

# *An Empirical Study on the Association between Financial Risk and Service Quality in Physiotherapy*

Piia Pekola & Ismo Linnosmaa & Hennamari Mikkola

## **Abstract**

*Patient choice is widely implemented in healthcare and the decision a patient makes have financial repercussions for firms. Eventually, if firms fail to fulfil patients' expectations, they will be forced to exit the market due to unsuccessful business performance. Our study focuses on firms' quality investments and their association with financial risk in physiotherapy organised for disabled individuals by the Social Insurance Institution of Finland (Kela). We use data on physiotherapy from two contract periods (2007–2010 and 2011–2014), and we use random and fixed effects regressions in our estimations. Our results show an association between financial risk and service quality. Firms with higher financial risk have lower quality. It seems that firms either are incapable of committing to quality investments or they have failed in marketing, and thus, they have increased their financial risk by losing customers due to patient choice.*

## **Keywords:**

*Competition, Financial risk, Patient choice, Physiotherapy, Quality*

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## 1. Introduction

This study focuses on rehabilitation services organised by the Social Insurance Institution of Finland (Kela) which are financed from the National Health Insurance (NHI) and targeted at disabled individuals. Kela is the largest single organiser and financer of rehabilitation services in Finland and it uses public procurement procedures (mainly competitive bidding) in order to arrange services throughout the country.

Services such as physiotherapy targeted at disabled individuals are purchased from private sector providers by using competitive bidding. In 2014 the overall amount of firms producing physiotherapy in the private sector in Finland was 2640 (Statistics Finland, 2016) and during the contract period 2011–2014 about 50% of those (1320) had a contract with Kela to produce services for disabled individuals. About 14,000 patients (approximately 16 percent of all individuals who received rehabilitation in 2011) receive these services annually and the final decision of where to get the therapy is made by the patient or his/her agent because patient choice was implemented in 2011. There are no out-of-pocket-payments required from the patients for using the service.

Due to previously mentioned regulation, firms compete in the system on two levels. First they need to compete on both price and quality in order to succeed in competitive bidding. During the second phase (due to patient choice and non-existent out-of-pocket payments), firms need to compete for patients on quality in order to gain profits. Within this potentially very competitive envi-

ronment, we analyse the association of firms' quality investments and financial risk in the context of market orientation and business performance. We aim to broaden the empirical literature in this respect as evidence from Finland and especially from physiotherapy is still quite limited despite different market mechanisms being largely in use. The study is important because Finland is about to enlarge free choice in public healthcare in the future.

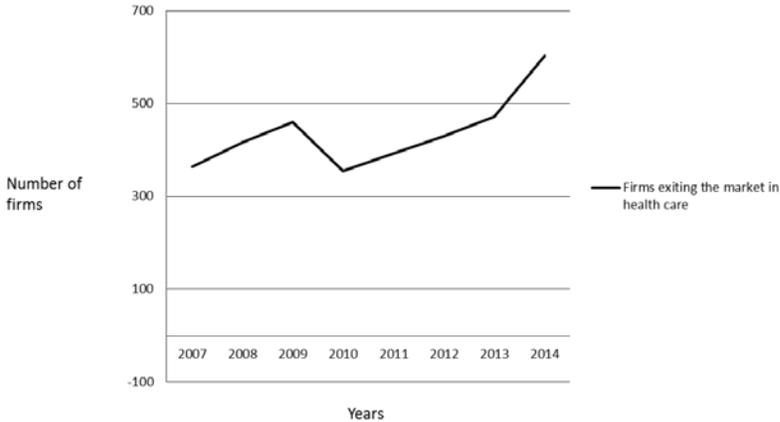
The services studied form about 21% of all services produced in the physiotherapy industry (private sector) and despite Kela's budget for the service being quite stable during recent years (and, in fact, somewhat increasing), firms are also dependent on, for example, private customers as well as municipalities' purchases. In Finland, the private health-care sector relies heavily on public-sector purchases (Lith, 2013). Yet Finland has faced tough economic times in recent years, and the Gross National Product (GNP) has declined steadily in the past five years (Statistics Finland, 2015). Thus the recession combined with increased competition via public procurement and patient choice, firms' opportunities to make profits and continue operating in the market are increasingly difficult. In fact, the number of private firms has declined steadily (Statistics Finland, 2015), and despite the fact that different industries face different demand situations due to the hard-hitting economic situation, the declining trend in the number of firms' is reflected in the health-care industry as well (Figure 1).

