

Capital Structure Dynamics - What Firms Do?  
The case of Hospital Corporation of America (HCA) <sup>1</sup>

Mona Yaghoubi

Victoria University of Wellington  
School of Economics and Finance  
PO Box 600, Wellington 6140, NZ  
Email: mona.yaghoubi@vuw.ac.nz  
Phone: 64 4 463 6413  
Fax: 64 4 463 5014

Graeme Guthrie

Victoria University of Wellington  
School of Economics and Finance  
PO Box 600, Wellington 6140, NZ  
Email: graeme.guthrie@vuw.ac.nz  
Phone: 64 4 463 5763  
Fax: 64 4 463 5014

Current Draft: 12<sup>th</sup> October, 2015

---

<sup>1</sup>We thank Michael Keefe, participants at Mona Yaghoubi's PhD proposal and Victoria University of Wellington Brown Bag seminar for helpful comments. All remaining errors are our own.

# Capital Structure Dynamics - What Firms Do

## Abstract

In this paper we study the variations in HCA's market and book leverage ratios due to mergers and acquisitions, divestitures, buybacks, buyouts, IPOs and extreme share price changes from 1990 to 2013. We scrutinize HCA's market and book leverage ratios' variations independently as well as relative to each other during the same periods of time. We find that i) consistent with the free cash flow theory, HCA's management team used HCA's excess cash from divestitures to repurchase HCA's stocks rather than pay off HCA's debt, ii) During 1998-2000, the HCA's market leverage ratio was decreasing while the book leverage ratio was increasing, iii) HCA's market leverage ratio tends to stay in a target leverage zone, and iv) in some years HCA's management team used the book leverage ratio as a tool to keep the market leverage ratio inside a target leverage zone.

Keywords: Capital structure dynamics, share buyback, leveraged buyout, mergers and acquisitions, initial public offerings.

JEL Classification Codes: G32—Financing Policy.

# 1 Introduction

The empirical studies on dynamics of capital structure explore whether firms' capital structures vary over time and what factors affect the capital structure variations. Frank and Goyal (2007) look at leverage ratios in a study spanning 1900-2002 and found that the aggregate balance sheet data show stable leverage ratios. Frank and Goyal (2007) state, although leverage ratios had been fluctuating during 1900-2002, firms keep their leverage ratios in narrow bounds. Lemmon, Roberts and Zender (2008) find that variations in firms' leverage ratios are mainly explained by firms' fixed-effects and firms tend to keep their leverage ratios as they are (low or high) for more than 20 years. Graham and Leary (2011) also emphasize the influence of firms' fixed-effects on the capital structure. Alternatively, Flannery and Rangan (2006) show that firms have target capital structure and each year they close the gap between the actual and the target capital structure with a rapid adjustment speed. Their result is consistent with Jalilvand and Harris (1984) and Leary and Roberts (2005). Leary and Roberts (2005) find that firms have an optimal capital structure range and try to stay in that optimal leverage zone. In addition to the target capital structure literature, a recent paper by DeAngelo and Roll (2015) finds temporary capital structure stability.

The complexity of the dynamics of capital structure literature, the large number of studies focusing on this issue, and the diversified findings of the existing studies, are my motivations to study firms' capital structure variations over time. In empirical studies with thousands of firms in the sample, scholars are not able to understand how management of firms make their capital structure decisions and how they decide what to do, and how they do it. Therefore, this paper focuses on a specific firm, and is a case study on Hospital Corporation of America (HCA) and its capital structure dynamics for the years 1990 to 2013. The case study helps us to understand how firms make capital structure decisions and how the behavior of the accounting-based data is different from the market-based data, and how the management decisions affect the data. In this study, we investigate the capital structure changes of HCA due to private equity transactions, initial public offerings, mergers and acquisitions and extreme share price declines on both a year-over-year and a day-over-day basis, and report the evidence. This paper explores a firm's decisions, which provides motivation for hypotheses development that are tested in a large sample.

Along with the dynamics of capital structure studies' diversified results, the way that these studies define their leverage ratios in terms of using market or book values are different. Frank and Goyal (2009) review different arguments on using the book or the market leverage ratios and provide their concluding remarks based on the market leverage ratio. They state the book leverage ratios take into account what took place in the past, not now or in the future. The supporters of market leverage ratios claim that the book value of equity is just a balance sheet number and it could be negative in some cases (Welch, 2004). On the other hand, the supporters of the book leverage ratios argue that, first, book leverage ratios are widely employed by firms' managers as a firm's debt is guaranteed by assets already in place, rather than by future growth opportunities (Myers, 1977). Second, large market fluctuations stop firms' managers from making their capital structure decisions based on market value of equity. We consider both stances towards the leverage measures and scrutinize both HCA's market and book leverage ratios variations independently as well as relative to each other during the same periods of time.

As we know debt is a part of capital structure and it disciplines managers because interest payments to debt holders are a firm's obligation. Through this obligation firms can control managers. The Jensen (1986) free cash flow theory states that firms use their excess cash to repurchase stocks and to control their managers while reducing the firm excess cash; the Stephens and Weisbach (1998) and Brav, Graham, Harvey and Michaely (2005) findings support this theory. Although a firm's management team has the option to use the excess cash to decrease the amount of corporate debt, in some cases they prefer to use the excess cash to repurchase the firm's share than pay off its debt. Our evidence on how HCA's management team used HCA's excess cash from divestitures to repurchase stock rather than to pay off debt is consistent with Jensen (1986).

Harford, Klasa and Walcott (2009) show that firms have target capital structure and when it comes to finance mergers and acquisitions, over leveraged firms prefer equity financing rather than debt financing to stay close to their target capital structure. Consistent with Harford et al. (2009), our finding shows that HCA's management team kept HCA's leverage ratio in the target leverage zone and financed the HCA deals by the combination of debt and equity. Not being over leveraged let HCA's management team increase the firm's long-term debt.

All in all, our evidence indicates that i) consistent with the free cash flow theory, HCA's management team used HCA's excess cash from divestitures to repurchase HCA's stocks rather than pay off HCA's debt, ii) During 1998-2000, the HCA's market leverage ratio was decreasing while the book leverage ratio was increasing, iii) HCA's market leverage ratio tends to stay in a target leverage zone, and iv) in some years HCA's management team used the book leverage ratio as a tool to keep the market leverage ratio inside a target leverage zone.

This paper proceeds as follows: Section 2 reviews the history of Columbia Hospital Corporation (CHC) and Hospital Corporation of America (HCA). Section 3 reviews the data, constructs the variables, and shows the market and book leverage ratios decompositions. Section 4 reports the findings of the paper. Section 5 provides discussion on the findings and presents concluding remarks.

## **2 History of Columbia Hospital Corporation (CHC) and Hospital Corporation of America (HCA)<sup>2</sup>**

### **2.1 Columbia Hospital Corporation (CHC)**

Columbia Hospital Corporation was founded in 1987 by Richard Scott and Richard Rainwater. Scott started his journey to create a national healthcare provider network by teaming up with Rainwater who was a director in Hospital Corporation of America's board. For their first move, Columbia's management team purchased two hospitals in Texas which were poorly managed and reformed the operations of these hospitals. Afterward, they formed a limited partnership with a group of physician investors and named it El Paso Healthcare System, Ltd. (EPHS). The new partnership acquired the two Columbia owned hospitals and some other diagnostic centres owned by physicians in exchange for EPHS shares. Columbia's growth continued by purchasing two medical centres and consolidating them with EPHS hospitals through transferring these two medical centres' equipment and patients and selling their buildings. Columbia's management team pursued its expansion by opening Sun Tower Behavioral Healthcare in 1988, which increased Columbia average daily census to 45 patients from 11 patients. EPHS growth plan was a success between 1988 to

---

<sup>2</sup>Readers may refer to "International Directory of Company Histories" as the source of Section2.

1990. EPHS management team increased its total average daily census to 303 from 174 patients and EPHS revenue jumped to \$135 million in 1990 from \$113 million in 1989 (Pederson, 2001).

Scott and his team's expansion plans were not limited to EPHS. Columbia continued its growth and entered other markets by purchasing nearly bankrupt hospitals in other states. They followed the same strategy as before, making limited partnerships with physician investors. For their next steps, Columbia merged with Smith Laboratories and its subsidiary Sutter Corp in 1990 which lead Columbia to go public, and then in a landmark joint venture Columbia's management team built a \$50 million hospital with Medical Care America of Dallas.<sup>3</sup> Columbia's management team chased their growth strategy by acquiring local hospitals from 1990 to 1992. By the end of 1992 the number of Columbia's hospitals increased to 24 hospitals (Pederson, 2001).

Scott shook up the general medical and surgical hospitals industry twice from 1993 to 1994. The first big change in Columbia Corporation occurred in 1993, when Columbia merged with Galen Health Care and renamed itself Columbia Healthcare Corporation (COL) (Reuters News, 10 June 1993). This \$3.2 billion stock swap merger increased Columbia's network to 94 hospitals in 19 states, as well as Switzerland and England. Not long after its merger with Galen Health Care, in October 1993 Columbia shocked the industry again by announcing a \$5.7 billion stock swap merger with Hospital Corporation of America (HCA) (The New York Times, 3 October 1993). The merger created the \$10.25 billion Columbia/HCA Healthcare Corporation, the largest hospital chain in the United States by its 190 hospitals in 26 states, as well as Switzerland and England.

## **2.2 Hospital Corporation of America (HCA)**

Founded in 1968 by a small group of founders including Dr. Thomas Frist, Sr., his son Dr. Thomas Frist, Jr. and Jack Massey, Hospital Corporation of America (HCA) was one of America's first hospital companies. Dr. Thomas Frist, Sr. called "the father of modern for-profit hospital system" by the New York Times, emphasized the role of Dr. Thomas Frist, Jr. his son, on the establishment of HCA. Gilpin (January 8, 1998) reported:

---

<sup>3</sup>Columbia had three more deals in 1990. It acquired HEI Corporation for \$22 million in cash, Reef Hospital for \$18 million in cash and notes and then, Southside Community Hospital for \$5 million.

In an oral history on file at the American Hospital Association, the elder Dr. Frist quoted his son as having said: “Banks are together, filling stations are together, grocery stores are together, why can’t we put hospitals together? Economy of scale means so much.”

HCA first initial public offering was conducted in 1969 with 11 hospitals on the New York Stock Exchange. By the end of 1969, HCA increased the number of its hospitals to 26.

The 1970s and the early 1980s had been the golden years for HCA due to remarkable growth by acquiring hundreds of hospitals across the US. During this period the HCA’s management team acquired General Care Corporation, Hospital Affiliates International, General Health Services and Health Care Corporation, which increased the number of HCA hospitals (owned and managed) to 349. In 1987, Dr. Thomas Frist, Jr. took over as HCA’s chief executive officer after which HCA spun off Healthtrust, one of its subsidiaries with 104 hospitals. One year later, HCA went private by a \$5.1 billion management buyout in 1988, followed by a successful initial public offering in 1992 (HCA History, 2015).

Frist, Jr. who designed HCA’s private leverage buyout in 1988, considered the early 1990s serious reforms in health industry as a growth opportunity and tried to team up with HCA’s biggest competitors. His first target was Galen Health Care. which was a result of the early 1993 Humana’s spin off. However, Frist would rather use HCA’s cash to repay HCA’s debt which was increased as a result of 1988 leveraged buyout. In the meanwhile, Scott the CEO of Columbia proposed a merger to Galen, and Galen took it. Frist who has been watching Columbia, found this as a good opportunity to merge with Columbia and build the nation’s largest hospital. In October 1993, HCA and Columbia Healthcare Corporation announced a tax free stock-for-stock merger agreement which created a \$10 billion corporation (Norris, October 6, 1994).<sup>4</sup> The new corporation was called Columbia/HCA Healthcare Corporation and its board of directors included 4 HCA current directors and Columbia’s 11 directors (The New York Times, 3 October 1993).

---

<sup>4</sup>The merger was the seventh-largest merger since 1981.

## 2.3 Columbia/HCA Healthcare

In October 1993, Columbia and HCA jointly announced their \$5.7 billion stock swap merger. The merger was completed in February 1994 and made a \$10 billion corporation (Flower, 1995). The newly formed company renamed to Columbia/HCA Healthcare Corporation, Scott was named CEO and Frist, Jr. became chairman. Pursuing Scott's joint ventures and acquisitions strategies, Columbia/HCA acquired Cedars Medical Center of Miami followed by purchasing Medical Care America, Inc. in May 1994 (Myerson, May 24, 1994). Columbia/HCA also created joint ventures with several teaching hospitals and medical schools.<sup>5</sup> Scott's next big step was to acquire Healthtrust by \$5.6 billion which was announced in October 1994 and was completed in April 1995 (Flower, 1995). The Healthtrust merger increased Columbia/HCA hospitals to 311 (Associated Press, October 05, 1994). Along with the Healthtrust merger, Columbia/HCA acquired several other hospitals from 1994 to 1995.<sup>6</sup> Scott also announced acquisition of several hospitals in different states. Columbia/HCA growth continued from 1996 through 1997 by several acquisitions.<sup>7</sup>

The company's growth strategy has stopped when a Columbia/HCA facility in El Paso became the subject of a federal healthcare fraud investigation in March 1997 (Reuters News, March 21, 1997c). Following the fraud investigation, Scott was forced to resign in July 1997 and Frist, Jr. who was the CEO of HCA Corporation before its merger with Columbia named the CEO. Scott was paid \$9.88 million to settle and kept 10 million shares of Columbia/HCA stock worth over \$350 million (Reuters News, July 26, 1997b).

The new CEO who was against Scott's growth strategies, immediately guided Columbia /HCA in a new direction. He announced Columbia/HCA's new strategy in August 1997. Frist stopped working with physicians who owned Columbia/HCA shares, as he believed that being a physician and having ownership of the company makes physicians bring the money-making patients to the company and refer the other ones to competitors. Another new strategy was selling

---

<sup>5</sup>Like the University of Louisville, University of Miami, Emory University, Tulane University, the Medical College of Virginia, and the Medical University of South Carolina (*Columbia/HCA Healthcare Corporation*, 1996).

<sup>6</sup>Including St. Francis Hospital of Charleston, Colorado-based Rose Healthcare System, West Virginia, and Angelo Community Hospital of San Angelo, Texas (Pederson, 2001).

<sup>7</sup>Central Health Services, Inc. was acquired in November 1996 (PRNewswire, November 5, 1996), and Value Health, Inc. merger was completed in August 1997 (BIIDEP, July 18, 1997).



