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# **ANALYSIS OF CORRELATION BETWEEN INTANGIBLE ASSETS AND SUCCESSFUL PERFORMANCE OF COMPANIES**

*Šime Guzić, PhD;  
RRiF-plus, Zagreb, Croatia*

## **ABSTRACT**

Intangible assets are in some cases identified with the accounting term of the part of intangible property presented in financial statements.

However, the scope of intangible assets is much wider than the one entered in business records and financial statements of companies. But even such an incomplete coverage of intangible assets provides the possibility of analyzing the correlation of business results and the value of intangible assets. The scientific methods of statistical analysis have determined a strong connection between positive business results of companies and the value of certain forms of intangible assets.

*Keywords: intangible assets, business performance, linear regression, correlation, determination*

## **1. INTRODUCTION**

This paper deals with a special topic - research of correlation between the value of intangible assets reported in the balance sheets of companies in Croatia and business results of these companies. Business results analyzed are first of all reported earnings of these companies and their stochastic correlation with the reported value of intangible assets.

This kind of research with such data has not been carried out in Croatia so far, although there have been certain research on intangible assets or their parts, especially in the field of intellectual capital.

The aims of the research are: C1 - *To determine the value of intangible assets and the dynamics of property movement in the companies in Croatia* and C2 - *To determine the influence and the power of influence of intangible assets on business results of the companies in Croatia.*

The research was based on the examples of financial statements over five years in a row from the companies classified as the biggest trading companies in 2005 in the first year of selected data. The research was carried out on the basis of the secondary data, i. e. the public data announced as official and submitted to the Financial Agency for statistics purposes in accordance with Art. 21 §1 of the Accounting Act.

According to the certain aims of the paper hypotheses have been suggested, which will be tested in this research: **H1** – *Intangible assets in the balance sheets of trading companies in Croatia demonstrate dynamic growth*, **H2** – *Intangible assets have a significant influence on business results of trading companies.*

The research was conducted using a scientific methodology and a number of scientific methods such as induction and deduction, the method of analysis and synthesis, description method, empirical-experimental method, method of statistical analysis of data, with a particular emphasis on the analysis of collected data by linear regression.

This being said, it was assumed that the dependent economic category is a result of a business performance of trading companies, and the independent variable are intangible assets.

## **2. DEFINITION AND CHARACTERISTICS OF INTANGIBLE ASSETS**

Intangible assets have no generally accepted meaning in literature, in scientific analysis or in practical statements when it comes to reporting on the value of these assets.

Intangible assets have no single definition in theory, and in practice this type of property is not treated in the same way as well. This also applies to the cases when intangible assets are observed in the given time, but also when the understanding of this property is observed in the dynamics of relationship development towards this form of property, as well as the development of human society.

Intangible assets are sometimes defined very broadly, and sometimes very narrowly, embracing the whole spectrum of different forms of property or only the most important parts of intangible assets.

The basic characteristic of intangible assets often contains criteria characterized by intangibility, invisibility and immensity.

Thus, the definition of this property is based on the criteria of immateriality, durability and lack of marketable value, "Intangible (impalpable) assets (germ. immaterielle Vermögenswerte) is part of the companies' property (resources), that does not have a (physical) form and belongs to the group of permanent resources (fixed assets). Impalpable assets usually do not have any fixed realistic marketable value other property forms have...."<sup>1</sup>

Intangible assets are also understood as "the property which is not material by its nature. The following three categories can be included in this group:

1. *Intellectual property: patents, trademarks (name, logo), industrial design, copyright...*
2. *Relations: among employees, relations with consumers and distributors...*
3. *Rights: licenses, franchises, certificates, employment contracts, distribution, financial contracts...*<sup>2</sup>

In this definition of intangible assets only this property, which is not material, is excluded rather imprecisely from the composition of intangible assets. It is not clear whether the term of financial contracts includes financial property, receivables and other forms. It only emphasizes the problem of the complexity of definition of intangible assets.

