

Insolvencies in Professional Sports: Evidence from German Football

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Abstract

This paper shows that insolvency is a common occurrence in German football, contrary to popular perception. In this paper, we document the extent of insolvency in German football and find that it occurs at a frequency comparable to leagues in England and France. We estimate a model to show that the most likely cause of insolvency are random shocks due to deviations of team performance from expected performance; these shocks frequently result in relegation to a lower tier of competition which generates lower match attendance and revenues. These results are consistent with the analysis of causes of insolvency in English and French football identified in recent research.

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1 Introduction

There is a prevailing view that the economics of football function differently in Germany than in the rest of Europe. In particular, there is a belief that finances are well-regulated and financial failure, so commonplace in the rest of Europe, is rare. This paper uses data drawn from official insolvency proceedings to show that Germany is in fact little different from the rest of Europe, at least insofar as the financial instability of football clubs is concerned. We document 88 cases of insolvency of German football clubs since 1981, including 75 in the last two decades. This rate of insolvency is roughly comparable with the French and English football leagues.

Insolvency of football clubs in Europe and elsewhere has a long history. Football club insolvencies occurred in England in the 19th century (Szymanski, 2015) and were frequent events between 1920 and 1939. Sloane (1971, p. 122) commented that the “majority of league clubs operate at a loss and only remain solvent through income derived from non-footballing activities”. Insolvencies rose sharply in the 1980s in England (Beech et al., 2010; Szymanski 2017), while Scelles et al. (2016) document a regular pattern of insolvency in France from the 1970s. Spain underwent a major financial restructuring of league clubs in the early 1990s, while Italian clubs have undergone periodic financial crises over a long period of time. In recent times UEFA has documented the extent of financial distress in European football (UEFA Club Licensing Benchmarking Reports, 2009-2015).

The organization of German football commands widespread respect across the world for a number of reasons. The success of both the men’s and women’s national teams has been extraordinary, with six World Cup titles between them (four for the men in 18 attempts, two for the women from seven). This success is underpinned by a system of mass participation – in 2006 FIFA ranked Germany fourth in the world in terms of absolute numbers of players and

second in terms of participation rate.³ The top national league (1.Bundesliga) has for several years recorded the highest average attendance of any football league in the world, and in Bayern Munich the league boasts one the most successful and popular clubs in the world. By the standards of the top leagues in Europe ticket prices are relatively low, and fact attributed in part to the “50+1” rule which requires that majority control of clubs to remain in the hands of association members who pay an annual subscription.⁴ Since the hugely successful World Cup in 2006 Germany has also boasted some of the best football stadiums in the world.

While there are many reasons to admire German football, its ability to limit financial distress of clubs through financial regulation is not one of them (Dietl and Franck, 2007). In the next section of the paper we will discuss the extent of this (mis)-perception. We present extensive evidence of frequent insolvency in German professional football, in much the same way as it is found in English professional football (Szymanski, 2017), French professional football (Scelles et al., 2016). The reason for this shared experience, we argue, is the instability inherent in the promotion and relegation system. Relegation in particular entails severe adverse economic consequences for a club, which thus creates an incentive for clubs to stretch their finances to the limit to avoid this outcome. While clubs seek to balance their books in expectation, adverse shocks (e.g. injuries to key players) can lead to financial distress. We develop a simple model to estimate these adverse shocks in German football, and find that these are indeed highly correlated with insolvency events. We also find that adverse shocks are closely related to relegation events.

The following section describes the legal insolvency process in Germany. This is followed by a discussion of the theoretical causes of insolvency and then the data and empirical

³ http://www.fifa.com/mm/document/fifafacts/bcoffsurv/bigcount.statspackage_7024.pdf

⁴ The 50+1 rule determine, that every professional football organization has to be controlled by 50% plus one vote by the underlying sport club. After 20 years of constant financial support a private investor can obtain majority control (Franck, 2010; Weimar & Fox, 2012).

evidence. We conclude that the incidence and pattern of insolvency in German football is not significantly different from other major European football nations.

2 A German Football Sonderweg?

The concept of the “sonderweg”, or “special path”, developed mainly in the postwar era by German historians as a way of explaining the rise of the Nazis. According to the argument Germany did not develop the institutions of liberal democracy in the 19th century, unlike most other western European nations, and this uniquely led to the triumph of totalitarianism (Fischer and Fletcher, 1986).

The argument for Germany’s “football sonderweg” is that the football authorities developed institutions which uniquely or exceptionally enabled clubs to avoid the financial chaos so common elsewhere in Europe. Just as the evidential basis of the sonderweg in historical scholarship has been widely challenged (Blackbourn and Eley, 1984; Peukert, 1993), the evidence on insolvencies in German football challenges the received view.

There are many examples of the received view. Most seem to originate with German authors. For example, Frick and Prinz (2006, p. 64) claim that “The financial stability of the clubs is usually attributed to the licensing system practiced by the league’s organization since the 1960s. In Germany, clubs are required to submit budgets for the forthcoming season, including forecasts of their expected revenues. This system ensures that there is continued control over costs, particularly wage costs”. Likewise, Brand et al. (2013, p. 138) state that “The licensing procedures governing German football imposed relatively strict financial constraints upon clubs, mandating compliance with comparatively demanding regulations.”. Wilkesmann et al. (2011, p. 138) refer to “the strict licensing regime that prevents bankruptcy of clubs”. Perhaps unsurprisingly, this view is endorsed by the DFL, the league authority, itself⁵: “The

⁵ <http://www.bundesliga.com/en/news/Bundesliga/agblmd26-the-bundesliga-licensing-process-explained.jsp>.

Bundesliga's licensing process, self-imposed by the clubs as part of their league statutes, ensures that no club from the top two tiers would find themselves in a situation of being unable to complete a league campaign due to financial deficiencies."

This assessment has been widely accepted outside of Germany. For example, Storm and Nielsen (2012, p. 196), discussing UEFA's Financial Fair Play regulations, make the following observation: "UEFA's initiative is inspired by the recent developments in Germany and France. Judged from the experiences in Germany, where a strictly enforced licensing system has been in place for several years, results of tighter control are positive. Besides growing interest from spectators and TV audiences, the clubs in the German Bundesliga are now reducing their debt portfolios, increasing their revenues and some clubs even making small surpluses". Morrow (2013, p. 301) cites Germany as one leading example: "While the UK does not operate as demanding a licensing system as found in several other European countries like France, the Netherlands or Germany".

And such arguments have led pressure groups such as Supporters Direct to advocate the German style regulation (Supporters Direct, 2011, p. 36): "Supporters Direct advocate a system akin to the regulatory licensing regime employed by the Bundesliga, the professional football league in Germany. This places severe penalties on clubs that are not financially sustainable. If clubs fail viability tests, their professional licenses are revoked and the club is relegated to the semi-professional leagues. This deterrent has clearly worked, with no insolvencies in the Bundesliga since its formation in 1963, in stark contrast to the record in England".