Columbia/HCA's home care division, which was investigated during the fraud investigation (Reuters News, August 7, 1997a).<sup>8</sup>

As a result of Frist's modifications, Columbia/HCA became smaller in size and more focused in markets. By January 1999 the corporation sold more than 33 surgery centres, 44 hospitals and all its home care related centres. Frist changed the name of the corporation back to HCA Inc. in 1999. In 2002, HCA's fraud case was settled with a \$1.7 billion payment which made it the largest fraud settlement in US history (Department of Justice, June 26, 2003).

This was not the end of HCA's lawsuit story. In July 2005, two weeks before reporting HCA financial results to the market, senator Frist (Frist, Jr.'s brother) sold all his HCA shares, as did other executives. Two weeks later, after the disappointing financial results HCA was sued by shareholders claiming that company increased the price of stocks by false claims about HCA's profit. The case was settled in 2007 by paying \$20 million to the shareholders (Modern Healthcare, August 15, 2007).

In November 2006, a group of investors including the Frist family acquired the company for \$31.6 billion, making HCA privately held again after its first public offering in 1992. The company was privately held during 2006 through 2011, and went public in March 2011. HCA currently manages 165 hospitals and 115 freestanding surgery centres in the United States of America and the United Kingdom (HCA History, 2015).

### **3 Sample and Variable Construction**

#### **3.1 Sample**

We study Columbia Hospital Corporation (CHC) and Hospital Corporation of America (HCA) from 1990 through 2013. We obtain data from different databases. For the stock data we use Compustat CRSP Daily Stock database and for the debt issuance data we use Bloomberg database. We also obtain HCA and CHC news releases from Factiva and their financial statements or any other reports or news from their SEC filings.

---

<sup>8</sup>HCA was shrinking in size for the years 1998 to 2000.

Due to the merger of HCA and CHC in 1994, no data is available for HCA in 1993; the 1993 and 1992 reported data in Compustat for HCA is the CHC data.<sup>9</sup> It looks like HCA and CHC merged in 1994, and then Compustat goes back and overwrites the data in the years 1993 and 1992 based on CHC data. Despite overwriting HCA data on 1992, we find both HCA and CHC data for the years 1990 to 1992. In addition, for the years when HCA was privately held (2006-2011), no market data is available and we obtain the book data from the HCA's annual reports.

### 3.2 Variable Construction

To study variations in HCA's capital structure over time, we use market and book long-term leverage ratios. We define this study variables as follows:

- i)  $(L_t)_{Market}$  is the ratio of long-term market debt over the total long-term debt plus market value of equity at  $t$ .<sup>10</sup>

$$(L_t)_{Market} = \frac{D_t}{D_t + N_t * P_t}$$

- ii)  $(L_t)_{Book}$  is the ratio of total long-term debt over total long-term debt plus common share holder equity at  $t$ .

$$(L_t)_{Book} = \frac{D_t}{D_t + ceq_t}$$

- iii)  $D_t$  is the firm's long-term debt at  $t$ .<sup>11</sup>

- iv)  $P_t$  is the price per share at  $t$ .<sup>12</sup>

- v)  $N_t$  is the number of shares outstanding at  $t$ .<sup>13</sup>

- vi)  $Ceq$  is the the common/ordinary equity and  $Ceq = cstk + caps + re - tstk$ , where  $cstk$  is common /ordinary stock (capital),  $caps$  is capital surplus/share premium reserve,  $re$  is retained earnings and  $tstk$  is total treasury stock.

---

<sup>9</sup>We can not find HCA annual reports before 1994, therefore for the years 1990-1994, we trust the Compustat database, for 1994-2013, we check both annual reports and the Compustat data.

<sup>10</sup> $t$  can represent both year and day.

<sup>11</sup>Compustat item  $dltt$ .

<sup>12</sup>Compustat item  $prcc\_f$ .

<sup>13</sup>Compustat item  $csho$ .

vii)  $SHEquity$  is the market value of shareholders' equity and  $SHEquity = P_t * N_t$ .

viii)  $Diffshrout$  is the number of the buy-backed shares and  $Diffshrout = N_{t-1} - N_t$ .

### 3.3 Decomposition of leverage measure

Generally, the capital structure of a firm is measured by its leverage ratio, defined as debt over debt plus equity of a firm. By this definition any variation in the numerator or the denominator changes the capital structure. To find how IPOs, share buyback programs, buyouts, mergers and acquisitions which deal with long-term debt can affect the capital structure measure, we decompose the market and book leverage measures into different components following Fahlenbrach and Stulz (2009).<sup>14</sup> We use the narrowest definition of debt which includes only long-term debt:

$$L_t = \frac{D_t}{D_t + E_t}, \quad (1)$$

where  $L_t$  is either market or book long-term leverage ratio,  $D_t$  is the long-term debt value and  $E_t$  is the equity value of a firm at  $t$ .  $E_t$  is  $SHEquity = P_t N_t$  for market leverage ratio where  $P_t$  is the price per share and  $N_t$  is the number of shares outstanding, and  $E_t = Ceq_t$  for book leverage ratio, where  $Ceq$  is the common/ordinary equity.<sup>15</sup> Recalling from Section 3.2,

$$(L_t)_{Market} = \frac{D_t}{D_t + P_t N_t}$$

$$(L_t)_{Book} = \frac{D_t}{D_t + Ceq_t}$$

where  $(L_t)_{Market}$  is the market leverage ratio and  $(L_t)_{Book}$  is the book leverage ratio.

By definition, the change in leverage ratio from  $t$  to  $t + 1$  ( $\Delta L_t$ ) is

$$\Delta L_t = \frac{D_{t+1}}{D_{t+1} + E_{t+1}} - \frac{D_t}{D_t + E_t}.$$

---

<sup>14</sup>Fahlenbrach and Stulz (2009) look at the separate effects of changes in numerator and denominator of the CEO's percentage ownership stake. We use their model to show the separate effects of total assets and total liabilities on leverage changes.

<sup>15</sup>Compustat item  $Ceq = cstk + caps + re - tstk$ , where  $cstk$  is common /ordinary stock (capital),  $caps$  is capital surplus/share premium reserve,  $re$  is retained earnings and  $tstk$  is total treasury stock.

$$\begin{aligned}
\Delta L_t &= \frac{D_{t+1}}{D_{t+1} + E_{t+1}} - \frac{D_{t+1} - \Delta D}{D_t + E_t} \\
&= \frac{\Delta D}{D_t + E_t} + \frac{D_{t+1}(D_t + E_t)}{(D_{t+1} + E_{t+1})(D_t + E_t)} - \frac{D_{t+1}(D_{t+1} + E_{t+1})}{(D_{t+1} + E_{t+1})(D_t + E_t)} \\
&= \frac{\Delta D}{D_t + E_t} - \frac{(D_{t+1})(-D_t + D_{t+1} - E_t + E_{t+1})}{(D_{t+1} + E_{t+1})(D_t + E_t)} \\
&= \frac{\Delta D}{D_t + E_t} - \frac{(D_{t+1})\Delta D}{(D_{t+1} + E_{t+1})(D_t + E_t)} - \frac{(D_{t+1})\Delta E}{(D_{t+1} + E_{t+1})(D_t + E_t)} \\
&= \Delta D \left( \frac{1}{D_t + E_t} - \frac{(D_{t+1})}{(D_{t+1} + E_{t+1})(D_t + E_t)} \right) - \frac{(D_{t+1})\Delta E}{(D_{t+1} + E_{t+1})(D_t + E_t)} \\
&= \Delta D \left( \frac{D_{t+1} + E_{t+1} - D_{t+1}}{(D_{t+1} + E_{t+1})(D_t + E_t)} \right) - \frac{(D_{t+1})\Delta E}{(D_{t+1} + E_{t+1})(D_t + E_t)} \\
&= E_{t+1} \frac{\Delta D}{(D_{t+1} + E_{t+1})(D_t + E_t)} - D_{t+1} \frac{\Delta E}{(D_{t+1} + E_{t+1})(D_t + E_t)},
\end{aligned} \tag{2}$$

where  $\Delta D = D_{t+1} - D_t$ , and  $\Delta E = E_{t+1} - E_t$ , and for market leverage ratio,

$$\begin{aligned}
\Delta E &= E_{t+1} - E_t \quad \text{where} \quad E_t = P_t N_t \\
\Delta E &= P_{t+1} N_{t+1} - P_t N_t \\
\Delta E &= P_t \Delta N_t + N_t \Delta P_t + \Delta P_t \Delta N_t
\end{aligned} \tag{3}$$

By plugging  $\Delta E = P_t \Delta N_t + N_t \Delta P_t + \Delta P_t \Delta N_t$  into the last line of Equation (2),

$$\begin{aligned}
\Delta(L_t)_{Market} &= P_{t+1} N_{t+1} \frac{\Delta D}{(D_{t+1} + P_{t+1} N_{t+1})(D_t + P_t N_t)} \\
&\quad - D_{t+1} P_t \frac{\Delta N}{(D_{t+1} + P_{t+1} N_{t+1})(D_t + P_t N_t)} \\
&\quad - D_{t+1} N_t \frac{\Delta P}{(D_{t+1} + P_{t+1} N_{t+1})(D_t + P_t N_t)} \\
&\quad - D_{t+1} \frac{\Delta P \Delta N}{(D_{t+1} + P_{t+1} N_{t+1})(D_t + P_t N_t)},
\end{aligned} \tag{4}$$

Equation (4) shows changes in market leverage is related to variations in debt, the number of shares outstanding and price per share of a firm. The first term explains the changes in leverage due to variations in long-term debt ( $\Delta D$ ), the second term explains the changes in leverage due to variations in the number of shares outstanding ( $\Delta N$ ), the third term explains the changes in

leverage due to variations in price per share ( $\Delta P$ ), and the fourth term explains the changes in leverage due to the interaction between variations in price per share and the number of shares outstanding ( $\Delta P \Delta N$ ). The effects of the number of shares outstanding and share price is trivial for small changes in the number of shares outstanding and price but it is remarkable in the two following circumstances, 1) when a firm repurchases or offers a large number of shares; 2) when there is a notable increase (decrease) in share price. Therefore, we study different causes that change long-term debt, the number of shares outstanding and price per share to scrutinize variations in HCA's market leverage ratios over time.

insert Figure 1

Figure 1 plots the first to the fourth terms of Equation (4). As can be seen in the figure, the fourth term which is the interaction between changes in the share price and the number of shares outstanding is close to zero. Therefore, we can simplify Equation (4) as:

$$\begin{aligned} \Delta(L_t)_{Market} = & P_{t+1}N_{t+1} \frac{\Delta D}{(D_{t+1} + P_{t+1}N_{t+1})(D_t + P_tN_t)} \\ & - D_{t+1}P_t \frac{\Delta N}{(D_{t+1} + P_{t+1}N_{t+1})(D_t + P_tN_t)} \\ & - D_{t+1}N_t \frac{\Delta P}{(D_{t+1} + P_{t+1}N_{t+1})(D_t + P_tN_t)}, \end{aligned} \quad (5)$$

To find book leverage ratio variations, we plugged in  $\Delta E = \Delta Ceq = Ceq_{t+1} - Ceq_t$  into the last line of Equation (2),

$$\begin{aligned} \Delta(L_t)_{Book} = & Ceq_{t+1} \frac{\Delta D}{(D_{t+1} + Ceq_{t+1})(D_t + Ceq_t)} \\ & - D_{t+1} \frac{\Delta Ceq}{(D_{t+1} + Ceq_{t+1})(D_t + Ceq_t)}. \end{aligned} \quad (6)$$

Equation (6) shows changes in book leverage is due to changes in long-term debt ( $\Delta D$ ) and changes in common/ordinary equity ( $\Delta Ceq$ ). Therefore, we study different causes that change long-term debt and common/ordinary equity to study variations in book leverage ratios over time.

insert Figure 2

Figure 2 plots the first and the second terms of Equation (6). The figure shows that the effect of the first term (variations in the long-term debt) is more than the second term (variations in the shareholders' equity) on the book leverage ratio changes.

insert Figure 3

Figure 3 plots the changes in the HCA's market leverage ratio of Equation (4), and the changes in the HCA's book leverage ratio of Equation (6). The figure shows that the changes in market and book leverage ratios ( $\Delta L = L_{t+1} - L_t$ ) were bounded between - 0.2 and + 0.2 for the years 1993-2004, no IPOs or LBOs period.

Overall, considering the fact that the changes in long-term debt are due to both debt issuance and debt retirement, the dynamics of capital structure (taking into account both market and book leverage ratios) occur due to variations in the number of shares outstanding either through stock buyback program (decrease in the number of shares outstanding - equity repurchases) or share offerings (increase in the number of shares outstanding - equity issuance), share price increase or decrease, changes in common/ordinary equity, debt issuance and debt retirement.<sup>16</sup>

## 4 Findings

As discussed in Section 3.3, there are several causes that change capital structure of a corporation. In this section, we explain each of these causes and how they affect CHC, HCA and Columbia/HCA capital structure. We choose six general events by which a firm's capital structure can change and we study HCA's capital structure changes as a result of these events which are 1) mergers and acquisitions, 2) divestitures, 3) buybacks, 4) leverage buyout, 5) initial public offerings and 6) extreme share price declines.

In this section, first we study HCA's market and book leverage ratios' behaviours. Then, we explore the effects of the events on HCA's capital structure. The first five events are ordered and sectioned based on their occurrence time. We discuss HCA's mergers and acquisitions as M&As mostly took place from 1994 up to 1998, followed by the 1998 to 2000 HCA's divestitures as well

---

<sup>16</sup>Debt retirement includes both calling the callable bonds before their maturity date and debt repayment at the maturity.

as buybacks which led to a smaller but more focused HCA. Then, we discuss the leveraged buyout in 2006 followed by 2011 IPO. At the end, we refer to HCA's extreme share price declines in 2011 and 1997.