In a similar way intangible assets are understood as: "...property which is used in business performance of companies and which doesn't have physical substance and is not current."<sup>3</sup>

The definition of intangible assets according to the International Financial Reporting Standards is the closest to the subject of research. "Intangible assets are no-monetary assets without physical characteristics, which can be identified."<sup>4</sup> The most common forms of such intangible assets are found under the following titles: computer software, patents, licenses, copyright, films, customer lists, mortgage rights, fishing licenses, import quotas, franchises, relationship with customers and suppliers, customer loyalty, market share and marketing rights, market knowledge, trademarks, (brands and publishing titles), design, model, process, plan, draft or formula. This property can be viewed as property based on copyright or industrial property rights, but also as property created by the work of employees, knowledge and ability of the company as a single entity.

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<sup>1</sup> Ekopen. URL: <http://www.ekopen.hr/> [June 20th 2009.]

<sup>2</sup> Matijević, N. Infotrend. URL: <http://www.infotrend.hr/>[June 20th 2009]

<sup>3</sup> Meigs & Meigs. (1999) Računovodstvo kao temelj odlučivanja (Hrvatsko izdanje). Zagreb: Mate p. 474.

<sup>4</sup> Narodne novine (2009) Međunarodni standardi financijskog izvještavanja. Međunarodni računovodstveni standard 38 Nematerijalna imovina. Zagreb: Narodne novine d.d., (136)

Another problem of understanding of intangible assets is the availability of data for scientific research. The most valuable source of information are balance sheets of trading companies. However, we should bear in mind the limitations of this source since it does not cover all forms of intangible assets and the analysis based on such information does not give a complete picture of the meaning of intangible assets. In fact, balance sheets do not include intellectual capital, intangible assets created in the society itself, such as trademarks, customer lists, etc., they include only purchased, recorded property with a defined value.

With the development of science and technology which accelerates every day, intangible assets gain increasing importance in balance sheets of trading companies, and their value becomes more significant. Such tendency should also be considered as a result of the developing forms of trading relations between companies, transfer of technology and copyright, licenses and concessions, as well as development of the accounting sphere and understanding of the need to include this form of property and its meaning into the accounting sphere for successful business performance.

Considering intangible assets of trading companies one could distinguish two conditional forms of intangible assets. In the first place it is the property recorded in the ledgers of the companies acquired by a single purchase or acquisition or merger of other legal entities, which owned some forms of intangible assets, which can be distinguished from goodwill, as well as the goodwill itself, which is created in this process. The second part of the company's intangible assets is the part of property, which is not recorded in the ledgers of the company, and which in some cases can reach up to 80% of the market value of the company<sup>5</sup>.

In this regard the term intellectual property and intellectual capital is being used more and more in theory and in practice. Since the components of these terms are closely linked with each other, their consideration can not be ignored. „Intellectual capital is understood as a relatively new, complex economic category, which represents all business factors, which have not been explicitly expressed in traditional financial statements, but still provide additional value in the organization and significantly influence the long-term profitability and competitiveness of business“<sup>6</sup>

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<sup>5</sup> Matijević, N. op. cit.

<sup>6</sup> Sundač, D. i Švast, N. (2009) *Intelektualni kapital temeljni čimbenik konkurentnosti poduzeća*. Zagreb: Ministarstvo gospodarstva, rada i poduzetništva, p. 35.

On the other hand, intellectual property has a slightly different scope, such as „the entire materialized, codified knowledge: patents, licenses, copyright, franchise, software programs, and all other materialized value human capital“.<sup>7</sup>

In other words, intellectual property is not included into the financial statements of trading companies, whereas intellectual property includes recognizable knowledge and is usually put into financial statements if it can be identified, if it has value, is purchased from others and increases the future economic benefits of the society.

Today we can observe the emerging phenomenon of companies supporting each other in the growth and development of intellectual property and competitive advantages, relying not only on their intellectual capital, but also on the intellectual capital of other companies, organizations and institutions in specialized clusters, micro clusters or areas, where these subjects are located. This form of intellectual capital is based on the external and collaborative nature, it builds one of the key elements of the network organization and can be called social capital<sup>8</sup>, because it emerges in the atmosphere of the neighborly environment. Social capital and the system of comparison with the better (benchmarking system) is a management tool that identifies, compares and uses resources and capacities of social capital.

