Expert evaluation of Financial Management strategies of sport clubs

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Abstract:

The global goal of this work is to study and analyze methodology of financial management strategies assessment. The structure of the thesis is consistent of the literature review covering the theories and models of Financial Management strategies, followed by a literature review of financial data analysis. Methodology used is econometric analysis of key financial indicators of sports clubs. Based on the comparison of econometric analysis data, there is determined effectiveness of financial management strategy applied by the respective sports clubs. It is also intended to identify, on the basis of econometric analysis, factors that play the most significant role in determination of effectiveness of the financial management strategy. The research questions to be answered are:

1. what strategies of financial management are used by sports clubs today;
2. what are the main factors that determine the pros and cons of such strategies and practice;
3. what criteria for evaluation of such strategies and practices are applicable in the case of sports clubs.

Results indicate the following:

1. leading sports clubs apply financial management strategies containing elements of diversification, fixed capital growth, and optimization of the use of credit resources;
2. most critical for choosing a financial management strategy are growth in total revenue, ratio of net debt to total revenue, ratio of the value of players to total revenue;
3. it is possible to use econometric analysis data to assess the applied strategies of financial management.

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1 INTRODUCTION

Sports clubs are subjects of commercial activities (Callejo and Forcadell, 2006). Those clubs carry out financial management in line with the chosen strategy. The optimal European top club is characterized by the capability of good financial management (Rikardsson and Rikardsson, 2013). The strategy of financial management, according to the opinion of the club management, should ensure effective implementation of financial technologies in order to manage risks (Callejo and Forcadell, 2006). In this aspect an appropriate expertise, which can identify the positive and negative aspects of various financial management and assessment of risks strategies seems very relevant, taking into account the used financial technologies.

1.1 Background

The commercial turnover of leading football clubs is estimated as billions of Euros (Ross, Winn, Wood and Hammond, 2019). Nowadays this is a very serious business, not inferior in scale to many more traditional types (Samagaio, Couto and Caiado, 2009). Shares of European football clubs are in free circulation at stock exchanges and that allows a wide range of investors to participate in the football business (Aglietta, Andreff and Drut, 2010). Like in other areas of the entertainment industry, business in the field of football functions and develops in accordance with the well-known laws of the economy and those general laws that are characteristic of modern business regardless the specific field of industry (Morrow and Howieson, 2014). Investments in sports clubs are therefore investments that are not inherently different from those in economic areas such as automotive, information technology or real estate trade (Foster, O'Reilly and Dávila, 2016).

It is quite natural that the sports business is governed by the same general principles as other kinds of business, i.e. it includes management of personnel, finance, and other resources as in other areas of business (Foster, O'Reilly and Dávila, 2016). In the conditions of global market, implementation of business is gradually departing from the traditions of real-time management which were formed at the dawn of the industrialization era (Rosenberg, 2004). Short-and-long-term planning of business

processes, which is based on this or that strategy, is increasingly becoming important. It also fully applies to financial management planning, where the choice of strategy predetermines degree of competitiveness of the enterprise (Fried, DeSchriver and Mondello, 2013). The topicality of the financial management strategy factor is very high and the topicality of the evaluation factor for the correctness of the choice of such a strategy is no less high (Popkova and Ostrovskaya, 2018). In this case, we are talking about the examination of the financial management strategy.

Such an expert examination will make it possible to assess the applied financial management strategy from the point of view of its potential effectiveness, which will make the decision on the implementation of a particular strategy more reasonable (Fried, DeSchriver and Mondello, 2013). It should be noted that financial management strategies apply in the process of functioning of an organization and that implies appropriate decisions on the establishment and financing of this organization were made at an earlier stage (Baker and Nofsinger, 2013). Availability of funding indicates that the investor (or a group of investors) made a positive investment decision in respect of this organization. Taking into account the fact that the investment decision is made on the basis of a number of analyses factors, it seems relevant to assess the tools used in such analyses (Hargitay and Yu, 2003).

One of the key factors in making an investment decision is risks assessment (Gasparian et al., 2018). For this purpose, various instruments are used, the choice of which depends both on the risks typology and preferences of the person making the relevant decision (Henschel, 2010). In order to make a more substantiated decision, it seems expedient to make an appropriate assessment of one or another instrument used in the risks analyses. Moreover, risks assessment is very relevant for making not only investment decisions, but also other decisions of critical importance (Vancas, 2010). Taking into account the above considerations, we decided to devote our work to examination of financial management strategies including risks assessment.

1.2 Aim of the study

The global goal of this work is to study the financial management strategies and to analyze methodology of financial management strategies assessment. To achieve the global goal, several local goals will need to be achieved:

1. A comparative analysis of financial management strategies;
2. Identification of critical factors in financial management strategies;
3. Development of approaches based on critical factors.

The study is expected to provide answers to the following questions:

1. What strategies of financial management are used by sports clubs today;
2. What are the main factors that determine the pros and cons of such strategies and practice;
3. What criteria for evaluation of such strategies and practices are applicable in the case of sports clubs?

1.3 Limitations

The scope of this study will be limited to European countries, which will help to ensure the reliability and transparency of the original information. The sports industry is also developed in many Asian countries, but it is difficult to obtain reliable financial information from most of these countries. As to the case of the United States, Canada and Australia, sports preferences in these countries are very different from those in Europe; this will lead to problems at the implementation of a comparative analysis.

In addition, our research is limited to football clubs, as in Europe the largest finances turnover is in the sphere of football, and there will be a possibility to make data of the comparative analysis more tangible. These restrictions leave unaddressed a very large part of the sports industry – baseball, American football, basketball, hockey, tennis and many other kinds of sports. However, such a restriction would facilitate to the homogeneity and completeness of the raw data, which is a necessary prerequisite for the objectivity of scientific analyses.

1.4 Subject

The general subject of the study is financial management strategies, as well as approaches and criteria for examination of the mentioned strategies and methodology. The more specific subjects of this study are individual factors that play a role in determination of effectiveness of the financial management strategy. List of those factors includes the financial indicators.

1.5 Method

As the main method used in our work was chosen econometric analysis of key financial indicators of sports clubs. Based on the comparison of econometric analysis data, there is determined effectiveness of financial management strategy applied by the respective sports clubs. It is also intended to identify, on the basis of econometric analysis, factors that play the most significant role in determination of effectiveness of the financial management strategy.

1.6 Definitions

The main definitions used in our work are:

- **Attendance** – amount of the audience at matches of concrete sports club;
- **Revenue** – the total revenues of sports club;
- **Broadcast revenue** – comprehensive revenue gained by sports club at the expense of means from sale of the rights of broadcasting by a football league;
- **Broadcast revenue from UEFA** – the share of comprehensive revenue from broadcasting received from UEFA;
- **Domestic broadcast revenue** – the share of comprehensive revenue from broadcasting received from National Football League;
- **Gate receipts** – revenue gained by concrete sports club from sale of tickets for a football match with its (club) participation;

- **Wage bills** – expenses of sports club on compensation of the team structure, technicians and administrative personnel;

- **Operating profit** – profit from primary activity minus operating expenses;

- **Operating profit margin** – a ratio of operating profit and total revenues of sports club;

- **Net profit** – profit remaining after payment of taxes;

- **Net profit margin** – a ratio of net profit and total revenues of sports club;

- **Original cost of fixed assets** – the cost of fixed assets at the time of their capture on account;

- **Depreciation** – depreciation of fixed assets as a result of their wear;

- **Gain of fixed assets** – a difference between the book value of fixed assets for the end and the beginning of the reporting period;

- **Players' balance sheet value** – the cost of players in the reporting period reflected in balance;

- **Original transfer cost of squad** – the sum of the transfer prices of all the players at which they were registered;

- **Net debt** – a difference between the general debt of sports club and cost of its liquid assets.

2 THEORETICAL FRAMEWORK

2.1 Financial Management – general review

Financial management strategies are well described in the scientific literature. Those sources address in detail issues such as essence and role of financial management, its tools and application methodology, risks typology, risks assessment and management methodology.

In general, essence of the financial management is to make decisions on acquisition, financing and management of assets (Solomon, 1969). Accordingly, the role of financial management is to accept management decisions relating to investment, financing and asset management. Asset management decisions are based on the priority of the objectives pursued by financial management (Shuckett and Mock, 1973).

Bender and Ward (2002) have mentioned that the directors thus have three decisions to make:

1. How large do we want (or need) the asset base to be?
2. How much of the company's finance should be in debt (and therefore how much in equity)? And
3. How much of the profit should be paid out in dividend (and therefore how much should be retained for future growth)?

These decisions are closely linked. If the directors see attractive growth opportunities, they may wish to retain the funds rather than pay them out in dividend. If they feel obliged to pay out dividends, then the expansion could be financed by increasing the company's debt levels. Should the directors feel that such an action would be unwise, then perhaps they should not increase the asset base at all.

The three decisions above describe a relatively closed system. There is however a fourth decision for the directors to make:

4. Should we issue new equity?

Issuing new equity expands the company's funding. If it has a target debt-equity ratio (a practice which appears to be rather more common in academic text books than it is in practice) then increasing the equity base also means that it can take on more debt. Asaf

(2004) have mentioned that corporate financial management includes financial strategy alignment with the overall corporate strategy. Financial operations include financial reporting, risk management, treasury and investment management, capital planning, tax planning, financial planning, and performance assessment.

As it has been mentioned by Blank (2007), financial strategy represents one of the most important types of company's functional strategy, which provides all the basic directions of financial activities and financial relations development through the formation of long-term financial goals, choosing the most effective ways of achieving them, adequate adjustment directions of formation and use of financial resources in the changing environmental conditions.

It should be noted here that risks management, which is part of their valuation, is one of the functions of financial management (Hampton, 2007). Here and further, when it comes to financial management, risks assessment is also implied in some cases as it is one of the components of financial management.

Financial management consists of:

- management of money;
- management of liquid securities;
- management of receivables;
- management of inventory holdings;
- management of investments (Van Horne, 2002).

Management of money:

Companies seek to manage their finances for the following purposes:

1. To raise funds for investments in viable business proposals.
2. To raise funds for the payment of staff salaries and wages.
3. To raise the funds for financing capital assets acquisitions.
4. To raise funds for investing in working capital needs.
5. To raise funds required for the payment of administrative and operational expenses.
6. To raise funds for offsetting current and long-term liabilities.
7. To raise funds required to offset tax liabilities to the tax authorities.

8. To raise funds required for paying dividends to shareholders (Ndanusa, 2011).

Management of liquid securities:

To be liquid, a security must have two basic characteristics: a ready market and safety of principal (Khan and Jain, 2007).

Management of receivables:

Usually there is a significant time gap between sale of goods/services and receipt of cash out of such sale. The outstanding amounts (receivables) get locked up for a period that depends on the contractual credit period allowed to the byers. But faster realization of accounts receivables can enable a business concern to put the cash to more productive uses (Das, 2009).

Management of inventory holdings:

Optimal inventory levels depend on sales, so sales must be forecasted before target inventories can be established. Moreover, because errors in setting inventory level lead to lost sales or excessive carrying cost, inventory management is quite important (Brigham and Houston, 2012).

Management of investments:

Investment is an important means for channelizing the savings into development of the economy. It is an essential process in the economy. With changes taking place at a fast pace in this field, investing has become a specialized activity (Maheshwari, 2008).

These objectives are achieved by assessing optimal levels of investment in the respective assets, selection of the financing structure, determination of portfolio segmentation, optimization of the size and schedule of orders, assessment of risks and provision of a mechanism for managing them (Hampton, 2007).

2.2 Functions of Financial Management

The main functions of corporate financial management are as follows: planning of investments (matching the financial goals and objectives with the financial resources); control and regulation of monetary operations; regulation of the relations with investment and commercial banks; management of the credits (obtaining credit, keeping

the terms it's granted on, recovering this credit when it's due, and ensuring compliance with company credit policy, among other credit related functions); payment of dividends (distribution of a portion of the company's earnings, decided and managed by the company's board of directors, and paid to a class of its shareholders); financial analysis and planning (budgeting, forecasting and analytical processes that support an organization's financial health and business strategy); regulation of financial relations with shareholders; management of pension funds; risks management (identification, evaluation, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability or impact of unfortunate events); analysis and planning of taxes (analysis of a financial situation and plan from a tax perspective); accounting of expenses; management of expenses (process, pay, and audit employee-initiated expenses); data processing (collection and manipulation of items of data to produce meaningful information); conduction of accounting; drawing up of reporting; implementation of financial control (processes, policies and procedures that are implemented to manage finances); drawing up budgets; drawing up forecasts (Horne and Wachowicz, 2008).

Planning of investments (or Investment planning) is the process of meeting your financial goals through the proper management of your investments. Investment planning seeks to accomplish two equally important goals that naturally conflict with each other. The first goal is to maximize returns on investments. The second is most often to minimize investment risk. Effective financial planning seeks to balance these two goals in all areas of the investment planning process so that the investor can achieve the desired outcomes (Hirt, Block and Basu, 2006).

Management of the credits (or Credit management). Profitable business is all about management and planning. Just as it is important to manage production, sales and stock, so it is important to manage credit. Credit management, therefore, is not an isolated activity within the business. Credit management is, fundamentally speaking, a financial activity, which, like that of any other department or division, has to contribute to achieve the strategic goals (Badenhorst-Weiss et al., 2008).

Financial analysis and planning. Financial management is composed of three major policies of a firm: its investment, financing, and dividend policies. During periods of economic uncertainty and/or inflation, financial management is important for three major reasons: increased investment risk, increased cost of equity and debt financing,

and an increased shareholder preference for current rather than future income. Financial management is also important during periods of low inflation and certainty, but it takes on significant importance during periods of uncertainty and high inflation. To achieve sound financial management under such conditions, managers should be well acquainted with the theory and methodology, and with the application of financial analysis and planning to real-world situations (Lee and Lee, 2017).

Risks management. In simple terms, risk management can be considered to be a collection of activities designed to produce the most desirable outcome should the risk event occur. These activities will include actions taken to: 1) prevent the risk event occurring; 2) minimize the damage should such an event occur; and 3) contain the cost of recovering from the event. The activities will also include actions that are taken to make the outcome of any risk event predictable and within a range that is tolerable to the organization (Hopkin, 2013).

In order to show the main functions of financial management there is a chart below.

Fig. 1. The main functions of Financial Management

The decision on financing is based on the choice of sources and structure of financing, which allows to determine the optimal option of business financing. Such an option could be short-term loan, long-term lease, issue of securities etc. (Kulkarni, 2011).

