Spending money is like water soaking into the sand: Anticipating financial distress in Japanese professional football clubs

MONDAL, Sarthak, PLUMLEY, Daniel <http://orcid.org/0000-0001-7875-0969> and WILSON, Robert <http://orcid.org/0000-0002-9657-7570>

emerald PUBLISHING

Journal of Applied Accounting Re

Spending money is like water soaking into the sand: Anticipating financial distress in Japanese professional football clubs

Journal:	*Journal of Applied Accounting Research*
Manuscript ID	JAAR-12-2023-0394.R2
Manuscript Type:	Research Paper
Keywords:	Financial crisis, Z-score, Asian professional football, J-League, AFC club licensing criteria

Spending money is like water soaking into the sand: Anticipating financial distress in Japanese professional football clubs

Abstract

Purpose: This paper analyses J1 League and J2 League clubs during the period 2011-2020 to anticipate financial distress.

Design/Methodology: Data was collected for 29 professional football clubs competing in the J1 and J2 League for the financial years ending 2011-2020. Analysis was conducted using the Altman's Z-score methodology and additional statistical tests were conducted to measure differences between groups.

Findings: The results show significant cases of financial distress amongst clubs in both divisions and that clubs that have played predominantly in the J1 League are in significantly poorer financial health than clubs that have played predominantly in the J2 League. Overall, the financial situation in Japanese professional football needs to be monitored, a position that could be exacerbated by the economic crisis, caused by COVID-19.

Originality: The paper extends the evidence base of measuring financial distress in professional team sports and is also the first paper of its kind to examine this in relation to Asian professional football.

Practical Implications: The paper recommends J-League to visit the existing club licensing criteria and implement equitable cost-control measures, such as implementing a cap on acceptable losses over a specified period or restricting overall expenditures as a percentage of the club's revenue.

Keywords

Financial crisis, Z-score, Asian professional football, J-League, AFC club licensing criteria

1. Introduction

Sport organisations, especially football clubs, have undergone significant shifts in their organisational structure over the course of the last few decades (Plumley et al., 2023). In the 1970s and early 1980s, clubs transitioned from a simple, amateur-led management style to a more professional and bureaucratic framework. This shift from non-profit to profit-driven entities had profound implications for their standing in both national and international sports markets, as well as in their overall management approach (Dimitripoulous, 2010). To put it differently, matters that were previously of little concern now required special attention on the manager's agenda, as football clubs now necessitated expertise in functional areas such as budgeting, financial management, professional scouting, and legal services, which were previously overlooked (Dimitripoulous, 2010).

Notwithstanding this, many sport leagues across the world have struggled to balance the twin objectives of a sport team (maximising on pitch performance and business sustainability) (Carlsson-Wall et al., 2016). The concept of coopetition in football is highly relevant in the sense that if opponents are competitors on the field, they need each other to produce the competition and, as such, they are economic partners (Bond & Addesa, 2019; Feuillet et al., 2021). As such, financial distress of individual organisations (teams) remains an issue against wider industry governance structures in various professional team sports. While financial distress in business (and sport) is not a new phenomenon, it has become an increasingly important issue since the global recession in 2008 (Alaminos & Fernández, 2019; Plumley et al., 2020) and the Covid-19 pandemic (Wilson et al., 2020). A prevalent topic in banking, finance and business is predicting corporate bankruptcy or financial distress (Li et al., 2021). The performance of a company, particularly in terms of bankruptcy or financial stability, holds significant implications for investments and the repayment of debts. Hence, it is crucial to make precise forecasts in this regard. Creditor decisions to take on risk will be contingent on their capacity to evaluate and anticipate such risks. Extensive research has been conducted on models for predicting bankruptcy, which can be categorized into two main types: those reliant on accounting data and financial ratios (exemplified by Altman (1968) and Bonfim (2009)), and those based on market indicators such as share prices (as demonstrated by Milne (2014) and Campbell et al. (2008)).

Bankruptcies of professional football clubs in England are notably more frequent compared to bankruptcies of American sport franchises in the five major U.S. professional leagues (Buraimo

et al., 2004; Storm & Nielsen, 2015; Terrien et al., 2021). While it is anticipated that certain economic and financial conditions contribute to this contrast, disparities in the two legal systems could also be influential (Cedrone, 2008). Concerns regarding the financial stability of football clubs in England and Scotland date back to the mid-1960s, prompting initiatives such as the P.E.P report (1966) and The Chester Report (Chester, 1968), a government committee of inquiry into the state of association football. A variety of solutions have been suggested in the literature to address this issue, ranging from stricter financial regulations to competition restructuring, aimed at alleviating financial pressures, particularly for smaller clubs (Lago et al., 2006).

A comparison of debtor and creditor treatment between the United States and England indicates that the American system generally exhibits superior administration of sport organization bankruptcies. When evaluating the primary benefits of the American system against those of the English system, the former appears to strike a balance that consistently and fairly serves the interests of both debtors and creditors, without unduly favouring either party (Cedrone, 2008). Evans et al. (2022) investigated the prevalence of extravagant spending, akin to gambling, by clubs in the EFL Championship. They discovered that gambling was nearly indispensable for achieving promotion, but with the number of clubs adopting this strategy far exceeding the available three slots for promotion (or three slots to avoid relegation), many clubs found themselves unable to sustain their financial commitments without external financing.

The criteria for club licensing regulations defined by AFC were developed in co-operation with the Japan Football Association (JFA) and J-League (Weinberg, 2015). The requirements and criteria for club licensing, alongside the formation of the AFC Professional Football Development Taskforce and the execution of financial assessments concerning leagues and clubs, have undeniably impacted all Asian leagues and clubs. This is because clubs naturally aspire to achieve success in sports, not only on a national but also on an international scale (Weinberg, 2015). After the implementation of the AFC Club Licensing Regulations, several leagues expressed their ambition to elevate their standards, and the AFC extended its support and expertise, as exemplified in Iran and Qatar. As identified by Scelles and Khanmoradi (2023), teams in Iran have a significant scope for improvement in relation to the size of the team roster, which has negative impact on overall team performance. In this regard, the AFC also addressed issues some leagues faced with match fixing by dispatching specialised mission teams to countries like South Korea (AFC, 2011; Somerford & Kim, 2011).

However, the effectiveness or impact of the AFC Club Licensing Regulations have never been studied in academic literature, while similar studies exist for European football (Dermit-Richard et al., 2019; Franck, 2014; Long, 2012; Madden, 2015; Peeters & Szymanski, 2014; Plumley et al., 2019; Storm & Nielsen, 2015; Szymanski, 2014). As discussed earlier, financial data for football clubs in Asia is not readily available in the public domain and the fact that the AFC Club Licensing Regulations were developed in cooperation with the JFA and J-League, makes it pertinent to explore the financial situation of football clubs in J-League and examine any wider financial performance issues and financial distress. Furthermore, it is relevant to study financial situations in professional leagues outside European football, where a wide range of literature exists, to understand whether the dynamics of financial distress are similar or different to European football.

The aim of this paper is to analyse the current financial situation in Japanese professional men's football between 2011 and 2020 under the context of anticipating financial distress. As mentioned in the previous paragraphs, the J-League was involved in consultation to set up the AFC Club Licensing Regulations and on the basis of available data and the maturity of the professional football market in Japan, the J-League is a natural case study. In an attempt to measure the financial situation among J-League clubs in the top two divisions, the paper focuses on clubs that competed across J1 League and J2 League from 2011 to 2020.

The rest of the paper proceeds as follows. Section 2 focuses on literature anticipating financial distress. Section 3 summarises the finances of Asian football and section 4 lists the ownership structures in Japanese football. The methodology is outlined in section 5. The results, discussion and conclusion are in sections 6, 7 and 8 respectively.

2. Anticipating financial distress

2.1 Overview of relevant literature

Over the past six decades, there has been a progression of models aimed at predicting corporate bankruptcy. These models have evolved from simpler univariate approaches to more complex multivariate methods. One of the earliest models, introduced by William Beaver, involved analysing various financial ratios of companies five years prior to their bankruptcy and comparing them with those of solvent companies (Beaver, 1966). Beaver sought to identify key factors that could distinguish between firms that eventually went bankrupt and those that did not. Financial ratio analysis remains a fundamental method for evaluating a company's financial performance. It has been widely employed in academic studies across diverse sectors

and industries, including the airline industry (Feng & Wang, 2000), the American power and energy sector (Sueyoshi, 2005), the Slovenian manufacturing industry (Ponikvar et al., 2009), the European football industry (Dimitropoulos, 2010; Plumley et al., 2017a; Storm & Thomsen, 2016; Wilson et al., 2013), as well as the Indian football industry (Mondal et al., 2023).

In contrast to Beaver's original framework, it is important to acknowledge that financial distress and economic failure in companies are highly intricate phenomena, often influenced by a multitude of factors. Consequently, subsequent models have emerged with the aim of assessing financial distress. These models employ multi-discriminant analysis to evaluate the viability of business entities as a going concern. Notable examples include the works of Altman (1968), Altman and McGough (1974), Deakin (1972), Koh and Killough (1990), Mutchler (1985), Ohlson (1980), Zmijewski (1984), as well as Martens et al. (2008). More recently, data mining techniques, such as the application of neural networks and decision tree analysis, have been employed to forecast going concern. Noteworthy contributions in this domain include the studies conducted by Koh and Low (2004) and Martens et al. (2008). These models strive to scrutinize and quantify the variables that can indicate whether a company is at risk of encountering financial difficulties.

