

COMPARATIVE ANALYSIS OF THE PERCEPTION OF THE ADVANTAGES AND DISADVANTAGES OF HOSPITAL HORIZONTAL INTEGRATION

Pavla Staňková, Šárka Papadaki, Ján Dvorský

Introduction

Economic theory suggests that consolidation of hospital ownership through the formation of multiple hospital "systems" should lead to improved hospital performance. The general view of system superiority follows from considerations of economies of scale, improved financial and other administrative management, and better access to financial capital. Still, there is little evidence demonstrating greater efficiency in system-affiliated hospitals. The majority of studies have found hospitals belonging to multiple hospital systems to be more cost than independent hospitals, raising questions regarding the social value of much of the recent growth of new inter-organizational relationships. (Carey, 2003)

The new era of healthcare system in Czech Republic started after so-called "Velvet revolution" in 1989. Until 1990, there was a network of healthcare facilities in the Czech Republic that was built on a strictly three-level territorial structure (republic, county, district). The central government controlled the planning, management and funding of the public healthcare system. The legal framework regarding the privatization of the health care sector and private health care is defined by the Act No. 160/1992 Coll., which deals with medical care in private health facilities (Earl-Slater, 1996). In the first phase, the privatization related to only a small number of independent ambulatory surgeries, in the care of small private nursing homes. The private sector grew stronger in 1993. Since the beginning of 2003, according to Act No. 290/2002 Coll., 82 district hospitals were transferred into the competence of the counties. Until the end of 2004, a total of 17 facilities were transferred to joint stock companies (the region is the sole shareholder). The main cause of the transfer efforts was the high indebtedness of the district hospitals. Transfers of regional (later city) hospitals to business companies

continued in the years to come. In 2009, there were 52 such hospitals in the Czech Republic (Institute of Health Information and Statistics of the Czech Republic, 2010). The proportion of private and public hospitals has therefore significantly changed. In 1992, there were only 3 private hospitals out of 183. In 2000, 59 of 198 hospitals were privately owned. Currently, there are 78 private hospitals out of a total of 188 hospitals (Institute of Health Information and Statistics of the Czech Republic, 2000-2013). By comparison, in Germany from 1991 to 2007, the share of all public hospitals has decreased from 46 to 32%, whereas the share of all private hospitals has increased from 15 to 30% (Herr, 2010).

The integration of Czech hospitals can be subdivided in three typologies into two aspects:

- a) From the ownership standpoint, there are two type of ownership: **public** ownership or **private** ownership.
- b) From the accounting typology standpoint, there are two type of consolidation: **mergers**, hospitals consolidated into one corporate body, and **holding**, those which do not have financial cohesion (managed as autonomic accounting entities).
- c) From the integration typology standpoint, there are two types of integration: **vertical** integration and **horizontal** integration. Horizontal integration is defined as the coordination of activities across operating units that are at the same stage in the process of delivering services. Horizontal integration involves grouping organizations that provide a similar level of care under one management umbrella. Vertical integration is defined as the coordination of services among operating units that are in different stages of the process of delivery patient services (Pan American Health Organization, 2008). See Tab. 1.

Tab. 1: The overview of basic hospital integrations in the Czech Republic

Integration	Number of hospitals	Ownership	Accounting typology	Type of integration
Health holding Královéhradecký region	5	public	holding	horizontal
Health holding South Bohemia Hospitals	8	public	holding	horizontal
Ústecký Regional Hospital	5	public	holding	horizontal
Hospital holding of the Středočeský region	5	public	holding	horizontal
Health holding of the Plzeň region	6	public	merger	horizontal
Hospitals of the Pardubický region	5	public	holding	horizontal
AGEL	11	private	holding	horizontal and vertical
VAMED MEDITERA	9	private	holding	horizontal and vertical

Source: own

The present article focuses on horizontal integrated hospitals in the Czech Republic. The main aim of the research was to answer the following research questions:

- Does the perception of advantages and disadvantages of participation in integration depend on the length of the integration’s lifetime?
- Does the perception of advantages and disadvantages of participation in integration depend on the kind of integration?

In total, 27 hospitals which are a part of horizontally integrated integration have been contacted. Of the total number of hospitals, 45% responded and the research was therefore submitted by 15 managers of hospitals. Based on literary review, the analysis of the situation in the Czech Republic was defined. Further consideration was given to revision via consultations with the representatives of hospital management, following generally presented advantages:

- Service quality improvement;
- Financial situation improvement;
- Cost reduction;
- Mutual trouble management;
- Better access to financial resources (donations, loans, etc.);
- The enhancement of negotiating skills in relation to the suppliers;
- Mutual solution of critical situations;
- Others, not defined in advance.

Among the main defined disadvantages of rating in the survey were:

- Increased administrative load;
- Cost growth;
- Decreased autonomy;
- More complicated process of promoting changes;
- More complicated communication;
- Others, not defined in advance.

Dependence of data was performed using Hamann’s association coefficient through SPSS statistics program. Fisher’s exact test was used to verify the existence of statistically significant dependence.

