITTED FROM MODEL

$$ME = \beta_0 + \beta_1 ASSET + \beta_2 LIAB + \beta_3 MRPS + \varepsilon$$

Year	Variable	Estimated Coefficient	Standard Error	t-statistic	p-value	Adj. R^2 (N)
1999	INTERCEPT	10.657	2.010	5.30	.0001	.2920
	ASSET	1.168	0.194	6.02	.0001	(177)
	LIAB	-1.218	0.209	-5.82	.0001	
	MRPS	-1.574	0.371	-4.24	.0070	
2000	INTERCEPT	7.465	1.573	4.74	.0001	.4097
	ASSET	1.333	0.161	18.27	.0001	(197)
	LIAB	-1.362	0.173	-7.87	.0001	
	MRPS	-1.209	0.221	-5.47	.0001	
2001	INTERCEPT	6.596	1.178	5.59	.0001	.5685
	ASSET	1.384	0.094	14.72	.0001	(173)
	LIAB	-1.432	0.109	-13.13	.0001	
	MRPS	-1.305	0.452	-2.88	.0040	
2002	INTERCEPT	4.694	0.819	5.73	.0001	.5995
	ASSET	1.108	0.081	13.67	.0001	(165)
	LIAB	-1.096	0.094	-11.65	.0001	
	MRPS	-1.099	0.325	-3.38	.0008	

PANEL B
TEST OF COEFFICIENT EQUALITY: LIAB = MRPS

YEAR	LIABILITY COEFFICIENT	MRPS COEFFICIENT	CHI-SQUARE	P-VALUE
1999	-1.218	-1.574	1.17	0.2801
2000	-1.362	-1.209	0.27	0.6032
2001	-1.432	-1.305	0.09	0.7704
2002	-1.096	-1.099	0.00	0.9929

ASSET - book value of assets
LIAB - book value of liabilities
MRPS - mandatorily redeemable preferred stock

In further analysis both the full and reduced model were estimated by pooling all four years together. Caution should be exercised with these results since not all observations are independent. Many firms were included in all four years of the analysis and therefore are not independent of each other.

The results from the pooled regression are presented in Table 5. Panel A of Table 5 contains the results from the full model and Panel B presents the results from the reduced model where ASSET and LIAB are netted to form the NET variable. In both of these models all the coefficients are significant and in the expected direction. In the full model, a test of equality for the coefficients of LIAB and MRPS is not significant at the .05 level suggesting that liabilities and MRPS are weighted similarly when common stockholders value the firm. This test of equivalence could not be conducted in the second model, Panel B, since liabilities were not a separate variable, but netted with assets.

The model was estimated in a different reduced form where net income, NI, was not included in the model. Landsman (1986) included only balance sheet accounts in his testing of firms' pension assets and liabilities. The results from this model are presented in Panel A of Table 6. As expected, the Adjusted R^2 in each year is less due to the omission of the income (NI) variable. However, the results relating to the MRPS variable are relatively consistent with all the prior analysis. MRPS is negative and significant in every year. A test of the equality of the coefficients for LIAB and MRPS are not significant in any year again suggesting that the market perceives MRPS and liabilities the same under this model.

SUMMARY

This study employed a market valuation model of a firm's common equity to measure the market's perception of MRPS. Using a methodology similar to Landsman (1986) and Barth, et. al., (1992) and the theoretical model of Ohlson (1995), the market value of common equity is regressed on total assets, total liabilities, net income and MRPS. Separate examination of the liabilities and MRPS coefficients provides evidence on whether (and to what extent) market participants implicitly assign different coefficients to MRPS and conventional debt when assessing the market value of common equity. The overall results suggest that the market does perceive MRPS similar to debt, the new placement on the balance sheet mandated by FASB 150. It appears that in the past, even with the variation of the reporting of MRPS, the market still perceived these instruments in the same way as conventional liabilities.

END NOTES

1. Only those firms that reported a positive net income before extraordinary items are included in the sample. Barth, Beaver and Landsman (1992) examined the market valuation of pension cost components using a levels approach. They only included items on the income statement as independent variables in trying to explain the market value of a firm. Barth et al. included only those firms that reported a positive net income. The equation model is not expected to hold for firms reporting a net loss. Firms reporting losses were also eliminated from the sample in Barth, Beaver and Stinson (1991) and Barth, Beaver, and Wolfson (1990).

2. Outlier detection techniques were employed and the following number of firms were eliminated from each year, Belsley, K.A., E. Kuh, and R.E. Welsh (1980):

   1999 - 5
   2000 - 5
   2001 - 6
   2002 - 6

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MONITORING EXECUTIVES OF ACQUIRING FIRMS WEALTH EFFECTS, TENURE AND SHAREHOLDER OVERSIGHT

Earl W. Shinn, School of Business and Economics, Macon State College

Who benefits when one publicly traded firm acquires another? Winners usually include target firm shareholders and, to some extent, departing executives: the former often receive a handsome premium over the pre-acquisition share price, while the latter may receive termination compensation packages which significantly reward service to a now-defunct entity. Acquiring-firm executives obtain control over additional assets, increasing their stature or visibility and perhaps enhancing employment prospects in managerial labor markets. The shareholders of acquiring firms, however, more often than not realize little or no gain: Jarrell, Brickley and Netter (1988), among others, have shown that firms which succeed in acquiring or merging with other firms on average realize at best slightly positive (and usually insignificant) gains.

If the benefits of merger activity accrue to the executives of acquiring firms but not to their shareholders, why do these non-value enhancing acquisitions take place?

One explanation hinges on the modern corporation's organizational structure, first characterized by Berle and Means in 1932 as "the separation of ownership from control" and today more prosaically referred to as the "principal/agent" problem. Because shareowners are numerous and widely dispersed, they are unable to exercise effective control over managers who may squander company resources by engaging in acquisitions which fail to enhance (and may even decrease) firm value.