There has been ongoing discussion regarding the significance of non-financial-based evaluation in identifying a company's susceptibility to failure (Abidali & Harris, 1995) and in assessing the performance metrics crucial for professional sports teams (Buck & Ifland, 2022; Galariotis et al., 2018; Mondal et al., 2023; Plumley et al., 2017). The underlying concept is grounded in the belief that financial distress typically arises from deficient managerial capabilities and prior misjudgements. As a result, an A-score was developed to address this facet of failure prognosis. This A-score is employed alongside the Z-score for comparative analysis (Abidali & Harris, 1995). The non-financial indicators discussed in this study are predominantly qualitative and pose challenges in measurement, as noted by previous scholars (see Castro & Chousa, 2006). Nonetheless, this does not imply that qualitative data should be disregarded; rather, authors must substantiate their inclusion using robust methodological principles. Qualitative information can yield more nuanced insights for researchers in this context. Abidali and Harris (1995) tackled this by assigning weightings to calibrate the outcomes of a survey distributed to management-level personnel in construction industry firms to ascertain their perspectives on the most pivotal factors. Alternatively, interviews could have been conducted with the firms' directors following a comparable approach.

Ittner et al. (2003) extensively address this issue. Although the specific context of the study, which focuses on bonus allocations to employees and the incorporation of both subjective quantitative and qualitative factors in this process, is of somewhat lesser relevance, the broader discourse on the allocation of weights to performance metrics offers valuable insights. Initially, Ittner et al. (2003) highlight that a key challenge in the process of "weighting" factors lies in determining the appropriate weights for each metric. To delve deeper into this matter, the paper examines the balanced scorecard framework proposed by Kaplan and Norton (1996). Given that enhanced financial outcomes are the primary aim of balanced scorecard systems, studies on outcome effects also imply that financial results will carry more significant weight compared to non-financial outcomes. In connection to Ittner et al.'s (2003) study and the encompassed literature, the authors do not present a theoretical rationale for assigning higher weights to specific factors over others. This could be attributed in part to the inconclusive nature of experiments directly assessing the impact of financial and non-financial metrics on employee performance (Ittner et al., 2003). In the realm of organisational psychology, the literature has long advocated for giving greater emphasis to performance metrics that demonstrate higher reliability. According to this body of literature, subjective and qualitative evaluations of performance are often less precise and reliable compared to objective, quantitative measures (Ittner et al., 2003).

2.2 Focus on Altman's Z-scores

Beech et al. (2008 and 2010) conducted a study investigating the underlying causes of football clubs experiencing insolvency. They outlined five distinct scenarios, referred to as "archetypes," commonly associated with the insolvency of football clubs in England. These archetypes were identified with the intention of further elaboration through in-depth interviews. The archetypes identified by Beech et al. (2010) include:

1. Clubs struggling to adapt to relegation
2. Clubs failing to fulfil financial obligations to the government
3. Clubs experiencing a transition from "soft" debt to "hard" debt
4. Clubs relinquishing ownership of their stadium
5. Persistent instances of financial instability ("repeat offenders").

Altman (1968) introduced a prevalent model in academic discourse for forecasting financial instability in companies. This model integrated ratio analysis within a multiple discriminant analysis framework to generate a metric known as the 'Z-score.' This metric serves as the

foundation for distinguishing anticipated results. According to Evans (2024), a crucial distinction between Altman's estimated models and football clubs lies in the underlying objectives.

Nonetheless, a number of authors have embraced variants of Altman's model, employing variables and parameters estimated by Altman, and applied them to the accounting data of football clubs (Barajas & Rodriguez, 2014; Plumley et al., 2020; Scelles et al., 2018; Szymanski, 2017; Szymanski & Weimar, 2019). Barajas and Rodriguez (2014) support the use of these variables and coefficients based on their application as a classification tool using Altman's Z-Scores. On the other hand, Plumley et al. (2020) point to the method's simplicity and widespread use in finance and accounting research by researchers, practitioners, banks, and rating agencies, as cited by Cantoni (2012), Charitou (2004), and Grice and Ingram (2001), as rationale for its adoption.

For the reasons listed above, this paper will use Altman's Z-scores to analyse financial situation among professional football clubs in the top two divisions (J1 League and J2 League) of Japanese football. A more detailed explanation of the financial ratios is provided by Altman (1968), but the models are outlined below.

The second version of Altman's Z-score (known as Z1), modified to make it suitable for analysing private companies, is computed as follows:

$$Z1 = 0.717X1 + 0.847X2 + 3.107X3 + 0.420X4 + 0.998X5$$

where

X1 = Working Capital/Total Assets

X2 = Retained Earnings/Total Assets

X3 = Earnings before Interest and Tax/Total Assets

X4 = Book value of equity/Book value of total liabilities

X5 = Sales/Total Assets

This model defines the book value of equity as the residual value derived from subtracting total liabilities from total assets. Additionally, there exists a third iteration of the model which is better suited for non-manufacturing firms. In this third version, the X5 ratio (sales/total assets) is omitted. This adjustment aims to mitigate any potential bias associated with the unique

characteristics of the manufacturing sector, which is notably responsive to business size criteria. The third version of the model (known as Z2) is as follows:

$$Z2 = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Regarding the aforementioned models, this study has opted to employ Z1 and Z2 for the following rationales. The original Z-score is designed specifically for publicly traded companies, whereas the football clubs under consideration in this paper are privately held entities. Additionally, there exists a considerable level of subjectivity when endeavouring to ascertain the market value of a football club, especially when factoring in elements not accounted for in the club's financial statements, such as intangible assets like historical significance, heritage, and the robustness of the fan base.

Altman found that for a Z-score value:

a. Over 3, the business is not at the risk of bankruptcy.
b. Between 2.7 and 3, a monitoring process in recommended.
c. Between 1.8 and 2.7, a detailed financial analysis is recommended.
d. Below 1.8, the business is at the risk of bankruptcy.

3. The finances of the Asian football market

Asian nations such as Saudi Arabia, China and Qatar are following similar trends, where significant financial investments are made to transform them into formidable soccer entities. China, propelled by economic reforms and an open-door policy, was a major global sports market, with a focus on football as a tool to enhance its soft power (Li et al., 2023). The Chinese government, over the past decade, had allocated resources to establish 20,000 football schools aimed at nurturing talent in the sport (Nauright, 2015; Peng et al., 2023). In an effort to strengthen their position in the AFC Champions League, Chinese Super League (CSL) clubs spent £331 million during the January 2017 transfer window (Wilson, 2017). Despite these initiatives, the CSL and the Chinese national football team did not achieve sustained success, as several CSL clubs faced financial crises, leading to operational closures, and nearly all CSL clubs encountered financial difficulties (Li et al., 2023). Contrary to Szymanski (2016), Li et al. (2023) claimed that spending excessive cash on football clubs is not an effective way to build a sustainable institution and develop professional football in emerging sport markets such as China.

There are no policies that exist at a continental level in Asia to give early warning signs of financial distress to prevent businesses from going bankrupt, despite such policies being prevalent in Europe (European Commission, 2014). This policy is crafted with the intention of swiftly addressing the initial phases of a financial crisis, with the potential to rescue a business from impending collapse. This is reflected in European football through Articles 65 to 74 of the UEFA Club Licensing Financial Sustainability Regulations (UEFA, 2023) and in Asian football through Article 20 of the AFC Club Licensing Criteria (AFC, n.d). The club licensing regulations were launched by AFC in 2011 (AFC, 2015) to improve the professional standards across the club football landscape in Asia and contains details on how to legally set up a club, how to financially manage a club and catalogues all other personnel and infrastructure facilities required for a football club to be successful in the professional football industry (Nair, 2022).

Despite economic pressures from the macro-environment, the football market in Europe has grown exponentially over the last two decades (Plumley et al., 2018) with substantial increases in revenue (Storm & Nielsen, 2012). However, it is very difficult to understand the growth of the Asian football market as the AFC Club Licensing Regulations do not require clubs to publish financial data in the public domain unlike their European counterparts (AFC, 2023; UEFA, 2023). However, financial data for football clubs based in India are available through the Ministry of Corporate Affairs portal (MCA, n.d) and the J-League, the professional men's football league of Japan, has published financial statements of all J-League clubs in their website since 2005 (JLeague, n.d).

Since the formation of J-League in 1992, domestic football in Japan has altered considerably. The J-League started as a single division with 10 leagues on May 15, 1993 and currently has 58 teams spread out across 3 divisions. On the basis of information available from the J-League website, commercial revenues have risen by 30.5% from JPY 2909 million in 2011 to JPY 3796 million in 2020. During the same period, net losses after taxation has risen by 1500% from JPY 20 million in 2011 to JPY 320 million in 2020 (JLeague, n.d).

