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The Impact of Blood Center Consolidation in Florida from 1991-2011

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Mergers and acquisitions involving various types of healthcare organizations have been well documented in recent years and a number of published studies have evaluated the pros and cons of these transactions. However, while increased consolidation activity within the blood industry has been observed nationally, there are no published studies that have empirically analyzed the impact of this activity. Due to the number of finalized transactions during the past two decades, this study focuses on blood center consolidation in Florida and explores the driving forces behind such activity. By employing a blended qualitative and quantitative approach, a better understanding of the impact of blood center consolidation was realized as it relates to key financial and operational indicators.

Findings suggest that there were several inherent benefits arising from consolidation, although the results could not be generalized beyond the scope of the limited sample size. The study did, however, provide insight into an empirical methodology that could be used to evaluate future blood center consolidation activity.

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CHAPTER I

INTRODUCTION

Background and Need

The United States healthcare system is in the midst of significant consolidation. While much of the focus is on the consolidation that is occurring among healthcare providers, the same marketplace trends have been observed among agencies and organizations that are influenced by, or have direct dealings with hospitals and other providers of healthcare services. Furthermore, while much of the recent consolidation activity may be a function of industry realignment in anticipation of healthcare reform, there is sufficient evidence to describe the historical forces driving consolidation, as well as assess the impact of such activity on the broader healthcare industry (Bazzoli, Dynan, Burns, & Yap, 2004).

Industry experts have predicted that the recently-adopted healthcare reform legislation, while addressing issues related to access to healthcare services, will also serve as an additional catalyst to an already growing trend of healthcare mergers and acquisitions (Evans, 2010). According to various prognosticators, fewer hospitals will be able to operate alone as a result of the changes that will occur in the healthcare insurance and healthcare service delivery sectors (Minich-Pourshadi, 2010). As forecasted by the key bond-rating agencies, this may also be true regarding a variety of other healthcare-related organizations (Evans, 2010; Spielman, 2010; Sheehan, 2011).

Merger and acquisition activity among healthcare organizations in the 1990s created a heightened awareness of the causes and effects of consolidation. Between 1995 and 2010, there were over 1,350 hospitals and health system transactions (Grauman, Harris, & Martin, 2010). While this number includes both for-profit and not-for-profit organizations, it clearly indicates that hospital consolidation has been among the most active areas of the healthcare industry for the past several years.

The reasons for such activity are varied. Most revolve around financial challenges facing independent hospitals, but there are also issues related to market dynamics, consolidation of clinical services, and competitive pressures. The highest level of consolidation occurred during the 1990s, tapering off somewhat between 2000 and 2009. Nevertheless, with impending uncertainty related to healthcare reform and third-party reimbursement, the level of merger activity will be on the rise once again (Tocknell, 2012).

Blueprint for the Future

With the enactment of *The Patient Protection and Affordable Care Act* (P.L. 111-148) and *The Health Care and Education Affordability Reconciliation Act of 2010* (P.L. 111-152) in March, 2010, it is widely speculated that the United States healthcare delivery system will undergo radical change. Together, these two pieces of legislation comprise what is commonly referred to as "healthcare reform" and as a result of that legislation the Congressional Budget Office estimates the expansion of healthcare coverage to 32 million people at a cost of $940 billion over the subsequent ten year period (Elmendorf, 2010). Once implemented, this legislation is expected to have long-lasting effects on the entire healthcare industry.

The uncertainty of the implications of this legislation has created a renewed sense of urgency among healthcare providers, and has prompted even more speculation as to the impact all healthcare-related organizations may expect (Evans, 2010). Further change is on the horizon and all organizations within the broader healthcare industry must be prepared to adapt accordingly.

Implications for Blood Centers

United States blood centers function in a relatively small niche industry within the much broader healthcare delivery system. Blood centers serve as vendors to hospitals; thus, their success or failure largely depends on the fluctuations of the hospital industry. Therefore, it is important for blood centers to have a keen awareness of the issues facing hospitals, and to evaluate the impact these issues will have on the blood industry. During the past three decades, there have been over thirty documented mergers and/or acquisitions involving United States blood centers, reducing the total number of independent centers from just over 100 to 75 (MacPherson. 2010). The driving forces behind this consolidation activity are very similar to those that have led to consolidation among hospitals: financial viability, operating efficiency, economies of scale, and market power (Harrison, 2006; Zuckerman, 2011). Many blood centers fear that their very survival may be in jeopardy if they remain independent, without the enhanced support and resources of a larger organization. The consolidation activity to date includes blood centers of all sizes, but generally larger centers acquire smaller centers or mergers of equal size may occur (Fuchs, 2011). It is forecasted that this trend will accelerate as a result of healthcare reform.

Problem Statement

Consolidation within the healthcare industry is not a new phenomenon. Hospitals and other healthcare organizations have been involved in merger and acquisition activity for several decades, and there have been numerous published studies that evaluate and analyze their success or failure (Bazzoli, Dynan, Burns, & Yap, 2004). However, while increased consolidation activity within the blood industry has been observed nationally, there are no published studies that empirically analyze the impact of this activity. If the rate of mergers and acquisitions within the blood industry continue to accelerate as forecasted, it would be beneficial to the industry to have an objective basis upon which to evaluate the predictors of consolidation activity.

Research Question

A presumed benefit of a merger or acquisition involving two or more blood centers is that the result will lead to enhanced benefits for the new entity. Yet, this may or may not be the case when the transaction is evaluated on well-defined criteria that are applied both pre- and post-consolidation. The aim of this study is to conduct a critical analysis of the impact of blood center consolidation activity in Florida between 1991 and 2011. Financial and operational measures will be evaluated to determine the impact of consolidation with respect to financial performance and operational efficiencies.

Population

The United States blood industry is composed of three primary sectors. The American Red Cross (ARC) operates regional donor centers which are located across many parts of the country. Approximately 40% of the United States blood supply is collected by the ARC (American Red Cross, 2012). A second major sector of the blood

industry is composed of approximately 75 independent blood centers which collect and process approximately 50% of the nation's blood supply (America's Blood Centers, 2011). The remaining 10% is collected by the military or in a relatively small number of hospital-based collection centers (DHHS, 2009). Collectively, the three sectors represent approximately $5 billion in annual sales and 16 million annual blood donations.

In the state of Florida alone, consolidation activity among blood centers has been significant. In 1991, there were 20 Florida blood centers, each operating independently. By 2011, there were only seven independent blood centers, a direct result of mergers or acquisitions during that time (AABB, 2011).

This study focuses on blood center consolidation activity in Florida during the 20-year period from 1991 – 2011 and specifically evaluates the impact of the various mergers and acquisitions that were transacted during those years.

Definition of Terms

Blood Center. The term "blood center" refers to an organization the purpose of which is to collect, test and distribute blood and blood products to be used for transfusion purposes in hospitals and other healthcare facilities involved in the provision of patient care. Sometimes referred to as "blood banks," blood centers may fall under the organizational umbrella of the American Red Cross, or may be locally organized as a freestanding community blood center.

Blood Industry. The term "blood industry" refers collectively to all blood centers as defined above.

Merger. The term "merger" refers to a transaction in which two organizations combine most or all of their assets to create a third entity, resulting in a change of control for both organizations.

Acquisition. The term "acquisition" refers to a transaction in which one organization gains control of most or all of the assets of a second organization.

Partnership. The term "partnership" refers to a transaction in which two or more organizations agree to cooperate for mutual benefit; not resulting in a change of control.

Consolidation. The term "consolidation" encompasses mergers, acquisitions, and partnerships.

CHAPTER II

LITERATURE REVIEW

Healthcare has experienced significant consolidation during the past several decades. While the main focus has primarily been within the healthcare provider community, there are examples of consolidation trends in most all sectors of the broader healthcare industry. A review of the key issues related to healthcare consolidation serves as a basis upon which the impact of this activity can be evaluated.

Hospital Consolidation

The decade of the 1990s saw a significant upsurge of merger and acquisition activity among both for-profit and not-for-profit hospitals and health systems. The strength of the United States economy, coupled with the aggressive growth strategy of for-profit healthcare companies, created an environment conducive to such activity (Zuckerman, 2009). Coming on the heels of multiple hospital mergers and closures in the 1980s, the federal government was so concerned about the availability of healthcare services in certain markets that a study was conducted by the Office of Inspector General of Health and Human Services. The study concluded that the majority of closures did not lead to any significant negative effects on individual communities. In fact, in most cases the resulting mergers addressed key operational issues and the merged hospitals were stronger financially as a result (Kusserow, 1991).

The not-for-profit sector was characterized by mounting competitive pressures and merger activity resulting from the need to protect market share, and in some cases,

counteract the aggressiveness of proprietary hospital chains (Harrison, 2006). From 1995 – 1999, over 750 hospitals underwent a change in ownership or significant re-structuring of governance and control (Bellandi, 1999; Grauman, Harris, & Martin, 2010). Studies conducted in the aftermath suggested that most hospital acquisitions in the decade of the 1990s predominantly resulted from poor financial performance on the part of the acquired organization (Sloan, Osterman, & Conover, 2003). Additionally, organizations that elected to merge with other entities did so primarily to protect or grow market share (Harrison, 2006). One study, which analyzed the impact of mergers in two metropolitan markets, concluded that the primary driving force for the mergers was the hospitals' concern about being able to compete for managed care contracts (Wicks, Meyer, & Carlyn, 1998). It furthermore concluded that the mergers were also a means by which weaker hospitals could stay operational rather than face bankruptcy or foreclosure.

Another study suggested that health care markets in the 1990s evolved differently from what was expected initially and that a different consolidation strategy would be needed as the healthcare industry entered the 21st century (Olden, Roggenkamp, & Luke, 2002). Conversely, one author stated that the most valuable lessons learned from mergers of the 1990's were not strategy-related, but related more to the resulting organizational structure that was adopted after the merger was completed (Seymour, 2009).

