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Original Article

Factors affecting the value of football players in the transfer market

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Abstract:
The transfer of a football player for over 100 million EUR has been nothing extraordinary in recent years. In general football clubs are spending increasing amounts of money on player transfers. This applies to both the leading leagues in Europe and those at a lower level. Only in 2020, was there a slowdown in both club spending and revenues due to the COVID-19 pandemic. Contrary to what people outside the world of football often say, the amounts of money involved in the transfers are not irrational. Based on the literature on the subject, the value of a player is determined, among other things, by his position on the pitch, age, year of transfer, and achievements. This study is based on the top Polish football league – the Ekstraklasa. The study analyzed all transfers in the history of this league of at least one million EUR and so far, 108 such transfers have been made. The study aimed to determine the factors that differentiate the value of football players. The results show that most transfers from the Ekstraklasa are made among players aged 21-24. Moreover, the highest transfer fees were recorded in the group of players aged 21 and younger. It should therefore be said that foreign clubs (most often from Italy, England, and Germany) prefer young players from the Ekstraklasa. Such a tendency may be justified by the fact that a young player may be more easily trained and adapted to the system of a given club. Another important result is that the record amount for player transfers was recorded in 2020 when the global football industry was hit by the COVID-19 pandemic.
Key words: **player transfer, football, Ekstraklasa, sports finances.**

Introduction

Football is the most popular sport in the world (Sourav, 2020)as well as animportant part of the globaleconomy(Klobučník et al., 2019).The global value of the sports market in 2018 amounted to 488.5 billion USD (Kutwa & Rafał, 2019). There are currently 52 clubs in the world worth more than 2 billion USD, while in 2012 there was only one such club(Badenhausen, 2019). Since 2016, the aggregate enterprise value of the top 32 European football clubs has grown by 51% (KPMG, 2020).Moreover, the market potential of sport is evidenced by the fact that in 2018 the final of the football world championship was watched by over a billion viewers (FIFA, 2018). It has to be also stated that a football club's ability to generate revenue varies across Europe's top divisions, from England, where clubs generate 272million EUR on average (aggregate total of 5.4billion EUR), to San Marino, where the clubs generate an average of 170,000 EUR (aggregate total of 2.6million EUR)(UEFA, 2020). Only in 2020, was there a slowdown in both club spending and revenues due to the COVID-19 pandemic. The European Club Association(ECA, 2020) has estimated the losses of European football clubs related to COVID-19 at approximately 3.6 billion EUR. The COVID-19 crisis has had by far the greatest impact on matchday direct revenue, as stadiums have become closed to fans or have been only partially filled. Perhaps, the most fundamental aspect of professional football – an aspect that makes it so attractive and through thisfinically successful is competition(Pawlowski et al., 2010). This can also be understood asthe uncertainty of outcome – a term used in economics but whichalso has implications for both financial and sporting performance in professional team sports (Plumley et al., 2017).

Undoubtedly, a very important aspect of the football business is player transfers.In the history of football, 10 transfers have been made for at least 100 million EUR, including the highest one for 220 million EUR (Neymar to Paris SG in 2017). Interestingly, all of these transfers have been made in the last 7 years(Transfermarkt, 2020). In 2019, the amount of money spent by football clubs on transfers exceeded 10 billion EURfor the first time (Poli et al., 2020). This amounthas more than tripled in the last decade, in line with the growth of club revenues.Of all the football clubs in Europe, the following three spent the most money on transfers in 2010-2019: Manchester City (1,638 million EUR), FC Barcelona (1,525 million EUR), and Chelsea (1,428 million EUR)(Poli et al., 2019). It should be added that players of a club are not only acquired by transfers. A club can also haveplayers from their youth academy, players that joined the club by a free transition (as they were not bound by acontract with any other club), or players that are loaned from another club (Perechuda, 2020).When discussing transfers, it is also worth adding that UEFA Financial Fair Play Regulations

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were implemented, to prevent professional football clubs from spending more than they earn. UEFA's concept of financial fair play has helped to drastically reduce club losses over the last decade(UEFA, 2019).

