

What Happens When a Hospital Buys a Nursing Home?

An Examination of the Effects of Hospital Vertical Integration into Skilled Nursing Facilities on Hospital Operating Margin

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This study was supported by the Center for Outcomes and Effectiveness Research and Education at the University of Alabama at Birmingham.

The authors have disclosed that they have no significant relationship with, or financial interest in, any commercial companies pertaining to this article.

ABSTRACT

As value based payment mechanisms linking reimbursement to quality outcomes along the care continuum become more prevalent, hospital managers are focusing on ways to improve quality of care and cost of care metrics through the integration of providers along the care continuum. Hospital vertical integration into Skilled Nursing Facilities (SNFs) is one strategy adopted to develop more integrated systems which has the potential to enable hospitals to perform better and manage the pressures of value based payment systems. The purpose of this paper is to examine the relationship between hospital vertical integration into SNFs and financial performance. Using Transaction Cost Economics as a theoretical framework, we use a longitudinal panel study design with hospital and year fixed effects to examine the relationship between hospital vertical integration into skilled nursing facilities and hospital financial performance, as measured by operating margin. Overall, we found very little evidence that there is a significant relationship between hospital vertical integration into SNFs and hospital financial performance. The findings of this study are important because they provide valuable insight into our understanding of the outcomes organizations may observe as a result of adopting a vertical integration into SNF strategy. In addition, it also suggests that hospital managers may be motivated by non-financial goals or objectives when choosing to adopt a vertical integration into SNF strategy.

INTRODUCTION

Value-based payments now link hospital financial performance to patient outcomes such as total cost of care and readmissions. As a result, hospital managers are now focusing on effective ways to improve such outcomes.¹ Experts have predicted that, in response to these new reimbursement policies, including readmission penalties, providers along the continuum of care may consolidate, which would include hospitals vertically integrating into skilled nursing facilities (SNFs).² SNFs provide short-term nursing care to patients recovering from an acute care episode and help patients in the rehabilitation process. It is estimated that Medicare spent \$26.5 billion on SNFs in 2013, up from 19.5 billion in 2008.³ Hospital integration with SNFs may enable providers to implement processes consistent with better coordination of care, thus maximizing reimbursements from value based payments.

Studies examining vertical integration in healthcare and financial performance are limited and their findings inconsistent.⁴ In the context of managed care, Wang, Wan, Clement, and Begun found that hospital vertical integration into SNFs was negatively related to financial performance.⁵ Studies examining hospital vertical integration into other service lines also have inconsistent findings. Studies examining hospitals vertically integrating with physician practices found that financial performance improved.⁶ Meanwhile, greater levels of hospital diversification were associated with poorer financial outcomes,⁷ and studies examining other, non-financial

¹ T. H. Hogan et al., "Hospital Vertical Integration into Subacute Care as a Strategic Response to Value-Based Payment Incentives, Market Factors, and Organizational Factors: A Multiple-Case Study," *Inquiry* 55 (2018); T. C. Tsai et al., "Hospital Board and Management Practices Are Strongly Related to Hospital Performance on Clinical Quality Metrics," *Health Aff (Millwood)* 34, no. 8 (2015).

² Robert A Berenson et al., "The Growing Power of Some Providers to Win Steep Payment Increases from Insurers Suggests Policy Remedies May Be Needed," *Health Affairs* 31, no. 5 (2012); P. D. Shay and S. S. Mick, "Post-Acute Care and Vertical Integration after the Patient Protection and Affordable Care Act," *J Healthc Manag* 58, no. 1 (2013); J. Zigmond, "2010 Outlook. Post-Acute: M&a on the Way," *Mod Healthc* 40, no. 1 (2010).

³ "Report to Congress: Medicare Payment Policy.," (Washington, DC: MedPAC, 2017); Medicare Payment Advisory Commission, *Report to the Congress: Medicare and the Health Care Delivery System* (MedPAC, 2013).

⁴ Harry D Holt et al., "Organizing for Performance: What Does the Empirical Literature Reveal About the Influence of Organizational Factors on Hospital Financial Performance?," in *Biennial Review of Health Care Management* (Emerald Group Publishing Limited, 2011).

⁵ B. B. Wang et al., "Managed Care, Vertical Integration Strategies and Hospital Performance," *Health Care Manag Sci* 4, no. 3 (2001).