#### 4.1 Market vs. Book Leverage

insert Table 1

Table 1 shows the components of Hospital Corporation of America (HCA)'s book and market leverage ratios from 1990 to 2005 and from 2011 to 2013. There are three sets of accounting information in this table. The first set is HCA's data from 1990 to 1993. The second set is the Columbia Hospital Corporation (CHC)'s accounting information from 1990 to 1993. The third set includes the consolidated accounting information of HCA and Columbia in 1993 one year before their merger, and the accounting information of merged Columbia/HCA from 1994 to 2013. The common component in the market and the book leverage ratios is the long-term debt ( $D$ ). The main components of the book leverage ratio are common shareholders' equity or deficit ( $ceq$ ) where,  $ceq = cstk + caps + re - tstk$ .  $cstk$  is the common stock,  $caps$  is the capital surplus,  $re$  is the retained earnings and  $tstk$  is the treasury stock.<sup>17</sup> All these components go into the calculation of either book or market leverage ratios.

insert Figure 4

Figure 4 shows HCA's annual market and book leverage ratios from 1990 to 2013. Annual market leverage ratios are missing from 1990 to 1992 and from 2007 through 2011, when HCA was privately held. The book leverage ratios are available for all years from 1990 to 2013 as the book leverage ratio components can be found in annual reports. Figure 4 shows that HCA's market leverage ratio had been between 0.2 and 0.4 from 1992 up to 2006, and has been decreasing since the 2011 IPO to get to the 0.2 to 0.4 zone. This HCA market leverage ratio behaviour could be seen as HCA's tendency to stay in a target market leverage ratio zone. In addition, Figure 4 shows that HCA's market and book leverage ratios appear to follow a similar trend from 1992 to 2006 except for the

---

<sup>17</sup>HCA's  $tstk$  is equal to zero for the years 1990 to 2013

years 1998 to 2000. The figure also shows neither leverage ratio experienced dramatic fluctuations from 1992 to 2006. Then, the book leverage ratio increased drastically in 2006 as a result of the leveraged buyout.<sup>18</sup>

Figure 4 also shows HCA's book debt ratio increased to 1.67 after the 2006 leverage buyout, and has been more than one since then. The unusual HCA book leverage ratio is a result of the negative common equity in its balance sheets after the 2006 LBO.<sup>19</sup> When the group of private equity firms and the Frist family acquired HCA in 2006, they paid the total market value of assets which was far more than HCA's book value of assets. Generally, leveraged buyouts are financed by a large amount of debt. In HCA's case, more than 75% of the \$21.3 deal was financed by borrowings and the rest was financed by cash.

$$BookValueofAssets = Liabilities + CommonEquity$$

$$CommonEquity = BookValueofAssets - Liabilities$$

Note that here the value of liabilities is equal to the sum of 75% of the market value of assets and HCA's current debt. Therefore, the amount of HCA's liability is much greater than its book value of assets, which makes the common equity (*ceq*) of HCA a negative number. When *ceq* is negative, it makes the numerator of the book leverage ratio greater than its denominator and makes the book leverage ratio greater than one.

Baker and Wurgler (2002)'s market timing theory suggests that historical market value significantly affects a firm's current capital structure. In other words, firms' managers repurchase the stock when they perceive their stock is undervalued, and alternatively they tend to issue equity rather than debt when they believe their stock is overvalued. The market value measure of leverage is a function of share price, the number of shares outstanding and long-term debt which could be affected by both outsiders' valuation as well as a firm's decision in order to signal information to the market. On the other hand, the book measure of leverage is a function of long-term debt and common/ordinary equity which is not affected by the variations in market share price or the number of shares outstanding and is only affected by a firm's decisions. Therefore, in our discussion about

---

<sup>18</sup>Annual market leverage ratios are not available for the years 2006 to 2011 when HCA was privately held.

<sup>19</sup>Book value of equity could be negative sometimes (Welch, 2004).



capital structure changes we should consider the differences in market and book leverage ratios and if they will be changed by firms' managers decisions, or by the market effects due to outsiders' valuation. If the management team of a firm intentionally decides to vary the firm's leverage ratio, the managers may use individual market or book leverage ratio components listed in Table 1 to change the market or book leverage ratios. By looking at each component's behavior when there is an upward or downward jump in the leverage ratios, we understand what exactly HCA did in order to manage its leverage ratios for the years 1990-2014.

insert Figure 5

Figure 5 plots HCA annual long-term debt ( $D$ ) and retained earnings ( $re$ ) from 1990 to 2013. Along with the jump in HCA's leverage in 2006, the total long-term debt ( $D$ ) increased and the retained earnings ( $re$ ) decreased. These two components had not been changing radically from 1993 to 2006 and then experienced considerable change due to the 2006 leveraged buyout. The upward trends of HCA's long-term debt ( $D$ ) and downward trend of its retained earnings ( $re$ ), along with the fairly stable trends of the other market and book leverage components show that HCA's managers changed long-term debt and retained earnings more than other components to manage HCA's leverage ratio and finance 2006 buyout.

## 4.2 Mergers and Acquisitions

Mergers and acquisitions (M&A) is a term referring to the act of several firms consolidating either by joining each other or a firm being purchased by another firm. In a merger, two firms combine to jointly form a new corporation. In an acquisition, one firm will be purchased by another firm.

Kummer and Steger (2008) state firms' tendency to grow, outsiders' pressure on firms to grow, elimination of competition, and the history of other firms' successful M&A, as reasons why firms tend to merge with other firms or to acquire other firms. Firms continuously search for growth by which they can create value. Therefore, they follow any value creating tactics like mergers and acquisitions to have larger market share and gain more profit.

This section answers the question "how do mergers and acquisitions affect a firm's capital structure?" When it comes to acquiring a company, a firm with low debt, strong cash flow and

substantial assets is a good target. By acquiring a target firm, the acquirer's capital structure varies due to 1) long-term debt issuance in order to finance the deal, 2) increase in the total debt and the total equity of the acquirer due to consolidation of acquirer and the target firm. Generally, when two firms combine the book value of the newly formed firm total assets and long-term debt will be the combined book value of these two firms' total assets and the combined book value of these two firms' total long-term debt, respectively. Besides, the market value of the newly formed firm will be the new number of shares outstanding times the new share price. The leverage decomposition in Section 3.3 shows that a firm capital structure will change due to variations in its different components. Equation (5) shows that mergers and acquisitions might change the market leverage by causing variations in i) the number of shares outstanding ( $N$ ), ii) the price per share ( $P$ ), and iii) the long-term debt ( $D$ ). Alternatively, Equation (6) shows that mergers and acquisitions might change the book leverage ratio due to variations in i) the common/ordinary stock ( $cstk$ ), ii) the capital surplus/share premium reserve ( $caps$ ), iii) the retained earnings ( $re$ ), and iv) the long-term debt ( $D$ ).<sup>20</sup>

To discuss HCA's mergers and acquisitions, we divide the period of this study into two periods. First, 1990 to 1994 which is the period before merging with Columbia (the mega merger). Second, 1994 to 1997 which is the period after the mega merger and before the 1997 fraud investigation. The divestitures period is the period after the fraud investigation, Scott resignation and modification in HCA's strategy in terms of mergers and acquisitions.

When it comes to acquiring a company, a firm with low debt, strong cash flow and substantial assets is a good target. By acquiring a target firm, the acquirer's capital structure varies due to 1) long-term debt issuance in order to finance the deal, 2) increase in the total debt and the total equity of the acquirer due to consolidation of acquirer and the target firm.

#### 4.2.1 1990-1994

The early 1990s serious reform in the health care industry was considered as a great growth opportunity for the main players in the U.S. health care industry; as a result the biggest competitors

---

<sup>20</sup>If two firms have quite similar book leverage ratio, the book leverage ratio of the newly formed firm will be close to their book leverage ratios.

tried to team up with each other to take advantage of the synergistic effect of their mergers. First, HCA went public in a successful initial public offering in 1992. One year later, Columbia Hospital Corporation (CHC) merged with Galen Health Care in a \$3.2 billion stock swap merger in early 1993 and formed Columbia Healthcare Corporation (COL). Then, HCA and Columbia Healthcare jointly announced the largest merger in the history of HCA which was completed in 1994 and created the \$10.25 billion Columbia/HCA Healthcare Corporation, the largest hospital chain in the U.S. (Flower, 1995).

Figure 4 shows that from 1990 to 1994 HCA's book leverage ratio was almost halved from 0.93 to 0.49, despite the large debt issuance in 1993. The reason is HCA's 1992 initial public offering after its management buyout in 1988, along with the 1993 debt reduction which is close to the 1993 debt issuance. The Figure also shows that HCA's market debt ratio remained largely unchanged after its merger with Columbia, whereas HCA's book debt ratio slightly decreased from 0.49 to 0.43 in 1994 after the merger.<sup>21</sup>

Figure 3 does not show extreme changes in HCA's market leverage ratio in 1994 in comparison with 1995. Recalling Equation (5) terms and referring to Figure 1, we can see that the small variation in the market leverage ratio is due to the fact that increase in the first term of Equation (5) is offset by an increase in the third and second terms of Equation (5). Note that the second and the third terms of Equation (5) have negative signs. Therefore, the market leverage ratio remained largely unchanged. Figure 3 also plots a small increase in HCA's book leverage ratio in 1994 in comparison with 1995. Recalling Equation (6) terms and referring to Figure 2, we can see that the variation in Equation (5) is due to the fact that a part of the increase in the first term of Equation (6) is offset by an increase in the second term of Equation (6).<sup>22</sup> Therefore, the book leverage ratio did not change as much as the amount of debt increased in 1994.

Harford et al. (2009) use the market leverage ratio and show that firms have target capital structure and when it comes to financing M&As, over leveraged firms prefer equity financing than debt financing to stay close to their target capital structure. Considering the available market

---

<sup>21</sup>The existence of no considerable variation in market leverage could be due to the fact that the reported accounting information for the year 1993 is extracted from the consolidated Columbia and HCA financial statements, and not HCA's performance on its own in 1993.

<sup>22</sup>Note that the second term of Equation (6) has a negative sign.

data and the fact that HCA is not over leveraged, my conjecture is that, consistent with Harford et al. (2009), HCA's management team kept HCA's leverage ratio in the target leverage zone and financed the deal by the combination of debt and equity. Not being over leveraged allowed HCA's management team to increase the firm's long-term debt.<sup>23</sup>

#### 4.2.2 1994-1998

After Columbia and HCA merger in 1994, Scott became the CEO of Columbia/HCA. His strategy involved significant healthcare facility acquisition and consolidation activities.<sup>24</sup> The three largest mergers and acquisitions during this period are: the 1994 merger with Medical Care of America which was financed by issuance of 21.1 million shares of HCA common stock, the 1995 merger with Healthtrust which was financed by issuance of 80.412 million HCA voting common stock and the Value Health merger in 1997 by which Value Health stockholders received \$20.50 in cash for each Value Health common stock and HCA financed it by issuing debt.

Figure 4 shows despite Columbia/HCA numerous mergers and acquisitions for the years 1994-1996, both market and book leverage ratios had been moderately stable. Interestingly, Figure 4 shows HCA capital structure did not fluctuate significantly and book leverage ratio was bounded between 0.43 and 0.50, and market leverage ratio was about 0.2 for the years 1994 up to 1997 expansion period when Scott was the CEO. This moderately stable trend in the leverage ratios during HCA's intensive expansion and acquisitions period could be due to the fact that the 1994 and 1995 mergers were financed by issuing common stock and not debt.<sup>25</sup>

---

<sup>23</sup>Note that as debt issuance occurred in February, Compustat reports the debt as the year 1993's debt. This is why we do not see a considerable change in the HCA's long-term debt from 1993 to 1994.

<sup>24</sup>From HCA's 1994 annual report.

<sup>25</sup>After HCA and Columbia merger in 1994, the newly formed Columbia/HCA Corporation acquired Cedars Medical Center of Miami followed by purchasing Medical Care America, Inc. (Myerson, May 24, 1994). The firm acquisition strategy continued by acquiring Healthtrust in a \$5.6 billion deal which was announced in October 1994 and was completed in April 1995 (Flower, 1995). Columbia/HCA also acquired St. Francis Hospital of Charleston, Colorado-based Rose Healthcare System, West Virginia, and Angelo Community Hospital of San Angelo, Texas during 1994 to 1995 (Pederson, 2001). Columbia/HCA growth continued from 1996 through 1997 by several acquisitions. Atlanta-based Central Health Services, Inc. acquired in November 1996 and Value Health, Inc. merger completed in August 1997 (BIIDEP, July 18, 1997). In addition, Columbia/HCA created joint ventures with teaching hospitals and medical schools like the University of Louisville, University of Miami, Emory University, Tulane University, the Medical College of Virginia, and the Medical University of South Carolina (Pederson, 2001). Columbia/HCA growth stopped in 1997 when Columbia/HCA facility in El Paso became the subject of a federal healthcare fraud investigation, and Scott who had been the mastermind of Columbia/HCA's growth strategy forced to resign.

We recall Figure 1 and Equation (5) to see which terms of the Equation (5) caused variations in HCA's market leverage ratio in comparison with the following year. For the period 1995-1996 the second term with a positive sign ( $\Delta N$ ) and the third term ( $\Delta P$ ) with a negative sign affected the market leverage ratio the most. The negative sign of the third term showing the outsiders' valuation effect. The Healthtrust merger in 1995 caused a share price increase which was offset in 1996. For the period 1996-1997 the first term with a positive sign ( $\Delta D$ ) and the third year with a negative sign ( $\Delta P$ ) had the most influence on Equation (5). Increase in the long-term debt was due to Value Health merger which was financed by issuing debt and decrease in the share price was due to 1997 fraud investigation, which overall caused an increase in the market leverage ratio.

Figure 2 along with Equation (6) show that for the period 1995-1996 the book leverage ratio was affected by the second term (increase in  $\Delta ceq$ ) which was due to this period mergers. For the period 1996-1997, the first term of Equation (6) with positive sign and the second term with negative sign increased the book leverage ratio. For the year 1997, the large amount of first term (increase in  $\Delta D$ ) along with a small decrease in the second term, increased the book leverage ratio.

### 4.3 Divestitures

Divestiture is a technique by which a firm jettisons a business unit or a part of it through exchange, sale or some other ways, in order to focus on its core competencies. A spinoff is a form of divestiture by which the parent company distributes shares of its subsidiaries to the parent company shareholders. Then, shares of the newly independent spun off corporation will be publicly traded in the market.

Following the 1997 fraud investigation when Scott was forced to resign, Columbia/HCA modified its strategy and tried to refocus on its core competencies. Subsequent to fundamental changes in HCA's strategies, HCA started to divest some of its hospitals and business units.<sup>26</sup> Some of the HCA's divestitures during 1998 to 2000 are LifePoint and Triad spin offs, Selling Value Behavioral Health and Value Rx which were the Value Health business units.<sup>27</sup> Figure 4 shows HCA's book

<sup>26</sup>HCA disposed of more than 33 surgery centres, 44 hospitals and all its home care related centres by selling them off or through spinoffs.

<sup>27</sup>From HCA's 2000 annual report.

leverage ratio in 1998 is the lowest HCA's book leverage ratio from 1990. After experiencing a trough in 1998, the HCA's book leverage ratio started an increasing trend. The main reason behind the sharp decrease in the book and market leverage ratios in 1998 is a 39% decrease in the total debt.