4. An overview of league and ownership structure in Japanese professional football

Some of the initial entities involved in football were industrial corporations, such as Royal Arsenal (1886), Parmalat (1913), and Peugeot (1928). These companies established team entities and later emerged as the primary owners of the teams when the clubs transitioned to include external players. The scenario in Japan mirrored this trend, as before the establishment of the J-League in 1992, each team in the Japan Soccer League represented a corporation and

carried the name of the owning company. Prominent JSL teams included Hitachi Ltd., Furukawa Electric, Mitsubishi Heavy Industries, Nissan Motors, Toyo Industries (Mazda), and Yomiuri Shimbun, which have since transformed into Kashiwa Reysol, JEF United Chiba, Urawa Red Diamonds, Yokohama F. Marinos, Sanfrecce Hiroshima, and Tokyo Verdy, respectively.

The Japanese Professional Football League (also known as the J-League) was established in 1993 as Asia's first professional football league. The first season of J-League in 1993 comprised of a single division of 10 teams expanding to 26 teams in 1999, with the top division comprising of 16 teams and the newly formed J2 League comprising of 10 teams. Between the 2005-2023 season, J1 League consisted of 18 teams (barring the 2021 season as no teams were relegated in 2020 as a result of Covid-19 pandemic), with 22 teams in J2 League and 20 teams in the J3 League. These leagues operate in a European model with promotion and relegation between them. Every season, 3 teams from the J1 League are relegated to the J2 League with equal number of teams being promoted from the J2 League to the J1 League. The same system operates between the J2 League and the J3 League. For the duration of this study, the J1 League was awarded 4 places in the group stages of the AFC Asian Champions League, the highest level of club competition in Asia.

Ownership of sports clubs has gained increasing significance, particularly in relation to their sporting success (Scelles & Llorca, 2021). Notably, clubs like Chelsea FC (2005, 2006, 2010, 2015, 2017), Manchester City (2012, 2014, 2018, 2019, 2021-2023), and Paris Saint-Germain (2013-2016, 2018-2020, 2022, 2023) have achieved repeated national championships shortly after being acquired by affluent owners. According to Wilson et al. (2013), English Premier League clubs owned by foreign private investors demonstrate superior performance in the national league compared to those owned by domestic private investors. Sporting success, as assessed by Plumley et al. (2017b), incorporates a comprehensive evaluation considering win ratio, league points, and stadium capacity utilization. Their analysis of English Premier League clubs for the 2010 season reveals that four of the top five performing teams (Manchester United, Chelsea, Arsenal, Manchester City) were under foreign private ownership, with only one club (Tottenham) being owned by an English investment company. In contrast, two of the three lowest performing teams had a majority ownership by domestic owners (Bolton, Wigan), while West Ham United underwent a change in ownership from Icelandic to Welsh investors.

In a different study conducted by Scelles et al. (2016), a notably favourable influence of foreign ownership on English football is demonstrated. The researchers also pinpoint the positive trend in player valuations for clubs located outside England, specifically citing examples such as Malaga, Paris Saint-Germain, and Anzhi Makhachkala following the transition to foreign ownership between 2010 and 2013. Simultaneously, they underscore potential risks associated with the dominant or concentrated ownership model, including issues such as delayed payment of players' wages and tax obligations, as highlighted in Scelles et al.'s (2016) work.

Limited literature exists on the financial implications of international investors on football clubs. The majority of articles in this domain tend to draw comparisons between the European and US sporting systems (e.g., Dobson & Goddard, 2011). As an illustration, Hoehn and Szymanski (1999) delve into the commercialisation and Americanisation of European football, highlighting how these factors have heightened the appeal of European football clubs to both American and foreign investors (Nauright & Ramfjord, 2010). While many researchers recognise the significance of foreign investors, their investigations often concentrate on specific club or player acquisitions by foreign investors (Franck & Lang, 2014; Storm & Nielsen, 2012). Surprisingly, only a few articles delve into a more detailed analysis of the financial impact brought about by foreign investors.

Japanese football clubs have opened up for foreign ownership in recent years (e.g., City Football Group's minority stake in Yokohama F. Marinos) and it appears that these owners are still taking on the role of major benefactors (much like wealthy owners have always propped up football clubs throughout the course of history). However, there is a third type of ownership among professional football clubs in Japan as some clubs such as Vegalta Sendai are owned by city corporations. These types of ownership structure brings the motivation of the ownership into question as it is likely that investment into sport is limited as the city corporations is compelled by more basic needs, such as tackling issues related to healthcare (Clarke & Mondal, 2022).

5. Methodology

This research aims to answer whether professional football in Japan is financial viable through examining three points. First, to examine whether clubs in the J1 League and J2 League are in financial distress. Second, to examine the financial gap between the J1 League and J2 League clubs in relation to financial distress. Third, to test which of Z1 scores or Z2 scores is a more favourable measure to examine financial distress among football clubs.

The collected data comprises of financial figures for 29 professional football clubs competiting in the J1 League and J2 League between 2011 and 2020. The J3 League was introduced in 2015 and has been excluded from this study. To qualify for the study, a club must have spent 100% of the total time (10 years) competing in either the J1 League or the J2 League. Data was collected from the club management report in the J-League website (JLeague, n.d) and Altman's Z-score models were used to calculate Z1 and Z2 scores (Altman, 1968).

The data was split into 5 distinct categories: 6 clubs were categorised as J1 clubs (they spent all 10 seasons in J1 League), 5 clubs were categorised as J2 clubs (they spent all 10 seasons in J2 League), 10 clubs were categorised as mostly J1 clubs (they spent between 7 and 9 seasons in J1 League), 4 clubs were categorised as mostly J2 clubs (they spent between 7 and 9 seasons in J2 League) and 4 clubs were categorised as yo-yo clubs (they spent between 4 and 6 seasons either in J1 League or J2 League). This is because their financial performance would have been affected by divisional status particularly in relation to central revenue distribution from the J-League.

The data was also split on the basis of ownership into three distinct categories: private ownership, public ownership and multi-club ownership. This categorisation was done to identify which style of ownership provides a better financial stability for football clubs in Japan. Table 1 outlines the clubs analysed for this study and the leagues they were placed in for analysis purposes.

<TABLE 1 ABOUT HERE>

The analysis conducted uses a mixture of descriptive and inferential statistics. Using the categories identified by Altman (1968), we identify the percentage of J1 League and J2 League clubs at risk of bankruptcy over the 10 seasons analysed in this paper. Using the categories of clubs identified above, a Pearson correlation test was used to conduct a time-trend analysis to identify whether Z1 and Z2 scores have improved or declined over the chosen period across different groups. A one way ANOVA was conducted to identify differences between Z1 and Z2 scores among clubs with different ownership structures.

6. Results

Table 2 and Table 3 present the descriptive data from the analysis. These tables show the seasonal Z1 and Z2 scores for all clubs that have been analysed as a part of the dataset. There is a financial gap between clubs in J1 League and J2 League in absolute terms. Average revenue

in the J1 League is approximately 1.95 times of an average J2 League club between 2011 and 2020. This is primarily due to the fact that broadcasting revenue for J2 League (JPY 119.6 million) clubs is less than 2.5 times the broadcasting revenue for an average J1 League club (JPY 312.6 million).

<TABLE 2 ABOUT HERE>

<TABLE 3 ABOUT HERE>

<FIGURE 1 ABOUT HERE>

<FIGURE 2 ABOUT HERE>

The average wage-to-revenue ratio in the J1 League have risen by 39.82%, from 46.2% in 2011 to 64.6% in 2020 (see Figure 1). At the same time, average wage costs in the J2 League have risen by 14.8%, from 42.4% in 2011 to 48.7% in 2020 (see Figure 2). Analysis shows that there are a significant number of clubs at risk of bankruptcy based on Altman's Z2 scores. Based on the descriptive statistics, approximately 50.34% of J-League clubs require a detailed analysis or are at the risk of bankruptcy when the Z1 scores are considered. This rises to 72.75% when the focus shifts to Z2 scores.

<TABLE 4 ABOUT HERE>

<TABLE 5 ABOUT HERE>

On further analysis it was found that according to Z1 scores, 13.33% of J1 clubs in the analysed sample face a high risk of bankruptcy, compared to 34% of J2 clubs. This number rises to 40% and 82% of J1 clubs and J2 clubs respectively when Z2 scores are analysed. It was also observed that clubs that have spent 7-9 seasons in J2 face a lesser risk of bankruptcy than clubs that have spent 7-9 seasons in J1. The descriptive statistics are shown in Table 4 and Table 5.

<TABLE 6 ABOUT HERE>

<TABLE 7 ABOUT HERE>

We did not observe any significant positive or negative changes for Z1 or Z2 scores in most cases apart from a significant decline in Z1 scores for J2 clubs (mean = 2.21, $r = -0.660$, $p < 0.05$) and a significant improvement in Z2 scores for yo-yo clubs (mean = -1.48, $r = 0.671$, $p < 0.05$). The detailed correlation scores and significance values are shown in Table 6. It was also found that there is a significant decline in the number of clubs who are not at the risk of

liquidation on the basis of Z1 scores ($r = -0.651$, $p < 0.05$). No other trends were recorded for either Z1 or Z2 scores and the detailed correlation scores and significance values are presented in Table 7.

