

## ORIGINAL ARTICLE

# Trends in the asset structure of California hospitals during a financial crisis

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## Abstract

The recent financial crises affected the US economy. However, how this financial crisis affected the asset investment trend in hospitals has not drawn much attention from researchers. This study describes and analyzes the asset investment structure across hospital ownership three years before and after a financial crisis using California hospitals data from 2005 to 2010. The finding shows that hospitals' asset structure differs significantly by ownership of hospitals. For-profit hospitals reduced financial and other asset after the financial crisis, whereas not-for-profit hospitals increased significantly fixed and other assets after the financial crisis.

## Key words

Fixed asset, Financial asset, Other asset, Financial crisis, For-profit hospitals, Not-for-profit hospitals

## 1 Introduction

The US experienced a massive economic collapse and financial market meltdown in 2008. This financial crisis reduced household wealth, increased the unemployment rate, and eventually led to government interventions such as the bailout. On average, US households lost \$5,800 in income and \$100,000 in wealth from decreased stock and home value. More than 5.5 million peoples lost their jobs due to the slower economic growth after the financial crisis. To lessen the financial crisis, the federal government spent \$73 billion, which represented some \$2,050 per US household<sup>[1]</sup>. Overall, this crisis led to average 9 percent drop in production in the economy, 7 percent increase in the unemployment rate, 50 percent decline in equity prices, 35 percent decline in real home prices and 86 percent increase in public debt<sup>[2]</sup>. In addition, the International Monetary Fund (IMF) estimated that US banks lost over \$1 trillion in loans and asset due to the collapse.

The impact of a financial crisis on overall economies has been well investigated<sup>[1-3]</sup>. However, the impact of this financial crisis on the healthcare sector has not been investigated. This financial crisis may have a significant impact on the healthcare industry; given that healthcare is a capital-intensive industry. Hospitals invest in capital to keep pace with new medical and information technology and maintain facilities for patient care needs. Recently, health care policy and research have focused on hospital investment strategies. In particular, investment in financial assets has increased and concern about this practice has brought attention to the role of financial assets in the asset structure of hospitals.

However, the financial assets of hospitals may suffer from a financial crisis because investments in bonds and stocks could fluctuate with the state of economy. In particular, hospital bond ratings have undergone significant downgrades, largely due to operating losses and continued declines in liquidity because of the financial collapse<sup>[4]</sup>. This reduced financial asset may have a significant impact on the hospital operation revenue and eventually on patient care. Thus, this paper examines the impact of the financial crisis on hospital financial assets as well as fixed and other asset investment.

In particular, this paper focuses on the response of different hospitals by ownership type to the financial crisis. The impact of a financial crisis on asset investment in hospitals may differ because the role of financial assets differs by hospital ownership. For example, for-profit hospitals would like to maximize profits, whereas not-for-profit hospitals are motivated to increase cash holdings<sup>[5,6]</sup>. Therefore, not-for-profit hospitals' cash holding maximization is largely driven by the inability of such hospitals to access external capital (i.e., the stock market). They can get equity capital from government subsidy, tax exemption and donations<sup>[7]</sup>. However, these stable cash reserves and investments in financial assets allow not-for-profit hospitals to achieve better bond ratings, resulting in a lower cost of borrowing such as debt. On the other hand, for-profit hospitals use cash to maximize profit and the wealth of the shareholder. With more sources of access to the equity market such as stock, for-profit hospitals are more likely to use cash to finance capital investments.

However, investment strategies and trends of hospitals across ownership type during the financial crisis are much less understood. Consequently, there is no consensus or suggestion on the appropriate level of financial assets in hospitals<sup>[3]</sup>. Moreover, there are no guidelines for the appropriate management of hospitals' financial assets during an economic depression, even though access to the equity market is critical to preventing constraints on capital investment<sup>[8]</sup>. This restricted environment arising from the financial crisis increased the attention of hospitals to their financial assets as evidenced by a decrease in capital expenditure and a steady increase in cash balances, particularly in not-for-profit hospitals.

Thus, this study aims to provide descriptive data on investment trends in hospitals before and after the financial crisis. In particular, it compares asset structures between not-for-profit and for-profit hospitals over a 6-year period, focusing on the fixed, financial and other assets by hospital ownership and over time using California hospital data from 2005 to 2010.