The motivation of managers who undertake ill-advised acquisitions is unclear. Roll (1986) asserts that "hubris" induces managers to overestimate their ability to reverse the fortunes of poorly-performing takeover targets, while Jensen (1988) notes that since both firm size and growth are associated with increases in executive compensation, managers have an incentive to expand the firm unnecessarily. Shleifer and Vishny (1988) conclude that negative returns for bidding firms are explained by executives' pursuit of merger-related benefits that are of no value to non-managerial shareholders.

Absent direct control of managers, shareholders depend on a variety of legal and institutional constraints to promote their interests and avoid undesirable outcomes. The present study examines the relationship between acquisition-related returns to shareholders of acquiring firms and a variety of incentive-aligning arrangements hypothesized to narrow the presumed gap between the wealth-maximizing interests of owners and the perquisite-maximizing interests of managers. These arrangements include: (1) share ownership (including stock options) and tenure with the firm; (2) the size and composition of boards of directors; and (3) the scrutiny of managerial actions by boards of directors and significant outside owners of the corporation.

The results suggest that while executive share ownership appears to be related to changes in firm value in a manner consistent with actions taken to increase shareholder wealth, stock options appear to play little if any role in motivating the Top Executive (the Chairman of the Board and/or the CEO) to act in shareholder interests. This somewhat surprising result is partly explained by the Top Executive's large shareholdings, which dwarf, on average, the number of options held, and suggests that granting options to executives who already have sufficient incentive to operate in shareholder interests unnecessarily squanders company resources. Additionally, older Top Executives – or those who have been with the firm for a significant length of time – appear more willing to engage in acquisitions which adversely affect firm value.

One interesting aspect of the present analysis is the little-discussed role of the acquiring firm's second-in-command executive, usually the company's president (or, when the Chair and CEO are separate positions, the CEO), who may be running the company while serving under an entrenched, long-serving CEO/Chairman. The top executive may be older, isolated from shareholders, and relatively immune to successful oversight from boards (or large outside owners) and only partially motivated by potential changes in, for example, the value of stock options. Conversely, the relative mix of share ownership and stock options for second-in-command executives explains a significant portion of the wealth changes experienced by acquiring firms in the wake of takeovers. This finding suggests a line of research aimed at a broader conception of the decision-making process in the corporate executive hierarchy.

Finally, boards of directors (especially large ones) and individuals (or institutions) with a significant ownership position in the firm do not seem especially vigilant when it comes to monitoring the actions of management: there appears to be little if any effective oversight over managers willing to engage in acquisitions which decrease firm value.

Ownership, Tenure and Firm Performance

Executive contracts are structured to align managerial and shareholder interests, and focus on executive share ownership, compensation (including salary, bonuses and stock options) and tenure with the firm.

There are competing theories of the relationship between executive ownership and stock market returns to acquiring firms. First, managers who own a significant number of shares in their firms (including unexercised stock options) should be less likely to pursue acquisition targets if such actions reduce shareholder wealth, since stock-related managerial wealth would likewise decline. Datta, Datta and Raman (2001) report a significant relation between the equity-based compensation of acquiring managers and the share price performance of acquiring firms in the wake of the announcement of acquisitions. A number of previous studies – Lewellen, Loderer and Rosenfeld (1985) among the earliest – also find evidence for this "alignment of interests" view of executive stockholdings. Alternatively, executives may regard the takeover market as a means of pursuing non-wealth increasing managerial benefits: increased job security, "empire building," firm size maximization, etc. Thus increased control of the firm due to significant managerial ownership allows managers to ignore shareholder interests when deploying firm resources. Managers may also have a horizon, or tenure, issue at odds with shareholder concerns. Older executives, or those close to retirement, may be tempted to invest in assets, such as ill-conceived acquisition projects, which satisfy short-run managerial interests at the expense of shareholders, since the long-run consequences of rash decisions may not be immediately felt.

These competing views of the effect of executive share ownership and tenure on executive decision making are the major focus of the present study.

Board of Director and Institutional Constraints on Managers

Shareholders rely on the board of directors (and individuals (or institutions) in control of a significant block of company shares) to monitor managers' actions and, in theory, constrain management to act in stockholders' interests. Outside directors, in particular, can be especially effective at scrutinizing management: boards with a significant number of outsiders (defined as board members with no familial relation to top executives or employment relation to the firm) are presumably more independent and more willing to exercise control over poorly performing executives than are boards dominated by members with ties to management. In theory, boards with a significant number of outsiders should be more effective monitors of executive behavior than boards with few outsiders. However, Crystal (1991) suggests that, to the extent that outside directors are hired by CEOs, boards may be ineffective monitors of managerial actions, and Lambert, Larcker and Weigelt (1993) and Boyd (1994) report a positive relationship between top executive compensation and the percentage of outside directors on boards.

Board *size* may also be related to abnormal returns. The larger the board of directors, the less accountable are individual board members, possibly leading to shirking of duties, to the detriment of shareholders. Conversely, smaller boards force individual board members to be more focused; thus board size should be inversely related to firm performance.

A number of studies report conflicting results on the effect of board size and/or composition on firm performance. Yermack (1996) reports an inverse relation between firm performance and board size, though no relation between performance and board composition (i.e., outside director percentage). Core, Holthausen and Larcker (1999) find that large boards and a high percentage of outside directors are associated with higher executive compensation and lower firm performance, while Jensen (1993) argues that large boards help to explain inadequate board of director oversight.

Finally, managers' actions may be effectively monitored by non-board owners, including individuals and institutional investors, if such owners hold enough shares to influence management decision-making. In a paper investigating the wealth effects of the adoption of anti-takeover charter amendments, Agrawal and Mandelker (1990) report that a variety of outside shareholder measures are positively correlated with cumulative abnormal returns, implying an "active monitoring" role for non-managerial (and non-board) owners and, presumably, influence over management actions.

