INFLUENCE OF MANAGERIAL DECISIONS TO INVEST IN INNOVATIONS ON THE STOCK MARKET PERFORMANCE: AN EMPIRICAL ANALYSIS

Langenstein T., Uzik M., Glova J.[*]

Abstract: This paper examines the hypothesis that management decisions to invest in innovations have an impact on business performance. We used the "Delta Intangible Assets to Sales Ratio" as a proxy variable for investments in innovations. With regard to the research results, it was shown that the "Delta Intangible Assets to Sales Ratio" can easily explain the company's performance in 24 months and highly significantly in 36 months. However, the quality of the explanation (R squared) assumes very low values. As investment volume in innovation increases, company management can increase the stock market performance. However, it is reasonable to note that management should consider the timing of the investment and the impact on performance. Thus, investing in innovation is strategic management decision.

Key words: corporate success, innovation, intangible assets, shareholder value, stock market performance

Introduction

The success of a company depends largely on management decisions (Krumay et al., 2018). Research does not only deal with the decision-making process in business, but also in philosophy and psychology (Dane and Pratt, 2007). There are no clear rules as to how decisions are to be made successfully. However, science has developed models to optimize the decision-making process. On the one hand, normative decision models are listed in the literature. Their aim is to show how decisions can be made rationally. On the other hand, there are descriptive models that describe and explain real decision-making behavior. In general, a decision is understood when a choice is to be made between decision alternatives. These alternatives are suitable for achieving an entrepreneurial goal (Meyer, 2000). In the models, the homo oeconomicus is often assumed to be an individual with complete knowledge and unlimited resources. He makes his decisions with the goal of maximum benefit (Gintis, 2000). If corporate management should consist of homo oeconomicus individuals, the goal of maximum corporate value could be the primary corporate goal, neglecting other relevant factors such as work-life balance,

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employee satisfaction or any social or voluntary goals. In this respect, management would have to make decisions that maximize shareholder value (Rappaport, 1986). The fact also has to be highlighted that, in today's world, innovations are perceived as a way of developing the business, a driver of competitiveness, and a condition to survive for companies in case of a strengthening competition (Kumar et al., 2013). Covin et al. (2016) also consider innovations to be a crucial factor for the economic success and survival of companies (see also Guo et al., 2018). Therefore, the aim of this paper is to examine how management decisions to invest in innovation influence shareholder value. The investments in intangible assets are used as a proxy for the innovations.

The remainder of this paper is structured as follows. Section 2 provides the review of relevant literature. Section 3 describes the sample and the research methodology. Section 4 presents the research results. Section 5 summarizes and concludes it all.

Literature Review

IAS 38 sets out the criteria for accounting and measuring of intangible assets (see IAS, 2018). According to IAS 38, an intangible asset is an identifiable non-monetary asset without physical substance. Such an asset is identifiable if it is separable or if it arises from contractual or other legal rights. Separable assets may be sold, transferred, licensed, etc. Examples of intangible assets are computer software, licenses, trademarks, patents, films, copyrights and import quotas. Goodwill acquired in a business combination is accounted for in accordance with IFRS 3 and does not fall within the scope of IAS 38. Internally generated goodwill falls within the scope of IAS 38 but is not recognized as an asset because it is not an identifiable resource. Expenditure on an intangible asset is recognized as an expense. They are recognized in the balance sheet if the item meets the definition of an intangible asset and it is probable that the asset will generate future economic benefits. It must also be possible to reliably determine the cost of the asset.

The literature has already extensively reviewed the intangibles and identified them as potential sources of return (Shapiro et al., 1999; Rivette and Klein, 2000; Taghaboni-Dutta et al., 2009; Germeraad, 2010). As the results of Rivette and Klein (2000) show, IP investments enable companies to improve their potential future returns and achieves significant strategic and financial results in line with other structural capital (Edvinsson and Malone, 1997). Other researchers (Aboody and Lev, 1998; Mohd, 2005; Givoly and Shi, 2008) have shown that capitalizing development costs provides important insights for investors and limits information asymmetry between external and internal participants. It should be noted that investments in intangible assets must result in a positive expected present value for investors. An overview of the studies is provided by Subhas and Vishakha (2011). Aboody and Lev (1998), for example, investigate the relationship between software and future returns. Ji and Lu (2014) have found that intangible assets can have an impact on company values. Oliveira et al. (2010) assessed the recoverability of identifiable intangible assets and goodwill in the financial result. The analysis