2.3 Financial Strategy

As it is mentioned by Gonçalves et al. (2012), under the business financial strategy can be defined as responsible for planning, control and coordinate all activities necessary for the generation of information and administration of tax records, financial statements, cash flows, budgets and financial assets. The financial strategy is part of the area of financial management that relates to the medium and long-term operations. It can be said that the financial strategy performs administrative operations, unlike the long-term management of current assets, such as cash flow, and this is a short-term financial management.

According to Nie (2017), these decisions are inevitably made continuously, investment decisions involve the process of identification, evaluation and selection of alternatives, while that financing decisions involve knowledge about the origin of the funds invested. The allocation of the results, or the dividend decision, may also be included in the area of financing, it also represents an alternative to finance the company's activities. The areas of decisions must be made fairly integrated among themselves, because while financing decisions indicate the required rates of return, investment decisions show the expected returns.

The main focus of a financial strategy is on the financial aspects of strategic decisions. Inevitably, this implies a close linkage with the interests of shareholders and hence with capital markets. However, a sound financial strategy must, like the best corporate and competitive strategies, take into account of all the external and internal stakeholders in the business (Bender and Ward, 2002).

Financial strategy is the aspect of strategy which falls within the scope of financial management, which will include decisions on investment, financing and dividends (Ogilvie, 2008). Strategic financial management intends to facilitate optimal results in

financial implications of strategic decisions as well as the strategic repercussions of decisions on financial status of the enterprise over a period of time (Sofat and Hiro, 2015).

2.4 Financial Analysis

Financial analysis, planning, and management tools are used to perform these financial management functions. Financial analysis consists mainly of analysis of financial statements, fund flows and cash flows (Pandey, 2015). To this end, the following key figures are calculated: coefficient of gross margin (profitability calculation that compares the gross profit of a business to the net sales); coefficient of return on assets (indicator of how profitable a company is relative to its total assets. It gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings); debt to equity coefficient (measures the extent of a company's leverage); current liquidity ratio (reflects the ability of the company to repay current liabilities at the expense of only current assets); coefficient of net margin (profitability calculation that compares the net profit of a business to the net sales) (Horne and Wachowicz, 2008).

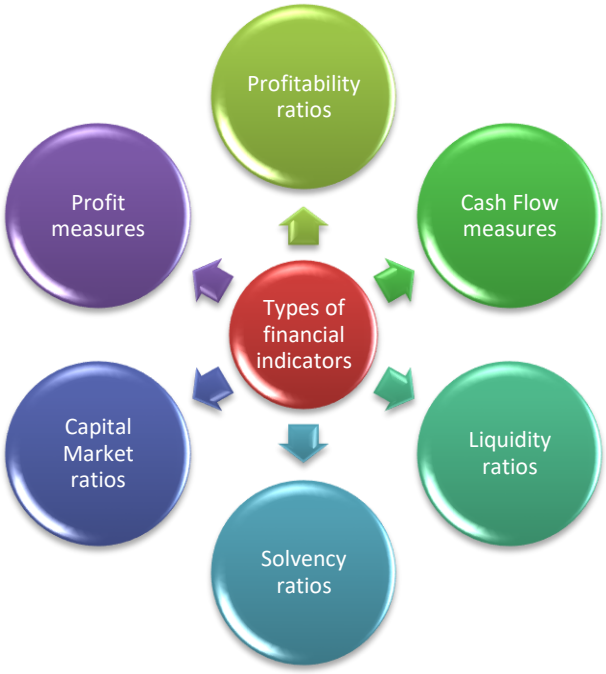

Fig. 2. Types of financial indicators

There is some detailed information concerning the most important indicators below.

Coefficient of gross margin. The Gross Margin Ratio, also known as the gross profit margin ratio, is a profitability ratio that compares the gross margin of a company to its revenue. It shows how much profit a company makes after paying off its Cost of Goods Sold (COGS). The ratio indicates the percentage of each dollar of revenue that the company retains as gross profit. For example, if the ratio is calculated to be 20% that means for every dollar of revenue generated $0.20 is retained while $0.80 is attributed to the cost of goods sold. The remaining amount can be used to pay off general and administrative expenses, interest expenses, debts, rent, overhead, etc. (Gross Margin Ratio - Learn How to Calculate Gross Margin Ratio, 2020).

Coefficient of return on assets. Return on Assets (ROA) is a type of return on investment (ROI) metric that measures the profitability of a business in relation to its total assets. This ratio indicates how well a company is performing by comparing the profit (net income) it's generating to the capital it's invested in assets. The higher the return, the more productive and efficient management is in utilizing economic resources (Return on Assets - ROA Formula, Calculation, and Examples, 2020).

Debt to equity coefficient. The Debt to Equity ratio (also called the "debt-equity ratio", "risk ratio", or "gearing"), is a leverage ratio that calculates the weight of total debt and financial liabilities against total shareholders' equity. Unlike the debt-assets ratio which uses total assets as a denominator, the D/E Ratio uses total equity. This ratio highlights how a company's capital structure is tilted either toward debt or equity financing (Debt to Equity Ratio - How to Calculate Leverage, Formula, Examples, 2020).

Current liquidity ratio. The current ratio, also known as the working capital ratio, measures the capability of a business to meet its short-term obligations that are due within a year. The ratio considers the weight of total current assets versus total current liabilities. It indicates the financial health of a company and how it can maximize the liquidity of its current assets to settle debt and payables (Current Ratio Formula - Examples, How to Calculate Current Ratio, 2020).

Net profit margin. Net Profit Margin (also known as "Profit Margin" or "Net Profit Margin Ratio") is a financial ratio used to calculate the percentage of profit a company produces from its total revenue. It measures the amount of net profit a company obtains per dollar of revenue gained. The net profit margin is equal to net profit (also known as net income) divided by total revenue, expressed as a percentage (Net Profit Margin - Definition, Formula and Example Calculation, 2020).

Financial planning is based on cash flow forecasting, which is based on a sales forecast, a cash receipt forecast from the sale of goods, a cash payment forecast, a variant analysis of cash flows and, as a result, a financial reporting forecast (Brigham and Houston, 2007). It should be also noted that financial factors are used in financial planning, which makes it somehow easier to predict different financial values (Brown, 2010).

Bandopadhyaya, Callahan and Shin (2012) have mentioned that a study of the literature, including survey based studies, related to the calculation of the cost of issuing debt and equity indicates that:

1. The Capital Asset Pricing Model (CAPM) is the dominant measure of the cost of issuing equity.

2. The risk-free rate is an important parameter in the CAPM. The interest rate on treasuries with maturities of ten years or longer is typically used as the risk-free rate.

3. The CAPM requires an estimate of the rate of return of the market. Different measures are used as proxies for the market, but the New York Composite Index and the S&P500 Index are the most commonly used.

4. The extent to which the firm's equity return is related to market return is measured by the beta coefficient of the firm. Accurate estimates of beta are central to obtaining precise estimates of the firm's cost of equity. Estimates of beta are sensitive to the length of time chosen for estimation purposes, and to whether daily or monthly rates are used to calculate the rate of return.

5. The difference between the expected rate of return of the market and the risk-free rate is known as the market risk premium. Surveys find large variance in the market risk premium used by managers (4%-6%) and analysts (7%-7.4%).

6. Market conditions have little effect on the cost of equity.

7. Firms use marginal cost when calculating the pre-tax cost of debt; for new bond issues, the yield to maturity on bonds with equivalent ratings is utilized.

8. Firms use marginal or statutory rates to calculate the tax benefit of issuing debt.

There are the same postulates concerning cost of capital in the model for identification of the financial strategy by Svatošová (2015, 2017), which one does intend that the basic principles of financial analysis explore the profitability, liquidity and the cost and capital efficiency and that should been simulated for the selected enterprise.

2.5 Framework of Econometrical Approach

The importance of the analysis of financial data for identification of corresponding financial strategy has been underlined by Shu (2016) with the actualization of principal component analysis (PCA. The number of principal components is less than or equal to the number of original variables.

The importance of the correlation between financial factors is underlined by Zhang and Cai (2018). It should be noted that the sources listed and analysed in this section contain very valuable information applicable to both corporations and sports clubs. At the same time, it should be noted that the specificity of such business entities as sports clubs predetermines possibility of a non-standard approach to the examination of financial

management strategies. In this paper, a non-standard method of expert evaluation of financial strategies of sport clubs is proposed – as an additional way for evaluation.

This work is based on the existing scientific developments in this area and is an analysis and development of one of the areas addressed under the more global theme of financial management strategies.

3 METHODOLOGY

Generally all variety of methods used to analyze efficiency of football club can be divided into two large groups: parametric methods and non-parametric methods. Parametric methods are a group of methods, which use tools of deterministic correlation and regression analysis. Non-parametric methods are focused primarily on the overall assessment of the efficiency. This assessment is based on the analysis of a set of inputs and outputs which characterize the activity of the object under review (Kulikova and Goshunova, 2014).

Data envelopment analysis (DEA) approach involves the use of linear programming methods to construct a non-parametric frontier (piece-wise surface) over the data. Efficiency measures are then calculated relative to this surface (Pyatunin et al., 2016).

It seems that the main disadvantage of parametric methods have been used is the heterogeneity of variables (financial indicators), which circumstance does not allow to apply the same approach at the assessment of the relevance of each such indicator. It is difficult to compare the euros with percent and ratio; that is why it seems a good idea to use the methodology which does allow the reduction of all the heterogeneous indices to the comparable dimension.

As to the non-parametric methods (e.g. DEA), the main disadvantage of such methodology is impossibility to calculate the weight of different factors during factor analysis and have the clear imagination concerning the importance of different factors. The non-parametric method does not evaluate the weight of the every separate factor, and that is why it is impossible to calculate the weight of the each factor. We have to remember that we have to answer to the question “What are the main factors that determine the pros and cons of such strategies and practice”. At the same time it is

impossible to answer to that question without comparative analysis of the different factors – in order to have imagination concerning their importance from the point of view of their role in each financial management strategy.

Generally, our method is based on the ranking analysis of financial indicators of sport clubs. The advantage of that method is the possibility of reduction of all the heterogeneous indices to the comparable dimension.

3.1. Scope and Limitations

Data on the financial performance of European football teams are considered as the starting point of our study. By analysis and comparison of various data on financial indicators and their dynamics it is planned to form a methodology of integral assessment of financial activity of sports club applicable in our case. After application of this methodology to the financial results of sports clubs covered by our study, rating of sports clubs will be formed based on the success of their financial activity.

As the next step, it is intended to examine the financial management strategies used by those sports clubs that will lead the list. The method of comparative analysis of these strategies is to identify those factors common to the leading clubs, which are critical for financial management. UEFA reports for three years were chosen as empirical material: 2016, 2017 and 2018. As far as the 2019 report is not yet available, the study is based on the last three available reports.

The limitation of the factual base to three years (if earlier reports are available) is explained by the following: of course, a broader evidence base would allow for longer series of data on different indicators, which in its turn would allow for a rich econometric toolkit to be applied to such series, which is not applicable for three-value series. On the other hand, it should be borne in mind that financial management strategies are not currently static – they are dynamically evolving, and application of these strategies by different organizations is also a dynamic process. Thus, expansion of the factual base can lead to appropriate uncertainty in the application of certain strategies, which in its turn excludes approach to the maximum purity of the experiment. Here, it seems preferable to sacrifice the length of a series of data in favor of the purity of the experiment.

In addition to purely financial indicators, it was decided to also include in the review of the initial data information on attendance of matches of sports clubs. This is because attendance rates have a direct impact on the financial performance. For a more detailed analysis it was decided to apply two methods of integral assessment of financial activity of sports clubs, in one of which the attendance factor is taken into account, and in the other – it is not taken into account.

The source of data in our case is UEFA reports posted on the freely available uefa.com website. These reports are presented in PDF format and contain information on key financial indicators of European football clubs. When selecting sports clubs included in the corresponding ratings on individual indicators, the principle of representation of each club in the UEFA ratings for all three years (2016, 2017, 2018) were applied. This principle of selection is explained by the fact that in case of absence of some clubs in the ratings any year, data series of different lengths would be formed for different clubs. This would make it impossible to fully compare indicators on the criterion of positive or negative dynamics. It should be noted that this circumstance also influenced the decision to limit itself to data for the last three years, since the inclusion in the review of each additional year would reduce amount of sports clubs listed in the comparative tables, as far as amount of the clubs not included in the UEFA rating any year would increase.

3.2. Data analysis

3.2.1. Indicators

Thus, the following indicators of sports clubs were analyzed:

- **Attendance**. This indicator means the quantity of tickets has been sold for all the matches of concrete sports club for reporting period. This indicator does provide the opportunity to assess the weight of factor that is not related to strategy of financial management, and at the same time has the influence at the results of financial activity of clubs.

- **Total revenue** is the sum of the revenues from all the business's units (Piros and Pinto, 2013). This indicator means the total value of revenue that the club has received during the reporting period. It is one from key indicators of financial activity, and it provides an opportunity to assess the strategy of financial management has been choose. Dynamic of this indicator allows to assess the strategy of the financial management.

- **Broadcast revenue**. This indicator means comprehensive revenue gained by sports club at the expense of means from sale of the rights of broadcasting by a football league. It provides the opportunity to understand the structure of the total revenue and percentage of its parts. Dynamic of this indicator allows to assess the strategy of the financial management.

- **Gate receipts**. This indicator means the revenue gained by concrete sports club from sale of tickets for a football match with its (club) participation. It also provides the opportunity to understand the structure of the total revenue and percentage of its parts. Dynamic of this indicator allows to assess the strategy of the financial management.

- **Wage bills**. This indicator means the expenses of sports club on compensation of the team structure, technicians and administrative personnel. It provides the opportunity to understand the structure of the total expenses and percentage of its parts. Data about wage bills in combination with other data may be used for calculation of corresponding indicators.

- **Operating profit** results from deducting operating expenses from gross profit (Cope et al., 2012). This indicator means the profit from primary activity minus operating expenses. Dynamic of this indicator allows to assess the strategy of the financial management. Data about operating profit in combination with other data may be used for calculation of corresponding indicators.

- **Fixed asset cost** should include its purchase price and any related cost of bringing the asset to its working condition for its intended use (Dutta, 2004). This indicator means the cost of fixed assets, expressed by balance sheet. Dynamic of this indicator allows to assess the strategy of the financial management. Data about fixed asset cost in combination with other data may be used for calculation of corresponding indicators.

- **Squad cost**. This indicator means the sum of the transfer prices of all the players. Data about squad cost in combination with other data may be used for calculation of corresponding indicators.