As a result of previous and future events, firms operating in the healthcare market need to focus on strategies that improve de-

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<sup>1</sup> Also e.g. mergers could have an effect on the number of firms in the market. There is some evidence found from individual firms' websites that mergers have occurred in physiotherapy for example but precise information regarding the whole industry and its private sector has not been published. However based on Statistic Finland's business register (<https://www.stat.fi/tup/yritysrekisteri/index.html>) number of firms producing physiotherapy in private sector as well as their net revenue has remained unaltered between years 2013 and 2014 for example. Yet the number of staff has declined and the net revenue also includes revenue from other services than just physiotherapy which suggests that efforts have been made in the physiotherapy industry that would increase productivity during difficult economic times.

**Figure 1. Number of firms exiting the market in health care industry between years 2007-2014 in Finland**



mand and, hence, profits in order to remain vital. Firms must be competitive not only with respect to public purchases but also because patient choice is more and more widely implemented in healthcare as well. This means that after engaging in different procurement procedures, firms need to attract patients to increase their sales revenue; in order to do that, firms need to invest in quality because price is usually irrelevant to patients due to different insurance mechanisms. Despite the fact that quality investments are expensive and tend to increase costs, the only way to increase market share (i.e. volume) is to invest in quality. Prior research has demonstrated that there is a positive correlation between volume and outcomes in healthcare (Gaynor & Town, 2011).

Previous studies demonstrate a strong positive relationship between market orientation and business performance, and the results appear to be robust across different environments (Jaworski & Kohli, 1993). Still, a number of studies have questioned the validity of generic management findings regarding market orientation and its relationship to performance in healthcare (see, e.g. Blair & Boil, 1991) because the healthcare

market is quite different from other markets and industry-specific aspects could affect the relationship between market orientation and business performance (Kumar et al., 1998.) Not only does the health-care industry face numerous political, legal and financial regulations but care output is difficult to measure and it has a tremendous impact on a patient's wellbeing. Douglas and Judge (2001) have confirmed that quality is strongly linked with competitive advantages and business performance. For instance, a study of the nursing home market has shown that market-oriented firms could achieve competitive superiority by increasing their service quality. Based on the results, producing a high-quality product may provide firms the ability to generate higher revenues (Weech-Maldonado, 2003).

Similar to Narver and Slater (1990) and Kohli and Jaworski (1990), we treat market orientation as a single construct consisting of different dimensions. Our market orientation measure is a sum of different quality factors scored during the procurement process, and instead of assessing care output; our quality measure could be described as the medium or long-term quality investment of a firm. Grimmer et al. (2000) have noted that, when

measuring quality in physiotherapy, it is important to consider how the service is organised, the way in which care is provided, the way in which information about care is recorded and used for evaluation purposes, and the outcome of care. Our quality measure is reliable and consistent because it is assessed during the competitive bidding process and it includes such quality features as education, work experience, the premises and their quality, the equipment used in physiotherapy and the extent to which the provider conformed to the Kela's quality standards.

Earlier studies have primarily examined accounting-based performance criteria, and for this reason they have been criticised for being too narrow and one-sided in their measurements (Kumar et. al, 1998.) Conceptual framework of our study is presented in Figure 2. Our performance measure is a three-scale risk rating conducted by Suomen Asiakastieto Oy, which is a company dealing with, e.g. corporate risk management and sales and marketing information services in Finland. Each firm's risk rate was calculated separately by using an individual-level database consisting of multiple aspects, e.g. firms' payment methods and the creditworthiness of the person in charge. Our measure also includes key figures

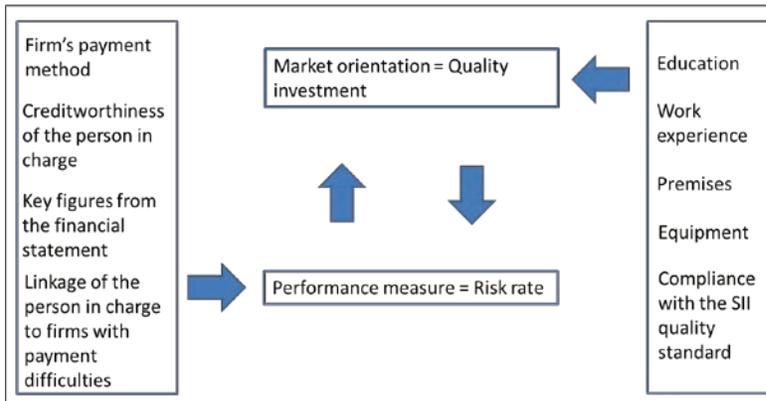
from the financial statement and each firm has been scored on a scale ranging from 1 to 3 based on this information. Thus, the measure is rather broad and diverse, yet it easily expresses the financial risk of firms.