### 3. PREVIOUS RESEARCH

In this paper the research will be focused on the part of intangible assets recorded in the ledgers or balance sheets of companies since their data was officially published. Another part of intangible assets that some companies certainly have, such as *brand, (trademark,) trade sign, knowledge, hence intellectual capital, but also social capital etc.*, is not included in this research if it was created in the society itself. Some of these forms of intellectual capital (*brand, trade sign*) can become intellectual property or intangible assets of the company that has acquired them by a single acquisition or by acquisition or merger of other companies, and in this form it becomes the subject of interest of this paper. Property acquired in this way is recorded in the ledgers of the acquirer only if it can be recognized as such and if its value that can be determined.

The central topic of the research in this paper is analysis of the value of intangible assets recorded in the balance sheets or officially published financial statements of the selected trading companies in the period from 2005 to

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<sup>7</sup> Sundać, D., Švast, N. op. cit. p. 43.

<sup>8</sup> José María Viedma Marti. Social capital benchmarking system: Profiting from social capital when building network organizations. *Journal of intellectual capital* Volume: 5 Issue: 3 2004. p. 426 – 442. Available at <http://www.emeraldinsight.com/search.htm?st1=social+capital&ct=jnl&fd1=all&bl2=and&st2=1469-1930&fd2=isn>. [June 12th 2011.]

2009 and its correlation with business results of these companies, in this case represented by the profit of this period.

Research on intangible assets can be found in the works of A. Pulić (VAIC™ – an accounting tool for IC management 2000.), B. Lev (Intangibles, Measurement, and Reporting 2001.), T. Gad (4-D Branding – Razbijanje korporacijskog koda mrežne ekonomije 2001.), J.A. Cohen (Intangible Assets – Valuation and Economic Benefit 2005.), D. Predovic (Vrednovanje marke 2007.), R. L. Parr, G.V. Smith (Intellectual property – Valuation, Exploitation and Infringement damages 2009), on the methods of value determination of intangible assets in the works of R.F. Reilly, R.P. Scheish (Valuing Intangible Assets 1998.) and other works on the knowledge economy, D. Andriessen (Making Sense of intellectual capital 2004.) and many other works, that dealt with intangible assets in various ways.

In Croatia there are only a few works dedicated to intangible assets. In this field well-known are the works of K. Jelčić (Priručnik za upravljanje intelektualnim kapitalom u tvrtkama), M. Kolaković (Intelektualni kapital poduzeća i njegovo mjerenje), N. Knego, D. Hulenčić (Poslovna izvrsnost i efikasnost intelektualnog kapitala), D. Kovačić (Intelektualni kapital – temelj konkurentne prednosti – Kako mjeriti vrijednost nematerijalne imovine), A. Pulić i D. Sundać (Intelektualni kapital 1998.), D. Sundać, N. Švast, (Intelektualni kapital temeljni čimbenik konkurentnosti poduzeća 2009.). Except for N. Knego and D. Hulenčić a few authors deal with the analysis of real data and estimates of the influence of intangible assets on the value or estimation of the effectiveness of economic institutions.

On the other hand, we know about value estimations, which practically use certain methods to create a successfulness list of companies, company value and similar criteria. One of them is officially known to the public as a method of determining the value of the company Interbrand, which publishes a ranking list of the most valuable brands in the world<sup>9</sup>.

Croatia is also trying to establish a ranking using appropriate methods and to announce the most famous brands. One of such initiatives is a project called PGM Product Group Manager, which makes a ranking list of the strongest brands in Croatia.<sup>10</sup>

According to the published research (R.L. Parr, G.V. Smith 2009), in the last 30 years, in the period from 1975 to 2005, the percentage of intangible assets in the market value S&P 500's grew from 16,8 to 79,7%.

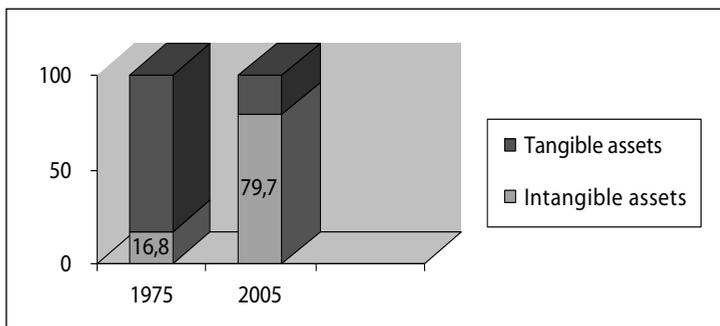
The meaning and value increase of intangible assets in the market value S&P 500 is shown on Figure 1 below.