of Portuguese listed companies between 1998 and 2008 determined the value relevance of goodwill, R&D investments and other intangible assets following the adoption of IFRS. Thibierge (2001), on the other hand, did not demonstrate a relationship between intangible assets and fair value in a sample of 261 French and Spanish companies. Cazavan-Jeny and Jeanjean (2003) refers to the significant difference between market values and book values in a sample of 470 French companies in the period 1994-1999. Kallapur and Kwan (2004) examined the value relevance of brand values in 33 British listed companies in the years 1985 to 1997. The results showed that brand values were value-relevant. They explained 96% of price fluctuations. Wolfe (1994), Lyon and Ferrier (2002), Darroch and McNaughton (2002), Balkin et al. (2000), Baker and Sinkula (2002), and Jiménez-Jiménez and Sanz-Valle (2011) also emphasize the key role that innovations play in enhancing a company's competitive advantage. Capon et al. (1990) point out in a meta-analysis of 32 empirical studies, there is a positive relationship between spending in innovations and company's profit and growth (see also Wöhrl et al., 2009).

Data and Methodology

In our analysis, we consider data from EURO STOXX 600 companies for the period 1995 to 2017. All data are taken from the Thomson Reuters Eikon database. When taking the period under review into account, a sample size of 13,800 data records is recorded. The adjustment for missing values leads to a reduction of the sample size and period length. The analysis period starts in year 2004 with 271 companies and ends in 2017 with 552 companies, depending on the year. The Intangibles to Sales quotas of the respective years of the TRBC Business Sector grew from 2004 with an average of 2.91% to 7.98% in 2017. Thus, on average the managers of the companies seem to have made higher and higher investments in the Intangibles. Of a total of 26 TRBC Business Sectors, two are shown in comparison to total TRBC Business Sector Average in the Figure 1 as examples over time.
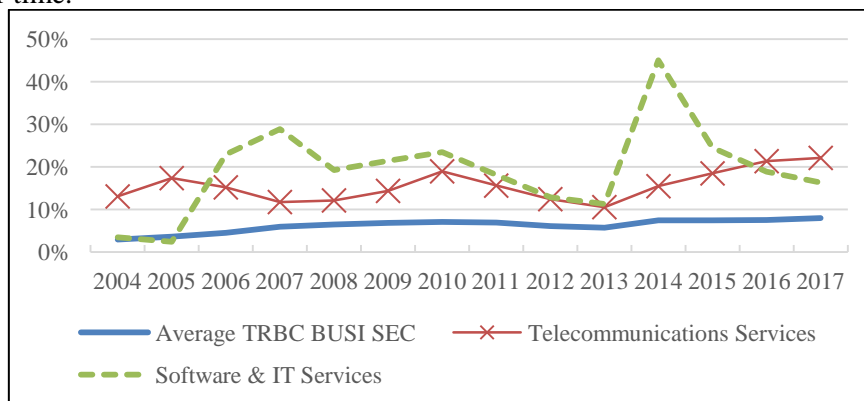

Figure 1. Average Intangibles to Sales Ratio TRBC Business Sector 2004 to 2017

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Table 1 also shows that the Telecommunications sector and the Software & IT sector are among the most innovative sectors and therefore have the highest rates of Intangibles to Sales. These are above the TRBC Business Sector average.