## 2 Study data and methods

### 2.1 Data and study sample

Data from the Hospital Annual Financial Disclosure (HAFD) report from the Office of Statewide Health Planning and Development (OSHPD) for 2005 to 2010 was used for this study. California is the largest state that requires hospitals to report financial data and provides the most comprehensive publicly available source of hospital financial data<sup>[9]</sup>. The unit of observation was acute care California hospitals. The number of hospitals is 275 unique and 1,650 pooled over 6 years and represented a balanced panel. The Kaiser Hospital system was dropped from this sample because it was not required to report its financial variables to OSHPD. For data consistency, those hospitals whose balance sheets covered fewer than 365 or more than 366 days were also dropped.

Hospitals are classified as for-profit and not-for-profit based on the hospital reported ownership status. For-profit hospitals include individual, partner and corporate owned hospitals. Not-for-profit hospitals include church, nonfederal state, county, district and city hospitals. Of the 275 unique hospital observations, 24 percent are for-profit, the remaining are not-for-profit. Small hospitals (< than 100 beds) represent 21 percent of the observations while medium (100-300 beds) and large (> 300 beds) hospitals represent 46 percent and 32 percent, respectively. Not-for-profit hospitals in the sample are larger, with an average of 258 beds versus 203 for for-profit.

## 2.2 Methods

This paper focused on the hospitals' three asset allocations: fixed, financial and other assets. Fixed assets include plant, and equipment less accumulated depreciation, construction in progress, and investments. Financial assets include unrestricted cash, marketable securities, all assets whose use is limited, and investment in other assets. Lastly, other assets primarily include items such as receivables and intangible assets<sup>[7]</sup>. All asset values were converted to 2010 year dollars, using the consumer price index (CPI).

First, the author calculated descriptive statistics to compare asset investment of for-profit and not-for-profit hospitals, and to analyze trends in investment practices from 2005 to 2007. Second, the author compared asset structures by ownership for the three years before and after financial crisis. The author tested for significance of the differences in the asset structure three years before and after the financial crisis using two-sample independent t-tests.

## 3 Results

### 3.1 Aggregate asset structure and trends over time

The averaged aggregate asset structures of hospitals are reported in Table 1. Total asset for acute care California hospitals is almost \$220 million. Among all hospitals, fixed assets account for 44.9 percent, financial assets 27.2 percent and other assets 26.9 percent of total assets. This asset structure differs by ownership. The total assets of not-for-profit hospitals are almost 3 times larger than those of for-profit hospitals. While for-profit hospitals have a larger proportion of other assets among their total assets than not-for-profit hospitals, not-for-profit hospitals have 14 and 10 percent point larger financial and fixed assets than for-profit hospitals, respectively. This is consistent with the goal of not-for-profit hospitals.

