# ANALYSIS OF MAJOR ASSET STRUCTURE INDEXES OF ORGANIZATIONS DEALING WITH SPORTS ACTIVITIES AND THEIR RELATION WITH THE NOTES TO THE FINANCIAL STATEMENT

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**Abstract:** *Sport is one of the most decisive elements of global economy, constantly opening up new and emerging markets, causing profit-oriented companies to appear. The GDP-measurable impact of this industry shows a growing and increasing tendency. Therefore, it was considered important to examine the financial statements of companies involved in sports activities, because if the asset side of the balance sheet of a company is taken into consideration, it can be established that all organizations need to have sufficient stability in order to maintain continuous operation, while adaptability requires appropriate flexibility. In order to make established decisions, it is essential to conduct a thorough economic and financial analysis. This analysis provides the management with crucial information on the operation of the system, and ensures its awareness and a level of knowledge. Our primary objective is to analyse the financial situation of sports companies, including the presentation of major asset structure indexes. The survey involves mapping the relationship of the indexes with the notes to the financial statement, namely their conformity with the mandatory content stipulated by the Accounting Act. The database of the study is established on the financial statements of non-profit and profit-oriented organizations (for the financial years of 2014-2017) engaged in sports activities as their primary business according to TEÁOR 931 (the Hungarian version of NACE). Insufficient information provided by non-profit organizations was a limiting factor of the study, therefore only profit-oriented enterprises were analysed in the scope of the research.*

**Keywords:** *sports sector; indexes reflecting the financial situation; asset structure indexes; notes to the financial statement.*

**JEL Classification:** *Z2.*

## 1. Economic Significance of Sports

Globally, sport is one of the largest industries, which possesses a huge amount of consumer demand, contributes to employment, and generates increasing revenue. Currently, it is one of the most significant elements of the global economy, which is constantly opening up new and emerging markets, which shows an intensifying effect in terms of GDP (Faragó et al., 2018). Average annual growth rate of the global sports market between 2009 and 2013 was 7%, which means that the growth rate of the sector exceeds GDP growth rate in a significant proportion of national economies, especially in large markets such as the United States, Brazil, United Kingdom and France (Bácsné et al., 2018). Evolution of the market-based operation of sports was defined by its participation in the social value-creating processes of companies (Konczosné Szombathelyi, 2014). According to Faragó (2016),

development of the sports sector results in the growth of national economy through the expansion of the sports industry. (Faragó, 2016) Spectator sports such as professional sports and 'media-capable' sports have become part of the entertainment industry and can be interpreted as a specific area. (András, 2011) The globalized appearance of sport stems from the fact that in professional sports, business leaders make decisions based on the opportunities of the world, they gather their prospects for their decisions from the world in a complex manner. (Chikán, 2008)

The development level of the economic status, GDP growth and high incomes are the three main factors that influence sports economy; these factors affect the amount spent on sports. Based on the research of Faragó et. al (2018), nations in Europe spend 2% of their consumer expenditure on sports. Research of Bernard and Busse (2004) revealed that gross national income (GNI), gross domestic product (GDP) and successfulness of professional sports are interrelated; there is a positive correlation among them. The amount of capital a country invests in sports is also manifested in sporting success. Countries with higher GDP are fundamentally able to invest more money in sports, which is defined by national sport policies. Based on the research of Nevill et al. (2009), it is clear that after World War II, countries that won Olympic medals have previously dedicated substantial financial support for sports.

Market of sporting goods, organization of competitions and sport tourism can be considered as part of the sports economy. The market of sporting goods is dominated by sports, which are also represented in professional and mass sports, such as running, cycling, football, skiing. Sports stores have an ever-increasing product line for certain sports types to meet the changing, widening sporting demands. Organization of competitions is carried out by business entities; it generates profit, and produces considerable economic profit by being expanded by the media, (Ironman, marathon, cross-country skiing competitions). Sports tourism is linked to globalization, by extending the economic power of sports. Sport is not only an option for spending leisure time anymore; it is also a productive unit of economic life and national income. Through its services, it operates in the sports industry, which contributes to the production of GDP, and thus it is part of the global economy. (Balogh et al., 2013).