One reason behind this misperception of the German football system is that the financial regulation of the Bundesliga (notably the first and second tiers of the football pyramid) is not the same as the regulation of league football as a whole. There have been no recorded insolvencies in the top division in Germany, but insolvencies are commonplace in the lower divisions. By the same token, there has only ever been one insolvency in the top division in England, but insolvencies have been common in the lower divisions. In Germany the top two divisions are

regulated by the DFL – essentially a cartel of the member clubs, while the third division is governed by the DFB, which is the governing body of the sport as a whole. Lower divisions are governed by regional football associations (Regional- und Landesverbände). Regulation in the DFB and the regional football associations has been less strict, and clubs at the lower levels are far more precarious financially. However, the system of promotion and relegation means that merely avoiding insolvency while playing in the top tiers does not mean that insolvency can always be avoided. We have identified 21 cases where teams that once played in one or both of the top two tiers have become insolvent after relegation to a lower tier. Moreover, insolvency has affected some of the great names in the history of German football. In 2003 VfB Leipzig, a founder member of the DFB and first champions of Germany in 1903, a club with 110 years of history, including frequent appearances in European competition in the days of the GDR, went bankrupt and was dissolved, to be reformed as 1. FC Lokomotive Leipzig. In 2005, KFC Uerdingen (Bayer 05 Uerdingen before 1995), semi-finalist of the UEFA Cup Winners' Cup 1985/1986 and first/second division club from 1971-1999, went through a plan insolvency processing.

3 Football system, reformations and insolvency regulations in Germany

3.1 The German football pyramid

Until 1962 all football players in Germany were in principle amateurs and leagues operated on a regional basis. In that year the Bundesliga was founded as a national professional league, initially with 16 teams, increased to 18 in 1965. In 1974 2. Bundesliga was founded, initially in two divisions, north and south, each with of 20 teams. In 1981 the two were combined into a single national division of 20 teams and in 2008 a national third division (3. Bundesliga) was added.

Below the Bundesliga there are regional divisions whose clubs can be promoted to the national level. These have been restructured a number of times, notably in 1994 and to a lesser

extent in 2000, 2008 and 2012. The main effect of the restructurings has been to reduce the number of teams operating at the second, third and fourth tiers of German football. This is illustrated in Table 1.

[Insert Table 1 here]

Although the total number of teams operating in the four top tiers rose between 1985 and 1992 from 582 to 700, the number has since fallen to 146. As the highest level of football has become more national in character, entailing greater travel related costs, the governing body has endeavoured to reduce the number of clubs which might struggle to meet this financial pressure.

Historically the governance of the entire system lay in the hands for the German Football Association (DFB). However, in 2000 the top two divisions created the German Football league (DFL e.V.) with considerable autonomy (while still retaining membership of the DFB, Wilkesmann (2011)). This reorganization was reminiscent of the English Premier League's secession from the English Football League in 1992. The DFL now took control of the club licensing system for clubs in the top two divisions, which had hitherto been operated under the auspices of the DFB. Thus currently the licensing system for the top two divisions is codified in the DFL statutes (Satzung and Ligastatut), the third professional division (3. Liga) is licensed by the DFB while teams in the semi-professional fourth and fifth leagues (Regionalliga and Oberliga) are under the supervision of the regional football associations (Landesverbände). For the first divisions, the media rights are marketed centrally (Gürtler, 2007; Runkel, 2011).

3.2 German insolvency proceeding

Until 1999, the German law of bankruptcy was called the Konkursordnung (KO). According to the KO, a firm that was unable to pay invoices due was declared to be insolvent. In consequence, the firm was liquidated and the remaining assets were sold to pay back the creditors. The Konkursordnung was replaced by the Insolvenzordnung (InsO) in 1999 for broadly

the same reasons as the Chapter XI bankruptcy law in the US was passed in 1978: to save businesses that are commercially viable following a debt restructuring, with a view to preserving employment and maintaining output.⁶ Under the new law the creditors of the firm can decide whether or not to approve an insolvency plan proceeding (§§ 217–269 InsO), allowing the firm to survive after a cut of the remaining debt.

In general, every organization (including non-profit community clubs (eingetragener Verein)) that is illiquid (§ 17 InsO), facing a liquidity crisis (§ 18 InsO) or heavily indebted (§ 19 InsO)⁷ have to inform the local court (§ 13 InsO) about their solvency within a period of three weeks (Declaration of insolvency, § 15 InsO). The firm or an outside creditor can make the declaration of insolvency (§§13 – 15 InsO). If the firm can fund the payment of outstanding invoices before the court has formally declared insolvency, the proposer of the insolvency declaration can annul the declaration (§13 InsO).

If the declaration is not annulled and the remaining assets of the firm are worth less than the expected costs of the proceeding, then the insolvency proceeding will be not opened and the firm will liquidated (§26 InsO). If there are sufficient assets then the insolvency proceeding is opened (§§27 – 30 InsO) and an external insolvency manager is announced by the local court (§56 InsO). Since 2012, the board of the firm itself can act as insolvency manager (§270 InsO). In due course the local court calls all creditors and the insolvency manager to a general meeting (§74 InsO), and the insolvency manager or the firm is instructed to draw up a plan to restructure the firm (§218 InsO). If the creditors accept the plan to restructure the firm (which often includes a debt write off), the firm can proceed to execute the plan (§§244-253 InsO). The temporary insolvency manager remains in charge until the insolvency plan is executed (§268 InsO).

⁶ The law was passed in 1994 but only came into force in 1999; the text of the law can be downloaded here: <http://www.gesetze-im-internet.de/inso/BJNR286600994.html#BJNR286600994BJNG000100000>. For a summary and comparison of German insolvency law with English law see Wolf (2015, chapter 3). For a general discussion of the principles underlying modern insolvency law see Finch (2009), chapters 2 and 6.

⁷ In case of “pure” negative equity (a frequent scenario in German football), there will be no insolvency opening as long as the debt can be repaid.

After a successful insolvency plan proceeding, the firm survives with reduced debt. If the creditor meeting rejects the insolvency plan presented by the insolvency manager, the remaining assets of the firm are disposed to pay out creditors and the firm will be liquidated (§231 InsO).

3.3 German professional football system and insolvency regulations

All German football organizations (irrespective of the precise formation such as e.V., GmbH or AG) are subject to the general insolvency law (InsO). However, German football law regulates the consequences of an insolvency with regard to the playing rights of the clubs. Before the season 2015/2016, an opening of an insolvency proceeding led automatically to a relegation to the next upper league in the following season. Clubs which were declared insolvent were deleted from the club register. In 2015, the DFB and the DFL changed the law with regard to insolvency proceedings: once an insolvency proceeding has been opened the club will only be punished by a nine point penalty by the end of the season. (§6 No. 6 DFB Spielordnung; §11 No. 5 DFL Ligastatut). As before, a club that is liquidated is eliminated from the football club register. However, a team (player, staff, coaches, youth teams) is permitted to re-enter the football system as a "successor club".