1. Theoretical Background

Integration and strategic alliances of companies represent a rapidly growing phenomenon in all industries. The basic starting point for the formation of alliances is cooperation. Stejskal, Mikušová Meričková and Prokop (2016) confirmed in their research the positive influence of cooperation between schools and the Czech machinery industry. The results allow us to state that enterprises in the Czech Republic’s machinery industry which cooperate with universities and public research centres demonstrate a greater positive influence on their overall performance. Universities represent important collaborative partners in the Czech Republic’s machinery industry. These collaborations between enterprises

and universities positively affect enterprises' creation of innovation – in both the product and process. The higher level of cooperation on the level of business – university alliances is studied by Georgea, Zahrab and Wood (2002). They compared firms with established links to universities and firms without such links. The results confirm that links with universities can enhance product development and other key indicators of a company's innovative outputs such as patents. On the other hand, they did not find statistically significant differences in financial performance (measured by the ratio of net sales to assets) between firms with university linkages and those without these linkages.

The authors pay attention to both the vertical and horizontal integration in different areas of the economy. Li and Tang (2010) find that vertical integration in the information technology industry is not monotonic. Firstly, vertical integration has initially a positive effect on innovative performance but this relationship subsequently turns negative at higher levels of vertical integration. Vertical integration is more likely to strengthen a firm's knowledge base in related technological areas due to the advantage of knowledge transfer and facilitation of appropriation. On the other hand, vertical integration leads to inflexibility, which in turn tends to impede innovation, thereby creating the potential for the entry of new competitors to exploit the capabilities which they have developed in different contexts. Advantages of vertical integration have also been confirmed in the pharmaceutical industry. According to Liu (2016), vertical integration brings better coordination within the integrated firm, and boosts its investment incentive. However, it is only mutually beneficial for firms to integrate when innovation is important at both levels, in which case multiplication of hold-up problems lead to under-investment, and integration reduces the inefficiency. The author concludes that when innovation is only relevant at one level, firms prefer to stay vertically separated.

The positive impact of horizontal integration was confirmed, for example, by SMEs (small and medium enterprises). Zenga, Xieb and Tamc (2010) show more findings which demonstrate that there are significant positive relationships in inter-firm cooperation, cooperation with intermediary institutions, cooperation with research organizations and innovation

performance of SMEs. Of these, inter-firm cooperation has the most significant positive impact on the innovation performance of SMEs. According to this study, the result reveals that the linkage and cooperation with government agencies do not demonstrate any significant impact on the innovation performance of SMEs. In addition, these findings confirm that the vertical and horizontal cooperation with customers, suppliers and other firms play a more distinct role in the innovation process of SMEs than horizontal cooperation with research institutions, government agencies and universities or colleges.

Integration and consolidation of healthcare organizations are not unusual themes in professional resources. The specialists observe especially vertical and horizontal integration of the hospitals and its influence on the increase of effectiveness of healthcare provision. The subjects of that research are especially hospital consolidations, alliances, holdings, integrated hospitals and mergers. However, the results of those studies show that the results are not always conclusively positive.

Robinson and Casalino (1996) compare two alternative forms of organizational coordination: "vertical integration," based on unified ownership, and "virtual integration," based on contractual networks. They argue that the advantage of vertical integration and unified ownership (as opposed to contractual relations and market bargaining) lies in the potential for coordinated adaptation to changing environmental circumstances. Vertically integrated organizations manifest a unity of control and direction that allows them to focus all of the energies of their subunits on the same goals and strategies. There is a single mission statement, a single hierarchy of authority, and a single bottom line. This unity of purpose and performance is essential under managed care and underpins the drive toward vertically integrated delivery systems that incorporate primary care, speciality panels and hospitals. The advantages of virtual integration through contractual relations (as opposed to vertical integration through unified ownership) lie in the potential for autonomous adaptation to changing environmental circumstances. Organizational independence preserves the risks and rewards for efficient performance rather than replacing them with salaried employment. Coordination can be achieved through negotiated payments

and performance guarantees rather than through managerial authority.

Spang, Arnould and Bazzoli (2007) examine the direct impact of urban horizontal hospital consolidations on hospital efficiency and prices. According to these authors, efficiencies from consolidation may come through several means.

- Consolidating hospitals may be able to concentrate very costly and highly specialized services in one physical location, reducing average costs.
- Hospitals can compete on the basis of price and, therefore, have an incentive to merge highly technical departments to reduce capital and labour costs.
- Consolidating hospitals may also take advantage of cost savings by combining administrative duties to reduce overhead or contracting costs in non-revenue producing cost centres.
- Hospitals may also increase efficiency by combining units to reduce excess capacity.
- With advances in medical technology and pressures from insurance companies to lower the cost of care, patients are increasingly being treated on an outpatient basis. This increase in outpatient care increases excess bed capacity and makes it possible for hospitals to reduce cost by concentrating inpatient services in one or more merging facilities.

Some studies which directly examine merging hospitals have found that hospitals achieved cost savings through merger, for example:

- Sinay and Campbell (1995) suggested that merging hospitals could obtain operational efficiencies through merger.
- Connor, Feldman and Dowd (1998) and Connor, Feldman, Dowd and Radcliff (1997) have found that cost savings were generally greater for mergers of hospitals of similar size, with a higher degree of duplicative services and lower pre-merger occupancy rates than nonteaching or non-system hospitals; and there is also some evidence that post-merger price reductions were smaller in less competitive markets.
- Dranove and Lindrooth (2003) examined two different type of consolidation: consolidation and merger. They did not confirm that consolidation into systems leads to cost savings. On the other hand,

they found significant, robust and persistent savings for merger.