Obtaining a good economic valuation of football players is highly valuable because allows, to some extent, the valuation of the club, budget planning, and remuneration(He et al., 2015). Evaluating the value of football players and determining whether they should be transferred from one club to another has become a major challenge for managers of clubs(Herm et al., 2014). Many scientists have tried to determine which factors have the greatest impact on the value of players(Felipe et al., 2020; Kiefer, 2014; Majewski, 2016; Post, 2018; Tunaru et al., 2005). It is widely believed that there is a strong positive correlation between transfer fees and productivity (Majewski, 2016; Ruijg & van Ophem, 2015).However, it should be added that football is a team sport; thus, it is quite hard to judge an individual football player's performanceand thus hisexact value.It has to bestated that player performance isdependent on many factors, including match importance, score, location, opposition, number of recovery days, and the employed tactical system(Paul et al., 2015). The situation related to COVID-19 has also had an impact on the players' performances in recent months(Metelski & Kornakov, 2021).It is also worth adding thatthe responsibilities of each position (goalkeeper, defender, midfielder, and forward) are different, which leads to performance indicators also being different by position. Usually, forward players are more visible to the audience than other positions,simply because football is goal-oriented. Another important factor that affect players' market value is age, as it represents a proxy for experience and potential(Carmichael & Thomas, 1993). Most of the research, however, looked at the best football leagues in Europe, and it should be remembered that each league and country has their own characteristics.Therefore, in this study, it was decided to focus on the best football league in Poland –the Ekstraklasa, which is in 19th place in Europe in terms of league revenues(UEFA, 2020)and in 30th place in case of UEFA coefficients(UEFA, 2021).The study aimed to determine the factors that differentiate the value of football players and it is based on the example of the Ekstraklasa.

Material & methods

Procedure

The Ekstraklasa is thebest football league in Poland. There are 16 clubs in the Ekstraklasa, and a system of promotions and relegations from the I Liga is carried out. Seasons start in July and end in May or June the following year. In the 2020/2021 season, teams play a total of 30 games each.The current champions are Legia Warsaw, who won their 14th overall title in the 2019/2020 season.The Ekstraklasa, is in 19th place in the European ranking in terms of league revenue, with the result of 125 million EURa year (UEFA, 2020). The Ekstraklasa has already been a subject of various scientific works(Kowalski & Łazorko, 2020; Pawłowski, 2020; Perechuda, 2020).In the study, all transfers in the history ofthe Ekstraklasa for at least one million EUR were analyzed, and to this day, 108 such transfers have been made.

The data on player transfer fees was collected from the transfermarkt.de. Transfermarkt.de is a German-based website owned by Axel Springer that compilesfootball information, such as scores, results, statistics, transfer news, and fixtures.Transfermarkt.deisa goodopen-source platform of information about playervalues and transfer fees.

Statistical analysis

Descriptive statistics andstatistical tests (Kruskal-Wallis, Mann-Whitney U test, and Pearson's correlation coefficient) were used in the study.Microsoft Excel 2019 and IBM SPSS Statistics 26 were both used to process the quantitative data of research.The study analyzed the following factors that may affect the transfer fee ofa player: position on the pitch, age at transfer, year of transfer, destination country and selling club.

Results

In the last coupleof years, a number oftransfers of players from the Ekstraklasa for record amountswere carried out. The table below presents the ten most expensive transfers in the history of the Ekstraklasa. It is worth noting that 6 of them were carried out in the last 3 years.The table also presents other factors analyzed in the study.It is worth noting that in the10th place in the table is Robert Lewandowski, who in 2020 was nominatedas the best footballer in the world(Church, 2020). His career also shows how the value of a player changes, currently at the age of 32 he is valued at 60 million EUR, and histop market value was estimated at 90 million EUR in 2018.