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<sup>9</sup> URL:<http://www.interbrand.com/en/best-global-brands/2013/Best-Global-Brands-2013.aspx> [June, 28th 2014.]

<sup>10</sup> URL:[http://http://www.valicon.net/uploads/Obavjest\\_za\\_medije\\_2013\\_12\\_20.pdf](http://http://www.valicon.net/uploads/Obavjest_za_medije_2013_12_20.pdf) [April, 28th 2014.]

**Figure 1.** Tangible vs. intangible assets <sup>11</sup>



Source: Parr, R.L., Smith G.V.: *Intellectual property*, p.5.

#### 4. SELECTED DATA FOR THE ANALYSIS

Investigation of possible influence of intangible assets on the successfulness of business performance was carried out on the example of officially published financial statements of 200 biggest trading companies (business subjects) in the period from 2005 to 2009. The data were obtained from FINE.

Out of these 200 trading companies (selected group) 78 were formed as joint stock companies, 120 as limited liability companies, one limited partnership and one branch of a foreign entrepreneur, as shown in the Table 1 below.

**Table 1.** Organizational forms of the selected companies

Organizational form	Number
Joint stock company	78
Limited liability company	120
Limited partnership	1
Branch of foreign entrepreneur	1
Total	200

Source: Author's analysis based on the data of financial statements by selected trading companies according to secondary data obtained from FINA, which the institution collects for statistical purposes

The value of intangible assets of this group of business subjects gives interesting information, as shown in Table 2. It is shown that the average value of intangible assets in selected companies amounts to 31,9 Mio. kuna, whereas the highest recorded value of intangible assets in some company amounts to over three billion kuna. On the other hand, there are companies where intan-

<sup>11</sup> Parr, R.L., Smith, G.V. (2009) *Intellectual property (valuation, exploitation and infringement damages)*. New Jersey: John Wiley & Sons, Inc. Hoboken. p. 5.

gible assets are being ignored. From all studied annual financial statements (1.000 pieces) some form of intangible assets appears in 867. The most common form of intangible assets appears 741 times, the least common - 68 times. The profit of the period appears 951 times, whereas the loss of the period appears 44 times. This means that in case of selected companies profit appears regularly, while the loss appears in 4,4% of cases.

The standard deviation indicates a relatively high dispersion of data in the group, which can also indicate very different activities and different dependence of certain activities on intangible assets.

**Table 2.** Number of data and the main statistical measures for the analysis of financial indicators in the period from 2005 to 2009.

Financial indicator	Number of data	Average value	Minimum	Maximum	Standard deviation
Noncurrent assets	994	672.243.282	130.015	21.894.237.832	2.012.704.848
Intangible assets	867	31.904.125	46	3.092.855.306	165.695.783
Expenditure for development	97	12.697.816	400	182.747.475	30.191.966
Concessions, patents, licenses, trademarks and service marks, software and other rights	741	21.317.673	42	3.092.855.306	155.420.292
Goodwill	68	37.363.407	2.750	417.501.662	96.085.316
Advance payments for purchase of intangible assets	68	31.539.915	7.306	702.653.963	122.936.176
Intangible assets under construction	102	9.110.678	4.941	203.273.667	29.365.241
Other intangible assets	249	20.152.923	149	934.138.259	103.181.067
Tangible assets	989	380.666.534	85.577	14.637.815.977	1.032.745.505
Total assets	995	1.089.059.637	31.685.370	27.122.231.483	2.547.129.682
Profit of the period	951	61.646.588	80.742	2.420.651.857	182.365.815
Loss of the period	44	47.644.218	34.517	259.391.794	67.114.906

*Source: Author's analysis based on the data of financial statements by selected trading companies according to secondary data obtained from FINA, which the institution collects for statistical purposes*

Large enterprises, for example, are chosen because of business continuity, due to the better organization of accounting functions, based on routine accounting policies. Large enterprises with better and deeper organizational structures give more attention to the recording of intangible assets. Business policy of these companies is not facing short-term goals. Indeed, due to their size, constant activity and business continuity in this segment, it is difficult to organize business operations on short-term principles.