- Harris, Ozgen, and Ozca (2000) illustrated that mergers do increase a hospital's level of efficiency. This indicates the role of scale efficiency as a dominant source of improvement in the inefficiency of hospitals involved in horizontal mergers, but not for technical efficiency.
- Chu and Chiang (2013) indicate that smaller hospitals located in competitive areas are more efficient, as evidence by shorter patient stays, higher occupancy rates and lower mortality rates. Based in Taiwan, the study infers that SHAs do improve the performance of the participating hospitals.

Generally, researchers found that merger-related cost savings were greater in for-profit hospitals, non-teaching hospitals, and hospitals located in markets with higher hospital penetration.

Even if the results are not always unambiguous, according to research results we can define the main potential benefits of the integration (Chu & Chiang, 2013):

- to achieve economies of scale through socially optimal combinations of price and quality;
 - to provide access to additional resources through collective purchasing and shared staffing arrangements;
 - to reduce costs and improve medical technology through information exchange.
- Plochg, Delnoij, & Klazinga (2006) have emphasized the advantages of holdings (managed as autonomic accounting entities) which differ from mergers in that the member hospitals retain their decision making powers.

2. Data and Methods

In the present comprehensive statistical survey (all the hospitals in the Czech Republic which are part of the integration were addressed), 27 hospitals were contacted. For the research we used questionnaires which included a total of 18 closed questions. The research was conducted via e-mail, whereby the directors of individual hospitals were contacted, and took place between April and August 2016. Of the surveyed hospitals, we received 15 responses; this represents a 45% return. In total, 1,200 statistical data were detected and from that amount, 300 (25%) data were used in the solution of the present research.

To address the research questions, the following statistical characteristics were used: the type of hospital corporation (holding, merger), the scope of the hospital in the holding company, the benefits in terms of management (improvement of the service quality, improvement of the financial situation, cost reduction, common complaint resolution, better access to financial resources, increasing of the negotiating skills in relation to suppliers, improvement of negotiating skills to the health insurance companies, joint crisis management) and disadvantages in terms of individual directors (administration, costs, autonomy, promoting changes, communication).

In the process of data collection, we used various tools for descriptive statistics (charts, diagrams, descriptive characteristics – count). Consequently, the use of the following methods was applied: absolute and relative frequency of statistical code, sorting according to one or more of the statistical characters and measure of association (association coefficient (1) and Hamann rate of association (2)) (Trebuňa & Halčíková, 2012).

$$r_{AB} = \frac{(a*d)-(b*c)}{\sqrt{(a+b)*(a+c)*(c+d)*(b+d)}} \quad (1)$$

$$S_H = \frac{a+d-b-c}{a+b+c+d} \quad (2)$$

We carried out the calculations according to the association coefficient and Hamann rate of association because of the smaller number of data. In case of differences between single test results greater than 0.30, the relevant factors will not be associated with dependence in relation to the type of hospital integration and the scope of the hospital holding. For graphic visualization of

simple sorting of hospital integration types and hospital competence, we have used a pie chart of relative abundance. To verify the existence of statistically significant dependences of two qualitative statistical characteristics (i.e. dependences between general advantages/disadvantages) respectively between the overall perception and a type of hospital integration, respectively the length of a period of the hospital in such holding, we used Fisher test. Fisher test has utility for the association table size 2 x 2 and in particular for low numbers in selected groups of hospitals according to factors such as type of integration and scope. We set the limit of statistical significance of the Fisher test to 5% (significance level 0.05). The counts were carried out via statistical software SPSS Statistics.

3. Results

The structure of hospitals by type of hospital integrations was as follows: the number of hospitals in the holding was 12 and the number of hospitals managed by a legal entity was 3. The structure of the hospitals according to length of operation was divided into two groups, namely in the group of hospital with the length of scope to 10 years (title: -10) and the hospital with the length of scope over 10 years (title: 10+). The relative number of hospitals is expressed in the following Tab. 2.

If we firstly focus on the general question of how the hospital directors perceive the current trend of hospitals integration, we can see that 60% of the directors of these hospitals see the integration positively. Approximately one third does not. Only 13% of respondents then see the integration without an opinion. For results, see Tab. 3.