A one-way analysis of variance was conducted to attempt to highlight the difference between the Z1 and Z2 scores for the different sub-groups. The Welch test of equality of means was significant for both Z1 and Z2 scores ($p < 0.05$). A Games-Howell post-hoc test was conducted to determine differences between groups. For Z1 scores, it was observed that clubs in J1 League (mean = 1.094, $p < 0.05$) and clubs that have played between 7 and 9 seasons in J2 League (mean = 1.334, $p < 0.05$) had a significantly higher score than yo-yo clubs. It was also observed that clubs that have played between 7 and 9 seasons in J2 League (mean = 1.093, $p < 0.05$) had a significantly higher Z1 score than clubs that have played all seasons in J2 League.

In relation to Z2 scores, it was found that clubs that have played between 7 and 9 seasons in J2 League had a significantly higher score than clubs that have played between 7 and 9 seasons in J1 League (mean = 2.580, $p < 0.05$) and clubs that have played all seasons in J2 League (mean = 1.334, $p < 0.05$). It was also found that yo-yo clubs had a significantly worse Z2 scores than clubs that have played between 7 and 9 seasons in J2 League (mean = -2.432, $p < 0.05$). No other differences were observed between any groups for Z1 or Z2 scores when significance was set at 0.05.

<TABLE 8 ABOUT HERE>

The paper also conducted a one-way analysis of variance to attempt to highlight the difference between the Z1 and Z2 scores for clubs in different ownership structures. The average Z1 and Z2 scores for different ownership structures are listed in Table 8. The Welch test of equality of means was significant for Z2 scores ($p < 0.05$). A Games-Howell post-hoc test was conducted to determine differences between groups. It was observed that clubs in private ownership have significantly better Z2 scores than clubs in public ownership (mean = 1.930, $p < 0.05$). No other differences were observed between any groups for Z2 scores when significance was set at 0.05.

7. Discussion

The findings of this paper point towards financial instability for most clubs in the J1 and the J2 Leagues. In this regard, the findings are in line with previous work directly related to anticipating financial distress in Spanish football (Barajas & Rodriguez, 2014) and English football (Plumley et al., 2020). The findings in this paper are similar to the findings of Barajas

and Rodriguez (2014), who found that clubs in La Liga (tier 1) are worse than clubs in Liga Adelante (tier 2). However, this paper contradicts the findings of Plumley et al. (2020), as they found that clubs in Championship (tier 2) are worse than clubs in Premier League (tier 1) in England. Although overspending and financial mismanagement have long been observed in Asian professional football (Li et al., 2023; Peng et al., 2023; Scelles & Khanmoradi, 2023), it is imperative to highlight the potential implications for the regulations established by the AFC and individual league organizers aimed at ensuring financial sustainability.

Previous research into Z-scores in Spanish football (Barajas & Rodriguez, 2014) called on Spanish football to cut expenses and inject capital to solve problems relating to financial distress. In terms of English football, Plumley et al. (2020) recommended a redistribution of English Premier League broadcasting rights across the football league system in England. This is less of a problem in the J-League as average revenue redistribution in the J2 League is approximately 50% less across all clubs as compared to the J1 League and there are no parachute payments in place for relegated clubs, which are attributed to distorting competitive balance through financial disparity among English Football League Championship clubs (Wilson et al., 2018, 2020).

In relation to Altman's Z-score, many Japanese football clubs are at risk financially, despite club licensing regulations that are strictly set to ensure that these clubs are not at a risk of financial distress. Another crucial aspect to consider is how these clubs manage to sustain themselves financially when the reported figures indicate potential risks. It seems that some clubs rely significantly on financial contributions from owners, manifested in various forms, to handle levels of debt and equity, which are documented in financial statements as extraordinary income. This is a similar picture to what we see even in the established European football market where clubs are reliant on owners to foot ever increasing bills (Alaminos & Fernández, 2019; Plumley et al., 2020; Storm & Thomsen, 2016).

Of greater concern is the austere financial picture of clubs that have spent between 7 and 9 seasons in J1 League. There is a clear evidence that these clubs are spending way beyond their means to stay and compete with teams in the J1 League or get promoted to J1 League soon after relegation, thereby risking financial stability, a trend similar to football clubs in England (Plumley et al., 2017a, 2017b, 2020). Despite the presence of the club licensing criteria, the J-League does not operate any version of Financial Fair Play or Financial Sustainability rules that can be seen in Europe (JLeague, n.d). As a result, there is a risk of lack of monitoring in

terms of cumulative acceptable losses allowed by a football club over any given period (Dermit-Richard et al., 2019; Wilson et al., 2018).

It seems that a lack of financial sustainability rules defining the acceptable amount of losses in the club licensing criteria for J-League clubs is a matter of concern. The last few years, including the COVID-19 pandemic, has presented warning signs for football and its clubs to initiate a financial reset for the betterment of the sport (Wilson et al., 2020). However, the warning signs have not been acted upon and led to dismissal of multiple professional clubs in England such as Bury FC and financial distress for clubs such as Wigan Athletic, Sheffield Wednesday and Reading Football Club. As an integral component of this financial reset in football, more equitable cost-control measures, such as implementing a cap on acceptable losses over a specified period or restricting overall expenditures as a percentage of the club's revenue, should be adopted across the three divisions of J-League.

A further point of interest should be the ownership structure of J-League clubs. There is a mixture of private and public ownership among the J-League clubs, and our research shows that clubs in public ownership such as city corporations are at a greater risk of financial distress as compared to clubs in private ownership (Plumley et al., 2017a, 2017b; Scelles & Llorca, 2021; Scelles et al., 2016), as city corporations are compelled to invest their money into more basic needs (Clarke & Mondal, 2022).

It would be advisable to the AFC and the J-League to revisit the Club Licensing Criteria that were designed to bring financial sustainability among member clubs. Whilst there have been instances of more clubs conforming to the Club Licensing Criteria, the overall picture of financial health among clubs in the J1 League and J2 League as measured by Altman's Z-score for clubs in this paper paints a more negative picture. Furthermore, clubs that get relegated from J1 League spend beyond their means to achieve promotion from J2 League, thereby risking financial sustainability. The third division of the Japanese professional football league system, the J3 League has not been a subject of this study as the league was introduced in 2015. As a result, we are unable to conclude whether financial sustainability exists in the third division of the Japanese professional football league system. There is a need for greater consistency to level the playing field within the regulations to help clubs deliver long-term financial sustainability, and this should be applicable across all three divisions of the Japanese professional football league system.

It is widely recognized that professional football clubs function as economic collaborators to deliver the product to their audience (Bond & Addesa, 2019; Feuillet et al., 2021). In essence, the survival of clubs, both on and off the pitch, is interdependent, emphasizing the mutual need for each other. As highlighted by Wilson et al. (2020), the current period is not one for clubs and leagues to prioritise self-interest. Rather, it is a moment to embrace evidence-based decision-making and engage in collective action. Furthermore, the introduction of cost reduction targets, coupled with incentivised financial rewards for exemplary governance (Mondal et al., 2023), could be employed to enhance financial stability across all levels, with particular emphasis on clubs facing an elevated risk of bankruptcy.

8. Conclusion

In summary, this study puts forth two primary findings. Initially, the descriptive examination of the financial status of Japanese clubs (encompassing both J1 and J2 clubs) using Altman's Z-score reveals indications of subpar financial well-being, with the potential for financial distress looming for approximately 50-75% of the clubs. Notably, this occurs despite the implementation of club licensing criteria intended, at least in part, to foster financial sustainability at the club level. Second, in relation to comparative performance, there was a significant difference between clubs that have spent majority of their time in J1, yo-yo clubs and clubs that have spent majority of their time in J2 based on the Z-scores with clubs that have spent majority of their time in J1 and yo-yo clubs returning poorer scores and being more at risk of financial distress in a league where the opportunity to increase revenues through alternative channels is not available. These findings not only extend the evidence base of measuring financial distress in professional team sports but also contribute to the academic literature in a novel way, primarily by being the first paper of its kind to examine Z-scores in relation to professional football clubs in Japan.

The study presents some limitations. First, data is not available in the public domain for all J-League clubs since the inception of the league in 1993. This does not allow the authors to conduct analysis over the duration of the league and understand when financial distress started emerging among member clubs within the league. Second, our paper only compares Altman's Z-scores for clubs in the J1 League and J2 League. While the financial situation for a majority of the clubs in the league presents an austere picture, comparison with clubs in other leagues across Asia and Europe and understanding the different policies set by these leagues would enable us to understand whether the phenomenon of financial distress is common to other clubs

and leagues across different countries and continents. Thirdly, our paper does not incorporate data from the J3 League. This is due to the non-existence of the league during the first five years of the studied time-period. However, it is important to analyse whether clubs are at the risk of facing financial distress in the J3 League as a result of the existing policies. This is a recommendation for future research.

This study provides compelling evidence, supported by statistically significant findings, indicating the persistence of financial distress within the Japanese professional football industry. It underscores the imperative for enhanced governance measures to ensure the enduring sustainability of clubs. The perennial inquiry into whether professional football clubs are inherently immune to failure is addressed, with the paper revealing that such immunity is not assured. Consequently, clubs and league administrators would be imprudent to disregard warning signals, given the precarious financial health of the entities involved and the unpredictable influence of external market forces and economic disruptions, exemplified by the global COVID-19 pandemic.