On-site explorative research also stated that intangible assets are significant in the property structure of certain large trading companies<sup>12</sup>, and business results of these companies are among the leaders, i.e. according to research exactly these entrepreneurs are listed among the top 10 of 500 most successful<sup>13</sup>, so a logical question was put, what brings this result to these subjects.

In order to come to realistic and objective results, as well as the possible application of mathematical methods in the analysis of data, the period of five years was chosen. This way 995 financial statements with numerous data were analyzed, and when one takes into account the total analysis, this means the analysis of more than 15.000 data, of which the independent variable (business result – profit) makes less than 951 data. In fact, the profit of trading companies was recorded in financial statements 951 times (95,6%), whereas the loss was recorded only in 44 cases or in 4,4%.

The total value of intangible assets of the selected entrepreneurs increases constantly, (in 2006 8,8% compared to the previous year, in 2007 18,3% compared to the previous year, in 2008 63,5%, and in 2009 only 13,0%), so that in the given period it increased more than twice, i.e. 2,38 times. In the same period the group of intangible assets Concessions, patents, licenses, trademarks and service marks, software and other rights increased 2,7 times. Goodwill also increased in the given period, except for 2006, when a drop in the value of goodwill was recorded, in the end goodwill increased 8,9 times. It is also significant that in 2008 and 2009 cases of prepared intangible assets appear, which were not recorded as a specific form in the last three years, which can be attributed as a result of balance contents regulation. These data show that hypothesis H1 was confirmed, i.e. that intangible assets in the balance sheets of trading companies in Croatia are recorded to increase dynamically. Thus the first aim of the research was achieved, i.e. the value of intangible assets and the dynamics of property movement in trading companies in Croatia was confirmed based on financial statements of selected trading companies.

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<sup>12</sup> In 2009 T-Mobile Hrvatska d.o.o. has 580,3 Mio. intangible assets from the total long-term assets of 1.780,9 Mio. At the same time HT d.d. has 425,2 Mio. intangible assets from 7.987,2 Mio. long-term assets, Vipnet has 272,9 Mio. intangible assets from 1.788,6 Mio. long-term assets etc.

<sup>13</sup> Večernji list, FINA. Večernji list special issue May, 27th 2010. 500 najvećih i najuspješnijih. Zagreb

All of 200 entrepreneurs mentioned are big ones according to the criteria of the Accounting Act. According to the data of financial statements for the year 2009, the company with the most employees is Zagrebački holding d.o.o. 12.108, followed by Konzum d.d. 12.053, and Hrvatska pošta d.d. 11.393, Hrvatske šume d.o.o. with 9.172 employees, whereas the entrepreneur with the least employees is (4) ENI Croatia BV, a subsidiary in Croatia, whose activity is the extraction of natural gas. In addition to the above mentioned entrepreneurs with more than 10.000 employees, there are also 35 companies with over 1000 employees.

According to the data of financial statements, the number of employees in the total example of companies is 164.509 on December, 31st 2009, while in all the companies for which the data were collected that year (91.320 companies) in the same period 889.396 people were employed. That year 436 entrepreneurs which are classified as big with a total number of 302.161 employees, according to the data by FINA, have submitted financial statements for statistical purposes.

**Table 3.** Total intangible assets of selected trading companies

<b>Year</b>	<b>Total intangible assets</b>	<b>Expenditure for development</b>	<b>Concessions, patents, licenses, trademarks and service marks, software and other rights</b>	<b>Goodwill</b>	<b>Advance payment for the purchase of intangible assets</b>	<b>Prepared intangible assets</b>	<b>Other intangible assets</b>
<b>2005</b>	3.521.635.618	235.761.659	1.919.544.169	109.629.607	533.957.703		722.742.480
<b>2006</b>	3.830.613.172	292.497.352	2.036.068.307	96.743.184	729.742.516		675.561.813
<b>2007</b>	4.530.008.997	441.262.743	2.072.729.156	459.979.520	547.074.540		1.008.979.520
<b>2008</b>	7.407.078.713	130.149.999	4.516.822.608	894.417.773	116.958.991	469.194.583	1.279.534.759
<b>2009</b>	8.371.539.810	132.016.396	5.251.231.104	979.941.594	216.980.436	460.094.601	1.331.275.679
<b>Total part</b>	27.660.876.310	1.231.688.149	15.796.395.344	2.540.711.678	2.144.714.186	929.289.184	5.018.094.251
	100	4,45	57,11	9,18	7,75	3,37	18,14