A large fraction of liquidated clubs has indeed been re-founded as a new club with a similar name. As well as 1. FC Lokomotive Leipzig mentioned above, examples include 1. FC Amberg (becoming FC Amberg) and SV Weingarten (becoming SV Weingarten 2007). These club "copies" often incorporated the former rosters, the former staff and even the former board members and resumed competition in the lowest division. In other cases, the new founded lower club merged with a club in a higher division to avoid starting from the bottom of the pyramid. Under the rules of the regional football association insolvent clubs that were re-founded are typically punished by relegation to the next division in the pyramid, rather than

being forced to re-enter in the lowest division (e.g. Torgelower SV Greif/ Torgelower FC Greif; FC Gütersloh/FC Gütersloh 2000; 1. FC Eintracht Bamberg/Eintracht Bamberg 2010).

A club that declares insolvency but annuls the declaration before the official insolvency proceeding is opened faces no penalties. We found that 16% of all declarations since 1996 were annulled after a few months, indicating that these clubs raised the necessary capital to end the liquidity crisis.⁸ The process following the initial declaration of insolvency is summarized in the flow chart (figure 1) below.

[Figure 1 here]

4 The causes of insolvency in professional football

Since 2009 the governing body of European football (UEFA) has operated a financial regulatory system for clubs playing in the competitions it organizes (primarily the UEFA Champions League and the UEFA Europa League). One of the stated aims of this regulation is “to introduce more discipline and rationality in club football finances” (UEFA, 2012, p. 2).

The perception that football clubs behave irrationally and irresponsibly because they lack a binding financial constraint is supported by evidence that stakeholders and public authorities are willing to inject new capital or to waive debt obligations in the face of financial collapse, described above. Bail-outs and refinancing of clubs has been commonplace throughout Europe, and economists have argued (Andreff, 2007; Stomr and Nielsen, 2012; Franck, 2014), that this situation is reminiscent of the soft budget constraint (SBC) theory of Kornai (1979).⁹

In this analysis clubs are willing to spend beyond their means because they know they will be bailed out, either by the government (local or national), by the fans, or by a wealthy

⁸ Getting official statistics on retrieved insolvencies declarations (on firm level) is very limited. However, for 2016 and die city of Duisburg, we were told, that only 4% of declarations were retrieved among all firm insolvencies, which makes the probability in football four times higher than in non-football industries.

⁹ An important difference, of course, is that the Soviet enterprises, which Kornai (1979) analyzed, produced little of any value and were not much liked; by contrast the local football club is deeply beloved, non-substitutional and system relevant for local communities. The situation can be compared (at a lower level) to financial injections into the banking sector (Dombret and Ebner, 2012).

benefactor. Clubs spend as much money as they can, as take up as much credit as they can, with a view to winning, and in the event of failure they collapse.

These critics also suggest that the problem is exacerbated by the “winner-take-all” nature of sporting competition (there can be only one champion). Such competitive processes can have the potential to lead to a kind of rat-race (Akerlof, 1976; Frank, Cook and Rosen, 1996), where everyone overinvests and this is often cited as a cause for concern, although it should also be noted that the quality of competition can also be increased by investment, and therefore from the perspective of fans this may not be a zero sum game.

One implication of the SBC theory is that every club should be driven to overspend, regardless of size. However, one might also expect that the extent of overspending will be greatest in the largest clubs, because these are clubs most likely to consider themselves “too big to fail”. Therefore the probability of insolvency should also be greatest among the largest clubs.

An alternative theory is proposed by Szymanski (2017). Football clubs operate in an intensely competitive environment. There are large numbers of clubs which compete in the market for playing talent, which has become global. Ability is to a significant degree observable because players perform regularly in a public environment. Because of this wages tend to reflect marginal revenue product, club performance (in terms of league position) tends to reflect player expenditures and economic profits are driven to zero.¹⁰

The promotion and relegation system adds a significant element of uncertainty to this environment. Relegation from one division to another entails a substantial loss of support and therefore revenue. Not only do clubs lose attendance, they are also likely to lose other sources of revenues such as TV rights and sponsorships (Schreyer et al., 2016). Hence it is rational to spend to one’s financial limit to avoid relegation, but in a stochastic environment adverse

¹⁰ Szymanski (2015) provides detailed evidence in support of these claims based primarily on financial accounts from English football. UEFA Club Licensing Benchmarking Reports provide supportive evidence across Europe, also using financial statements: on the link between resources and success see UEFA (2009), pp72-75, on profitability see UEFA (2015), chapter 11.

shocks will cause some clubs to be relegated anyway. Adverse shocks may affect both the production side (e.g. players get injured) and the demand side (e.g. fans are affected by an economic downturn, or a broadcast contract fails to be renewed). This is the context in which clubs may be pushed beyond their limit and into insolvency.

This theory predicts that insolvency should be more likely when clubs experience negative shocks, when their performance is declining, and when teams are relegated. We are able to use the data to examine whether it is consistent with the theory. Specifically, we can model the relationship between team performance and attendance and then test whether insolvency is more likely in the face of negative shocks and/or relegation.

5 Empirical Analysis

5.1 Data and descriptive statistics

A consistent difficulty encountered in analyzing German football is the absence of detailed financial data at the club level (in contrast to many other countries such as England, France, Italy, Spain; Peeters and Szymanski, 2014). However, we do know that, in common with other major European leagues, revenues of the Bundesliga have grown rapidly from €1.09 billion in the season 2003/2004 to €3.24 billion in the season 2015/2016, a compound average annual growth rate of 9.7%. (DFL, 2017).¹¹ This rapid growth is broadly in line with the experience of the other major European football leagues (Deloitte, 2016). Financial distress has therefore not been associated with general economic weakness, but rather strength.

As a first variable of interest, we were able to collect data on attendance. While fairly comprehensive attendance data is available for the top two tiers, we were only able to gather data on the third tier going back to 1988, and for the fourth tier only (partially) as far back as

¹¹ Frick and Prinz (2006) report, that in 1990 the average club revenue in the top division was only around €10 million.

1995. The first panel of figure 2 shows the aggregate seasonal attendance for each tier, and the second panel shows the annual average attendance per club for each league. We take seasonal attendance to be closest to a financial indicator for the clubs, since annual attendance will be closely correlated with annual ticket revenue.

[Figure 2 here]

As in most countries, there are large differences between the tiers. In 2016, the ratio of average seasonal attendance per club between the four tiers were 35:15:6:1. It is easy to imagine that relegation by a single tier would be likely to reduce revenues significantly. It is not unknown for clubs to be relegated in successive seasons (i.e. to drop by two tiers in a little over a year). Figure 2 illustrates the rising trend of recent years across all levels, though without, of course, capturing the effects of rising ticket prices, broadcast revenues, sponsorship and merchandising. While aggregate attendance in bottom two tiers appears stable, given that the number of clubs has fallen the average attendance per club has risen sharply.

Second, we gathered information on declared insolvencies of German football clubs, while playing in one of the top five leagues since 1995. The data is summarized in Table 2.