The motivating assumptions of the present paper are: (1) executive share ownership (including stock options) directly links managerial and shareholder interests through share and option-related wealth changes; (2) short-timers presumably nearing retirement (proxied by the age of executives or the number of years spent with the firm) are less likely to be concerned with the long-run value of the firm; and (3) the presence of large outside shareholders and/or boards of directors dominated by outside directors facilitates control over the value-changing actions of management.

Data Sources

To avoid the problem of industry effects, the present study centers on the acquisition activity of publicly traded firms in the communications industry in 1986 and 1987, when $38.7 billion worth of mergers and acquisitions involving 637 transactions took place.[1] Two sources – *The Wall Street Journal Index* and *Mergers and Acquisitions* – were consulted to identify the announcement date of the first mention of an acquisition attempt by corporations whose primary or secondary line of business could be classified under the 2-digit Standard Industrial Classification (SIC) code of 48 (Communications); *The Wall Street Journal Index* was the source for almost all dates. One hundred and seven acquiring firms were identified, with announcement dates ranging from late 1985 to the middle of 1987. Proxy statements (the source for share ownership information on executives) for the fiscal year in which the acquisition attempt took place were available for 55 companies; these firms comprise the sample used as the basis for analysis in the present study. (Fifty three of the 55 firms successfully completed acquisitions; the two ultimately unsuccessful acquisitions are included in the analysis, due to the small sample size.) Daily returns surrounding the announcement date for each of the 55 firms were obtained from the Center for Research on Security Prices (CRSP) in Chicago, Illinois. (Firms in the present study are traded on the New York Stock Exchange and on the American Stock exchange.)

TABLE 1

Percentage of Company Shares Owned

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	55	15.62%	5.39%	20.93%	0.01%	89.28%
2nd Executive	55	2.57	0.36	5.87	0.00	28.91
Officers & Dirs	55	28.79	21.22	27.04	0.04	89.36

Number of Shares Owned

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	55	2,392,100	590,800	4,008,610	5,000	19,239,300
2nd Executive	55	460,740	59,000	1,674,140	0	12,202,200
Officers & Dirs	55	4,289,170	2,100,000	5,661,310	81,870	31,493,880

Number of Outstanding Options

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	55	22,050	0	49,820	0	300,000
2nd Executive	55	17,260	3,950	42,050	0	231,900
Officers & Dirs	55	80,080	40,000	123,580	0	587,980

Options As Percentage of Options+Shares Owned

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	55	6.50%	0.00%	13.31%	0.00	69.90%
2nd Executive	55	21.07	1.77	32.15	0.00	100.00

Ratio: Value of Options to Cash Compensation (%)

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	54	60.0%	0.00	185.0%	-10.0	1214.0%
2nd Executive	54	67.0	0.00	244.0	-26.0	1732.0

Age

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	52	56.23	57.5	9.61	31	76
2nd Executive	53	49.49	49.0	7.38	35	66

Years with Firm

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Top Executive	54	17.70	17.50	11.00	2	50
2nd Executive	54	10.74	8.50	9.09	1	38

Source: Company Proxy Statements

Each proxy statement lists the preceding year's compensation and the current share ownership of the most highly compensated executive officers in the company. The top two executives (defined as the two individuals with the highest cash compensation) were identified; in almost all cases these executives held the following positions: chairman of the board, CEO (these two positions were often occupied by one person), president, or chief operating officer. The following information was compiled for each of the two executives: total cash compensation (salary plus bonus), the number of company shares owned, total stock options outstanding, age, and number of years spent with the firm, all as of the date of the proxy statement; share ownership measures were also compiled for all officers and directors as a group. Proxy statements were also the source for the ownership positions of non-board of director shareholders with significant holdings in the firm. (The Securities and Exchange Commission requires that all owners of at least 5% of a company's shares be identified in the firm's proxy statement). All financial information on the firms was obtained from Compact Disclosure.

Share Ownership, Stock Options, Tenure: Characteristics of Executives

Table 1 contains the following summary measures for top executives in the sample of 55 acquiring firms examined: shares owned, stock options granted, share ownership as a percentage of total company shares, options as a percentage of total shares and options combined, total number of years spent with the firm, and age. Information is provided for the highest paid executive (Top Executive), the second highest paid executive (2nd Executive), and all officers and directors combined (Officers & Dirs.). In addition, Table 1 contains a ratio measure – the value of options (as of two days before the announcement of an acquisition attempt) divided by cash compensation – for each of the top two executives. The value of options is determined by subtracting the option exercise price from the company's stock price two days before the announcement of an acquisition attempt, and multiplying this result by the total number of outstanding options held. (Using the Black-Scholes option pricing model would be inappropriate: the Black-Scholes formulation assumes that the options in question are tradable, which is not the case for options held by executives in the firms analyzed here.)

The top two panels of Table 1 indicate that, for example, the typical highest paid executive owned 15.62% of outstanding company shares (an average of 2,392,100 shares) and held the rights to 22,050 stock options; the latter represent 6.50% of total "options plus shares" stock-related wealth. Similar information is provided for the second highest-paid executive. The "option value / cash compensation" ratio alluded to earlier demonstrates the relative importance options play in the compensation received by executives, and in conjunction with the share ownership figures suggests the extent to which executive wealth is dependent upon market-based holdings.

Table 2 contains summary information for the board of directors and two outside ownership measures: the percentage of firm shares held by institutions and by the top four non-board of director shareholders.

