THEAFFORDABLE CARE ACT IMPACT ON STOCK PERFORMANCE OF HOSPITAL SERVICE COMPANIES

Neil Terry, West Texas A&M University
Anne Macy, West Texas A&M University
Amber Black, West Texas A&M University
Maxwell Pierce, West Texas A&M University

ABSTRACT

This study provides empirical evidence from the healthcare service industry that uncertainty/clarity via the Affordable Care Act (ACA) has a statistically significant impact on stock market prices. The analysis includes a focus on monthly stock market price appreciation of six healthcare service companies across five distinct periods encompassing 124 months. The most significant result of the research is the observation that all six companies demonstrate the lowest comparative stock price appreciation in the ACA announcement era, which include average monthly price depreciation for all six firms. Announcement era average monthly price returns include -5.00% for Tenet Healthcare and -4.38% for Community Health Systems. Positive price appreciation in the ACA legislative approval era, Supreme Court era, and the ACA-post era provides evidence that clarity of the ACA legal application facilitates stock price appreciation.
JEL Classification: G11 and I11

INTRODUCTION

One of the most controversial policies of the Obama administration is The Patient Protection and Affordable Care Act (ACA). The explicit purpose of the Affordable Care Act is to make health insurance more affordable for those who would not or could not buy insurance and expand coverage of the underinsured to mitigate vulnerability to high medical expenses. Although the law includes some provisions intended to control costs, the immediate impact to consumers is on insurance premiums and out-of-pocket costs for health care and access to insurance. For the hospitals, more insured people increases revenues because of the reduction in bad debt. However, the ACA increases the responsibility of hospitals to ensure quality outcomes. For example, the ACA modifies the reimbursement procedures to penalize hospitals when Medicare patients return to the hospital within 30 days (Japsen, 2016; Rau, 2016). In 2015, the Medicare patient readmission penalties facing 2,500 hospitals was more than $400

million (Rau, 2015). The movement from fee-based to value-based reimbursement affects the profitability of the firms and thus, their stock prices.

Investors have struggled to comprehend the challenges and opportunities as the ACA evolves over time. The purpose of this research is to compare the stock market performance of hospital service companies across five implementation eras. The five period classifications are the pre-ACA era (June 2005 to June 2007), the ACA announcement era (June 2007 to December 2008), the ACA legislative approval era (December 2008 to April 2010), the Supreme Court era (April 2010 to July 2012), and the ACA-post era (July 2012 to July 2015). Community Health Systems (CYH), HealthSouth Corporation (HLS), Kindred Healthcare (KND), LifePoint Health (LPNT), Tenet Healthcare (THC), and Universal Health Services (UHS) are the six healthcare service companies in the study. The organization of this manuscript is five sections. The first section offers background information relating to the five Affordable Care Act eras applied to this study. The next section discusses the hospital service industry and a brief description of the six specific companies that are part of the research cohort. The third section presents data and methodology. The fourth section puts forth results from the application of a nonparametric technique to compare stock market returns across different eras for the six companies. The final section offers concluding comments.

ERAS OF THE AFFORDABLE CARE ACT

Health care reform is not a new topic. As far back as 1901, President Theodore Roosevelt supported some form of health insurance for the poor, because he felt that a country could not be strong if its people were sick (Palmer, 1999). While various groups attempted to pass some form of universal health care throughout the 20th century, other than the creation of Medicare and Medicaid in 1966, the results were limited. The reform that went the farthest was the Health Security Act in 1993. Health care was a fundamental campaign topic for President Bill Clinton, and upon election, Hillary Clinton leads a task force to create the Health Security Act. However, the Act was easily defeated in Congress in 1994. While the issue never completely left the national discourse, no major action transpires.

The pre-ACA era of June 2005 to June 2007 discussion on health care reform is characterized by complaints about the high cost of health care and the high percentage of U.S. GDP that health care costs absorb. The debate focus narrows to prescription drug costs, particularly for seniors. The Medicare Modernization Act (MMA), signed by President George W. Bush in December 2003, takes effect in 2006 and creates Medicare Part D, a basic voluntary prescription drug benefit available through health insurers. The MMA works completely within the current insurance system of the time to expand coverage to prescription drugs for seniors if seniors chose to purchase it (Medicare.gov, 2016).