### 2. Previous literature

When price is not driving patient choice, firms need to attract customers based on quality. Especially with respect to patient choice, if firms are to succeed in the market, they need to invest in quality in order to maintain and grow market shares. According to Le Grand, if patient choice is to act as an effective driver of quality, it is necessary to rely on patients' judgements and their responsiveness to the quality of the service being provided, and likewise, it is necessary for providers to react to choices made on the basis of those judgments. The logic behind this argument is quite straightforward: if a producer fails to provide sufficient quality, and if patients notice the lack of quality, then diminished demand will cause a firm's revenues to fall and ultimately result in financial failure for the firm (Le Grand, 2009.)

One concrete task of a market-oriented firm is to prevent competitors from luring away customers, e.g. market shares, and for

Figure 2. Conceptual framework on the association of risk rate and quality investment



this reason a firm's investment perspective is important. Profitability, on the other hand, ensures the resources necessary to pursue market orientation (Kumar et al., 1998). Market orientation has a substantial positive effect on a firm's profitability, especially with respect to both commodity products as well as non-commodity products. Therefore, a firm that increases its market orientation will improve its market performance (Narver & Slater, 1990).

A market-oriented firm must identify and satisfy the preferences of its current and potential customers and must also aim to enhance its profitability so as to ensure the necessary resources for future activities with respect to value creation (Kohli & Jaworski, 1990; Narver & Slater, 1990). Another study found that market orientation is also strongly correlated with quality management implementation (Kee-Hung, 2003.) A market-oriented business is interested in gathering and using information about competitors and customers, and it will respond to that information by providing value to the customers and thereby eventually gaining a competitive advantage. Market orientation can thus be viewed as a continuous process, and firms differ in the extent to which they focus on market orientation or its different dimensions (Kumar et al., 1998.)

The findings from previous studies indicate that quality has an impact on a firm's business performance and it is an influential determinant of a strategic business unit's overall performance. Market-oriented efforts are an important means to improve service quality and business profitability. Improved quality eventually also improves the effectiveness of a firm (Chang & Chen, 1998). Even though these findings seem credible, the health-care industry is unique and must be studied separately. There is a possibility that findings from other sectors/industries may not apply to healthcare (Blair & Boal, 1991.)

### **Institutional background of physiotherapy organised by Kela for disabled individuals**

In Finland, public healthcare is universal and financed through taxes via small co-payments. Municipalities are responsible for organising and financing healthcare in Finland. In addition to public healthcare e.g. the costs of the medicines used in outpatient care and transportation costs, the costs of visits to private physicians and dentists and a vast number of rehabilitation services through health insurance and organised and financed by Kela. In fact, Kela is the largest single purchaser of rehabilitation services in Finland. In 2011, approximately 87 300 persons (approximately 2 percent of the total population in Finland) received rehabilitation services through social insurance; Kela's budget for rehabilitation was approximately 339 million euros (Kela statistics, 2011.)

This study focuses on physiotherapy services organised and financed by Kela for persons with severe disabilities. Kela is obligated by law to organise medical rehabilitation, such as physiotherapy, for disabled persons who fulfil certain criteria defined in the law (Rehabilitation law 566/2005). Services are financed from the NHI and there are no out-of-pocket payments required from patients using these services.

During the contract period 2007–2010, Kela organised a competitive bidding process in each insurance district. During the period 2010–2014, two insurance districts used a service voucher system while a competitive bidding process (which is the interest of this study) was carried out in 23 insurance districts. Separate bidding processes were conducted out in different Kela insurance districts because physiotherapy services must be provided close to a patient's home, workplace, school or day care. The purpose of the procurement process was to create a pool of eligible firms for each Kela insurance district; then, either Kela personnel selected the proper service providers in cooperation with

the patients (contract period 2007–2010) or patients chose their service providers based solely on their own individual preferences (contract period 2011–2014).