During the ten-year period from 2000 – 2009, a total of 597 hospital mergers and acquisitions were documented, representing 41,850 beds and a financial impact totaling nearly $74.3 billion (Steever & Swanson, 2010). While these numbers include both for-profit and not-for-profit transactions, they clearly indicate increased activity resulting primarily from the continued financial pressures in the industry. Interestingly, the

number of consolidations correlated with other overall economic indicators, with a downturn in activity in 2008 as the U.S. economy began to struggle (Zuckerman, 2009; Carlson & Galloro, 2009; Evans & Galloro, 2008).

At the beginning of the 21st century, some industry experts expressed concern about the level of merger activity that occurred during the 1990s. One study concluded that while specific mergers may have indeed strengthened their respective organizations, there was no documented improvement in service quality or cost savings (Vita & Sacher, 2001). In fact, prices passed on to the consumer actually increased as a result. Another study that was critical of such strategic alliances suggested that mergers of the future should focus more on what is good for the patient as opposed to what is good for the organization (Olden, Roggenkamo, & Luke, 2002). Other studies indicated the need for more public scrutiny of mergers, especially regarding the formation of dominant local health systems (Cuellar & Gertler, 2003).

Perhaps the predominant theme of merger activity during the early 2000s was the need to preserve the bottom line and to better position the organization for the uncertainty of the future. In many cases, this meant considering the unthinkable: merging with a cross-town rival (Butcher, 2008). Hospitals that had been fierce competitors began to seek collaborative efforts to pool resources and develop expanded specialty services. Access to capital, negotiating strength with payers and acquisition of information technology took precedence over competitive forces. The goal was to achieve a merged entity that was stronger financially with a more diverse array of specialty services (Galloro, 2010).

By the middle of the decade, it was clear that the merger and acquisition activity was beginning to change the landscape of hospital competition. Hospital consolidations of the 1990s and early 2000s had raised new issues regarding consumer choice and the limited options for providers and insurers (Ginsburg, 2005). Questions were raised regarding the future role of competition and whether it would continue to be an important part of the United States health system. Other publications criticized hospitals for jumping on the merger "bandwagon," and suggested that some mergers may have been pursued without adequate study and analysis (Kaissi & Begun, 2008).

Reasons for Consolidation

Each merger among healthcare providers that occurred in the 1990s and the 2000s may have had a specific set of objectives based on unique organizational needs; however, there were several common driving forces and reasons which led to the resulting merger decisions. One common theme was the desire to preserve or grow market share (Harrison, 2006). As competitive forces began to escalate in the 1990's, many not-for-profit hospital boards explored alternatives to strengthen their market position and thereby avoid the need to "sell out" to a for-profit chain, even if it meant joining forces with their biggest local competitor (Cuellar, 2004). While this strategy caused other operational and cultural challenges, it was felt to be a preferred alternative that represented the best interests of the community and preserved the local delivery of healthcare services (Sloan, Osterman, & Conover, 2003).

Another, perhaps more compelling, driving force was the long term financial viability of the organization (Zuckerman, 2008). Trustees of independent community hospitals that had been faced with eroding margins and reimbursement cuts were forced

to make difficult decisions that likely meant organizational survival (Gish & Kamholz, 2007). While independence may have been preferable, hospital boards tasked with the responsibility of determining community need elected to merge with competing hospitals as the best and perhaps the only feasible strategy for the future (Zuckerman, 2009). Furthermore, the economies of scale gained through consolidation were shown to have the potential to lead to a stronger negotiating position with vendors and payers, resulting in improved access to capital, expense control, clinical service consolidation and pooling of resources (Minich-Pourshadi, 2010). Conversely, there were times when economic conditions, regulatory issues, control issues or simply the overriding desire to remain independent took precedence over the need for consolidation (Carlson, 2010).

Important Pre-Transaction Considerations

As consolidation discussions progress, a number of issues must be addressed before reaching a final decision. Generally, organizations adopt a formal process to follow to ensure that all critical aspects of the transaction are thoroughly considered (Choi & Brommels, 2009). Issues such as financial projections, strategic financial planning, clinical service delivery, regulatory concerns, size of the merger and community interests cannot be overlooked in the process (Beckham, 2009; Blecher, 2002). Issues related to governance and board structure, as well as decisions regarding the selection of organizational leadership have also been shown to be critical to the long-lasting success of a merger (Lozon & Vernon, 2002).

Financial Issues. Given that many mergers frequently occur as a result of financial pressures, it is important that the financial terms make sense for all parties involved, and that an in-depth study and analysis is accomplished through a detailed due diligence

process. Particular attention must be given to ensuring that the overall strategy is supported financially (Zuckerman, 2009). Not surprisingly, some mergers eventually fail, or do not live up to expectations because financial forecasts have not been accurately formulated. Others are slow to materialize because of problematic financial projections (Zuckerman, 2010).

In response to the consolidation activity over the past two decades, the Financial Accounting Standards Board (FASB) adopted new accounting guidelines to address not-for-profit mergers and acquisitions (Evans, 2009; Heuer & Travers, 2010). These standards followed years of debate and demonstrate the increased scrutiny facing not-for-profit organizations in meeting financial disclosure requirements of various governmental agencies.

Regulatory Issues. One of the biggest hurdles to overcome in any potential merger relates to the scrutiny of the transaction by federal regulatory agencies. Throughout history, the United States government has influenced market dynamics in the business sector, dating back to the late 1800s with the Sherman Act, and early 1900s with the Clayton and Federal Trade Commission Acts. More recently, there have been mandated notification requirements related to anticipated mergers, and specific merger guidelines adopted by the Department of Justice (DOJ). A study by Blackstone and Fuhr (1992) targeted non-profit hospital mergers as an area for concern, and analyzed the anti-trust and competitive implications of not-for-profit mergers of the 1980s and early 1990s. As merger activity increased into the 1990s, additional studies were conducted and concerns were raised about how government regulation and public purchasing affect competitive markets for hospital services (Hammer & Sage, 2003; Reiffer, 2003). Subsequent studies

have shown that antitrust merger enforcement standards are not always good predictors of when a merger might be challenged and have suggested that the anti-trust laws governing hospital mergers are in need of revision, given the uniqueness of health care markets (Blesch, 2010). A recent decision reached by the Federal Trade Commission (FTC) relating to a potential merger received criticism from the industry, further prompting a call for updated guidelines (Campbell, 2007; Taylor, 2007).

By mid-2009, the FTC and DOJ announced that the Horizontal Merger Guidelines that had been issued in 1992 would be re-examined (Commins, 2009). A number of industry regulators felt that revisions may be necessary to account for new legal and economic developments since the last revision of the guidelines. By early 2010, the proposed guidelines were announced, which intended to place greater emphasis on healthcare costs and consumer access to healthcare services (Blesch, 2009).

Critical Post-Merger Challenges

Once consolidation is completed, the next major challenge relates to implementation. As such, a number of key issues must be considered to facilitate a successful transaction.

Operational Issues. In many respects, the closure of a merger or acquisition transaction is the easy part, but putting it into operation presents a new set of challenges. Important structural issues such as meeting frequency, election of officers, and committee appointments sometimes remain unclear until late in the process (Mycek, 2008). Operational issues such as non-duplication of services, consolidation of departments and programs, reduction in personnel and elimination of executive management must be addressed immediately following the closure of a merger transaction (Bazzoli, LoSasso, Arnould, & Shalowitz, 2002). Studies have suggested that failure to address such issues

in a timely fashion may place the merged entity at a competitive disadvantage as compared to other similar organizations that choose not to merge (Sinay & Campbell, 2002). While none of these decisions are simple, they are inevitably necessary so as to realize the full benefit of a merger. If appropriate planning for the merger has been accomplished as prescribed, many of these decisions should be considered prior to finalizing the deal (Choi & Brommels, 2009).

The best practices among organizations that have undergone a merger suggest that a well-defined plan can result in positive post-merger integration (Betka & Mengwasser, 2009). Considering lessons learned in the 1980s and 1990s, it is imperative that healthcare organizations approach a merger with a non-reactionary management strategy. In fact, dealing with the difficult issues in a proactive and diligent manner will yield greater merger benefits. It will also help to establish the new identity of the organization so that the defined goals and objectives can be accomplished (Betka & Mengwasser, 2009). Another study suggested that a merged organization has a greater opportunity to receive contribution and participation by key stakeholders because they perceive a "new day" in terms of operating philosophy as opposed to "business as usual" (Anderson, Allred, & Sloan, 2003).

Cultural Issues. While operational issues may often be addressed in an objective manner, the more rooted issue of organizational culture cannot. Many mergers struggle to overcome the personality differences of the two organizations and consequently create additional management challenges (McConnell, 2008). Most organizations spend significant time and money researching the financial and market position of a potential

partner, but they fail to consider the cultural differences and how decisions are made on a daily basis (Lowrey, 2007).

The biggest challenge may be for those in middle management positions who have broad responsibilities, a large number of employees and whose "ways of doing things" have suddenly been changed with new executive leadership (McConnell, 2008). Different styles of communication and the type of information to be communicated may have also changed dramatically, thus creating an environment of uncertainty (Dooley & Zimmerman, 2003). The cultural issues become even more complex when the merger involves secular/religious, community/teaching, and inter-denominational organizations (Kastor, 2001).

Consumer Issues. One of the major criticisms of hospital consolidation comes from the general public. The concern revolves around who stands to benefit most: the organizations involved or the consumer. One argument postulates that mergers are transacted primarily to increase market power, and issues such as improving service quality, reducing costs, and improving efficiency are secondary considerations (Ho & Hamilton, 2000; Cuellar & Gertler, 2005).

Other studies indicate that merged hospitals have effectively controlled growth in costs, although the cost savings were lower than originally projected (Spang, Bazzoli, & Arnould, 2001; Conner, Feldman, Dowd, & Radcliff, 1997; Conner, Feldman, & Dowd, 1998). These studies support the overarching argument that economies of scale and combined resources resulting from a merger can lead to positive outcomes which ultimately benefit the consumer of healthcare services.