⁶ N. Bray et al., "An Examination of Winners and Losers under Medicare's Prospective Payment System," *Health Care Manage Rev* 19, no. 1 (1994); J. B. Goes and C. Zhan, "The Effects of Hospital-Physician Integration Strategies on Hospital Financial Performance," *Health Serv Res* 30, no. 4 (1995); J. R. Wheeler, T. M. Wickizer, and S. M. Shortell, "Hospital-Physician Vertical Integration," *Hosp Health Serv Adm* 31, no. 2 (1986).

⁷ L. R. Burns, G. Gimm, and S. Nicholson, "The Financial Performance of Integrated Health Organizations," *J Healthc Manag* 50, no. 3 (2005); Lawton R Burns et al., "The Impact of Hospital Ownership Conversions: Review of the Literature and Results from a Comparative

organizational performance metrics showed that vertically integrated, hospital-based skilled nursing facilities were better able to handle high-acuity patients and had fewer readmissions than stand-alone facilities.⁸ Despite the potential benefit for hospitals of vertically- integrating into SNFs, to our knowledge, no prior study has examined the financial performance implications of hospitals upon adopting a vertical integration into SNF strategy. Examining how hospital vertical integration into SNFs affects overall financial performance may be an important first step in understanding how current market forces and policy changes may ultimately shape health care organization decisions and market dynamics.

The purpose of the current study is to estimate changes in the financial performance of hospitals that vertically integrate into SNFs. To study this phenomenon, we combine several national data sources from 2008-2011 representing a national sample of short-term general hospitals. We merge this data with CMS cost reports to estimate changes in hospital financial performance one and two years following vertical integration into SNFs. Our findings will be beneficial to hospital and health system decision-makers seeking to understand how vertical integration strategies may impact their organization's financial performance. In addition, our findings may be of interest to policy-makers attempting to design and implement reimbursement models that incentivize effective organizational strategies.

THEORY AND HYPOTHESES

Transaction cost economics (TCE) provides a theoretical framework to understand the relationship between vertical integration into SNFs and financial performance.⁹ According to TCE, there are transaction costs for every firm, which refer to the cost of acquiring a good or service such as personnel, equipment, and all other parts of the process through a marketplace, as compared to developing it within the firm.¹⁰ External transfers refer to the process of buying from a provider outside of the organization on a marketplace. Within the context of this research, transaction costs refer to the costs associated with managing relationships with SNFs where patients are transferred, the cost of transferring medical records to SNFs, costs incurred while following up with patients discharged to a SNF, and any loss of reimbursements experienced as a result a poor quality care experienced at a SNF (e.g., value-based payment models that penalize readmissions).

TCE has been the basis for understanding and explaining vertical integration within hospitals and health systems, especially within the context of coordinated delivery systems.¹¹ TCE

Field Study," in *Biennial Review of Health Care Management: Meso Perspective* (Emerald Group Publishing Limited, 2009).

⁸ M. Rahman, J. S. Zinn, and V. Mor, "The Impact of Hospital-Based Skilled Nursing Facility Closures on Rehospitalizations," *Health Serv Res* 48, no. 2 Pt 1 (2013).

⁹ Jeffrey T Macher and Barak D Richman, "Transaction Cost Economics: An Assessment of Empirical Research in the Social Sciences," *Business Politics* 10, no. 1 (2008).

¹⁰ Oliver E Williamson, "The Economics of Organization: The Transaction Cost Approach," *American Journal of sociology* 87, no. 3 (1981).

¹¹ G. J. Bazzoli et al., "A Taxonomy of Health Networks and Systems: Bringing Order out of Chaos," *Health Serv Res* 33, no. 6 (1999); Stephen S Mick and Douglas A Conrad, "The Decision to Integrate Vertically in Health Care Organiz," *Journal of Healthcare Management* 33, no. 3 (1988).

theory explains that hospitals vertically integrate in an effort to gain economies of scale.¹² We submit that hospitals that are vertically integrated with SNFs may be able to reduce monitoring and coordination costs and provide services at lower cost, which should positively impact hospital financial performance.¹³