In 2011, Kela had 1320 service providers (approximately 120 firms provided services through a service voucher system and approximately 1200 firms did so after participating in a competitive bidding process) in 336 municipalities for physiotherapy needs, and approximately 14 000 persons received physiotherapy services targeted for disabled individuals. The total costs in 2011 were approximately 50 million euros. Patients receiving these services ranged from young children to adults up to 65 years of age. The average amount of revenue of the service providers in 2011 was approximately 3535 euros per patient (Kela statistics, 2011).

During the bidding process, the minimum quality of the service as well as the requirements for the service providers were defined in the request for tender. Firms set their price for a 45-minute therapy session, while taking into account quality and capacity in their tenders; during the procurement process, Kela scored each firm's quality (education, work experience and the quality of the premises as well as the quality of the equipment and the extent to which it conformed to the Kela's quality standard) and price in a predefined manner.

The selection process for the service providers was based on the best value—tenders that fulfilled the conditions of eligibility were then compared and all tenders were ranked based on their quality to price ratio. Those tenders accepted as service providers signed a written contract with Kela that was valid for four years. Each Kela insurance district drew up its contract based on local needs (e.g. the amount of demand in the area). Firms

receiving a contract with Kela formed a pool of firms; patients were then able to choose proper service providers based on their individual preferences.

### Data

We examined nationwide data from a public procurement process organised by Kela for two contract periods, 2007–2010 and 2011–2014. The procurement processes for the two contract periods were organised in the form of competitive bidding;<sup>2</sup> firms participated by submitting price and quality tenders. In the following section, we analyse the quality, price and number of private firms that were accepted as service providers by Kela after the procurement process. After excluding two insurance districts from this analysis due to a service voucher pilot, there were 1346 firms providing physiotherapy during the period 2007–2010, of which we were able to include 674 (50%) firms in the final analyses. During the contract period 2011–2014, there were approximately 1200 firms providing physiotherapy after competitive bidding, and our data include 864 (72%) firms that were linked to a quality measure.

### 4.2 Data sources

We obtained data regarding the quality, price and capacity of the firms as well as data on the number of disabled individuals receiving physiotherapy in municipalities from Kela. The average rental rates, population of the municipality and monthly wages of the physiotherapists were provided by Statistics Finland (Official Statistics of Finland: Average rental rates, 2011; Population, 2011), and information on the number of physiotherapists in local markets was obtained from Suomen Asiakastieto Oy. Descriptive statistics regarding the variables are presented in Table 1.

<sup>2</sup> During the contract period 2011–2014, Kela also organised physiotherapy in two insurance districts via service vouchers. Approximately 120 firms provided physiotherapy with service vouchers during the pilot phase. The data regarding the two insurance districts were excluded from this analysis for both contract periods.

Table 1: Descriptive statistics

Dependent variable	Variable details	Contract period 2007-2010					Contract period 2011-2014				
		n	Mean	Standard deviation	Min	Max	n	Mean	Standard deviation	Min	Max
Quality	Sum of quality factors scored during competitive bidding (max score 103 points)	674	69	11	27	101	864	81	13	29	103
Risk rating	Firms were assigned to different task categories (1–3) based on a risk evaluation conducted by Suomen Asiakastieto Oy. Risk was calculated based on, e.g. a financial statement. Low risk=1, high risk=3	784	1	1	1	3	892	1	1	1	3
Competition	Total number of physiotherapists (firms) per municipality	1194	53	83	0	318	1199	69	106	0	403
Capacity	Firm's potential patient capacity per year	319	19	20	1	200	862	34	42	0	330
Price	Price determined by firms in their tenders for a 45 min therapy session	674	45	6	24	75	864	48	8	28	99
Disabled individuals (municipality)	Total number of disabled individuals in a municipality receiving physiotherapy	1202	201	238	0	856	1202	232	271	2	963
Population (municipality)	Total population in a municipality	1202	103037	150195	987	568531	1202	106628	156980	1004	595384
Risk rate*interaction variable (interaction variable=risk*company type)	Firm's risk rate is added with interaction variable formed after multiplying risk rate with company type dummy variable	786	3	1	1	6	892	2	1	1	6
Company type dummy variable	There are six different company types: sole proprietor, limited company, limited partnership, general partnership, association, foundation	1202			0	1	1202			0	1