Non-Hospital Consolidation Activity

Consolidation within the healthcare industry has not been exclusively restricted to hospitals. Significant consolidation has also occurred within other sectors of healthcare such as medical device companies (Becker, 2005; Levenson, 2011), health maintenance organizations (Christianson, 1997; Feldman, Wholey, & Christianson, 1996; Given, 1996), dialysis companies (Chartier, Ballesteros, & Neuman, 2005; Sullivan, 2005), pharmaceutical companies (Taylor &Kleiner, 1998) and physician practices (Minich-Pourshadi, 2011). The increasing consolidation activity within the blood industry has been of particular note (Fuchs, 2011).

The Blood Industry

Many of the same issues that led hospitals to consider consolidation as a strategy have affected the blood industry as well. The need to become more efficient, achieve economies of scale, improve financial performance and be better positioned to compete for system contracts has prompted many blood centers to seek new strategic partnerships and alliances. While many such arrangements have been documented over the past several decades, a recent upsurge in consolidation activity has been observed. Several trends unique to the industry have been catalysts for this increased activity (Fuchs, 2011).

Decreased Blood Utilization

As hospitals deal with increased financial and economic pressures, blood centers become even more vulnerable as a result of their vendor relationship. With the economic downturn that began in 2008, the demand for blood has declined nationally, and one prediction suggests that it will decrease 2-6% annually for the next ten years (Swan, 2010). This is attributable to three distinct forces:

- There have been focused efforts questioning the clinical indications for blood transfusion, and a growing concern that more blood is transfused than is clinically necessary (Hannon, 2011).

- As reimbursements for hospital services have been cut and with anticipated additional cuts in federally-sponsored programs, hospitals are becoming much more attuned to the need for reducing the costs associated with blood procurement (Landro, 2008; Paxton, 2008).

- With fluctuations in unemployment rates across the United States, many American citizens have lost their health insurance. Consequently, admissions to hospitals have declined, as have elective surgical procedures. The demand for blood has followed the same trend (DeChristopher, 2010). It is speculated that this trend may reverse somewhat as the population ages and as healthcare reform is implemented.

Unfortunately, as blood utilization in hospitals declines, so does the blood center's revenue stream since the revenues directly correlate with the volume of sales to hospitals. Thus, it is imperative that blood centers either look for new sources of revenue or reduce operating expenses.

Impact on Blood Supply

Historically, blood centers have operated under the assumption that there is a market for all blood that is collected. This has worked well in the past because the blood that was collected would either be needed within the local service area, or could be exported to other blood centers experiencing shortages. With the decline in blood usage, however, this will not be assured in the future. The industry will focus on the collection of specific blood types and attempt to match type-specific supply with demand. The impact of healthcare reform adds an additional degree of uncertainty. There is concern that blood centers may need to learn to accept financial risk similar to the risk that providers assume under a fixed contracting scenario (Swan, 2010). Blood centers will need to learn how to work with their hospital clients more effectively to better manage blood utilization.

Group Contracting and Bidding

As a result of recent financial pressures on hospitals and prospects of increasing pressures, long-standing vendor relationships are being challenged. As hospital systems have evolved and their centralized management capabilities have become more sophisticated, the supply chain function has received more attention. Consequently, health systems now look for every opportunity to use their purchase volume as leverage in negotiating supplier agreements (Andrews, 2009). In recent years, there have been several examples of "group bidding" on blood supplier agreements between health systems and blood centers in the U.S. Some of these re-negotiation efforts have resulted in strained relationships between hospitals and blood centers that had previously enjoyed positive and mutually beneficial working relationships (Andrews, 2009). Nevertheless, the current climate and changing healthcare environment have created an added degree of friction.

Another important facet of this trend is that as "system contracting" evolves, individual hospitals within multi-hospital systems may have little or no input into the contract decision. In the past, most contract negotiations were handled locally with the hospital CEO in consultation with the hospital blood bank supervisor or director of transfusion services. As hospital systems take control of the process, negotiations in the future will likely be with a system supply chain professional that may or may not be sensitive to local relationships (Swan, 2010).

Blood Center Consolidation

It is anticipated that the need for additional negotiating "clout" will inevitably lead to accelerated consolidation within the blood banking industry (Fuchs, 2011). In the past

several years, a number of independent blood centers have aligned with, merged with, or been acquired by other blood centers (MacPherson, 2010). Recent examples include blood centers in Florida (Tracy, 2010; Wright, 2009; MacPherson, 2010), Iowa (Dreeszen, 2010; Kapler, 2010), Illinois (Kapler, 2010; Allemeier, 2010), California (Kapler, 2011) and Texas (MacPherson, 2010).

It is expected that consolidations and affiliations between blood centers will continue in order to achieve economies of scale and generate aggregate cost savings. Since operating costs will most likely continue to increase due to labor, supplies, and additional FDA testing requirements, it is important that blood centers explore all potential options to save money.

The Impact of Healthcare Reform

Since an estimated additional 32 million people will be covered by health insurance, it is expected that admissions to U.S. hospitals will increase in the short term (Swan, 2010). Conversely, reimbursement for hospital services is scheduled to decrease by $152 million over 10 years, adding another degree of uncertainty (Gelineau, 2010). Revised reimbursement methodologies that place emphasis on hospital performance, service and quality will add a new dimension to an already challenging environment. As a result of anticipated decreased reimbursements, hospitals will implement cost-cutting measures such as staff reductions and delayed capital investments, as well as a renewed emphasis on efficiency and process improvement (Evans, 2010). Such initiatives will inevitably lead to significant operational and strategic repositioning of hospitals.

Industry analysts have forecasted that the trend in healthcare consolidation would accelerate as healthcare reform is implemented (Galloro, 2010). The extensive

consolidation of hospitals through mergers and acquisitions has facilitated the formation of multi-hospital systems and greater emphasis has been placed on the national importance of their role (Cuellar & Gertler, 2003). In many of these cases, the primary motivation for system creation has been the ability to use the group purchasing power of a larger system to achieve better pricing for products and services (Minich-Pourshadi, 2010). Simply put, a large multi-hospital system stands a better chance of negotiating from a position of strength, whereas an individual hospital left to negotiate alone would not be able to generate the same degree of leverage (Blecher, 2002).

The enactment of the healthcare reform legislation is anticipated to be an additional catalyst for even more healthcare consolidation, creating entities that are better able to leverage the greater purchasing power of a system and apply that power in the negotiation of vendor and supplier agreements (Galloro, 2010). The combined resources of a larger organization also allows for the creation of centralized supply chain management function, with the expressed intent of decreasing the overall expense of product and service procurement (Barr, 2010). Many locally-created systems have now employed such measures, which in many ways are modeled after the much larger national hospital chains.

Implications for the Future

As the first decade of the 2000s neared its end, speculation shifted toward the next 10 years and what lie ahead with respect to mergers and acquisitions. The previous two decades had seen unparalleled activity in both the for-profit and not-for-profit sectors of the healthcare industry. Yet, with the turbulent economic climate and the uncertainty of the impending healthcare reform legislation as a backdrop, the industry was poised to

expect another upswing in consolidation activity, guaranteed to bring a new round of challenges and opportunities (Zuckerman, 2008). The primary driving forces were predicted to be centered on the consolidation of the insurance industry, tightening capital markets, decreased reimbursement, workforce shortages, physician practice issues, and financially stressed providers (Zuckerman, 2008). Some industry experts speculated that the struggling economy will accelerate the consolidation trend; however, the rate of transaction closures may be compromised due to tight credit markets (Bakhtiari, 2009).

As of 2009, the next wave of consolidation activity is in motion, but with a different focus than before (Ponte, 2009). Increased understanding of previous mergers and the need to solicit community support will take on a renewed emphasis (Cutler, 2009). Market strength and economies of scale will still be key driving forces, as will financial performance and access to capital (Zuckerman, 2009). Given the reality of what is ahead, the key question for any independent healthcare organization will be whether or not it is positioned to remain independent. If not, it is never too soon to start identifying potential partners. Some experts speculate that the only plausible means for survival may be to consolidate (Tocknell, 2011). Taking note of what happened in other service industries, one author has suggested that mergers may even go beyond the boundaries of local markets, and that nation-wide not-for-profit health systems are a real possibility in the future (Myers & Lineen, 2009).

With the improving economy in early 2010, consolidation activity began to accelerate (Galloro, 2011). Fueling this trend were forecasts suggesting that independent not-for-profit hospitals may not fare well as a result of the healthcare reform legislation. Healthcare reform will likely drive hospital consolidation since fewer hospitals will be

able to operate under changes to the insurance and healthcare delivery systems (Evans, 2010). One author has predicted that greater for-profit investment in not-for-profit hospitals will increase, thereby increasing the level of merger interest among not-for-profit systems (Minich-Pourshadi, 2010).

Perhaps the most compelling reason for increased merger activity concerns access to capital (Tocknell, 2012). The need to keep pace with clinical technology, the need to address facility and infrastructure issues of aging physical plants and the mandate to implement electronic medical records will drive additional hospital consolidation (Grauman, Harris, & Martin, 2010).

Evaluating the Impact of Consolidation

This paper focuses on the impact of consolidation within the blood industry. While there has been a great deal of consolidation activity over the past three decades, there are no published studies that have evaluated the impact of this activity. Therefore, various methodologies used to evaluate consolidation activity in other sectors of the healthcare industry were reviewed.

Research studies designed to evaluate the impact of healthcare mergers have taken a variety of methodological approaches and have arrived at varied conclusions (Bazzoli, Dynan, Burns, & Yap, 2004). Generally, the primary motives for consolidation have focused on the need to improve financial performance, achieve operational efficiencies, improve service quality and gain a competitive advantage (Goldberg, 1999).

Operational efficiencies gained through consolidation include documented benefits such as cost savings from economies of scale, elimination of duplicative services, pooled staffing and broader geographic coverage (Conner, Feldman, Dowd, & Radcliff, 1997).