Source: Author's analysis based on the data of financial statements by selected trading companies according to secondary data obtained from FINA, which the institution collects for statistical purposes

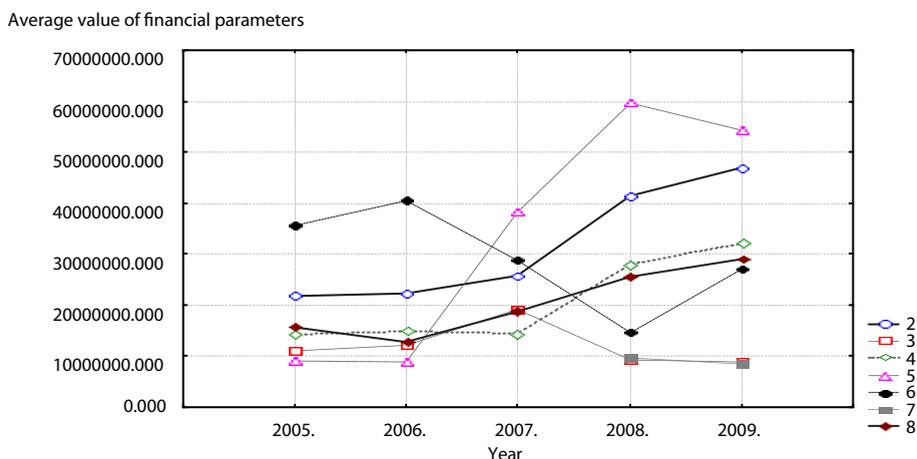
It turned out that in the structure of intangible assets a varied group concessions, patents and other rights has the highest percentage i. e. over 57%, whereas the percentage of goodwill is under 10% of intangible assets, and expenditure for development includes under 5% of the total value of intangible assets. Looking at the total absolute increase in the value of certain forms of

intangible assets, one can see that the group of intangible assets concessions, patents, software and other rights also has the second fastest growth in the given period (after goodwill).

## 5. RESEARCH RESULTS - CORRELATION BETWEEN BUSINESS RESULTS AND INTANGIBLE ASSETS

The research results first of all show growth dynamics of the value of intangible assets (Figure 2), and then a comparative growth overview of some economic variables, recorded in financial statements of trading companies (Figure 3.)

**Figure 2.** Analysis of growth dynamics of intangible assets in the period from 2005 to 2009.



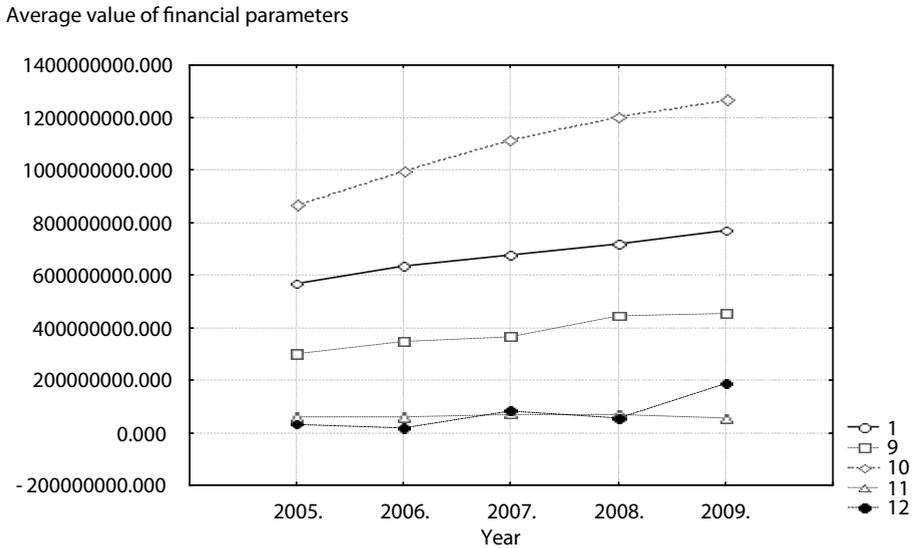
Source: Author's analysis based on the data of financial statements by selected trading companies in the period from 2005 to 2009. – Data source FINA

Legend: 2 - Intangible assets – total, 3 - Expenditure for development, 4 - Concessions, patents, licenses, trademarks and service marks, software and other right, 5 – Goodwill, 6 - Advance payment for the purchase of intangible assets, 7 - Prepared intangible assets, 8 - Other intangible assets)

The figure shows almost adjusted growth of financial value of intangible assets, goodwill, concessions, patents, licenses, service marks, software and other rights from the scope of intangible assets, while the advance payment for the purchase of intangible assets, as well as investments in intangible assets, are very unstable.