According to TCE, hospital vertical integration into SNFs may bring a reduction in costs associated with transitioning patients to SNFs.¹⁴ Hospital vertical integration into SNFs places both sets of providers under the same governance structure, and this single structure may eliminate many of the transactions between these entities. Costs are reduced in at least two ways: (1) improving organizational processes in ways that reduce communication and coordination costs associated with transitioning patients, and (2) aligning goals in ways that reduce overhead and management costs (e.g., monitoring partner performance). Under a single organizational structure, vertically integrated hospitals may be better able to communicate with their SNF counterparts and enact processes to manage patients at risk for costly readmissions. The single organizational entity may also better align organizational goals. For example, non-vertically integrated SNFs may be incentivized to keep patients for as long as a payer will allow. This behavior is not necessarily beneficial to hospitals, as it reduces the reimbursement they will receive through a bundled payment. Aligning hospitals and SNFs under a single, vertically integrated entity may better align the financial goals of the organizations and may help eliminate practices that are inefficient. In sum, based on TCE theory, we submit that hospital vertical integration with SNFs will reduce transaction costs associated with transitioning patients from the hospital to SNFs and result in better financial performance for hospitals. Therefore, we propose the following hypothesis:

Hypothesis: Hospital vertical integration into SNFs is positively associated with hospital financial performance.

METHODOLOGY

Using a longitudinal panel study design with hospital and year fixed effects, we examined the relationship between vertical integration into SNFs and hospital financial performance. General, acute care, non-federal hospitals were examined from the following data sources: (1) The American Hospital Association's (AHA) Annual Survey of Hospitals; (2) The Center for Medicare and Medicaid's (CMS) Medicare Cost Report; (3) The Area Resource File; and (4) The Rural Urban Commuting Area (RUCA) codes. All data sources spanned the years 2008-2011, with the exception of the Area Resource File and the Rural Urban Commuting Area Codes, which contained market-level characteristics from 2010.

¹² J. A. Alexander and M. A. Morrissey, "Hospital-Physician Integration and Hospital Costs," *Inquiry* 25, no. 3 (1988).

¹³ G. J. Bazzoli et al., "The Financial Performance of Hospitals Belonging to Health Networks and Systems," *ibid.* 37 (2000).

¹⁴ Susan Lehrman and Karen K Shore, "Hospitals' Vertical Integration into Skilled Nursing: A Rational Approach to Controlling Transaction Costs," *ibid.* (1998).

Dependent Variable

Our primary dependent variable was operating margin, the most common financial performance measure used in the hospital literature.¹⁵ Using the Medicare Cost Report, we calculated operating margin as a hospital's total operating revenue minus total operating expenses, divided by total operating revenue. Our primary dependent variables were operating margin, using one-year and two-year lagged outcomes to reflect the possibility that operational changes, and subsequent impact of integration into SNFs, may not be evident until sometime after the vertical integration has taken place.

Independent Variables

Vertical integration was our primary independent variable. Using the American Hospital Association (AHA) annual survey data, hospitals were deemed to have vertically integrated into SNFs if they indicated that they had a SNF at their hospital. The variable was operationalized as 1 for vertically integrated and 0 for not vertically integrated. We also explored the effects of vertical integration by various hospital variables including: system affiliation (member of a hospital system or not), rural or urban location, and hospital ownership status (for-profit, not for-profit, and non-federal governmental). These variables were selected because each is associated with financial performance in the literature.¹⁶ We used the AHA data set to identify hospital system affiliation, and hospital ownership. Rural and urban location was identified using RUCA codes.

DATA ANALYSIS

In our main models, we estimate the change in operating margin for hospitals that shift to being vertical integrated into SNF during the study period (e.g., hospital fixed effects). Thus, each hospital serves as its own control. In such models, time invariant hospital-level characteristics are controlled for within the analytical framework, and are not included as control variables.

Descriptive statistics for all variables were examined to determine the need for any possible transformation to meet the assumptions of our statistical analyses. Next, using a hospital-level fixed effects model, we calculated bivariate changes in operating margin for hospitals that newly engaged in vertical integration into SNFs. Hospital-level fixed effects isolates the change in hospital vertical integration and its impact on operating margin. Our primary analyses modeled the impact of vertical integration into SNFs on hospital operating margin. We ran two main models, lagged for one and two years, respectively. In such models, time invariant hospital-level

¹⁵ Bazzoli et al., "The Financial Performance of Hospitals Belonging to Health Networks and Systems."; G. J. Bazzoli et al., "Hospital Financial Condition and the Quality of Patient Care," *Health Econ* 17, no. 8 (2008); Carol Molinari et al., "Does the Hospital Board Need a Doctor? The Influence of Physician Board Participation on Hospital Financial Performance," *Medical Care* (1995); Debra H Tennyson and Myron D Fottler, "Does System Membership Enhance Financial Performance in Hospitals?," *Medical Care Research Review* 57, no. 1 (2000); Thomas TH Wan, Allen Ma, and Blossom YJ Lin, "Integration and the Performance of Healthcare Networks: Do Integration Strategies Enhance Efficiency, Profitability, and Image?," *International Journal of Integrated Care* 1, no. 2 (2001).