For the year 1998, Figure 3 shows a small increase in the book leverage ratio and a close to zero variation in the market leverage ratio from the year 1999. Recalling Equation (5) terms and referring to Figure 1, we can see that the close to zero variation in the market leverage ratio is there because of the small decreases in the first term ( $\Delta D$ ) and second term ( $\Delta N$ ) of Equation (5), and a small increase in the third term which is variations in the share price. Therefore, the market leverage ratio remained largely unchanged. In addition, the 1998 book leverage ratio variations shown in Figure 3 were caused by a small decrease in the first term ( $\Delta D$ ) and a larger decrease in the second term ( $\Delta ceq$ ) of Equation (6). Note that as the second term of Equation (6) is negative, it essentially causes an increase in  $\Delta(L_t)_{Book}$ .

insert Figure 6

Figure 6 plots HCA long-term debt issuance and reduction. Figure 6 shows despite the nontrivial debt reduction in 1998, HCA debt issuance is very small. Debt payoff without issuing new debt is a result of the 1998 divestitures, which were used as a source of financing to reduce the corporation total debt.

The year 1998 is a turning point for the book leverage ratio. Figure 4 shows that for the years 1998 up to 2001 which we call the HCA shrinking period, the book leverage ratio was increasing while the market leverage ratio was decreasing. This is the only period from 1990 to 2013 where the market and the book leverage ratios have different upward/downward slopes. As the total long term debt which is the book and market leverage ratios' common component was fairly stable, we need to look at the market and the book leverage ratios decompositions' terms in Figures 2 and 1. The figures show that for the years 1998 up to 2001, increase in the book leverage ratio was due to the second term of Equation (6) negative sign (decrease in  $ceq$ ). Whereas, at the same period the market leverage ratio was decreasing due to increase in the third term of Equation (5), i.e. increase in the share price.

Section 3.3 explains that equity value of a firm is price per share times the number of shares outstanding for the market leverage ratio and is the common/ordinary equity (*ceq*) for the book leverage ratio. During the shrinking period, HCA common/ordinary equity was decreasing due to a huge decrease in capital surplus and common/ordinary stock. As a result, the book leverage ratio was increased because of the decrease in its denominator. On the other hand, HCA's price per share times the number of shares outstanding was increased despite the decreases in the number of shares outstanding due to a considerable increase in the share price from \$24.75 in 1998 to \$40.01 in 2000. The increase in the share price due to spin-offs is consistent with Hite and Owers (1983). In addition, the share price increase was caused by the market reaction to HCA's several buybacks and HCA's settlement with the U.S. Department of Justice on its 1997 fraud investigation. As a result, the market leverage ratio decreased because of increases in its denominator.

As a result of this period of divestitures, the amount of HCA's cash increased as HCA sold some of its business units in cash. The Jensen (1986)'s free cash flow theory states that firms repurchase stocks in order to control the firms' managers and reduce the excess cash. The excess cash can be used to decrease the amount of corporate debt, but because debt disciplines managers as interest payments to debtholders are a firm obligation, firms rather to use the excess cash to repurchase share than pay off debt. My conjecture is that, if a firm is not in the target leverage zone and is a highly levered firm it may use the excess cash to pay off some of its debt and reduce its leverage ratio. On the other hand if the firm is in its target leverage zone it can use the excess cash to buyback its stock. Since HCA was in its target leverage zone and was not highly over-levered, it spent the excess cash to buyback some of its stocks which we discuss it in the next section.

For the years 2001 to 2005, both market and book leverage ratios show upward sloping trends. Despite the same book leverage trends (both increasing) in the late 90s and the early to mid-2000s, reasons behind these trends are fundamentally different. The late 90s upward trend was due to a decrease in the denominator (HCA common/ordinary equity), and the early to mid-2000s increasing trend was caused by an increase in the HCA's total long-term debt. In the late 90s, HCA was performing several divestitures and was shrinking in size, whereas in the early to mid-2000s

HCA was a stable firm which its fraud investigation was settled, and was financing several buybacks by issuing debt and the firm free cash flows.

#### 4.4 Buyback Programs

Buyback is a payout policy and refers to repurchase of a firm's shares outstanding in order to reduce the number of a firm's stock in the market. Skinner (2008) indicates that the number of firms using share buyback instead of dividend payment as their payout policy is increasing. A firm may choose a share buyback strategy for several reasons. Dann and Mikkelson (1984), DeAngelo, DeAngelo and Rice (1984) and Asquith and Mullins (1986) show that a stock repurchase announcement can cause a stock price increase; therefore a firm's management team may follow the stock repurchase strategy to increase the firm's current share value available in the market. In addition, Bagwell (1991) finds that firms can decrease the threat of hostile take overs by choosing share buyback as the payout policy. Firms can also eliminate the threat of shareholders who have the desire for the controlling stake by share buyback. Firms may also use the buyback program to increase earnings per share (Hribar, Jenkins and Johnson, 2006, Almeida, Fos and Kronlund, 2013). Furthermore, Kahle (2002) finds that firms follow buyback strategy when employees have a large amount of currently exercisable options. In addition to these motives, Dittmar (2000) shows that changing the capital structure could be one of the reasons for a share buyback.

How does a share buyback change the capital structure? Recalling Equations (5) and (6), we need to seek the dynamics of capital structure due to variations in 1) long-term debt, 2) the number of shares outstanding, 3) share price, and 4) common/ordinary equity. Firms could finance share buybacks by issuing debt. Besides, Jensen (1986) discusses that managers could use their firms' excess cash to repurchase stocks, and Stephens and Weisbach (1998) and Brav et al. (2005) findings support this hypothesis. From another point of view, when firms repurchase shares with their excess cash they give up the option of using the excess cash to pay-off the existing debt, therefore they forgo the option of decreasing their leverage ratio. Altogether, when a firm repurchases its stock the capital structure dynamics are due to variations in its numbers of shares outstanding, share price, long-term debt and common/ordinary equity.



One of the reasons that a firm considers a share buyback could be its undervalued stock (Stephens and Weisbach, 1998). The announcement of share buyback will be considered as a good sign by the market and consequently increases a firm's share price. This normally happens 2 to 3 days before the buyback. Therefore, if we look at daily changes in the capital structure and consider buyback day as (t) and the day before the buyback as (t-1) the share price variation is trivial as the share price has already increased in the announcement day. As a result, the changes in capital structure from day t-1 to day t occurs due to reduction in the number of shares outstanding at day t which leads to decrease in shareholders' equity and increase in capital structure from day t-1 to t.

Improving financial statements can also be a good motivation for a share buyback (Allen and Michaely, 2003, Brav et al., 2005). Generally, a share buyback increases return on assets (ROA), return on equity (ROE), and earnings per share (EPS) in financial statements. After a share buyback, ROA (a ratio of net income over total assets) increases as the firm's excess cash, which is a part of a firm's total assets, has been used for the share buyback leading to smaller denominator in ROA; ROE (a ratio of net income over total shareholders' equity) increases due to decrease in total shareholders' equity following a buyback; EPS (a ratio of earnings over the number of shares outstanding) also increases because the same earnings will be divided to the fewer number of shares outstanding.

insert Table 2

Table 2 shows Columbia /HCA buybacks during 1990-2013. Columns (1) to (5) represent the date of buyback, the number of shares outstanding, price per share, market shareholders' equity and the number of the repurchased shares, respectively. The number of repurchased shares is calculated by the difference between the number of shares outstanding from day t-1 to day t. The negative signs in Column (5) shows decreases in the shares outstanding from the day before. Interestingly, all the HCA's buybacks occurred at the end of monthly period from 28th to 31st, showing report purpose as one of the share buyback motivations.

In this Section, we discuss how do share buybacks change Columbia/HCA capital structure? and what are the reasons behind HCA's buyback decisions? To do this, we start with the largest

buyback that changed HCA's capital structure. We study the dates of buyback where capital structure increases or decreases more than 2%.

Table 2 shows that the largest buyback in Columbia/HCA history from 1990 to 2013 took place on Oct 31, 2011 when HCA repurchased 80.771 million of its outstanding shares owned by Bank of America at the closing price of NYSE on September 14, 2011.<sup>28</sup> HCA financed the buyback by cash in hand and some borrowings. The announcement of this share buyback increased HCA share price from \$18.61 per share to \$20.84 per share. Both increase in the share price and decrease in the shares outstanding, as well as increase in HCA's borrowings lead to HCA's capital structure change.<sup>29</sup> The reason of this buyback was Bank of America's decision to focus on its core business.<sup>30</sup>

The fact that HCA repurchased the aforementioned shares at NYSE closing price indicates that HCA was not trying to send a signal to the market to increase its share price. If HCA was looking for signalling, it would have repurchased the shares at more than the closing price. This event affected both market and book leverage ratios. The market ratio was affected by increase in the long-term debt (Equation (5)'s first term), the decrease in the number of shares outstanding (Equation (5)'s second term) and the increase in share price (Equation (5)'s third term) due to outsiders' valuation after the news release, and not by HCA's intention to signal information to the market. The book ratio was affected by the increase in HCA's borrowings (Equation (6)'s first term) in order to finance the share buyback, as well as the decrease in the common shareholders' equity (Equation (6)'s second term) due to the decrease in number of shares outstanding.

Despite the share price increase after the buyback, President Obama's plan to make Medicare more efficient, dropped HCA share price on Sep 19, 2011.<sup>31</sup> All in all, the negative effects of news

---

<sup>28</sup>StreetInsider (September 15, 2011) reported HCA announcement of 80,771,143 share repurchase owned by Bank of America at the closing price of NYSE on September 14, 2011.

<sup>29</sup>This share buyback completed 6 days later on September 21, 2011 but Compustat dataset reports 80,771,143 decline in the number of share outstanding on Oct 31, 2011. The motivation of not reporting the buyback in September could be due to HCA's forthcoming quarterly report. HCA's third quarter report was released on November and included the financial statements by the end of September. Not reporting the buyback in September, shows that HCA did not want to include the buyback in its third quarter report, and deferred it to the 2011 annual report.

<sup>30</sup>Bank of America, the lead underwriter in HCA's 2006 IPO was holding 15.6% stake after acquiring Merrill Lynch one of the private equity firms involving in HCA's 2006 leveraged buyout (Ma, 15 Sep 2011).

<sup>31</sup>MarketWatch (September 20, 2011) reported:

HCA Holdings Inc. (HCA, US), which tried to win back investors with a buyback plan last week, lost ground on Monday, dropping nearly 7% to \$19.81 at the close.

regarding HCA's spending on lobbying and the Robbins Geller's class action suit on HCA's market price could have reduced the HCA's share price significantly, but the buyback moderated the effects of the bad news. In addition, following the \$1.45 billion payment to Colorado Health Foundation HCA's earnings per share in the coming quarterly report could have been dropped.<sup>32</sup> The buyback helped HCA to maintain its earnings per share in the next financial report as the buyback reduced the number of shares outstanding. Hribar et al. (2006) and Almeida et al. (2013) find that firms' management teams tend to repurchase share in order to increase EPS.

The second largest buyback occurred on May 28, 1999 with buyback of 74.159 million shares, which was financed by cash in hand and debt issuance. This buyback was a result of the 1997 fraud investigation after which Scott was forced to resign and Columbia/HCA modified its growth strategy and tried to refocus on its core competencies. This buyback caused an 8% increase in the market leverage ratio. The increase in the market leverage ratio was due to increase in debt as well as decrease in the the number of shares outstanding in Equation (5).<sup>33</sup>

During April and May 1999, HCA was experiencing an unsteady situation as a result of the fraud trial process and a new lawsuit. Therefore, HCA share price dropped to 23.31, the lowest during the last month. HCA perceived its stock to be undervalued and repurchased 74.159 million of its shares on May 28, 1999. Therefore, along with refocusing on core competencies after Scott

---

<sup>32</sup>Several events occurred in October 2011. HCA purchased full ownership of HCA-HealthOne in Denver that increased its share price by 92 cents, to close at \$22.05 on October 14, leading to a close buy imbalance of 91,300 shares on October 18. Later in October, Bewley (October 28, 2011) reported that HCA is one of the 200 companies which tried to lobby Congress by spending thousands of dollars.

Business Wire (October 29, 2011) reported:

Robbins Geller Rudman & Dowd LLP files class action suit against HCA Holdings, Inc.

On Oct 31, 2011 on the same day as HCA's largest buyback, the Colorado Health Foundation announced that they received \$1.45 billion from HCA in order to complete the purchase of HCA-HealthOne.

<sup>33</sup>By recalling the discussion on using the spent cash on the buyback to repay some of the corporation debt, another HCA's management team option was to decrease the market leverage instead of increasing it. The HCA's management team chose the buyback over debt repayment; as a result, the market leverage ratio was increased.

resignation, HCA's intention of repurchasing stock was to signal information to the market. The day after the buyback on May 29, the share price started to increase.<sup>34</sup>

The third largest buyback (39.645 million shares) of HCA occurred on January 31, 2005 and caused a 6% increase in HCA's market leverage ratio. This buyback and the buyback of January 2006 are the only HCA's share buybacks in January. HCA's strategy on no buybacks in January could be due to the January effect and the fact that prices of most publicly traded stocks increase during the month of January (Haug and Hirschey, 2006). The buyback financed by cash and not debt issuance. Therefore, the 6% increase in the market leverage ratio was due to decrease in the number of shares outstanding along with a very small increase (about 1.1%) in the share price in Equation (5).

To study the capital structure changes, we dig into the events that made this change. First, Gazette (Jan 2, 2005) reported stock option expenses will be deducted from earnings starting as of June 2005. Therefore, HCA announced acceleration in its employee options vesting. Kahle (2002) examines the relationship between shares buyback and stock options exercise. She finds that firms follow buyback strategy when employees have a large amount of currently exercisable options. From a firm's point of view, vesting increases the number of shares outstanding and results in dilution which means decreases in the earnings per share. To cope with the EPS reduction due to vesting, a firm needs to lessen its shares outstanding in the market. Therefore, HCA's management repurchased 39.645 million shares which reduced the dilution and increased the earnings per

---

<sup>34</sup>Reuters News (21 April, 1999a) reported a 63% increase in HCA's net profits regardless of lower revenues in the first quarter, the news caused a 12% increase in HCA's share price on the same day. 10 days later, Zengerle (May 2, 1999b) reported the commencement of Columbia/HCA ex-executives' fraud trial, as the outcome of June 1997 fraud investigation which caused May 3, 1999 share price escalation. Such a bad news should have decreased the share price, yet the stock price was increased from \$24.68 on April 30, to \$27.75 on May 3. The reason of the share price surge is the possible settlement with the government. Another explanation could be the repurchase of 3.272 million shares in April 30, 1999 that gave a positive sign to the market. We could also suppose that the potential settlement with government was the main reason for April 30, 1999 share buyback. Because of the asymmetric information regarding the settlement with the government, HCA's management team repurchased 3.272 million shares. The stock price kept appreciating to 28.63 on May 5, 1999, then followed a decreasing trend after testifying of Steve Dudley the government first witness. Zengerle (May 5, 1999a) reported:

Executives from hospital giant Columbia/HCA Healthcare Corp. misstated interest expenses to suck excess funds from government insurance programmes, a key government witness alleged during their trial on Wednesday.