In one of its studies A.T. Kearney, a management-consulting firm, presented that the average annual growth rate of the sports market between 2009 and 2013 was 7%, thus exceeding the GDP growth rate in a significant proportion of national economies, especially in the United States, Brazil, the UK and France (Collignon - Sultan, 2014). Based on a study prepared for the European Commission, it is established in terms of the role of the sports sector within the EU that the gross value added of sports is 1.13% of total EU gross value added if all sports-related activities are considered. However, if the production of sports event-related and sporting goods and services are also taken into account, it represents 1.76% of the total EU gross value added (EU, 2012)

## 2. Importance of the Analysis

Analysis is an indispensable tool of management, a method by which the knowledge, which is critically necessary for managers, can be achieved and business can be understood, evaluated and developed. Analysis is an activity aimed at the

observation and evaluation of the earnings of a given enterprise (Baloghné et al., 2006). In most cases, the information base of the analysis is the financial statement prepared and published by the given company, which is governed by Act C of 2000. According to the Accounting Act, it is essential for the functioning of market economy that market participants, both external and internal, have – for the sake of their established decision-making – all the information, which are necessary for the wealth, financial and income position of entrepreneurs, profit-oriented organizations and organizations that carry out other business processes.

## 3. Material and Method of the Study

The analysed database includes companies that carry out sports activities, and which have identified their main activities as TEÁOR 931 "Sports activity" and have their residence in Hungary. The database includes companies established before 1st January, 2014, namely the ones that already have 4 closed business years. The companies were selected from the OPTEN company database and the financial statements of the involved companies were obtained from there as well. Data of the annual statements of the companies were collected for 4 years, from 2014 to 2017. Ultimately, only the companies that have financial statements for all 4 analysed years and that are not being liquidated or terminated remained in the sample. Consequently, the number of companies that could be included in the analysis decreased to 1747.
For the analysis, Microsoft Excel spreadsheet software, and the data management and calculation options of the R statistical system were applied (Everitt – Hothorn, 2010; Huzsvai, 2013). The R statistical system was utilized through Excel, by means of RExcel (Heiberger – Neuwirth, 2009).

## 4. Analysis of the Companies by Quartiles

In the scope of the quartile-based analysis, examinations proceeded from basic statistical characteristics, which are mean, extent of deviation, relative standard deviation, skewness and kurtosis. The analysis was made for a single variable, net sales revenue, only for the year 2014, which means that the involved 1747 companies were ranked by their net sales revenues in an ascending order and were divided into four equal parts. For such a quartile-based classification, any accounting property can be selected, which might be considered important for the evaluation of a business activity.

### *Analysis of the main asset structure indexes of companies by means of the quartile classification based on net sales revenues*

Three main indexes were highlighted from among the asset structure indexes, by which the main group-based distribution of the assets – classified by their role within the activities – of sports companies is demonstrated. That is, the ratio of fixed assets, tangible assets and accruals is presented over the reference period of 2014, 2015, 2016 and 2017. Previously, distributions of the 1747 involved companies by revenue were presented, and the same companies will be shown in each quartile subsequently. Most of the indexes used for analysing the financial situation are distribution ratios; therefore, the proportion of fixed assets represents the percentage of fixed assets within the total assets of the company, namely the portion of the