[Table 2 here]

Over this 22-year period there were 109 declarations of insolvency, just under five per season, involving 91 different clubs (among the multiple offenders three clubs declared insolvency three times). In 19 cases the insolvency process was halted since the club was able to meet its outstanding liabilities before the court opened the insolvency procedure, leaving 87 cases (four per season) where the court opened the insolvency procedure. We know of 55 cases where an insolvency plan was executed, writing off some debt and restoring the club to solvency. However, in 32 cases (36%) the club was liquidated. However, in two thirds of liquidation cases (20) a successor club was created. . Between 1992 and 2014 the number of insolvencies observed in Germany in the top three divisions was thirty, compared to forty and thirty-

nine in France and England respectively over the same period for the analogous divisions (Scelles et al., 2016; Szymanski, 2017). Thus, while the incidence of insolvency in Germany is somewhat lower, it is far from justifying a reputation for being immune against financial collapses.

Clearly insolvency is a frequent event in German football. Figure 3 illustrates both the absolute and relative frequency of these events among the top five tiers. In our sample period roughly 1% of clubs per year entered insolvency. While insolvencies occur in every year of our data, there was a wave of insolvencies that occurred around 2001-2003. This can to a significant extent be attributed to the financial failure of Kinowelt AG, a company that had multiple sponsorships with German football clubs. Its insolvency in 2001 caused a liquidity crisis and financial failure for numerous clubs. There is also some evidence of an increase in insolvencies after 2008, when the league system was reorganized. In 2008 the 3. Liga was created as a national league and the number of clubs participating in the top four tiers was reduced significantly from 216 to 110. To facilitate this reorganization an exceptionally large number of clubs had to be relegated, which was likely to create financial distress.

[Figure 3 here]

We focus our analysis on the top four tiers since we do not have attendance data for the fifth tier. Table 3 reports the tier that the club was playing in when declared insolvent and also the highest tier that it had ever played in. Table 4 displays all clubs with an insolvency declaration since 1994/1995.

[Table 3 here]

[Table 4 here]

As argued above, if the SBC explanation of insolvency were valid, then we might expect to observe insolvency more frequently among the larger clubs, whereas in fact we only tend to observe insolvencies in the lower tiers. No club has ever entered insolvency while playing in

the top division and only two club have entered insolvency since 1995 while in the second division.¹²

Our argument is that negative shocks, such as relegation are more likely to explain insolvency, and that the most likely source of a negative shock is relegation. Thus we should expect see clubs in lower tiers becoming insolvent having spent time in a higher tier. As Table 3 illustrates, there are 9 cases of insolvency of clubs that had once played in the top division, and 31 cases involving clubs that once played in the second tier. The pattern in Table 3 is in fact very similar to the pattern we observe in England (Szymanski, 2017) and the pattern we observe in France (Scelles et al., 2016).

Relegation is itself a function of league rank. We can show that insolvency is associated with a fall in league rank on a scale which is likely to lead to relegation. Figure 4 shows the average league rank of clubs in the ten years leading up to insolvency and 7 years after. In the period seven to four years prior to insolvency average rank rises (i.e. league position deteriorates) slightly, and this rises sharply in the three years immediately prior to insolvency.

[Figure 4 here]

Given that regional leagues in the fourth and fifth tier compete in parallel (as did the third tier prior to 2008), we measured rank in two ways. Rank and league position are identical in the top division. First place in the second tier is given a rank of 19, second place a rank of 20, and so on. Then, suppose there are two regional leagues in the third tier (which was the case between 2001 and 2008) then the first place in each tier is labeled 37th, the second places are 39th, and so on. Rank measured on this basis is represented by the solid line in figure 4. The dashed line represents a measure of rank in which clubs in different leagues of the same tier are simply given their league position plus the sum of number of ranks calculated on this basis in the senior divisions. Both representations tell a very clear story. Over the ten years prior to insolvency the

¹² Blau-Weiß 90 Berlin also entered insolvency in 1991/92 while participating in 2.Bundesliga.

clubs experienced a decline in league rank which is relatively modest and steady up to three years before insolvency, when it becomes precipitous. The decline in the last three seasons is such that it will almost inevitably involve insolvency.

This narrative is also borne out by the attendance data. Teams lose support as performance deteriorates, and this effect is particularly marked after relegation. The path of attendance leading up to insolvency is shown in figure 5. 10 years prior to insolvency attendance averages around 4,000 and this appears relatively stable up to 5 years before insolvency (although this in itself may represent underperformance given the rising trend of attendance illustrated in figure 2). Then from around five seasons prior to insolvency attendance collapses and has almost halved by the insolvency date. Clearly these clubs are likely to have experience financial distress as a result of falling revenues. Once again, these patterns are very similar to those found in Szymanski (2017, figure 4) and Scelles et al. (2016, figure 2-5).

[Figure 5 here]

5.2 Model Estimation and Results

In our preferred model insolvency arises as a function of adverse shocks to team performance on the field. Weaker performance leads to falling demand, and in the case of relegation a sharp drop in revenues, creating liquidity pressures which can ultimately result in insolvency. Hence we begin by modelling the relationship between team performance and attendance, and then use the residuals from that relationship as our estimate of shocks.

Table 4 provides several different versions of model. Our dependent variable is the league rank of a team in a given season, where rank is treated as a continuous variable across all divisions (see figure 4 above).

[Table 5 here]

We transform rank into the negative log odds of rank¹³ and report five different specifications. Column (1) includes only the lagged dependent variable is close to unity when no other controls are included, but as shown in columns (2) to (5), it falls significantly once controls are added. Lagged annual attendance is positive and significant, which seems plausible given that higher attendance in the previous season should increase resources available to invest in playing talent in the current season. Promotion and relegation in the previous season are highly significant as are divisional dummies. Note that these are all predictable effects which we expect clubs to be able to plan for rationally. Shocks are by construction unpredictable.

We take the shocks from our first stage model and use them to model insolvency. For the second stage regression we prefer to use the residuals from column (5) given that among models (2)-(5) it has the highest explanatory power and all variables are significant. The second stage regressions are reported in Table 6.

[Table 6 here]

Column (1) reports a linear probability model, column (2) a probit regression and column (3) a linear model with fixed effects. The difference between columns (1) and (2) is that in the first column promotion and relegation dummies are included but in the second column they are excluded. Apart from the residuals we include divisional dummies and dummies for the effect of the Kinowelt bankruptcy on sponsored clubs and the 2008 league reforms, each of which we argued above were known events that raised the probability of insolvency. The divisional effects vary in the different specifications. Membership in the second tier reduces the likelihood of relegation in the probit and fixed effects models but is insignificant at the 5% level in the linear probability model, while membership of the third division appears to increase the probability of insolvency in probit model, reduce it in the linear model and have no effect in the fixed

¹³ This provides an easier interpretation and can be justified on the grounds that the transformation enhances the marginal difference between ranks as you rise up the leagues, reflecting fan preferences (the difference between 1st and 2nd is much greater than the difference between 10th and 11th)

effects model. The Kinowelt and 2008 Reform variables are positive and significant for the first two models but insignificant in the fixed effects model. It seems reasonable to think that many of the variations in club performance are in fact captured by the fixed effects, which reflect idiosyncratic differences making some clubs more susceptible to insolvency than others.