The health care reform momentum changes on May 29, 2007, in Iowa City, Iowa when presidential candidate Barack Obama proposes his plan for overhauling health care. It is a sweeping proposal with two main themes: to increase coverage to 45 million uninsured Americans and to lower premium costs for the already insured. The complexity of the plan creates the potential for large swings in health care industry cash flows. For example, firms will be required to provide health insurance for employees or to pay the government to provide health care. The government would

create a national health insurance exchange providing options for health insurance through a regulated mechanism (Toner, 2007). A unique and controversial part is that the plan is not voluntary, unlike Medicare Part D. Obama's plan as presented would increase both the quantity of health care through increased access but lower the cost of health care through the regulated premium market. Barack Obama campaigns for the presidency throughout the ACA announcement era of June 2007 to December 2008. Health care is in the news on a daily basis and largely, not presented positively.

Barack Obama wins the presidency in November 2008, guaranteeing that the ACA will move forward into the legislative arena. Between December 2008 and April 2010, the finer points of the law are debated and prescribed. To increase the willingness of Americans to accept the new law, the discussion focus changes from reforming health care to reforming health care insurance. This distinction is important because it moves the debate away from the quantity of health care and to the payment for health care. For example, a popular part of the law is disallowing the refusal of insurance benefits because of a pre-existing condition. The argument is framed as the insurers' policies burdening the health care providers who merely want to serve their patients (eHealth, 2016; Stolberg and Herszenhorn, 2009).

The House version of the bill is presented in July 2009. Both sides spend August and September debating the law in the court of public opinion through television ads, town hall meetings, and media reports. The death of Senator Ted Kennedy in late August 2009 puts the legislation at risk because the Democrats lose the 60-seat supermajority in the Senate. However, by December 2009, both the House and the Senate have passed versions of the bill, after Democrat Paul Kirk is appointed the interim senator from Massachusetts, which reinstates the 60-seat majority needed by the Democrats. The bill now moves into the reconciliation phase. Surprisingly, in January 2010 Republican Scott Brown wins the open Massachusetts Senate seat, which once again leaves the Democrats without the 60th vote needed. The ACA's fate is in question during the first quarter of 2010. The Democrats scramble and decide to use budget reconciliation to get the bill through the House and the Senate which avoids the need for 60 votes in the Senate. On March 23, 2010, President Obama signs the ACA into law (eHealth, 2016).

Immediately, 26 states and the National Federation of Independent Businesses file lawsuits against the ACA and the Supreme Court era of April 2010 to July 2012 begins. Thirteen states side with the federal government. Eleven states took no position. Iowa and Washington were on both sides of the suit because their governors and attorney generals took opposite sides. The passage of the law in Congress is as divisive as is the response by states. A key issue of contention is the individual mandate, which requires most people to have a minimum level of health insurance coverage for themselves and tax dependents or pay the penalty. The second area in the suit is the Medicaid expansion, which increases those eligible for Medicaid to almost everyone under age 65 who falls below a poverty threshold, including working age individuals without dependents who have been excluded beforehand. The various lawsuits worked their ways through the court system and in December 2011, the Supreme Court agrees to hear the cases, with oral arguments in March 2012. On June 28, 2012, the Supreme Court upholds the ACA on the right of Congress to tax and spend. The suits center around the commerce clause of the Constitution, but the Supreme Court's decision changes the discussion to the government's right to tax and spend. The ACA is first a tax and then regulation. The ACA is now law (Focus on Health Reform, 2012).

Following the Supreme Court ruling, the numerous parts of the ACA begin to be implemented in the ACA-post era of July 2012 to July 2015. President Barack Obama's reelection in November 2012 ensures that the ACA will move forward in its entirety. For example, the penalty for non-coverage is confirmed and capped at $2,500. The elimination of pre-existing conditions, the right to contraception, and the age extension to 26 for dependents are all confirmed. During 2013, the health exchanges come online with varying success. On January 1, 2014, the remaining regulatory changes go into effect (eHealth, 2016). The health care industry adjusts to the new set of rules and, more importantly, the adjusted reimbursement structure. In the short-run, the ACA provisions increase the number of those insured and thus, providers expect an increase in visits. However, the reimbursement rates are reduced to levels closer to the rate Medicaid pays. Hospitals will see volume increase but per-patient reimbursement fall. In the long-run, the ACA moves the industry from fee-for-service to fee-for-value. Providers meeting the targets receive incentive funds while those that fail minimums face penalties (Clark, 2014). For hospital service companies, the implementation of the ACA means that the adjustments to the new regulations that were started are now executed.