Empirical Findings

Using the event study methodology pioneered by Fama, Fisher, Jensen and Roll (1969) and developed by Dodd (1980) and Dodd and Warner (1983) to measure the wealth effects (abnormal returns) of an acquisition announcement, average daily prediction errors (APE) and average cumulative prediction errors (ACPE) were generated for each of the 55 bidding firms' stocks over a period of several days surrounding the initial announcement of an acquisition. Two groups from

TABLE 2

Board of Directors

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Number of Directors	55	9.70	9.00	3.80	3	19.00
Number of Outsiders	55	5.60	5.00	3.80	0	15.00
Outsiders, % of Total	55	53.15	57.89	24.04	0	93.75

Outside Blockholders - % Ownership

	Obs	*Mean*	*Median*	*Std.Dev.*	*Minimum*	*Maximum*
Institutions	54	33.00	28.86	20.78	0.00	88.67
Top 4 Non-Board Owners	55	12.47	10.95	15.33	0.00	77.49

Source: Company Proxy Statements and *Compact Disclosure*

the sample of 55 firms were formed: those whose executives lie above and those whose executives fall below the median value of the various executive measures presented in Table 1. For each group, the average cumulative prediction error (ACPE) is determined for the two-day period from the day before through the day of the announcement; the t-statistic for significant differences is employed to test whether the ACPEs for each group come from similar populations. (The t-test is a means comparison test of two normally distributed samples whose variances are assumed to be unequal.) The results are reported in Table 3.

For example, the median share ownership percentage for the top executive is 5.39%., as the first row of Table 3 indicates. Average cumulative prediction errors (ACPEs) over the two-day event period are calculated for firms whose top executive owns less than 5.39% of the firm's shares, and for firms whose top executive owns more than 5.39% of the firm's shares. As the last column of Table 3 indicates, the ACPEs for these two groups – -0.90% and 2.70%, respectively – are significantly different at the 1% confidence level. Consistent with the incentive-aligning implications of agency theory, abnormal returns for companies whose top executive owns more than the median ownership

TABLE 3

Average (mean) cumulative prediction errors (ACPE) for two portfolios of firms: those below the median value and those above the median value of the measure in question. The prediction errors are cumulated from the day before through the day of the acquisition announcement.

Share & Option Measures	*Median Value*	*ACPE, firms below med. (n=27)*	*ACPE, firms above med. (n=28)*	*differ-ence (%)*	*t-statistic for diff. in ACPE*[a]
Ownership %, Top Executive	5.39%	-.009	.027	3.6%	2.99[b]
Ownership %, 2nd Executive	0.36%	.003	.014	1.1	0.88
Opt as % of Opt&Shrs, Top Ex	0.00%	.018	-.003	-2.1	1.70[c]
Opt as % of Opt&Shrs, 2nd Ex	1.77%	.013	.004	-0.9	0.77
Opt Val/Cash Comp, Top Exec	0.00	.018	-.004	-2.2	1.74[c]
Opt Val/Cash Comp, 2nd Exec	0.00	.017	.001	-1.6	1.27
Tenure of Top Executives					
Age, Top Executive	57.5	.018	.000	-1.8	1.30
Age, 2nd Executive	49.0	.017	.001	-1.6	1.23
Years w/Firm, Top Executive	17.5	.019	-.003	-2.2	1.79[c]
Years w/Firm, 2nd Executive	8.50	.013	.002	-1.1	0.85
Board of Dirs. & Outsiders					
Number of Directors	9.00	.023	-.009	-3.2	2.77[b]
Outside Dirs. as % of Total	57.9%	.018	-.001	-1.9	1.54
Ownership %, Institutions	28.9%	.027	-.010	-3.7	3.09[b]
Own %, Top 4 Non-Board Owners	10.9%	.006	.011	0.5	0.34

[a]Test presumes unequal variances in subsamples.
[b]Significant at the 1% level (One-tail test).
[c]Significant at the 10% level (One-tail test).

percentage exceeds that of firms whose top executive owns less than the median ownership percentage. The horizon problem is illustrated by the number of years spent with the firm: excess returns for firms whose top executive has spent more than 17.5 years with their firm are worse than for those firms whose top executive has spent less than 17.5 years with the firm. These two results are significant and consistent with an agency cost perspective: better firm performance is associated with higher executive share ownership and less time spent with the firm. (Two of the Options measures for top executives – Options as a fraction of Options+Shares, and Option Value relative to Cash Compensation – are significantly different at the 10% confidence level, although not in the direction predicted.)

The results for board of director size and institutional ownership lend no support to the view that boards and/or outside owners effectively monitor the actions of managers. In fact, both board size and institutional ownership percentage are inversely related to abnormal returns, and both are significant at a 1% confidence level.

Because the average cumulative prediction errors for the ownership and wealth measures examined in Table 3 may not be normally distributed, the means comparison test used to test for significant differences may be inappropriate. Therefore, a non-parametric test – the Wilcoxon Rank Sum Test for the equality of median cumulative prediction errors (MCPEs) – is employed

TABLE 4

Median cumulative prediction errors (MCPE) for two portfolios of firms: those below the median value and those above the median value of the measure in question. The prediction errors are cumulated from the day before through the day of the acquisition announcement.

Share & Option Measures	*Median Value*	*MCPE, firms below med. (n=28)*	*MCPE, firms above med. (n=27)*	*differ-ence (%)*	*z-statistic for diff. in MCPE*
Ownership %, Top Executive	5.39%	-.002	.012	1.4%	2.31[a]
Ownership %, 2nd Executive	0.36%	-.002	.004	0.6	1.06
Opt as % of Opt&Shrs, Top Ex	0.00%	.001	-.002	-0.3	1.47
Opt as % of Opt&Shrs, 2nd Ex	1.77%	-.001	.001	0.2	0.49
Opt Val/Cash Comp, Top Exec	0.00	.001	-.002	-0.3	1.57
Opt Val/Cash Comp, 2nd Exec	0.00	.000	-.002	-0.2	1.25
Tenure of Top Executives					
Age, Top Executive	57.5	.006	-.006	-1.2	1.65[b]
Age, 2nd Executive	49.0	.002	-.002	-0.4	0.89
Years w/Firm, Top Executive	17.5	.001	-.004	-0.5	1.41
Years w/Firm, 2nd Executive	8.50	.002	-.004	-0.6	1.15
Board of Dirs. & Outsiders					
Number of Directors	9.00	.006	-.010	-1.6	2.27[a]
Outside Dirs. as % of Total	57.9%	.002	-.002	-0.4	1.78[b]
Ownership %, Institutions	28.9%	.011	-.003	-1.4	2.36[a]
Own %, Top 4 Non-Board Owners	10.9%	-.001	.009	1.0	0.98