It is therefore notable that the main variable of interest, the residuals, are negative and highly significant in all three specifications. The residuals are summed from the previous two seasons- and hence they reflect the cumulative effect of good or bad luck. Positive residuals significantly reduce the probability of insolvency, negative residuals significantly increase the probability of insolvency.

6. Conclusion

This paper challenges the widespread view that German football is characterized by financial stability and that German clubs are notably less susceptible to episodes of financial distress than clubs in other countries. We find that insolvency has been a persistent problem for many years and that the causes of insolvency are similar to those found in studies of football club insolvency on other countries.

Specifically, we have identified 109 cases where football clubs among the top five tiers declared insolvency since 1994/1995, including 32 cases where a club was liquidated. To be sure, this pattern of insolvency has only affected clubs while playing at a level below the top two tiers. But this is a pattern which is broadly comparable to that found for England (Szymanski, 2017) and France (Scelles et al., 2016), both in terms of the scale of the problem and incidence.

We have also found that the causes of insolvency can be traced back to the same phenomena as were found in those papers, namely adverse, unpredictable shocks in the relationship between team performance and attendance/revenues/resources. This in turn can be attributed to

the severe consequences that follow from team underperformance. Underperforming clubs suffer from deteriorating league ranks, which can lead quickly to relegation to a lower division, which can in turn provoke a severe liquidity crisis. This account differs from those we often see in the which attribute failure to irrationality. Our data supports a more logical explanation.

While this study, together with those complementary studies of England and France mentioned above, suggests that there is a clear explanation of insolvency firmly rooted in the data and economic theory, there is no doubt scope for further work. In particular, the lack of financial data for a large sample of clubs such as is available for English clubs does suggest that future work would do well to extend the analysis in the German case if and when the relevant data becomes available.

Insolvency in football is an important issue since there has been strong support for financial regulation of football as exemplified by the Financial Fair Play regulations adopted by UEFA in 2009. While it is claimed that these regulations will impose “rationality and discipline”, our research suggests that these regulations will have little effect, since they do not address the underlying source of the problem. If insolvency really is such a terrible problem, then one solution would be to abolish or restrict the system of promotion and relegation which is, we argue, the true source of financial instability. Indeed, some clubs have argued for such changes, but we believe that this was motivated more by a desire to enhance profitability than to increase stability. We think that financial instability is a necessary corollary of a highly competitive market, and that competition benefits the fans. Moreover, as we have pointed out, there is an added benefit in football, in that most clubs never really disappear if the business is liquidated – the fans just revive the club under a different name. During the period covered by this study football has grown immensely in popularity in Germany, in the rest of Europe, and in the rest of the World. This growth has been aided by the competitiveness of the football market, supported by the system of promotion and relegation. From our perspective, financial instability is a feature, not a bug.

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Table 1

Composition of the top tier German Football system since 1984/1985

Season	1st Division		2nd Division		3rd Division		4th Division		Sum Teams
	Name	Teams	Name	Teams	Name	Teams	Name	Teams	
2016/2017	1. BL	18	2. BL	18	3. Liga	20	RL	90	146
2015/2016	1. BL	18	2. BL	18	3. Liga	20	RL	90	146
2014/2015	1. BL	18	2. BL	18	3. Liga	20	RL	90	146
2013/2014	1. BL	18	2. BL	18	3. Liga	20	RL	90	146
2012/2013	1. BL	18	2. BL	18	3. Liga	20	RL	90	146
2011/2012	1. BL	18	2. BL	18	3. Liga	20	RL	54	110
2010/2011	1. BL	18	2. BL	18	3. Liga	20	RL	54	110
2009/2010	1. BL	18	2. BL	18	3. Liga	20	RL	54	110
2008/2009	1. BL	18	2. BL	18	3. Liga	20	RL	54	110
2007/2008	1. BL	18	2. BL	18	RL	36	OL	144	216
2006/2007	1. BL	18	2. BL	18	RL	36	OL	144	216
2005/2006	1. BL	18	2. BL	18	RL	36	OL	144	216
2004/2005	1. BL	18	2. BL	18	RL	36	OL	144	216
2003/2004	1. BL	18	2. BL	18	RL	36	OL	180	252
2002/2003	1. BL	18	2. BL	18	RL	36	OL	180	252
2001/2002	1. BL	18	2. BL	18	RL	36	OL	180	252
2000/2001	1. BL	18	2. BL	18	RL	36	OL	180	252
1999/2000	1. BL	18	2. BL	18	RL	72	OL	160	268
1998/1999	1. BL	18	2. BL	18	RL	72	OL	160	268
1997/1998	1. BL	18	2. BL	18	RL	72	OL	160	268
1996/1997	1. BL	18	2. BL	18	RL	72	OL	160	268
1995/1996	1. BL	18	2. BL	18	RL	72	OL	160	268
1994/1995	1. BL	18	2. BL	18	RL	72	OL	160	268
1993/1994	1. BL	18	2. BL	20	OL	160	VL	496	694
1992/1993	1. BL	18	2. BL	24	OL	160	VL	496	698
1991/1992	1. BL	20	2. BL	24	OL	160	VL	496	700
1990/1991	1. BL	18	2. BL	20	OL	128	VL	496	662
1989/1990	1. BL	18	2. BL	20	OL	128	VL	416	582
1988/1989	1. BL	18	2. BL	20	OL	128	VL	416	582
1987/1988	1. BL	18	2. BL	20	OL	128	VL	416	582
1986/1987	1. BL	18	2. BL	20	OL	128	VL	416	582
1985/1986	1. BL	18	2. BL	20	OL	128	VL	416	582
1984/1985	1. BL	18	2. BL	20	OL	128	VL	416	582

*Note: 1. BL = 1. Bundesliga, 2.BL = 2. Bundesliga; RL = Regionalliga; OL = Oberliga; VL = Verbandsliga.
Season with restructure are highlighted.*

Table 2

Insolvency statistic of German top tier football clubs (1995/1996 to 2016/2017)

Division	Declaration	Annulled	Plan	Liquidation	Procedure still open at end 2017
1	0	0	0	0	0
2	2	0	2	0	0
3	26	3	22	1	0
4	55	10	24	19	2
5	26	6	7	12	1
Sum	109	19	55	32	3

Table 3
Insolvency declarations while in the top five tiers since 1994/1995

Tier	Tier that club played in at date of insolvency	Highest tier achieved before entering insolvency (1994/95-2016/17)
1	0	9
2	2	31
3	26	35
4	55	33
5	26	1