Tab. 2:

The absolute and relative number of hospitals according to the kind of integration and number of years in the integration

	Kind of integration	
	Absolute frequency	Relative frequency
holding	12	80%
merger	3	20%
Number of years in the integration		
-10	9	60%
10+	6	40%

Source: own

Tab. 3: The perception of the trend of hospital integrations from the hospital directors' point of view

	Relative frequency
Positive attitude	60.0%
Negative attitude	13.3%
No clear attitude	26.7%

Source: own

Tab. 4: Perception of hospital involvement in the integration in terms of the directors of hospitals

	Relative frequency
Advantage	66.7%
Disadvantage	33.3%

Source: own

Tab. 5: Measures of association of dependence of the overall perception of the hospital in terms of legal form

Overall perception	Kind of integration				Measures of association		Fisher Test (p-value)
	Absolute frequency		Relative frequency		Association coefficient	Hamann coefficient	
	Holding	Merger	Holding	Merger			
Advantage	9	1	75%	33%	0.354	0.467	0.241
Disadvantage	3	2	25%	67%			

Source: own

Tab. 6: Measures of association of dependence of the overall perception of the hospital in terms of the existence of the integration

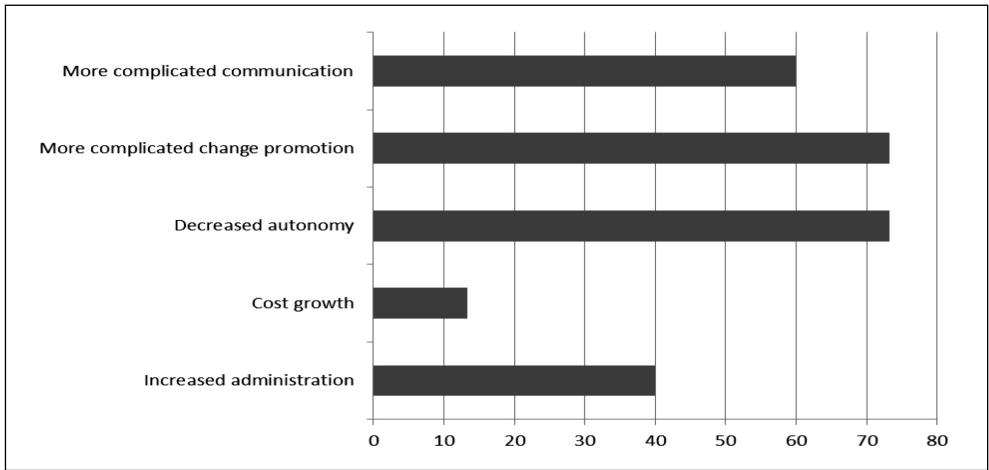
Overall perception	Number of years in the integration				Measures of association		Fisher Test (p-value)
	Absolute frequency		Relative frequency		Association coefficient	Hamann coefficient	
	-10	10+	-10	10+			
Advantage	5	5	56%	83%	-0.289	-0.200	0.580
Disadvantage	4	1	44%	17%			

Source: own

Another question was how whether managers perceive hospital integrations as an advantage or a disadvantage: 66.7% said that hospital integration is perceived as an advantage. The specific advantages and disadvantages of the integrations will be subject to further examination. See Tab. 4.

If we focus on the complex evaluation of the advantage or disadvantage of the hospital integrations from its director's point of view, it is possible to test two association rates, i.e. the kind of integration and the length of being a part of the integration. In the first mentioned case, there is no difference between the individual

Fig. 1: The disadvantages resulting from the integration of hospitals



Source: own

Tab. 7: Measures of association of dependence of disadvantages and kind of integration

Disadvantages	Response of the hospital	Kind of integration				Measures of association		Fisher Test (p-value)
		Absolute frequency		Relative frequency		r_{AB}	S_H	
		Holding	Merger	Holding	Merger			
Increased administration	Yes	4	2	33%	67%	-0.272	-0.333	0.525
	No	8	1	67%	33%			
Cost growth	Yes	1	1	8%	33%	-0.294	-0.600	0.371
	No	11	2	92%	67%			
Decreased autonomy	Yes	8	3	67%	100%	-0.302	0.067	0.516
	No	4	0	33%	0%			
More complicated change promotion	Yes	8	3	67%	100%	-0.302	0.067	0.516
	No	4	0	33%	0%			
More complicated communication	Yes	7	2	58%	67%	-0.068	0.067	1.000
	No	5	1	42%	33%			

Source: own

kinds of integrations. From the results, we can observe a weak positive dependence between the responses to the overall perception of the hospital from the kind of integration point of view (see Tab. 5).

Taking into account the length of an integration, there is no positive correlation between the length of involvement in integration and whether directors see it as an advantage or disadvantage (see Tab. 6).

We also examined disadvantages which an integration of hospitals accrues as reported by individual directors. 73% of respondents stated that the disadvantage is the complex process of promoting changes and reduced autonomy of the hospital. Fully 60% see the disadvantage of the integration in terms of more difficult communication. These results are illustrated in Fig. 1.

The subject of further research was to determine what hospital directors perceive as advantages and disadvantages regarding both individual kinds of integrations and length of involvement.

The results of Fisher Test (see Tab. 7) show that there exists no dependence between the rating of general disadvantages of the hospitals in relation to the kind of hospital integration, because the p-value of Fisher test is higher than the level of testing significance stated by us.

From the results we can see that especially in mergers, the administration is considered as a negative feature; on the contrary, in holdings, the administration is considered as not so big a disadvantage. This is also

obvious from the weak negative dependence. The promotion of changes in the mergers is also considered a disadvantage; however, in holding hospitals, this factor is weakly negative. Strong negative dependence was confirmed in cases of disadvantage of autonomy, where the question was responded to negatively in holding hospitals, whereas the merger hospitals responded almost positively. In Tab. 8, disadvantages are compared with respect to the length of involvement of the hospital in the integration.