- **Net debt** is calculated by taking the issuer's gross debt, and netting out short-term operating debt and bonds fully supported by enterprise revenues (Miller, 1996). This indicator means a difference between the general debt of sports club and cost of its liquid assets. Dynamic of this indicator allows to assess the strategy of the financial management. Data about net debt in combination with other data may be used for calculation of corresponding indicators.

- **Stock value** means the summation of enterprise all common stock and preferred stock, it reflects the enterprise market value (Xu, Fry, Lev and Hajiyev, 2013). This indicator means the prices of common shares of clubs traded on national or foreign stock exchanges. Dynamic of this indicator allows to assess the strategy of the financial management. Data about stock value in combination with other data may be used for calculation of corresponding indicators.

For the analysis of data, the trend for the period under review was used in most cases. On the basis of the available data in different cases growth coefficient, average coefficient of growth, average gain, growth coefficient in relation to an average value among participants of rating and average value was calculated. All of these indicators allow assessing the strategy of financial management based on the understanding of following: positive dynamic of assets, revenue, profit, stock value and profit margin are the positive indicators; positive dynamic of debt is a negative indicator.

3.2.2 Ratings

The compilation of a consolidated rating based on a multi-factor analysis supposes taking into account weight of each factor in the final rating. To this end, it is common to analyze the correlation between comparable factors and the result, by obtaining a correlation matrix (Skvortsova and Kiseleva, 2016). However, in our case, the factors are not comparable, since the dimensions of the values calculated by the analysis do not coincide, and their real impact on the outcome may be blurred, given that the values calculated for the different indicators in some cases differ by three orders of magnitude.

The following procedure was applied to bring the values calculated for different indicators to a single dimension. According to the criterion of the calculated indicator, rating of clubs was compiled, where each club was assigned the corresponding next place in this rating. Depending on the type of indicator calculated, the rating was built in the descending or increasing direction of this indicator. For example, for indication of the income growth, the rating was built on the decline of this indicator, thus, the club with the best indicator held the first place. For the indication of net debt growth the rating was built according to the increase of this indicator, thus, the club with the best indicator again held the first place.

Number of the place of the sports club in each rating was taken into account in the form of points in the total table, where sports clubs were built into a consolidated rating by the increase of the consolidated score, thus, the club with the lowest number of consolidated points held the first place. Thus, the indicators of sports clubs were reduced to comparable values and that allowed to take into account weight of each factor in the final rating.

It should be noted that from the general list of clubs taken into account in the consolidated rating, not all clubs participated in all individual ratings. In the summary table such clubs received zero points on those indicators on which they did not participate. Thus, their combined score was less than the teams that ranked first in many ratings, and without appropriate adjustment of the results such teams could undeservedly take the first places in the consolidated rating. In order to correct such errors penalty points were written to each sports club on those indicators in the ratings which they did not participate. Amount of penalty points was determined as follows: per one point more than the maximum amount of points of the teams participating in the corresponding rating.

This approach is substantiated by the fact that sports clubs which did not take part in the UEFA rating by a certain indicator have a knowingly worse result in this indicator than clubs that took part in the corresponding rating, as UEFA ratings were compiled according to the criterion of participation of clubs that are the best in the corresponding indicator. Accordingly, the result of clubs that did not take part in the corresponding rating was deliberately worse than the worst result from teams that took part in the same rating. It is for this reason that the number of penalty points per one more than the number of points on this indicator at the club that closed this rating was written to the

clubs that did not participate in the corresponding rating. The fact that all sports clubs which did not participate in a certain rating receive the same number of penalty points excludes their differentiation according to this rating and that seems quite appropriate.

Further, those sports clubs which participated in less than seven ratings out of thirteen were excluded from the summary table. It should be noted that in case of participation of these clubs in the final rating, they would hold the last places in it and that is due to the large number of penalty points received for non-participation in the ratings. Thus, the final score of these clubs would stipulate them to be at the very end of the final rating.

The rating points of the remaining sports clubs in the summary table were featured as factors determining the final score.

3.3 Correlation and Final Rating

Since, in the framework of this study, identification of critical factors in financial management strategies is very important, it is necessary to determine a methodology for assessing these factors. In this case, correlation between the position of sports clubs for each individual criterion and position in the final rating will demonstrate weight of each criterion in the final rating (Gujarati and Porter, 2009).

According to Angrist, correlation provides good evidence of causation (Angrist, 2009). To identify the correlation between each factor and the final score, the summary table was presented as a matrix that was subjected to correlation analysis by using the EViews 10 Enterprise Edition software. As a result, correlation coefficients were calculated with the total score and the average score for each individual score. These factors were considered as the weight of each separate factor. Note that the correlation coefficients of the individual factors with the final score were identical to the correlation coefficients of these factors with the average point.

When choosing a method for calculation of the correlation coefficients, it was taken into account that method of Pearson provides a more accurate result than method of Spearman and Kendall. At the same time, in case of operation with rank values, it is

recommended to use the method of Spearman or method of Kendall. The actual research based on the rank values because of applying of ratings, as it is explained in paragraph 3.2.2. That is why the method of Pearson seems as not applicable here.

And for rank values both methods (Spearman's and Kendall's) are recommended to use. For many joint distributions these two measures have different values, as they measure different aspects of the dependence structure. For example, if X and Y are random variables with marginal distribution functions F and G, respectively, then Spearman's ρ is the ordinary (Pearson) correlation coefficient of the transformed random variables F (X) and G(Y), while Kendall's τ is the difference between the probability of concordance P[(X1 − X2)(Y1 − Y2) > 0] and the probability of discordance P[(X1 − X2)(Y1 − Y2) < 0] for two independent pairs (X1, Y1) and (X2, Y2) of observations drawn from the distribution. In terms of dependence properties, Spearman's ρ is a measure of average quadrant dependence, while Kendall's τ is a measure of average likelihood ratio dependence (Nelsen, 1992). However, in spite of these differences, there is often an observable pattern in the sample values. In comparing R and T (the sample values of ρ and τ) Gibbons (1976) writes "For most degrees of association that occur in practice (that is, absolute values not too close to 1) R is about 50 percent greater than T in absolute value." Kendall (1948) states "T will be about two-thirds of the value of R when [the sample size] *n* is large."

The relationship between ρ and τ has received considerable attention in recent years (Fredricks and Nelsen, 2007).

Given all these factors, it was decided to calculate the correlation coefficients with the two methods (by Spearman and by Kendall), and then to calculate the arithmetic average of the two correlation coefficients for each factor calculated by various methods – in order to take advantages of the both methods.

After it, final points for all sports clubs were calculated again with taking into account weight of each factor. The final points obtained as a result of recalculation allowed to build the final rating of sports clubs where the first places were held by clubs with the lowest final score.

Thus, the rating of sports clubs according to the criterion of the financial management strategy efficiency has been formed.

Application of the like method makes it possible to bring various financial indices into a single plane of ranks and evaluate in this plane effectiveness of the financial management strategies of sports clubs on the basis of various financial indices. Different financial indices in the capacity of the effectiveness of the financial management strategies factors have different weights and this fact is taken into account as follows: with the help of the correlation analysis the weight of each such factor is determined, and, subsequently, the weight of this factor is taken into account when constructing the final rating. Thus, the proposed methodology, despite the relatively simple calculation mechanism, takes into account the heterogeneity of factors determining the comparative assessment of financial management strategies.

3.4 Validity and reliability of research

All the data has been obtained from official sources.

Reliability is a concern every time a single observer is the source of data, because we have no certain guard against the impact of that observer's subjectivity" (Babbie, 2010, p.158). According to Wilson (2010) reliability issues are most of the time closely associated with subjectivity and once a researcher adopts a subjective approach towards the study, then the level of reliability of the work is going to be compromised.

Validity of research can be explained as an extent at which requirements of scientific research method have been followed during the process of generating research findings. Oliver (2010) considers validity to be a compulsory requirement for all types of studies.

The proposed methodology for examination of financial strategies of sports clubs can be applied when conducting a general assessment of efficiency of sports club's financial activities conducted by auditors of sports federations or other interested parties.

The different factors have been monitored, controlled and varied from data in the collection and presentation of quantitative data analysis. Data analysis has been conducted in a precise, consistent and exhaustive manner through recording, systematizing, and disclosing the methods of analysis.

4 RESULTS

The attendance data for matches of European football clubs were summarized in table 1. It displays the relevant data for the period of 2016-2018.

Table 1. Attendance data

Rank	Club	Total 2015/2016 season home league attendances		Total 2017/2018 season home league attendances		Increase of attendance
		Average	Total	Average	Total	
1	Club Atlético de Madrid (ESP)	44 710	849 490	55483	1054177	**24,1%**
2	FC Internazionale Milano (ITA)	46 622	885 818	57529	1093051	**23,4%**
3	Celtic FC (SCO)	54 726	1 039 794	57523	1092937	**5,1%**
4	Paris Saint-Germain FC (FRA)	45 160	858 040	46929	891651	**3,9%**
5	FC Schalke 04 (GER)	60 703	1 031 951	61197	1040349	**0,8%**
6	Manchester City FC (ENG)	54 019	1 026 361	54070	1027330	**0,1%**
7	Liverpool FC (ENG)	53 016	1 007 304	53049	1007931	**0,1%**
8	Rangers FC (SCO)	49 156	933 964	49174	934306	**0,0%**
9	FC Bayern München (GER)	75 000	1 275 000	75000	1275000	**0,0%**
10	West Ham United FC (ENG)	56 972	1 082 468	56885	1080815	**-0,2%**
11	Borussia Dortmund (GER)	79 653	1 354 101	79496	1351432	**-0,2%**
12	Manchester United FC (ENG)	75 290	1 430 510	74976	1424544	**-0,4%**
13	Arsenal FC (ENG)	59 957	1 139 183	59323	1127137	**-1,1%**
14	Real Madrid CF (ESP)	69 426	1 319 094	66161	1257059	**-4,7%**
15	SL Benfica (POR)	55 952	951 184	53209	957762	**-4,9%**
16	FC Barcelona (ESP)	78 034	1 482 646	66603	1265457	**-14,6%**

***Sources**:https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.14.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.37.

Table 1 calculates growth rate of attendance over three years: starting from the football season of 2015/2016 and ending with the football season of 2017/2018.

In this case, it seems appropriate to take into account not the attendance indicator, since it can be based on the club's popularity due to non-economic factors, but attendance growth as a result of competent financial management over the past three years.

Table 2. Total annual revenue

Rank	Club	FY16 total revenue, mln €	FY17 total revenue, mln €	FY18 total revenue, mln €	2016 Year-on-year growth, mln €	2017 Year-on-year growth, mln €	2018 Year-on-year growth, mln €	2016 Growth rate	2017 Growth rate	2018 Growth rate	Average growth rate
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	Club Atlético de Madrid	229	271	362	64	42	91	39%	18%	34%	30%
2	Olympique Lyonnais	160	198	164	64	38	-34	66%	24%	-17%	24%
3	FC Internazionale Milano	202	269	291	30	67	22	17%	33%	8%	19%
4	Tottenham Hotspur FC	281	356	430	22	75	74	9%	27%	21%	19%
5	Leicester City FC	173	274	179	37	101	-95	27%	58%	-35%	17%
6	AS Roma	219	175	249	38	-44	74	21%	-20%	42%	14%
7	FC Schalke 04	219	231	309	0	12	78	0%	5%	34%	13%
8	FC Bayern München	592	588	629	118	-4	41	25%	-1%	7%	10%
9	Liverpool FC	407	428	514	18	21	86	5%	5%	20%	10%
10	Everton FC	164	201	214	0	37	13	0%	23%	6%	10%
11	Manchester United FC	689	676	666	169	-13	-10	32%	-2%	-1%	10%
12	Real Madrid CF	620	675	751	42	55	76	7%	9%	11%	9%
13	West Ham United FC	194	222	203	34	28	-19	21%	14%	-9%	9%
14	Juventus	341	412	402	17	71	-10	5%	21%	-2%	8%
15	FC Barcelona	620	649	692	59	29	43	11%	5%	7%	7%
16	Chelsea FC	440	420	501	27	-20	81	7%	-5%	19%	7%
17	Manchester City FC	533	558	558	73	25	0	16%	5%	0%	7%
18	Southampton FC	166	212	172	17	46	-40	11%	28%	-19%	7%
19	Paris Saint-Germain FC	542	503	546	58	-39	43	12%	-7%	9%	4%
20	Borussia Dortmund	285	333	317	4	48	-16	1%	17%	-5%	4%

Continuation of table 2. Total annual revenue

1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
21	Bayer 04 Leverkusen	190	171	187	14	-19	16	8%	-10%	9%	2%
22	VfL Wolfsburg	236	198	188	45	-38	-10	23%	-16%	-5%	1%
23	Arsenal FC	477	490	453	28	13	-37	6%	3%	-8%	0%
24	AC Milan	222	198	216	5	-24	18	2%	-11%	9%	0%
25	FC Zenit St Petersburg	180	168	183	-16	-12	15	-8%	-7%	9%	-2%
1-25	***Average***		***355***			***20***			***9%***		9%
1-25	***Total***		***8876***			***495***			***216%***		

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https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.62.

Table 2 calculates average annual growth in total revenue for the period from 2016 to 2018. This indicator is calculated on the basis of data on the absolute annual growth of total revenue (in millions of €).

Based on the calculated indicators, the median indicator for sports clubs participating in the rating is derived which is equal to 9%. Those clubs are marked with red filling up, the corresponding indicator for which amounted to no more than the median indicator for the clubs participating in the rating (9%).

Table 3. Broadcast revenue

Rank	Club	FY16			FY17			FY18			Average coefficient of multiple to average
		Broadcast revenue, mln €	Year-on-year growth, %	Multiple of the league average	Broadcast revenue, mln	Year-on-year growth, %	Multiple of the league average	Broadcast revenue, mln €	Year-on-year growth, %	Multiple of the league average	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	FC Barcelona	€ 145	2%	3,2	€ 154	6%	2,5	€ 166	8%	2,5	2,73
2	Real Madrid CF	€ 145	3%	3,2	€ 142	-2%	2,3	€ 150	5%	2,2	2,57
3	Juventus	€ 119	12%	2,4	€ 122	3%	2,3	€ 122	-1%	2,3	2,33
4	Manchester United FC	€ 146	5%	1,3	€ 180	23%	1,2	€ 187	4%	1,3	1,27
5	Manchester City FC	€ 135	1%	1,2	€ 181	34%	1,2	€ 177	-2%	1,2	1,20
6	Chelsea FC	€ 123	-11%	1,1	€ 181	47%	1,2	€ 167	-8%	1,2	1,17
7	Liverpool FC	€ 127	-1%	1,1	€ 179	41%	1,2	€ 172	-4%	1,2	1,17
8	Tottenham Hotspur FC	€ 127	7%	1,1	€ 176	38%	1,2	€ 167	-5%	1,2	1,17
9	Arsenal FC	€ 138	8%	1,2	€ 167	21%	1,1	€ 164	-2%	1,1	1,13
10	Everton FC	€ 111	4%	1,0	€ 153	38%	1,1	€ 147	-4%	1,0	1,03
11	Leicester City FC	€ 128	35%	1,1	€ 142	11%	1,0	€ 140	-1%	1,0	1,03
12	West Ham United FC	€ 117	14%	1,0	€ 144	23%	1,0	€ 138	-4%	1,0	1,00
13	Southampton FC	€ 123	11%	1,1	€ 151	23%	1,0	€ 132	-12%	0,9	1,00
14	AFC Bournemouth	€ 99	n/a	0,9	€ 144	45%	1,0	€ 134	-7%	0,9	0,93
15	Crystal Palace FC	€ 104	0%	0,9	€ 135	30%	0,9	€ 136	0%	0,9	0,90
16	Watford FC	€ 104	n/a	0,9	€ 127	22%	0,9	€ 127	0%	0,9	0,90
	Average										***1,15***

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https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.69.