Another lawsuit against HCA on May 26, 1999 caused a 4% decrease in HCA's share price. On May 26, Reuters News (May 26, 1999b) reported that the U.S. Justice Department joined another lawsuit against HCA, in which HCA's physicians were accused of having investment opportunities and acting like free riders.

share financial measure. Second, Reuters Significant Developments (January 12, 2005) reported an approximate 6.1% increase in HCA's fourth quarter earnings in comparison with the prior year's fourth quarter. After this announcement, HCA's share price rose 10.1% to close at \$43.7 per share on January 12. As a result, the market leverage ratio was decreased about 6% due to increase in HCA's share price in Equation (5).

All in all, we conjecture the main reason of Jan 31, 2005 stock repurchase is the employee option vesting that made HCA's management to repurchase HCA's stock in order to stop the decrease in earnings per share.

The fourth biggest HCA's share buyback (35.167 million shares) reported on January 31, 2006 and caused a 5.8% increase in the market leverage ratio. APRS (November 16, 2005) reported that HCA was authorized to repurchase \$2.5 billion of its stock in a Dutch auction tender offer.<sup>35</sup> The auction of about 28.740 million shares (about \$1.5 billion) took place in November, 14 and the firm was still authorized to repurchase \$1 billion stock. The buyback of 35.167 million shares reported in January is the result of this \$2.5 billion stock repurchase. As a result of this buyback, the market leverage ratio was increased due to decrease in the number of shares outstanding in Equation (5).

Another motive for January 2006 share buyback was granting about \$3.3 million restricted stock and 66,750 stock options to the HCA's chairman and the CEO.<sup>36</sup> Granting restricted stock and stock options to the CEO of a firm reduces the diluted earnings per share by increasing the denominator of earnings per share measure. A firm reports its diluted earnings per share as a measure of its profit. Therefore, lower diluted earnings per share could affect the share price negatively. By the buyback of 35.167 million shares, diluted EPS was prevented from decreasing. Using the stock buyback to increase earnings per share is consistent with Hribar et al. (2006) and Almeida et al. (2013).

---

<sup>35</sup>In a Dutch auction share repurchase, a firm specifies a desired price range and invites its stockholders to tender their shares. By the responses from the shareholders, the firm decides about the purchase price which is the lowest price allowing the firm to purchase the number of shares stated in the offer. Then the firm pays the purchase price to the shareholders who tendered below or at the chosen purchase price.

<sup>36</sup>Reported by Dow Jones Corporate Filings Alert (January 31, 2006)

#### 4.4.1 HCA's Buybacks Summary and Discussion

In this section we study the four largest HCA buybacks from 1990 to 2013. The evidence shows several objectives behind these buybacks. HCA's intention behind the 1998 to 2000 buybacks are different from its intention behind the September 2011 buyback.

For the years 1998 to 2000, HCA planned to send the signal to the market and tried to increase its share price by repurchasing millions of shares after the 1997 fraud investigation. HCA's attempts to increase the share price by share buyback is consistent with Dann and Mikkelson (1984), DeAngelo et al. (1984) and Asquith and Mullins (1986) findings which indicate market positive reaction to share repurchase announcements. HCA financed this period of buybacks mostly with the excess cash generated by several divestitures and also a small amount of borrowings. Overall, the decrease in the market leverage ratio in Equation (5) was due to the increase in the Equation (5) third term (price per share) with a positive sign. Figure 4 shows that for the years 1998 up to 2001, the book leverage ratio was increasing while the market leverage ratio was decreasing. We think the different trend in market and book leverage ratio is due to the buyback of about 135 million shares for the years 1998 to 2001. HCA used book leverage ratio to stop market leverage ratio from decreasing below the lower target leverage range which is 0.2. After the 1997 fraud investigation, HCA faced a large decrease in its share price. At the same time HCA modified its strategy and started to divest some of its business units, and kept its long-term debt level fairly constant. HCA knew after changing its strategy, the share price would increase. Increase in the share price would have decreased the market leverage below the lower target bound of 0.2. The buyback of 135 million shares during this period decreased the second term of Equation (6) ( $\Delta ceq$ ) as a result of the decline in the capital surplus and therefore increased the book leverage ratio. On the other hand, the buyback decreased the second term of Equation (5) (the number of shares outstanding) which somehow offset the increase in the share price due to divestitures and as a result, the market leverage ratio did not go below 0.2. My concluding remark is that HCA's management team used the book leverage ratio as a tool to stop the market leverage ratio from decreasing below the lower leverage limit of 0.2.

On the other hand, as discussed earlier the intention of 2011's buyback was not to signal information to the market, it was Bank of America's decision to focus on its core business. HCA financed this buyback by cash on hand and some borrowings. Therefore, the book leverage ratio increase in Equation (6) was due to increase in HCA's long-term debt, and the variation in the market leverage ratio in Equation (5) was due to decrease in the second term i.e. the number of shares outstanding.

Moreover, in both the 2005 and 2006 buybacks, HCA was facing dilution due to vesting its employees' options and granting restricted stock and stock options to its CEO, respectively. Therefore, consistent with Hribar et al. (2006) and Almeida et al. (2013) HCA's management team decided to repurchase some shares to cope with dilution as well as the earnings per share deceleration. These buybacks were financed by cash on hand and some borrowings and decreased the market leverage ratio due to decrease in the second term ( $\Delta N$ ) and increase in the third term ( $\Delta P$ ) of Equation (5).

#### 4.5 Leveraged Buyout and Going Private

The dotted line in Figure 5 shows HCA annual long-term debt from 1990 to 2013. The figure indicates a big jump in 2006 long-term debt due to the HCA 2006 Leveraged buyout.

Leveraged buyout (LBO) is the acquisition of a firm by a group of investors where the acquisition costs will be covered by a remarkable amount of money borrowed from a bank or bond issuance by the acquired firm. The Leveraged buyout strategy was popular during the 1980s, but LBO activities declined after the US early 1990s recession and the bond market crash. Renneboog, Simons and Wright (2007) report the value range of \$1 billion to \$60 billion for the LBOs completed from 1979 through 1988, and the total value of LBOs in the 1980s is slightly less than \$1.3 trillion (Shleifer and Vishny, 1991). The second wave of LBOs started in the mid-2000s, and stopped in 2008 following the debt market turbulence and the 2008 financial crisis.

Kaplan (1989) and Bargeron, Schlingemann, Stulz and Zutter (2008) note that LBOs' transactions tend to be completed by a large premium over the existing share price. LBOs in general are financed with a large amount of debt including loans and debt issuance (mostly junk bonds)

by the acquired firm. In most of the LBOs the leverage ratio increases drastically. As reported by Bayar, Baker and Kiyamaz (2011, page 422) during the first wave of LBOs in the 1980s, the firms' leverage ratios approach 90%, which is higher in comparison with the firms' leverage ratio during the second LBO wave in the mid-2000s. In addition to the debt financing, the remaining portion of acquisition costs are financed by the acquiring parties which could be private equity firms or wealthy individual investors.

In July 2006 during the second LBO wave, the Frist family (one of the co-founders of HCA in 1968) and a group of private equity firms including Merrill Lynch Private Equity and Bain Capital and Kohlberg Kravis Roberts proposed to acquire HCA in a \$21 billion leveraged buyout. The \$21 billion value of the deal did not include HCA's \$10.6 billion debt.<sup>37</sup>

The deal was on and off for some time as the offered price by lending banks and the buyers was not satisfactory for HCA. HCA market capitalization was \$17.6 billion accompanied by \$11.7 billion debt, making its leverage ratio 38.6% which was not desirable enough for the banks and the buyers to offer a higher price.<sup>38</sup> Finally, HCA's shareholders approved the largest buyout in U.S. history on November 16, 2006 (French, 17 November 2006).

To finance the proposed buyout, the prospective buyers invested about \$5.5 billion in cash, and issued about \$16 billion new debt (mostly callable junk bonds) in addition to HCA's existing \$11.7 billion debt.<sup>39</sup> The on-again-off-again \$33 billion deal (including HCA's existing debt) was completed on November 17, 2006. Each HCA shareholder received \$51 in cash for each share they held. The total value of the deal was equal to \$21.3 billion paid to shareholders in cash plus the \$11.7 billion HCA debt (French, 17 November 2006). Considering the \$11.7 billion HCA debt, each HCA shareholder received \$80.53 for each share they held, with \$29.56 premium over the last traded share price \$50.97 one day before the buyout.

---

<sup>37</sup>According to APRS (20 July 2006), on that time HCA Inc. owned 94 surgery centres, 182 hospitals and its 2005 net income was \$1.4 billion.

<sup>38</sup>Newspapers reported a 10% difference in the value of the deal between HCA and the buyers.

<sup>39</sup>*HCA Quarterly report* (May 15, 2007, page 21) reported:

Due to the Recapitalization, we are highly leveraged and have significant debt service requirements. Our debt totaled \$27.903 billion at March 31, 2007, which represents a \$16.591 billion increase from the total debt of \$11.312 billion at March 31, 2006. Interest expense increased from \$186 million in the first quarter of 2006 to \$557 million in the first quarter of 2007. We expect our interest expense to increase from \$955 million for the year ended December 31, 2006 to approximately \$2.3 billion in 2007.



DeAngelo and DeAngelo (1987) indicate tax saving, better performance and competitive positioning as LBOs' merits. On the other hand, they state problems in raising capital and attracting experienced managers as LBOs' demerits. In addition, Fox and Marcus (1992) find that LBOs increase managers' commitment to profitability. In general, when firms go private after LBOs they face less regulations. Private firms could gain benefit from the fact that their management teams have more time and energy to spend on long-term earnings and are not obligated to provide the quarterly earnings' expectations by external analysts. Thus, the private firm senior management team will be able to focus more on firm's strategic positioning in the market, growth opportunities and cost-cutting strategies.

What were the reasons behind HCA's 2006 leveraged buyout? Generally, an appropriate LBO candidate (the target firm) should have enough potential to maximize the value of acquirers' investment. My conjecture is that HCA was a suitable LBO candidate from the HCA acquirers' point of view. First, increase in health care spending due to the U.S. population aging made the health care industry a lucrative investment target. Second, HCA's strong position in the market made it an appropriate buyout candidate. Also considering the fact that the Frist family (one of HCA's co-founder) was among the acquirers, the lower cost of debt than the cost of equity made the buyout a good investment decision. Using debt instead of costly equity was a good strategy to make HCA more competitive in the market. In addition, the publicly traded HCA was supposed to pay taxes and dividends, while the HCA non-profit competitors had this strength against HCA (a for-profit organization) that they do not have to worry about paying taxes and dividends (Berman, Naik and Winslow, July 25, 2006). Therefore, in order to be competitive in the market, HCA needed to reduce some of its expenses. The 2006 LBO helped HCA to cut some of its expenses and the number of full-time equivalents in comparison with other local hospitals (McCue and Thompson, 2012).

HCA had about \$11.7 billion debt when it confirmed pursuing the buyout in July 24, 2006. The announcement of pursuing the buyout triggered a huge decline in the value of HCA's long-term bonds.

insert Figure 7

Figure 7 plots HCA's 6.5% coupon bond prices due Feb 15, 2016, from June 2006 to November 2007. The value of this bond dropped to \$78.12 on July 26, 2006 after the leveraged buyout announcement, as a result of the increase in HCA's default risk after the LBO. Debt rating was also cut accordingly.

insert Figure 8

Figure 8 plots the HCA historical share price from January to November 2006. The price of each HCA share increased to \$49.48, indicating a 3% premium to the closing price of \$47.84 on July 21, 2006.

The 2006 Leveraged Buyout increased the HCA capital structure drastically due to the existing and new debt issue in order to finance the buyout. The day before the buyout on November 16, HCA's market leverage was about 0.36 and its book leverage was about 0.6. After the buyout the book leverage increased to 1.67 which indicates a 178% increase in the book leverage ratio (Equation (6)).<sup>40</sup> The reason for the 178% increase in the book leverage ratio and the greater than one book leverage (1.67) is explained in Section 4.1.

#### 4.6 Initial public offerings

One of the ways a firm can acquire its required funds is to publicly sell its equity. The term initial public offering (IPO) refers to a type of offering in which a private firm sells its stock to the public for the first time. The raised capital via the public offerings (the proceeds) may be used for debt repayments, investment opportunities, acquisitions, product developments and distribution to pre-IPO shareholders (Leone, Rock and Willenborg, 2007). In addition to raising capital, founding individuals or private equity firms may use IPO as an exit strategy.

insert Table 3

Table 3 shows Columbia/HCA public offerings from 1990 to 2013. The largest offering is the initial public offering (IPO) of 515.205 million shares on March 10, 2011. HCA had been privately held from the 2006 leveraged buyout to the time it went public again in 2011.

---

<sup>40</sup>After buyout market leverage is not available as HCA was privately held until 2011.

Accompanied by HCA's largest IPO in 2011, Figure 6 shows that the largest debt reduction in the history of HCA occurred in 2011. As stated in HCA's prospectus dated March 9, 2011, HCA intended to use the net proceeds from the 2011 IPO to repay some of its indebtedness including the senior secured revolving credit facility and the asset-based revolving credit facility. As HCA did not hold any debt with 2011 maturity, the 2011 debt reduction refers to calling HCA's callable bonds before their maturity date.

Why 2011? Cowan (19 February 2011) reported that HCA's public offering was the third public offering in 2011 (in the first two months of the year) which raised more than one billion dollars. HCA's 2011 IPO followed public offerings of Kinder Morgan Inc. and Nielsen Holdings N.V. Stock prices of both these offerings were priced above their ranges. Private firms issue considerably more equity and decrease their leverage ratio more in a hot IPO market than a cold IPO market. Alti (2006) examines the impact of market timing on capital structure by studying the number of firms' issued shares when they issue shares in either a hot or a cold market. Alti (2006) shows that firms tend to issue more equity in a hot issue market than they would do if the market was not hot. Demos (23 February, 2011) reported the struggle of private equity IPOs in 2010, as some of them priced below their ranges and others were delayed as the potential investors had their doubts regarding the debt repayments by the heavily indebted private equity firms. On the other hand, the evidence shows that the 2011 IPO market could be considered as a hot IPO market after the good performance of US equity markets since the middle of 2010.