The results of Fisher Test (see Tab. 5) indicate that there exists a statistically significant dependence (p-value = 0.027) between the administrative disadvantage rating of the hospital and the length of its involvement in the integration.

In the next section, our attention will be focused on the statistical pattern of the advantage in relation to statistic pattern "Type of the integration" and "Number of the years in the integration".

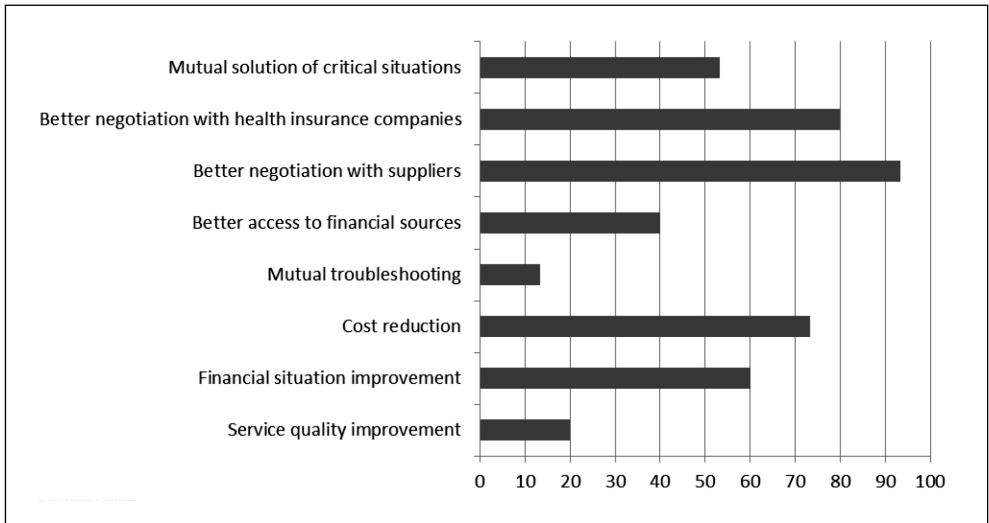
We will also examine the advantages in integrations which were reported by hospital

Tab. 8: Measures of association of dependence of disadvantages and the length of involvement of the hospital in the integration

Disadvantages	Response of the hospital	Number of years in the integration				Measures of association		Fisher Test (p-value)
		Absolute frequency		Relative frequency		r_{AB}	S_H	
		-10	10+	-10	10+			
Increased administration	Yes	6	0	67%	0%	0.667	0.600	0.027
	No	3	6	33%	100%			
Cost growth	Yes	2	0	22%	0%	0.320	0.067	0.485
	No	7	6	78%	100%			
Decreased autonomy	Yes	8	3	89%	50%	0.431	0.467	0.235
	No	1	3	11%	50%			
More complicated change promotion	Yes	7	4	78%	67%	0.123	0.200	1.000
	No	2	2	22%	33%			
More complicated communication	Yes	5	4	56%	67%	-0.111	-0.067	1.000
	No	4	2	44%	33%			

Source: own

Fig. 2: The advantages resulting from the integration of hospitals



Source: own

Tab. 9: Measures of association of dependence of advantages and kind of integration – part 1

Advantages	Response of the hospital	Kind of integration				Measures of association		Fisher Test (p-value)
		Absolute frequency		Relative frequency		r_{AB}	S_H	
		Holding	Merger	Holding	Merger			
Service quality improvement	Yes	9	0	25%	0%	0.612	0.600	0.044
	No	3	3	75%	100%			
Financial situation improvement	Yes	7	2	58%	67%	-0.068	0.067	1.000
	No	5	1	42%	33%			
Cost reduction	Yes	9	2	75%	67%	0.075	0.333	1.000
	No	3	1	25%	33%			
Mutual troubleshooting	Yes	1	1	8%	33%	-0.294	-0.600	0.371
	No	11	2	92%	67%			
Better access to financial sources	Yes	3	0	25%	0%	0.250	-0.200	1.000
	No	9	3	75%	100%			
Better negotiation with suppliers	Yes	11	3	92%	100%	-0.134	0.467	1.000
	No	1	0	8%	0%			

Tab. 9: Measures of association of dependence of advantages and kind of integration – part 2

Better negotiation with health insurance c.	Yes	9	3	75%	100%	-0.250	0.200	1.000
	No	3	0	25%	0%			
Mutual solution of critical situations	Yes	5	3	42%	100%	-0.468	-0.333	0.200
	No	7	0	58%	0%			

Source: own

Tab. 10: Measures of association of dependence of advantages and length of involvement of the hospital in the integration

