

**NOT-FOR-PROFIT HEALTHCARE  
ZIEGLER 2018 MEDIAN RATIOS**

WINTER 2020 • INDUSTRY WHITE PAPER



**Ziegler**

CAPITAL :: INVESTMENTS :: ADVICE



# | TABLE OF CONTENTS

Introduction. ....	p. 4
Methodology .....	p. 5
Ziegler 2018 Not-For-Profit Healthcare Medians .....	p. 6
Discussion of Results .....	p. 7
Observations & Conclusions .....	p. 17
Contacts. ....	p. 17

# INTRODUCTION

## *Introducing the Ziegler 2018 Not-For-Profit Healthcare Medians:*

How does one benchmark healthcare financial performance, fiscal integrity and overall credit strength? Where does the management team or governance body of a hospital or health system look to benchmark comparative data as they analyze their own financial performance and overall credit quality? Industry professionals oftentimes benchmark themselves against entities that carry a similar credit rating as published by one of the three main rating agencies, Moody's, Standard and Poor's ("S&P"), and Fitch. The challenge with this approach is each agency has a different set of criteria that drive rating outcomes, and the benchmarking cohort is oftentimes different from your organization and may not represent an appropriate peer group. The criteria each agency has developed takes into consideration each firm's views of various subjective factors and weightings, making it difficult to benchmark and is potentially misleading.

Ziegler has developed its own extensive database of hospitals and health systems and has taken a different approach to creating useful benchmarking data, which we describe in detail in the methodology section that follows. Our goal is to clarify where health systems rank against their peers, by utilizing a comprehensive methodology with medians stratified by total revenue, rather than a limited methodology which utilizes a select sample size or subjective rating criteria.

Over 10 years ago, Ziegler analyzed what key financial ratios explain the quantitative component of a rating outcome through our "Z-CREDIT" model. After years of iterations and updates, Z-CREDIT, a multi-variable regression model, continues to identify revenue size as the number one factor in predicting a rating outcome. This is not a surprise given that all rating agencies have noted revenue size to be one of the major factors in their criteria. We now look to provide greater clarity to health systems, hospitals, investors and credit analysts through the first publication of the Ziegler Not-For-Profit Healthcare Medians.

# METHODOLOGY

The information presented herein is the result of a comprehensive analytical process completed by members of Ziegler's Healthcare Investment Banking Team. The Ziegler median ratio analysis is based on the 2018 audited fiscal year-end financial statements of 628 hospitals out of a total of 982 health systems which have reportable financial statements. Most importantly, Ziegler utilized revenue stratifications instead of rating outcomes to create its medians. We believe this provides improved accuracy and benchmarking capabilities.

Hospitals and health systems were stratified into 9 different total revenue categories. As seen in the table to the right, the largest number of hospitals fall into the \$0 to \$250 million and \$250 million to \$500 million total revenue categories. These hospitals are often not rated by each of the rating agencies which provides an incomplete result for their respective median ratios.

TOTAL REVENUE		
LOWER	UPPER	COUNT
0	250,000,000	173
250,000,000	500,000,000	118
500,000,000	750,000,000	70
750,000,000	1,000,000,000	44
1,000,000,000	2,000,000,000	97
2,000,000,000	3,000,000,000	47
3,000,000,000	4,000,000,000	19
4,000,000,000	5,000,000,000	22
5,000,000,000	(+)	38
<b>TOTAL</b>		<b>628</b>

The Ziegler median ratios encompass over 250 hospitals not rated by Moody's, over 200 hospitals not rated by S&P, and over 400 hospitals not rated by Fitch. The table below shows, of the hospitals in our sample set, what revenue category each Moody's, S&P, and Fitch rating falls into, and how many additional hospitals were analyzed by Ziegler. For example, Ziegler analyzed an additional 154 hospitals in the \$0 to \$250 million total revenue category that were not rated by Moody's. It is evident that a large number of smaller hospitals do not seek a rating and are therefore underrepresented in financial median discussions by the rating agencies.

		TOTAL REVENUE (BILLIONS)								
		0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5
MOODY'S	Aa	0	0	0	0	12	14	10	12	20
	A	3	23	27	19	39	15	5	7	11
	Baa	10	18	12	11	12	2	3	1	1
	SG	6	10	2	1	3	0	0	0	0
	<b>Total</b>	<b>19</b>	<b>51</b>	<b>41</b>	<b>31</b>	<b>66</b>	<b>31</b>	<b>18</b>	<b>20</b>	<b>32</b>
	<b>Additional</b>	<b>154</b>	<b>67</b>	<b>29</b>	<b>13</b>	<b>31</b>	<b>16</b>	<b>1</b>	<b>2</b>	<b>6</b>

		TOTAL REVENUE (BILLIONS)								
		0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5
S&P	AA	8	4	6	5	19	19	10	10	25
	A	20	38	25	19	35	20	5	6	9
	BBB	18	21	8	6	13	3	2	1	1
	SG	7	8	1	0	2	0	0	0	0
	<b>Total</b>	<b>53</b>	<b>71</b>	<b>40</b>	<b>30</b>	<b>69</b>	<b>42</b>	<b>17</b>	<b>17</b>	<b>35</b>
	<b>Additional</b>	<b>120</b>	<b>47</b>	<b>30</b>	<b>14</b>	<b>28</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>3</b>

		TOTAL REVENUE (BILLIONS)								
		0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5
FITCH	AA	1	5	5	6	17	11	5	11	10
	A	12	21	11	8	13	13	3	2	4
	BBB	4	13	7	3	6	1	0	0	1
	SG	4	2	3	1	2	0	0	0	0
	<b>Total</b>	<b>21</b>	<b>41</b>	<b>26</b>	<b>18</b>	<b>38</b>	<b>25</b>	<b>8</b>	<b>13</b>	<b>15</b>
	<b>Additional</b>	<b>152</b>	<b>77</b>	<b>44</b>	<b>26</b>	<b>59</b>	<b>22</b>	<b>11</b>	<b>9</b>	<b>23</b>

Further, to provide additional clarity within the stratifications, Ziegler included the use of percentile comparison data for each of its medians. This allows for transparency to where one falls when comparing its outcomes to a particular ratio. Never before could one understand how or where it fared positively or negatively to a particular median. The data was just not shared. Lastly, we segmented hospitals and health systems by geographic region to illustrate how cost of living, demographics and political climate affect financial performance.