9. References

Abidali, A.F. & Harris, F. (1995). A methodology for predicting company failure in the construction industry. *Construction Management and Economics, 13*(3), 189-196.

AFC (2011). *Statutes of the Asian Football Confederation: Regulations governing the application of the Statutes and standing orders of the Congress - 2011 edition*. Retrieved from http://image.afcpresident.com/upload/library/AFC_Statutes_2011.pdf

AFC (2015). *Online system for club licensing launched.* Retrieved from https://www.the-afc.com/en/about_afc/about_afc/the_president/news/online_system_for_club_licensing_launched.html

AFC (2023). *AFC Club Licensing Regulations* (Edition 2023). Retrieved from https://assets.the-afc.com/downloads/club-licensing/AFC-Club-Licensing-Regulations-(Edition-2023).pdf

Alaminos, D., & Fernández, M. (2019). Why do football clubs fail financially? A financial distress prediction model for European professional football industry. *PLoS ONE, 14*(12), e0225989.

Altman, E.I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *The Journal of Finance, 23*(4), 589-609.

Altman, E.I. & McGough, T.P. (1974). Evaluation of a company as a going concern. *Journal of Accountancy, 138*(6), 50-57.

Barajas, A., & Rodriguez, P. (2014). Spanish football in need of financial therapy: Cut expenses and inject capital. *International Journal of Sport Finance, 9*(1), 73-90.

Beaver, W.H. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research, 4*(1), 71-111.

Beech, J., Horsman, S.J.L. & Magraw, J. (2008). *The circumstances in which English football clubs become insolvent* [CIBS Working Paper Series]. Coventry University.

Beech, J., Horsman, S.J.L. & Magraw, J. (2010). Insolvency events among English football clubs. *International Journal of Sports Marketing and Sponsorship, 11*(3), 236-249.

Bond, A., & Addesa, F. (2019). TV demand for the Italian Serie A: star power or competitive intensity? *Economics Bulletin, 39*(3), 2110-2116.

Bonfim, D. (2009). Credit risk drivers: Evaluating the contribution of firm level information and of macroeconomic dynamics. *Journal of Banking & Finance, 33*(2), 281-299.

Buck, C. & Ifland, C. (2022). Toward an enduring football economy: A business model taxonomy for Europe's professional football clubs. *European Sport Management Quarterly.* https://doi.org/10.1080/16184742.2022.2026448

Buraimo, B., Simmons, R., & Szymanski, S. (2006). English football. *Journal of Sport Economics, 7*(1), 29-46.

Campbell, J.Y., Hilscher, J. & Szilagyi, J. (2008). In Search of Distress Risk. *The Journal of Finance, 63*(6), 2899-2939.

Cantoni, E. (2012). Financial statement analysis and insolvency forecast models: a proposal for local firms. *Economia Aziendale Online, 4*, 1-17.

Carlsson-Wall, M., Kraus, K., & Messner, M. (2016). Performance measurement systems and the enactment of different institutional logics: insights from a football organization. *Management Accounting Research*, *32*, 45-61.

Castro, N.R. & Chousa, J.P. (2006). An integrated framework for the financial analysis of sustainability. *Business Strategy and the Environment, 15*(5), 322-333.

Cedrone, T. (2008). Critical analysis of sport organization bankruptcies in the United States and England: does bankruptcy law explain the disparity in number of cases. *Seton Hall Journal of Sports and Entertainment Law, 18*(1), 297-338.

Charitou, A., Neophytou, E. & Charalambous, C. (2004). Predicting corporate failure: empirical evidence for the UK. *European Accounting Review, 13*(3), 465-497.

Chester, D.N. (1968). *Report of the Committee on Football.* University of Southampton.

Clarke, J., & Mondal, S. (2022). Sport policy in India. *International Journal of Sport Policy and Politics, 14*(4), 729-741.

Deakin, E.B. (1972). A discriminant analysis of predictors of business failure. *Journal of Accounting Research, 10*(1), 167-179.

Dermit-Richard, N., Scelles, N. & Morrow, S. (2019). French DNCG management control versus UEFA Financial Fair Play: a divergent conception of financial regulation objectives. *Soccer & Society, 20*(3), 408-430.

Dimitropoulos, P. (2010). The financial performance of the Greek football clubs. *Choregia, 6*(1), 5-27.

Dobson, S., & Goddard, J.A. (2011). *The economics of football* (2nd ed.). Cambridge University Press.

Evans, R. (2024). The S-Score of financial sustainability for professional football clubs. *Journal of Sports Economics, 25*(3), 322-345.

Evans R., Walters G., & Hamil S. (2022). Gambling in professional sport: The enabling role of "regulatory legitimacy". *Corporate Governance, 22*(5), 1078-1093.

Feng, C.M. & Wang, R.T. (2000). Performance evaluation for airlines including the consideration of financial ratios. *Journal of Air Transport Management, 6*(3), 133-142.

Feuillet, A., Terrien, M., Scelles, N. and Durand, C. (2020). Determinants of coopetition and contingency of strategic choices: the case of professional football clubs in France. *European Sport Management Quarterly*, 21(5), 748-763.

Franck, E., & Lang, M. (2014). A theoretical analysis of the influence of money injections on risk taking in football clubs. *Scottish Journal of Political Economy, 61*(4), 430-454.

Galariotis, E., Germain, C. & Zopounidis, C. (2018). A combined methodology for the concurrent evaluation of the business, financial and sports performance of football clubs: The case of France. *Annals of Operations Research, 266*(1), 589-612.

Hoehn, T., & Szymanski, S. (1999). The Americanization of European football. *Economic Policy, 14*(28), 203-240.

Ittner, C.D., Larcker, D.F. & Meyer, M.W. (2003). Subjectivity and the weighting of performance measures: evidence from a balanced scorecard. *The Accounting Review, 78*(3), 725-758.

JLeague (n.d). *Individual club management information.* Retrieved from https://aboutj.jleague.jp/corporate/management/club/

Kaplan, R. & Norton, D. (1996). *The Balanced Scorecard: Translating Strategy into Action.* Harvard Business School Press.

Koh, H.C. & Killough, L.N. (1990). The use of multiple discriminant analysis in the assessment of the going-concern status of an audit client. *Journal of Business Finance and Accounting, 17*(2), 179-192.

Koh, H.C. & Low, C. (2004). Going concern prediction using data mining techniques. *Managerial Auditing Journal, 19*(3), 462-476.

Lago U., Simmons R., Szymanski S. (2006). The financial crisis in European football. *Journal of Sports Economics, 7*(1), 3-12.

Li, H., Nabors, S., Nauright, J., & Bai, Y. (2023). Political economy and football in new market: the case of the Chinese Super League. *Sport in Society*. https://doi.org/10.1080/17430437.2023.2290078

Li, Z., Crook, J., Andreeva, G. & Tang, Y. (2021). Predicting the risk of financial distress using corporate governance measures. *Pacific-Basin Finance Journal, 68*, 101334.

Martens, D., Bruynseels, L., Baesens, B., Willekens, M. & Vanthienen, J. (2008). Predicting going concern opinion with data mining. *Decision Support Systems, 45*(4), 765-777.

MCA (n.d). *Ministry of Corporate Affairs - Government of India.* Retrieved from https://www.mca.gov.in/

Milne, A. (2014). Distance to default and the financial crisis. *Journal of Financial Stability, 12*(1), 26-36.

Mondal, S., Plumley, D., & Wilson, R. (2023, September 12). *Conceptualising a model to measure good governance in professional football clubs: a case study of Asia* [Paper presentation]. European Association for Sport Management (EASM) Conference 2013, Dublin, Ireland.

Mondal, S., Plumley, D. & Wilson, R. (2023). The other ISL: analysing the finances of the Indian Super League (football) and its franchisees. *Managing Sport and Leisure, 28*(3), 302-321.

Mutchler, J. (1985). A multivariate analysis of the auditor's going-concern opinion decision. *Journal of Accounting Research, 23*(2), 668-681.

Nair, M.V. (2022). AFC's 2022 Club Licensing Regulations: Here's What's Changed And Why. *Law in Sport*. Retrieved from https://www.lawinsport.com/topics/item/afc-s-2022-club-licensing-regulations-here-s-what-s-changed-and-why

Nauright, J. (2015). Awakening the Sleeping Giant: China and Global Football (Soccer). *FC Business Magazine (UK)*. https://cloud.3dissue.com/6374/7271/131371/FCB87/index.html

Nauright, J., & Ramfjord, J. (2010). Who owns England's game? American professional sporting influences and foreign ownership in the Premier League. *Soccer & Society, 11*(4), 428-441.

Ohlson, J.A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research, 18*(1), 109-131.

Peng, Q., Chen, Z., Li, J., Houlihan, B. & Scelles, N. (2023). The new hope of Chinese football? Youth football reforms and policy conflicts in the implementation process. *European Sport Management Quarterly, 23*(6), 1928-1950.

Plumley, D., Mondal, S., Wilson, R. & Ramchandani, G. (2023). Rising Stars: Competitive Balance in Five Asian Football Leagues. *Journal of Global Sport Management, 8*(1), 23-42.