HOSPITAL INDUSTRY

This section provides an overview of the healthcare services industry, sometimes referred to as the hospital or healthcare facilities industry, and six firms in the industry that are the subject of this research. The information sources include Value Line, Morningstar, and Standard & Poor's for the industry and company profiles. According to the American Hospital Association's 2013 annual survey of hospitals, 5,686 registered hospitals operate in the United States (2015). Healthcare providers within this sector include acute care hospitals, rehabilitation hospitals, psychiatric hospitals, nursing homes, assisted living facilities, and home healthcare services. These firms provide medical, diagnostic, and treatment services to patients, both on an inpatient and outpatient basis.

The six health service companies in the study are a diverse group of providers. Community Health Systems Inc. (CYH) is the largest provider of general hospital healthcare services in the United States in terms of number of acute care facilities. As of the first quarter of 2016, Community Health Systems owns or operates 160 hospitals in 23 states (Roknick, 2016).

HealthSouth Corporation (HSC) is the United States' largest owner and operator of inpatient rehabilitative hospitals. Operating in 33 states across the country and Puerto Rico, HealthSouth serves patients through its network of inpatient rehabilitation hospitals, outpatient rehabilitation clinics, and home health and hospice agencies (Lassiter, 2015).

Kindred Healthcare Incorporated (KND) is a healthcare services company that operates hospitals, nursing centers, and contract rehabilitation services across the United States. Kindred is the largest diversified post-acute healthcare provider in the U.S. As of the fourth quarter of 2016, Kindred Healthcare has 53,600 employees in 46 states and seven billion in annual revenue (KND Valueline, 2016).

LifePoint Health (LPNT) is a company that provides healthcare services in growing regions, rural communities and small towns. As of January 6, 2017, it operates

72 hospital campuses in 22 states with more than $6 billion in revenues (LifePoint Health, 2017).

Tenet Healthcare Corporation (THC) is a multinational investor-owned healthcare services company. As of October 2016, Tenet operations in the United States includes 470 outpatient centers, 20 short-stay surgical hospitals, 79 general acute-care hospitals, and 12 accountable care networks. Tenet's hospitals offer acute, coronary and critical care; operating and recovery rooms; clinical laboratories and pharmacies; and radiology, respiratory, oncology, orthopedic, physical therapy, and organ transplant services (Nicolas, 2016).

Universal Health Services, Inc. (UHS) is one of the largest hospital management companies in the United States. As of February 25, 2016, Universal Health Services operates through its subsidiaries 24 inpatient acute care hospitals, three free-standing emergency departments and 213 inpatient and 16 outpatient behavioral health care facilities located in 37 states throughout the U.S, the District of Columbia, the United Kingdom, Puerto Rico and the U.S. Virgin Islands (Universal Health Services, 2017).

The healthcare services industry is highly segmented geographically. While technology impacts the industry, because most of the service must be done in-person, the delivery phase of the market is local. Additionally, the capital intensity of the industry creates a significant barrier to entry. Because of these two industry structure characteristics, efficiency is a main industry focus. The ACA increases the regulatory burden on the providers, which magnifies the need for efficiency. Thus, hospitals emphasize economics of scale.

Revenues are generated from third-party payers (such as health insurance companies), government payers including Medicare and Medicaid, employers, and fees and premiums collected directly from patients. Hence, the number of people insured directly impacts industry revenues. Reimbursement rates are negotiated with the government and other insurers, and these rates fluctuate due to political and economic influences (Manning, 2016a). Though hospitals generally have negotiated rates in advance, the fluctuations still create financial uncertainty for hospitals. Fees and taxes related to the Affordable Care Act levied on hospitals have limited margin expansion and profitability. The payer-mix of third-party reimbursement is a key determinant of gross margins for health care facilities. Because Medicaid reimbursement is typically at the lowest rate, hospitals with a larger percentage of government payers generate lower gross margins. In response to the ACA, many insurers lowered the reimbursement rates to Medicaid levels, further straining hospital margins (Loo, 2015). While the ACA limited the margin expansion, the increase in the number of insured from the law increased overall industry revenues. The ACA component that allowed dependents to be covered up to the age of 26 under a parent's plan increased the number of young adults with insurance by 3.4 million. The Department of Health & Human Services credits the various ACA sections with adding 20 million to the ranks of the insured by March 2016 (Snyder, 2016).