Advantages	Response of the hospital	Number of years in the integration				Measures of association		Fisher Test (p-value)
		Absolute frequency		Relative frequency		r_{AB}	S_H	
		-10	10+	-10	10+			
Service quality improvement	Yes	1	2	11%	33%	-0.272	-0.333	0.525
	No	8	4	89%	67%			
Financial situation improvement	Yes	4	4	40%	67%	-0.258	-0.250	0.608
	No	6	2	60%	33%			
Cost reduction	Yes	7	4	78%	67%	0.123	0.200	1.000
	No	2	2	22%	33%			
Mutual troubleshooting	Yes	2	0	22%	0%	0.320	0.067	0.486
	No	7	6	78%	100%			
Better access to financial sources	Yes	5	1	63%	17%	0.458	0.429	0.137
	No	3	5	38%	83%			
Better negotiation with suppliers	Yes	8	6	89%	100%	-0.218	0.067	1.000
	No	1	0	11%	0%			
Better negotiation with health insurance companies	Yes	8	5	89%	83%	0.080	0.200	1.000
	No	1	1	11%	17%			
Mutual solution of critical situations	Yes	8	0	89%	0%	0.873	0.867	0.001
	No	1	6	11%	100%			

Source: own

directors 93% of directors see an advantage in better negotiation skill with the suppliers; slightly fewer (80%) see an advantage in relation to health insurance companies. 73% directors also see advantages resulting in the cost reduction. For further advantages, see Fig. 2.

We will also examine the advantages in relation to the individual types of integration and the length of involvement.

The results of Fisher Test (see Tab. 9) indicate that there exists a dependence between the service quality rating of the hospital and the kind of the hospital integration: t is statistically significant (p -value = 0.044).

The results of Fisher Test (see Tab. 10) indicate that there exists a dependence between crisis solution in the hospital and the length of involvement in the integration. This relationship is statistically significant (p -value = 0.001).

4. Discussion

Our research results show that 73% of integrated hospitals take in cost reduction as one of the advantage of integration. These research results are in harmony with the studies of Spang, Arnould and Bazzoli (2007), Sinay and Campbell (1995), Connor, Feldman and Dowd (1998) and Connor, Feldman, Dowd and Radcliff (1997), Dranove and Lindrooth (2003), Harris, Ozgen, and Ozca (2000) and Chu and Chiang (2013). Dranove and Lindrooth (2003) confirm the cost saving for mergers but not for consolidation into systems.

We can confirm that our results are consistent with studies conducted by the authors Chu and Chiang (2013), who state that the benefit of integration is to provide access to additional resources through collective purchasing. Fully 93% managers of integrated hospitals approve better negotiation with suppliers. According to the conditions in the Czech health care system, we also focused on relationship with health insurance companies. These results could not be compared with other studies due to a different type of health care financing. In the Czech Republic, it is very important that 80% managers see advantage of hospital integration in better negotiation with health insurance companies.

Chu and Chiang list the same or similar benefits resulting from strategic alliances, including access to additional resources through collective purchasing and shared

staffing arrangements, reduction of costs and improvement of medical technology through information exchange. We can also confirm the results of Walston, Kimberly and Burns (1996), who unequivocally present benefits such as: lowering costs and eliminating unneeded services, economics of scale, increased market and negotiating power, profit and market share gains, better recruitment and longer retention of staff and also environmental acceptance. In the field of disadvantages, we can compare our results with results of Halverson (1997) and Zuckerman (2006). They present the main disadvantages of integration as new costs incurred from inter-organizational cooperation and loss of autonomy and control. Considering this second statement, we can reject the first statement. Only 6% of the managers of the integrated hospitals in the Czech Republic see the problem with cost growing related to integration, while 73% of the managers approve of the statement that one of the disadvantages is the loss of autonomy and control.

This research realized at the Faculty of Management and Economics of Tomas Bata University in Zlín (focused on the efficiency of horizontally integrated hospitals) presents only part of a wide research project. This paper shows the results of primary research of the perception of advantages and disadvantages of integration of hospitals by the hospital managers themselves. In the other part of the research, we used secondary sources and we found the answer to the question whether the horizontal integration of hospital has positive effects on financial and non-financial hospital results. According to this study, it is not possible to prove that entering a holding has a positive effect on hospital results. Results fluctuate below average, and also show some losses, which cannot be considered a positive trend (Papadaki & Staňková, 2016).

Conclusions

The trend of integration (in any form) is evident in all fields of the economy, including healthcare. The aim of the research conducted at the Faculty of Management and Economics at Tomas Bata University in Zlín was to determine the view of managers of hospitals on this trend. A secondary aim was to find out what advantages and disadvantages the integration brings to individual managers of these hospitals. Regarding the overall view of

this trend, hospital directors see integration as promising, which confirms the general assumptions that emerged from the conducted literature survey.

The hospital integration is perceived as beneficial. Based on the research, we can say that 66% of hospitals considered membership in the integration generally beneficial. This number includes hospitals which are currently part of both a holding company or mergers. Based on the research sample, we cannot unequivocally confirm a statistically significant difference between the two studied types of integration (holding and mergers). Neither can a statistically significant difference in the perception of the overall view of the advantages of integration be confirmed based on the length of involvement in integrations. Upon closer examination, it was discovered what advantages and disadvantages see the directors of these hospitals. Approximately 73% of hospitals see the reduction in autonomy and more difficult change promotion as a disadvantage, and a further 60% of hospitals see a problem in communication. As for the benefits, 93% of hospitals evaluated that the integration gives them a better negotiating ability with suppliers, 80% of hospitals noticed a better negotiating ability with health insurance companies and about 80% of hospitals report that there has been a reduction in costs. Furthermore, based on the survey, we came to the following findings:

- There was no dependence between the assessment of the general disadvantages of grouping and the type of hospital integrations (mergers, holding).
- Hospitals that are part of mergers perceived administrative demands as a negative.