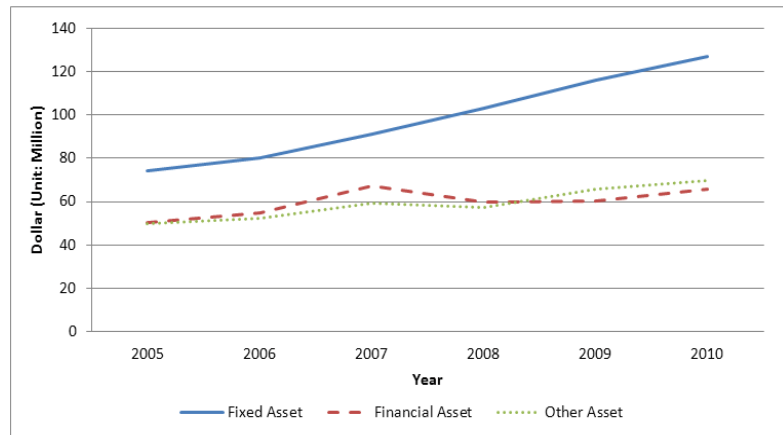
**Table 1.** Asset Structure

| Variables       | Total (275)                  |             | FP (65)                     |             | NFP (210)                    |             |
|-----------------|------------------------------|-------------|-----------------------------|-------------|------------------------------|-------------|
|                 | Mean (SD)                    | Percent (%) | Mean (SD)                   | Percent (%) | Mean (SD)                    | Percent (%) |
| Fixed Asset     | 98,614,051<br>(161,725,558)  | 44.9        | 33,630,120<br>(46,258,513)  | 36.1        | 118,160,805<br>(178,065,851) | 46.2        |
| Financial Asset | 59,731,525<br>(128,773,441)  | 27.2        | 13,548,287<br>(27,727,516)  | 14.5        | 73,105,191<br>(142,663,430)  | 28.6        |
| Other Asset     | 59,073,495<br>(90,983,184)   | 26.9        | 43,737,803<br>(74,695,947)  | 46.9        | 63,804,331<br>(94,938,413)   | 25.0        |
| Total           | 219,793,805<br>(323,313,093) | 100         | 93,237,472<br>(112,449,341) | 100         | 255,564,107<br>(353,019,589) | 100         |

Hospital asset trend over the 6 year period is presented in Figure 1. Fixed assets consistently increased over the sample period. Financial assets increased before the financial crisis but dropped the year of financial crisis and then increased slowly. Other assets also showed a small drop between 2007 and 2008, then increased slowly.

Also, hospitals' asset trend by ownership over the 6 years is presented in Figure 2. A different pattern emerges of aggregate asset structures by hospital ownership. First, fixed assets significantly increased for not-for-profit hospitals, while it slowly increased for for-profit hospitals. Second, for not-for-profit hospitals, financial assets increased before 2007, dropped by almost \$ 6 million between 2007 and 2008, then increased. However, for for-profit hospitals, financial assets were stable over the sample period compared to for-profit hospitals. Lastly, other assets also dropped by more than \$16 million

between 2007 and 2008, and then slowly increased for for-profit hospitals. It slowly increased over the sample period for not-for-profit hospitals. Overall, the assets structure of for-profit hospitals was more stable than that of not-for-profit hospitals over the sample period.



**Figure 1.** Hospital Asset Trend, 2005-2010.

### 3.2 Comparing Asset Structure before and after financial crisis

Table 2 shows the asset structure for hospitals for the three years before and after the financial crisis. For hospitals overall, total assets significantly increased by 18 percent and this increase came mainly from an increase in fixed and other assets, which rose; 29 and 7 percent, respectively. The author observed that this asset structure change before and after the financial crisis differed by ownership. Total assets of not-for-profit hospitals significantly increased by 23 percent after the financial crisis. Also, even if the fixed and other assets for not-for-profit hospitals increased significantly, the increase in financial assets was not significant. On the other hand, the total, financial and other assets for not-for-profit hospitals were reduced after the financial crisis by 16, 38 and 21 percent, respectively. However, these reductions were not significant.

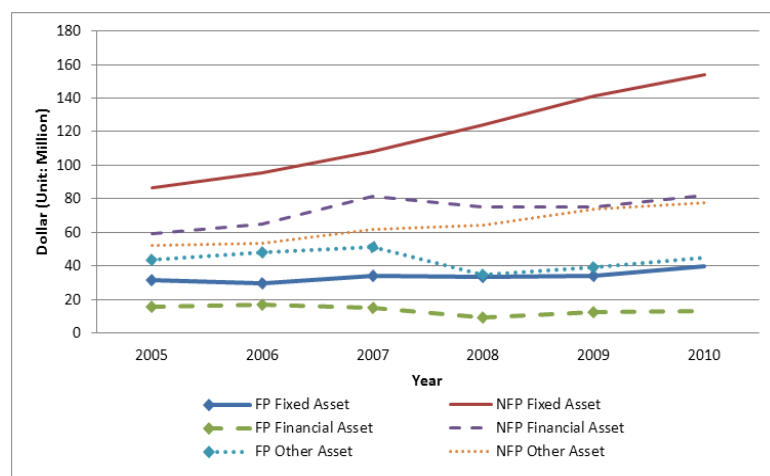
**Table 2.** Asset Change Three years before and after Financial Crisis