Table 4

Overview on clubs with a declaration of insolvency since 1994/1995

KFC Uerdingen (3x)	1. FC Schweinfurt 05	FC Stahl Riesa 98	SV Rotthausen
SC Fortuna Köln (3x)	1. FC Union Solingen	FSV 1990 Velten	SpVgg Bayreuth
SSV Ulm 1846 (3x)	1. FC Wernigerode	FSV Frankfurt	SpVgg Erkenschwick
1. FC Eschborn (2x)	1. SC Göttingen 05	FSV Salmrohr	SpVgg Weiden 2010
1. FC Lok Stendal (2x)	1. SV Gera	FSV Wacker 90 Nordhausen	Torgelower SV Greif
Alemannia Aachen (2x)	Armina Hannover	FV 1909 Weinheim	Türk Gücü München
Borussia Neunkirchen (2x)	BSV Kickers Emden	FV Zeulenroda	Türkiyemspor Berlin
FC Gütersloh (2x)	BSV Stahl Brandenburg	Greifswalder SC	VFC Plauen
FC Sachsen Leipzig (2x)	BW Post Recklinghausen	Lüneburger SK	VFR Aalen
FC Wegberg-Beeck 1920 (2x)	Berliner FC Dynamo	RW Ahlen	VfB Helmbrechts
FSV Zwickau (2x)	Bonner SC	Ratingen 04/ 19	VfB Oldenburg
KSV Hessen Kassel (2x)	Darmstadt 98	Rheydter SV	VfR Mannheim
Kickers Offenbach (2x)	Delmenhorster SC	Rot-Weiss Essen	Viktoria Aschaffenburg
Sportfreunde Siegen (2x)	Dresdner SC Fußball 98	SC 1910 Jülich	Wuppertaler SV
Tennis Borussia Berlin (2x)	ETB Schwarz-Weiß Essen	SC Weismain	Yurdumspor Köln
TuS Celle FC (2x)	Eintracht Bamberg 2010	SSV Jahn Regensburg	
VfB Leipzig (2x)	Eintracht Nordhorn	SSV Reutlingen 05	
VfB Lübeck (2x)	Eintracht Trier	SV Babelsberg 03	
VfR Neumünster 1910 (2x)	Eisenhüttenstädter FC Stahl	SV Baesweiler 09	
1. FC Eintracht Bamberg	FC 08 Homburg	SV Meppen	
1. FC Gera 03	FC Anhalt Dessau	SV Prüm	
1. FC Magdeburg	FC Lausitz Hoyerswerda	SV Waldhof Mannheim	
1. FC Pforzheim	FC Oberneuland	SV Weingarten	
1. FC Schwedt	FC Rot-Weiß Erfurt	SV Wilhelmshaven	

Table 5
Performance regression (1995-2017)

<i>Log Odds of rank</i>	(1)	(2)	(3)	(4)	(5)
<i>Log Odds of rank</i> _{t-1}	0.991*** (0.00659)	0.794*** (0.0188)	0.797*** (0.0184)	0.434*** (0.0485)	0.536*** (0.0529)
Annual attendance _{t-1}		0.194*** (0.0155)	0.194*** (0.0151)	0.0751*** (0.0119)	0.110*** (0.0115)
Promotion _{t-1}				-0.830*** (0.0544)	-0.599*** (0.0748)
Relegation _{t-1}				-1.293*** (0.0797)	-0.908*** (0.119)
2.division				-2.079*** (0.128)	-1.495*** (0.184)
3.division			0.576*** (0.0321)		0.265*** (0.0445)
4.division			-0.579*** (0.0344)		-0.300*** (0.0520)
Constant	-0.125*** (0.00959)	-1.721*** (0.129)	-1.705*** (0.125)	0.463*** (0.115)	-0.155 (0.153)
Observations	3,351	3,009	3,009	3,009	3,009
R-squared	0.836	0.851	0.875	0.881	0.884

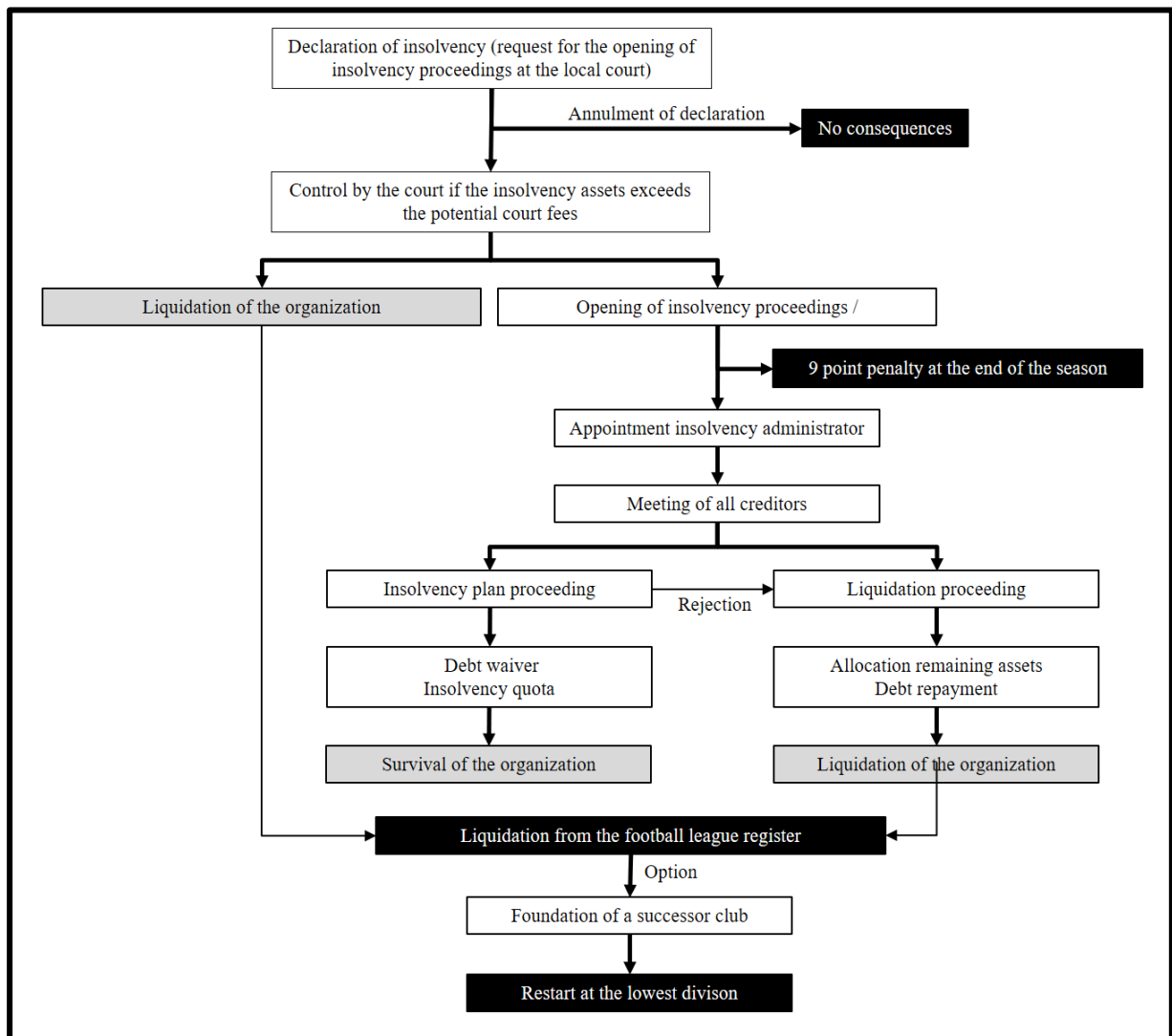
*Note: Robust standard clustered at club level, *** p<0.01, ** p<0.05, * p<0.1*