[a]Significant at the 2% level (One-tail test).
[b]Significant at the 10% level (One-tail test).

to test for significant differences. The sample of 55 acquiring companies is again divided into two subsamples according to the median value of the various measures of executive ownership, wealth, and tenure. The median cumulative prediction error (MCPE) for the two-day event period for each subsample is determined, along with the z-statistic for the Wilcoxon two-sample test for the equality of the respective MCPEs. The results are displayed in Table 4.

Consistent with the implications of agency theory, the median cumulative prediction errors for firms whose top executive owns more than 5.39% of the company's shares are larger than the MCPEs for firms whose top executive's ownership percentage is less than 5.39%; the difference is significant at the 2% confidence level. Age difference captures the horizon problem: abnormal returns (MCPEs) are worse for firms whose top executive is older than the median age of 57.5 years, and better for firms led by top executives younger than 57.5 years; the difference, however, is significant at only the 10% confidence level. In addition, firms with a higher percentage of outside directors have significantly lower excess returns than firms with a lower percentage of outside directors.

Taken together, the findings reported in Tables 3 and 4 suggest that (1) share ownership for top executives is directly related to changes in shareholder value, (2) managers with short-term horizons may be ineffectively deploying company resources, (3) large boards are ineffective watchdogs over top executives, and (4) neither outside directors nor institutional owners effectively monitor the value-changing actions of management.

Agency Theory and Abnormal Returns

One would expect the percentage of shares owned by managers to be positively related to changes in stock prices, especially for the top executive – recall from Table 1 that the top executive owns almost 2,400,000 shares on average, representing 15.62% of total company shares. However incentive-aligning share ownership may be, though, high executive share ownership may pose an agency problem, since the higher the percentage of shares owned by the executive, the greater control he has over the firm, and thus the more apt he may be to put corporate resources to perquisite-maximizing use. Morck, Shleifer and Vishny (1986) find that, while "firm performance [as measured by abnormal returns] increases with managerial ownership over the 0 to 20 percent range,"[2] beyond that point performance falls as managerial ownership concentration rises: increased ownership translates into greater control of the firm, and managers are free to pursue their own interests at the expense of the interests of non-management shareholders.

The Morck, Shleifer and Vishny finding suggests a negative quadratic relationship between firm performance and executive ownership – i.e., firm performance increasing with executive ownership when ownership is low, but decreasing when ownership is high. A regression of the two-day abnormal return (average cumulative prediction error) on a quadratic model of managerial ownership supports this claim, as Regression 1 in Table 5 shows. Although the model explains only 8% of the variation in the dependent variable (Adjusted r^2=.08), the F-test is significant at the 10% confidence level, and both of

TABLE 5

Estimated coefficients and t-statistics (in parentheses) from regressing two-day cumulative prediction errors on executive and firm characteristics (53 observations; control variable (not shown): Total Assets)

	Own %, Top Exec	*Own %, Sqrd-Top*	*Own %, 2nd Exec*	*Opt/Pay Ratio, 2nd*	*Years w/ Firm-Top*	*Constant*	*F-test*	*Adjusted r^2*
Regression 1	.002 (2.264)[b]	-.001 (-1.736)[c]				-.006 (-0.627)	2.58[c]	.08
Regression 2	.001 (2.254)[b]			.017 (2.150)[b]		-.006 (-0.607)	3.17[b]	.11
Regression 3	.001 (2.408)[b]			.016 (2.110)[b]	-.001 (-2.140)[b]	.013 (0.965)	3.87[a]	.18
Regression 4	.001 (2.226)[b]		.001 0.681	.017 (2.149)[b]	-.001 (-2.042)[b]	.001 (0.765)	3.15[a]	.17

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.

the ownership variables are significant (ownership at the 5% level, and ownership squared at the 10% level), providing corroboration for the Morck, Shleifer and Vishny results.

The quadratic model of ownership percentage and firm performance does not hold for the 2nd-ranked executive. Although the ownership position of the second executive is not insubstantial – average ownership percentage equals 2.57%, representing 460,740 shares (See Table 1) – it is not nearly as high as that of the top executive. In fact, the ownership position of the 2nd executive is not significantly related to firm performance in a variety of regression models, one of which is displayed in Table 5 above (Regression 4). (The finding holds whether or not the model controls for the ownership position of the top executive.)

Although no significant relationship exists between abnormal returns and share ownership for the second-in-command executive, stock options apparently play a greater role for this individual in aligning managerial and shareholder interests. Although the average *number* of outstanding options for the 2nd executive (17,260) is lower than that for the top executive (22,050), options as a percentage of options and shares combined is substantially higher for the 2nd executive: 21.07%, compared to only 6.50% for the top executive. Thus, the executive with the (relatively) lower stock ownership position – the 2nd executive – has a higher portion of *potential* wealth tied to stock options than does the executive with the (relatively) higher stock ownership position; this incentive-aligning arrangement is consistent with an agency cost view of the firm. While stock options might thus be predicted to play a fairly significant role in aligning the interests of the 2nd executive with those of shareholders, no such relationship should be expected to hold for the top executive: the latter's firm-specific wealth is dominated not by options, but by shares owned outright, as the figures in Table 1 demonstrate. Agency theory would predict that the relative value of options held by the 2nd executive would more likely be positively associated with share price performance than would the same measure for the top executive, for whom the key incentive-aligning measure (as indicated in the quadratic regression model discussion above) relating self-interest to stock price changes is share ownership. There is little reason to believe that stock options significantly affect the decision-making of top executives with a small number of options relative to shares, and every reason to expect the large (on average) ownership position of these executives to be positively and significantly related to changes in firm value.