# ZIEGLER 2018 NOT-FOR-PROFIT HEALTHCARE MEDIANS

The table below provides the Ziegler median ratio results stratified by total revenue:

SAMPLE SIZE >	173	118	70	44	97	47	19	22	38
TOTAL REVENUE (THOUSANDS)									
LOWER BOUND >	0	250,000	500,000	750,000	1,000,000	2,000,000	3,000,000	4,000,000	5,000,000
UPPER BOUND >	250,000	500,000	750,000	1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	(+)

PROFITABILITY	Operating Margin (%)	(0.6%)	1.3%	1.6%	2.5%	2.8%	2.8%	3.5%	3.2%	2.2%
	Operating EBIDA Margin (%)	6.4%	7.4%	8.4%	8.8%	8.9%	9.7%	8.4%	9.2%	7.4%
	Excess Margin (%)	1.2%	2.8%	3.0%	4.9%	4.3%	5.3%	5.6%	5.7%	3.6%
	EBIDA Margin (%)	8.7%	9.0%	9.8%	11.3%	10.5%	11.3%	11.0%	11.5%	8.4%
LEVERAGE	MADS / Total Operating Revenue (%)	3.7%	3.2%	3.0%	2.9%	2.3%	2.2%	2.1%	2.2%	2.1%
	Long-Term Debt / EBIDA (X)	3.5x	3.2x	3.1x	2.9x	2.9x	2.7x	3.1x	2.5x	3.2x
	Long-Term Debt / Capitalization (%)	42.7%	34.5%	30.5%	33.5%	32.6%	30.5%	32.7%	28.5%	32.3%
	Long-Term Debt / Capitalization (Pension Adjusted) (%)	43.5%	36.1%	34.9%	35.1%	36.3%	33.3%	34.8%	29.8%	34.9%
	Total Debt / EBIDA (X)	3.7x	3.4x	3.4x	3.1x	3.0x	2.8x	3.2x	2.8x	3.3x
	Total Debt / Capitalization (%)	43.8%	36.3%	31.6%	34.6%	34.2%	31.6%	33.1%	29.8%	33.9%
	Total Debt / Capitalization (Pension Adjusted) (%)	44.4%	38.0%	36.9%	36.1%	36.8%	34.4%	35.4%	31.6%	37.6%
LIQUIDITY	MADS Coverage (X)	2.8x	3.1x	3.1x	5.0x	4.2x	4.5x	5.6x	4.7x	4.2x
	Cushion Ratio (X)	17.4x	17.5x	19.4x	25.4x	21.4x	22.1x	29.1x	27.6x	26.8x
	Cash-to-Long-Term Debt (%)	107.3%	152.8%	163.4%	175.1%	155.0%	178.6%	176.1%	202.0%	167.2%
	Cash-to-Total Debt (%)	97.7%	147.4%	158.4%	170.9%	150.3%	167.3%	165.7%	196.3%	161.9%
	Days Cash on Hand	167.5	180.7	187.0	239.2	193.1	208.0	229.3	234.7	202.5
OTHER	Average Age of Plant (Years)	12.1	12.1	11.6	11.8	11.6	10.6	10.6	10.3	9.7
	Capital Expenditures / Depreciation & Amortization (%)	90.6%	107.3%	133.9%	115.0%	119.2%	143.2%	182.4%	156.3%	128.6%
	Defined Benefit Pension Funded Status (%)	82.6%	80.0%	79.2%	81.2%	84.3%	85.9%	85.6%	85.3%	86.9%

# DISCUSSION OF RESULTS

As Ziegler annually updates and produces its own medians, additional historical data sets will become available for further commentary and analysis. The outline of this section is as follows:

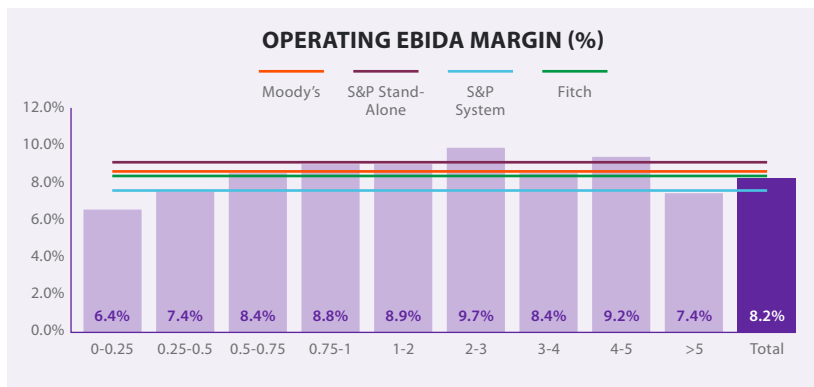
- A. Discussion of Median Results Stratified by Total Revenue
- B. Percentiles of Results Stratified by Total Revenue
- C. Discussion of Median Results Stratified by Geographic Region

## A Discussion of Median Results Stratified by Total Revenue:

In each section below, we provide commentary and analysis on median ratio results stratified by total revenue for profitability, leverage, liquidity, and capital spending for the hospitals in our sample set. The horizontal lines across each chart represent the aggregate 'A' rating, if available, for each rating agency. The median result is simply the mid-point for the respective revenue category.

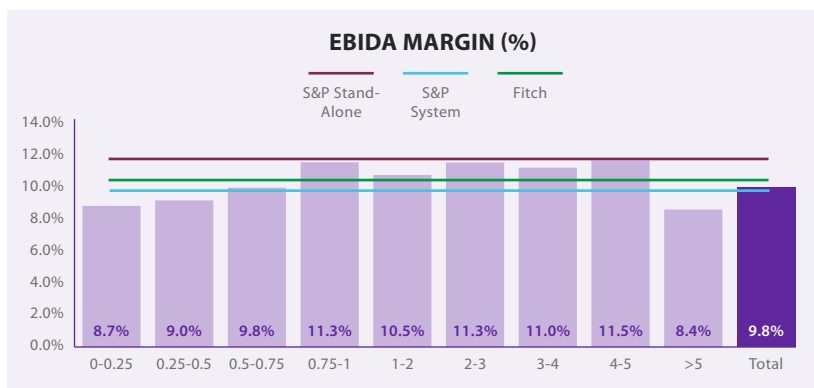
### Profitability:

**Operating EBIDA Margin** exhibits a slightly positive trend with increasing revenue, providing insight that hospitals with higher total revenue generate greater operating cash flow margin. However, the data suggests that when capturing the impact of interest, depreciation, and amortization, there is a relatively narrow range across total revenue categories, with the highest median at 9.7% and the lowest median at 6.4%. Interestingly, the \$2 to \$3 billion and \$4 to \$5 billion total revenue ranges outperformed followed by revenue sizes from \$.75 billion to \$2 billion.



Revenue sized institutions from \$.5 billion to \$.75 billion and ones from \$3 billion to \$4 billion produced the same output of 8.4%. Additionally, entities in excess \$5 billion produced the same percentage as those in the \$.25 billion to \$.5 billion at 7.4%, suggesting increasing total revenue may not provide significant benefits for producing profitability metrics.