Table 3 shows the revenue of sports clubs from broadcasting for the period 2016-2018. For each year, data is presented on the multiplicity of revenue of each club to the corresponding average index for the league. Then, for each sports club, the average coefficient of multiplicity is calculated.

The rating of clubs is built according to the criterion of the average coefficient of multiplicity: the club with the maximum coefficient of multiplicity takes the first place. Then, the median of the coefficient of multiplicity is calculated for all the clubs participating in the rating, which is 1.15.

Those clubs are marked with red filling up, the corresponding indicator for which was less than the median indicator for the clubs participating in the rating (1.15).

Table 4 shows the annual revenue from UEFA for the period 2016-2018. The average growth rate for the period 2016-2018 is calculated. The rating of clubs is built according to the criterion of the average growth rate: the club with the maximum growth rate takes the first place. Then, the median growth rate for all the clubs participating in the rating is calculated, which is 1.1. Those clubs are marked with red filling up, the corresponding indicator for which was less than the median indicator for the clubs participating in the rating (1.1).

Table 4. Revenue from UEFA

Rank	Club	Country	Revenue from UEFA FY16, mln €	Revenue from UEFA FY17, mln €	Revenue from UEFA FY18, mln €	Coefficient of increase
1	Beşiktaş JK	TUR	12	40	47	3,9
2	SSC Napoli	ITA	14	66	40	2,9
3	Tottenham Hotspur FC	ENG	21	45	60	2,9
4	AS Monaco FC	FRA	17	65	47	2,8
5	Sevilla FC	ESP	38	36	47	1,2
6	Real Madrid CF	ESP	82	90	94	1,1
7	FC Bayern München	GER	64	57	69	1,1
8	Juventus	ITA	76	112	79	1,0
9	Manchester United FC	ENG	42	46	43	1,0
10	Paris Saint-Germain FC	FRA	70	58	64	0,9
11	FC Barcelona	ESP	69	61	60	0,9
12	Arsenal FC	ENG	52	66	39	0,8
13	Manchester City FC	ENG	83	56	62	0,7
14	Club Atlético de Madrid	ESP	71	62	48	0,7
	1-14 Average		***51***	***61***	***57***	***1,1***
	1-14 Total		***711***	***860***		

Sources:*https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.69.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, 61.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.75.

Table 5 displays data on annual gate receipts (see the whole table 5 in Appendix 1).

Table 5. Gate receipts

Rank	Club	Country	Multiple of the league average	Multiple of the league average	Multiple of the league average	Average coefficient of multiple to average
1	Paris Saint-Germain FC	FRA	7,9	7,6	7,5	7,7
2	FC Barcelona	ESP	5,7	5,9	5,9	5,8
3	Real Madrid CF	ESP	5,8	5,8	5,3	5,6
4	Juventus	ITA	4	5,5	4,4	4,6
5	FC Bayern München	GER	4,5	4,3	4,3	4,4
6	Arsenal FC	ENG	3,4	3,4	3,1	3,3
7	Manchester United FC	ENG	3,4	3,5	2,9	3,3
8	Liverpool FC	ENG	2,1	2,4	2,5	2,3
9	Chelsea FC	ENG	2,2	2	2,1	2,1
10	Manchester City FC	ENG	1,8	1,7	1,8	1,8
11	Club Atlético de Madrid	ESP	1,6	1,7	2	1,8
12	Athletic Club	ESP	1,6	1,5	1,7	1,6
13	Borussia Dortmund	GER	1,7	1,6	1,5	1,6
14	Tottenham Hotspur FC	ENG	0,9	1,5	2,2	1,5
15	Eintracht Frankfurt	GER	1,2	1,3	1,4	1,3
16	West Ham United FC	ENG	0,9	1,3	1,1	1,1
	Average		***3,0***	***3,2***	***3,1***	***2,2***

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Table 5 shows the data for the period 2016-2018, showing the absolute value of gate receipts, annual growth, as well as data on the multiplicity of revenue of each club to the corresponding average index of the league. Then, for each sports club, the average coefficient of multiplicity is calculated. The rating of clubs is built according to the criterion of the average coefficient of multiplicity: the club with the maximum coefficient of multiplicity takes the first place.

Then, the median of the multiplicity coefficient for all the clubs participating in the rating is calculated, which is 2.2. Those clubs are marked with red filling up, the corresponding indicator for which was less than the average index for the clubs participating in the rating (2.2).

Table 6 displays wage bills data for European football clubs for the period of 2016-2018 (see the whole table 6 in Appendix 2). In addition to the absolute size of this indicator, data on annual growth, a percentage of total revenue, as well as data on the multiplicity of the wage bills of each club to the corresponding average index of the league are given. Then, for each sports club, the average growth rate is calculated. The rating of clubs is built according to the criterion of average growth ratio: a club with the maximum growth ratio takes the first place.

Then, the median of the growth factor for all the clubs participating in the rating is calculated, which is 2.07. Those clubs whose corresponding indicator was less than the average indicator for the clubs participating in the rating (2.07) are marked with red filling up.

Table 6. Wage bills

Rank	Club	Multiple of the league average	Multiple of the league average	Multiple of the league average	Average coefficient of multiple to average
1	Paris Saint-Germain FC	5,7	4,9	5,3	5,30
2	FC Barcelona	5,2	4,5	5,2	4,97
3	Real Madrid CF	4,3	4,8	4,3	4,47
4	Juventus	3,2	3,7	3,5	3,47
5	FC Bayern München	3,6	3,3	3,4	3,43
6	AS Roma	2,3	2	2,1	2,13
7	Manchester United FC	2,1	2,1	2,1	2,10
8	FC Internazionale Milano	1,9	2,2	2,1	2,07
9	AC Milan	2,4	1,8	2,0	2,07
10	Club Atlético de Madrid	1,9	2,1	2,1	2,03
11	Manchester City FC	1,9	2,3	1,9	2,03
12	Borussia Dortmund	1,9	2,1	2,0	2,00
13	Chelsea FC	1,9	1,7	1,7	1,77
14	Liverpool FC	1,8	1,6	1,8	1,73
15	Arsenal FC	1,7	1,6	1,7	1,67
16	Tottenham Hotspur FC	0,9	1	1,0	0,97
	Average	***2,7***		***2,6***	2,07

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Table 7. Domestic broadcast revenue

Rank	Club	Year-on-year growth	Year-on-year growth	Year-on-year growth	Average growth rate
1	Leicester City FC	35%	11%	-1,4%	15%
2	Tottenham Hotspur FC	7%	39%	-5,1%	13%
3	Everton FC	4%	38%	-3,9%	13%
4	Liverpool FC	-1%	41%	-3,9%	12%
5	Watford FC	n/a	22%	0,0%	11%
6	West Ham United FC	14%	23%	-4,2%	11%
7	Manchester City FC	1%	34%	-2,2%	11%
8	Manchester United FC	5%	23%	3,9%	11%
9	Crystal Palace FC	0%	30%	0,7%	10%
10	Chelsea FC	-11%	47%	-7,7%	9%
11	Arsenal FC	8%	21%	-1,8%	9%
12	Southampton FC	11%	23%	-12,6%	7%
13	FC Barcelona	2%	6%	7,8%	5%
14	Juventus	12%	3%	0,0%	5%
15	Real Madrid CF	3%	-2%	5,6%	2%

Sources:*https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.69.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.61.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.75.

Table 7 shows the revenue from domestic broadcasts (see the whole table 7 in Appendix 3). In addition to the absolute size of this indicator, data on annual growth, a percentage of total revenue, as well as data on the multiplicity of the domestic broadcast's revenue of each club to the corresponding average index of the league are given. Then, for each sports club, the average growth is calculated.

This rating was not built on the basis of the multiplicity of revenue to the league average index, since revenue from local broadcasts may not correctly reflect the success of a sports club on a European scale. The rating of clubs is built according to the criterion of average growth: a club with maximum growth takes the first place.

The average indicator for clubs was not calculated for this rating, outsiders were not noted for this indicator as well, since this does not seem to be quite correct due to the heterogeneous conditions for different clubs. At the same time, participation of this rating in the final assessment of the financial activities of sports clubs seems quite acceptable, since the dynamics of the revenue from local broadcasting to a certain extent depends on the effectiveness of the chosen financial strategy.

Table 8 displays data on operating profit and operating profit margin (see the whole table 8 in Appendix 4). The absolute values of the annual operating profit for the period 2016-2018, the data on the operating profit margin, as well as the rating of the sports club according to the UEFA profit indicator are presented. In this rating, the calculation is based on operating profit margin, as one of the most important indicators of the effectiveness of a financial strategy. For each sports club, an average operating profit margin (in percent) was calculated, and according to this criterion the rating of clubs was built: a club with the maximum average operating profit margin takes the first place. Then, the median margin for all the clubs participating in the rating is calculated, which is 21%. Those clubs are marked with red filling up, the corresponding indicator for which was less than the median indicator for the clubs participating in the rating (21%).

Table 8. Operating profit margin

Rank	Club	Operating profit margin	Operating profit margin	Operating profit margin	Average margin
1	Manchester United FC	34%	33%	28%	32%
2	SSC Napoli	27%	37%	23%	29%
3	Tottenham Hotspur FC	19%	26%	39%	28%
4	West Ham United FC	22%	31%	19%	24%
5	Arsenal FC	21%	30%	12%	21%
6	Club Atlético de Madrid	23%	17%	20%	20%
7	FC Bayern München	17%	20%	20%	19%
8	Paris Saint-Germain FC	20%	17%	11%	16%
9	Manchester City FC	18%	12%	15%	15%
10	Real Madrid CF	22%	10%	10%	14%
	Average	***22%***	***23%***	***20%***	***21%***

Sources: *https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.108.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.100.
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Table 9. Fixed assets and their growth

Rank	Club name	Fixed asset additions 2016, mln	Fixed asset additions 2017, mln	Fixed asset additions 2018, mln	Coefficient of growth
1	Tottenham Hotspur FC	€ 108	€ 257	€ 555	0,2397
2	Club Atlético de Madrid	€ 82	€ 168	€ 86	0,2329
3	Liverpool FC	€ 90	€ 57	€ 6	0,0475
4	PFC CSKA Moskva	€ 27	€ 1	€ 59	0,0228
5	Olympique Lyonnais	€ 108	€ 37	€ 3	0,0121
6	Juventus	€ 9	€ 12	€ 9	0,0112
7	FC Bayern München	€ 21	€ 12	€ 20	0,0095
8	FC Schalke 04	€ 6	€ 7	€ 5	0,0060
9	Borussia Dortmund	€ 10	€ 8	€ 7	0,0055
10	Bayer 04 Leverkusen	€ 3	€ 6	€ 2	0,0032
11	Hamburger SV	€ 2	€ 5	€ 1	0,0025
12	FC Porto	€ 3	€ 3	€ 1	0,0013
13	Manchester City FC	€ 27	€ 35	€ 0	0,0000
14	Paris Saint-Germain FC	€ 21	€ 25	€ 0	0,0000
15	Real Madrid CF	€ 0	€ 0	€ 25	0,0000
	1-15 Average	***€ 34***	***€ 42***	***€ 52***	***0,0060***
	1-15 Total	***€ 551***	***€ 675***	***€ 831***	

Sources:*https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.117.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.107.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.121.

Table 9 shows data on the cost of an increase in the value of fixed assets for each year. Based on the above data, the average growth rate of fixed assets was calculated with the formula:

$$\overline{K} = \sqrt{K_1 \times K_2 \times K_3}\,; \qquad [1]$$

The formula has been used is the special case of the average geometric growth:

$$\overline{K}_g = \sqrt[n-1]{K_1 \times K_2 \times \ldots \times K_n}\,; \qquad [2]$$

The formula [1] has been chosen in order to calculate a coefficient of growth, based on the growth for last period, but not on the annual growth. It means that for all the three-year period increasing of the growth rate is almost equal to 24% for the each year. Based on the specified coefficient, a rating was built: a sports club with the largest average growth rate of fixed assets cost takes the first place in the rating. Then, the median growth rate for all the clubs participating in the rating, which is equal to 0.006, is calculated. Those clubs are marked with red filling up, the corresponding indicator for which was less than the median indicator for the clubs participating in the rating (0.006).

Table 10. Fixed assets

Rank	Club	FY 2016		FY 2017		FY 2018		Average coefficient of multiple of revenue
		Original fixed asset costs, mln €	Asset costs as a multiple of revenue	Original fixed asset costs, mln €	Asset costs as a multiple of revenue	Original fixed asset costs, mln €	Asset costs as a multiple of revenue	
1	FC Barcelona	284	0,4	270	0,4	305	0,4	0,40
2	Juventus	215	0,5	203	0,6	224	0,6	0,57
3	Real Madrid CF	395	0,6	371	0,6	419	0,6	0,60
4	Liverpool FC	278	0,7	262	0,6	284	0,6	0,63
5	Manchester United FC	412	0,6	468	0,7	409	0,6	0,63
6	Chelsea FC	307	0,7	353	0,8	300	0,6	0,70
7	FC Bayern München	453	0,8	446	0,8	473	0,8	0,80
8	FC Schalke 04	244	1,1	237	1,1	249	0,8	1,00
9	Manchester City FC	541	1	587	1,1	541	1,0	1,03
10	Club Atlético de Madrid	353	1,3	193	0,8	439	1,2	1,10
11	Borussia Dortmund	311	0,9	303	2	318	1,0	1,30
12	Arsenal FC	665	1,4	730	1,5	650	1,4	1,43
13	Tottenham Hotspur FC	602	1,7	459	1,6	1157	2,7	2,00
14	FC Porto	192	1,9	188	2,5	193	1,8	2,07
15	SL Benfica	277	2,2	272	2,2	290	2,4	2,27
16	Olympique Lyonnais	441	2,2	446	2,8	444	2,7	2,57
17	Valencia CF	331	3,2	330	2,8	333	3,1	3,03
18	FC København	186	3,5	186	2,5	186	4,4	3,47
	Average	***360***	***1,4***	***350***	***1,4***	***401***	***1,5***	1,07
	Total	***6487***		***6304***		***7214***		

Sources: *https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.118.*
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Table 10 shows data on the initial cost of fixed assets and the multiplicity of the value of fixed assets to the revenue. For each sports club, the average ratio of the cost of fixed assets to revenue was calculated.