The regression models displayed in Table 5 above support this analysis. Each model is an ordinary least squares regression of two-day average cumulative prediction errors on a variety of measures, including ownership percentage for both executives, the option value/cash compensation ratio for the second executive, the number of years the top executive has spent with the firm, and total company assets (the latter controls

TABLE 6

Estimated coefficients and t-statistics (in parentheses) from regressing two-day cumulative prediction errors on executive and firm characteristics. (28 observations; control variable (not shown): Total Assets)

	Own %, Top Exec	*Own %, 2nd Exec*	*Opt/Opt +Shrs-2nd*	*Opt/Pay Ratio, 2nd*	*Years w/ Firm-Top*	*Constant*	*F-test*	*Adjusted r^2*
Regression 1	.001 (2.403)[b]		.0003 (1.317)		-.002 (-1.693)[c]	.001 (0.055)	2.87[b]	.21
Regression 2	.002 (2.800)[a]			.024 (2.890)[a]		-.030 (-.239)[b]	4.75[a]	.30
Regression 3	.002 (2.943)[a]	-.006 (-1.439)		.024 (2.960)[a]		-.024 (-1.784)[c]	4.25[a]	.33
Regression 4	.002 (3.087)[a]			.023 (2.931)[a]	-.002 (-1.970)[c]	-.003 (-0.168)	4.98[a]	.38

[a]Significant at the 1% level.
[b]Significant at the 5% level.
[c]Significant at the 10% level.

for firm size). Note that, as the agency cost view of the firm hypothesizes, ownership percentage for the top executive and the option value/cash compensation ratio for the 2nd executive are both significant and positive in each model, while the top executive's number of years spent with the firm – the tenure variable designed to capture the adverse horizon problem – is negative and significant in each model. Again consistent with the discussion to this point, the option value/cash compensation ratio for the top executive is insignificant in a variety of model specifications, none of which are reported in Table 5. (It should be noted that, while the ownership percentage for the 2nd executive is not significant in the two-day event period model in which it appears in Table 5, ownership percentage for the 2nd executive is positive and significantly related to abnormal returns over a variety of other event periods (not shown here), including the announcement day only).

Even stronger relationships between excess returns and executive characteristics are detected when the analysis is restricted to just those firms which have stock option plans; the results are reported in Table 6. Significance levels almost uniformly increase to 1% for top executive share ownership and the option value/cash compensation ratio for the 2nd executive, and the tenure variable for the top executive is again negative and significant at the 10% level; in addition, the adjusted r^2s for the models estimated in Table 6 are substantially higher than those for the models estimated in Table 5. An additional variable aimed at testing the relationship between firm performance and options – the "number of options" divided by "total options plus shares" for the 2nd executive – is not significant in the one model in which it appears (various model specifications produced this result). A check of the pattern of error variances using the Glesjer test reveals no evidence of heteroskedasticity in the estimated regressions in Table 5 and 6.[3]

Summary of Results

The findings reported in the present study support an agency cost theory of the firm. Results regarding the ownership percentage of top executives and the option value/cash compensation ratio for the 2nd executive support the proposition that firm-specific, market-based incentives help align the interests of managers and owners. At the same time, however, firm performance increases with top executive ownership when ownership is low, but decreases when ownership is high. In addition, agency theory predicts that managers with different horizons than shareholders may act in a manner inconsistent with the value-maximizing interests of owners; the findings presented here support that notion. Finally, as reported earlier, the evidence suggests that board of director and institutional oversight of potentially value-changing managerial actions is less than optimal.

CONCLUSION

Most studies of the relationship between firm performance and the highest paid executive focus on share ownership and stock options. A case can be made, however, that stock options play little or no role in aligning the interests of top executives with substantial holdings of own-company shares, especially if the executive is at or near retirement. Arguably, awarding options to this individual wastes corporate resources and unnecessarily dilutes shareholder control, since the granting of options increases the number of shares outstanding.

It is quite possible that the highest paid executive is not the key figure in the decision-making process which culminates in the acquisition of other firms. Closer scrutiny should be paid to the second highest paid executive, perhaps in the role of president or chief operating officer, who may in fact be running the company while operating in the shadow of an older, share-rich chief executive nearing retirement and isolated from stockholder oversight. The findings presented in the present study indicate that compensation in the form of stock options usefully steers the second-in-command towards decisions that increase firm value – suggesting that market-based remuneration might be used more extensively in rewarding the second highest ranked executive in firms, especially if that executive's share holdings are relatively low.

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ENDNOTES

1 *Mergers and Acquisitions*, May/June 1987, pp. 58-60, and May/June 1988, pp. 46-50.

2 Morck, Shleifer and Vishny, 1986, p.

3 The Glesjer test involves fitting the ordinary least squares regression of Y on X, squaring the residuals derived from this estimation, and then regressing the squared residuals on the X variable. If the estimated slope coefficient which results from this procedure is significant, heteroskedasticity is suspected (Johnston, 1984, pp. 301-302).