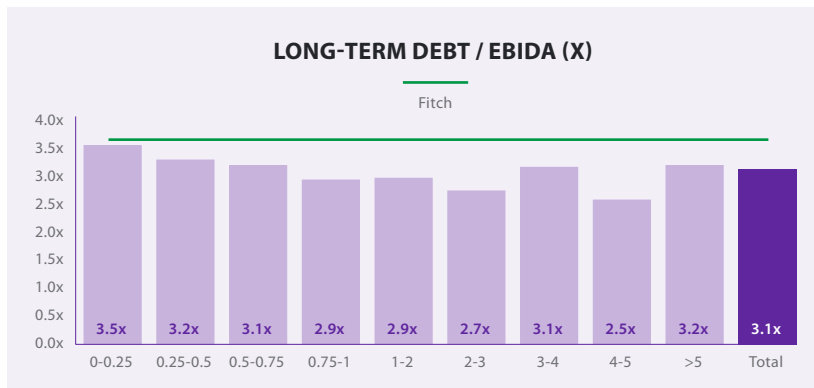
**EBIDA Margin** also exhibits a mixed result with increasing revenue. EBIDA Margin shows a steady increase as revenue increases until the \$.750 million to \$1 billion total revenue range, but is relatively flat thereafter. Additionally, the median margin decreases in the largest total revenue category of greater than \$5 billion. The results provide insight that higher total revenue does not necessarily result higher cash flow margin. Entities in the \$.75 billion to \$1 billion, \$2 to \$3 billion and \$4 to \$5 billion were at or close to the same production level of 11.5%.



When capturing the impact of non-operating gains and losses along with interest, depreciation, and amortization to excess income, there are minimal differences across total revenue categories. The medians range from a high of 11.5% to a low of 8.4%.

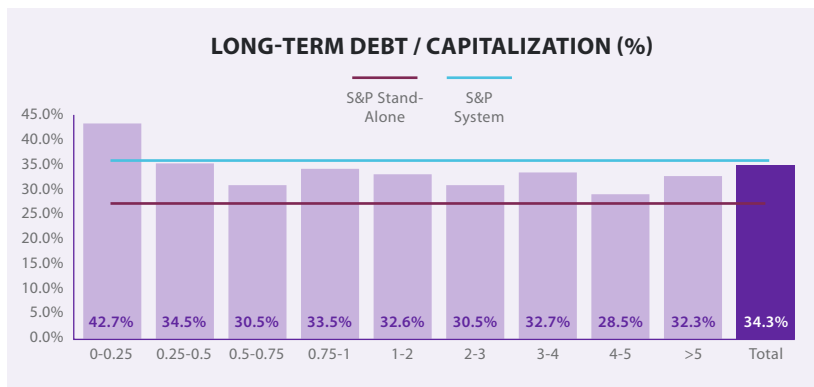
### Leverage:

**Long-Term Debt / EBIDA** exhibits no obvious trend with the size of an institution, providing insight that hospitals across total revenue ranges hold similar relative levels of debt as compared to cash flow. Additionally, small sized revenue based institutions, from up to \$.75 billion, were equal to those institutions of \$3 to \$4 billion and greater than \$5 billion in revenue. Lastly, the range of medians is narrow, with the amount of time in years to pay down outstanding debt with cash flow ranging from 2.5 to 3.5 years.



The strongest total revenue category is the \$4 to \$5 billion range with a Long-Term Debt / EBIDA of 2.5x, while the weakest total revenue category was \$0 to \$.25 billion with a Long-Term Debt / EBIDA of 3.5x.

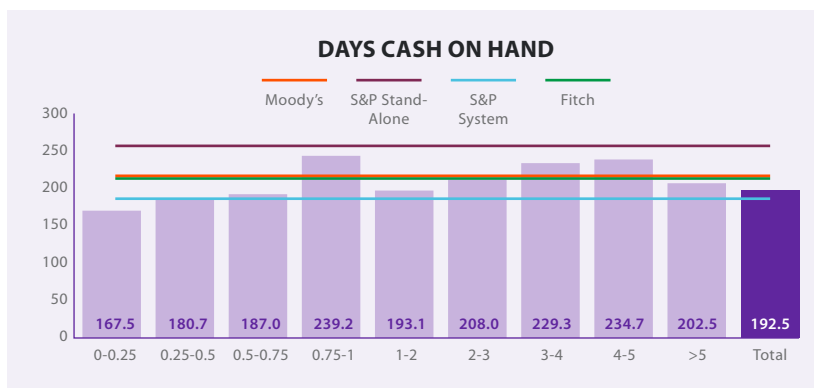
**Long-Term Debt / Capitalization** exhibits no obvious trend with total revenue, providing insight that hospitals across total revenue ranges are similarly leveraged and hold the correspondingly same percentage of leverage. The median ratio does decrease significantly after the \$0 to \$.25 billion total revenue category, but is relatively flat thereafter. Entities in the revenue range of \$4 to \$5 billion had the lowest leverage percentage at 28.5% followed by those in the \$.5 to \$.75 billion and \$2 to \$3 billion at 30.5%.



The aggregate median for all entities in our data set was 34.3%. The Fitch median ratio is available, but is not shown on the graph because it is similar to the S&P System median ratio.

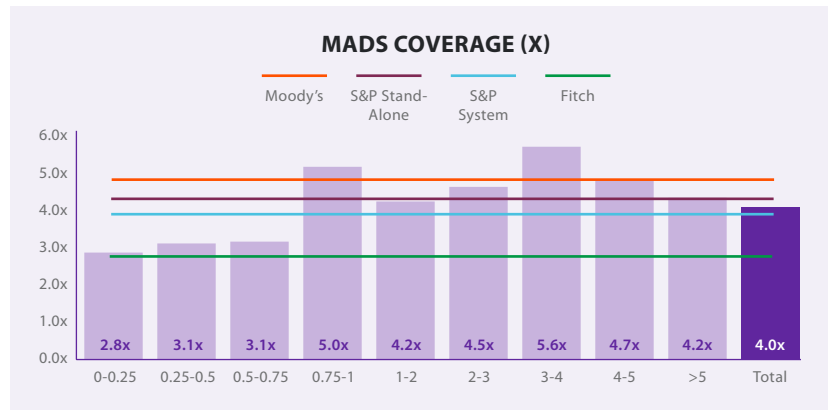
### Liquidity:

**Days Cash on Hand** exhibits a positive trend, providing insight that hospitals with higher revenue hold more cash to pay daily operating expenses as compared to hospitals with lower revenue. The data suggests hospitals with higher total revenue would be able to continue to fund operations from balance sheet cash for a longer period of time than hospitals with lower total revenue. While we do see a slightly positive trend, liquidity metrics clearly weaken at certain revenue categories. Interestingly institutions with revenue of \$1 to \$2 billion are nearly equal to those from \$.50 billion to \$.75 billion.