One study used a time-series analysis approach to compare key pre- and post-consolidation indicators related to scale of operation, operating efficiency and staffing practices (Alexander, Halpern, & Lee, 1996). It concluded that costs savings that resulted from consolidation could be documented in certain selected cases. Other studies have shown that consolidation leads to reduced duplication of services and that pooling of certain clinical services produced overall financial savings (Bogue, et.al., 1995; Barro & Cutler, 1997). Still, others showed that hospitals linked via loose strategic alliances may have gained market power, but have not demonstrated significant operational economies (Clement, et. al., 1997; Lynk, 1995). A subsequent study questioned the actual economies of scale benefits of hospital mergers as they relate to efficiency gains in non-revenue producing cost centers and suggested that such benefits might also be gained through nominal pricing adjustments (Dranove, 1998).

The importance of market share was the focus of one study of mergers between competing hospitals operating in the same service area (Brooks & Jones, 1997). This study concluded that other factors such as financial performance and ownership may have had greater bearing than market share alone. Another study looked at the evolution of rural hospital systems to determine the most relevant factors that lead to improved financial performance (Chan, Feldman, & Manning, 1999). It concluded that certain economies of scale could be achieved from consolidation as long as an optimum number of hospitals participated in collective group initiatives. Consolidation activity that occurred in the 1990s was compared and contrasted with the merger and acquisition activity of the 1980s (Bazzoli, Manheim, & Waters, 2003). This study concluded that smaller, financially weak organizations were more likely to join multi-

hospital systems in the 1980s, whereas in the 1990s there was a trend of larger hospitals joining systems to be better positioned for the future.

Common ownership under a single governance structure has been shown to be an important indicator of improved financial performance (Bazzoli, Chan, Shortell, & D'Aunno, 2000). This study concluded that while various models of consolidation may lead to improved operational benefits, hospitals and health systems that operate under unified ownership generally have better financial performance than hospitals that are only linked through some type of contractual arrangement. A subsequent study corroborated this finding using a unified empirical methodology to assess multi-hospital system development in comparison with full asset mergers (Dranove & Lindrooth, 2003). The study concluded that hospital mergers that resulted in consolidated financial reporting as well as unified operating licenses generated the greatest savings, while only marginal savings were generated in multi-hospital system consolidation.

Of particular concern is the fact that not all mergers turn out the way they were originally envisioned. Several studies have evaluated mergers to determine reasons for their success or failure (Scanlan, 2010). One study analyzed the failed merger of a Catholic hospital with a non-faith-based community hospital (Eberhart, 2001). It concluded that the merger failed as a result of three strategic errors: divergent cultures, negative response from the general public and legal issues related to the charitable missions of each organization. Similar issues related to culture and mission were determined to be the downfall of mergers of teaching hospitals (Kastor, 2001).

Several studies found in the literature have approached the evaluation of healthcare mergers using similar methodologies. Two studies evaluated hospital mergers and acquisitions in both the not-for-profit and for-profit sectors to determine if there were significant financial and operational benefits that could be documented as a result of consolidation (Alexander, Halpern, & Lee, 1996; Lynch & McCue, 1990). Another study used a similar approach in the evaluation of mergers among health maintenance organizations (Weech-Maldonado, 2002). Using a time series analysis to compare pre- and post-consolidation indicators, this study calculated change scores for key financial and operating performance measures and then evaluated these scores using appropriate statistical tools. A companion study identified key strategic factors and evaluated these factors in association with HMO performance (Weech-Maldonado, 2002). The approaches used by these studies were determined to be the best methodologies upon which to model the evaluation of blood center consolidation. Therefore, this paper employs elements from each of these studies in the collection and analysis of data.

CHAPTER III

METHODOLOGY

Background

Significant research has led to the publication of numerous studies that evaluate and analyze the impact of consolidation in a variety of healthcare organizations (Bazzoli, Dynan, Burns, & Yap, 2004). Many of the published studies have focused on the success or failure of hospital consolidation, but several have also looked at the impact of consolidation within other health-related organizations such as health maintenance organizations, dialysis centers, and physician group practices (Bazzoli, Dynan, Burns, & Yap, 2004). However, it is surprising, given the number of blood center mergers and/or acquisitions during the past several decades, that there are no published studies that have empirically analyzed the success or failure of blood center consolidation.

The goal of this study is to prove or disprove the presumption that blood center consolidation leads to improved financial and operational performance for the resulting entity. If blood center consolidation will continue to accelerate as forecasted, the blood industry would benefit from both a better understanding of past merger and/or acquisition transactions and an objective methodology by which to evaluate previous consolidation efforts. An analysis of blood center consolidation in Florida between the years 1991 and 2011 is thereby conducted in hopes of determining the impact of such activity.

Consolidation as an Organizational Strategy

Like organizations in other industries, most healthcare organizations go through a strategic planning process that serves to define future goals and objectives. Key components of this process include assessing both internal and external factors that have or may potentially have implications for continued success. The external issues quite often revolve around the various competitive forces that may influence the resulting strategy.

Porter has defined five competitive forces that play a role in shaping organizational strategy (Porter, 2008). These five forces include: 1) the threat of the entry of new competitors; 2) the threat of substitute products or services; 3) the bargaining power of customers; 4) the bargaining power of suppliers; and, 5) the intensity of competitive rivalry. When applied to the blood industry, the competitive force model poses some interesting implications that serve to explain some of the past consolidation activity as well as provide insight into the future.

Force #1 – Threat of entry of new competitors. As the healthcare industry has changed in recent years as a result of financial challenges, competition within the blood industry has intensified. While defined service areas and hospital clients have evolved somewhat naturally over time, group contracting and bidding for the best prices have altered those natural boundaries (Fuchs, 2011). Blood centers are being forced to be more competitive regarding price and service to maintain their current client base, as well as to take advantage of opportunities to serve new hospital clients when invited to submit a proposal. The independent community blood center may or may not be able to bid on additional business due to geography, size, or other limitations. By collaborating with

another blood center (or multiple blood centers), the community blood center could potentially be better prepared to block the entry of undesirable competitors.

Force #2 – Threat of substitute products or services. While it is speculated that medical research may eventually lead to the development of a substitute for blood and blood products, it is uncertain how realistic that may be or when such a development may be available for use in the United States. Nevertheless, blood centers should always remain cognizant of the fact that the entire industry could be transformed when and if a blood substitute is made available. In addition, new and changing treatment protocols such as concerted blood conservation efforts, bloodless surgery and the use of cell saver technologies may also impact blood utilization in certain clinical applications. This issue is not addressed within the scope of this study.

Force #3 – Bargaining power of customers. The primary customer base for blood centers consists of the hospital clients to whom blood and blood products are supplied. Of notable concern is the fact that the hospital industry is in a major state of transition, particularly concerning hospital consolidation and system development. One of the main driving forces of hospital consolidation, as previously noted, is the desire to achieve advantages based on volume and gain more purchasing leverage with vendors and suppliers (Goldberg, 1999). When hospitals consolidate through merger or acquisition, the purchasing power of the combined entity is typically enhanced. As a result, more pressure is placed on blood centers to remain price competitive so as to retain the business. Otherwise, the hospital system is likely to look to other suppliers who may not only serve their needs, but also offer a lower service price. To offset this competitive

disadvantage, blood centers look to collaboration with other centers in order to achieve economies of scale and thereby keep product costs low.

Force #4 – Bargaining power of suppliers. Operational costs of blood centers have become a key focus in recent years as the natural costs of doing business have increased. This focus has been on both labor and non-labor expenses and many centers have initiated specific process improvement initiatives to reduce operating costs. Supply chain management within the blood center has received greater attention mainly due to the large amount of money that is spent on the supplies required to collect, process, and distribute blood. To offset the bargaining power exerted by the various suppliers, blood centers must explore ways to pool or combine purchasing power in order to gain an added degree of leverage. Sometimes this can be accomplished by participating in one or more group purchasing organizations (GPOs). However, the GPOs are limited because there may be other items that are needed that might not be obtained through a GPO contract. Thus, blood centers pursue collaboration with other centers in order to increase purchase volume as a means of dealing with the negotiating power of certain vendors and suppliers.

Force #5 – Intensity of competitive rivalry. Competition among blood centers varies significantly across the United States. In some areas, there is intense competitive rivalry between centers serving the same market. This competition may be between independent blood centers or may be a result of competition between an independent center and one that is operated by the American Red Cross. In other parts of the U.S., competition is not as intense because service areas are somewhat defined and have little or no overlap with a neighboring blood center. This issue is not addressed within the scope of this study.

Blood Center Consolidation Activity

During the period from 1991-2011, there were over thirty documented mergers and/or acquisitions involving U.S. blood centers (MacPherson, 2010). This trend continues today and is expected to accelerate as a result of healthcare reform.

In the state of Florida alone, consolidation activity among blood centers has been significant. In 1991, there were 20 blood centers in Florida, each operating independently of each other. By 2011, there were only seven independent blood centers, a direct result of mergers and acquisitions during that time.

If the forecasts are accurate about continued consolidation within the blood industry, what lessons can be learned from the consolidation activity that has already occurred? Has it been successful? Has it accomplished what it was envisioned to accomplish? If so, what were the documented benefits of consolidation?

Background of Blood Center Activity in Florida

To fully understand the history of the Florida blood industry landscape, a timeline and description of the pertinent sequence of events was constructed. As a basis of initial reference, Table 1 provides an alphabetical listing of all 20 independent blood centers operating in Florida in 1991.