The focus on economics of scale to offset margin pressure from reimbursement restrictions led the healthcare service providers to increase size. When looking at the financials of the six firms, revenues traditionally increase slowly unless there are major acquisitions by the firms. Universal Health acquired Psychiatric Solutions in November 2010 and saw its revenue jump 36% versus a 6% change the year before. Psychiatric care is covered under the ACA, and thus, one therapeutic area that benefits from the expanded coverage. Universal further increased its exposure to behavioral

health with the 2012 acquisition of Ascend Health (Manning, 2016c). Community Health acquired Triad in 2007, Forum Health in 2010, and Health Management Associates in 2014 and saw its revenues double over those years (Ferro, 2016). All six firms did targeted acquisitions to gain size in areas that benefit from the increased enrollment and mandatory coverage.

Gross margins for hospitals are determined by subtracting the cost of supplies and staff salaries and benefits from the total revenue (Snyder, 2016). Profitability depends on efficient operations, because the services provided by hospitals are generally very similar, and customer perception, as many cities have multiple hospitals competing for patients. According to the American Hospital Association, inpatient hospital care accounts for about 60 percent of industry revenue, and outpatient services that typically do not require an overnight stay total account for about 40 percent (Hospitals Industry Overview, 2015). Because much of the cost of providing services is fixed, increasing volume is a key way to increase revenues (Snyder, 2016). HealthSouth's rehabilitation focus captures the patient inside the hospital and then continues the care through outpatient services. Thus, one area feeds the downstream division of the firm capturing value along the entire rehabilitation revenue stream. HealthSouth's payer-mix of Medicare at 70% highlights how a firm maintains profitability under strict reimbursement guidelines and levels (Hirt, 2016).

The high fixed costs for health care service providers result in tighter margins as one moves down the income statement. It is not uncommon for the net profit margin for hospitals to be under 2%, creating a narrow moat during uncertain times. Tenet Healthcare has one of the more interesting margin stories of the ACA periods. In the pre-ACA era, Tenet's operating profit margin is under 8%, which when combined with high debt levels, it's net profit margin is negative. During the ACA announcement era, the firm struggles to become profitable and finally increases revenues and cash flow enough to generate a net profit margin of 2.2% during the ACA legislative era once it becomes likely that the industry structure would change, and hospitals could be winners. During the Supreme Court era, the firm falters again and takes on more debt to offset the drop in net profit margin of 55% to just 1%. Once the law survives the Supreme Court, Tenet begins to move ahead with revenues and cash flow per share increasing. Net profit margin remains tight but the firm uses the low interest rates to double its debt level to make a major acquisition of Vanguard Health in 2013 which helps the firm gain needed size (Manning, 2016b).

The capital intensiveness of health care facilities results in low cash balances and high debt loads to finance the extensive infrastructure and capital equipment requirements (Snyder, 2016). Firms in this sector have turned to mergers and acquisitions to gain economies of scale and improve operating performance, and most recently have pursued joint ventures to mitigate financial and business risk (Manning, 2016a). One of the main drivers of facility utilization and revenue for hospitals are inpatient admissions, those admissions requiring an overnight stay (Loo, 2015). The number of inpatient admissions for the five largest for-profit hospitals fell every year from 2008-2013; however, in 2014, inpatient admissions rose 2.8%, as the individual mandate and the associated penalties took effect. Overall health care spending had been slow to rebound after the Great Recession, which Morningstar attributed to the magnitude of the recession and increased cost-sharing with patients (Conover, 2014). LifePoint follows a strategy of acquiring hospitals in areas where it will be the sole provider. The monopoly advantage is partially offset by having to provide a greater

variety of services. However, the tactic also allows the firm to have a payer-mix of about 60% commercial (Scrudato, 2016). The strategy is most effective in locales with a healthier patient mix and firms whose insurance reimburses at rates higher than the government.