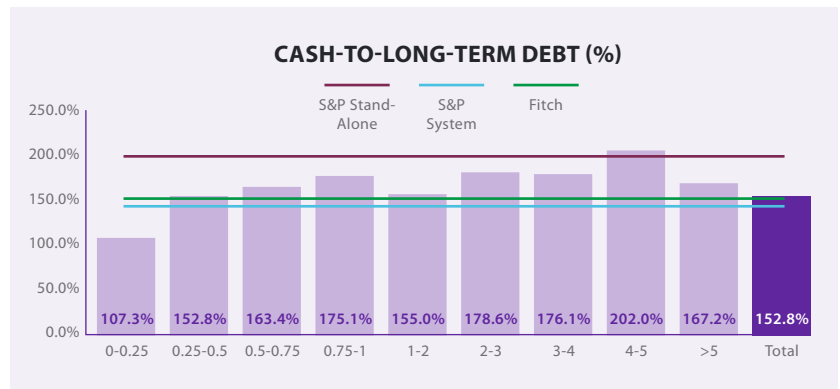


**MADS Coverage** exhibits a positive trend associated with increasing revenue. Entities with higher total revenue generate higher levels of cash flow to pay down the largest annual debt service requirement as compared to hospitals with lower total revenue. Through our analyses we have not seen median outcomes that significantly improve as revenue increases, however, in the case of MADS Coverage there clearly is a benefit. The most significant change is at the .75 to \$1 billion range, where MADS Coverage increases from 3.1x to 5.0x.



MADS Coverage declines in entities from \$1 billion to \$3 billion but are still in excess of the aggregate median of 4.0x. Institutions with revenue from \$3 to \$4 billion produced the highest coverage of 5.6x. MADS Coverage of entities with revenue above \$4 billion were close to those in revenue from \$1 to \$3 billion. We believe a major driving force in MADS Coverage is associated with the cost of capital and overall capital structure of organizations. Entities with higher revenue tend to have higher ratings which leads to lower credit spreads thereby decreasing the cost of borrowing. In addition, higher rated entities tend to have diverse capital structures with variable rate and intermediate debt along with long-term debt as compared to only having long-term debt with lower rated credits.

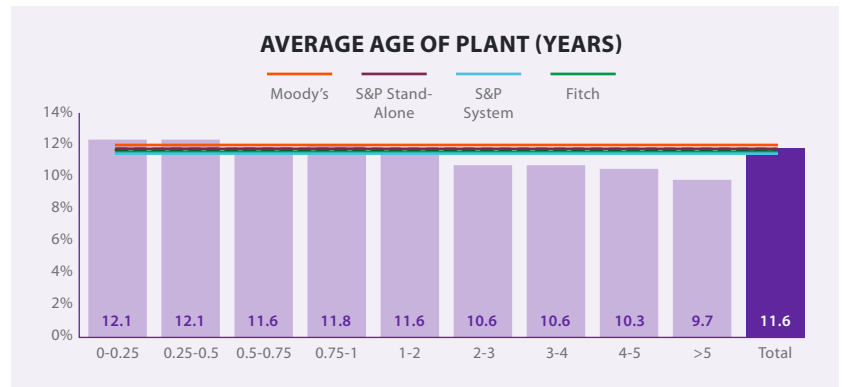
**Cash-to-Long-Term Debt** exhibits a slightly positive trend associated with increasing revenue. Health systems and hospitals with higher revenue hold higher relative levels of cash on the balance sheet as compared to hospitals with lower revenue. The data suggests hospitals with higher total revenue are better positioned to repay existing debt obligations with on balance sheet cash. However, the benefit for total revenue above \$1 billion is minimal.



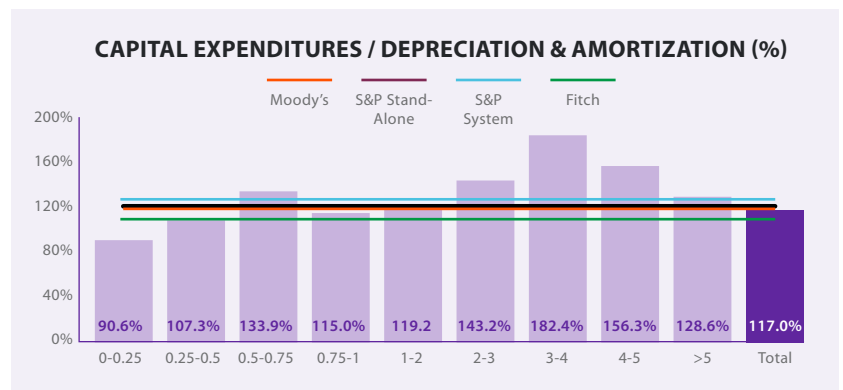
Institutions that have revenue from \$4 to \$5 billion produced the highest coverage at 202.0% followed by ones that were \$2 to \$3 billion in revenue at 178.6%. Interestingly, entities with revenue between \$.75 billion to \$1 billion were at greater percentages than ones with revenue of \$1 billion to \$2 billion and those above \$5 billion while not significantly below entities with revenue from \$2 to \$4 billion.

## Capital Spending:

**Average Age of Plant** exhibits one of the more obvious trends associated with increasing revenue. As total revenue increases, Average Age of Plant steadily decreases. The data suggests that hospitals with lower levels of revenue have fixed assets with greater deterioration in need of reinvestment. The aggregate median ratio of 11.6 years is at or above total revenue categories ranging from \$0.5 million to greater than \$5 billion, while below the median of hospitals with total revenue between \$0 and \$0.5 billion.



**Capital Expenditures / Depreciation & Amortization** exhibits a positive trend with increasing revenue, which follows with the Average Age of Plant medians. The data suggests hospitals with higher total revenue invest greater amounts in fixed assets across its operations. Additionally, this ratio shows one of the widest ranges of results in our analysis. The strongest total revenue category is the \$3 billion to \$4 billion range with Capital Expenditures / Depreciation & Amortization of 182.4%.



The weakest total revenue category is the \$0 to \$0.25 billion category with a Capital Expenditures / Depreciation & Amortization of 90.6%, a difference of 91.8%. The median for every revenue grouping except for \$0 to \$0.25 billion is in excess of its respective depreciation expense and the aggregate median is 117.0%.