Table 1

Independent Blood Centers in Florida in 1991

• Broward Community Blood Center, Fort Lauderdale
• Central Florida Blood Bank, Orlando
• Civitan Regional Blood Center, Gainesville
• Community Regional Blood Center, St. Petersburg
• Edison Regional Blood Center, Ft. Meyers
• Holmes Regional Blood Center, Melbourne
• Hunter Blood Center, Clearwater
• Indian River Blood Bank, Vero Beach
• Jacksonville Blood Bank, Jacksonville
• Leon County Blood Bank, Tallahassee
• Lower West Coast Blood Center, Sarasota
• Manatee County Blood Bank, Bradenton
• Marion County Blood Bank, Ocala
• Naples Community Hospital Blood Bank, Naples
• Northwest Florida Blood Center, Pensacola
• Putnam County Blood Bank, Palatka
• South Florida Blood Services, Palm Beach
• Southwest Florida Blood Bank, Tampa
• St. Johns County Blood Bank, St. Augustine
• R.P. Tew Memorial Blood Center, Lakeland

While some centers merely changed their name for branding purposes, intentional consolidation activity began in 1992 when Central Florida Blood Bank acquired Marion County Blood Bank. Since that time, there have been 10 additional mergers or acquisitions over the subsequent 20-year period. Table 2 provides a timeline of such events between 1991 and 2011.

Table 2

Timeline of Events Involving Blood Centers in Florida, 1991-2011

1991	Broward Community Blood Center changes name to Community Blood Centers of South Florida
1992	Central Florida Blood Bank acquires Marion County Blood Bank
1992	Civitan Regional Blood Center acquires Putnam County Blood Bank
1993	Leon County Blood Bank changes name to Southeastern Community Blood Center
1993	Community Regional Blood Center, Hunter Blood Center, and Southwest Florida Blood Bank merge to form Florida Blood Services
1994	St. John's County Blood Bank changes name to Blood Center of the St. John's
1996	Edison Regional Blood Center merges with Central Florida Blood Bank
1997	Civitan Regional Blood Center changes name to Lifesouth Community Blood Centers
1997	Naples Community Hospital Blood Bank changes name to Community Blood Center
1998	Central Florida Blood Bank acquires Holmes Regional Blood Center
1999	R.P. Tew Memorial Blood Center changes name to BloodNet
2000	Lower West Coast Blood Center changes name to Suncoast Communities Blood Bank
2001	Jacksonville Blood Bank changes name to Florida Georgia Blood Alliance
2002	Central Florida Blood Bank changes name to Florida's Blood Centers
2004	Florida Blood Services acquires Manatee County Blood Bank
2006	Florida Georgia Blood Alliance acquires Blood Center of the St. John's
2007	Florida Georgia Blood Alliance changes name to The Blood Alliance
2008	Florida Blood Services acquires Northwest Florida Blood Center
2008	BloodNet acquires Indian River Blood Bank
2008	Southeastern Community Blood Center merges with Florida Blood Services
2009	Community Blood Centers of South Florida changes name to Community Blood Centers of Florida
2009	Florida Blood Services acquires BloodNet

As a result of 11 mergers or acquisitions, by the end of 2011 only seven independent blood centers remained operational in Florida. All but two had been involved in at least

one consolidation transaction, and three had been involved in multiple transactions. Those remaining operational in 2011 area as follows:

- Community Blood Center, Naples
- Community Blood Centers of Florida, Miami
- Florida Blood Services, St. Petersburg
- Florida's Blood Centers, Orlando
- Lifesouth Community Blood Centers, Gainesville
- Suncoast Communities Blood Bank, Sarasota
- The Blood Alliance, Jacksonville

Study Design

To evaluate blood center consolidation within Florida from 1991 – 2011, a two-phased case study design was selected as the most meaningful approach to assess the impact of this activity. The study design consisted of using qualitative information gathered through focused interviews, along with subsequent analysis of quantitative data collected from document review.

Qualitative Study – Focused Interviews

To determine the most pertinent overall issues related to consolidation activity, a series of focused interviews was conducted with selected individuals who were serving in an executive capacity within their respective blood centers during the time that the transaction was finalized. The primary intent of the interview process was to gain the insight and perspective of the key persons who actually participated in the facilitation of a merger or acquisition. Information gathered through this process was used to establish the

strategic rationale behind the decision to merge, acquire, or be acquired, as well as to augment the subsequent quantitative analysis.

Focused interviews were conducted consistent with the general interview guide technique (Patton, 1990). An interview outline was prepared as a topical guide, including a checklist to record responses. Specific questions were left unstructured, in no pre-determined order and open-ended so as to give the individual being interviewed sufficient latitude for responses and sharing of information. An example of the interview outline and checklist is shown in Figure 1.

Figure 1

Focused Interview Outline

1. **Why was consolidation strategy considered?**

   _____

2. **What were the key driving forces behind the decision to consolidate?**

   _____

3. **Was more than one option considered? Yes_____ No_____**
4. **Were financial and operational goals established? If so, what were they?**

   _____

5. **Were these goals achieved? Yes_____ No_____**
6. **Would the resulting merger (or acquisition) be considered a success or a failure? Why?**

   _____

7. **What could or should have been done differently?**

   _____

Quantitative Study – Financial and Operational Analysis

An analysis of data collected through document review was conducted to determine the impact that consolidation had on blood center financial and operational performance. This quantitative analysis provided an empirical means by which the consolidation activity could be evaluated using pre- and post-consolidation data.

Sources of Data. Because there is no publicly available central repository for blood center information, the financial and operational data used for analysis were obtained from two primary sources:

- Review of information submitted by the respective blood centers to America's Blood Centers (ABC) in conjunction with the ABC Annual Financial Ratio Survey (Coenen, 2011).
- Review of audited Financial Statements and related documents provided by the respective blood centers.

While it would have been preferable to analyze data from one unified source, it was felt that the objective use of available data from these two sources provided a consistent approach to this study.

Measures and Research Hypotheses

Five key financial and operational ratios were selected for use as a means of establishing uniform measurement criteria. For each individual measure, a corresponding hypothesis was constructed that was tested based on subsequent analysis of the data that were gathered.

A. **Financial Ratios** – Financial performance was measured using three ratios commonly used to evaluate financial performance in the healthcare industry (Cleverly and Cameron, 2007; Spielman, 2011). The selected ratios included the following:

1. **Profitability** – Defined as Net Income divided by Total Revenue, this ratio measures the proportion of net income (profit) that is generated from total revenue.

H0: Consolidation has no impact on the Profitability ratio.

H1: The Profitability ratio will improve as a result of consolidation.

2. **Return on Assets** – Defined as Net Income divided by Total Assets, this ratio measures the relationship between income that is generated and total assets.

H0: Consolidation has no impact on the Return on Assets ratio.

H2: The Return on Assets ratio will increase as a result of consolidation.

3. **Working Capital to Assets** – Defined as Current Assets minus Current Liabilities divided by Total Assets, this ratio is a financial measure of liquidity.

H0: Consolidation has no impact on the Working Capital to Assets ratio.

H3: The Working Capital to Assets ratio will increase as a result of consolidation.

B. **Operational Ratios** – Operational performance was measured using two ratios commonly used as a basis of comparison in the blood industry (Coenen, 2011). The selected ratios included the following:

4. **Labor Costs per Revenue** – This ratio, defined as Total Salaries plus Benefits divided by Total Revenue, measures proportion of labor expense in relationship to revenue generated.

H0: Consolidation has no impact on the Labor Costs per Revenue ratio.

H4: The Labor Costs per Revenue ratio will decrease as a result of consolidation

5. **Net Income per FTE** – This ratio, defined as Net Income divided by the Total number of Full-Time-Equivalent employees, measures resulting net income in relationship to the number of staff.

H0: Consolidation has no impact on the Net Income per FTE ratio.

H5: The Net Income per FTE ratio will increase as a result of consolidation.

Study Sample

The 11 mergers or acquisitions that occurred in Florida between 1991 and 2011 were included in the data analysis. Sufficient financial and operational data needed to conduct the analysis were obtained for the two years before and the two years after each consolidation transaction. A listing of these transactions and the dates in which they occurred is provided in Table 3.

Table 3

Study Sample of Consolidation Transactions

Trans.	Year	Description
1.	1992	Central Florida Blood Bank acquires Marion County Blood Bank
2.	1992	Civitan Regional Blood Center acquires Putnam County Blood Bank
3.	1993	Community Regional Blood Center, Hunter Blood Center, and Southwest Florida Blood Bank merge to form Florida Blood Services
4.	1996	Edison Regional Blood Center merges with Central Florida Blood Bank
5.	1998	Central Florida Blood Bank acquires Holmes Regional Blood Center
6.	2004	Florida Blood Services acquires Manatee County Blood Bank
7.	2006	Florida Georgia Blood Alliance acquires Blood Center of the St. John's
8.	2008	Florida Blood Services acquires Northwest Florida Blood Center
9.	2008	BloodNet acquires Indian River Blood Bank
10.	2008	Southeastern Community Blood Center merges with Florida Blood Services
11.	2009	Florida Blood Services acquires BloodNet

Blood Center Profile

To further describe the study sample, a profile matrix was constructed showing the relative size of each blood center and the type of consolidation that occurred. The definition of blood center size is consistent with the following criteria as adopted by America's Blood Centers:

Small: 10,000 – 49,999 annual collections

Medium: 50,000 – 99,999 annual collections

Large: 100,000+ annual collections

While there were 11 consolidation transactions finalized during the study period, the profile matrix indicates that a total of 23 blood centers were involved during the study time period. This total accounts for the fact that some centers were involved in multiple transactions. As such, they were counted separately for each transaction. Additionally, some centers may have been classified in the small or medium category during one transaction, but then moved to the medium or large category in subsequent transactions due to a change in size. The profile matrix is shown in Table 4.

Table 4

Blood Center Profile

Type of Transaction	Small	Medium	Large	TOTAL
Merged with another center	4	2	1	7
Acquired by a larger center	6	2	0	8
Acquired a smaller center	0	5	3	8
TOTAL	10	9	4	23

Transaction Analysis Model

Previous studies have evaluated healthcare mergers and acquisitions by conducting statistical analyses comparing pre- and post-consolidation data (Lynch and McCue, 1990; Alexander, Halpern, & Lee, 1996; Weech-Maldonado, 2002). These studies have served as a basis upon which to empirically assess the impact of consolidation activity using

financial and operational data collected from available sources. A conceptual model used to explore these relationships is presented in Figure 2.