Laws mandate that hospitals with emergency rooms cannot refuse treatment to anyone who walks through the door. For years, this has created uncompensated care, charity care, and bad-debt expense for hospitals, as some patients do not have the financial means or insurance coverage to cover the cost of their medical care (Manning, 2016a). Due to the increase in insured patients as a result of the Affordable Care Act, bad-debt expense has become less of a threat (Manning, 2016a; Snyder, 2016). Universal Health Services altered its business mix to include more behavioral health through its acquisitions of Psychiatric Solutions in 2010 and Ascend Health Corporation in 2012 (Patrick, 2015; Manning, 2016c). With the expansion of Medicaid along with the individual mandate, more individuals have coverage for behavioral health, which led to lower bad-debt expense for Universal. Behavioral health is an appealing therapeutic market because it required less capital and patients need more visits than invasive therapeutic areas.

Stock prices are forward-looking. One of the major macroeconomic factors influencing the future demand for health care is the change in demographics in the United States. The U.S. Census Bureau, using data from the 2010 Census, projects that the number of Americans aged 65 and older to be 88.5 million in 2050, more than double the 40.2 million Americans in this demographic as of 2010 (Vincent and Velkoff, 2010). By 2034, all of the baby boomers will be over 70, and as these citizens move into the oldest-old category (over 85) in 2050, this group will make up almost 21 percent of the population (2010). The ACA combined with the aging population implies strong future demand for health services. HealthSouth recognized the value in combining its expertise in rehabilitation with home health care and acquired Encompass Home Health and Hospice during the ACA implementation phase (Hirt, 2016).

As Americans age, they require more medical services. Technological advances are allowing people to extend their lives, and those with chronic or terminal diseases are living longer with better care (Manning, 2016a). In an article published in the *International Journal of Epidemiology*, authors Joshua Wiener and Jane Tilly (2002) expect that the aging of the U.S. population will have a "major impact on the organization and delivery of health care." Their research explains that the aging population will require a shift in health care to focus more on chronic rather than acute illnesses, that long-term care services will become more important, and that the shortage of health-care workers will be a worsening problem for the sector.

According to the Association of American Medical Colleges, communities around the country are already experiencing doctor shortages, and a recent study shows that the United States will likely experience a shortage of between 46,000-90,000 physicians by the year 2025 (Association of American Medical Colleges, 2015). Physician assistants and nurse practitioners are being utilized to help fill this gap. A recent report by the U.S. Department of Health and Human Services found that the national supply of registered nurses would outpace demand, but noted that shortages would exist at the state level (2014). Peter McMenamin, an economist for the American Nurses Association, notes that the mass retirements of an aging RN workforce and a shortage of nursing faculty could lead to a nursing shortage in the

future (2014). This trend is already impacting the firms. Kindred Healthcare has adjusted its service mix to more home health care and rehabilitation and less skilled nursing during the post-ACA era (Landon, 2014). Home health care and rehabilitation have a better reimbursement to nursing cost than skilled nursing. Kindred's drive at cutting costs is central to its strategy to increase margins (Value Line, 2016).

As the ACA matures, the health care service providers continue to adjust service mix through acquisitions to achieve higher margins and efficiency gains enough to offset the interest costs of the capital and debt needed to run and fund their capital-intensive health care services.

DATA AND METHODOLOGY

Is there a difference in the stock market performance of hospital service companies across different classification eras? In this section, we compare the stock market returns of hospital service companies in five different periods between the years 20015 through 2015. The five period classifications are the pre-ACA era (June 2005 to June 2007), the ACA announcement era (June 2007 to December 2008), the ACA legislative approval era (December 2008 to April 2010), the Supreme Court era (April 2010 to July 2012), and the ACA-post era (July 2012 to July 2015). The previously identified six hospital service firms are the focus of this study. The primary data source is the Yahoo! finance website, which offers daily and monthly closing stock prices across multiple years. The statistical methodology incorporates a nonparametric approach to comparing the stock market performance of a company in the five different periods. The Kruskal-Wallis test offers the most powerful test statistic in a completely randomized design without assuming a normal distribution (Conover, 1980; Fama & French, 1995; Loughran, 1997; Rogerson, 1997; Zaher, 1997). A traditional event study methodology is not applicable to this specific research design because the research periods require a long time horizon instead of the narrow window associated with an event study. In addition, a nonparametric approach is more efficient given the limitation of defining all five periods given some eras might be somewhat longer or shorter than others across the 124-month sample.