PROACTIVITY AND TOLERANCE OF AMBIGUITY AMONG MICRO-ENTERPRISE ENTREPRENEURS

Charles A. Smith, University of Houston - Downtown
Mark Kroll, Louisiana Technical University
Forrest Aven, University of Houston - Downtown

INTRODUCTION

The purpose of this paper is to present the results of research investigation into the operational and demographic characteristics of a group of ultra-small firm entrepreneurs. The research detailed here concerns a study that contributes to the literature's body of knowledge from several vantagepoints. First, as will be revealed in the literature review, much of the research regarding tolerance of ambiguity and entrepreneurs has been conducted on students, medical students and established firm manager populations. A relatively small percentage of "entrepreneur" research has used "real" entrepreneurs as subjects. Our sample population is different in several non-trivial aspects. The focal difference being the ultra-small size of the firm set in an ultra-large city environment with entrepreneurial firm founders as subjects. Second, our variable collection includes personal and firm traits not yet discussed in the literature. Third, the model framework adds some fresh perspective in terms of acknowledging a potential link between tolerance of ambiguity and proactive behavior on the part of the entrepreneur. We also infer and demonstrate that tolerance of ambiguity is fluid because it is a complex mental attitude; it is affected by a changing environment over time; and therefore changes as attitudes change. Thus, with the contradiction in the literature, any justification of new insights into this personality trait and its affects on operational behavior in the entrepreneurial setting is needed.

PREVIOUS RESEARCH

The focus of this paper is tolerance of ambiguity (TOA) and proactivity as relating to ultra-small firms. The construct of tolerance of ambiguity has been examined as related to students, managers, employees and entrepreneurs. The area receiving the least attention has been the study of actual entrepreneurs and virtually none has explained the ultra-small firm size with regard to entrepreneurs. Our paper helps to partially fill this void. Our paper is also unique in that it connects tolerance of ambiguity and proactivity in a micro-firm setting, something not previously presented.

Budner's student population dissertation based research was presented in 1962 and has since served as a model for testing tolerance of ambiguity (Budner, 1962). We used Budner's testing instrument to measure tolerance of ambiguity and note that Budner's own research indicated a wide range of tolerance of ambiguity attitudes among his different sample groups. Not suprising given that the research pertains to human attitudes.

Pitt (2000) used Budner's construct to study micro-enterprise development in black owned businesses in South Africa. In the small sample, n=23, moderate tolerance of ambiguity was indicated. We present evidence in an American setting that compares tolerance of ambiguity among ethnic groups, an uncommon linkage in the literature relating to U. S. entrepreneurial firms. An examination of Spanish entrepreneurs by Vazquez (2000) produced findings where a mail survey indicated individuals in firms who tested positive for entrepreneurial orientation (EO) had three factors in common; higher tolerance of ambiguity, greater locus of control, and a higher need to achieve.

Tolerance of ambiguity has been conceptually linked to risk taking by Sexton and Bowman (1985), and to proactivity in their study of students (n=135). Lumpkin and Dees (1996) noted the five proposed traits of the entrepreneurial orientation:

1. Autonomy
2. Innovativeness
3. Risk taking
4. Proactivity
5. Competitive aggressiveness

Proactivity is usually characterized by a "forward looking perspective" and "opportunity seeking (Pitt, 2000). Prior attempts to link personality traits and entrepreneurship have been inconclusive with outcome conflicts sometimes present. In a study of owners and managers (n=27) Lumpkin and Erdogon (2000) found tolerance of ambiguity and proactivity not to be positively correlated. Pitt (2000) noted similar findings where marketing department employees at a public utility company (n=172) were found to have higher tolerance of ambiguity connected to less proactive feedback seeking behavior. Our research extends this tolerance of ambiguity and proactive behavior link and we found that sometimes the two are in fact associated.

The results have been mixed when tolerance of ambiguity has been a stand-alone defining variable. Schere (1982) and others found entrepreneurs had slightly higher tolerance of ambiguity, while Dollinger (1983) found tolerance of ambiguity low among entrepreneurs. Because results have been mixed, it is incumbent upon researchers to continue to address this issue. While Sexton and Bowman (1984a, 1984b) found entrepreneurial students to have higher tolerance of ambiguity as a "distinguishing psychological characteristic", Ulrich (1997) in his large sample (n=416) study of students found the opposite; i.e., no significant

link. Managers have been found to have higher tolerance of ambiguity than entrepreneurs (Keenan and McBain, 1979).

Accounting students have been found to have lower tolerance of ambiguity than normal, male students and older students with higher tolerance of ambiguity (Elias, 1999); which was counter to Foxman (1976) who found no gender effect among his sample of students (n=36). In a sample of actual entrepreneurs, older entrepreneurs were found to have higher tolerance of ambiguity. Begley and Boyd (1987) who found that higher tolerance of ambiguity was not associated with company age did not support this. The research results to date regarding this complex fluid psychological trait have been mixed and thus inconclusive.

DATA AND METHODOLOGY

The data set consisted of 200± in person interviews of ultra-small firm entrepreneurs in Houston, Texas. The sample consisted of true entrepreneurs in firms that generally had fewer than twenty employees. The person interviewed was the owner and founder of the business. No franchised businesses were included. The structured survey included questions regarding demographics, Budner's (1962) tolerance of ambiguity 16-item construct, and questions related to proactive behaviors. These questions that related to proactive behavior were questions regarding whether the entrepreneur had written a business plan and performed a break-even analysis. The entrepreneurs were selected at random with the demographic profile generally matching the Houston population at large. The sample also contained about 70% males, which corresponds with national gender profiles of entrepreneurs.

The model construction and analysis techniques followed the theory as theory ordains methodology. Because tolerance of ambiguity is influenced by whom you are, where you've been, how you feel about yourself, and the current dynamics of the environment; tolerance of ambiguity was constructed as a function of demographics, company traits, and attitude. Stepwise regression using SAS was employed.

Because tolerance of ambiguity influences what you do because it affects your perception of a situation, and the fact that tolerance of ambiguity has been linked to proactivity; we modeled proactivity behaviors as a function of tolerance of ambiguity and other selected variables. Logistic regression using SAS was employed to test the proactivity behavior models.