Figure 2

Transaction Analysis Model

	t-2	t-1	t	t+1	t+2	
Blood Center A	**m**	**m**	**X**			
			X	**m**	**m**	**Consolidated Center**
Blood Center B	**m**	**m**	**X**			

t = transition year (year in which consolidation was finalized)
t-1 = one year pre-consolidation
t-2 = two years pre-consolidation
t+1 = year one post-consolidation
t+2 = year two post-consolidation
m = average measure of selected ratio (Profitability, Return on Assets, Working Capital to Assets, Labor Costs per Revenue, Net Income per FTE)
X = data excluded from analysis

Data Analysis

A pre- and post-test study design was used to study the effects of consolidation on blood center financial and operational performance. All centers that merged with, acquired or were acquired by another center between the years 1991 and 2011 were targeted for analysis.

Financial and operational performance was measured for each blood center in each of the two years immediately before consolidation and the two years following consolidation. The two-year period was chosen because the resulting impact of consolidation may not be evident for a period of time after the consolidation is finalized. The year in which the consolidation was finalized was considered a period of transition,

therefore the data from that year were excluded from the analysis. This approach is consistent with previous research conducted to evaluate other healthcare mergers and acquisitions (Alexander, Halpern, & Lee, 1996; Lynch and McCue, 1990; Weech-Maldonado, 2002).

CHAPTER IV

RESULTS

Qualitative Study

Attempts were made to conduct interviews with 10 individuals who held senior-level executive positions at the targeted blood centers during the time in which the merger or acquisition was finalized. Of the 10 attempts, seven successful interviews were completed, two in person and five by telephone.

A written record and checklist of responses was documented for each completed interview. Responses were summarized to determine common themes as well as areas of differing opinions. Table 5 summarizes the responses by category.

Table 5

Interview Responses

1. Why was a consolidation strategy considered?

Response	Frequency
Blood center was financially distressed; needed capital partner	4
To facilitate growth	3
To achieve economies of scale	4
Negotiating leverage with hospitals and vendors	3

2. What were the key driving forces behind the decision to consolidate?

Response	Frequency
Growth in Market Share	6
Achieve economies of Scale	5
Resources needed to explore new or expanded services and products	5
Need to achieve greater operational efficiencies	5
Desire to acquire new clinical and information technologies	5
Resource sharing in core support functions (*)	5
Improved financial performance	5
Positioning for the future/Healthcare Reform	4
Greater bargaining power with hospital systems	4
Greater bargaining power with vendors	3
Access to capital to address aging physical plant and equipment	3
Declining revenues; increasing costs	3
Competitive threats	3

(*) Examples included Finance, Human Resources, Quality Assurance, Information Technology, Donor Recruitment, Marketing, and Training)

3. Was more than one option considered? Yes = 4; No = 3

4. Were financial and operational goals established? Yes = 2; No = 5

If so, what were they?

- Revenue growth/ Improved profitability
- Reduced overhead
- Expanded market share
- Decreased operational costs

5. **Were these goals achieved?**

Comments:

Goals were not achieved immediately; took two or more years to realize.

Costs actually increased first year, then decreased second year and beyond. Documented savings in labor and supplies expenses.

Savings achieved in overhead.

6. **Would the resulting merger (or acquisition) be considered a success or a failure? Success = 5; Failure = 2**

Comments:

Success: It resulted in expanded market share

Operational economies of scale were achieved

Improved financial performance

Strong level of support by both boards

Joint strategic planning was done prior to transaction

Positioned the organization for future sustainability

Failure: There was no defined vision established prior to the transaction

Too much distrust from the very beginning

Unfulfilled promises on the part of the acquiring entity

Unanticipated negative reaction from staff personnel

Negotiations were one-sided

Wish that it had never occurred

Too much middle management resistance

Unrealistic goals were established

Poor execution after the deal was finalized

7. **What could or should have been done differently?**

Should have engaged an independent consultant to facilitate negotiations

Needed better definition of goals and objectives to be achieved

Should have conducted joint planning prior to finalizing the transaction

Impact of blended organizational cultures was underestimated

Quantitative Study

Financial and operational data were collected from the sources previously described. Summary sheets were prepared for each individual blood center and the data necessary to calculate the ratios under study were recorded corresponding to each of the two pre-consolidation (t-2 and t-1) and two post-consolidation (t+1 and t+2) years.

Applicable ratios for each blood center were calculated for each of the pre- and post-consolidation years. An average pre-consolidation value for each ratio was then calculated for each blood center in the study sample. Corresponding calculations were conducted to determine post-consolidation values. Resulting values for both calculations were recorded and documented. These values are presented in Appendix A.

Subsequent calculations were conducted so as to determine a Change Score, defined as the difference between two measured values. Values were determined for each of the following:

Change Score a –the difference between the post-consolidation average and the pre-consolidation average (Post Avg – Pre Avg).

Change Score b – the difference between year one post-consolidation and the pre-consolidation average [(t+1) - Pre Avg].

Change Score c – the difference between year two post-consolidation and the pre-consolidation average [(t+2) - Pre Avg].

Average values of Change Scores for the study sample were calculated in order to arrive at an aggregate mean Change Score for each ratio under study. The value of the mean Change Scores were then used to determine whether there was an observed positive or negative change in each of the five ratios. Conclusions regarding these changes were

determined based on this initial data analysis. Since the sample size included 100% of the study population, additional tests for significance were deemed to be unnecessary.

For each of the five hypotheses defined earlier, there were three sub-hypotheses constructed to evaluate the three Change Scores (a, b, and c) previously described. Table 6 summarizes the resulting values.

Table 6

Quantitative Analysis Summary

Ratio	Mean	Std. Dev	N
Profitability			
H1a	**0.0066**	**0.0302**	**11**
H1b	**0.0017**	**0.0261**	**11**
H1c	**0.0114**	**0.0349**	**11**
Return on Assets			
H2a	**0.0084**	**0.0316**	**11**
H2b	**0.0012**	**0.0348**	**11**
H2c	**0.0155**	**0.0301**	**11**
Working Capital to Assets			
H3a	**-0.0088**	**0.0570**	**11**
H3b	**-0.0173**	**0.0532**	**11**
H3c	**-0.0003**	**0.0613**	**11**
Labor Costs per Revenue			
H4a	**-0.0016**	**0.0258**	**11**
H4b	**0.0005**	**0.0218**	**11**
H4c	**-0.0033**	**0.0315**	**11**
Net Income per FTE			
H5a	**33**	**3105.22**	**11**
H5b	**-232.91**	**2925.18**	**11**
H5c	**298.91**	**3339.1**	**11**

Hypothesis 1: Profitability

Hypothesis 1 states that the Profitability ratio will improve as a result of consolidation. To test this hypothesis, three sub-hypotheses were defined as follows:

H1a: The average profitability ratio for the combined two years post-consolidation will be better than the average profitability ratio for the combined two years pre-consolidation.

The positive value of the mean (0.0066) indicates that profitability did improve when the average of the two pre-consolidation years was compared to the average of the two post-consolidation years.

H1b: The average profitability ratio for year one post-consolidation will be better than the average profitability ratio for the combined two years pre-consolidation.

The positive value of the mean (0.0017) indicates that profitability did improve when the average of the two pre-consolidation years was compared to year one post-consolidation.

H1c: The average profitability ratio for year two post-consolidation will be better than the average profitability ratio for the combined two years pre-consolidation.

The positive value of the mean (0.0114) indicates that profitability did improve when the average of the two pre-consolidation years was compared to year two post-consolidation.

Hypothesis 2: Return on Assets

Hypothesis 2 states that the Return on Assets will increase as a result of consolidation. To test this hypothesis, three sub-hypotheses were defined as follows:

H2a: The average Return on Assets ratio for the combined two years post-consolidation will be higher than the average Return on Assets ratio for the combined two years pre-consolidation.

The positive value of the mean (0.0084) indicates that Return on Assets did improve when the average of the two pre-consolidation years was compared with the average of the two post-consolidation years.

H2b: The average Return on Assets ratio for year one post-consolidation will be higher than the average of the combined two years pre-consolidation.

The positive value of the mean (0.0012) indicates that Return on Assets did improve when the average of the two pre-consolidation years was compared with year one post-consolidation.

H2c: The average Return on Assets ratio for year two post-consolidation will be higher than the average of the combined two years pre-consolidation.

The positive value of the mean (0.0155) indicates that Return on Assets did improve when the average of the two pre-consolidation years was compared with year two post-consolidation.

Hypothesis 3: Working Capital to Assets

Hypothesis 3 states that the Working Capital to Assets ratio will increase as a result of consolidation. To test this hypothesis, three sub-hypotheses were defined as follows:

H3a: The average Working Capital to Assets ratio for the combined two years post-consolidation will be better than the average Working Capital to Assets ratio for the combined two years pre-consolidation.

The negative value of the mean (-0.0088) indicates that Working Capital to Assets actually declined when the average of the two post-consolidation years was compared with the two pre-consolidation years.

H3b: The average Working Capital to Assets ratio for year one post-consolidation will be better than the average Working Capital to Assets ratio for the combined two years pre-consolidation.

The negative value of the mean (-0.0173) indicates that the Working Capital to Assets ratio actually declined when the average of the two pre-consolidation years was compared to year one post-consolidation.

H3c: The average Working Capital to Assets ratio for year two post-consolidation will be better than the average Working Capital to Assets ratio for the combined two years pre-consolidation.

The negative value of the mean (-0.0003) indicates that the Working Capital to Assets ratio actually declined when the average of the two pre-consolidation years was compared to year two post-consolidation.

Hypothesis 4: Labor Costs to Revenue

Hypothesis 4 states that the Labor Costs per Revenue ratio will decrease as a result of consolidation. To test this hypothesis, three sub-hypotheses were constructed as follows:

H4a: The average Labor Costs to Revenue ratio for the combined two years post-consolidation will be lower than the average Labor Costs per Revenue for the combined two years pre-consolidation

The negative value of the mean (-0.0016) indicates that the Labor Costs per Revenue ratio was reduced when the average of the two pre-consolidation years was compared with the average of the two post-consolidation years.