¹⁶ Bazzoli et al., "The Financial Performance of Hospitals Belonging to Health Networks and Systems."; Karen Eggleston et al., "Hospital Ownership and Quality of Care: What Explains the Different Results in the Literature?," *Health Economics* 17, no. 12 (2008); E. B. Keeler et al., "Hospital Characteristics and Quality of Care," *JAMA* 268, no. 13 (1992).

characteristics are controlled for within the analytical framework and are not included as control variables.

As a secondary analysis, we examined whether the impact of vertical integration on financial performance varied as a function of different organizational characteristics. We ran stratified analyses by hospital characteristics, including hospital location (rural and urban), hospital ownership type (investor-owned, not-for-profit and non-federal, governmental) and system membership. All analyses were conducted in STATA version 13.0 and statistical significance was denoted at the $p < 0.01$ and $p < 0.05$ levels.

RESULTS

In our first model (hospital vertical integration into SNFs and operating margin with a one-year lag), there were 3,862 unique hospitals representing 13,676 hospital-year observations. The mean one-year lag operating margin was -3.26% (Table 1). The majority of hospitals in our analyses were not-for-profit (62%), followed by 23% non-federal, governmental hospitals and 15% investor-owned hospitals. 50% of the hospitals in the sample were in rural areas. In our second model (hospital vertical integration into SAC and operating margin with a two-year lag), there were 3,815 unique hospitals representing 12,575 hospital-year observations. The mean two-year lag operating margin was -3.88%. The majority of hospitals were not-for-profit (62%), followed by 24% non-federal, governmental hospitals and 14% investor-owned. 51% of the sample hospitals were in rural areas.

Table 1. Descriptive Statistics

	Model 1 Operating Margin 1-Year Lag	Model 2 Operating Margin 2-Year Lag
Hospital-Year Observations	12,575	13,676
Unique Hospitals	3,815	3,862
<i>Independent Variables: N (%)</i>		
Rural	6,205 (50%)	6,813 (51%)
Urban	6,133 (50%)	6,595 (49%)
System-Affiliated	5,083 (62%)	5,577 (64%)
Not-for-profit	5,778 (62%)	6,307 (62%)
Investor-owned	1,363 (15%)	1,479 (14%)
Non-federal, governmental	2,103 (23%)	2,419 (24%)
<i>Dependent Variables: Mean (SD)</i>		
Operating Margin 1 Year Lag	-3.26 (17.02)	
Operating margin 2 year Lag		-3.88 (17.52)

We hypothesized that hospital vertical integration would be positively associated with hospital operating margin. Amongst all types of hospitals, our findings do not support this hypothesis when using either of the financial performance measures, operating margin with a one-year lag ($\beta = -0.572$, $p = 0.553$) or operating margin with a two-year lag ($\beta = 0.729$, $p = 0.414$; Table 2). When testing whether or not hospital vertical integration was positively associated with hospital financial performance among certain organizational types, there were mixed results. Among rural hospitals, the hypothesis is not supported for one-year lag operating margin ($\beta = 0.6931$, $p = 0.571$) or two-year lag operating margin ($\beta = 1.271$, $p = 0.276$). Similarly, among urban hospitals, our findings do not support this hypothesis for one-year lag operating margin ($\beta = 1.082$, $p = 0.530$) or two-year lag operating margin ($\beta = 0.667$, $p = 0.667$). Among system-owned hospitals, the hypothesis is not supported for one-year lag operating margin ($\beta = 0.587$, $p = 0.663$) or two-year lag operating margin ($\beta = 0.44$, $p = 0.689$). Among not-for-profit hospitals, the hypothesis is not supported for one-year lag operating margin ($\beta = 0.648$, $p = 0.570$) or two-year lag operating margin ($\beta = -0.786$, $p = 0.430$). Among nonfederal, governmental hospitals, the hypothesis is not supported for one-year lag operating margin ($\beta = -0.503$, $p = 0.823$) or two-year lag operating margin ($\beta = 0.385$, $p = 0.856$). Among investor-owned hospitals, the hypothesis is not supported for one-year lag operating margin among investor-owned hospitals ($\beta = 4.045$, $p = 0.126$, but is supported for two-year lag operating margin ($\beta = 5.99$, $p = 0.027$).