## B Percentiles of Results Stratified by Total Revenue

An always unanswered question in the existing median analysis is where one falls within the range of results. Remember, a median is just the mid-point, there are entities above and below the median. What has not been provided before is comparative analysis of range of outcomes to provide insight as to where an entity falls within the range of outcomes. Further understanding the variances in a certain median provides health systems and hospitals, investors and credit analyst a more accurate benchmarking ability. This is one of the more useful tools available to healthcare credits today. Health systems and hospitals measure their performance almost daily, but lack an accurate comparison point. Now, a healthcare credit can, for example, calculate their Operating EBIDA Margin, and see what percentile they fall in for their revenue category.

This section displays percentile tables by revenue for profitability, leverage, liquidity, and capital spending ratios for the health systems and hospitals in our sample set. The 90th percentile means one is within the top 10%, the 75th percentile means one is within the top 25%. The 50th percentile also represents the mid-point or median ratio result. The range between the 90th and 10th percentile and the 75th and the 25th percentile is also provided. A narrower range can be interpreted as less variation among results.

## OPERATING EBIDA MARGIN (%)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	14.8%	14.9%	13.6%	15.4%	14.2%	12.3%	15.0%	15.6%	10.9%	14.6%
75%	11.0%	11.2%	10.1%	12.9%	10.5%	10.9%	11.2%	10.7%	9.6%	10.9%
50%	6.4%	7.4%	8.4%	8.8%	8.9%	9.7%	8.4%	9.2%	7.4%	8.2%
25%	2.2%	3.0%	5.3%	7.2%	5.5%	6.7%	6.4%	7.3%	6.3%	4.9%
10%	(4.7%)	(1.5%)	1.8%	4.6%	3.1%	4.5%	4.8%	5.4%	4.8%	0.0%
Range (75%-25%)	8.8%	8.2%	4.9%	5.7%	5.0%	4.2%	4.9%	3.4%	3.3%	6.0%
Range (90%-10%)	19.5%	16.4%	11.8%	10.8%	11.1%	7.8%	10.2%	10.2%	6.1%	14.5%

## EBIDA MARGIN (%)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	18.5%	16.8%	16.5%	18.8%	17.8%	14.9%	17.2%	17.5%	12.9%	17.5%
75%	13.1%	13.8%	12.6%	16.3%	12.4%	13.0%	14.4%	14.4%	11.4%	13.1%
50%	8.7%	9.0%	9.8%	11.3%	10.5%	11.3%	11.0%	11.5%	8.4%	9.8%
25%	4.0%	4.7%	6.3%	8.4%	6.7%	8.6%	6.7%	7.9%	7.5%	6.1%
10%	(3.7%)	0.4%	2.0%	4.5%	3.8%	6.7%	4.2%	6.4%	5.7%	1.5%
Range (75%-25%)	9.1%	9.0%	6.3%	7.9%	5.6%	4.4%	7.7%	6.6%	3.9%	7.0%
Range (90%-10%)	22.2%	16.4%	14.5%	14.3%	14.0%	8.1%	13.0%	11.1%	7.3%	16.0%

## LONG-TERM DEBT / EBIDA (X)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	12.7x	11.3x	8.0x	5.4x	6.4x	4.5x	7.2x	4.5x	4.4x	9.2x
75%	6.7x	5.1x	5.0x	3.8x	4.2x	3.4x	4.3x	3.4x	4.1x	4.7x
50%	3.5x	3.2x	3.1x	2.9x	2.9	2.7x	3.1x	2.5x	3.2x	3.1x
25%	1.5x	2.1x	1.7x	2.0x	1.9x	2.0x	2.3x	1.6x	2.3x	1.9x
10%	(3.1x)	0.4x	1.1x	1.0x	1.3x	1.2x	1.8x	1.2x	1.6x	0.7x
Range (75%-25%)	5.2x	3.0x	3.3x	1.9x	2.3x	1.4x	2.0x	1.8x	1.8x	2.8x
Range (90%-10%)	15.9x	10.9x	6.9x	4.4x	5.2x	3.3x	5.3x	3.3x	2.8x	8.5x

## LONG-TERM DEBT / CAPITALIZATION (%)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	88.0%	64.1%	57.8%	52.1%	54.0%	46.7%	54.7%	43.7%	41.2%	66.0%
75%	63.2%	47.1%	46.4%	42.0%	41.8%	36.7%	42.4%	37.5%	37.2%	46.9%
50%	42.7%	34.5%	30.5%	33.5%	32.6%	30.5%	32.7%	28.5%	32.3%	34.3%
25%	27.4%	24.6%	20.0%	22.5%	24.9%	25.7%	25.8%	22.1%	23.0%	24.3%
10%	16.5%	17.5%	14.0%	18.3%	18.7%	15.8%	17.6%	14.6%	17.9%	16.6%
Range (75%-25%)	35.7%	22.6%	26.4%	19.5%	16.9%	11.0%	16.6%	15.4%	14.2%	22.5%
Range (90%-10%)	71.5%	46.7%	43.8%	33.8%	35.3%	30.9%	37.2%	29.1%	23.3%	49.4%

## DAYS CASH ON HAND

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	434.6	383.8	350.7	408.9	342.9	399.1	428.1	422.4	335.1	387.8
75%	247.4	278.6	274.1	326.4	250.1	289.2	346.5	291.7	268.1	274.3
50%	167.5	180.7	187.0	239.2	193.1	208.0	229.3	234.7	202.5	192.5
25%	95.6	108.4	128.4	179.3	138.4	168.3	140.7	160.0	156.8	127.4
10%	56.5	66.8	96.0	95.3	96.7	138.6	115.6	117.1	117.2	77.7
Range (75%-25%)	151.7	170.2	145.7	147.1	111.6	120.8	205.7	131.8	111.3	147.0
Range (90%-10%)	378.1	317.0	254.7	313.6	246.2	260.5	312.5	305.3	27.9	310.1

## MADS COVERAGE (X)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	6.5x	7.2x	7.6x	7.3x	8.8x	7.3x	7.8x	10.5x	8.3x	8.3x
75%	4.2x	4.5x	5.5x	6.1x	6.1x	6.3x	7.0x	7.8x	6.1x	5.9x
50%	2.8x	3.1x	3.1x	5.0x	4.2x	4.5x	5.6x	4.7x	4.2x	4.0x
25%	1.4x	1.4x	2.0x	3.7x	3.2x	3.8x	3.3x	3.7x	3.4x	2.4x
10%	0.1x	0.2x	0.5x	1.3x	1.7x	2.5x	1.8x	1.1x	2.9x	0.7x
Range (75%-25%)	2.8x	3.1x	3.5x	2.4x	3.0x	2.5x	3.7x	4.1x	2.7x	3.5x
Range (90%-10%)	6.4x	6.9x	7.1x	6.0x	7.1x	4.8x	6.0x	9.4x	5.3x	7.6x