Plumley, D., Ramchandani, G. & Wilson, R. (2018). The unintended consequence of Financial Fair Play: an examination of competitive balance across five European football leagues. *Sport, Business and Management: International Journal, 9*(2), 118-133.

Plumley, D., Serbera, J-P. & Wilson, R. (2021). Too big to fail? Accounting for predictions of financial distress in English professional football clubs. *Journal of Applied Accounting Research, 22*(1), 93-113.

Plumley, D., Wilson, R. & Shibli, S. (2017). A holistic performance assessment of English premier league football clubs 1992-2013. *Journal of Applied Sport Management, 9*(1), 1-25.

Plumley, D., Wilson, R., & Ramchandani, G. (2017). Towards a model for measuring holistic performance of professional football clubs. *Soccer & Society, 18*(1), 16-29.

Ponikvar, N., Tajnikar, M. & Pusnik, K. (2009). Performance ratios for managerial decision-making in a growing firm. *Journal of Business Economics and Management, 10*(2), 109-120.

Scelles, N., & Khanmoradi, S. (2023). Impact of Market Value, Roster Size, Arrivals and Departures on Performance in Iranian Men's Football. *Sustainability 2023, 15*(13), 10268.

Scelles, N., & Llorca, M. (2021). Leader Dismissal or Continuity, President Longevity, Geographic Orientation of Owners and Team Performance: Insights from French Men's Football, 1994–2016. *Journal of Risk and Financial Management, 14*(9), 439.

Scelles, N., Helleu, B., Durand, C., & Bonnal, L. (2016). Professional Sports Firm Values: Bringing New Determinants to the Foreground? A Study of European Soccer, 2005-2013. *Journal of Sports Economics, 17*(7), 688-715.

Scelles, N., Szymanski, S., & Dermit-Richard, N. (2018). Insolvency in French Soccer: The Case of Payment Failure. *Journal of Sports Economics, 19*(5), 603-624.

Somerford, B. & Kim, Y. (2011). K-League set for radical changes with promotion–relegation to be introduced as well as a "split system". *Goal*. Retrieved from www.goal.com/en/news/14/asia/2011/10/05/2697324/k-league-set-for-radical-changes-with-promotion-relegation-to-beon

Storm, R.K. & Nielsen, K. (2012). Soft budget constraints in professional football. *European Sport Management Quarterly, 12*(2), 183-201.

Storm, R.K. & Nielsen, K. (2015). Soft budget constraints in European and US leagues: similarities and differences. In W. Andreff (Ed.), *Disequilibrium Sports Economics* (pp. 151-174). Edward Elgar.

Storm, R.K., & Thomsen, F. (2016). For better or worse? A study of institutional responses to sports competitive pressure in Danish pro soccer 2001-2013. *European Journal for Sport and Society, 13*(4), 274-295.

Sueyoshi, T. (2005). Financial Ratio Analysis of the electric power industry. Asia Pacific *Journal of Operational Research, 22*(3), 349-376.

Szymanski, S. (2017). Entry into exit: insolvency in English professional football. *Scottish Journal of Political Economy, 64*(4), 419-444.

Szymanski, S., & Weimar, D. (2019). Insolvencies in Professional Football: A German Sonderweg? *International Journal of Sport Finance, 2019, 14*(1), 54-68.

Terrien, M., Dufau, B., Carin, Y. & Andreff, W. (2021). Economic Models of French Amateur Soccer Clubs. From One Crisis to the Other: Which Transformation? *Journal of Global Sport Management, 8*(3), 630-650.

UEFA (2023). *UEFA Club Licensing and Financial Sustainability Regulations.* Retrieved from https://documents.uefa.com/r/UEFA-Club-Licensing-and-Financial-Sustainability-Regulations-2022-Online

Weinberg, B. (2015). *Asia and the future of football.* Routledge.

Wilson, C. (2017). Want to understand Chinese football? Don't view it through a transfer window. *The Guardian.* https://www.theguardian.com/football/2017/mar/03/chinese-super-league-football-transfer-window-guangzhou-evergrande

Wilson, R., Plumley, D., & Ramchandani, G. (2013). The relationship between ownership structure and club performance of football clubs in the English Premier League. *Sport, Business and Management: An International Journal, 3*(1), 19-36.

Wilson, R., Plumley, D., Mondal, S. & Parnell, D. (2020). Challenging parachute payments and unmasking English football's finances. *Managing Sport and Leisure, 27*(1-2), 93-98.

Wilson, R., Ramchandani, G., & Plumley, D. (2018). Parachute Payments in English Football: Softening the Landing or Distorting the Balance? *Journal of Global Sport Management, 3*(4), 351-368.

Zmijewski, M. (1984). Methodological issues related to the estimation of financial distress prediction models. *Journal of Accounting Research, 22*(1), 59-82.