Based on this coefficient, a rating was built: a sports club with the highest average coefficient of the ratio of the value of fixed assets to revenue ranks as the first in the rating. Then, the median multiplicity coefficient for all the clubs participating in the rating is calculated, which is 1.07. Those clubs whose corresponding indicator was less than the average indicator for the clubs participating in the rating (1.07) are marked with red filling up.

Table 11 shows data on the multiplicity of the value of the team to revenue for the period 2016-2018. For each sports club, the average coefficient of the multiplicity of the squad cost to revenue was calculated. Based on this coefficient, a rating was built: a sports club with the highest average coefficient of the multiplicity of the squad cost to revenue takes the first place in the rating. Then, the median coefficient of multiplicity was calculated for all the clubs participating in the rating, which is 1.13.

Table 11. Transfer cost of squad as multiple of club revenue

Rank	Club	FY 2016	FY 2017	FY 2018	Average coefficient of multiple to revenue
		Squad cost as multiple of club revenue	Squad cost as multiple of club revenue	Squad cost as multiple of club revenue	
1	FC Bayern München	0,7	0,7	0,8	0,73
2	FC Barcelona	0,6	0,7	1,0	0,77
3	Tottenham Hotspur FC	0,8	0,8	0,9	0,83
4	Club Atlético de Madrid	0,9	1,0	0,8	0,90
5	Liverpool FC	1,2	0,9	1,1	1,07
6	Arsenal FC	1,0	1,0	1,2	1,07
7	Paris Saint-Germain FC	0,9	1,0	1,4	1,10
8	Manchester United FC	1,0	1,1	1,3	1,13
9	Real Madrid CF	1,2	1,2	1,1	1,17
10	Juventus	1,2	1,3	1,5	1,33
11	Chelsea FC	1,4	1,3	1,5	1,40
12	Manchester City FC	1,3	1,4	1,7	1,47
13	FC Internazionale Milano	1,3	1,5	1,6	1,47
14	AS Roma	1,3	2,0	1,8	1,70
15	AS Monaco FC	3,2	1,9	2,8	2,63
	Average	***1,2***	***1,2***	***1,4***	***1,13***

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https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.124.

Table 12. Net debt

Rank	Club	Net debt as multiple of revenue	Net debt as multiple of revenue	Net debt as multiple of revenue	Average coefficient of multiple of revenue
1	Liverpool FC	0,7	0,5	0,3	0,50
2	Manchester United FC	0,8	0,7	0,9	0,78
3	Juventus	0,8	0,7	0,9	0,82
4	Olympique Lyonnais	1,6	0,9	1,1	1,17
5	AC Milan	0,9	1,4	1,2	1,17
6	Beşiktaş JK	1,4	1,0	1,1	1,17
7	Club Atlético de Madrid	1,2	1,4	1,1	1,22
8	AS Roma	1,2	1,3	1,3	1,23
9	FC Internazionale Milano	1,5	1,6	1,6	1,57
10	Galatasaray SK	1,3	2,3	1,5	1,70
11	Fenerbahçe SK	1,0	1,8	2,9	1,90
12	FC Porto	2,1	1,8	2,0	1,97
13	Valencia CF	2,0	2,1	2,6	2,23
14	PFC CSKA Moskva	3,7	3,4	2,8	3,30
	Average	***1,4***	***1,5***	***1,5***	***1,23***
	Total				

Sources: *https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf, p.122.*
https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.114.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.127.

Table 12 shows data on the ratio of net debt to revenue for the period 2016-2018. For each sports club, the average ratio of net debt to revenue ratio was calculated. Based on this ratio, a rating was built: a sports club with the smallest average ratio of net debt to revenue ratio ranks first in the rating.

Then, the median coefficient of multiplicity was calculated for all the clubs participating in the rating, which is 1.23. Those clubs are marked with red filling up, the corresponding indicator for which was at least the average indicator for the clubs participating in the rating (1.23).

Table 13 shows the stock value of sports clubs on the day of the first trading on the stock exchange, at the end of 2016 and at the end of 2017. Since part of the quotes was not quoted in euros, but in the national currency of the country of residence of sports clubs, the table includes the rates of the respective currencies against the euro at the relevant dates. The only exception is the Macedonian Denar (MKD), which lists the shares of the Teteks AD Tetovo sports club on 03/12/2003. Since it was not possible to find data on the exchange rate of the Macedonian denar on this date, the corresponding quote for December 1, 2003 is indicated in the table. Based on exchange rates, stock quotes were already recalculated in euros and that allowed us to calculate the dynamics of these quotes.

Given the fact that the first trading day for many stocks was in the nineties of the last century or at the very beginning of this century, it seems expedient to take as a basis for calculating the dynamics of quotations for the period 2016-2017. According to the growth criterion of quotes, an appropriate rating of sports clubs was compiled: the club with the highest growth ranked first in the rating.

Table 13. Stock value

Rank	Club	Currency	Growth, %	
			Comparison first day of trading/ 31-12-2017	Comparison 31-12-2016/ 31-12-2017
1	Juventus FC	EUR	-40,6%	153,3%
2	Teteks AD Tetovo	MKD*	574,4%	133,1%
3	SS Lazio	EUR	-94,6%	105,3%
4	Celtic FC	GBP	71,7%	79,2%
5	AS Roma	EUR	-75,7%	48,8%
6	Brøndbyernes IF	DKK	-89,4%	41,7%
7	Silkeborg IF	DKK	-78,7%	38,6%
8	Manchester United	USD	43,8%	22,3%
9	SL Benfica	EUR	-70,4%	17,3%
10	BVB Borussia Dortmund	EUR	-30,5%	16,5%
11	AFC Ajax	EUR	-26,5%	14,4%
12	Sporting Clube de Portugal	EUR	-87,0%	8,1%
13	PARKEN Sport & Entertainment	DKK	15,0%	0,2%
14	Olympique Lyonnais	EUR	-76,1%	-3,1%
15	Ruch Chorzow SA	PLN	-82,2%	-3,2%
16	Aalborg AS	DKK	994,6%	-4,1%
17	FC Porto	EUR	-85,3%	-4,3%
18	Besiktas AS	TRY	49,3%	-10,7%
19	Aarhus AS	DKK	-95,8%	-13,7%
20	AIK Fotboll AB	SEK	-72,5%	-22,1%
21	Fenerbahçe Futbol AS	TRY	-8,2%	-23,2%
22	Galatasaray AS	TRY	15,0%	-26,3%
23	Trabzonspor AS	TRY	-51,0%	-32,3%
	Average		***30,4%***	***23,3%***

***Source**: https://www.academia.edu/36750185/Report_Calcio_2018_English_, p.59.*

Based on the obtained quotation growth values, the average value for the participating sports clubs in the rating was calculated, it was equal to 23.3%. In this case, we refused to calculate the median indicator, since it was too close to a negative growth. Those clubs are marked with red filling up, the corresponding indicator for which was less than the average index for the clubs participating in the rating (23.3%).

Table 14 shows a summary of all ratings. A separate column is assigned for each rating; a separate line is allocated for each sports club. Since all sports clubs that participated in less than seven ratings are excluded from the pivot table, 14 clubs appear in the pivot table. On the right side of the table, the total and average scores for each club are displayed. It should be noted that the summary table 14 takes into account the attendance indicator, which is not in the summary table 15, it was compiled without taking into account this indicator. Since the ranking arrangement in tables 14 and 15 leads to the appearance of circular references, separate tables were compiled for the final rating (16 and 17), respectively.

In tables 16 and 17, sports clubs are ranked by decreasing score: the best club takes the first place. For tables 16 and 17, the corresponding average indicators for the clubs participating in the rating were calculated. For table 16, its average index was 8.31 points, for table 17 – 8.25 points. Red shading indicates clubs that received points greater than the corresponding average points (outsiders). It should be noted that the attendance factor does not have a critical effect on the final rating. Composition of the groups of leaders and outsiders in both cases differs by one team; composition of the four leaders in both cases is identical.

In order to determine the weight of each factor, correlation matrices were compiled as presented in Tables 18-20.

Table 14. Summary results including attendance

Club	Attendance increase 2015-2016/2017-2018	Revenue growth rate	FY16/FY17/FY18 revenue increase to average	Revenue from UEFA 16/17/18 - coefficient of increase	FY16/FY17/FY18 gate receipts increase to average	FY16/FY17/FY18 wage bills increase to average	FY16/FY17/FY18 broadcast revenue from domestic football average growth	FY16/FY17/FY18 increase of operation profit margin	FY16/FY17/FY18 coefficient of growth of fixed asset addition	FY16/FY17/FY18 coefficient of growth of original fixed asset cost	FY16/FY17/FY18 coefficient of increase of original transfer cost of squad	FY16/FY17/FY18 coefficient of increase of net debt	Stock value comparison 31-12-2016/31-12-2017	Total score	Average score
Factor number	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*		
Arsenal FC	13	23	9	12	6	15	11	5	16	12	6	8	9	**145**	11,15
Borussia Dortmund	11	20	13	15	13	12	16	11	9	11	13	8	6	**158**	12,15
Chelsea FC	17	16	6	15	9	13	10	11	16	6	11	8	9	**147**	11,31
Club Atlético de Madrid	1	1	13	14	11	10	16	6	2	10	4	7	9	**104**	8,00
FC Barcelona	16	15	1	11	2	2	13	11	16	1	2	8	9	**107**	8,23
FC Bayern München	9	8	13	7	5	5	16	7	7	7	1	8	9	**102**	7,85
Juventus	17	14	3	8	4	4	14	11	6	2	10	3	1	**97**	7,46
Liverpool FC	7	9	7	15	8	14	4	11	3	4	5	1	9	**97**	7,46
Manchester City FC	6	17	5	13	10	11	7	9	13	9	12	8	9	**129**	9,92
Manchester United FC	12	11	4	9	7	7	8	1	16	5	8	2	8	**98**	7,54
Paris Saint-Germain FC	4	19	13	10	1	1	16	8	14	14	7	8	9	**124**	9,54
Real Madrid CF	14	12	2	6	3	3	15	10	15	3	9	8	9	**109**	8,38
Tottenham Hotspur FC	17	4	8	3	14	16	2	3	1	13	3	8	9	**101**	7,77
West Ham United FC	10	13	12	15	16	17	6	4	16	14	13	8	9	**153**	11,77

Table 15. Summary results excluding attendance

Club	Revenue growth rate	FY16/FY17/FY18 revenue increase to average	Revenue from UEFA 16/17/18 - coefficient of increase	FY16/FY17/FY18 gate receipts increase to average	FY16/FY17/FY18 wage bills increase to average	FY16/FY17/FY18 broadcast revenue from domestic football average growth	FY16/FY17/FY18 increase of operation profit margin	FY16/FY17/FY18 coefficient of growth of fixed asset addition	FY16/FY17/FY18 coefficient of growth of original fixed asset cost	FY16/FY17/FY18 coefficient of increase of original transfer cost of squad	FY16/FY17/FY18 coefficient of increase of net debt	Stock value comparison 31-12-2016/ 31-12-2017	Total score	Average score
Factor number	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*		
Arsenal FC	23	9	12	6	15	11	5	16	12	6	8	9	**132**	11,00
Borussia Dortmund	20	13	15	13	12	16	11	9	11	13	8	6	**147**	12,25
Chelsea FC	16	6	15	9	13	10	11	16	6	11	8	9	**130**	10,83
Club Atlético de Madrid	1	13	14	11	10	16	6	2	10	4	7	9	**103**	8,58
FC Barcelona	15	1	11	2	2	13	11	16	1	2	8	9	**91**	7,58
FC Bayern München	8	13	7	5	5	16	7	7	7	1	8	9	**93**	7,75
Juventus	14	3	8	4	4	14	11	6	2	10	3	1	**80**	6,67
Liverpool FC	9	7	15	8	14	4	11	3	4	5	1	9	**90**	7,50
Manchester City FC	17	5	13	10	11	7	9	13	9	12	8	9	**123**	10,25
Manchester United FC	11	4	9	7	7	8	1	16	5	8	2	8	**86**	7,17
Paris Saint-Germain FC	19	13	10	1	1	16	8	14	14	7	8	9	**120**	10,00
Real Madrid CF	12	2	6	3	3	15	10	15	3	9	8	9	**95**	7,92
Tottenham Hotspur FC	4	8	3	14	16	2	3	1	13	3	8	9	**84**	7,00
West Ham United FC	13	12	15	16	17	6	4	16	14	13	8	9	**143**	11,92

Table 16. The final rating taking into account attendance

Rank	Club	Total score	Average score
1	Juventus	**97**	7,46
2	Liverpool FC	**97**	7,46
3	Manchester United FC	**98**	7,54
4	Tottenham Hotspur FC	**101**	7,77
5	FC Bayern München	**102**	7,85
6	Club Atlético de Madrid	**104**	8,00
7	FC Barcelona	**107**	8,23
8	Real Madrid CF	**109**	8,38
9	Paris Saint-Germain FC	**124**	9,54
10	Manchester City FC	**129**	9,92
11	Arsenal FC	**145**	11,15
12	Chelsea FC	**147**	11,31
13	West Ham United FC	**153**	11,77
14	Borussia Dortmund	**158**	12,15
Average		***108***	***8,31***

Table 17. The final rating without taking into account attendance

Rank	Club	Total score	Average score
1	Juventus	**80**	6,67
2	Tottenham Hotspur FC	**84**	7,00
3	Manchester United FC	**86**	7,17
4	Liverpool FC	**90**	7,50
5	FC Barcelona	**91**	7,58
6	FC Bayern München	**93**	7,75
7	Real Madrid CF	**95**	7,92
8	Club Atlético de Madrid	**103**	8,58
9	Paris Saint-Germain FC	**120**	10,00
10	Manchester City FC	**123**	10,25
11	Chelsea FC	**130**	10,83
12	Arsenal FC	**132**	11,00
13	West Ham United FC	**143**	11,92
14	Borussia Dortmund	**147**	12,25
Average		***99***	***8,25***

In tables 18-20, numbering of factors corresponds to the order of indicators in table 14; factors C14 and C15 – respectively, the total and average score.