## CASH-TO-LONG-TERM (%)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	354.4%	333.4%	387.4%	343.1%	297.2%	421.4%	325.7%	484.6%	398.2%	361.4%
75%	220.0%	251.8%	292.7%	253.5%	217.2%	244.8%	276.3%	277.1%	251.2%	243.3%
50%	107.3%	152.8%	163.4%	175.1%	155.0%	178.6%	176.1%	202.0%	167.2%	152.8%
25%	56.2%	90.4%	83.4%	126.8%	104.1%	138.7%	116.4%	133.0%	145.4%	90.4%
10%	29.6%	50.3%	50.7%	74.5%	80.5%	107.7%	75.3%	95.9%	111.9%	49.6%
Range (75%-25%)	163.8%	161.4%	209.3%	126.6%	113.1%	106.1%	159.8%	144.1%	105.8%	152.8%
Range (90%-10%)	324.8%	283.0%	336.8%	268.5%	216.7%	313.7%	250.3%	388.8%	286.3%	311.7%

## AVERAGE AGE OF PLANTS (YEARS)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	18.6	18.4	16.2	15.4	15.5	13.9	13.5	12.5	13.4	16.8
75%	15.	15.3	13.3	13.7	13.3	12.2	11.7	12.0	11.2	14.0
50%	12.1	12.1	11.6	11.8	11.6	10.6	10.6	10.3	9.7	11.6
25%	10.0	10.6	9.5	10.6	9.8	9.3	9.3	9.6	8.7	9.7
10%	8.1	9.3	8.1	8.7	8.9	8.5	8.5	8.6	7.3	8.4
Range (75%-25%)	5.8	4.7	3.8	3.2	3.5	2.3	2.3	2.4	2.6	4.3
Range (90%-10%)	10.5	9.1	8.1	6.7	6.6	5.0	5.0	3.9	6.1	8.4

## CAPITAL EXPENDITURES / DEPRECIATION & AMORTIZATION (%)

	TOTAL REVENUE (BILLIONS)									
	0-0.25	0.25-0.5	0.5-0.75	0.75-1	1-2	2-3	3-4	4-5	>5	TOTAL
90%	252.1%	241.5%	258.3%	240.4%	254.3%	206.1%	231.7%	235.2%	176.3%	240.7%
75%	137.5%	150.6%	165.5%	162.9%	174.9%	162.7%	216.4%	190.3%	138.9%	164.6%
50%	90.6%	107.3%	133.9%	115.0%	119.2%	143.2%	182.4%	156.3%	128.6%	117.0%
25%	52.7%	69.1%	96.9%	83.8%	89.1%	91.1%	136.7%	132.1%	107.5%	80.8%
10%	28.0%	49.3%	71.9%	58.4%	69.4%	86.7%	119.6%	94.7%	91.2%	50.9%
Range (75%-25%)	84.7%	81.5%	68.7%	79.1%	85.8%	71.6%	79.7%	58.2%	31.5%	83.8%
Range (90%-10%)	224.1%	192.2%	186.3%	182.1%	184.9%	119.4%	112.1%	140.5%	85.0%	189.7%

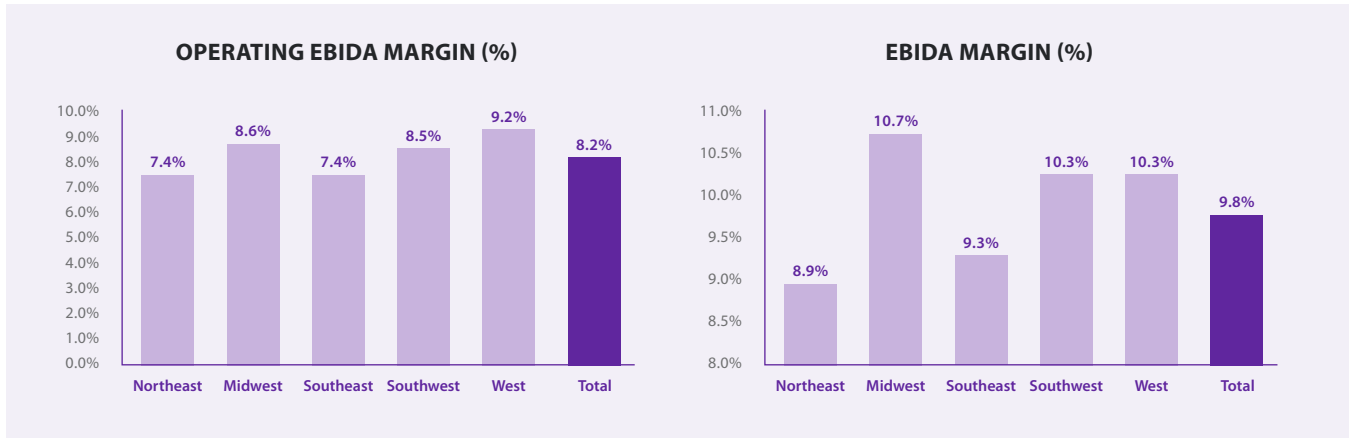


The table below provides Ziegler median ratio results segmented by geographic region, as well as in aggregate for all hospitals in our sample set:

	SAMPLE SIZE >	123	182	158	37	128	628
		REGION					
		Northeast	Midwest	Southeast	Southwest	West	Aggregate
PROFITABILITY	Operating Margin (%)	1.7%	2.1%	1.2%	2.1%	2.6%	1.8%
	Operating EBIDA Margin (%)	7.4%	8.6%	7.4%	8.5%	9.2%	8.2%
	Excess Margin (%)	3.4%	4.0%	2.8%	2.8%	4.1%	3.4%
	EBIDA Margin (%)	8.9%	10.7%	9.3%	10.3%	10.3%	9.8%
LEVERAGE	MADS / Total Operating Revenue (%)	2.5%	2.5%	2.7%	2.9%	2.8%	2.6%
	Long-Term Debt / EBIDA (X)	3.3x	2.8x	3.3x	2.4x	3.0x	3.1x
	Long-Term Debt / Capitalization (%)	35.1%	31.7%	34.8%	34.3%	34.9%	34.3%
	Long-Term Debt / Capitalization (Pension Adjusted) (%)	39.1%	33.5%	37.5%	35.8%	36.1%	36.1%
	Total Debt / EBIDA (X)	3.5x	3.0x	3.4x	3.0x	3.1x	3.2x
	Total Debt / Capitalization (%)	37.2%	32.4%	36.3%	38.8%	36.2%	35.4%
	Total Debt / Capitalization (Pension Adjusted) (%)	39.6%	34.6%	38.3%	39.8%	37.3%	37.6%
LIQUIDITY	MADS Coverage (X)	3.6x	4.4x	3.5x	4.2x	3.9x	4.0x
	Cushion Ratio (X)	18.9x	22.6x	21.4x	24.1x	19.8x	21.0x
	Cash-to-Long-Term Debt (%)	152.5%	163.9%	145.2%	142.2%	138.3%	152.8%
	Cash-to-Total Debt (%)	146.7%	156.4%	141.1%	136.7%	129.4%	146.4%
	Days Cash on Hand	172.5	202.7	197.5	229.5	180.3	192.5
OTHER	Average Age of Plant (Years)	12.1	11.2	12.1	10.6	10.9	11.6
	Capital Expenditures / Depreciation & Amortization (%)	121.3%	112.7%	122.3%	123.0%	110.0%	117.0%
	Defined Benefit Pension Funded Status (%)	80.8%	84.2%	84.2%	80.2%	86.3%	83.1%