Table 2. Fixed Effects Results

	Operating Margin	
	Operating Margin 1-year lag	Operating Margin 2-year lag
<i>Primary Analysis</i>		
Hospital Vertical Integration into SNF	0.572 (N=12,575)	0.729 (N=13,676)
<i>Secondary Analysis</i>		
Rural Hospital Vertical Integration into SNF	0.6931 (N=6,343)	1.271 (N=6,980)
Urban Hospital Vertical Integration into SNF	1.082 (N=6,370)	0.667 (N=6,863)
System Affiliated Hospital Vertical Integration into SNF	0.587 (N=9,504)	0.444 (N=10,591)
Investor Owned Hospital Vertical Integration into SNF	4.045 (N=4,694)	5.994** (N=4,950)
Not-for-Profit Hospital Vertical Integration into SNF	0.648 (N=9,109)	-0.7868 (N=9,778)
Non-Federal Governmental Vertical Integration into SNF	-0.503 (N= 5,434)	0.385 (N=5,890)

** $p < .05$

DISCUSSION

Determining the profitability of strategic investments has become particularly important for healthcare leaders. Integrated delivery models have become a desired approach, as healthcare leaders strive to develop systems which can most effectively and efficiently provide the care for patients across the continuum of care. This study took an organizational perspective to examine the relationship between hospital vertical integration into SNFs and hospital financial performance. Management researchers have long argued that, generally speaking, vertical integration reduces transaction costs and provides financial benefits by reducing costs and improving financial performance.¹⁷ Overall, our study found little evidence that there is a significant relationship between hospital vertical integration into SNFs and operating margin.

One explanation for the absence of a robust set of relationships between hospital-SNF integration and operating margin is that reducing transaction costs (and subsequent financial performance) may not be the only motivation or criterion of success when pursuing these relationships. For example, hospitals may pursue vertical integration to solidify their public image, or fulfill their mission of providing the most comprehensive services possible for the local community, regardless of its impact on financial performance.¹⁸ Studies of vertical integration between hospitals and physician practices may also provide insights into our findings.¹⁹ For example, this research suggests that many hospitals pursue vertical integration strategies for normative, imitative reasons in response to competitor behavior, with relatively little understanding of how to effectively implement these strategies. Moreover, hospitals tend to take a passive approach to integration, and rely on existing organizational structures (e.g., standing committees; communication systems), rather than actively pursuing the integration of new organizations and their members (e.g., special integration task force).²⁰ For this reason, studies of hospital-physician integration have generally found hospital-physician integration to be associated with worse efficiency and financial performance.²¹ Similarly, the hospitals in our study may have pursued vertical integration with SNFs with relatively little understanding of how to use these strategies to reduce transaction costs in ways that could result in better operating margins. It is also possible, however, that despite the lagged operating margins used in our study, hospitals had insufficient time to capture integration efficiencies. Indeed, past research by Kastor found that the benefits of hospital mergers may take seven years or more to be realized, suggesting that financial

¹⁷ Daron Acemoglu, Simon Johnson, and Todd Mitton, "Determinants of Vertical Integration: Financial Development and Contracting Costs," *The Journal of Finance* 64, no. 3 (2009); Christine Harland et al., "Outsourcing: Assessing the Risks and Benefits for Organisations, Sectors and Nations," *International Journal of Operations Production Management* 25, no. 9 (2005); Martin K Perry, "Vertical Integration: Determinants and Effects," *Handbook of Industrial Organization* 1 (1989).

¹⁸ Lehrman and Shore, "Hospitals' Vertical Integration into Skilled Nursing: A Rational Approach to Controlling Transaction Costs."

¹⁹ L. R. Burns and M. V. Pauly, "Integrated Delivery Networks: A Detour on the Road to Integrated Health Care?," *Health Aff (Millwood)* 21, no. 4 (2002); A. E. Cuellar and P. J. Gertler, "Strategic Integration of Hospitals and Physicians," *J Health Econ* 25, no. 1 (2006).

²⁰ Lawton R Burns et al., "Just How Integrated Are Integrated Delivery Systems? Results from a National Survey," *Health Care Management Review* 26, no. 1 (2001).

²¹ Burns, Gimm, and Nicholson, "The Financial Performance of Integrated Health Organizations."; Cuellar and Gertler, "Strategic Integration of Hospitals and Physicians."

gains from hospital mergers may present with a delay.²² Thus, hospitals may still have been in the steep part of the learning curve, and may not have had enough experience with this integration strategy for it to translate into reduced transaction costs and higher operating margins.²³ Studies using longer time horizons would be beneficial in assessing whether such experiential effects may exist.