### 4.3 Variable definitions

#### I. Dependent variable

For our analysis, we used the sum of quality factors scored during procurement process as the dependent variable. Our quality measure is the sum of the different quality factors: it includes education (max 20 points), work experience (max 30 points), the quality of the premises (max 6 points), the quality of the equipment (max 6 points) and the extent to which firms complied with Kela's quality standards (max 41 points). The maximum quality score was 103 points. The qualities from the two contract periods were brought into line by multiplying the 2007 premises and their quality score points by 0.4, the equipment score by 1.2 and the extent to which firms complied with Kela's quality standards by 1.17. Weighing procedure was necessary as otherwise the two contract periods could not have been compared. In addition to these quality factors, Kela scored language skills (max 2 points), but we excluded these scores from the analysis due to missing

data. The quality factors analysed here could be described as the medium/long-term quality investment of firms rather than the quality of care as such. Thus, quality level of each provider is a firm level decision and it is based on investment strategy instead of relying on supply conditions. Investment decisions on the other hand are most likely based on current and possibly future requirements (such as demand) of patients.

#### II. Independent and control variables

In addition to the independent variable risk rate, we added several firm- and market-structure-level control variables into our analysis in order to control for other factors that could have an effect on the outcome. Our firm-level independent variable consisted of a three-stage risk rate based on, e.g. key figures from the financial statement of each firm (see Figure 2). As mentioned previously, Suomen Asiakastieto Oy calculated the risk rate: a risk rate of 1 meant low financial risk, a risk rate of 2 meant moderate financial risk and a risk

rate of 3 meant high financial risk. Our control variables included the potential annual capacity of a firm with respect to disabled individuals, the number of competitors (firms providing physiotherapy) operating in the municipality, the average rental rate in a municipality, the number of disabled individuals receiving physiotherapy in a municipality, the population of a municipality and the price for a 45-minute therapy session. Our price variable was made commensurate by multiplying 2007 prices by the income earnings index. We also used six dummy variables based on firm type (limited company, limited partnership, joint-stock company, sole proprietor, foundation, association) in order to control for management differences, among other things.

**Methods**

Our data consisted of individual-level panel data for the two contract periods. For our estimated regression models, quality was regressed based on risk rate, price, capacity, competition, the number of disabled individuals in a municipality and the population of a municipality. Our basic model of interest was as follows (random effects):

$$1.1 \quad q_{it} = a + b_1 X_{1,it} + \dots + b_k X_{k,it} + u_{it} + e_{it},$$

where  $q_{it}$  measures the quality of firm  $i$  at time  $t$ ,  $X_{1,it} \dots X_{k,it}$  are the independent variables (risk rate, price, capacity, competition, the number of disabled individuals in a municipality and the population of a municipality),  $u_{it}$  is the between-entity error term and  $e_{it}$  is the within-entity error term. In addition to the previously mentioned variables, we added firm-type dummy variables to our first model in order to control for management differences.

For the second model, we created a new variable by adding a firm's risk rate to the

interaction variable (risk rate+(risk rate\*company type dummy variable)) while keeping our other independent variables intact. In the third model, we estimated regression models with different quality factors independently. With each of our models, we used the Hausman test to define and confirm proper regression results with respect to fixed and random effects models. A random effects model assumes that variation across entities is random and does not correlate with the independent variables included in the analyses. Based on the results, our main model is a random effects model and the final regressions of the interaction variable and individual quality factors are fixed effects models.

Because we were able to include only two time periods, we completed our analyses using an OLS regression model, while including a year-dummy variable for the second period. The other independent variables were not altered.

**Results**

Our results from the random effects regression (model 1) analysis of the association between a firm's financial risk (measured by risk rating) and quality in physiotherapy are presented in Table 2. The estimated results indicate that the risk rate of firms has a negative and statistically significant association with quality in physiotherapy. Price, capacity, competition and the number of disabled individuals in a municipality have a positive and significant association on quality from a statistical standpoint. As organisations may differ in their degree of quality investments, we added company type dummy variables to our model, but it seems that the management differences, among other things, are not associated with quality.