Figure 1: Wage to Revenue ratio in J1 League between 2011 and 2020

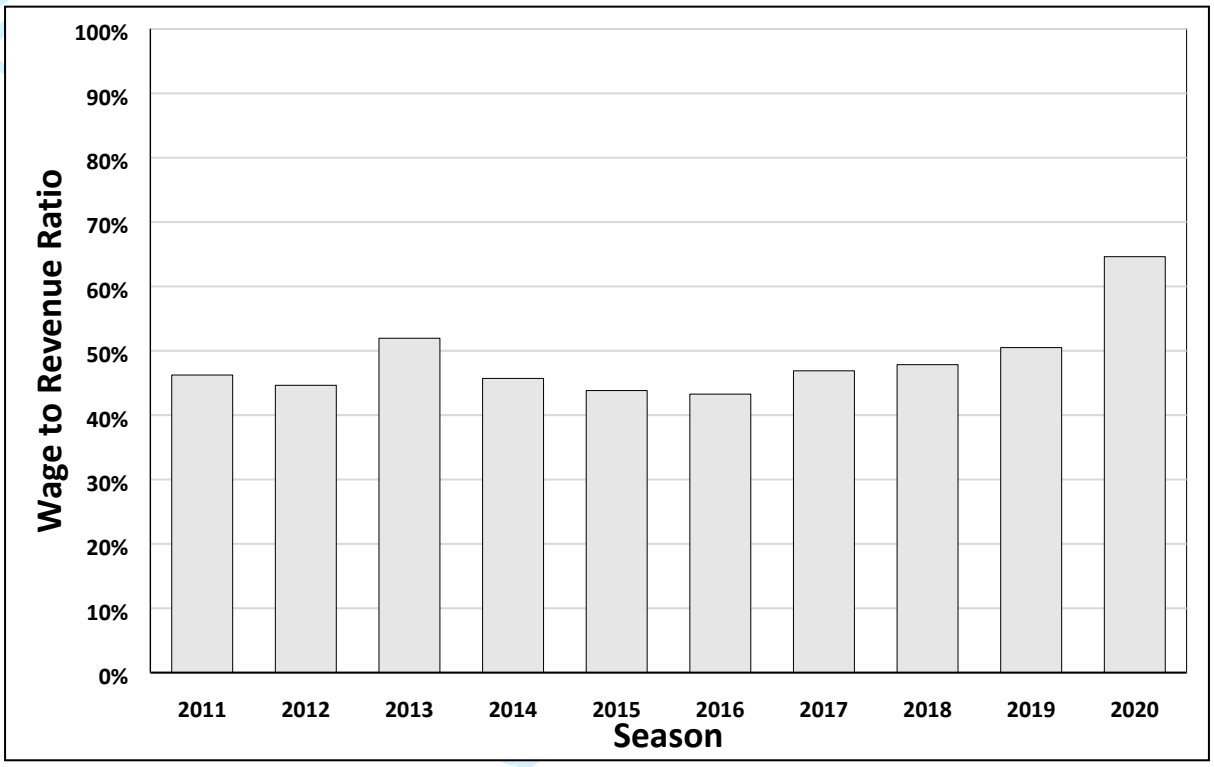

Figure 2: Wage to Revenue ratio in J2 League between 2011 and 2020

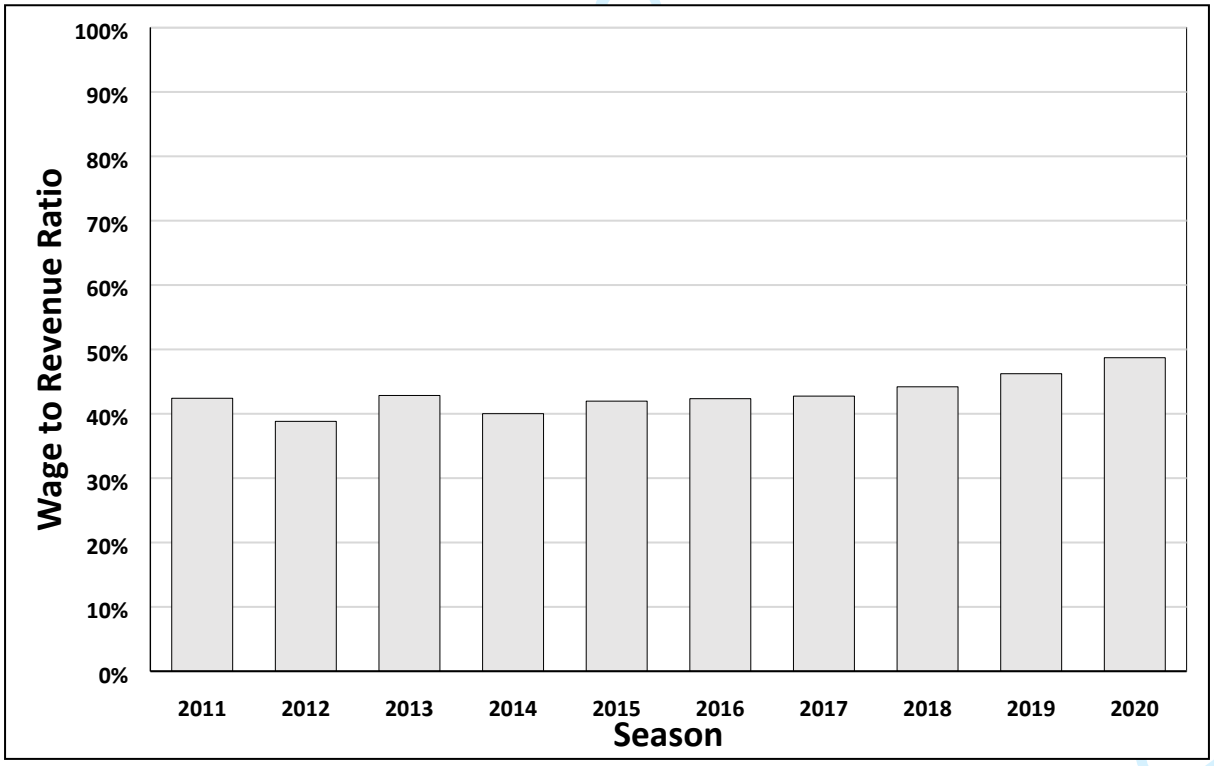

Table 1: List of J-League clubs analysed as a part of this study between 2011 and 2020

Clubs that have spent all seasons in J1 League	**Clubs that have spent between 7 and 9 seasons in J1 League**	**Yo-Yo Clubs**	**Clubs that have spent between 7 and 9 seasons in J2 League**	**Clubs that have spent all seasons in J2 League**
Sanfrecce *Hiroshima* (P)	Cerezo *Osaka* (P)	Ventforet *Kofu* (PB)	Avispa *Fukuoka* (PB)	JEF United *Chiba* (P)
Kashima Antlers (P)	FC *Tokyo* (P)	*Omiya* Ardija (P)	*Tokushima* Vortis (P)	*Ehime* FC (PB)
Kawasaki Frontale (PB)	Gamba *Osaka* (P)	H. Consadole *Sapporo* (P)	Montedio *Yamagata* (P)	*Kyoto* Sanga FC (P)
Vegalta *Sendai* (PB)	Jubilo *Iwata* (P)	*Shonan* Bellmare (P)	*Yokohama* FC (PB)	*Mito* HollyHock (PB)
Urawa Red Diamonds (P)	*Kashiwa* Reysol (P)			*Tokyo* Verdy (P)
Yokohama F. Marinos (MCO)	Vissel *Kobe* (P)			
	Nagoya Grampus (P)			
	Albirex *Niigata* (P)			
	Shimizu S-Pulse (PB)			
	Sagan *Tosu* (PB)			

* *Name of the city/prefecture is in italics; P – Private ownership, PB – Public ownership, MCO – Multi-club ownership*

Table 2: Z1 scores of all J-League clubs analysed as a part of this study between 2011 and 2020

Club	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Classification of Z1 scores by club			
											Not at the risk of liquidation	Needs monitoring	Detailed analysis is needed	Risk of bankruptcy is high
Cerezo *Osaka*	3.13	3.84	4.05	3.99	3.20	2.17	2.24	3.53	2.42	-2.16	6	0	3	1
JEF United *Chiba*	1.93	1.93	1.90	1.37	1.81	2.12	1.65	1.72	1.76	1.02	0	0	5	5
Ehime FC	5.10	4.60	7.21	3.67	3.09	2.77	4.43	4.50	2.28	3.16	8	1	1	0
FC *Tokyo*	3.71	4.05	3.61	4.42	4.41	5.10	4.02	5.46	5.02	4.31	10	0	0	0
Avispa *Fukuoka*	3.38	0.17	0.35	1.66	3.03	2.30	2.22	2.11	1.39	-0.21	2	0	3	5
Gamba *Osaka*	3.23	3.56	3.93	2.92	2.53	2.72	2.28	3.41	3.10	1.36	5	2	2	1
Sanfrecce *Hiroshima*	0.90	3.94	4.25	4.31	4.25	4.89	4.23	3.41	3.92	2.97	8	1	0	1
Jubilo *Iwata*	3.65	3.69	3.51	3.46	3.26	3.09	3.37	3.26	2.34	1.13	8	0	1	1
Kashima Antlers	2.85	3.01	3.37	3.22	2.44	3.63	2.79	3.81	2.50	0.47	5	2	2	1
Kashiwa Reysol	1.99	1.36	1.53	1.65	1.25	1.39	1.53	1.65	-0.90	-0.14	0	0	1	9
Kawasaki Frontale	4.86	4.61	3.49	3.98	2.18	3.12	3.66	3.44	3.97	3.19	9	0	1	0
Vissel *Kobe*	0.36	-0.46	-1.98	11.15	2.54	2.49	0.97	4.15	3.58	1.59	3	0	2	5
Ventforet *Kofu*	3.44	2.56	3.16	2.19	2.89	2.78	3.06	2.98	2.81	2.10	3	4	3	0
Kyoto Sanga FC	0.09	0.65	0.71	0.17	0.27	1.61	-1.86	-0.59	-0.86	0.41	0	0	0	10
Mito HollyHock	2.36	3.19	3.10	1.89	3.04	4.66	2.42	3.87	2.54	2.14	5	0	5	0
Nagoya Grampus	6.39	2.91	4.05	8.98	4.47	7.46	2.04	2.82	2.36	2.03	5	2	3	0
Albirex *Niigata*	2.76	2.90	3.34	2.70	1.62	2.42	1.83	1.35	2.34	1.65	1	2	4	3
Omiya Ardija	2.18	1.83	2.23	2.68	2.24	2.10	1.90	1.31	2.04	2.00	0	0	9	1
H. Consadole *Sapporo*	1.13	3.95	0.93	1.46	1.45	2.03	2.21	1.50	1.45	1.15	1	0	2	7
Vegalta *Sendai*	2.57	2.59	3.05	2.02	2.68	1.78	2.53	1.83	0.96	-0.15	1	0	6	3
Shimizu S-Pulse	2.75	4.02	3.15	3.68	1.78	3.77	4.59	2.90	3.05	2.90	6	3	0	1
Shonan Bellmare	-2.41	0.56	1.24	1.26	2.18	2.43	1.13	3.43	2.17	1.25	1	0	3	6
Tokushima Vortis	3.31	4.14	3.46	4.33	4.56	3.47	3.65	4.22	4.00	4.79	10	0	0	0

Tokyo Verdy	3.34	2.99	1.61	2.03	2.74	4.04	3.33	2.54	2.42	-2.15	3	2	3	2
Sagan *Tosu*	-6.60	2.28	-2.37	-1.49	1.32	1.40	1.53	0.18	-10.64	-6.99	0	0	1	9
Urawa Red Diamonds	4.34	5.65	5.60	5.98	5.02	4.66	3.68	3.14	3.41	1.43	9	0	0	1
Montedio *Yamagata*	6.43	9.56	7.66	3.92	4.33	3.18	3.51	3.57	3.86	2.46	9	0	1	0
Yokohama FC	2.48	2.36	1.65	1.63	1.44	2.79	1.68	3.46	4.70	5.28	3	1	2	4
Yokohama F. Marinos	-0.33	-1.93	3.48	3.28	2.69	2.15	2.49	2.97	2.64	2.17	2	1	5	2
Classification of Z1 scores by season														
Not at the risk of liquidation	13	14	18	14	11	12	11	15	10	5				
Needs monitoring	3	3	0	1	2	4	1	4	1	2				
Detailed analysis is needed	6	6	2	6	9	9	10	3	11	6				
Risk of bankruptcy is high	7	6	9	8	7	4	7	7	7	16				

Table 3: Z2 scores of all J-League clubs analysed as a part of this study between 2011 and 2020