- Hospitals that are part of a holding see more complicated change promotion as a negative.
- We also see the difference in the autonomy. Hospitals which are part of a holding do not feel the loss of autonomy as significantly as hospitals which are part of a merger: these hospitals feel they are losing their autonomy and see that as a significant disadvantage.
- There is also a correlation between the quality of services in the hospital with respect to type of hospital integration. Hospitals involved in holdings see as an advantage the increase of the quality of services, while hospitals involved in mergers do not perceive the growth of the quality of health services.
- Hospitals involved in the integration for up to 10 years see better crisis management as an advantage; hospital integrations involved in more than 10 years do not feel crisis management as a benefit that would result from membership in the integration.

The limitation of our research is a relatively small sample of hospitals in which the survey was conducted. This is due to the fact that in the Czech Republic there are not more hospitals which are part of the integration owned by the county. We must say, however, that despite the small sample, we have achieved a very high response rate. For further research, the research could be extended to integrations outside the Czech Republic or we could include the hospitals that are owned by private companies in the research.

This paper was supported by Internal Grant Agency of FaME RO/2016/12 (Management of healthcare organizations effectiveness).

References

- Carey, K. (2003). Hospital cost efficiency and system membership. *The Journal of Health Care Organization, Provision, and Financing*, 40(1), 25-38. <https://dx.doi.org/10.5034/inquiryjml.40.1.25>.
- Chu, H. L., & Chiang, C. Y. (2013). The effects of strategic hospital alliances on hospital efficiency. *The Service Industries Journal*, 33(6), 624-635. <https://dx.doi.org/10.1080/02642069.2011.622367>.
- Connor, R. A., Feldman, R. D., & Dowd, B. E. (1998). The effects of market concentration and horizontal mergers on hospital costs and prices. *International Journal of the Economics of Business*, 5(2), 159-180. <https://dx.doi.org/10.1080/13571519884495>.
- Connor, R. A., Feldman, R. D., Dowd, B. E., & Radcliff, T. A. (1997). Which types of hospital mergers save consumers money? *Health Affairs*, 16(6), 62-74. <https://dx.doi.org/10.1377/hlthaff.16.6.62>.
- Dranove, D., & Lindrooth, R. (2003). Hospital consolidation and costs: another look at the evidence. *Journal of Health Economics*, 22(6), 983-997. <https://dx.doi.org/10.1016/j.jhealeco.2003.05.001>.
- Earl-Slater, A. (1996). Health-care reforms in the Czech Republic. *Journal of Management in Medicine*, 10(2), 13-22. <https://dx.doi.org/10.1108/02689239610117780>.
- George, G., Zahra, S. A., & Wood, D. R. (2002). The effects of business–university alliances on innovative output and financial performance: a study of publicly traded biotechnology companies. *Journal of Business Venturing*, 17(6), 577-609. [https://dx.doi.org/10.1016/S0883-9026\(01\)00069-6](https://dx.doi.org/10.1016/S0883-9026(01)00069-6).
- Halverson, P. K. et al. (1997) Strategic alliances in healthcare: Opportunities for the veterans affairs healthcare system. *Hospital and Health Services Administration*, 42(3), 383-410.
- Harris II, J., Ozgen, H., & Ozcan, Y. (2000). Do mergers enhance the performance of hospital efficiency? *Journal of the Operational Research Society*, 51(7), 801-811. <https://dx.doi.org/10.1057/palgrave.jors.2600869>.
- Herr, A. (2008). Cost and technical efficiency of German hospitals: does ownership matter? *Health Economics*, 17(9), 1057-1071. <https://dx.doi.org/http://dx.doi.org/10.1002/hec.1388>.
- Institute of Health Information and Statistics of the Czech Republic. (2000-2013). *Economic information on health care*. Available from <http://www.uzis.cz/katalog/zdravotnicka-statistika/ekonomicke-informace-ve-zdravotnictvi>.
- Institute of Health Information and Statistics of the Czech Republic. (2010). *Evolution of health care in the Czech Republic after the year 1989*. Available from <http://uzis.cz/en/catalogue/evolution-health-care-czech-republic-after-year-1989>.
- Li, H. L., & Tang, M. J. (2010). Vertical integration and innovative performance: The effects of external knowledge sourcing modes. *Technovation*, 30(7), 401-410. <https://dx.doi.org/10.1016/j.technovation.2010.03.004>.
- Liu, X. (2016). Vertical integration and innovation. *International Journal of Industrial Organization*, 47, 88-120. <https://dx.doi.org/10.1016/j.ijindorg.2016.02.002>.
- Pan American Health Organization. (2011). *Integrated Health Service Delivery Networks: Concepts, Policy Options and a Road Map for Implementation in the Americas*. Washington, D.C.: PAHO (SERIES: Renewing Primary Health Care in the Americas No. 4).
- Papadaki, Š., & Staňková, P. (2016). Horizontal Integration of Hospitals – Does it have an Impact on their Effectiveness? *Procedia Economics and Finance*, 39, 553-561. [https://dx.doi.org/10.1016/S2212-5671\(16\)30299-4](https://dx.doi.org/10.1016/S2212-5671(16)30299-4).
- Plochg, T., Delnoij, D. M. J., & Klazinga, N. S. (2006). Linking up with the community: A fertile strategy for a university hospital? *International Journal of Integrated Care*, 6(1), 1-19. <https://dx.doi.org/10.5334/ijic.147>.
- Robinson, J. C., & Casalino, L. P. (1996). Vertical integration and organizational networks in health care. *Health Affairs*, 15(1), 7-22. <https://dx.doi.org/10.1377/hlthaff.15.1.7>.
- Sinay, U. A., & Campbell, C. R. (1995). Scope and scale economies in merging hospitals prior to merger. *Journal of Economics and Finance*, 19(2), 107-123. <https://dx.doi.org/10.1007/BF02920513>.
- Spang, H. R., Arnould, R. J., & Bazzoli, G. J. (2009). The effect of non-rural hospital mergers and acquisitions: An examination of cost and price outcomes. *The Quarterly Review of Economics and Finance*, 49(2), 323-342. <https://dx.doi.org/10.1016/j.qref.2007.01.003>.
- Stejskal, J., Mikušová Meričková, B., & Prokop, V. (2016). The cooperation between enterprises: significant part of the innovation process – a case study of the Czech machinery industry. *E&M Ekonomie a Management*,