We found that investor-owned for-profit hospitals that vertically integrate into SNFs saw an improvement in operating margin two years afterwards (but no significant financial performance change after one year). These findings are consistent with a body of research that suggests investor-owned hospitals tend to implement margin-seeking strategies, such as staffing reductions, centralization of purchasing, and reducing unnecessary services.²⁴ As these hospitals seek to maximize returns for their investors, they may be motivated to find ways to make the SNF vertical integration succeed, with the objective of being profitable in the SNF entity.²⁵ Our findings suggest, however, that the impact of such strategies may take some time to materialize.

There were no significant findings regarding the financial performance of not-for-profit and non-federal governmental hospitals that vertically integrated into SNF care. It may be that these hospitals make different decisions regarding how they integrate the care after the decision to vertically integrate, or the speed in which they proceed toward integration (compared to their for-profit counterparts). For example, not-for-profit hospitals could be less likely to implement cost cutting measures, such as reducing headcount, at the newly integrated care facility, and more likely to focus on operational strategies that enable the newly integrated SNF to fully serve their community. Previous research suggests that not-for-profit hospitals may have a different motivation to vertically integrate care, such as being more focused on meeting community needs than on cost cutting and profit-seeking behaviors.²⁶

Despite the contributions of our research, our study has several limitations. First, we used data from the American Hospital's Association Annual Hospital Survey and relied on hospitals to accurately report their sub-acute care strategies. For some hospitals, the responses to these questions were inconsistent across years. Unfortunately, this is the most comprehensive data

²² J. A. Kastor, "Mergers of Teaching Hospitals: Three Case Studies," *Am J Med* 110, no. 1 (2001).

²³ Burns and Pauly, "Integrated Delivery Networks: A Detour on the Road to Integrated Health Care?."

²⁴ E. R. Becker and F. A. Sloan, "Hospital Ownership and Performance," *Econ Inq* 23, no. 1 (1985); Burns et al., "The Impact of Hospital Ownership Conversions: Review of the Literature and Results from a Comparative Field Study."; Eggleston et al., "Hospital Ownership and Quality of Care: What Explains the Different Results in the Literature?."; D. C. Grabowski et al., "Effect of Nursing Home Ownership on the Quality of Post-Acute Care: An Instrumental Variables Approach," *J Health Econ* 32, no. 1 (2013); S. C. Renn et al., "The Effects of Ownership and System Affiliation on the Economic Performance of Hospitals," *Inquiry* 22, no. 3 (1985).

²⁵ T. H. Hogan et al., "Market and Organizational Factors Associated with Hospital Vertical Integration into Sub-Acute Care," *Health Care Manage Rev* 44, no. 2 (2019); Hogan et al., "Hospital Vertical Integration into Subacute Care as a Strategic Response to Value-Based Payment Incentives, Market Factors, and Organizational Factors: A Multiple-Case Study."

²⁶ Lehrman and Shore, "Hospitals' Vertical Integration into Skilled Nursing: A Rational Approach to Controlling Transaction Costs."

source for this information. In addition, we used data from the Area Resource File, which was not available for every year of the study. This limitation is diminished by the fact that some of this data does not change significantly over time. Lastly, we used financial data from the Medicare Cost Report, which are limited to hospitals that provide care to Medicare beneficiaries. The majority of hospitals in the U.S. accept Medicare; therefore, we do not believe this impacts the generalizability of our study.

CONCLUSION

As hospitals continue to respond to the payment incentives outlined in the ACA, it is important for them to understand how various organizational strategies may impact financial performance. This study suggests that, all else equal, vertical integration into SNF improves financial performance for investor-owned hospitals, but not other hospitals. Hospital leaders and policy makers should be mindful that vertical integration with SNFs may be beneficial for some aspects of hospital operations, but financial motivations for pursuing these strategies may be misplaced. Future research could extend our work by examining a broader set of financial performance indicators and specific disease conditions. In addition, case study approaches could be used to more thoroughly understand how hospitals achieve financial returns from vertical integration in the investor-owned sector. As payment systems continue to promote cooperation amongst providers along the care continuum such as acute care and SNFs, it is critical to continue to explore the outcomes associated with vertical integration strategies.

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This study was supported by the Center for Outcomes and Effectiveness Research and Education at the University of Alabama at Birmingham.

The authors have disclosed that they have no significant relationship with, or financial interest in, any commercial companies pertaining to this article.