In the case of the players' positions, the analyzed group mostly consisted of forwards(51) and their average transfer feewas 2.30 million EUR.The second largest group were midfielders (31, average transfer fee 2.47 million EUR), the third defenders (20, 2.73 million EUR), and the fourth goalkeepers (6, 3.31 million EUR). The position on the pitch turned out to be a factor that significantly differentiated the number of transfers, as evidenced by the result of the Kruskal Wallis test: $H = 107.00$, $df = 3$, $p < 0.001$.Although the analyzed group mostly includedforwards, their average transfer fee was not the highest. On the contrary, the goalkeepers turned out to be the most expensive, but there were only 6 of them. Despite some differences, the position on the pitch did not turn out to be a factor statistically differentiating transfer fees ($p>0.05$).

Table 1. Ten highest transfers fees in the history of the Ekstraklasa

No.	Name	Position	Ageat transfer	Yearof transfer	Destinationcountry	Selling club	Feein EUR
1	Jakub Moder	Midfielder	21	2020	England	Lech Poznań	11,000,000
2	Radosław Majecki	Goalkeeper	20	2020	France	Legia Warsaw	7,000,000
3	Jan Bednarek	Defender	21	2017	England	Lech Poznań	6,000,000
4	Michał Karbownik	Defender	19	2020	England	Legia Warsaw	5,500,000
5	Sebastian Szymański	Forward	20	2019	Russia	Legia Warsaw	5,500,000
6	Adrian Mierzejewski	Midfielder	24	2011	Turkey	Polonia Warsaw	5,250,000
7	Kamil Piątkowski	Defender	21	2021	Austria	Raków Czestochowa	5,000,000
8	Bartosz Białek	Forward	18	2020	Germany	Zagłębie Lubin	5,000,000
9	Bartosz Kapustka	Midfielder	19	2016	England	Cracovia Kraków	5,000,000
10	Robert Lewandowski	Forward	21	2010	Germany	Lech Poznań	4,750,000

Among the analyzed players, the average age at the time of transfer was 23.29 years old. Table 2 shows the number of transfers of players of a given age and their average value. It is worth notingthat most transfers were carried out among players aged 21, 22, 23, and 24 – in total, there were 56 transfers of players of this age.It is also worth noting how few transfers were made among players over 30 years of age. This indicatesthat in this period of life, they are usually approaching the end of their sports career, which also usually translates into a lower market value.Looking at table 2, it can also be seen that players aged 21 and under achieve a particular value. Their average transfer fee was 3.41 million EUR, in turn, among players aged 22 and more, the average transfer fee was 2.02 million EUR. The Mann–Whitney U test showed that this difference is significant: $U = 641.00$, $Z = -4.28$, $p < 0.001$. It can therefore be concluded that for foreign clubs, young footballers up to 21 years of age, who are just starting their sports career, have more value.The explanation may be thatsuch players can be further trained and adapted to their expected system, which may be harder for older players.

Table 2. Age of players and their average transfer fees

Player age at transfer	Number of transfers	Average fee	Standard deviation
17	1	2,250,000	–
18	4	3,525,000	1,198,263
19	5	3,808,000	1,582,820
20	8	3,300,000	2,061,206
21	18	3,394,444	2,365,430
22	13	2,176,923	1,167,907
23	13	2,680,769	1,306,640
24	12	2,204,166	1,283,542
25	8	1,562,500	437,321
26	9	1,572,222	707,598
27	6	1,750,000	779,102
28	2	2,800,000	424,264
29	5	1,620,000	837,854
30	1	1,000,000	–
31	3	1,466,666	503,322