19(3), 110-122. <https://dx.doi.org/10.15240/tul/001/2016-3-008>.

Trebuňa, P., & Halčíková, J. (2012). Využitie mier asociácie a korelácie v zhlukovej analýze II. *Transfer inovácií*, (23), 70-71.

Wang, B. B., Wan, T. T., Clement, J., & Begun, J. (2001). Managed care, vertical integration strategies and hospital performance. *Health Care Management Science*, 4(3), 181-191. <https://dx.doi.org/10.5334/ijic.316>.

Walston, S. L., Kimberly, J. R., & Burns, L. R. (1996). Owned vertical integration and health care: Promise and performance. *Health Care Management Review*, 21(1), 83-92.

Zeng, S. X., Xie, X. M., & Tam, C. M. (2010). Relationship between cooperation networks and innovation performance of SMEs. *Technovation*, 30(3), 181-194. <https://dx.doi.org/10.1016/j.technovation.2009.08.003>.

Zuckerman, A. M. (2006). Clobber – or collaborate? Taking a fresh look at your competition. *Healthcare Financial Management*, 60(11), 68-72.

doc. Ing. Pavla Staňková, Ph.D.

Tomas Bata University in Zlín
Faculty of Management and Economics
Department of Management and Marketing
Czech Republic
stankova@fame.utb.cz

Ing. Šárka Papadaki, Ph.D.

Tomas Bata University in Zlín
Faculty of Management and Economics
Department of Enterprise Economics
Czech Republic
papadaki@fame.utb.cz

Ing. Ján Dvorský

Tomas Bata University in Zlín
Faculty of Management and Economics
Department of Enterprise Economics
Czech Republic
j1dvorsky@fame.utb.cz

Abstract

COMPARATIVE ANALYSIS OF THE PERCEPTION OF THE ADVANTAGES AND DISADVANTAGES OF HOSPITAL HORIZONTAL INTEGRATION**Pavla Staňková, Šárka Papadaki, Ján Dvorský**

Integration and strategic alliances of companies represent a rapidly growing phenomenon in all industries. Also the integration and consolidation of healthcare organizations are not unusual themes in professional resources. The specialists observe especially a vertical and horizontal integration of hospitals and its influence to the increase of an effectiveness of healthcare provision. The results of these studies, however, do not conclusively prove the impact of all kinds of integration of hospitals to their efficiency and effectiveness growth. The present article focuses on horizontal integrated hospitals in the Czech Republic and the perception of advantages and disadvantages of integration of the hospitals by hospital managers themselves. The main aim of the research was to answer following research questions: Does the perception of advantages and disadvantages of participation in integration depend on the length of integration's lifetime? Does the perception of advantages and disadvantages of participation in integration depend on the kind of integration? Regarding the overall view of the trend of integration, hospital managers see integration as promising. Further, the research results revealed that based on the research sample, we cannot unequivocally confirm a statistically significant difference between the two studied types of integration (holding and mergers). A statistically significant difference in the perception of the overall view of the advantages of integration also cannot be confirmed given a length of involvement in holding or merger. Overall, the hospital sees as disadvantages particularly the reduction of autonomy, the increased difficulty of promotion of changes and communication problems. As for the benefits, 93% of hospitals evaluated that the integration gives them a better negotiating ability with suppliers, 80% of hospitals noticed better negotiating ability with health insurance companies and about 80% report that there has been a reduction in costs.

Key Words: Healthcare, horizontal integration, hospital, holding, merger, benefits.

JEL Classification: I11, L14, M21.

DOI: 10.15240/tul/001/2018-1-007