RESULTS

The results can be efficiently summarized in several tabulated presentations. Table 1 contains the results of the stepwise regression procedure with tolerance of ambiguity as the dependent variable. Only three traits are significant at the .05 level. The results noted that age is negatively associated with the tolerance of ambiguity score, which indicates that as age increases, the tolerance of ambiguity score is lower. Noting that Budner's construct indicates higher tolerance of ambiguity the lower the scaled score; older entrepreneurs have higher tolerance of ambiguity. This conforms to prior research in that as an individual age that person will have a broader experience base and have worked with the natural ambiguity of life for a longer time period and therefore have a higher tolerance of ambiguity. The positive associations of

TABLE 1

TOLERANCE OF AMBIGUITY/SCORE AS DEPENDENT VARIABLE

STEPWISE RESULTS

Variable	Parameter Estimate	Model R-Square	P Value
Intercept	61.45215		.001
Hispanic	3.85990	0.0646	.053
Asian	3.10041	0.1557	.139
Age	- 0.29623	0.2057	.001**
Satisfied	2.92595	0.2207	.003**
Income	2.16496	0.2333	.001**

* .05 level of significance
** .01 level of significance

income and the satisfaction of being in business for her or himself with intolerance of ambiguity seem contradictory to other research that noted that entrepreneurs would have a high tolerance of ambiguity (Schere, 1982). Perhaps as Dollinger (1983) suggests, entrepreneurs go into business for themselves to insulate themselves from the short-term ambiguities related to working for others. Also, as their wealth grows they do see the world as threatening place (the fear of losing it all). The data indicated no difference between entrepreneurs on race although Hispanics are significant at the .10 level. The above findings have implications for marketing to entrepreneurs, proper selection of effective management styles in small firms, and elsewhere in entrepreneurial/small firm settings.

Table 2 contains a summary of the results for business plan having been written or not having been written. The data indicates that tolerance of ambiguity had no influence in whether the entrepreneur wrote a business plan. However, the most significant variable was the amount of the start up capital utilized. The positive association indicates the higher the capital, the greater the probability of writing a business plan. This result was not surprising since most entrepreneurs borrow move from banks or venture capitalist where a business plan is needed to secure the loan. Perhaps more surprising was the non-significant relationships education and whether the individual attended an entrepreneurial seminar had with writing a business plan. On the surface it would appear both variables would have had a relationship with writing a business plan. Perhaps this is more of an indication of what is not being taught than their irrelevance. The data also indicated that U.S. born entrepreneurs were more likely to have written a business plan than non-U.S. born entrepreneurs which is again perhaps says more as to how entrepreneurs find capital in this country than culture.

Table 3 is a compilation of the results when testing as to the probability of performing a break-even analysis or not. The data strongly indicate that individuals with high tolerance of ambiguity are likely to conduct a break-even analysis. This result is somewhat surprising in that those that are threatened by ambiguous situations do not perform breakeven analysis. However, individuals that are able to cope with ambiguous situations are able to pay attention to more information hence perhaps a breakeven analysis is simply more data for them to consider. Moreover, given that a business plan usually incorporates a break-even analysis the results are not surprising in noting that there is a significant relationship between the

TABLE 2

BUSINESS PLAN WRITTEN OR NOT

LOGISTIC REGRESSION

Variable	Parameter Estimate	P Value
Intercept	-0.4119	.805
Tolerance of Ambiguity	-0.0291	.167
Breakeven analysis performed	0.7241	.063
Amount of start up capital	0.5684	.002**
Entrepreneurial seminars attended	-0.0353	.929
Experience	-0.5310	.186
Company size	-0.0836	.402
Gender	-0.4009	.361
Hispanic	-0.6088	.318
Black	1.0839	.058
Asian	0.1549	.836
Education	0.1419	.291
Born in U.S.	1.2474	.026*

* .05 level of significance
** .01 level of significance

amount of start up capital and the entrepreneur performing a break-even analysis. The results reveal also that those with higher education are less likely to perform a break-even analysis while entrepreneurs born in the U.S. are more likely to have performed a break-even analysis.

CONCLUSION

This paper has presented the evidence regarding research into the micro-enterprise entrepreneurial firm. The results have indicated that tolerance of ambiguity is associated with age, income, and life satisfaction. The proactivity behaviors of writing a business plan or performing a break-even analysis are sometimes associated with tolerance of ambiguity. The results are summarized as follows:

- Tolerance of Ambiguity = function (age, income, life satisfaction)
- Business Plan Writing = function (amount of start-up capital, U.S. born)
- Break-even Analysis = function (tolerance of ambiguity, amount of start-up capital, education, U.S. born)

The important contribution of this paper is that these conclusions were found by sampling actual entrepreneurs in the United States (not students or entrepreneurs in other countries).These results indicated that as an entrepreneurs grows older he/she does not see the world as a threatening place or has difficulty coping with situations that are ambiguous. Moreover, these results suggest that entrepreneurs go into business for themselves to insulate themselves from the short-term ambiguities related to working for others and do see the world as a threatening place as their wealth grows.

When examining the two proactive behaviors (writing a business plan and performing break-even analysis) as they relate to tolerance of ambiguity the results are mixed. Individuals that are able to cope with ambiguous situations are able to pay attention to more information and data (like a break-even analysis). However, the proactive behavior of writing a business plan has no relationship with tolerance of ambiguity. Perhaps given to acquire funds from an outside source a business plan is needed, maybe this question had no relevance since most entrepreneurs performed this activity.

TABLE 3

PERFORMED BREAK EVEN ANALYSIS OR NOT

LOGISTIC REGRESSION

Parameter	Estimate	Pr Value
Intercept 3	-2.4436	.153
Intercept 2	-1.7428	.262
Intercept 1	3.4299	.017*
Tolerance of ambiguity	-0.0563	.004**
Amount of start up capital	0.3870	.017*
Entrepreneurial seminars attended	0.6586	.068
Gender	0.0285	.946
Hispanic	-0.7861	.148
Black	-1.0124	.052
Asian	0.2784	.684
Education	-0.2812	.022*
Born in U.S.	0.6040	.219

* .05 level of significance
** .01 level of significance

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