Table 18. Correlation matrix of factors (Spearman rank-order method)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C1	1,000	0,086	-0,589	-0,333	-0,086	0,091	-0,281	0,178	0,224	-0,378	0,040	0,144	-0,267	-0,084	-0,084
C2	0,086	1,000	-0,022	0,327	-0,222	-0,064	0,164	0,339	0,542	0,172	0,517	0,446	-0,168	0,662	0,662
C3	-0,589	-0,022	1,000	0,278	0,360	0,269	0,375	-0,293	-0,323	0,771	-0,057	0,180	0,136	0,314	0,314
C4	-0,333	0,327	0,278	1,000	0,458	0,447	-0,118	0,323	0,209	0,184	0,472	-0,082	0,049	0,515	0,515
C5	-0,086	-0,222	0,360	0,458	1,000	0,833	-0,449	-0,312	-0,245	0,488	0,354	0,017	-0,003	0,288	0,288
C6	0,091	-0,064	0,269	0,447	0,833	1,000	-0,656	-0,317	-0,061	0,475	0,238	0,039	0,162	0,260	0,260
C7	-0,281	0,164	0,375	-0,118	-0,449	-0,656	1,000	0,243	-0,073	-0,032	-0,103	0,157	-0,198	0,165	0,165
C8	0,178	0,339	-0,293	0,323	-0,312	-0,317	0,243	1,000	-0,057	-0,565	0,185	-0,028	-0,178	0,061	0,061
C9	0,224	0,542	-0,323	0,209	-0,245	-0,061	-0,073	-0,057	1,000	-0,061	0,322	0,324	0,072	0,513	0,513
C10	-0,378	0,172	0,771	0,184	0,488	0,475	-0,032	-0,565	-0,061	1,000	0,177	0,419	0,254	0,504	0,504
C11	0,040	0,517	-0,057	0,472	0,354	0,238	-0,103	0,185	0,322	0,177	1,000	0,113	-0,398	0,579	0,579
C12	0,144	0,446	0,180	-0,082	0,017	0,039	0,157	-0,028	0,324	0,419	0,113	1,000	0,421	0,728	0,728
C13	-0,267	-0,168	0,136	0,049	-0,003	0,162	-0,198	-0,178	0,072	0,254	-0,398	0,421	1,000	0,181	0,181
C14	-0,084	0,662	0,314	0,515	0,288	0,260	0,165	0,061	0,513	0,504	0,579	0,728	0,181	1,000	1,000
C15	-0,084	0,662	0,314	0,515	0,288	0,260	0,165	0,061	0,513	0,504	0,579	0,728	0,181	1,000	1,000

Table 19. Correlation matrix of factors (Kendall's tau method)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C1	0,967	0,088	-0,418	-0,242	-0,110	0,066	-0,176	0,143	0,176	-0,275	0,055	0,088	-0,132	-0,055	-0,055
C2	0,088	1,000	-0,055	0,253	-0,165	-0,077	0,121	0,209	0,363	0,088	0,396	0,264	-0,088	0,440	0,440
C3	-0,418	-0,055	0,934	0,209	0,297	0,297	0,187	-0,143	-0,231	0,571	-0,022	0,077	0,077	0,264	0,264
C4	-0,242	0,253	0,209	0,934	0,363	0,341	-0,143	0,220	0,132	0,110	0,297	-0,055	0,033	0,396	0,396
C5	-0,110	-0,165	0,297	0,363	1,000	0,692	-0,363	-0,231	-0,187	0,484	0,264	0,000	0,000	0,176	0,176
C6	0,066	-0,077	0,297	0,341	0,692	1,000	-0,451	-0,209	-0,055	0,440	0,176	0,022	0,088	0,176	0,176
C7	-0,176	0,121	0,187	-0,143	-0,363	-0,451	0,934	0,143	-0,077	0,000	-0,110	0,099	-0,099	0,066	0,066
C8	0,143	0,209	-0,143	0,220	-0,231	-0,209	0,143	0,890	-0,022	-0,418	0,132	-0,011	-0,077	0,055	0,055
C9	0,176	0,363	-0,231	0,132	-0,187	-0,055	-0,077	-0,022	0,890	-0,044	0,220	0,176	0,044	0,330	0,330
C10	-0,275	0,088	0,571	0,110	0,484	0,440	0,000	-0,418	-0,044	0,989	0,143	0,242	0,132	0,363	0,363
C11	0,055	0,396	-0,022	0,297	0,264	0,176	-0,110	0,132	0,220	0,143	0,989	0,066	-0,209	0,407	0,407
C12	0,088	0,264	0,077	-0,055	0,000	0,022	0,099	-0,011	0,176	0,242	0,066	0,505	0,165	0,429	0,429
C13	-0,132	-0,088	0,077	0,033	0,000	0,088	-0,099	-0,077	0,044	0,132	-0,209	0,165	0,396	0,099	0,099
C14	-0,055	0,440	0,264	0,396	0,176	0,176	0,066	0,055	0,330	0,363	0,407	0,429	0,099	0,989	0,989
C15	-0,055	0,440	0,264	0,396	0,176	0,176	0,066	0,055	0,330	0,363	0,407	0,429	0,099	0,989	0,989

The compilation of a consolidated rating based on a multi-factor analysis supposes taking into account weight of each factor in the final rating. To this end, it is common to analyze the correlation between comparable factors and the result, by obtaining a correlation matrix (Skvortsova and Kiseleva, 2016).

When analyzing the correlation matrices, it becomes obvious that there is no direct correlation between the attendance factor and the total score (in all two correlation matrices the corresponding correlation coefficient is negative and its absolute value is small), which indicates an insignificant weight of this factor. This is also confirmed by the fact that the presence or absence of this factor in the pivot table has a slight effect on the final rating. This circumstance allows us to make a choice in favor of the pivot table without taking into account the attendance factor (table 15) and, accordingly, to prefer the final rating without taking into account the attendance (table 17).

In order to verify the correctness of the method, it seems appropriate to compile a rating based on the final table, where correction factors are applied to the scores for each factor in accordance with the weight of this factor. The average value between the correlation coefficients calculated with two different methods as a similar correction factor was adopted (tables 18-19).

The average correlation coefficients are given in table 20, where the order of factors corresponds to the sequence in table 14. The total points using correction factors are given in table 21. Since it was revealed that the attendance factor does not significantly affect the final rating, the final points were calculated without taking into account the points for this indicator, despite the fact that the corresponding correction factor for this indicator was calculated and shown in table 20.

Thus, the final rating is calculated without taking into account the attendance factor, using correction factors that reflect the weight of each factor, which was calculated on the basis of the average correlation coefficient. The final rating data is shown in table 22. The red filling up indicates the clubs that scored more than the average rating point (outsiders).

Table 20. Averaged correlation coefficients

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C1	0,984	0,087	-0,503	-0,287	-0,098	0,078	-0,229	0,161	0,200	-0,326	0,047	0,116	-0,200	-0,069	-0,069
C2	0,087	1,000	-0,039	0,290	-0,193	-0,070	0,143	0,274	0,452	0,130	0,456	0,355	-0,128	0,551	0,551
C3	-0,503	-0,039	0,967	0,243	0,328	0,283	0,281	-0,218	-0,277	0,671	-0,039	0,128	0,106	0,289	0,289
C4	-0,287	0,290	0,243	0,967	0,410	0,394	-0,130	0,271	0,170	0,147	0,384	-0,069	0,041	0,455	0,455
C5	-0,098	-0,193	0,328	0,410	1,000	0,763	-0,406	-0,272	-0,216	0,486	0,309	0,008	-0,002	0,232	0,232
C6	0,078	-0,070	0,283	0,394	0,763	1,000	-0,553	-0,263	-0,058	0,457	0,207	0,030	0,125	0,218	0,218
C7	-0,229	0,143	0,281	-0,130	-0,406	-0,553	0,967	0,193	-0,075	-0,016	-0,107	0,128	-0,148	0,115	0,115
C8	0,161	0,274	-0,218	0,271	-0,272	-0,263	0,193	0,945	-0,040	-0,491	0,158	-0,020	-0,128	0,058	0,058
C9	0,200	0,452	-0,277	0,170	-0,216	-0,058	-0,075	-0,040	0,945	-0,052	0,271	0,250	0,058	0,421	0,421
C10	-0,326	0,130	0,671	0,147	0,486	0,457	-0,016	-0,491	-0,052	0,995	0,160	0,330	0,193	0,434	0,434
C11	0,047	0,456	-0,039	0,384	0,309	0,207	-0,107	0,158	0,271	0,160	0,995	0,089	-0,303	0,493	0,493
C12	0,116	0,355	0,128	-0,069	0,008	0,030	0,128	-0,020	0,250	0,330	0,089	0,753	0,293	0,578	0,578
C13	-0,200	-0,128	0,106	0,041	-0,002	0,125	-0,148	-0,128	0,058	0,193	-0,303	0,293	0,698	0,140	0,140
C14	-0,069	0,551	0,289	0,455	0,232	0,218	0,115	0,058	0,421	0,434	0,493	0,578	0,140	0,995	0,995
C15	-0,069	0,551	0,289	0,455	0,232	0,218	0,115	0,058	0,421	0,434	0,493	0,578	0,140	0,995	0,995

Table 21. The total points with the use of correction factors

Club	Revenue growth rate	FY16/FY17/FY18 revenue increase to average	Revenue from UEFA 16/17/18 - coefficient of increase	FY16/FY17/FY18 gate receipts increase to average	FY16/FY17/FY18 wage bills increase to average	FY16/FY17/FY18 broadcast revenue from domestic football average growth	FY16/FY17/FY18 increase of operation profit margin	FY16/FY17/FY18 coefficient of growth of fixed asset addition	FY16/FY17/FY18 coefficient of growth of original fixed asset cost	FY16/FY17/FY18 coefficient of increase of original transfer cost of squad	FY16/FY17/FY18 coefficient of increase of net debt	Stock value comparison 31-12-2016/31-12-2017	Total score	Average score
Arsenal FC	12,7	2,6	5,5	1,4	3,3	1,3	0,3	6,7	5,2	3,0	4,6	1,3	**47,7**	3,98
Borussia Dortmund	11,0	3,8	6,8	3,0	2,6	1,8	0,6	3,8	4,8	6,4	4,6	0,8	**50,1**	4,18
Chelsea FC	8,8	1,7	6,8	2,1	2,8	1,2	0,6	6,7	2,6	5,4	4,6	1,3	**44,7**	3,73
Club Atlético de Madrid	0,6	3,8	6,4	2,6	2,2	1,8	0,3	0,8	4,3	2,0	4,0	1,3	**30,1**	2,50
FC Barcelona	8,3	0,3	5,0	0,5	0,4	1,5	0,6	6,7	0,4	1,0	4,6	1,3	**30,6**	2,55
FC Bayern München	4,4	3,8	3,2	1,2	1,1	1,8	0,4	2,9	3,0	0,5	4,6	1,3	**28,2**	2,35
Juventus	7,7	0,9	3,6	0,9	0,9	1,6	0,6	2,5	0,9	4,9	1,7	0,1	**26,5**	2,21
Liverpool FC	5,0	2,0	6,8	1,9	3,0	0,5	0,6	1,3	1,7	2,5	0,6	1,3	**27,1**	2,26
Manchester City FC	9,4	1,4	5,9	2,3	2,4	0,8	0,5	5,5	3,9	5,9	4,6	1,3	**43,9**	3,66
Manchester United FC	6,1	1,2	4,1	1,6	1,5	0,9	0,1	6,7	2,2	3,9	1,2	1,1	**30,6**	2,55
Paris Saint-Germain FC	10,5	3,8	4,6	0,2	0,2	1,8	0,5	5,9	6,1	3,5	4,6	1,3	**42,8**	3,57
Real Madrid CF	6,6	0,6	2,7	0,7	0,7	1,7	0,6	6,3	1,3	4,4	4,6	1,3	**31,5**	2,63
Tottenham Hotspur FC	2,2	2,3	1,4	3,2	3,5	0,2	0,2	0,4	5,6	1,5	4,6	1,3	**26,4**	2,20
West Ham United FC	7,2	3,5	6,8	3,7	3,7	0,7	0,2	6,7	6,1	6,4	4,6	1,3	**50,9**	4,24

Table 22. The final rating, taking into account correction factors

Rank	Club	Final score
1	Tottenham Hotspur FC	**26,4**
2	Juventus	**26,5**
3	Liverpool FC	**27,1**
4	FC Bayern München	**28,2**
5	Club Atlético de Madrid	**30,1**
6	Manchester United FC	**30,6**
7	FC Barcelona	**30,6**
8	Real Madrid CF	**31,5**
9	Paris Saint-Germain FC	**42,8**
10	Manchester City FC	**43,9**
11	Chelsea FC	**44,7**
12	Arsenal FC	**47,7**
13	Borussia Dortmund	**50,1**
14	West Ham United FC	**50,9**
Average		***36,5***

When comparing the data in tables 17 and 22, it becomes obvious that there are no fundamental differences among them: the composition of the leaders group and outsiders does not change; there are slight shifts in the positions of some clubs. It is noteworthy that the composition of the two of leaders in both cases is identical.

5 DISCUSSION AND CONCLUSION

5.1 Discussion

Analysis of financial management strategies of European sports clubs shows the following.

Clubs holding leading positions in the final ranking (table 22) differ in the percentage of domestic broadcasts revenue in total revenue which does not exceed 40%. At the same time, outsider clubs of the final rating have a corresponding percentage exceeding 60%.

At the same time, the leading clubs in the final ranking occupy leading positions in the ranking of growth in broadcasts revenue. This suggests that the strategy aimed at increasing revenue from non-domestic broadcasts in the framework of this study demonstrates a relatively higher efficiency. From the data of this rating it is obvious that the leading clubs of the final rating invest less capital in fixed assets relative to their total revenue. In other words, a relatively smaller capital invested in fixed assets gives relatively higher revenue – subject to a larger increase in this capital.

As regards to revenues from UEFA, the leading clubs in the final ranking show a comparatively smaller increase, however, the predominance of the leading clubs is not so clear as to make an unambiguous conclusion on this basis. From the data in tables 5 and 7, it can be concluded that most sports clubs successfully apply a diversification strategy.