Table 1. Average Intangibles to Sales Ratio TRBC Business Sector 2004-2017 (in %)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Applied Resources	1.05	2.24	1.27	0.87	0.78	0.69	0.50	0.59	0.74	2.05	2.10	2.16	3.16	3.35
Automobiles & Auto Parts	0.69	0.84	0.88	2.27	1.87	2.08	1.60	1.88	1.78	2.33	1.36	1.49	1.48	12.5
Banking & Investment Services	1.99	2.11	3.28	7.47	8.90	9.68	8.37	7.03	6.79	7.51	7.07	8.10	8.20	7.53
Chemicals	4.39	3.60	4.51	4.92	4.88	5.03	4.14	5.88	5.24	4.70	5.65	6.26	6.03	5.95
Cyclical Consumer Products	1.06	1.03	1.07	1.11	2.12	1.55	1.45	1.40	1.65	1.39	1.56	1.61	1.68	1.58
Cyclical Consumer Services	4.34	12.29	9.38	10.77	11.4	7.95	8.28	7.84	7.57	6.89	7.96	9.59	13.77	10.06
Energy - Fossil Fuels	4.10	2.80	8.86	9.76	12.58	13.47	21.52	14.61	11.00	7.28	7.42	10.17	12.42	15.38
Food & Beverages	0.75	1.33	1.36	1.23	3.34	3.09	3.56	3.24	3.62	3.34	3.86	4.28	3.60	3.09
Food & Drug Retailing	2.82	0.75	0.67	0.64	0.57	0.83	0.76	0.72	0.67	0.35	0.10	0.13	0.30	0.28
Healthcare Services & Equipment	2.37	10.61	8.04	10.02	10.95	11.12	10.70	10.93	6.74	5.40	6.13	5.44	5.70	6.57
Holding Companies	0.00	0.19	0.16	0.09	0.24	0.06	15.15	6.08	11.31	17.60	10.73	12.76	12.94	12.08
Industrial & Commercial Services	3.98	2.32	3.62	6.38	8.34	7.20	6.97	8.13	7.89	8.54	9.93	9.90	9.85	10.07
Industrial Conglomerates	0.47	1.39	4.28	4.58	5.73	5.45	4.95	3.69	4.10	5.04	3.76	3.89	3.08	7.60
Industrial Goods	1.79	3.11	3.70	5.78	7.74	6.66	6.37	7.01	8.41	7.31	8.34	8.08	9.98	8.40
Insurance	1.48	1.08	1.05	1.50	2.67	3.41	2.14	3.28	3.67	4.29	6.09	12.94	4.90	5.12
Mineral Resources	1.12	1.11	0.97	2.62	0.99	1.95	1.13	1.29	1.72	1.79	1.44	2.10	1.91	2.05
Personal & Household Products & Services	0.51	0.79	1.69	1.89	2.08	1.65	2.06	5.62	6.33	5.64	5.20	5.24	6.80	6.85
Pharmaceuticals & Medical Research	4.06	5.17	8.13	9.16	7.45	16.64	13.20	20.52	14.10	5.82	7.58	4.70	4.26	13.33
Real Estate	0.10	0.18	2.82	0.88	1.23	1.36	1.26	1.08	1.21	6.04	4.29	4.11	4.00	2.77
Renewable Energy	1.65	0.06	0.08	0.00	0.11	0.09	0.13	0.14	0.08	0.07	0.02	0.14	0.28	6.82
Retailers	2.51	1.46	0.88	2.07	1.04	0.90	1.14	1.24	1.25	2.03	1.87	1.35	1.59	1.74
Software & IT Services	3.42	2.42	22.94	28.87	19.21	21.40	23.4	18.08	12.88	11.26	45.03	24.51	18.83	16.33
Technology Equipment	1.84	2.09	2.10	3.04	3.90	4.96	3.77	5.35	3.40	4.70	5.13	6.13	7.01	7.73
Telecommunications Services	13.05	17.35	15.18	11.74	12.12	14.35	18.94	15.59	12.41	10.54	15.45	18.46	21.33	22.10
Transportation	2.21	1.95	1.60	1.74	3.85	4.16	6.74	6.00	1.38	1.86	2.48	3.20	3.32	6.23
Utilities	2.21	2.33	2.25	3.12	3.14	3.48	3.22	3.22	3.10	3.24	3.12	3.61	4.63	5.01
Average TRBC BUSI SEC	**2.91**	**3.64**	**4.47**	**5.92**	**6.42**	**6.85**	**7.05**	**6.92**	**6.04**	**5.73**	**7.41**	**7.46**	**7.54**	**7.98**

Two of the TRBC Business Sectors are also showing an interesting development, driven primarily by innovation. On the one hand the Sector Automobiles & Auto Part., and on the other Banking & Investment Services. The first sector has

a strikingly low ratio of intangible to sales until 2016. In 2017, however, a high. On the one hand, this is due to the discussion about diesel and, above all, to coercion caused by electro mobility. Companies are forced to do more research and thus invest more in innovation. The second sector (Banking & Investment Services), on the other hand, is strongly influenced by digitization. For example, digitization puts a lot of pressure on the old-established financial companies. This happens as new innovative start-ups enter the market. Thus, the financial companies are forced to invest more in innovation. In this sector, the intangible to sales ration rises from 1.99% in 2004 to 7.53% in 2017. In 2015 and 2018, it was above 8%.