Table 6
Insolvency probability regression

<i>Insolvency</i>	LPM	Probit	FE
Residuals	-0.0428*** (0.00827)	-0.792*** (0.103)	-0.0445*** (0.00917)
2.division	0.133* (0.0686)	-0.729*** (0.262)	-0.0209*** (0.00536)
3.division	-0.0428*** (0.00827)	0.305** (0.128)	0.0114 (0.0118)
4.division	-0.00439 (0.00524)		5.47e-05 (0.0161)
Kinowelt	0.0367*** (0.00895)	0.845*** (0.260)	0.0582 (0.0382)
2008 Reform	0.0269*** (0.00640)	0.804*** (0.247)	0.124 (0.0789)
Constant	0.00612 (0.00432)	-2.125*** (0.101)	0.0306*** (0.00913)
Observations	2,626	2,231	2,626
R-squared	0.051		0.042

*Note: Robust standard clustered at club level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Residuals for FE models are results from a FE regression at the first stage.*

Figure 1
Insolvency procedure in German football



Note: Black text fields indicate consequences within the football system.

Figure 2
 Aggregate annual attendance and average annual attendance per club by tier

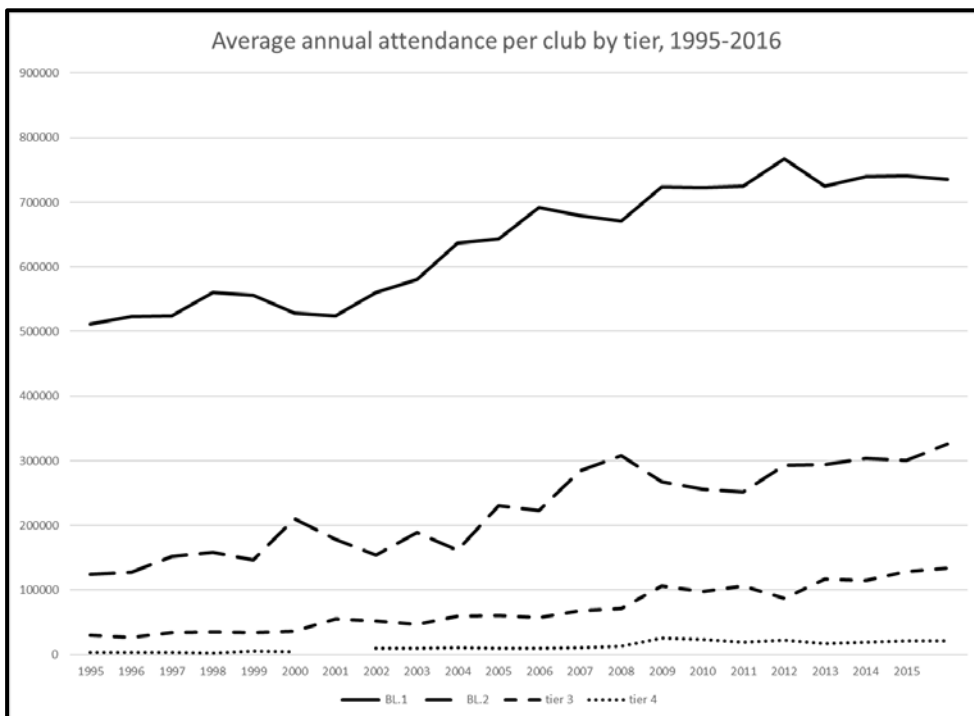
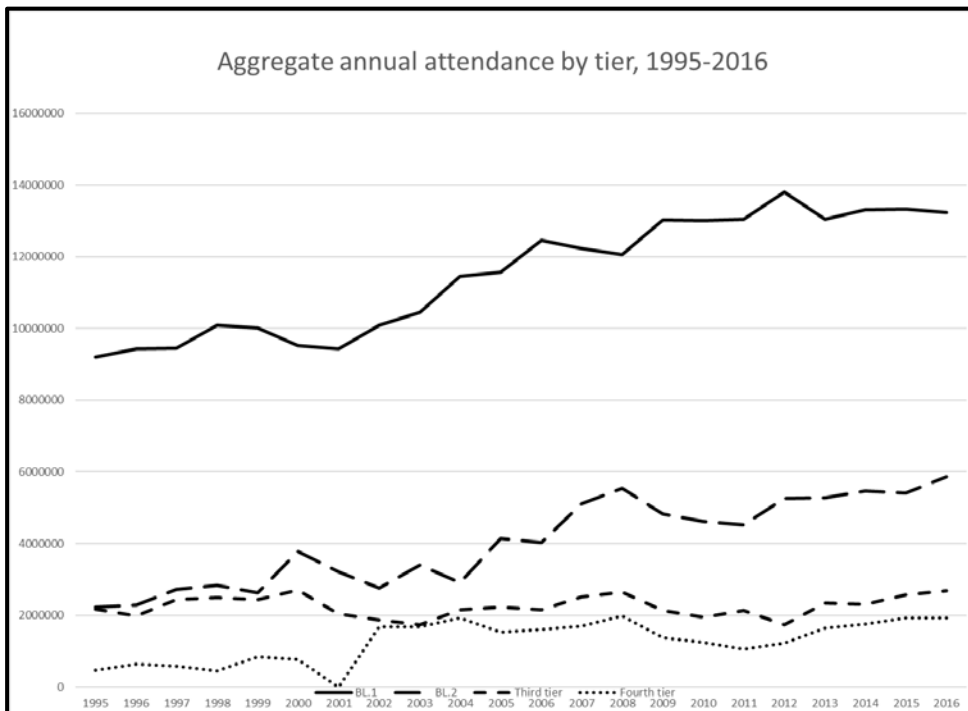


Figure 3
Absolute and proportional insolvencies (1995/1996 to 2016/2017)