In the ranking of the growth rate of fixed assets, the leading clubs of the final rating usually occupy leading positions. It is important to note here that this indicator characterizes precisely the dynamics of development but not the amount of capital invested in fixed assets. In this context, another indicator should be mentioned – the ratio of the original cost of fixed assets to total revenue. From the data of this rating it is obvious that the leading clubs of the final rating invest less capital in fixed assets relative to their total revenue. In other words, a relatively smaller capital invested in fixed assets gives a relatively higher revenue – subject to a larger increase in this capital. From the data in table 9 it can be seen that the leading clubs in the final rating apply the strategy of fixed capital growth.

Regarding the multiplicity of the squad cost to total revenue, we can say that in this case, for the leading clubs of the final rating, there is a scheme where relatively less capital invested in players gives a relatively higher revenue. Of course, these comparisons apply exclusively to proportional, but not absolute values.

The strategy of relative debt reduction is clearly visible in the net debt rating – here, without exception, all the leading clubs in the final rating occupy leading positions. From the data in table 12, we can conclude that these clubs apply a strategy for optimizing the use of credit resources.

As to the growth of stock value, this rating is headed by the club-second leader of the final rating (Juventus FC). It can be assumed that this indicator to some extent reflects the result of the investment risks assessment by potential investors, however, the risk assessment methodology used by them in this case is unknown.

An analysis of the financial management factors of sports clubs leading in the final ranking shows the following. The most significant factor turns out to be the growth of total revenue – this follows from a comparison of the average correlation coefficients (table 20). It should be noted that for the growth factor of total revenue, the data in table 12 do not show an obvious picture, and the corresponding weight of the factor can be determined only from table 20. The second place by weight is taken by the factor of net debt to revenue ratio. This is obvious both from the correlation matrix (table 20) and from the rating of clubs according to the mentioned criterion (table 12), where the top three clubs include leaders according to the final rating (table 22). The third place in weight is taken by the factor of the multiplicity of the squad cost to total revenue. This is clearly seen both from the correlation matrix (table 20) and from the analysis of the data in table 11, where there are six clubs among the leading clubs that are among the leaders in the final rating. By analyzing the economic content of these indicators, we can say the following.

The average annual growth rate of total revenue is one of the most characteristic indicators of the effectiveness of a financial management strategy. The absolute value of total revenue is determined, in the case of sports clubs, not only by the mentioned efficiency, but also by such non-economic factors as the popularity of a particular sports club or the behavioristic features of the social group that is the target audience for this club. As for the growth rate of total revenue in conditions when the popularity of the

leading European sports clubs is relatively constant, this indicator very clearly reflects effectiveness of the financial management, which provides greater revenue growth in a competitive environment.

The ratio of net debt to total revenue is a more private indicator that reflects the potential of the chosen financial management strategy to the relative reduction of costs and increase in revenue – that is, to solve the problem of optimization the use of resources. It is very characteristic that the strategy of financial management which is effective in solving the problem of optimization the use of resources turns out to be effective in general for optimization of financial management.

The ratio of the value of players to total revenue is another special case of demonstrating the effectiveness of solving the problem of optimization the use of resources. It can be assumed that with a sufficiently large value of the players cost, it is possible to achieve the maximum possible popularity of a sports club, which will serve as a guarantee of maximization of total revenue. However, under these conditions, the club's profitability may well turn out to be negative, and investment risks will prove to be excessive. Optimization of investment risks should theoretically ensure a minimum ratio of expenses to revenues, and a particular case of this particular problem is solved by minimizing the ratio of the squad cost to total revenue.

5.2 Conclusion

The methodology used is based on reduction of various financial indicators to comparable values which characterize financial strategy of each football club. Based on such comparable values, a composite indicator for each sports club is formed. Comparison of these summary indicators allows us to give a comparative assessment of various financial management strategies used by sports clubs.

Our results allow us to identify those factors that have a crucial impact on the results of applying a particular financial strategy. It becomes obvious namely which factors of a financial strategy determine its effectiveness.

Calculations showed that the selected method allows to obtain reliable results that are consistent with the source data. Thus, we can conclude that at present, leading sports

clubs apply financial management strategies containing elements of diversification, fixed capital growth, and optimization of the use of credit resources. We can also conclude that other financial strategies have less effectiveness comparatively with mentioned ones.

At the same time, the results of an econometric analysis of the financial activities data of European football clubs show that the following factors are most critical for choosing a financial management strategy:

- growth in total revenue;
- ratio of net debt to total revenue;
- ratio of the value of players to total revenue.

This conclusion is based on the following studies:

- final ranking comparison;
- analysis of factors through a correlation matrix.

By summarizing the highly cited, it can be assumed that to assess the applied strategies of financial management, it is possible to use econometric analysis data taking into account the weight of relevant factors, which can be calculated on the basis of correlation matrices.

The proposed methodology for examination of financial strategies of sports clubs can be applied when conducting a general assessment of efficiency of sports clubs financial activities conducted by auditors of sports federations or other interested parties. The most effective application of this technique seems to be when conducting a comparative assessment applied to several sports clubs - for example, in determining comparative investment attractiveness of various clubs in the same sports field.

The most promising direction for development of this study seems to be processing of appropriate software that provides ability to conduct appropriate calculations in automatic mode.

REFERENCES

1. Aglietta, M., Andreff, W. and Drut, B., 2010. Floating European football clubs in the stock market. In: EconomiX. Paris: Université de Paris Ouest Nanterre La Défense, pp.4, 5.
2. Angrist, J., 2009. Mostly Harmless Econometrics. Princenton University press, p.83
3. Asaf, S., 2004. Executive Corporate Finance. 1st ed. London: Financial Times/Prentice Hall, p.xii.
4. Babbie, E. R. (2010) "The Practice of Social Research" Cengage Learning, p.5
5. Badenhorst-Weiss, H., Brevis, T., Cant, M., Davis, A., de Beer, A., de Longh, D., Eccles, N., Ferreira, E., Nayager, T., Nicholls, S., Pellissier, R., Schenk, H., Steenkamp, R., Tshabalala, D., Van Buren-Schele, C. and Weitsz, H., 2008. Business Management: A Contemporary Approach. Cape Town: Juta, pp.116-118.
6. Baker, H. and Nofsinger, J., 2013. Behavioral Finance. 1st ed. Hoboken, N.J.: Wiley, pp.393-434.
7. Bandi, F. M., Russell, J. R., 2005. Realized covariation, realized beta, and microstructure noise, Working Paper, pp. 54-55.
8. Bandopadhyaya, A., Callahan, K. and Shin, Y., 2012. Corporate Financial Strategy. In: Financial Services Forum. [online] Boston: University of Massachusetts, pp.7-12.
9. Bender, R. and Ward, K., 2002. Corporate Financial Strategy, 2Nd Edition. 2nd ed. Oxford: Elsevier Science, pp. 41-55.
10. Bender, R. and Ward, K., 2002. Corporate Financial Strategy. 2nd ed. Amsterdam: Butterworth/Heinemann, p.4.
11. Blank, I., 2007. Financial Management. 1st ed. Kiev: Nika-Center, p.104.
12. Brigham, E. and Houston, J., 2007. Fundamentals of Financial Management. Mason, OH: Thomson/South-Western, pp. 30-95.

13. Brigham, E. and Houston, J., 2012. Fundamentals of Financial Management. 13th ed. Mason: Cengage Learning, p.552.

14. Brown, M., 2010. Financial Management In The Sport Industry. Scottsdale, Ariz.: Holcomb Hathaway, Publishers, pp. 154-176, pp. 380-440.

15. Callejo, M. and Forcadell, F., 2006. Real Madrid football club: A new model of business organization for sports clubs in Spain. Global Business and Organizational Excellence, 26(1), p.51.

16. Callejo, M. and Forcadell, F., 2006. Real Madrid football club: A new model of business organization for sports clubs in Spain. Global Business and Organizational Excellence, 26(1), p.61.

17. Club Licensing Benchmarking Report – Financial Year 2016. Financial Sustainability & Research Division/UEFA Intelligence Centre. Available from: https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/53/00/22/2530022_DOWNLOAD.pdf [Accessed 06.02.2020.]

18. Club Licensing Benchmarking Report – Financial Year 2017. Financial Sustainability & Research Division/UEFA Intelligence Centre. Available from: https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf [Accessed 06.02.2020.]

19. Club Licensing Benchmarking Report – Financial Year 2018. Financial Sustainability & Research Division/UEFA Intelligence Centre. Available from: https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf [Accessed 29.03.2020]

20. Cope, A., Pirie, W., Robinson, T., Broihahn, M. and Henry, E., 2012. International Financial Statement Analysis. 2nd ed. Hoboken, N.J.: Wiley, pp.1-1040.

21. Corporate Finance Institute. 2020. Current Ratio Formula - Examples, How To Calculate Current Ratio. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/finance/current-ratio-formula/> [Accessed 17 June 2020].

22. Corporate Finance Institute. 2020. Debt To Equity Ratio - How To Calculate Leverage, Formula, Examples. [online] Available at:

<https://corporatefinanceinstitute.com/resources/knowledge/finance/debt-to-equity-ratio-formula/> [Accessed 17 June 2020].

23. Corporate Finance Institute. 2020. Gross Margin Ratio - Learn How to Calculate Gross Margin Ratio. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/finance/gross-margin-ratio/> [Accessed 17 June 2020].
24. Corporate Finance Institute. 2020. Net Profit Margin - Definition, Formula and Example Calculation. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/finance/net-profit-margin-formula/> [Accessed 18 June 2020].
25. Corporate Finance Institute. 2020. Return On Assets - ROA Formula, Calculation, And Examples. [online] Available at: <https://corporatefinanceinstitute.com/resources/knowledge/finance/return-on-assets-roa-formula/> [Accessed 17 June 2020].
26. Das, S., 2009. Perspectives On Financial Services. 1st ed. New Dehli: Allied Publishers, p.283.
27. DFL Economic report 2016-2018. Financial report. Available from: https://www.dfl.de/en/news/2019-dfl-economic-report-record-revenue-and-other-new-highs-confirm-the-positive-economic-development-of-german-professional-football/ [Accessed 29.03.2020]
28. Dutta, M., 2004. Cost Accounting. 1st ed. New Delhi: Pearson, p.45.
29. Foster, G., O'Reilly, N. and Dávila, A., 2016. Sports Business Management. 1st ed. London: Routledge, pp.479-506.
30. Foster, G., O'Reilly, N. and Dávila, A., 2016. Sports Business Management. 1st ed. London: Routledge, pp.3-44.
31. Fredricks, G. and Nelsen, R., 2007. On the relationship between Spearman's rho and Kendall's tau for pairs of continuous random variables. Journal of Statistical Planning and Inference, 137(7), pp.2143-2150.
32. Fried, G., DeSchriver, T. and Mondello, M., 2013. Sport Finance. 3rd ed. Leeds: Human Kinetics, pp.109-340.

33. Gasparian, M., Kiseleva, I., Korneev, D., Lebedev, S. and Lebedev, V., 2018. Strategic analysis of risks when implementing investment projects. Revista Espacios, (27), p.16.

34. Gibbons, J.D., 1976. Nonparametric Methods for Quantitative Analysis. Holt, Rinehart and Winston, Inc., New York.

35. Golosnoy, V. 2007. Semiparametric Approaches to the Prediction of Conditional Correlation Matrices in Finance. Economics Working Papers 2007-23, Christian-Albrechts-University of Kiel, Department of Economics, p.22-25.

36. Gonçalves, T., Lima, N., De Oliveira, S., De Oliveira, M. and Queiroz, J., 2012. Corporate Governance in Financial Strategy of Companies Listed in Bovespa. International Journal of Business and Commerce, 2(12), p.33-40.

37. Gujarati, D. and Porter, D., 2009. Basic Econometrics. 5th ed. Boston, Mass.: McGraw-Hill/Irwin, p.20.

38. Hampton, J., 2007. Financial Decision Making. Englewood Cliffs, N.J.: Prentice Hall, pp. 55-64.

39. Hampton, J., 2007. Financial Decision Making. Englewood Cliffs, N.J.: Prentice Hall, pp. 150-223.

40. Hargitay, S. and Yu, S., 2003. PROPERTY INVESTMENT DECISIONS. 2nd ed. London: ROUTLEDGE, pp.60-245.

41. Henschel, T., 2010. Typology of risk management practices: an empirical investigation into German SMEs. International Journal of Entrepreneurship and Small Business, 9(3), pp.265-292.

42. Hirt, G., Block, S. and Basu, S., 2006. Investment Planning for Financial Professionals. New York, N.Y.: McGraw-Hill, p.5.

43. Hopkin, P., 2013. Risk Management. 1st ed. London: Kogan Page Publishers, p.18.

44. Horne, J. and Wachowicz, J., 2008. Fundamentals of Financial Management, pp. 77-134.

45. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/sports-business-group/deloitte-uk-annual-review-of-football-finance-2019.pdf[Accessed: 15.03.2020]

46. Kendall, M.G., 1948. The Advanced Theory of Statistics, vol. 1, fourth ed. Charles Griffin & Company, London.

47. Khan, M. and Jain, P., 2007. Financial Management. 5th ed. New Delhi: Tata McGraw-Hill, p.23.

48. Kulikova, L. and Goshunova, A., 2014. Efficiency measurement of professional football clubs: a non-parametric approach. Life Science Journal, 11(11s), p.1.

49. Kulkarni., 2011. Financial Management. Himalaya Publishing House, pp. 55-78.

50. Lee, C. and Lee, J., 2017. Financial Analysis, Planning & Forecasting. 3rd ed. Singapore: World Scientific, p.1.

51. Maheshwari, Y., 2008. Investment Management. 1st ed. New Delhi: PHI Learning, p.ix.

52. Miller, G., 1996. Handbook of Debt Management. 1st ed. New York: CRC Press, p.546.

53. Morrow, S. and Howieson, B., 2014. The New Business of Football: A Study of Current and Aspirant Football Club Managers. Journal of Sport Management, 28(5), pp.515-525.

54. Ndanusa, S., 2011. Mastering the Art of Managing Money. 1st ed. Bloomington: Xlibris, pp.5-12.

55. Nelsen, R.B., 1992. On measures of association as measures of positive dependence. Statist. Probab. Lett. 14, 269–274.

56. Nie, C. 2017. Dynamics of cluster structure in financial correlation matrix. Chaos, Solitons and Fractals: the interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena, 104, pp. 835-840.