Figure 3 shows growth analysis of basic economic values of trading companies.

**Figure 3.** Analysis of dynamics of property, profit and loss in the period from 2005 to 2009.



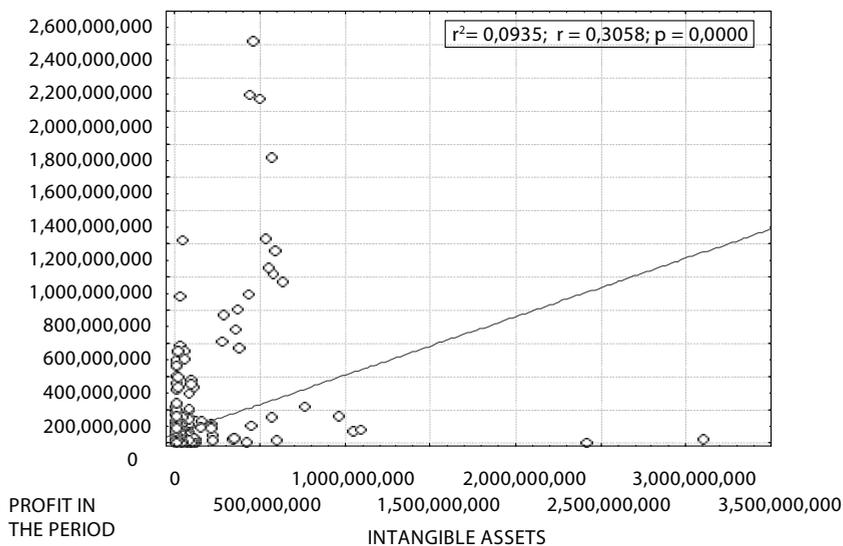
Source: Author's analysis based on the data of financial statements by selected trading companies in the period from 2005 to 2009. – Data source FINA

Legend: 1 – Long-term assets, 9 – Tangible assets, 10 – Total assets, 11 – Profit of the period, 12 – Loss of the period (absolute number)

The figure clearly shows that intangible assets, long-term assets and total assets of trading companies have a definite growth in the given period. At the same time the profit of the selected group of trading companies in the same period records a growth of (2006.) 7,0%, (2007.) 14,8%, (2008.) 1,0%, and (2009.) falling of 4,3%. In the given period the profit of the selected group of trading companies grew 4,9% (2009/2005), and the percentage of growth in 2008 compared to 2005 was 22,4%.

Correlation between the total value of intangible assets and the profit of trading companies in the given period (Figure 4).

**Figure 4.** Results of linear regression of *the period's profit* and intangible assets

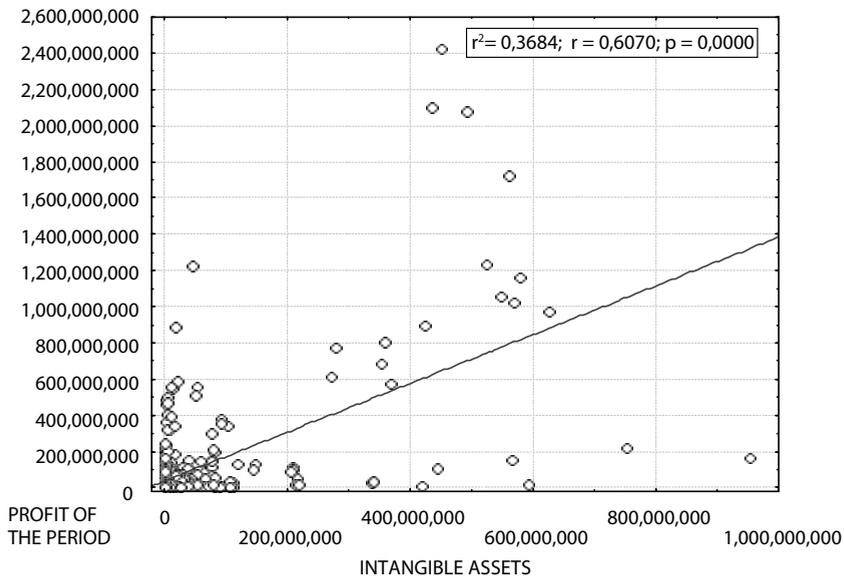


Source: Author's analysis based on the data of financial statements by selected trading companies. – Data source FINA