Club	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Classification of Z2 scores by club			
											Not at the risk of liquidation	Needs monitoring	Detailed analysis is needed	Risk of bankruptcy is high
Cerezo *Osaka*	-2.17	0.02	-0.74	-2.73	-1.04	-1.77	-3.63	-2.35	-4.49	-24.54	0	0	0	10
JEF United *Chiba*	-0.61	-0.61	-0.57	-2.04	-1.04	0.90	-0.79	-0.17	-0.40	-0.85	0	0	0	10
Ehime FC	9.16	5.81	14.16	-0.11	-2.68	0.89	3.88	3.38	-5.11	3.20	6	0	0	4
FC *Tokyo*	6.46	7.31	7.64	9.16	9.48	11.43	9.04	12.75	10.48	9.46	10	0	0	0
Avispa *Fukuoka*	2.15	-6.68	-9.66	-4.58	-1.22	-1.59	-0.27	-0.86	-3.79	-8.67	0	0	1	9
Gamba *Osaka*	0.04	-0.26	-0.83	0.54	-0.23	-1.93	-3.53	-0.50	-0.92	-4.51	0	0	0	10
Sanfrecce *Hiroshima*	-7.76	5.07	5.41	6.59	7.01	9.60	8.52	5.62	5.96	5.10	9	0	0	1
Jubilo *Iwata*	2.78	3.77	3.31	3.56	3.22	2.78	3.73	3.76	0.31	-4.38	6	2	0	2
Kashima Antlers	2.98	2.92	4.41	4.70	1.25	5.69	3.36	5.54	2.94	-2.19	5	3	0	2
Kashiwa Reysol	-1.36	-2.67	-2.29	-1.71	-2.72	-2.06	-2.21	-1.96	-9.02	-10.49	0	0	0	10
Kawasaki Frontale	6.27	6.57	3.61	4.51	0.55	1.00	3.62	3.03	5.31	3.94	8	0	0	2
Vissel *Kobe*	-4.78	-9.49	-15.45	15.83	-2.93	-2.37	-2.32	3.37	0.92	0.62	2	0	0	8
Ventforet *Kofu*	2.99	2.24	2.15	-1.41	1.32	1.10	1.42	1.54	1.64	2.32	0	1	3	7
Kyoto Sanga FC	-7.02	-3.83	-4.74	-5.15	-5.02	-0.02	-16.58	-11.40	-13.56	-6.97	0	0	0	10
Mito HollyHock	-1.15	1.30	0.71	-2.27	-1.28	4.34	-1.79	-1.79	-1.25	4.53	2	0	0	8
Nagoya Grampus	2.53	-3.53	-0.74	-2.85	-1.09	4.11	-0.15	-0.74	-1.36	-3.61	1	0	1	8
Albirex *Niigata*	0.98	1.19	2.06	0.49	-1.57	0.98	-0.89	-2.49	0.75	2.88	0	1	1	8
Omiya Ardija	-4.52	-2.61	-2.25	-1.49	-1.41	-1.98	-1.95	-0.80	-1.25	-1.16	0	0	0	10
H. Consadole *Sapporo*	0.72	8.87	0.06	0.63	-0.13	2.04	3.31	1.78	-0.71	0.72	2	0	1	7
Vegalta *Sendai*	3.76	3.77	4.50	2.02	3.45	0.84	1.79	1.46	-2.04	-3.97	4	0	1	5
Shimizu S-Pulse	-0.59	2.28	0.20	1.25	-5.41	-1.30	-2.88	-6.65	-4.24	-1.53	0	0	1	9
Shonan Bellmare	-18.90	-9.04	-8.76	-8.65	-5.37	-5.44	-8.32	-3.78	-2.79	-1.18	0	0	0	10
Tokushima Vortis	6.78	8.97	7.18	8.79	11.33	8.96	9.90	11.57	11.07	12.66	10	0	0	0

Tokyo Verdy	-6.66	-2.38	-4.18	-2.65	-3.10	3.00	-3.13	-1.95	-0.32	-13.42	0	1	0	9
Sagan *Tosu*	-33.32	-4.53	-36.10	-18.71	-6.49	-4.70	-6.75	-9.80	-41.05	-29.74	0	0	0	10
Urawa Red Diamonds	-1.31	1.54	2.90	4.87	3.50	4.13	2.45	2.28	1.59	-2.43	3	1	2	4
Montedio *Yamagata*	-2.03	3.40	1.32	-0.28	3.18	1.35	2.55	2.67	2.60	2.60	2	0	4	4
Yokohama FC	-5.37	-4.16	-2.75	-5.88	-3.87	0.49	-4.90	-6.50	-5.01	-3.24	0	0	0	10
Yokohama F. Marinos	-23.34	-41.24	0.02	0.12	-0.65	-1.00	-0.91	-1.09	-0.78	-1.34	0	0	0	10
Classification of Z2 scores by season														
Not at the risk of liquidation	5	9	8	8	7	7	8	8	4	6				
Needs monitoring	3	1	1	0	0	2	0	0	1	1				
Detailed analysis is needed	2	2	2	1	0	1	2	2	1	2				
Risk of bankruptcy is high	19	17	18	20	22	19	19	19	23	20				

Table 4: Descriptive statistics of Z1 scores for all J-League clubs between 2011-2020 analysed as a part of the study

	Clubs that have spent all seasons in J1 League	**Clubs that have spent between 7 and 9 seasons in J1 League**	**Yo-Yo Clubs**	**Clubs that have spent between 7 and 9 seasons in J2 League**	**Clubs that have spent all seasons in J2 League**
Not at the risk of liquidation	55%	44%	10%	60%	34%
Needs monitoring	6.67%	9%	12.50%	2.50%	4%
Detailed analysis is needed	25%	17%	42.50%	15%	28%
Risk of bankruptcy is high	13.33%	30%	35%	22.50%	34%

Table 5: Descriptive statistics of Z2 scores for all J-League clubs between 2011-2020 analysed as a part of the study

	Clubs that have spent all seasons in J1 League	**Clubs that have spent between 7 and 9 seasons in J1 League**	**Yo-Yo Clubs**	**Clubs that have spent between 7 and 9 seasons in J2 League**	**Clubs that have spent all seasons in J2 League**
Not at the risk of liquidation	48.33%	19%	5%	30%	18%
Needs monitoring	6.67%	3%	2.50%	0%	0%
Detailed analysis is needed	5%	3%	10%	12.50%	0%
Risk of bankruptcy is high	40%	75%	82.50%	57.50%	82%

Table 6: Correlation between seasons and Z1 and Z2 scores between 2011 and 2020

	Z1 Scores		Z2 Scores	
	r	p	r	p
Clubs that have spent all seasons in J1 League	-0.397	0.257	0.419	0.228
Clubs that have spent between 7 and 9 seasons in J1 League	-0.491	0.149	-0.346	0.327
Yo-Yo Clubs	0.330	0.352	0.671	0.034
Clubs that have spent between 7 and 9 seasons in J2 League	-0.511	0.131	0.490	0.151
Clubs that have spent all seasons in J2 League	-0.660	0.038	-0.540	0.107

Table 7: Correlation between seasons and percentage of clubs in different categories on the basis of Z1 and Z2 scores between 2011 and 2020

	Based on Z1 Scores		Based on Z2 Scores	
	r	p	r	p
Not at risk of liquidation	-0.651	0.041	-0.305	0.391
Needs monitoring	-0.013	0.971	-0.387	0.269
Detailed analysis is needed	0.325	0.360	-0.078	0.831
Risk of bankruptcy is high	0.419	0.228	0.516	0.126

Table 8: Average Z1 and Z2 scores of clubs with different ownership structures between 2011 and 2020

	Z1	Z2
Public Ownership	2.32	-1.79
Private Ownership	2.62	0.14
Multi Club Ownership	1.96	-7.02

Thank you for taking your time and providing valuable reviews on our paper. The feedback provided by both reviewers have played a significant role in improving the robustness of our paper. We have addressed the feedback from both reviewers to the best of our abilities and all changes/additions are marked in red. We hope the reviewers will be happy with our improvements and recommend the paper for publication.

Reviewer(s)' Comments to Author:

Reviewer: 1

Recommendation: Accept

Comments:

Thank you for the revised draft of your paper. You have done a great job at addressing my comments. Therefore, I recommend publication of your manuscript. Subject to the other reviewer also accepting it, I look forward to seeing it published in the journal.

Thank you for providing your comments on the first draft and the revised draft of this paper. The overall comments and the additional references improved the robustness of our study.

Additional Questions:

1. Originality: Does the paper contain new and significant information adequate to justify publication?: Yes

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Yes

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Yes

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Yes

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: Yes

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Yes

Reviewer: 2

Recommendation: Minor Revision

Comments:

Thank you for letting me re-review this paper. I think that the authors have improved the MS significantly, and the paper stands in a much better shape. I still think that some relevant references would better bolster some parts of the argumentation. For example, when bankruptcies are dealt with, please refer to more papers on the SBC approach than just one. Franck, Andreff, and Storm and Nielsen have made a lot on this issue and it would support the argument that compared to the US situation, there are more bankruptcies in England. Storm and Nielsen have a paper on European and US specifically: https://www.elgaronline.com/edcollchap/edcoll/9781783479351/9781783479351.00012.xml

When this is taken into consideration, I find the paper publishable.

Thank you for providing your comments on the first draft and the revised draft of this paper. The overall comments and the additional references improved the robustness of our study. We agree with your comments and have added the following references to the study:

Storm, R.K. & Nielsen, K. (2015). Soft budget constraints in European and US leagues: similarities and differences. In W. Andreff (Ed.), *Disequilibrium Sports Economics* (pp. 151-174). Edward Elgar.

Terrien, M., Dufau, B., Carin, Y. & Andreff, W. (2021). Economic Models of French Amateur Soccer Clubs. From One Crisis to the Other: Which Transformation? *Journal of Global Sport Management, 8*(3), 630-650.

Additional Questions:

1. Originality: Does the paper contain new and significant information adequate to justify publication?: Yes.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Yes. Some additional references should be added, though. Please see below.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Yes.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Yes.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: Yes

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been

paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Yes