As previously mentioned, the amounts spent by clubs on players' transfers are increasing from year to year. That is why it was also decided to check this trend based on the example of the Ekstraklasa. It turns out that in recent years there has been a significant increase in the number of transfers worthat least a million EUR. Half of them were carried outin 2016-2021, and reachedthemost of 13 per year in 2017, 2019, and 2020.The first transfer for at least a million EUR was made in 1982 (it was the transfer of Zbigniew Boniek to Juventus), but the next one took place 12 yearslater. Out of all the 108 analyzed transfers, as many as 100 were made after the year 2000.The results show that the year of transfer positively correlates with the transfer fee, the more current the year, the higher the transfer fee (Pearson'scorrelation coefficient: 0.345, $N = 108$, $p < 0.001$).As for the record sum of fees for transfers of players from the Ekstraklasa, it was recorded in 2020 – 54.34 million EUR.Earlier, a record year in this regard was 2017 – 32.5 million EUR.

In the football industry, it is commonly believed thatthe best 5 football leagues in Europe are: the English Premier League, the Spanish Liga, the German Bundesliga, the Italian Serie A, and the French Ligue 1(Poli et al., 2019).Clubs in these leagues also spend the most money in Europe on player transfers.In this study, it was decided to check to which country the players from the Ekstraklasa are most often transferred.It turns out that indeed, they are most commonly transferredto 3 of the top 5 leagues in Europe, namely 17 transfers were made to Italy (average fee 2.66 million EUR), 16 to Germany (2.31 million EUR), and 15 to England (3.68 million EUR).However, relatively rarely players from Poland are transferred to the other two best leagues in Europe: France – 5 transfers (average fee 3.03 million EUR), and Spain – 4 transfers (1.15 million EUR). It is worth adding that Russia is also a popular destination – 9 transfers.The average transfer fee to one of the top five leagues in Europe was 2.76 million EUR, and the average value of the remaining transfers was 2.19 million EUR. However, it cannot be said that a transfer to one of the top five leagues in Europe is a factor that differentiates transfer value ($p>0.05$).

In this study, it was also checked whether better teams, i.e., those with greater achievements, sell more players and for more money. In the last 14 seasons of the Ekstraklasa, Legia Warsaw was the champion six times, Wisła Kraków three times, Lech Poznań twice, and once: Śląsk Wrocław, Piast Gliwice and Zagłębie Lubin.It can be said that indeed the best clubs in the Ekstraklasa sell the most players: Legia Warsawmade 27 such transfers (average transfer fee 2.75 million EUR), Lech Poznań 14 (3.86 million EUR), and Wisła Kraków 13 (1.97 million EUR). To sum up, the top 3 Polish football clubs in recent years have transferred half of the analyzed players.Winning the title of the Ekstraklasa champion in the last 14 seasons turned out to be a factor that significantly differentiated the number of transfers: $U = -21.50$, $Z = -2.22$, $p = 0.026$.The average transfer fee from a team that won the Polish championship in the last 14 years was 2.81 million EUR, and the average transfer fee from other teams was 2.07 million EUR.However, it cannot be said that winning the championship is a factor that differentiates average transfer fees ($p>0.05$).

Discussion

Sport is an important part of the economy today(Kutwa & Rafał, 2019), and football is the most popular sport in the world(Sourav, 2020). An important aspect of the football business is player transfers, which often arouse great interest among fans and experts. Many scientists have already wondered how to properly evaluate a player's value(Carmichael & Thomas, 1993; He et al., 2015; Herm et al., 2014; Ruijg & van Ophem, 2015).However, most studies were focused on the best players and the best leagues in the world. Therefore, in this study, it was decided to focus on the best football league in Poland –the Ekstraklasa, which is in 19th place in Europe in terms of league revenues(UEFA, 2020)and in 30th place in case of UEFA coefficients(UEFA, 2021).Another reason for choosing the Ekstraklasa was that in recent years the transfer record in this league has been broken several times.The third premise was the fact that it was in this league that the best footballer in the world in 2020 – Robert Lewandowski(Church, 2020), began his career, which in some way shows the potential of this league.