57. Ogilvie, J., 2008. Management Accounting - Financial Strategy. 1st ed. Oxford: CIMA/Elsevier, p.3.

58. Oliver, V, 2010, 301 Smart Answers to Tough Business Etiquette Questions, Skyhorse Publishing, New York USA, p. 6

59. Pandey, I., 2015. Financial Management, Vikas Publishing House, pp. 77-122.

60. Piros, C. and Pinto, J., 2013. Economics for Investment Decision Makers. 1st ed. Hoboken, NJ: Wiley, p.96.

61. Popkova, E. and Ostrovskaya, V., 2018. Perspectives on The Use of New Information and Communication Technology (ICT) In The Modern Economy. 1st ed. Cham: Springer, pp.269-278.

62. Pyatunin, A., Vishnyakova, A., Sherstneva, N., Mironova, S., Dneprov, S. and Grabozdin, Y., 2016. The Economic Efficiency of European Football Clubs – Data Envelopment Analysis (DEA) Approach. International Journal of Environmental & Science Education, 11(15), p.7517.

63. Report Calcio – 2018 Abstract. Federazione Italiana Giuoco Calcio. Available from: https://www.academia.edu/36750185/Report_Calcio_2018_English_ [Accessed 07.02.2020]

64. Rikardsson, H. and Rikardsson, L., 2013. Strategic Management in Football. MASTER THESIS. Linköping University.

65. Rosenberg, P., 2004. Don't Walk by Something Wrong! New York: IUniverse, pp.157-302.

66. Ross, C., Winn, C., Wood, C. and Hammond, T., 2019. Deloitte Football Money League 2019. [ebook] Manchester: Deloitte Sports Business Group, pp.12-31. Available at: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/sports-business-group/deloitte-uk-deloitte-football-money-league-2019.pdf [Accessed 16 March 2020].

67. Samagaio, A., Couto, E., and Caiado, J., 2009. "Sporting, financial and stock market performance in English football: an empirical analysis of structural relationships," CEMAPRE Working Papers 0906, Centre for Applied Mathematics and Economics (CEMAPRE), School of Economics and Management (ISEG), Technical University of Lisbon.

68. Shu, C., 2016. Capital Structure and Related Financial Strategy for Circular Economy Corporate. In: International Conference on Engineering Science and Management (ESM 2016). Zhengzhou: Atlantis Press, p.0067.

69. Shuckett, D. and Mock, E., 1973. Decision Strategies In Financial Management. New York: Amacom, pp. 65-117.

70. Skvortsova, M. and Kiseleva, O., 2016. Application methods of regression analysis to influence factors on profit company. Fundamental research, 1(6), pp.224-228.

71. Sofat, R. and Hiro, P., 2015. Strategic Financial Management. 2nd ed. Delhi: PHI Learning, p.26.

72. Solomon, E., 1969. The Theory of Financial Management. New York: Columbia University Press, pp 95-118.

73. Structural overview of German Professional Football. 2010. Available from: http://www.sportbusinesscentre.com/wp-content/uploads/2010/04/ChristianMueller.pdf [Accessed 07.02.2020]

74. Svatošová, V., 2015. Modelling of Financial Strategy in Agricultural Company. In: X. International Conference on Applied Business Research. Brno: Mendel University in Brno, p.980.

75. Svatošová, V., 2017. Identification of Financial Strategy in Small and Medium-sized Entrepreneurship. Acta Universitatis Agriculture et Silviculture Madelaine Brunensis, 65(4), p.1442.

76. The annual report on the most valuable and strongest football brands, 2019. Available from: https://brandfinance.com/images/upload/football_50_free.pdf [Accessed: 18:03.2020]

77. Van Horne, J., 2002. Financial Management and Policy. Upper Saddle River, N.J.: Prentice Hall, pp. 176-189.

78. Vancas, I., 2010. Due Diligence and Risk Assessment Of An Alternative Investment Fund. 1st ed. Hamburg: Diplomica Verlag Gmbh, pp.4-6.

79. Wilson, J. (2010) "Essentials of Business Research: A Guide to Doing Your Research Project" SAGE Publications, p. 7

80. World in Motion: Annual Review of Football Finance, Sports Business Group, 2019. Available from:

81. Xu, J., Fry, J., Lev, B. and Hajiyev, A., 2013. Proceedings of The Seventh International Conference on Management Science and Engineering Management. Berlin: Springer Science & Business Media, p.584.

82. Zhang, Z. and Cai, X., 2018. Analysis of Influence Factors on Corporate Financial Strategy. In: Third International Conference on Economic and Business Management (FEBM 2018. Hohhot: Atlantis Press, pp.294-296.

APPENDICES

Appendix 1: Table 5. Gate receipts

Club	Country	FY16 gate receipts, mln €	Year-on-year growth %	% of total revenue	Multiple of the league average	Estimated receipts per match, mln €	FY17 gate receipts, mln €	Year-on-year growth in %	% of total revenue	Multiple of the league average	Estimated receipts per match, mln €	FY18 gate receipts, mln €	Year-on-year growth %	% of total revenue	Multiple of the league average	Estimated receipts per match, mln €	Average coefficient of multiple to average
Paris Saint-Germain FC	FRA	90	19%	17%	7,9	3,1	90	1%	18%	7,6	3,1	100	11%	18%	7,5	4	7,7
FC Barcelona	ESP	129	7%	21%	5,7	4,6	143	11%	22%	5,9	4,8	164	15%	24%	5,9	5,7	5,8
Real Madrid CF	ESP	132	1%	21%	5,8	5,3	142	7%	21%	5,8	4,9	146	3%	19%	5,3	4,9	5,6
Juventus	ITA	40	-17%	12%	4	1,6	60	51%	15%	5,5	2	58	-3%	14%	4,4	2,1	4,6
FC Bayern München	GER	123	12%	21%	4,5	4,9	117	-4%	20%	4,3	4,5	122	4%	19%	4,3	5,1	4,4
Arsenal FC	ENG	135	3%	28%	3,4	5,0	117	-13%	24%	3,4	4,2	112	-5%	25%	3,1	3,7	3,3
Manchester United FC	ENG	131	23%	19%	3,4	4,5	120	-9%	18%	3,5	3,6	107	-11%	16%	2,9	4,1	3,3
Liverpool FC	ENG	83	10%	20%	2,1	2,8	85	3%	20%	2,4	3,5	90	6%	18%	2,5	3,2	2,3
Chelsea FC	ENG	86	1%	20%	2,2	3,4	68	-21%	16%	2	2,7	76	11%	15%	2,1	2,4	2,1
Manchester City FC	ENG	71	25%	13%	1,8	2,5	60	-15%	11%	1,7	2,3	64	6%	11%	1,8	2,4	1,8
Club Atlético de Madrid	ESP	36	-5%	16%	1,6	1,3	41	14%	15%	1,7	1,4	57	38%	16%	2	1,9	1,8
Athletic Club	ESP	36	24%	31%	1,6	1,2	36	0%	28%	1,5	1,4	47	31%	35%	1,7	1,7	1,6
Borussia Dortmund	GER	47	17%	16%	1,7	1,8	44	-6%	13%	1,6	1,7	42	-4%	13%	1,5	1,8	1,6
Tottenham Hotspur FC	ENG	37	0%	13%	0,9	1,4	51	38%	14%	1,5	1,8	80	57%	19%	2,2	2,9	1,5
Eintracht Frankfurt	GER	33	2%	34%	1,2	1,8	37	12%	32%	1,3	1,9	41	11%	26%	1,4	2,3	1,3
West Ham United FC	ENG	36	37%	18%	0,9	1,4	45	27%	20%	1,3	1,9	38	-16%	19%	1,1	1,8	1,1
Average		***78***	***10%***	***20%***	***3,0***	***2,9***	***79***	***6%***	***19%***	***3,2***	***2,9***	***84***	***10%***	***19%***	***3,1***	***3,1***	***2,2***
Total		***1245***				***46,6***	***1256***				***45,7***	***1344***				***50,0***	

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https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.65.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, 77.

Appendix 2: Table 6. Wage bills

Rank	Club	FY16 wage bills, mln €	Year-on-year growth	% of total revenue	Multiple of the league average	FY17 wage bills, mln €	Year-on-year growth	% of total revenue	Multiple of the league average	FY18 wage bills, mln €	Year-on-year growth	% of total revenue	Multiple of the league average	Coefficient of multiple to average
1	Paris Saint-Germain FC	292	15%	54%	5,7	272	-7%	54%	4,9	337	24%	62%	5,3	5,30
2	FC Barcelona	372	9%	60%	5,2	378	2%	58%	4,5	529	40%	77%	5,2	4,97
3	Real Madrid CF	307	6%	49%	4,3	406	32%	60%	4,8	431	6%	57%	4,3	4,47
4	Juventus	221	12%	65%	3,2	264	19%	64%	3,7	261	-1%	65%	3,5	3,47
5	FC Bayern München	270	14%	46%	3,6	276	2%	47%	3,3	315	14%	50%	3,4	3,43
6	AS Roma	156	14%	71%	2,3	145	-7%	83%	2	159	9%	64%	2,1	2,13
7	Manchester United FC	321	21%	47%	2,1	306	-5%	45%	2,1	334	9%	50%	2,1	2,10
8	FC Internazionale Milano	127	6%	63%	1,9	155	22%	58%	2,2	159	3%	55%	2,1	2,07
9	AC Milan	161	-2%	72%	2,4	128	-20%	65%	1,8	150	17%	70%	2,0	2,07
10	Club Atlético de Madrid	137	31%	60%	1,9	178	30%	66%	2,1	212	19%	60%	2,1	2,03
11	Manchester City FC	294	6%	55%	1,9	334	14%	60%	2,3	314	-6%	56%	1,9	2,03
12	Borussia Dortmund	140	19%	49%	1,9	178	27%	53%	2,1	187	5%	59%	2,0	2,00
13	Chelsea FC	298	5%	68%	1,9	256	-14%	61%	1,7	275	8%	55%	1,7	1,77
14	Liverpool FC	281	30%	69%	1,8	244	-13%	57%	1,6	298	22%	58%	1,8	1,73
15	Arsenal FC	263	5%	55%	1,7	234	-11%	48%	1,6	271	16%	60%	1,7	1,67
16	Tottenham Hotspur FC	140	-1%	50%	0,9	148	6%	41%	1	167	13%	39%	1,0	0,97
	Average	***236***	***12%***	***58%***	***2,7***	***222***	***7%***	***59%***		***275***	***12%***	***59%***	***2,6***	***2,07***
	Total	***3780***				***4436***				***4399***				

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https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.76.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.89.

Appendix 3: Table 7. Domestic broadcast revenue

Rank	Club	FY16, mln	Year-on-year growth	% of total revenue	Multiple of the league average	FY17, mln	Year-on-year growth	% of total revenue	Multiple of the league average	FY18, mln	Year-on-year growth	% of total revenue	Multiple of the league average	Average growth rate
1	Leicester City FC	€ 128	35%	74%	1,1	€ 142	11%	52%	1,0	€ 140	-1,4%	78%	1,0	15%
2	Tottenham Hotspur FC	€ 127	7%	45%	1,1	€ 176	39%	49%	1,2	€ 167	-5,1%	39%	1,2	13%
3	Everton FC	€ 111	4%	68%	1,0	€ 153	38%	76%	1,1	€ 147	-3,9%	69%	1,0	13%
4	Liverpool FC	€ 127	-1%	31%	1,1	€ 179	41%	42%	1,2	€ 172	-3,9%	33%	1,2	12%
5	Watford FC	€ 104	n/a	84%	0,9	€ 127	22%	88%	0,9	€ 127	0,0%	88%	0,9	11%
6	West Ham United FC	€ 117	14%	60%	1,0	€ 144	23%	65%	1,0	€ 138	-4,2%	68%	1,0	11%
7	Manchester City FC	€ 135	1%	25%	1,2	€ 181	34%	32%	1,2	€ 177	-2,2%	32%	1,2	11%
8	Manchester United FC	€ 146	5%	21%	1,3	€ 180	23%	27%	1,2	€ 187	3,9%	28%	1,3	11%
9	Crystal Palace FC	€ 104	0%	77%	0,9	€ 135	30%	80%	0,9	€ 136	0,7%	80%	0,9	10%
10	Chelsea FC	€ 123	-11%	28%	1,1	€ 181	47%	43%	1,2	€ 167	-7,7%	33%	1,2	9%
11	Arsenal FC	€ 138	8%	29%	1,2	€ 167	21%	34%	1,1	€ 164	-1,8%	36%	1,1	9%
12	Southampton FC	€ 123	11%	74%	1,1	€ 151	23%	71%	1,0	€ 132	-12,6%	77%	0,9	7%
13	FC Barcelona	€ 145	2%	23%	3,2	€ 154	6%	24%	2,5	€ 166	7,8%	24%	2,5	5%
14	Juventus	€ 119	12%	35%	2,4	€ 122	3%	30%	2,3	€ 122	0,0%	30%	2,3	5%
15	Real Madrid CF	€ 145	3%	23%	3,2	€ 142	-2%	21%	2,3	€ 150	5,6%	20%	2,2	2%

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https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.61.
https://www.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/63/79/75/2637975_DOWNLOAD.pdf, p.75.

Appendix 4: Table 8. Operating profit margin

Rank	Club	FY16 operating profit, mln	Operating profit margin	FY16 revenue rank	FY17 operating profit, mln	Operating profit margin	FY17 revenue rank	FY18 operating profit, mln	Operating profit margin	FY18 revenue rank	Average margin
1	Manchester United FC	€ 232	34%	1	€ 222	33%	1	€ 188	28%	3	32%
2	SSC Napoli	€ 39	27%	31	€ 75	37%	19	€ 42	23%	23	29%
3	Tottenham Hotspur FC	€ 55	19%	12	€ 93	26%	11	€ 167	39%	10	28%
4	West Ham United FC	€ 42	22%	19	€ 69	31%	17	€ 38	19%	19	24%
5	Arsenal FC	€ 98	21%	7	€ 144	30%	7	€ 54	12%	9	21%
6	Club Atlético de Madrid	€ 53	23%	14	€ 46	17%	14	€ 69	20%	12	20%
7	FC Bayern München	€ 103	17%	4	€ 116	20%	4	€ 125	20%	4	19%
8	Paris Saint-Germain FC	€ 106	20%	5	€ 84	17%	6	€ 60	11%	6	16%
9	Manchester City FC	€ 96	18%	6	€ 68	12%	5	€ 85	15%	5	15%
10	Real Madrid CF	€ 137	22%	3	€ 68	10%	2	€ 76	10%	1	14%
	Average	***€ 96***	***22%***		***€ 99***	***23%***		***€ 90***	***20%***		***21%***
	Total	***€ 961***			***€ 985***			***€ 904***			

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https://pt.uefa.com/MultimediaFiles/Download/OfficialDocument/uefaorg/Clublicensing/02/58/99/65/2589965_DOWNLOAD.pdf, p.100.
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