assets that are permanently tied by the company. The higher this proportion, the less scope of action remains for the company to modify its activity profile in the future.
Table 1 shows the proportion fixed assets concerning the total population and the 4 quartiles classified by net sales revenue for the 4 analysed years. Generally, it can be stated that sports-related organizations have a relatively low ratio of fixed assets, as the ratio is around 35% of the total population. If the data is examined in the scope of the 4 quartiles, the lowest amount of fixed assets is recorded in the 1st quartile (20-23%) and the 2nd quartile (29-30%). Thus, the proportion of invested assets of companies that are under the median does not exceed the ratio concerning the total population. Enterprises that have revenues above the median possess a fixed asset ratio, which exceeds the total mean value. Companies belonging to the 3rd quartile have a decreasing tendency from 44% to 40% in 2017, while companies of the 4th quartile have gradually increasing values (42-46%).
In terms of the relative standard deviation of the indexes, companies belonging to the 1st and 2nd quartiles exceed the values of the total population by approximately 60% for the 1st and 15% by the 2nd quartile, while the values of the 3rd and 4th quartiles are already below them. Relative standard deviation of the 3rd quartile was 82% in 2014, and it increased gradually by 2017, while standard deviation of the 4th quartile was 82% and it showed a declining tendency, reaching 70% by 2017. However, in the case of such high relative standard deviation, each group can be considered inhomogeneous or heterogeneous, and they do not adequately represent the entire population, since it has a high standard deviation and many excess values.

**Table 1:** Main statistical properties of the fixed asset ratio of the classification carried out by quartiles and net revenue (%)

| Group | Statistical index | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| **Total population** | **Mean** | 34.10% | 35.22% | 35.15% | 34.19% |
| | **Relative deviation** | 107.00% | 104.00% | 103.00% | 104.00% |
| | **Skewness** | 0.6 | 0.53 | 0.53 | 0.57 |
| | **Kurtosis** | -1.24 | -1.33 | -1.31 | -1.22 |
| **1st quartile** | **Mean** | 20.93% | 23.00% | 23.23% | 22.39% |
| | **Relative deviation** | 170.00% | 157.00% | 155.00% | 156.00% |
| | **Skewness** | 1.4 | 1.22 | 1.21 | 1.26 |
| | **Kurtosis** | 0.21 | -0.24 | -0.24 | -0.04 |
| **2nd quartile** | **Mean** | 29.12% | 30.54% | 29.51% | 27.70% |
| | **Relative deviation** | 119.00% | 116.00% | 119.00% | 124.00% |
| | **Skewness** | 0.87 | 0.8 | 0.84 | 0.95 |
| | **Kurtosis** | -0.73 | -0.93 | -0.85 | -0.63 |
| **3rd quartile** | **Mean** | 44.12% | 43.09% | 42.35% | 40.77% |
| | **Relative deviation** | 82.00% | 83.00% | 85.00% | 88.00% |
| | **Skewness** | 0.17 | 0.21 | 0.25 | 0.33 |
| | **Kurtosis** | -1.56 | -1.5 | -1.5 | -1.44 |
| **4th quartile** | **Mean** | 42.27% | 44.29% | 45.57% | 45.94% |
| | **Relative deviation** | 82.00% | 78.00% | 73.00% | 70.00% |
| | **Skewness** | 0.23 | 0.12 | 0.07 | 0.04 |
| | **Kurtosis** | -1.44 | -1.51 | -1.44 | -1.38 |

*Source:* Own editing

The analysis of skewness indexes suggests that each of the variables shows right skewness, which means that in the coordinate system most of the data is located near the Y-axis. The skewness values gradually decrease from the 1st quartile to the 4th quartile, and are well below 0.5 in the 3rd and 4th quartiles. Examination of kurtosis values suggests that distribution in terms of the total population and the quartiles can be regarded as more flat as compared to normal distribution.
In respect of fixed assets, their distribution and change is mandatory to be disclosed by companies in their notes to the financial statement at least in comparison with the previous business year, in accordance with the provisions of the Accounting Act. Additionally, the assets analysis of intangible assets and tangible assets needs to be presented as well: initial value, increase, decrease and closing values. In the case of invested financial assets, their book value and actual value have to be disclosed.
Following the analysis of the proportions of fixed assets, it was also considered important to examine the proportion of assets that serve the purposes of the company for less than one year; this is the proportion of current assets. It represents the percentage of current assets within total assets. Table 2 represents the mean value of the current asset ratio of the classification by quartile, carried out based on net sales revenues.