The Kruskal-Wallis test is sensitive to differences among means in the *k* populations and is extremely useful when the alternative hypothesis is that the *k* populations do not have identical means. The null hypothesis is that the *k* company stock returns in the different periods come from an identical distribution function. For a complete description of the Kruskal-Wallis test, see Conover (1980). The specific equations used in the calculations are as follows:

(1) $N = \Sigma_i n_i$ with i = 1 to k
(2) $R_i = \Sigma_j R(X_{ij})$ with j = 1 to n_i
(3) $R_j = \Sigma_i O_{ij} R_i$ with i = 1 to c
(4) $S^2 = [1/(N-1)] [\Sigma_i t_i R_i^2 - N(N+1)^2/4]$ with i = 1 to c
(5) $T = (1/S^2) [\Sigma_i(R_i^2/n_i) - N(N+1)^2/4]$ with i =1 to k
(6) $| (R_i/n_i) - (R_j/n_j) | > t_{1-a/2} [S^2(N-1-T)/(N-k)]^{1/2} [(1/n_i) + (1/n_j)]^{1/2}$

where *R* is the variable rank and *N* is the total number of observations. The first three equations find average ranks. Equation (4) calculates the sample variance, while

equation (5) represents the test statistic. If, and only if, the decision is to reject the null hypothesis, equation (6) determines multiple comparisons of stock market returns across the various periods.

RESULTS

Table 1 offers summary statistics for the six hospital service companies in the research cohort. Universal Health Services is the most successful company in the research sample with the largest mean monthly return of 1.72% and 124-month return of 414.7%. Kindred Healthcare is the only company to earn a negative return over the 124-month sample at -29.3%. Tenet Healthcare offers the research sample the largest monthly return at 9.4% and the lowest monthly return at -7.2%. Community Health Systems, HealthSouth Corporation, and LifePoint Health put forth consistent return numbers at a monthly mean of approximately one percent and 124-month returns ranging from 74.7% to 93.9%.

The nonparametric empirical approach yields six T-values of 26.99 (p-value = .0001) or higher, indicating a significant difference in stock market returns across the five-period classifications for all companies in the study. Table 2 presents a summary of the average monthly stock returns and average rank comparison returns for each company across the five periods defined in this study. Assuming an alpha level of .05, the empirical results from equation 6 indicate all companies have four or more periods with stock market returns that are statistically different. One of the most interesting results of the research is the observation that all six companies demonstrate the lowest comparative stock price appreciation in the ACA announcement era, which include average monthly price depreciation for all six firms. Announcement era average monthly price returns include -5.00% for Tenet Healthcare, -4.38% for Community Health Systems, and -3.11 for Kindred Healthcare. The result demonstrates the negative impact the uncertainty of ACA on stock market prices throughout the initial introduction stage of the 2008 presidential election.

The clarity put forth by defining explicit details of the act throughout the ACA legislative approval era propels the third time-period as the highest average monthly price appreciation era for all six companies. Legislative approval era average monthly price increases include 13.40% for Tenet Healthcare and 7.65% for Community Health Systems. Kindred Healthcare is the low performing company in period three, yielding a respectable return of 3.79%. The observation that five out of six healthcare service companies earned positive price appreciation in the ACA legislative approval era, the Supreme Court era, and the ACA-post era provides additional support as to the importance of clarification and transparency forthcoming after the announcement era. The only company that did not produce positive price appreciation in the final three periods is Community Health Systems in period four with a -1.59% depreciation in price, which is more than offset in period five with a 2.48% stock price appreciation.

CONCLUSION

The purpose of this research is to compare the stock market performance of six healthcare service companies across five different periods of Affordable Care

Act implementation. The five-period classifications are the pre-ACA era, the ACA announcement era, the ACA legislative approval era, the Supreme Court era, and the ACA-post era. The statistical methodology incorporates a nonparametric Kruskal-Wallis test to compare the monthly stock market performance via price appreciation of the companies in the research cohort.