Figure 4 shows a decrease in HCA's market leverage ratio in 2011 from 2010. This decrease is due to decrease in the first term ( $\Delta D$ ) and increase in the second term ( $\Delta ceq$ ) of Equation (6). The comparison of market leverage ratios in 2010 and 2011 is not possible as market data are not available for the years 2006-2011. However, it is worth mentioning that the downward slope of the market leverage ratio in Figure 4 indicates the HCA management team's attempt to close the gap between HCA's market leverage ratio and its target leverage zone of 0.2 and 0.4.

Section 4.1 points out either the firms decisions affect their capital structure (changes in both market and book debt ratios) or the outsiders' valuation affects the capital structure (changes in market debt ratio). HCA's decision to go public and use the proceeds to repay some of its debt

decreased its book and market debt ratios. My conjecture is that consistent with Baker and Wurgler (2002)'s market timing theory and Altı (2006)'s hot vs. cold IPO market findings, HCA chose the perfect timing to go public, as the 2011 IPO market can be considered as a hot IPO market.

#### 4.7 Extreme share price declines

As for Equation (5), nontrivial decrease in the share price could lead to the market leverage ratio variations. In July, 2011 disappointing news regarding HCA's earnings affected outsiders' valuation and led to a 19% decrease in HCA's share price ( $\Delta P$ ) which increased HCA's market leverage ratio by 8.5%.<sup>41</sup> Another sudden decrease in HCA's share price took place on 16 July, 1997. The 12% decrease in the share price led to a 10.5% increase in the market leverage ratio.

Recalling Baker and Wurgler (2002) market timing theory from Section 4.1, firms' managers repurchase the stock when they perceive their stock is undervalued. If we compare HCA's management team strategies in the 2011 and the 1997 share price declines, we can see that 1) in 1997 HCA's management team repurchased some of HCA's stock by issuing debt to signal information to the market as they perceived the HCA stock was undervalued. Note that in 1997, HCA was a moderately levered firm with the leverage ratios in the target leverage zone of 0.2 to 0.4. On the other hand, 2) HCA was a highly levered firm in 2011 as a result of the 2006 LBO; therefore, it did not have the capacity of issuing debt to buyback shares to give a positive signal to the market and increase the share price. Comparing HCA's share price during 2011 and 1997 shows that in 2011 HCA's share price had a decreasing trend, whereas in 1997 HCA's management team tried to increase HCA's share price and stop the decreasing trend by issuing debt and performing several buybacks for the years 1997 to 1999. All in all, the evidence from the effects of extreme share price declines on the capital structure indicates that if firms are not highly levered, they might be able to signal information to the market in order to stop the share price from decreasing and at the same time, market leverage ratios from increasing.

---

<sup>41</sup>Lin (25 July 2011) reported HCA's disappointing \$8.01 billion earnings instead of the \$8.14 billion estimated earnings for the second-quarter; and Kamp (26 July 2011) reported the weak economy which kept patients from going to hospitals for surgeries and charges related to debt retirement as reasons behind HCA's 22% profit decrease in the second-quarter.

#### **4.8 Market leverage ratio increases due to share buyback vs. extreme share price declines**

Recalling our share buyback discussion in Section 4.4 and extreme share price declines in Section 4.7 and comparing increases in market leverage ratios as a result of these two events, we can see that although market leverage ratios increase in both cases, these increases are fundamentally different. In the case of the buybacks, the decline in the market leverage ratio's denominator was a result of the decrease in the number of shares outstanding which was the consequence of HCA's decision making process. Therefore, in the buyback case, although the outsiders' valuation influenced the share price, HCA's decision making process participated the most in increasing the market leverage ratio. On the other hand, in the case of the July 25, 2011 decline in HCA's share price; the market leverage ratio denominator was decreased as a result of the dramatic decline in the HCA's share price which was the consequent of the disappointing news release on HCA's earnings. Therefore, unlike the buyback case, the influence of outsiders' valuation on the share price increased the market leverage ratio not HCA's management decisions.

#### **4.9 Tennessee 2002 Business Tax Rate Change**

The Modigliani and Miller (1958) second proposition in the presence of corporate tax rate suggests that in a risk-free world a firm's value would be maximized using 100% debt as firms can enjoy from the interest payment tax shield. The Kraus and Litzenberger (1973) trade-off theory relax the risk free assumption and states that, although firms benefit from the interest payments tax deductibility, there should be a trade-off between bankruptcy costs and use of debt. In a recent study, Heider and Ljungqvist (2015) show that corporate income taxes have the first-order impact on the U.S. firms' capital structure for the years 1989-2011.

To understand the effect of corporate tax rate on the HCA capital structure for the years 1990 to 2013, we look at the corporate tax changes in the State of Tennessee as HCA has been an active corporation in Nashville, Tennessee since it was founded in 1968.

The only tax change in Tennessee occurred in 2002. The Tennessee Department of Revenue announced an increase in corporate taxes from 6% to 6.5%. The Tennessee Department of Revenue (August 2002) stated:

Persons or entities having business tax transactions on or after September 1, 2002, must remit payment at the new rate for those transactions.

But how did this increase in tax rate affect the HCA capital structure? Figure 6 plots the HCA annual long-term debt issuance and reduction. The figure shows that following late 2002 corporate tax increase in Tennessee, the HCA annual long-term debt issuance increased significantly from about \$1 billion in 2002 to about \$2.69 billion in 2004. The new debt issuance caused an increase in both market and book leverage ratio in Figure 4. Therefore, increases in the first terms ( $\Delta D$ ) of Equations (4) and (6), led to increases in the HCA market and book leverage ratios. Our evidence is consistent with the Heider and Ljungqvist (2015) findings that firms use more debt if they face an increase in corporate tax rate.

## 5 Discussion and Summary

This paper is a case study on Hospital Corporation of America (HCA) and its capital structure dynamics for the years 1990 to 2013. The motivation to do a case study comes from the fact that in an empirical study with thousands of firms in the sample, we are not able to understand how management team of firms make their capital structure decisions and how they decide what to do, and how they do it. This case study helps me to understand how firms make capital structure decisions and how the behavior of the accounting-based data is different from the market-based data, and how the HCA management team's decisions affect the data.

HCA's market leverage ratio had been bounded between 0.2 and 0.4 for the years 1992 to 2006 before the leverage buyout. The 2006 LBO increased HCA's debt drastically and made it a private firm. My conjecture is that HCA aimed to keep its market leverage ratio in the target leverage zone of 0.2 to 0.4. The decreasing trend of the HCA market leverage ratio after the 2011 IPO shows that the market leverage ratio tends to get back to the target leverage zone. The idea of

staying in a target leverage zone is consistent with the dynamic trade-off theory and the existence of a target leverage ratio. More interestingly, the evidence shows that in some cases when the outsiders' valuation pulled the market leverage ratio out of the target leverage zone, HCA used the book leverage ratio as a tool to keep the market leverage ratio inside the target leverage zone. For instance, from 1998 to 2000 the HCA management team decreased the common equity (*ceq*) to stop the market leverage ratio from decreasing below the lower bound of 0.2.

We also show that the HCA use of debt was increased due to an 8% increase in Tennessee corporate tax rate increase in 2002. Our evidence is consistent with the Heider and Ljungqvist (2015) findings.

The HCA case shows that financing decisions like issuing equity or debt are different in terms of how we finance them. Financing events by voluntarily debt or equity issuance is different from using available cash from operating activities or selling assets. Both cases cause variations in leverage ratios, but the latter is less expensive than the former. For example repurchasing shares using the available generated cash from selling a business unit is less expensive than repurchasing shares by issuing debt in order to finance the buyback.

All in all, this paper explores the HCA decision making process and our evidence supports the existence of a dynamic capital structure, which leads us to empirically test the dynamics of capital structure in a large sample in the next paper.

## References

- Allen, F. and Michaely, R. (2003), 'Payout policy', *Handbook of the Economics of Finance* **1**, 337–429.
- Almeida, H., Fos, V. and Kronlund, M. (2013), 'The real effects of share repurchases', *Available at SSRN 2276156* .
- Alti, A. (2006), 'How persistent is the impact of market timing on capital structure?', *The Journal of Finance* **61**(4), 1681–1710.
- APRS, . (20 July 2006), 'Report: Proposed leveraged buyout of HCA unravels'.
- APRS, . (November 16, 2005), 'HCA to repurchase \$1.5 billion of stock'.
- Asquith, P. and Mullins, D. W. (1986), 'Equity issues and offering dilution', *Journal of Financial Economics* **15**(1), 61–89.
- Associated Press, . (October 05, 1994), 'Columbia/HCA to merge with healthtrust in \$5.4 billion deal : Health care: Columbia is already the nation's largest hospital operator. the new firm would have 311 facilities.'
- Bagwell, L. S. (1991), 'Share repurchase and takeover deterrence', *The Rand journal of economics* pp. 72–88.
- Baker, M. and Wurgler, J. (2002), 'Market timing and capital structure', *Journal of Finance* **57**(1), 1–32.
- Bargeron, L. L., Schlingemann, F. P., Stulz, R. M. and Zutter, C. J. (2008), 'Why do private acquirers pay so little compared to public acquirers?', *Journal of Financial Economics* **89**(3), 375–390.
- Bayar, O., Baker, H. K. and Kiyamaz, H. (2011), *Going Private and Leveraged Buyouts, The Art of Capital Restructuring*, John Wiley and Sons, Inc., pp. 419–435.
- Berman, D., Naik, G. and Winslow, R. (July 25, 2006), 'Behind \$21 billion buyout of HCA lies a high-stakes bet on growth', *Wall Street Journal* .
- Bewley, E. (October 28, 2011), 'HCA lobbies 'super committee'', *Gannett News Service* .
- BIIDEP, . (July 18, 1997), 'Value health, US - merger with columbia/HCA approved.'
- Brav, A., Graham, J. R., Harvey, C. R. and Michaely, R. (2005), 'Payout policy in the 21st century', *Journal of Financial Economics* **77**(3), 483–527.
- Business Wire, . (October 29, 2011), 'Robbins geller rudman& dowd llp files class action suit against HCA holdings, inc.'
- Columbia/HCA Healthcare Corporation* (1996), *International Directory of Company Histories*. Retrieved April 13, 2015 from *Encyclopedia.com*:<http://www.encyclopedia.com/doc/1G2-2841900039.html> .



- Cowan, L. (19 February 2011), ‘HCA ipo: \$30 a share?’, *The Wall Street Journal Online* .
- Dann, L. Y. and Mikkelsen, W. H. (1984), ‘Convertible debt issuance, capital structure change and financing-related information: Some new evidence’, *Journal of Financial Economics* **13**(2), 157–186.
- DeAngelo, H. and DeAngelo, L. (1987), ‘Management buyouts of publicly traded corporations’, *Financial Analysts Journal* **43**(3), 38–49.
- DeAngelo, H., DeAngelo, L. and Rice, E. M. (1984), ‘Going private: Minority freezeouts and stockholder wealth’, *JL & Econ.* **27**, 367.
- DeAngelo, H. and Roll, R. (2015), ‘How stable are corporate capital structures?’, *The Journal of Finance* **70**(1), 373–418.
- Demos, T. (23 February, 2011), ‘HCA eyes \$4.3bn offering next week’, *Financial Times* .
- Department of Justice, . (June 26, 2003), ‘Largest health care fraud case in US history settled ; HCA investigation nets record total \$1.7 billion’.
- Dittmar, A. K. (2000), ‘Why do firms repurchase stock?’, *The Journal of Business* **73**(3), 331–355.
- Dow Jones Corporate Filings Alert, . (January 31, 2006), ‘HCA inc CEO gets restricted stk valued at \$3.3m’.
- Fahlenbrach, R. and Stulz, R. M. (2009), ‘Managerial ownership dynamics and firm value’, *Journal of Financial Economics* **92**(3), 342–361.
- Financial Industry Regulatory Authority, Inc. (FINRA), . (2015), Available at : <http://finra-markets.morningstar.com/BondCenter/BondDetail.jsp?ticker=C323736&symbol=HCA.HP> .
- Flannery, M. J. and Rangan, K. P. (2006), ‘Partial adjustment toward target capital structures’, *Journal of Financial Economics* **79**(3), 469–506.
- Flower, J. (1995), ‘Rick scott and the columbia/HCA healthcare system : icon of greed or prophet of true reform?’, *Healthcare Forum Journal* **38**.
- Fox, I. and Marcus, A. (1992), ‘The causes and consequences of leveraged management buyouts’, *The Academy of Management Review* **17**(1), 62–85.
- Frank, M. Z. and Goyal, V. K. (2007), ‘Trade-off and pecking order theories of debt’, Available at SSRN: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=670543](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=670543) .
- Frank, M. Z. and Goyal, V. K. (2009), ‘Capital structure decisions: Which factors are reliably important?’, *Financial Management* **38**(1), 1–37.
- French, R. (17 November 2006), ‘HCA shareholders approve \$21.3b buyout to take company private’, *APRS* .
- Gazette, C. (Jan 2, 2005), ‘Companies try to reduce stock option costs’, *APRS* .

- Gilpin, K. (January 8, 1998), ‘Dr. thomas frist sr., HCA founder, dies at 87’, *The New York Times* .
- Graham, J. R. and Leary, M. T. (2011), ‘A review of empirical capital structure research and directions for the future’, *Annual Review of Financial Economics* **3**.
- Harford, J., Klasa, S. and Walcott, N. (2009), ‘Do firms have leverage targets? evidence from acquisitions’, *Journal of Financial Economics* **93**(1), 1–14.
- Haug, M. and Hirschey, M. (2006), ‘The january effect’, *Financial Analysts Journal* **62**(5), 78–88.
- HCA History, . (2015), ‘Our history’, *HCA history available at <http://hcahealthcare.com/about/our-history.dot>* .
- HCA Quarterly report* (May 15, 2007), *Quarterly report available at <http://investor.hcahealthcare.com/sec-filings>* .
- Heider, F. and Ljungqvist, A. (2015), ‘As certain as debt and taxes: estimating the tax sensitivity of leverage from state tax changes’, *Journal of Financial Economics* (0).
- Hite, G. L. and Owers, J. E. (1983), ‘Security price reactions around corporate spin-off announcements’, *Journal of Financial Economics* **12**(4), 409–436.
- Hribar, P., Jenkins, N. T. and Johnson, W. B. (2006), ‘Stock repurchases as an earnings management device’, *Journal of Accounting and Economics* **41**(1), 3–27.
- Jalilvand, A. and Harris, R. S. (1984), ‘Corporate behavior in adjusting to capital structure and dividend targets: An econometric study’, *The Journal of Finance* **39**(1), 127–145.
- Jensen, M. C. (1986), ‘Agency costs of free cash flow, corporate finance, and takeovers’, *American Economic Review* **76**(2), 323–329.
- Kahle, K. M. (2002), ‘When a buyback isn’t a buyback: open market repurchases and employee options’, *Journal of Financial Economics* **63**(2), 235–261.
- Kamp, J. (26 July 2011), ‘HCA hit by fewer surgeries’, *The Wall Street Journal Online* .
- Kaplan, S. (1989), ‘The effects of management buyouts on operating performance and value’, *Journal of Financial Economics* **24**(2), 217–254.
- Kraus, A. and Litzenberger, R. H. (1973), ‘A state-preference model of optimal financial leverage’, *The Journal of Finance* **28**(4), 911–922.
- Kummer, C. and Steger, U. (2008), ‘Why merger and acquisition (m&a) waves reoccur: the vicious circle from pressure to failure’, *Strategic Management Review* **2**(1), 44–63.
- Leary, M. and Roberts, M. (2005), ‘Do firms rebalance their capital structures?’, *The Journal of Finance* **60**(6), 2575–2619.
- Lemmon, M. L., Roberts, M. R. and Zender, J. F. (2008), ‘Back to the beginning: Persistence and the cross-section of corporate capital structure’, *Journal of Finance* **63**(4), 1575–1608.