**Table 2:** Main statistical properties of the current asset ratio of the classification carried out by quartiles and net revenue (%)

| Group | Statistical index | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| **Total population** | **Mean** | 63.59% | 62.36% | 62.06% | 63.07% |
| | **Relative deviation** | 58.00% | 59.00% | 59.00% | 58.00% |
| | **Skewness** | -0.5 | -0.43 | -0.42 | -0.46 |
| | **Kurtosis** | -1.35 | -1.42 | -1.41 | -1.35 |
| **1st quartile** | **Mean** | 75.94% | 74.05% | 73.15% | 73.61% |
| | **Relative deviation** | 50.00% | 51.00% | 52.00% | 51.00% |
| | **Skewness** | -1.19 | -1.06 | -1.01 | -1.02 |
| | **Kurtosis** | -0.34 | -0.64 | -0.73 | -0.65 |
| **2nd quartile** | **Mean** | 69.13% | 67.52% | 68.77% | 70.58% |
| | **Relative deviation** | 51.00% | 53.00% | 51.00% | 49.00% |
| | **Skewness** | -0.79 | -0.71 | -0.77 | -0.86 |
| | **Kurtosis** | -0.89 | -1.07 | -0.97 | -0.8 |
| **3rd quartile** | **Mean** | 54.93% | 55.62% | 56.08% | 57.51% |
| | **Relative deviation** | 66.00% | 64.00% | 64.00% | 62.00% |
| | **Skewness** | -0.14 | -0.16 | -0.21 | -0.26 |
| | **Kurtosis** | -1.56 | -1.48 | -1.49 | -1.46 |
| **4th quartile** | **Mean** | 54.33% | 52.20% | 50.19% | 50.54% |
| | **Relative deviation** | 63.00% | 65.00% | 65.00% | 64.00% |
| | **Skewness** | -0.1 | 0.01 | 0.11 | 0.09 |
| | **Kurtosis** | -1.45 | -1.5 | -1.4 | -1.35 |

*Source:* Own editing

Overall, sports companies have a 63% current asset ratio with regard to the total population. Based on the classification by quartiles, the 1st quartile has the highest current asset ratio (73%), followed by the companies of the 2nd quartile with a mean value of 70%. Values of the 3rd and 4th quartiles are below the total population,

current asset ratio of the 3rd quartile increased from 55% to 58%, while the in the case of the 4th quartile it decreased from 54% to 50%. In summary, it can be stated that half of the 1747 companies surveyed represent a 63% current asset ratio, while the other half represent less.
Relative standard deviation of the indexes had nearly identical values for both the total population and the 4 quartiles; they are approximately 60%. The lowest values were reached in terms of the companies belonging to the 1st and 2nd quartiles, but even these group cannot be considered homogenous.
Analysis of skewness indexes shows that all of the variables are negative so there is a left skewness, which means that in a coordinate system most of the data are not located close to the Y-axis. Skewness indexes are gradually decreasing from the 1st quartile to the 4th quartile; skewness of the 4th quartile is approximately -0.1.
Examination of kurtosis values suggests that distribution in terms of the total population and the quartiles can be regarded as more flat as compared to normal distribution.
In relation to current assets, companies in their notes to the financial statements are required to present their changes as compared to the previous business year and their distribution as compared to total assets. Additionally, the Accounting Act also requires the presentation of the breakdown, distribution and changes of current assets and significant changes associated with them, such as recognized impairment losses.
Table 3 shows the findings of the examination of the final main group on the asset side (accruals). The notes to the financial statement has to represent the amounts of accruals.