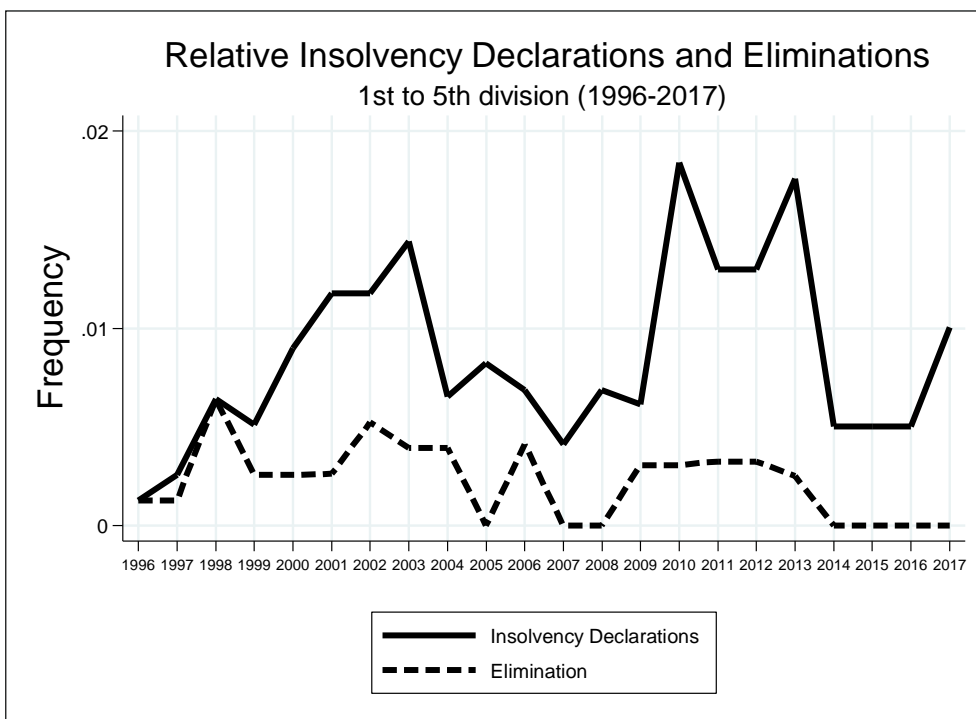
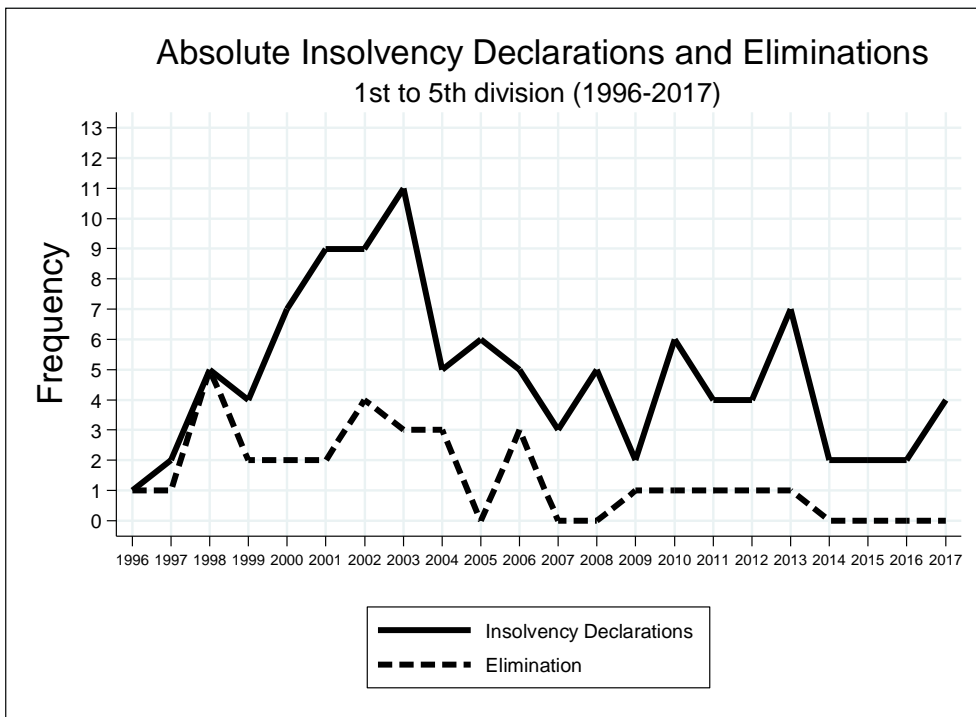


Figure 4
League rank of clubs before and after insolvency

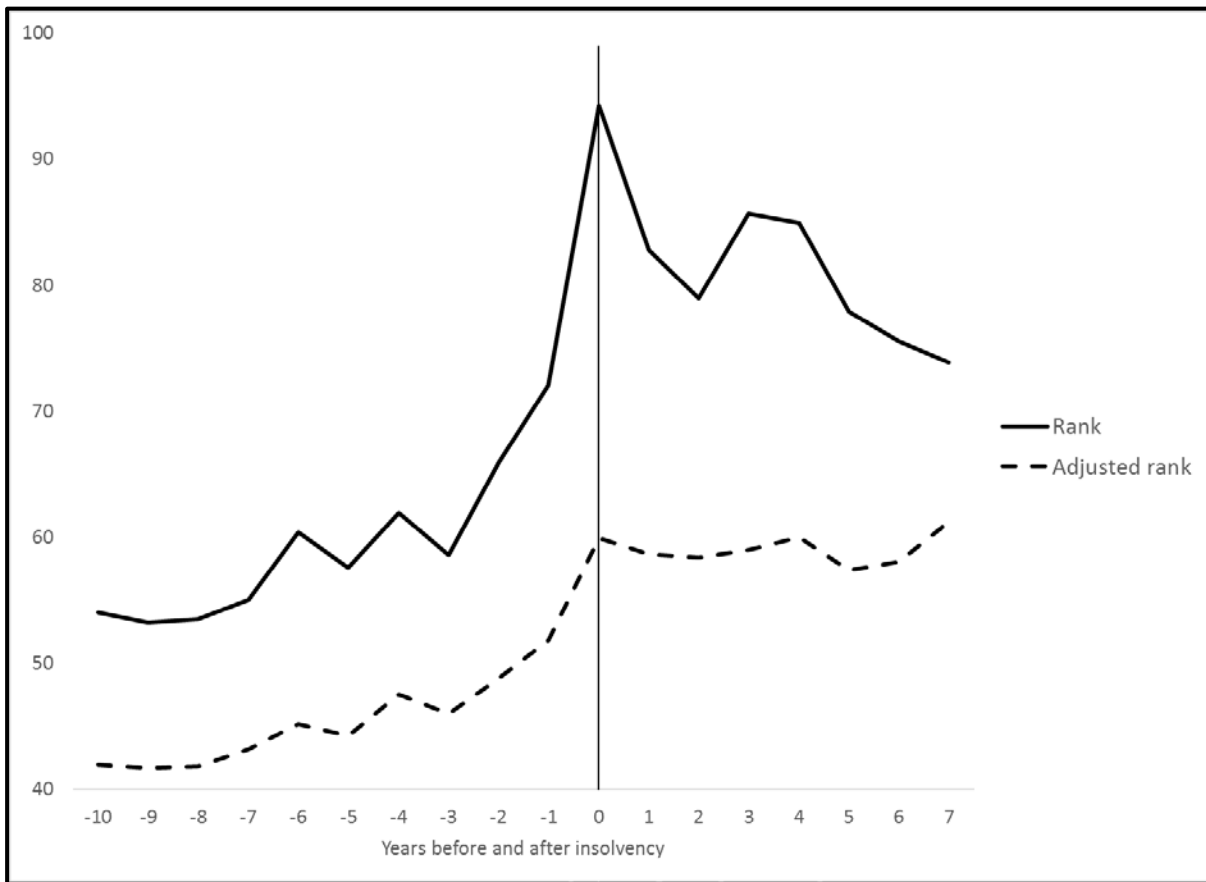


Figure 5
Average attendance before and after insolvency