- Leone, A. J., Rock, S. and Willenborg, M. (2007), ‘Disclosure of intended use of proceeds and underpricing in initial public offerings’, *Journal of Accounting Research* **45**(1), 111–153.
- Lin, E. (25 July 2011), ‘Stocks in the spotlight monday’, *Barron’s Online* .
- Ma, J. (15 Sep 2011), ‘HCA buys back 15.6% stake from bank of america’, *Investor’s Business Daily* .
- MarketWatch, . (September 20, 2011), ‘Hospitals feel stronger pinch in obama plan some firms down 7% in effort to cut medicare overpayment’.
- McCue, M. and Thompson, J. (2012), ‘The impact of HCA’s 2006 leveraged buyout on hospital performance’, *Journal of healthcare management / American College of Healthcare Executives* **57**(5), 342–56; discussion 357.
- Modern Healthcare, . (August 15, 2007), ‘HCA plans to pay \$20 million to settle lawsuits’.
- Modigliani, F. and Miller, M. H. (1958), ‘The cost of capital, corporation finance and the theory of investment’, *American Economic Review* **48**(3), 261.
- Myers, S. C. (1977), ‘Determinants of corporate borrowing’, *Journal of Financial Economics* **5**(2), 147–175.
- Myerson, A. (May 24, 1994), ‘Another big merger in health care’, *The New York Times* .
- Norris, F. (October 6, 1994), ‘Market place; efficiencies of scale are taken to the nth degree at columbia.’, *The New York Times* .
- Pederson, J. P. (2001), ‘International directory of company histories’, *St. James Press* **38**.
- PRNewswire, . (November 5, 1996), ‘Columbia completes acquisition of central health services, inc. and affiliated home health agencies’.
- Renneboog, L., Simons, T. and Wright, M. (2007), ‘Why do public firms go private in the UK? the impact of private equity investors, incentive realignment and undervaluation’, *Journal of Corporate Finance* **13**(4), 591–628.
- Reuters News, . (10 June 1993), ‘Columbia hos. to merge with galen.’.
- Reuters News, . (21 April, 1999a), ‘Tablecolumbia/HCA Q1 net up on lower revs.’.
- Reuters News, . (August 7, 1997a), ‘Columbia/HCA proposes fundamental changes’.
- Reuters News, . (July 26, 1997b), ‘Top 2 columbia/HCA executives resign.’.
- Reuters News, . (March 21, 1997c), ‘U.s. expands columbia/HCA investigation-nyt.’.
- Reuters News, . (May 26, 1999b), ‘U.s. justice dept. joins another columbia/HCA suit’.
- Reuters Significant Developments, . (January 12, 2005), ‘HCA inc. raises q4 eps guidance’.
- Shleifer, A. and Vishny, R. W. (1991), ‘The takeover wave of the 1980s’, *Journal of Applied Corporate Finance* **4**(3), 49–56.

- Skinner, D. J. (2008), 'The evolving relation between earnings, dividends, and stock repurchases', *Journal of Financial Economics* **87**(3), 582–609.
- Stephens, C. P. and Weisbach, M. S. (1998), 'Actual share reacquisitions in open-market repurchase programs', *The Journal of Finance* **53**(1), 313–333.
- StreetInsider, . (September 15, 2011), 'HCA holdings enters into 80.77m buyback plan with bofa for \$18.61 share', *StreetInsider.com* .
- Tennessee Department of Revenue, . (August 2002), '2002 business tax rate change', *available at* : <http://www.tennessee.gov/revenue> .
- The New York Times, . (3 October 1993), '2 largest hospital chains in u.s. merge'.
- Welch, I. (2004), 'Capital structure and stock returns', *Journal of Political Economy* **112**(1), 106–132.
- Zengerle, P. (May 2, 1999*b*), 'US to start fraud trial for columbia/HCA exexecs.', *Reuters News* .
- Zengerle, P. (May 5, 1999*a*), 'Focus-lawyers spar at start of columbia/HCA trial.', *Reuters News* .

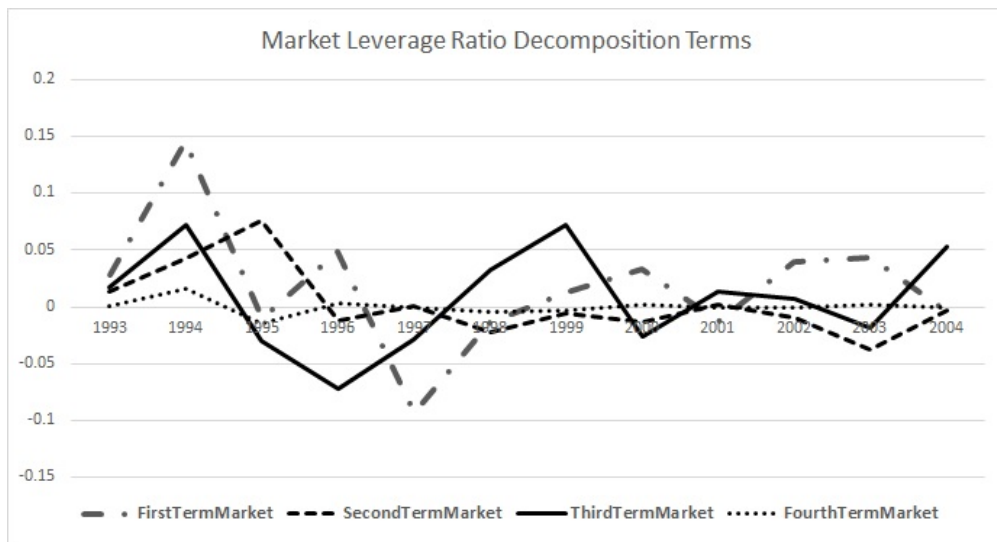


Figure 1: Horizontal axis shows the years 1993-2004. Vertical axis plots the first to the fourth terms of Equation (4), the HCA's market leverage ratio decomposition.

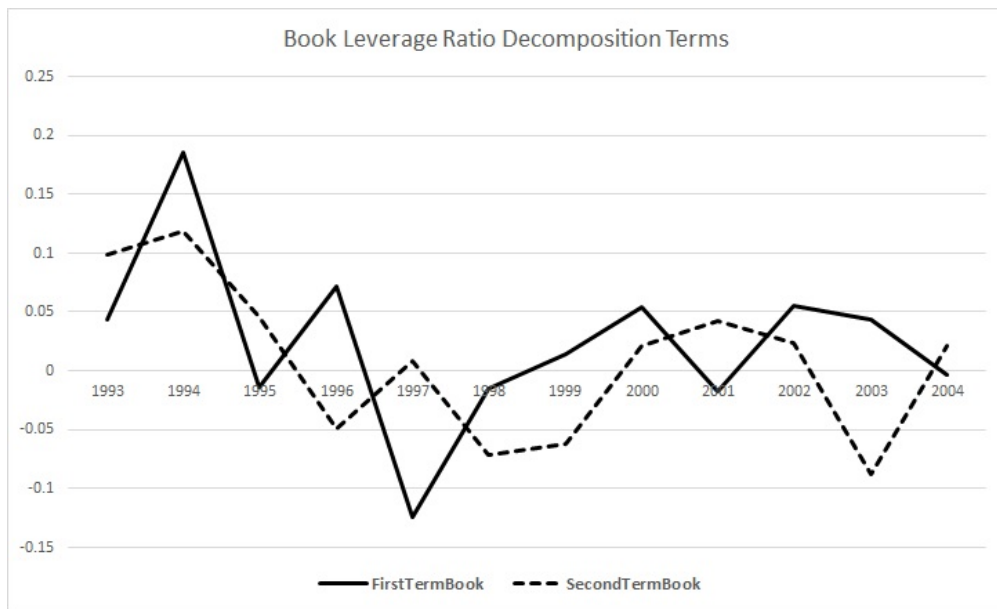


Figure 2: Horizontal axis shows the years 1993-2004. Vertical axis plots plots the first and the second terms of Equation (6), the HCA's book leverage ratio decomposition.

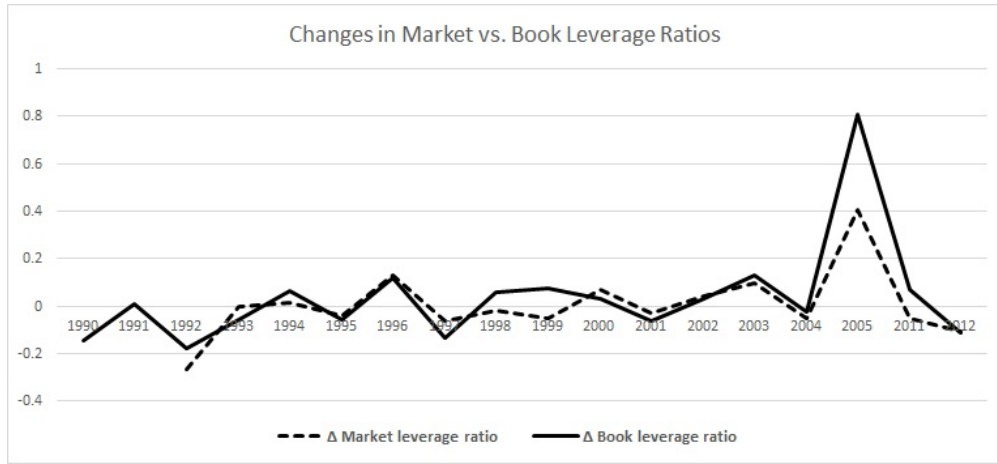


Figure 3: Horizontal axis shows the years 1990-2012. Vertical axis plots the changes in the HCA's market leverage ratio of Equation (4), and the changes in the HCA's book leverage ratio of Equation (6)

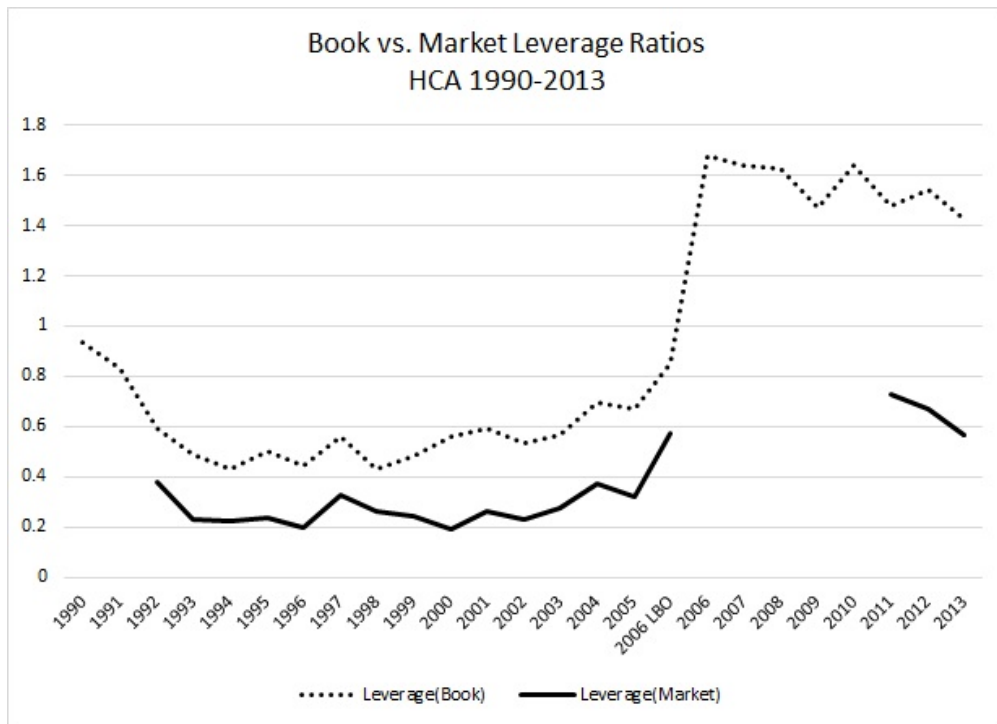


Figure 4: Horizontal axis shows the years 1990-2013. Vertical axis plots the annual market and book leverage ratios of HCA in each year. Annual market leverage ratios are missing from 1990 to 1992 and from 2007 through 2011, when HCA as privately held. The book leverage ratios are available for all years.

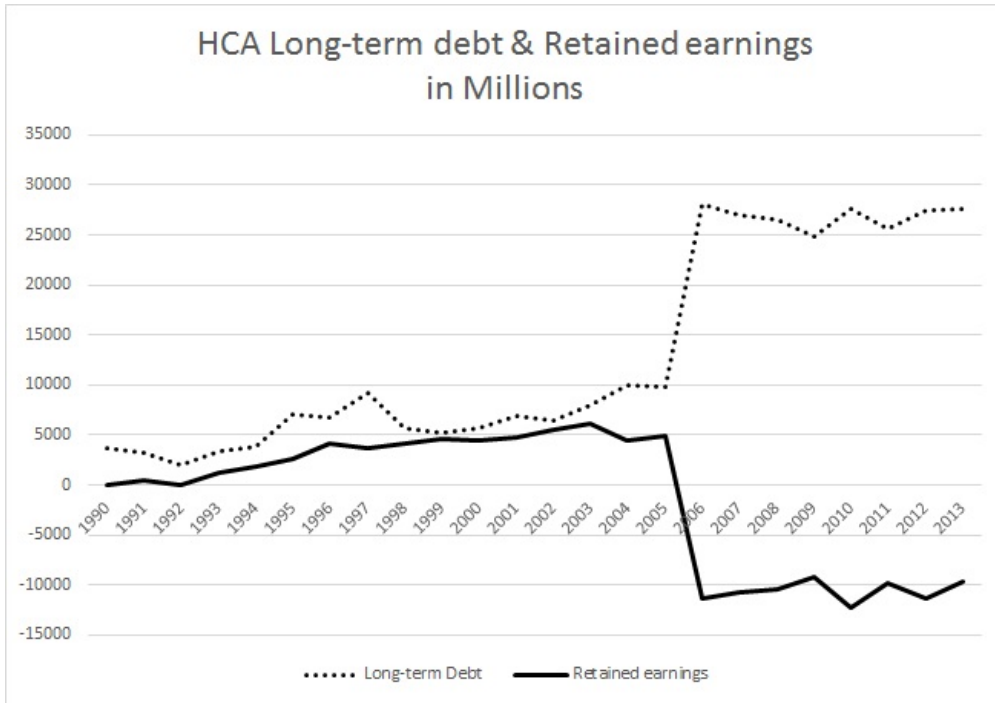


Figure 5: Horizontal axis shows the years 1990-2013. Vertical axis plots the HCA annual long-term debt and retained earnings from 1990 to 2013 in millions.