The study analyzed all transfers in the history of the Ekstraklasa for at least one million EUR– so far 108 such transfers have been made. The following indicators that may affect a player's value have been analyzed: position on the pitch, age at transfer, year of transfer, the destination country, and selling club.The study shows that in the analyzed group, the greatest number of players were forwards– 51 of them. Next, there were midfielders (31), defenders (20), and goalkeepers (6). In football, it is usually forwards that enjoy the greatest recognition byfans, because they most often score goals. Our researchshows that the Ekstraklasa forwards are also appreciated by foreign clubs. It should be added, however, that in the studied group the position on the pitch did not turn out to be a factor that significantly differentiates the value of players.

Another analyzed factor was the age of the player during the transfer. It turns out that half of the transferred players were between the ages of 21-24, and the sale of players over the age of 30 was rare. This indicatesthat after 30 years of age, playersareusually approaching the end of their sports career, which also usually translates into a lower market value. Age also turned out to be a factor that significantly differentiated the value of players. Those aged 21 and underachieved higher transfer amounts (average transfer fee was 3.41 million EUR) than players older than them (2.02 million EUR). The explanation may be that such young players can be further trained and adapted to the system of the new club, which may be harder for older players.The article also describes how the clubs' spending on player transfers is increasing year by year. This applies to the players from the Ekstraklasa, as there have been several record transfers in recent years.Half of the analyzed transfers were made in 2016-2021. The results show that the year of transfer positively correlates with the transfer fee, the more current the year, the higher the transfer fee. As for the record sum of fees for transfers of players from the Ekstraklasa, it was recorded in 2020 – 54.34 million EUR. This indicates that the COVID-19 crisis, and the lower overall spending of European football clubs on transfers did not apply to players fromthe Ekstraklasa.

The other two factors analyzed were the country of destination and the selling club.It turns out that players from the Ekstraklasa are most commonly transferredto 3 of the top 5 leagues in Europe, namely 17 transfers were made to Italy (average fee 2.66 million EUR), 16 to Germany (2.31 million EUR), and 15 to England (3.68 million EUR).However, it cannot be said that a transfer to one of the top five leagues in Europe is

a factor that differentiates the transfervalue.As for the club selling the player,the results indicate that the best clubs in the Ekstraklasa sell the most players: Legia Warsawmade 27 transfers (average transfer fee 2.75 million EUR), Lech Poznań 14 (3.86 million EUR), and Wisła Kraków 13 (1.97 million EUR). To sum up, the top 3 Polish football clubs in recent years have transferred half of the analyzed players.

Conclusions

For the average European football league like the Ekstraklasa, several factors are important for the value of players. The first factor is that most transfers from the Ekstraklasa for a minimum million EUR were made among players aged 21-24, and the highest transfer fees were recorded in the group of players aged 21 and younger. This points to the fact that foreign clubs (most often from Italy, England and Germany)prefer young players from the Ekstraklasa because theymay be more easily trained and adapted to the style of playof a given club. Also, young talents have great development potential, the best example of which is Robert Lewandowski, who was sold from the Ekstraklasa club for 4.75 million EURand in 2018 his estimated value was 90 million EUR.The example of Robert Lewandowski may inspire other clubs to look for similar talents in the Polish league.Another interesting result is that in the Ekstraklasa there are rarely transfers of players over the age of 30,even those with recognized performance history.

The study also showed that forwards are transferred from the Ekstraklasa most often among all positions in football. One more important conclusion is that the value of transfers from the Ekstraklasa has been increasing in recent years. Interestingly, the record amount for player transfers was recorded in 2020, when the global football industry was hit by the COVID-19 pandemic. In conclusion, the study showed some interesting regularities that shape the value of players on the transfer market. In subsequent studies, it would be worth checking whether they also exist in other leagues with a comparable position in Europe.

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