The inductive analysis is performed using two different models. The first model represents a multivariate regression analysis. The dependent variable is the success of the company. This is represented by the annual return of the company.

$$r_{t,i} = \frac{P_{t,i} - P_{t-1,i}}{P_{t-1,i}} \tag{1}$$

The stock market performance is described by $r_{t,i}$. The return calculation is based on share price at time t of company i $P_{t,i}$ and the share prices of company i at the end of the previous year $P_{t-1,i}$.

The independent variables are intangible assets, the market to book ratio, the debt ratio and profitability. Intangible assets are initially collected as book values from the companies' balance sheets. However, adjustments still have to be made, as it can be assumed that the absolute level of the intangible assets is unlikely to be meaningful. In the first step, the influences of the size effects are adjusted. The intangibles are weighted by the sales revenues of the same year. The second step then focuses on the change in the intangibles. The assumption is made that the positive change in Intangibles to Sales could have an influence on the success of the company. The consideration of the Intangibles to Sales ratio alone has hardly any causal explanatory content due to the static nature of the key figure on the success of the company, which is determined dynamically by definition.

$$\Delta IA_{t,i} = \frac{\dfrac{Intangible\ Assets_{t,i}}{Sales_{t,i}} - \dfrac{Intangible\ Assets_{t-1,i}}{Sales_{t-1,i}}}{\dfrac{Intangible\ Assets_{t-1,i}}{Sales_{t-1,i}}} \tag{2}$$

The market to book ratio represents the relationship between the market $MVE_{t,i}$ and the book value $BVE_{t,i}$ of the company's equity.

$$Market\ to\ Book\ Ratio_{t,i} = \frac{MVE_{t,i}}{BVE_{t,i}} \tag{3}$$

The debt-equity ratio is calculated from the ratio of borrowed capital to the book value equity $BVE_{t,i}$ of the company.

$$Debt \quad Ratio_{t,i} = \frac{Debt_{t,i}}{BVE_{t,i}} \tag{4}$$

Finally, profitability is calculated on the basis of the EBITDA margin.

$$EBITDA \quad M\arg in_{t,i} = \frac{EBITDA_{t,i}}{Sales_{t,i}} \tag{5}$$

The correction for missing values leads to a reduction of the sample size to 5,195 data records. The analysis of the first multivariate model leads to the statistics listed in Table 1. The multivariate model is structured as follows:

$$r_{t,i} = \alpha + \beta \times \Delta IA_{t,i} + \gamma \times M/B_{t,i} + \delta \times D/E_{t,i} +$$
$$+ \kappa \times EBITDA \quad M\arg in_{t,i} + \varepsilon \tag{6}$$

Research Results

The multilinear model is highly significant overall (see Table 2). However, it has a very low R square. With the exception of the intangibles, all explanatory variables are highly significant.

Table 2. Multilinear Model Coefficients and their significance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.101[a]	0.010	0.009	0.34916	1.391

a. Predictors: (Constant), EBITDA_to_Sales, Delta_Intangibles_to_Sales, Market_to_Book, Debt_to_Equity
b. Dependent Variable: Stock_Return

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.460	4	1.615	13.247	.000[b]
	Residual	632.840	5191	0.122		
	Total	639.300	5195			

a. Dependent Variable: Stock_Return
b. Predictors: (Constant), EBITDA_to_Sales, Delta_Intangibles_to_Sales, Market_to_Book, Debt_to_Equity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.112	0.006		19.120	0.000
	Delta_Intangibles_to_Sales	-5.601E-05	0.000	-0.008	-0.576	0.565
	Market_to_Book	0.001	0.000	0.059	3.901	0.000
	Debt_to_Equity	-0.004	0.001	-0.057	-3.743	0.000
	EBITDA_to_Sales	0.079	0.014	0.078	5.675	0.000

a. Dependent Variable: Stock_Return

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-0.4025	1.4461	0.1274	0.03526	5196

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Residual	-1.22877	4.73864	0.00000	0.34902	5196
Std. Predicted Value	-15.027	37.397	0.000	1.000	5196
Std. Residual	-3.519	13.572	0.000	1.000	5196

a. Dependent Variable: Stock_Return

However, it is noticeable that in the multivariate model the regression coefficient of Delta Intangible to Sales is negative. This would mean that performance will decline as the Delta Intangible to Sales ratio increases. This connection does not mean that it is causal. For the other variables, however, the relationships are comprehensible. As debt increases, performance declines. As profitability increases, performance increases. And as the market to book ratio increases, so does the performance. All variables are also highly significant.