Table 2: Full results from random effects regression for quality (model 1)

Model	Coefficient	Standard error	P> t
Quality			
Risk rate	-4.42	0.81	***
Price	0.64	0.06	***
Capacity	0.08	0.01	***
Competition	0.06	0.02	**
Disabled individuals in a municipality	0.04	0.01	***
Population in a municipality	0.00	0.00	***
Company type dummy 1	3.82	2.35	
Company type dummy 2	-0.37	1.40	
Company type dummy 4	0.77	3.24	
Company type dummy 5	0.74	1.12	
Company type dummy 6	0.58	3.26	
Constant	50.87	2.98	***

Significance level: 5% = \*, 1% = \*\*, 0.1% = \*\*\*

Company type 3 = reference group (limited partnership)

By adding a previously mentioned interaction variable to the estimation, we were able to control for organisational differences in our analysis as well. However, our results from the second model (Table 3) show that the risk rate, when multiplied by the interaction variable<sup>3</sup>, is also negative and statistically (yet moderately) significant.

The results from the two models show that the higher the risk rate, the lower the

quality. With higher financial risk, it appears that firms either are incapable of committing to quality investments (and market orientation) in the first place or else they fail in their promotional and marketing efforts, and thus increase their financial risk by losing customers.

<sup>3</sup> The interaction variable was constructed by using all six firm types. The interaction variable has a value between 1-6 depending on a firm type.

Table 3: Full results from fixed effects regression for quality (model 2)

Model	Coefficient	Standard error	P> t
Quality			
Risk rate+ interaction variable	-1.44	0.76	*
Price	0.57	0.15	***
Capacity	0.11	0.04	**
Competition	0.13	0.05	**
Disabled individuals in a municipality	0.07	0.02	**
Population in a municipality	0.00	0.00	
Constant	31.79	18.43	*

Significance level: 5% =\*, 1% =\*\*, = 0.1% =\*\*\*

N=879

A study by Kumar et al. (1998) found that the dependent variable regarding market orientation should be viewed as a single entity consisting of different factors. If examined independently, different aspects most likely are not significant when it comes to formulating superior value for customers. We tested this

hypothesis by independently adding different quality factors to our regression analysis (Table 4). The results are clear—the risk rate is, to a minor extent, positively associated only with the equipment used in physiotherapy for disabled individuals.

Table 4: Results from regressions for different quality factors (model 3)

Model	Coefficient	Standard error	P> t
Therapists' updated education	-1.01	0.77	
Work experience	-4.42	0.81	
Quality standard	0.64	0.06	
Equipment	0.08	0.01	*
Premises	0.06	0.02	

We completed our analysis using an OLS regression model (Table 5), where we included a year-dummy variable for the second period (year 2011). This was done as a sensitivity

analysis because we only had access to two time periods. The results confirm our finding that firms with lower financial risk have better quality (or firm's invest more in quality).

Table 5: Full results from OLS regressions for quality with year-dummy variable included (model 4)

Model	Coefficient	Standard error	P> t		
Quality				N	879
Risk rate	-3.60	0.75	***		
Price	0.58	0.05	***	F(7,871)	64.38
Capacity	0.06	0.01	***	Prob > F	0.00
Competition	-0.03	0.02		R-squared	0.34
Disabled individuals in a municipality	0.02	0.01	*	Adj R-squared	0.34
Population in a municipality	0.00	0.00		Root MSE	11.39
Year dummy 2011	10.35	1.02	***		
Constant	45.16	2.76	***		

Model	Coefficient	Standard error	P> t		
Quality				N	854.00
Risk rate + interaction variable	-1.77	0.37	***	F(7,871)	64.23
Price	0.58	0.05	***	Prob > F	0.00
Capacity	0.06	0.01	***	R-squared	0.34
Competition	-0.03	0.02		Adj R-squared	0.34
Disabled individuals in a municipality	0.02	0.01	*	Root MSE	11.39
Population in a municipality	0.00	0.00			
Year dummy 2011	10.34	1.02	***		
Constant	45.11	2.76	***		

Significance level: 5% = \*, 1% = \*\*, 0.01% = \*\*\*

### Discussion

In general market studies, the relationship between service quality and business profitability on the one hand and market orientation and business performance on the other have long been recognised (Chang & Chen, 1998.) In the long run, a market-oriented firm gains higher profits through offering greater quality, and this leads to higher productivity and increased customer loyalty (Zeithaml et al., 1996.) Customers today expect a higher level

of service quality than before because people have more choices and information about the service and service providers (Lai, 2003.) The challenge for firms is to continually sense and acknowledge the needs and expectations of customers. This requires constant tracking and a responsiveness to changing needs, i.e. being market oriented (Jaworski & Kohli, 1993).