Profit of the period and the value of total intangible assets have a correlation coefficient of 0,3058, also proven by factor  $r^2$  of 0,0935 as easy connection.

Since a good part of trading companies record intangible assets in the amount which is less than one billion kuna, (most points concentrated in the lower left corner of the chart), it was necessary to examine this part of the property and its correlation with profit earning, the results of the research are shown in Figure 5.

**Figure 5.** Results of linear regression of *period's profit* and intangible assets with a value under 1.000.000.000 kn



Source: Author's analysis based on the data of financial statements by selected trading companies. – Data source FINA

Such analysis of the results of linear regression demonstrated on the data of trading companies having intangible assets with a value of less than one billion kuna shows even stronger positive correlation between business results and the value of intangible assets, which is particularly proven by the correlation coefficient  $r = 0,607$ , which can be considered to be a really **positive significant correlation**, or determination coefficient  $r^2 = 0,3684$ , which proves there is a connection of a **medium strength**, meaning that the given independent variable (intangible assets) and dependent variable (profit of the period) together have 37% of common elements. Thus the second aim of the research was achieved, i. e. the influence and power of influence of intangible assets on business results of trading companies in Croatia were tested.

The results of linear regression can be summarized in the following conclusion: **There is a statistically significant positive correlation between the profit of the period and intangible assets ( $p < 0,05$ ).** This confirmed the hypothesis H2 that intangible assets have a significant influence on business results of trading companies.

It can be concluded that the profit of the period is significantly statistically associated with intangible assets.

## 6. CONCLUSION

Financial statements of trading companies display intangible assets which fulfill the criteria for expression (one can reliably determine their value, they bring future economic benefits to the society), while certain part of intangible assets is not recorded in financial statements.

With the analysis of the data on the value of long-term intangible assets recorded in financial statements of the 200 biggest trading companies in Croatia in the period from 2005 to 2009 and their business results, with linear regression analysis, correlation coefficient and determination coefficient, as well as the analysis of the trend, intended aims of the paper C1 and C2 were attained.

The results of the analysis confirm the initial hypothesis. Confirmed was **H1** that *intangible assets become more and more significant in the balance structure of trading companies in Croatia. Initial hypothesis H2 was also confirmed – intangible assets have a significant influence on business results of trading companies.*

The conclusion about the correlation of these economic categories is being made based on correlation coefficient of 0,607 for trading companies with the value of intangible assets under one billion kuna. Determination coefficient in this case was recorded at 0,3684, and the value of p is 0,0000, which gives us the right to conclude that there is a significant connection between the tested values.

On the basis of these relations one can make a general conclusion that there is a significant correlation between the elements of intangible assets and business results of trading companies.

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## **ANALIZA MEĐUOVISNOSTI NEMATERIJALNE IMOVINE I USPJEŠNOSTI POSLOVANJA TRGOVAČKIH DRUŠTAVA**

### **SAŽETAK RADA**

Nematerijalna se imovina u nekim slučajevima identificira s knjigovodstvenim pojmom onog dijela nedodirljive imovine koja se iskazuje u financijskim. Međutim, nematerijalna imovina ima veći opseg od onoga koji se iskazuje u poslovnim knjigama odnosno financijskim izvješćima trgovačkih društava.

No i takav nepotpun obuhvat nematerijalne imovine daje mogućnost analize međuovisnosti poslovnih rezultata i vrijednosti te nematerijalne imovine.

Metodama statističke analize utvrđena je laka do stvarno značajna povezanost pozitivnih poslovnih rezultata trgovačkih društava i vrijednosti pojedinih oblika nematerijalne imovine.

**Ključne riječi:** *nematerijalna imovina, uspješnost poslovanja, linearna regresija, korelacija, determinacija*