H4b: The average Labor Costs per Revenue ratio for year one post-consolidation will be lower than the average Labor Costs per Revenue for the combined two years pre-consolidation.

The positive value of the mean (0.0005) indicates that the Labor Costs per Revenue actually increased when the average of the two pre-consolidation years was compared with year one post-consolidation.

H4c: The average Labor costs per Revenue ratio for year two post-consolidation will be lower than the average Labor Costs per Revenue for the combined two years pre-consolidation.

The negative value of the mean (-0.0033) indicates that the Labor Costs per Revenue decreased when the average of the two pre-consolidation years was compared with year two post-consolidation.

Hypothesis 5: Net Income per FTE

Hypothesis 5 states that the Net Income per FTE ratio will increase as a result of consolidation. To test this hypothesis, three sub-hypotheses were constructed as follows:

H5a: The average Net Income per FTE ratio for the combined two years post-consolidation will be higher than the average Net Income per FTE for the combined two years pre-consolidation.

The positive value of the mean (33) indicates that Net Income per FTE increased when the average of the two pre-consolidation years was compared with the average of the two post-consolidation years.

H5b: The average Net Income per FTE ratio for year one post-consolidation will be higher than the average Net Income per FTE for the combined two years pre-consolidation.

The negative value of the mean (-232.91) indicates that Net Income per FTE actually decreased when the average of the two pre-consolidation years was compared with the average of year one post-consolidation.

H5c: The average Net Income per FTE ratio for year two post-consolidation will be higher than the average Net Income per FTE for the combined two years pre-consolidation.

The positive value of the mean (298.91) indicates that the average net Income per FTE increased when the average of the two pre-consolidation years was compared with the average of year two post-consolidation.

CHAPTER V

DISCUSSION

Introduction

The inception of this study grew out of the need to gain additional insight into the impact of blood center consolidation. While blood center mergers and acquisitions in the U.S. have been occurring for over 25 years, historical transactional data is not readily available so as to conduct an in-depth analysis. Many of these consolidation transactions were never studied or evaluated in a formal manner. Furthermore, data on the impact of consolidation and what was accomplished through consolidation does not exist, at least not in published form. In fact, access to data necessary to conduct any type of meaningful study is difficult to obtain and can only be obtained upon request and permission granted by individual blood centers. Nevertheless, since the trend of consolidation continues to accelerate, the impact of this activity certainly merits research and study.

While it would have been preferred to conduct this evaluation using a study sample of all blood centers in the United States that have been involved in consolidation activity, it was not practical in terms of data availability. Therefore, a manageable study sample of blood centers in Florida was chosen based on the following reasons:

1. Florida is one of the states where mergers and acquisitions have been quite active, at least in the last 20 years. Hence, the consolidation activity in Florida provided a valuable opportunity for a case study.

2. While access to data posed certain challenges, there was a sincere interest on the part of several key individuals in leadership positions at blood centers in Florida to provide the data and information necessary to conduct this study. Their support in this endeavor is certainly appreciated.
3. Consolidation activity among U.S. blood centers is certain to continue, especially in the state of Florida.

While an obvious limitation to this study is the relatively small sample size of 11 transactions, the study serves to provide qualitative as well as analytic insight into past consolidation activity. In this regard, it serves as a basis upon which future consolidation activity might be evaluated so as to forecast the impact of consolidation efforts.

Qualitative Findings

Findings as a result of the focused interview process appear to be consistent with Porter's competitive force model described earlier. Porter's Force #1 suggests that organizational strategy is often determined based on the threat of new competitors in the marketplace. Focused interview results clearly indicate that one of the key driving forces behind the decision leading to blood center consolidation was the need to become more efficient operationally to keep costs from escalating. This, in turn, would allow pricing to remain competitive to maintain and grow market share.

Another key driving force evident from the interviews was the blood center's need to be positioned to bid on hospital system contracts. The trend of system contracting has forced blood centers to be more price competitive and cover a wider geographical service area. Collaboration with other blood centers can serve to address both issues.

Similarly, interview results indicated a strong desire to gain additional bargaining power with hospitals (i.e., customers) when negotiating service contracts, as defined by Porter's Force #3. By consolidating with other blood centers, smaller blood centers are able to achieve a level of bargaining power and market growth that they could not have achieved alone. Given the consolidation that is occurring among hospitals, blood centers are likely to respond to market pressures by consolidating with other centers.

The need for improved financial performance and the achievement of economies of scale was clearly evident in interview responses. This is consistent with Porter's Force #4 which defines the strategic need to maintain a strong negotiating position with suppliers. As evidenced by the responses, blood centers have placed greater focus on both labor and non-labor expenses in an effort to become more efficient. By collaborating with other centers, overall purchase volume increases and thereby achieves greater leverage in negotiations with suppliers and vendors.

Quantitative Findings

A limiting aspect of the study design was that insufficient data were available to amass a sufficient sample size so that the results could be generalized to describe the broader blood industry. Consequently, any inferences drawn from the resulting calculations could only be made as they relate to the 11-transaction sample size.

Profitability. The findings suggest that profitability indeed improved following consolidation. Based on the data that were analyzed, the average profitability ratio increased by 0.0066 when the two post-consolidation years were compared to the two pre-consolidation years. Most of the improvement was realized in year two post-

consolidation (0.0114), although some improvement was also realized in year one post-consolidation (0.0017).

These findings serve to support the responses that were identified through the focused interview process. As previously noted, there was sufficient evidence in the interview process to suggest that improved financial performance was a desired outcome of consolidation. The respondents, who acknowledged that these goals had been achieved, also stated that the results were not immediately evident in year one post-consolidation, but that it generally took about two years before the desired results were realized.

Return on Assets. The average pre- and post-consolidation comparisons for Return on Assets increased by 0.0084, indicating that the Return on Assets ratio was greater post-consolidation. These findings suggest that the consolidated organizations made better use of their assets in generating income, as compared to the individual organizations operating as separate entities. Much like the Profitability ratio, most of the improvement was realized in year two post-consolidation (0.0155), although there was also slight improvement in year one post-consolation (0.0012).

These findings also serve to support the responses that were provided as part of the focused interview process. Specific goals that were identified such as growth in revenue, reduced overhead, economies of scale and decreased operational costs all factor into an improved Return on Assets ratio for the combined entity.

Working Capital to Assets. A somewhat surprising finding was that the Working Capital to Assets ratio actually declined as a result of consolidation. When comparisons were made between the two pre-consolidation years and the two post-consolidation years,

the average Working Capital to Assets ratio decreased by 0.0088. This was also the case for each of the two post-consolidation years (-0.0173 in year one and -0.0003 in year two). The explanation for this decrease could be attributed to a number of factors such as a decline in cash, an increase in short term liabilities, or a disproportionate increase in fixed assets resulting from the transaction.

These findings also run somewhat counter to the focused interview responses. It was the general feeling among respondents that the overall financial structure of the blended organization would be strengthened. While Profitability and Return on Assets showed slight improvement, the Working Capital necessary to achieve operational goals may have actually been compromised, perhaps due to the use of cash to finalize the transaction. The resulting consolidation effort may have also led to more fixed assets such as property, plant and equipment as opposed to liquid assets.

Labor Costs per Revenue. One of the intended benefits of consolidation is to achieve operational efficiencies in the use of staff. Comparisons of the Labor Costs per Revenue ratio indicated that the average Labor Costs per Revenue were lower (-0.0016) in the two post-consolidation years. The ratio did, however, show a slight increase in year one post-consolidation (0.0005), with greater improvement, as expected, realized in year two post-consolidation (-0.0033).

These findings were consistent with the focused interview responses which indicated that most operational savings were realized at least two years post-consolidation. The respondents indicated that overall costs increased during the first year post-consolidation, but that the real savings occurred in year two and beyond.

A significant limitation to the use of this ratio was identified during this study. The calculation of labor costs did not consider the fact that some blood centers may outsource certain key functions such as telephone recruiting and laboratory testing, as well as administrative and support functions such as payroll, custodial services and facility maintenance. The outsourcing of such areas would certainly skew the total labor costs since these costs would show up as general expense items rather than labor expense. Further study would be necessary to obtain this level of detailed information.

Net Income per FTE. Study findings suggest that the average Net Income per FTE ratio increased when compared between the two pre-consolidation and two post-consolidation years (33). Most of this increase was realized in year two post-consolidation (298.91), while there was actually a decrease in year one post-consolidation (-232.91).

These findings were also consistent with the focused interview responses which acknowledged that overall financial and operational improvements were not evident until at least two years post-consolidation. The operational efficiencies that were desired as a result of consolidation were eventually realized; however, several years of operations were necessary to document savings.

Much like the Labor Costs per Revenue ratio previously described, the Net income per FTE ratio does not consider the outsourcing of key operational functions. Again, this would be an area for further study.

Limitations

There are several limitations to this study that may merit additional research. First, the data used in the analysis, while believed to be accurate, were gathered from various sources rather than one central repository of information. Since there is no centralized

data base from which to access blood center information, some of the data was retrieved manually from individual blood center reports. Second, since the study relied on limited primary and secondary data, the full intent of the consolidation activity may not have been ascertained from the study sample. Third, the study is limited to consolidation activity in Florida. While many of the same issues have affected blood centers in other states and other regions of the U.S., the results of this study cannot be assumed to apply universally throughout the industry. Fourth, the analysis is limited to a few selected financial and operational measures. Future studies could expand upon these measures to gain additional insight. Fifth, the impact of consolidation during the study period may not be assumed to be the same in the future, given the rapidly changing healthcare environment and changes in industry and individual market conditions. Additional study is required to assess the impact of more current mergers and acquisitions which may be prompted by a different set of driving forces.