**Table 3:** Main statistical properties of the accruals ratio of the classification carried out by quartiles and net revenue (%)

| Group | Statistical index | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| **Total population** | **Mean** | 1.62% | 1.62% | 1.98% | 1.99% |
| | **Relative deviation** | 473.00% | 450.00% | 403.00% | 406.00% |
| | **Skewness** | 7.5 | 7.41 | 6.32 | 6.4 |
| | **Kurtosis** | 65.49 | 65.36 | 47.5 | 48.73 |
| **1st quartile** | **Mean** | 0.61% | 0.43% | 0.87% | 1.49% |
| | **Relative deviation** | 934.00% | 1024.00% | 740.00% | 567.00% |
| | **Skewness** | 12.17 | 16.86 | 10.49 | 7.45 |
| | **Kurtosis** | 159.56 | 314.7 | 121.02 | 61.79 |
| **2nd quartile** | **Mean** | 1.52% | 1.49% | 1.49% | 1.49% |
| | **Relative deviation** | 543.00% | 536.00% | 437.00% | 466.00% |
| | **Skewness** | 8.2 | 7.8 | 5.58 | 5.75 |
| | **Kurtosis** | 76.65 | 70.22 | 33.9 | 34.59 |
| **3rd quartile** | **Mean** | 0.95% | 1.28% | 1.34% | 1.49% |
| | **Relative deviation** | 492.00% | 499.00% | 393.00% | 422.00% |
| | **Skewness** | 7.83 | 7.99 | 5.92 | 7.22 |
| | **Kurtosis** | 70.58 | 75.19 | 42.45 | 62.39 |
| **4th quartile** | **Mean** | 3.41% | 3.29% | 4.24% | 3.52% |
| | **Relative deviation** | 306.00% | 281.00% | 277.00% | 286.00% |
| | **Skewness** | 4.87 | 4.82 | 4.41 | 5.17 |
| | **Kurtosis** | 26.95 | 27.53 | 21.85 | 32.85 |

*Source:* Own editing

Similar to the previous sections, distribution of accruals can also be determined by a distribution ratio, namely the ratio of accruals and total assets. In general, the proportion of accruals as compared to fixed assets and current assets is considered negligible as illustrated in Figure 3. The average percentage of accruals of the total population is approximately 2%. 75% of the total population is below this amount in terms of the proportion accruals, while the remaining 25% is above that (3.2-4.2%). Relative standard deviation of the indexes includes very high values, ranging from 300% to 1000%, thus it does not represent the population very well. The reason for this might be the relatively large number of companies that do not have any accruals at all, while there are companies that have millions HUF worth of accruals.
Analysis of the skewness indexes, suggests that all of the variables are positive, they show right skewness, which means that in the coordinate system most of the data is located near the Y-axis. Skewness values gradually decrease from the 1st quartile to the 4th quartile. Examination of kurtosis values suggests that distribution in terms of the total population and the quartiles can be regarded as more peaky as compared to normal distribution.

## 5. In Conclusion

The primary research objective of present study was to analyse the financial situation of sports-related companies and to present their main asset structure indexes. Three indexes were presented: the ratio of fixed assets, current assets and accruals to the total population and their quartile breakdown for the business years 2014-2017. The survey included mapping of the correlation of the indexes and assets with the notes to the financial statement, namely the extent of their conformity with the mandatory disclosures stipulated by the Accounting Act. The database of the study was based on companies that are engaged in sports activities as their primary business according to the TEÁOR (NACE) 931. Based on a classification by 2014 revenues, it can be stated that the average value of net sales revenue increased from 2014 to 2017 for each quartile, and one quarter of the involved sports companies produce more than 90% of the total sales revenue, while three-quarters produce only 10%. In terms of the ratio of fixed assets, their mean value is around 35%, while the mean ratio of current assets is 63%. The mean value of accruals is approximately 2%. It is suggested to disclosure these indexes, their major changes and underlying content in the notes to the financial statement in order for them to facilitate the decisions of external actors.

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