| Variables       |         | Total       |             | For-Profit  |            | Not-for-Profit |             |
|-----------------|---------|-------------|-------------|-------------|------------|----------------|-------------|
|                 |         | 2005-2007   | 2008-2010   | 2005-2007   | 2008-2010  | 2005-2007      | 2008-2010   |
| Fixed Asset     | Mean    | 81,970,288  | 115,035,896 | 31,518,426  | 35,622,692 | 96,705,440     | 139,616,176 |
|                 | SD      | 130,646,432 | 186,033,872 | 42,878,556  | 49,263,136 | 143,403,344    | 205,009,904 |
|                 | P-Value |             | <0.01       |             | 0.388      |                | <0.01       |
| Financial Asset | Mean    | 57,460,536  | 61,922,684  | 15,881,504  | 11,526,166 | 68,667,648     | 77,521,608  |
|                 | SD      | 121,814,408 | 135,186,576 | 27,228,008  | 28,065,950 | 134,362,384    | 150,555,760 |
|                 | P-Value |             | 0.486       |             | 0.135      |                | 0.272       |
| Other Asset     | Mean    | 53,810,868  | 64,336,120  | 47,845,832  | 39,650,840 | 55,644,812     | 71,976,800  |
|                 | SD      | 86,061,488  | 95,414,296  | 92,340,728  | 51,404,732 | 84,028,744     | 104,229,808 |
|                 | P-Value |             | 0.02        |             | 0.279      |                | <0.01       |
| Total           | Mean    | 197,226,080 | 241,294,704 | 101,083,504 | 86,799,704 | 221,799,248    | 289,114,592 |
|                 | SD      | 282,087,680 | 357,052,064 | 129,125,320 | 96,518,912 | 304,518,400    | 392,995,680 |
|                 | P-Value |             | <0.01       |             | 0.234      |                | <0.01       |

## 4 Discussion

This is the first paper to compare the asset structure before and after the financial crisis of 2008 using California Hospital Annual Financial Disclosure report from OSHPD data from 2005 to 2010. To understand the investment trend during the financial crisis is important, given that there are no guidelines for hospitals' asset investment. The financial crisis may prevent hospitals from gaining access to equity capital for capital investment. In particular, this financial crisis has a huge impact on for-profit hospitals' financial investment because for-profit hospitals could access the stock market.

This paper found that hospitals' asset structures differ significantly based on ownership such as for-profit and not-for-profit. Not-for-profit hospitals hold more financial assets than do for-profit hospitals. This difference confirmed that financial assets play a significant role in not-for-profit hospitals. This asset investment pattern of not-for-profit hospitals is consistent with their goal of maximizing cash holdings. This financial asset provides precautionary savings, allowing them to secure better bond ratings and have greater access to debt <sup>[7]</sup>.



**Figure 2.** Hospital Asset Trend by Ownership

Given this strategic role, financial assets could be more important to not-for-profit hospitals during financial crisis when debt financing is not easily accessible. With this in mind, the author tracked the financial investment trend over the sample period and found that not-for-profit hospitals experienced a significant drop in financial asset investment between 2007 and 2008, as shown in Figure 2. This result confirmed indirectly that not-for-profit hospitals were suffering in investing in financial assets during the financial crisis. On the other hand, over the sample period, for-profit hospitals showed a stable change in financial assets even after the financial crisis. Also, they were more likely to reinvest earnings in operations and return excess capital to owners. This practice is consistent with their profit maximization goal and suggested that they may be less constrained in their access to external funds. This finding suggests that investment strategies changed substantially during the financial crisis. When hospitals meet a financial crisis, they change their investment strategies, reducing financial assets and increasing fixed assets. This occurs more apparently in not-for-profit hospitals.

Moreover, the author compared the asset structure three years before and after the financial crisis and found that the asset investment trend differed by ownership. For-profit hospitals reduced financial and other asset after the financial crisis. However, not-for-profit hospitals increased significantly their fixed and other assets after the financial crisis.

This study provides a picture of hospital asset investment structure over time, especially before and after the financial crisis. Thus, it lays an important foundation for the study of hospitals' asset investment strategies and performance.

This study has limitations. First, the author did not control for hospital characteristics. These hospital characteristics may affect asset investment strategies. Second, the author used California hospital data. So, this result may not be generalizable to other states or to the U.S.A as a whole. Lastly, the author compared only three years of data before and after the financial crisis. This financial effect may have a more severe impact on hospital investment in the long-term.

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