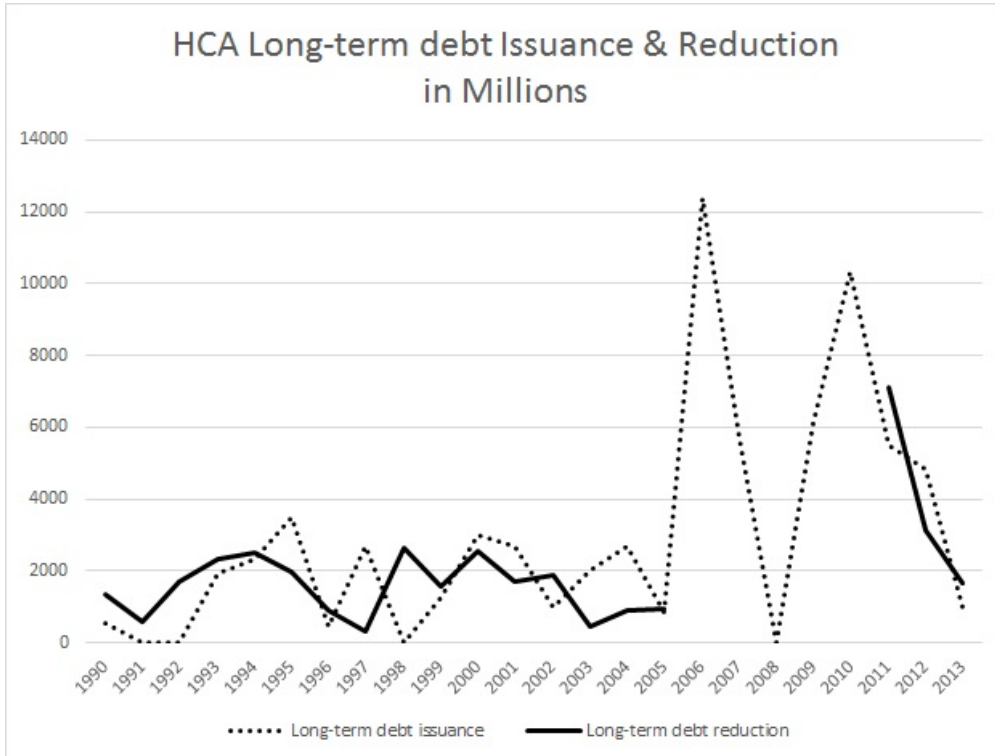


Figure 6: Horizontal axis shows the years 1990-2013. Vertical axis plots the HCA annual long-term debt issuance and reduction from 1990 to 2013 in millions.



Figure 7: Horizontal axis shows the year 2006. Vertical axis plots HCA 6.5% coupon bond prices due Feb 15, 2016, from June 2006 to November 2007. Source: Financial Industry Regulatory Authority, Inc. (FINRA) (2015).

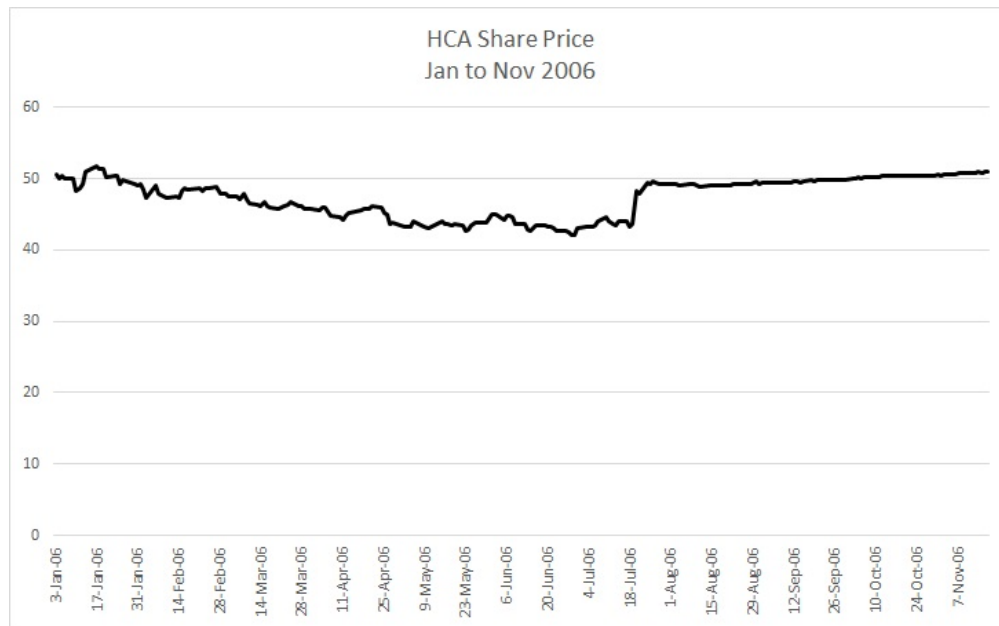


Figure 8: Horizontal axis shows the year 2006. Vertical axis plots HCA historical share price from January to November 2006.



Table 1: Components of HCA's Book and Market Leverage Ratios

This table shows the components of HCA's book and market leverage ratios from 1990 to 2005 and from 2011 to 2013. There are three sets of accounting information in this table. The first set is Hospital Corporation of America (HCA)'s data from 1990 to 1993. The second set is the Columbia Hospital Corporation (CHC)'s accounting information from 1990 to 1993. The third set includes the consolidated accounting information of HCA and Columbia in 1993 one year before their merger, and the accounting information of merged Columbia/HCA from 1994 to 2013. The common component in the market and the book leverage ratios is the long-term debt ( $D$ ). The main components of the market leverage ratio are the number of shares outstanding ( $N$ ) and the price per share ( $P$ ). The main components of the book leverage ratio are the common shareholders' equity or deficit ( $ceq$ ) where,  $ceq = cstk + caps + re - tstk$ .  $cstk$  is the common stock,  $caps$  is the capital surplus,  $re$  is the retained earnings and  $tstk$  is the treasury stock (HCA's  $tstk$  is equal to zero for the years 1990 to 2013). The market leverage ratio components are number of shares outstanding ( $N$ ) and price per share ( $P$ ). ( $L_t$ ) $_{Book}$  and ( $L_t$ ) $_{Mar-ket}$  are the long-term book and market leverage ratios, respectively. *Ticker* is the firm trading symbol in the market, and the components are in million dollars.

Year	Ticker	Common component D	( $L_t$ ) $_{Book}$			( $L_t$ ) $_{Book}$ components			( $L_t$ ) $_{Mar-ket}$		( $L_t$ ) $_{Mar-ket}$ components	
			ceq	cstk	caps	re			N	P		
1990	HCA	3715	263.3	0.003	213.3	50	NA	NA	0.284	NA		
1991	HCA	3297	653.9	0.003	213.3	440.6	NA	NA	0.284	NA		
1992	HCA	2046	1416	1.74	1331	83.42	0.379	0.379	174	19.25		
1990	CHC	172.4	41.43	0.564	37.6	3.259	0.509	0.509	56.6	2.937		
1991	CHC	229.6	118.2	0.185	99.87	18.19	0.422	0.422	18.47	17		
1992	CHC	539	264.6	0.258	220.8	43.62	0.496	0.496	25.82	21.25		
1993	COL/HCA	3335	3471	3	2164	1304	0.23	0.23	336.7	33.12		
1994	COL/HCA	3853	5022	4	3162	1856	0.226	0.226	362	36.5		
1995	COL/HCA	7137	7129	4	4499	2626	0.24	0.24	445.8	50.75		
1996	COL/HCA	6781	8609	7	4519	4083	0.199	0.199	671.5	40.75		
1997	COL/HCA	9276	7250	6	3480	3764	0.328	0.328	641.5	29.63		
1998	COL/HCA	5685	7581	6	3498	4077	0.263	0.263	642.6	24.75		
1999	COL/HCA	5284	5617	6	951	4660	0.242	0.242	564.3	29.31		
2000	COL/HCA	5631	4405	5	0	4400	0.191	0.191	543	44.01		
2001	COL/HCA	6953	4762	5	0	4757	0.262	0.262	509.3	38.54		
2002	COL/HCA	6497	5702	5	93	5604	0.233	0.233	514.2	41.5		
2003	COL/HCA	8042	6209	5	0	6204	0.276	0.276	490.7	42.96		
2004	COL/HCA	10044	4407	4	0	4403	0.373	0.373	422.6	39.96		
2005	COL/HCA	9889	4863	4	0	4859	0.319	0.319	417.5	50.5		
2011	COL/HCA	25645	-8258	4	1601	-9863	0.727	0.727	437.5	22.03		
2012	COL/HCA	27495	-9660	4	1753	-11417	0.673	0.673	443.2	30.17		
2013	COL/HCA	27590	-8270	4	1386	-9660	0.568	0.568	439.6	47.71		

Table 2: Columbia/HCA buybacks during 1990-2013

This table shows Columbia/HCA buybacks during 1990-2013. Columns (1) to (5) represent the date of buyback, number of shares outstanding, price per share, shareholders' equity and the number of the buybacked shares. The numbers in columns (2), (4) and (5) are written in the thousands. The negative signs in Column (5) shows decrease in the shares outstanding from the day before.

(1) <b>Date</b>	(2) <b>N</b>	(3) <b>Prc</b>	(4) <b>SHEquity</b>	(5) <b>Diffshrout</b>
31/10/11	436409	23.45	10200000	-80771
28/05/99	547075	23.56	12900000	-74159
31/01/05	422600	44.52	18800000	-39645
31/01/06	417500	49.08	20500000	-35167
31/03/06	386931	45.79	17700000	-30582
30/06/97	646788	39.31	25400000	-26536
31/08/01	492662	45.74	22500000	-23859
31/03/03	490739	41.36	20300000	-23261
31/08/06	388548	49.32	19200000	-20689
31/05/11	515646	34.89	18000000	-18489
29/08/97	632988	31.56	20000000	-13800
29/08/03	478524	37.99	18200000	-12073
30/04/04	463484	40.63	18800000	-11020
31/10/13	436917	47.14	20600000	-10284
31/03/05	412326	53.57	22100000	-10274
30/04/01	522462	38.40	20100000	-8977
31/05/00	536639	27.00	14500000	-6840
28/11/97	626553	29.50	18500000	-6435
31/05/01	516521	40.34	20800000	-5941
30/06/05	441000	56.67	25000000	-5719
30/11/00	531439	41.44	22000000	-5625
30/04/98	621527	32.94	20500000	-5026
28/11/03	474504	41.91	19900000	-4020
31/08/99	543237	24.63	13400000	-3838
30/04/99	621234	24.69	15300000	-3272
30/04/02	490850	47.79	23500000	-3174
31/08/04	461662	38.81	17900000	-2967
30/11/99	542277	27.25	14800000	-960
29/04/94	336677	42.38	14300000	-870
29/11/02	512192	40.18	20600000	-808
30/08/96	447136	56.38	25200000	-543
30/05/03	490597	33.00	16200000	-441
31/05/06	408062	44.45	18100000	-38
31/08/05	451963	49.30	22300000	-37
30/11/05	452667	50.99	23100000	-33

Table 3: Columbia/HCA Public Offerings during 1990-2013

This table shows Columbia/HCA public offerings during 1990-2013. Columns (1) to (5) represent the date of an offering, number of shares outstanding, price per share, shareholders' equity and the number of the offered shares. The numbers in columns (2), (4) and (5) are written in the thousands. The positive signs in Column (5) shows increase in the shares outstanding from the day before.

(1)	(2)	(3)	(4)	(5)
<b>Date</b>	<b>N</b>	<b>Prc</b>	<b>SHEquity</b>	<b>Diffshrout</b>
10/03/11	515205	31.02	16000000	515205
16/10/96	670704	36.25	24300000	223568
11/02/94	337546	38.63	13000000	161264
28/04/95	442079	42.13	18600000	79988
31/05/05	446719	54.00	24100000	30853
28/04/06	408100	43.89	17900000	21169
17/11/06	409800	50.97	20900000	21102
30/09/94	358642	43.50	15600000	20573
29/04/11	534135	32.80	17500000	18930
30/06/93	174256	19.50	3398000	15685
31/10/02	513000	43.49	22300000	15614
29/07/05	452000	49.25	22300000	11000
29/11/13	447838	46.42	20800000	10921
30/09/92	154650	17.75	2745000	7170
30/08/02	497386	46.55	23200000	4355
31/12/92	158571	19.25	3052000	3921
29/04/05	415866	55.84	23200000	3540
30/11/94	362091	37.88	13700000	3449
31/05/02	493031	49.13	24200000	2181
30/04/97	673324	35.00	23600000	2005
31/08/12	440653	28.55	12600000	1861
28/06/96	447679	53.63	24000000	1860
31/08/98	624336	22.56	14100000	1813
28/02/03	514000	41.24	21200000	1808
30/09/93	175812	22.50	3956000	1556
31/08/11	517180	20.03	10400000	1534
28/03/13	445141	40.63	18100000	1531
30/11/95	445157	51.63	23000000	1501
31/12/12	442917	30.17	13400000	1423
30/06/94	338069	37.50	12700000	1392
30/11/01	494024	38.79	19200000	1362
28/04/00	543479	28.56	15500000	1202
31/07/06	409237	49.16	20100000	1175
28/05/04	464629	38.83	18000000	1145
30/08/13	447201	38.19	17100000	1123
29/02/12	437618	26.67	11700000	1061
29/05/98	622523	32.69	20300000	996