The results of this study imply the uncertainty of ACA announcement era was an impetus for negative price appreciation for health care service firms. Specifically, the period with the lowest return for all six companies was the announcement era. In fact, all six firms earned negative returns in the announcement era. Positive price appreciation in the ACA legislative approval era, Supreme Court era, and the ACA-post era in seventeen out of eighteen possible observations provides evidence that clarity of the ACA legal application facilitates investment. Despite the initial negative impact of the Affordable Care Act during the announcement era, the long-run positive of ACA appears to dominate the negative for healthcare service companies.

One of the limitations of the study is a potential survivor firm bias, where companies that did not survive the announcement era or legislative approval era are not part of the study. This limitation is somewhat mitigated by the observation that companies that did not survive almost certainly hit low periods in the announcement era. A second limitation of the study is the application of stock market returns across a broad timeframe encompassing 124 months. Traditional finance event studies usually focus on daily data for a very short window of time to minimize the potential contamination of other events. This study requires the use of a larger than normal research window in order to compare the five different period classifications. Thus, the results should be interpreted with caution given the potential for correlation with other events that occurred in any given focus era.

One avenue for future research is to examine the consistency of the empirical results across various eras by employing multiple short-run event studies. Another outlet for future research is the application of the ACA five era analysis to other health industries, such as pharmaceutical, health care equipment, and biotechnology companies.

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TABLE 1
SUMMARY STATISTICS FOR HOSPITAL SERVCE COMPANIES

Firm	Mean	Median	Standard Deviation	Sample Variance	Minimum	Maximum	123-month Return
CYH	0.0116	0.0121	0.1190	0.0142	-0.3629	0.4889	74.7%
HLS	0.0105	0.0106	0.1049	0.0110	-0.3196	0.3137	82.3%
KND	0.0060	0.0004	0.1298	0.0169	-0.4744	0.3515	-29.3%
LPNT	0.0088	0.0100	0.0820	0.0067	-0.2542	0.2392	93.9%
THC	0.0188	0.0169	0.1865	0.0348	-0.7240	0.9397	20.7%
UHS	0.0172	0.0145	0.0857	0.0073	-0.2497	0.3146	414.7%

The sample is average monthly returns for the 124-months between May 2005 and July 2015. Total return for ten-year period is 73.2% for the Dow Jones Industrial Average and 159.9% for the NASDAQ Composite Index.

TABLE 2
AVERAGE MONTHLY RETURNS AND AVERAGE RANK COMPARISONS

Firm	T-values (p-value)	Period 1 5/05 - 4/07	Period 2 5/07 -11/08	Period 3 12/08 -3/10	Period 4 4/10 - 6/12	Period 5 7/12 - 7/15
CYH	35.23 (.001)	.0019*	-.0438-	.0765***	-.0159*	.0248**
HLS	26.99 (.001)	-.0049*	-.0305-	.0481***	.0263**	.0165**
KND	27.87 (.001)	-.0005*	-.0311-	.0379***	.0196**	.0088*
LPNT	32.84 (.001)	-.0067*	-.0241-	.0428***	.0062*	.0186**
THC	43.83 (.001)	-.0149*	-.0500-	.1340***	.0215**	.0229**
UHS	36.69 (.001)	.0039*	-.0203-	.0455***	.0386***	.0241**

The table shows average rank order value of stock market returns derived from a Kruskal-Wallis nonparametric methodology. The first column is a listing of the ticker symbols for the six semiconductor companies included in the study. The second column is the value of equation N(5) test statistic and p-value for each company, which determines if there is a statistical difference in stock market returns across the five eras. Columns three through seven present the average value of the stock market returns for the five periods of the study. Asterisk(*) and negative signs (-) signify difference in average rank values as follows:

(1) *** Indicates period with highest statistically significant return derived from equation 6.
(2) ** Indicates period with second highest statistically significant return derived from equation 6.
(3) * Indicates period with third highest statistically significant return derived from equation 6.
(4) - Indicates period with lowest statistically significant return derived from equation 6.
(5) Some periods do not have a return that is statistically significant from an alternative period.