Table 3. Univariate Models Coefficients and their Significance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.015[a]	0.000	0.000	0.37964	a. Predictors: (Constant), Delta_Intangibles_to_Sales_TL
2	.008[a]	0.000	0.000	0.37967	a. Predictors: (Constant), Delta_Intangibles_to_Sales_12M
3	.032[a]	0.001	0.001	0.37948	a. Predictors: (Constant), Delta_Intangibles_to_Sales_24M
4	.013[a]	0.000	0.000	0.37965	a. Predictors: (Constant), Delta_Intangibles_to_Sales_36M
5	.061[a]	0.004	0.003	0.37897	a. Predictors: (Constant), Delta_Intangibles_to_Sales_48M

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.100	1	0.100	0.694	.405[b]
	Residual	454.002	3150	0.144		
	Total	454.102	3151			
2	Regression	0.029	1	0.029	0.198	.656[b]
	Residual	454.073	3150	0.144		
	Total	454.102	3151			
3	Regression	0.475	1	0.475	3.296	.070[b]
	Residual	453.627	3150	0.144		
	Total	454.102	3151			
4	Regression	0.080	1	0.080	0.555	.456[b]
	Residual	454.022	3150	0.144		
	Total	454.102	3151			
5	Regression	1.709	1	1.709	11.902	.001[b]
	Residual	452.393	3150	0.144		
	Total	454.102	3151			

a. Dependent Variable: Stock_Return_TL
b. Predictors: (Constant), Delta_Intangibles_to_Sales_TL /+12M/+24M/+36M/+48M

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.122	0.007		18.045	0.000

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	Delta_Intangibles_to_Sales_TL	0.000	0.000	0.015	0.833	0.405
2	(Constant)	0.122	0.007		18.105	0.000
	Delta_Intangibles_to_Sales_12M	5.323E-05	0.000	0.008	0.445	0.656
3	(Constant)	0.122	0.007		18.102	0.000
	Delta_Intangibles_to_Sales_24M	0.000	0.000	0.032	1.816	0.070
4	(Constant)	0.122	0.007		18.144	0.000
	Delta_Intangibles_to_Sales_36M	0.000	0.000	0.061	3.450	0.001
5	(Constant)	0.122	0.007		18.144	0.000
	Delta_Intangibles_to_Sales_48M	0.000	0.000	0.061	3.450	0.001

a. Dependent Variable: Stock_Return_TL

The lack of significance of the intangibles in the multivariate regression model leads to a detailed analysis of the relationship between the intangibles and business performance. Here, a univariate regression with the company return $r_{t,i}$ as a dependent variable and the $\Delta IA_{t,i}$ as an independent variable is established. Four different model situations are also taken into account. The intangible asset variable is shifted by 12 ($\Delta IA_{t-1,i}$), 24 ($\Delta IA_{t-2,i}$), 36 ($\Delta IA_{t-3,i}$) and 48 ($\Delta IA_{t-4,i}$) months from the share price. This time lag shift should take into account the fact that the intangibles represent a strategic investment due to their character, which should lead to time delays in the realization of value. The statistics of this study are presented in the Table 3. The results show that the significance of the regression models increases with increasing time lag. However, the R square has very low values. Looking at the statistics shows that the Delta Intangibles to Sales ratio in a year cannot explain the performance of the same year. Only the temporal shift leads to the increase in significance. The coefficients of the Delta Intangibles to Sales Ratio are positive compared to the multivariate model, which can now be understood. As investment in innovation increases, business management can increase performance. However, it is reasonable to note that the timing of the impact on performance should be considered by management in strategic decisions. In addition, another effect can be observed with the regression coefficient. Not only does he become more significant with the time shift, he is also more constant and higher. It increases from 0.015 without time shift to 0.032 when shifting by 24 and to 0.061 when shifting by 36 and 48 months.

Conclusion

This paper aims to explore the question of the success of management decisions to invest in innovation. Success was defined as performance on the capital market, which was determined on the basis of annual returns. The sample examined

comprised 600 companies in the EURO STOXX 600. The period considered was from 1995 to 2017. However, due to a lack of values, the covering period had to be shortened to the time frame from 2004 to 2017.

The analyses focused on intangible assets. In the context of this paper, intangible assets were defined as proxy variables for determining management investments in innovations. On the one hand, the analysis found that between 2004 and 2017 companies increased the Intangibles to Sales Ratio from 2.91% to 7.98% on average. The "Telecommunication Service" and "Software & IT Services" business sectors are outperforming the TRBC Business Sector.