While the relationship between market orientation and business performance has

long been acknowledged, researchers have called for a more thorough examination of this relationship in different industry-specific contexts (Blair & Boal, 1991.) This means, for example, that the idiosyncrasies of the health-care industry must be tackled when market orientation and business performance are studied and conclusions drawn.

Due to patient choice, market-oriented firms active in the health-care sector need to focus on quality if they want to be responsive to customers' needs. Quality-enhancing mechanisms also enable such firms to increase their volume and eventually also their business profitability if quality investments are successful. In healthcare, since service quality is likely to be seen only after a patient uses a particular service, a profit maximising firm must be interested in the number of repeat visits. This is also evident in physiotherapy as well.

In this study, we analysed the relationship between quality investment and business performance measured in physiotherapy organised and financed by Kela for disabled individuals. Based on our results, it is clear that market orientation, e.g. quality, is statistically significantly associated with business profitability when financial risk is measured by using a three-scale risk rate. All of the panel and OLS regression models showed a clear relationship between the two entities—higher financial risk is associated with lower quality. Price, on the other hand, is statistically significantly associated with quality as well as capacity in a positive sense, but the coefficients of these variables are quite small.

We also included firm-type dummy variables in our analyses because organisations may differ in their degree of market orientation (Kumar et al., 1998.). Our first model indicated that in physiotherapy, firm types are irrelevant when market orientation and business profitability are studied together because all of the firm-type dummy variables are statistically insignificant. Our second model

showed that risk rate did not alter our results when combined with firm-type dummy variables. Also, we used an OLS regression model with a year-dummy variable for the second period, which supported our findings despite the presence of some collinearity in the model. Model specifications may be corrected by removing any statistically insignificant variable from the model; the results will remain the same.

Kumar et al. (1998) also mention in their research that market orientation should be treated in different studies as a single construct consisting of different dimensions, and usually it is the collective nature of different market-oriented activities that represent superior value for customers and eventually also contribute to the competitive advantage of a firm. As mentioned previously, we obtained the same results in this study. However, Kumar et al. also mention that if the components included in market orientation are examined individually, these different factors will most likely be less significant. We tested this hypothesis by examining different quality indicators individually, and the results are in line with their assumptions. Only the equipment used in physiotherapy for disabled individuals was statistically significantly, albeit weakly, associated with the risk rate.

## Conclusions

Based on our results, it seems that the general findings regarding the relationship between market orientation and business performance applies also in physiotherapy. The association between the two entities is clear when industry-specific variables are analysed. We used quality as a measure of market orientation, which we argue is the most important issue for customers when making choices among/ between service providers. With this study we are able to show a trend between financial risk and quality within a system that relies on free choice. Despite, our study findings are not generalizable directly to healthcare in

general, similar results have been reported from other sectors in health and social care industry as well. For example, results regarding the nursing home industry show that units producing higher quality report better financial performance (Weech-Maldonado et al., 2003a; Weech-Maldonado et al., 2003b).

Intuitively, the successful implementation of a market-oriented approach requires numerous managerial actions that focus on better responsiveness to customers' needs (Chang & Chen, 1998.) A market-oriented service provider active in the health-care industry invests in different dimensions of quality, which then enables a firm to increase the welfare of present and future customers. By increasing volume, a firm eventually earns higher profits and improves its business performance compared to that of its competitors. As the patient choice mechanism becomes even more widely implemented in healthcare in the future, firms must be responsive to customers' preferences because, by failing them

in terms of quality, diminished demand will cause a firm's revenue to fall, which will make future investments even more difficult.

The market for physiotherapy is a good example of a health service that is provided by a large number of mainly small private sector firms and in which patients have a right to choose service providers from their local area based on their individual preferences. However, if a patient choice mechanism is to work for the benefit of all parties – especially patients and small firms – sufficient, easily accessible and understandable quality information needs to be published. This could be a huge task for small firms which may not have either the resources or the skills for increased marketing tasks. Therefore, if a regulator were to change its strategy from being mainly an organiser and financer of services to being an active player in information gathering and publishing, it would help both patients and firms – especially the smaller ones.

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