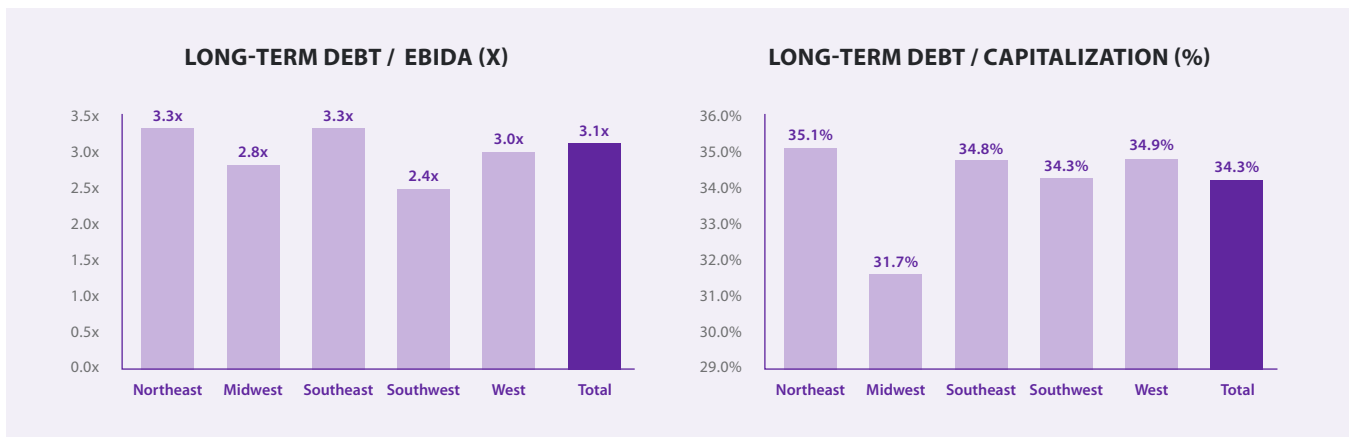
## Profitability:

From a profitability perspective, the strongest regions are the West, Midwest and Southwest regions, while the two weakest regions are the Northeast and Southeast regions.



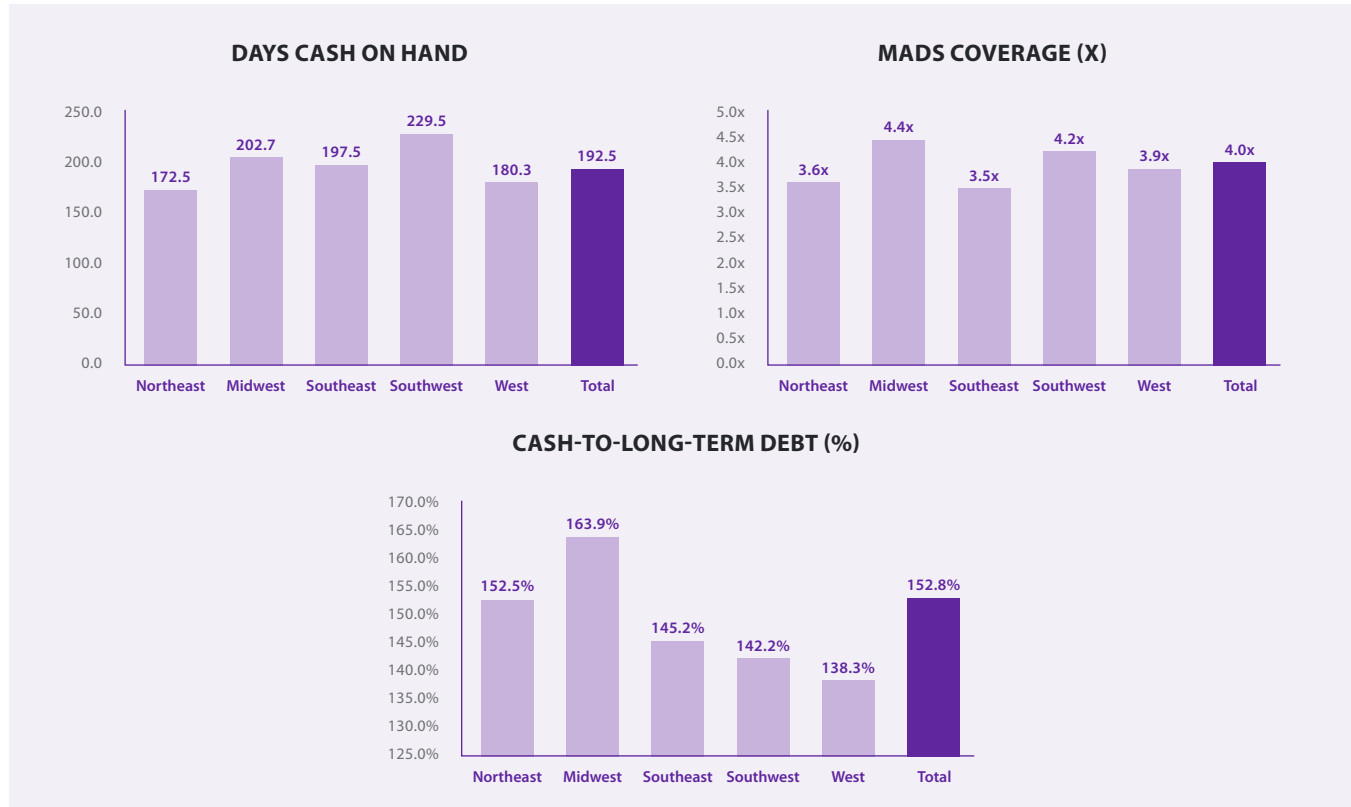
## Leverage:

Analyzing the leverage position is mixed. While the Midwest is lowest in terms of Long-Term Debt / Capitalization it was relatively similar to the other regions in terms of Long-Term Debt / EBIDA. The Northeast produced the weakest Long-Term Debt / Capitalization and Long-Term Debt / EBIDA median ratios.