In order to investigate the defined relationship between company performance and investment in innovation, on the other hand we have developed and empirically tested two theoretical models. First, 5,195 data sets of the EURO STOXX 600 companies were empirically tested in a multivariate regression analysis between 2004 and 2017. The intangible assets were calculated as "Delta Intangible-Assets-to-Sales-Ratio". The change in intangible assets in relation to sales has two advantages. On the one hand, the influence of size effects is eliminated in this way. On the other hand, the change in intangibles to change performance has a higher causality than intangible asset book value. Although the first multivariate model was highly significant overall. Also the independent parameters, market to book, debt to equity ratio and profitability were high significant. No significant influence on company performance could be demonstrated for the "Delta Intangible-Assets-to-Sales-Ratio".

The second theoretical model focused on the univariate study of the relationship between the "Delta Intangible Assets to Sales Ratio" and corporate performance. However, based on the findings of the first theoretical model, the time lag of this relationship is 12, 24, 36 and 48 months. This time lag seems necessary because it can be assumed that the effects of investments in innovations, illustrated by intangibles, only influence the company performance with a time lag. A total of 5 empirical models were examined. It was determined that the intangibles 24, 36 and 48 months later significantly influence company performance.

Compared to the literature, our analysis verifies the results of Capon et al. (1990) and Rivette and Klein (2000). Both have demonstrated a positive relationship between investment and corporate performance.

From the practical perspective of corporate management, these relationships were implied in the course of the paper. This is evidenced by the increasing rate of intangibles to sales. For corporate management, there are two main lessons to be learned from the results obtained. On the one hand, an investment in innovation leads to increased performance. On the other hand, however, the timing is crucial. Investment in innovation takes time to be capitalized by the market. These insights encourage top management to invest in innovation.

The limits of the ongoing study are the exclusive turn to the intangibles. So the intangibles are just a collective item for many types of investment. Thus, for further scientific analysis, investment in R&D should be included as the second

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explanatory variable. At the same time, a comparison with companies in the S & P500 could provide more insight into the topic. Because the US companies are significantly more innovative in the wake of digitization and also show higher investment volume in innovation than European companies.

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WPŁYW DECYZJI ZARZĄDCZYCH DOTYCZACYCH INWESTYCJI W INNOWACJE NA WYDAJNOŚĆ RYNKU PAPIERÓW WARTOŚCIOWYCH: ANALIZA EMPIRYCZNA

Streszczenie: W niniejszym artykule przeanalizowano hipotezę, że decyzje kierownictwa o inwestowaniu w innowacje mają wpływ na wyniki biznesowe. Jako zmienną zastępczą dla inwestycji w innowacje wykorzystano "stosunek wartości niematerialnych delta do sprzedaży". W odniesieniu do wyników badań wykazano, że "wskaźnik wartości niematerialnych delta do sprzedaży" może z łatwością wyjaśnić wyniki firmy za 24 miesiące i bardzo znacząco za 36 miesięcy. Jednak, jakość wyjaśnienia (R kwadrat) zakłada bardzo niskie wartości. Wraz ze wzrostem inwestycji w innowacje, zarządzanie firmą może zwiększyć wyniki na giełdzie. Należy jednak zauważyć, że w podejmując decyzje zarządcze należy wziąć pod uwagę terminy inwestycji i wpływ na wyniki. Inwestowanie w innowacje jest, zatem decyzją zarządzania strategicznego.

Słowa kluczowe: sukces przedsiębiorstwa, innowacje, wartości niematerialne, wartość dla akcjonariuszy, wyniki giełdowe

管理决策对股票市场表现创新投资的影响：实证分析

摘要：本文考察了投资创新的管理决策对业绩的影响这一假设。

我们使用"Delta无形资产与销售比率"作为创新投资的代理变量。

关于研究结果，显示"三角洲无形资产与销售比率"可以很容易地解释公司在24个月内

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的表现，并在36个月内非常显着。但是，解释的质量(R平方)假定值非常低。

随着创新投资额的增加，公司管理层可以提高股票市场的表现。

但是，值得注意的是，管理层应考虑投资的时间安排和对业绩的影响。

因此，投资创新是战略管理决策。

关键词：企业成功，创新，无形资产，股东价值，股票市场表现。