Conclusions

Despite the limitations of this study, the findings suggest that there were several inherent benefits of blood center consolidation in Florida between the years of 1991 and 2011. Based on the qualitative findings of focused interviews as well as quantitative analysis of defined financial and operational measures, conclusions could be drawn that the resulting impact of consolidation was positive, at least for blood centers. Additional study would be required in order to determine the specific impact on the hospital customers and the volunteer donor base.

Due to the nature of the focused interview process, responses to the set of questions varied greatly. The feedback from this aspect of the study primarily served to gain

general insight into the reasons and key driving forces behind consolidation. It was obvious that those who were interviewed primarily based their individual impressions of the resulting consolidation transaction on their own personal interests and perspectives. Positive responses were more likely to be articulated by those who survived the transition and retained a responsible position with the resulting entity. Conversely, more negative responses were likely to be voiced by those whose resulting position may have been jeopardized as a result of the consolidation. Additional study is needed to structure a more objective survey methodology.

The quantitative phase of the study likewise provided a general impression of how consolidation impacted financial and operational measures. The analysis was limited due to a small sample size; therefore the results cannot be generalized to a larger population of blood centers beyond this limited study sample. However, based solely on pre- and post-consolidation comparative data, general conclusions could suggest that the 11 transactions in Florida during the targeted time resulted in improved Profitability, Return on Assets, Labor Costs per Revenue, and Net Income per FTE. Conversely, the Working Capital to Assets ratio actually decreased during the two years post-consolidation.

Recommendations for Further Research

This study can serve as an empirical model to be followed in conducting future research of consolidation activity among blood centers. As previously stated, consolidation activity will most certainly continue into the immediate future. As more consolidation occurs, and as more data are made available, additional research will be needed to determine long term impact.

The primary limitation is access to data. A more meaningful study would be one in which data were available for all U.S blood centers that have merged with, acquired or been acquired by other blood centers. A study of this proportion would create a sample size sufficient to draw more definitive conclusions regarding the impact of consolidation. Until these data are available, however, a limited study may be one way in which to establish a template for further research.

Post Note

Shortly after this study was initiated in mid-2011, the three largest blood centers in Florida (Florida Blood Services, Florida's Blood Centers, and Community Blood Centers of Florida) announced their intentions to merge. This transaction was eventually finalized in January, 2012 creating a new entity by the name of One Blood. As a result of this merger, there are now only five remaining independent blood centers operating in Florida.

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APPENDIX A:

CHANGE SCORE CALUCATIONS AND SUMMARY STATISTICS FOR PRE-AND POST-CONSOLIDATION RATIO ANALYSIS

				H1	Profitability					
Trans#	t-2	t-1	t	t+1	t+2	Pre Avg	Post Avg	H1a Post Avg- Pre Avg	H1b (t+1) - Pre Avg	H1c (t+2) - Pre Avg
1	0.051	0.05		0.051	0.063	0.0505	0.057	0.0065	0.0005	0.0125
2	0.059	0.05		0.057	0.061	0.0545	0.059	0.0045	0.0025	0.0065
3	-0.006	0.049		-0.012	-0.004	-0.0275	-0.008	-0.0295	-0.0335	-0.0255
4	0.051	0.052		0.076	0.085	0.0515	0.0805	0.029	0.0245	0.0335
5	0.042	0.035		0.059	0.067	0.0385	0.063	0.0245	0.0205	0.0285
6	0.063	0.024		0.073	0.078	0.0435	0.0755	0.032	0.0295	0.0345
7	0.06	0.059		0.051	0.056	0.0595	0.0535	-0.006	-0.0085	-0.0035
8	0.056	0.05		0.045	0.053	0.053	0.049	-0.004	-0.008	0
9	0.025	0.022		-0.009	-0.013	0.0235	-0.011	-0.0345	-0.0325	-0.0365
10	0.07	0.065		0.045	0.053	0.0675	0.049	-0.0185	-0.0225	-0.0145
11	0.045	-0.031		0.053	0.097	0.007	0.075	0.068	0.046	0.09
				Summary Statistics:						
					Mean			0.0066	0.0017	0.0114
					Std Dev			0.0302	0.0261	0.0349
					N			11	11	11

H2 Return on Assets

Trans#	t-2	t-1	t	t+1	t+2	Pre Avg	Post Avg	H2a Post Avg- Pre Avg	H2b (t+1) - Pre Avg	H2c (t+2) - Pre Avg
1	0.054	0.053		0.068	0.072	0.0535	0.07	0.0165	0.0145	0.0185
2	0.068	0.069		0.066	0.081	0.0685	0.0735	0.005	-0.0025	0.0125
3	0.014	0.045		-0.018	-0.012	0.0295	-0.015	-0.0445	-0.0475	-0.0415
4	0.06	0.064		0.072	0.08	0.062	0.076	0.014	0.01	0.018
5	0.06	0.066		0.08	0.088	0.063	0.044	0.021	0.017	0.025
6	0.041	0.04		0.088	0.092	0.0405	0.09	0.0495	0.0475	0.0515
7	0.005	0.026		0.022	0.03	0.0155	0.026	0.0105	0.0065	0.0145
8	0.065	0.064		0.06	0.071	0.0645	0.0655	0.001	-0.0045	0.0065
9	0.049	0.046		-0.021	0.035	0.0475	0.0045	-0.0405	-0.0685	-0.0125
10	0.065	0.068		0.06	0.071	0.0665	0.0655	-0.001	-0.0065	0.0045
11	0.065	-0.017		0.071	0.098	0.024	0.0845	0.0605	0.047	0.074

Summary Statistics:

Mean	0.0084	0.0012	0.0156
Std Dev	0.0316	0.0348	0.0301
N	11	11	11

H3 Working Capital to Assets

Trans#	t-2	t-1	t	t+1	t+2	Pre Avg	Post Avg	H3a Post Avg- Pre Avg	H3b (t+1) - Pre Avg	H3c (t+2) - Pre Avg
1	0.312	0.325		0.344	0.369	0.3185	0.3565	0.038	0.0255	0.0505
2	0.39	0.432		0.318	0.329	0.411	0.3235	-0.0875	-0.093	-0.082
3	0.425	0.41		0.316	0.304	0.4175	0.31	-0.1075	-0.1015	-0.1135
4	0.335	0.373		0.329	0.353	0.354	0.341	-0.013	-0.025	-0.001
5	0.34	0.335		0.315	0.331	0.3375	0.323	-0.0145	-0.0225	-0.0065
6	0.316	0.332		0.418	0.446	0.324	0.432	0.108	0.094	0.122
7	0.357	0.372		0.371	0.385	0.3645	0.378	0.0135	0.0065	0.0205
8	0.372	0.391		0.347	0.385	0.3815	0.366	-0.0155	-0.0345	0.0035
9	0.311	0.353		0.331	0.341	0.332	0.336	0.004	-0.001	0.009
10	0.365	0.368		0.347	0.362	0.3665	0.3545	-0.012	-0.0195	-0.0045
11	0.443	0.319		0.362	0.38	0.381	0.371	-0.01	-0.019	-0.001
				Summary Statistics:						
					Mean			-0.0088	-0.0173	-0.0003
					Std Dev			0.057	0.0532	0.0613
					N			11	11	11

H4 Labor Costs per Revenue

Trans#	t-2	t-1	t	t+1	t+2	Pre Avg	Post Avg	H4a Post Avg- Pre Avg	H4b (t+1) - Pre Avg	H4c (t+2) - Pre Avg
1	0.486	0.477		0.476	0.482	0.4815	0.479	-0.0025	-0.0055	0.0005
2	0.518	0.499		0.522	0.499	0.5085	0.5105	0.002	0.0135	-0.0095
3	0.523	0.517		0.516	0.519	0.52	0.5175	-0.0025	-0.004	-0.001
4	0.456	0.465		0.453	0.436	0.4605	0.4445	-0.016	-0.0075	-0.0245
5	0.519	0.541		0.487	0.479	0.53	0.483	-0.047	-0.043	-0.051
6	0.462	0.409		0.449	0.441	0.4355	0.445	0.0095	0.0135	0.0055
7	0.521	0.511		0.515	0.517	0.5155	0.516	0	-0.001	0.001
8	0.42	0.392		0.387	0.379	0.406	0.383	-0.023	-0.019	-0.027
9	0.338	0.387		0.353	0.339	0.3625	0.346	-0.0165	-0.0095	-0.0235
10	0.364	0.348		0.387	0.379	0.356	0.383	0.027	0.031	0.023
11	0.341	0.353		0.379	0.417	0.347	0.398	0.051	0.032	0.07

Summary Statistics:

	H4a	H4b	H4c
Mean	-0.0016	0.0005	-0.0033
Std Dev	0.0258	0.0218	0.0315
N	11	11	11

H5 Net Income per FTE

Trans#	t-2	t-1	t	t+1	t+2	Pre Avg	Post Avg	H5a Post Avg- Pre Avg	H5b (t+1) - Pre Avg	H5c (t+2) - Pre Avg
1	3891	3993		4951	5003	3942	4977	1035	1009	1061
2	3175	3309		3548	3672	3242	3610	368	306	430
3	780	1036		-921	-721	908	-821	-1729	-1829	-1629
4	4298	4264		4880	5388	4281	2459	853	599	1107
5	3858	3797		4057	4465	3827.5	4261	433.5	229.5	637.5
6	4537	2636		5073	5465	3586.5	2819	1682.5	1486.5	1878.5
7	4829	4787		2847	2865	4808	2856	-1952	-1961	-1943
8	6121	6184		7204	7412	6152.5	3958	1155.5	1051.5	1259.5
9	6156	6171		-1758	-1280	6163.5	-1519	-7682.5	-7921.5	-7443.5
10	5927	5688		7204	7412	5807.5	7308	1500.5	1396.5	1604.5
11	5450	-231		5681	8935	2609.5	7308	4698.5	3071.5	6325.5

Summary Statistics:

Mean	33	-232.91	298.91
Std Dev	3105.22	2925.18	3339.1
N	11	11	11