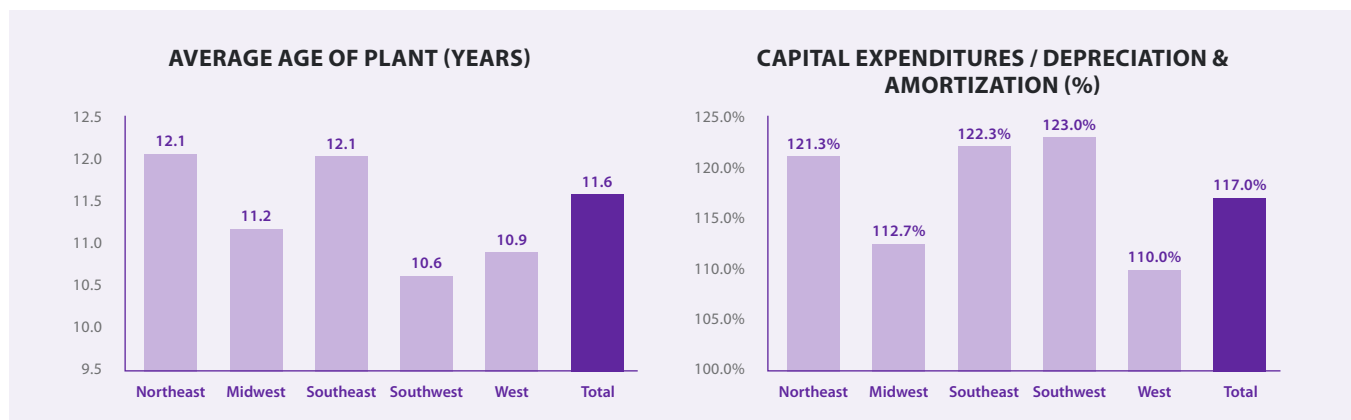
## Liquidity:

As measured by Days Cash on Hand, the region with the strongest liquidity position is the Southwest while the weakest region is the Northeast. For the other liquidity metrics, the Midwest provides the highest medians as they relate to leverage where the Midwest has the lowest ratio of Long-Term Debt / Capitalization.



## Capital Spending:

The Southwest had the highest capital investment as analyzed to depreciation expense and therefore has the lowest Average Age of Plant. Interestingly, the Southeast had the second highest capital investment yet held one of the highest years in Average Age of Plant. The Midwest while investing the fourth lowest of the five regions had the third lowest Average Age of Plant and below the aggregate median of 11.6 years. Further, the West which was last in capital investment as a percentage of depreciation compared favorably at second in the Average Age of Plant. Similarly, the Northeast held the third highest investment as measured to its depreciation expense but held one of the highest Average Age of Plant.





## OBSERVATIONS & CONCLUSIONS

**Profitability Ratio Conclusion:** Based on the data, we can conclude there is a financial and operating performance benefit to being a larger hospital as measured by total revenue. However, there are categories of total revenue where an increase in size may result in a decrease in profitability. Operating EBIDA Margin and EBIDA Margin both show a slightly positive trend associated with increasing revenue, but there are minimal differences between the strongest and weakest medians, and it is clear that profitability metrics weaken at the greater than \$5 billion total revenue category. Smaller revenue entities have as strong or stronger outcomes as compared to larger revenue based entities. From a geographic perspective, the strongest regions are the West, Midwest and Southwest whereas the weakest regions are the Northeast and Southeast.

**Leverage Ratio Conclusion:** Health systems and hospitals hold similar relative levels of debt across all revenue ranges. Long-Term Debt / EBIDA and Long-Term Debt / Capitalization both show minimal trend associated with total revenue, and the range of results is extremely narrow. The data does not conclude that a hospital with higher or lower revenue would be more or less leveraged. From a geographic perspective, the strongest region is the Midwest followed by the Southwest, whereas the weakest region is the Northeast.

**Liquidity Ratio Conclusion:** While potentially on an absolute basis, health systems and hospitals with greater revenue have more cash reserves. However, comparing on an equal basis of daily expenses that may not be true. Analyzing the data sets, entities with revenue of \$.75 billion to \$1 billion had the highest measure of Days Cash on Hand. Those health systems which have greater than \$5 billion in revenue only held less than a 10% advantage to those whose revenue were between \$.5 to \$.75 billion. While we do agree that the increasing revenue does seem to have a positive benefit when comparing the amount of debt burden to operations when measuring MADS Coverage, it should be noted that the second highest coverage was with entities in the \$.75 to \$1 billion at 5.0x. From a geographic perspective, the strongest regions are the Midwest and Southwest, whereas the weakest regions are the Northeast and West.

**Capital Spending:** Based on the data, we can conclude hospitals with lower revenue have a fixed asset base in greater need of reinvestment when compared to health systems and hospitals with higher total revenue. This is evident by a higher Average Age of Plant median ratio and lower Capital Expenditure / Depreciation & Amortization ratio. Health Systems and hospitals in the \$3 to \$4 billion had the highest capital expenditure to depreciation expense at 182.4%, a nearly 17% increase to the second highest at 156.3% for entities with revenue of \$4 to \$5 billion. Interestingly, health systems and hospitals with revenue of \$.5 to \$.75 billion had the fourth highest capital investment as a percentage of depreciation at 133.9%. From a geographic perspective, the strongest region is the Southwest while the weakest region is the Northeast.

## | CONTACTS

**JOHN HANLEY**

Senior Managing Director  
Head of Healthcare Investment  
Banking  
jhanley@ziegler.com  
312-596-1596

**SCOTT WINTER, CFA**

Managing Director  
Healthcare Investment Banking  
swinter@ziegler.com  
312-596-1597

**THOMAS SPIEGEL, CFA**

Associate  
Healthcare Investment Banking  
tspiegel@ziegler.com  
312-596-1555



## | CONTACT US

### **ZIEGLER**

1 North Wacker Drive  
Suite 2000  
Chicago, IL 60606

**800 366 8899**

**[askziegler@ziegler.com](mailto:askziegler@ziegler.com)**



#### *Disclaimer Statement*

*Information contained or referenced in this document is for informational purposes only and is not intended to be a solicitation of any security or services.*

*B.C. Ziegler and Company | Member SIPC & FINRA*



**Ziegler**

CAPITAL :: INVESTMENTS :: ADVICE