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**Executive Pay Regulation: What Regulators, Shareholders, and
Managers Can Learn from Major Sports Leagues**

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Abstract

Executive pay regulation is widely discussed as a measure to reduce financial mismanagement in corporations. We show that the professional team sports industry, the only industry with substantial experience in the regulation of compensation arrangements, provides valuable insights for the regulation of executive pay. Based on the experience from professional sports leagues, we develop implications for the corporate sector regarding the establishment and enforcement of executive pay regulation as well as the level, structure, and rigidity of such regulatory measures.

Keywords: Salary Caps, Executive Compensation, Corporate Governance, Financial Crisis, Financial Regulation

JEL Classification: G01, G38, K23, M48, M52

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I. INTRODUCTION

The year 2007 marked the beginning of the worst financial crisis since the Great Depression. Most of the world's largest banks were on the verge of bankruptcy and survived only due to unprecedented bailout measures. Currently, regulators, shareholders, and managers are searching for measures to avoid such a crisis in the future. One of the most prominent proposals is the introduction of salary caps for corporate executives. The European Union has introduced caps on bankers' bonuses, which will be in effect starting in 2011. The US House of Representatives has ordered regulators to set compensation rules, just as the Federal Reserve is pushing for a modification of top executive compensation, especially in the banking sector.

The objective of executive pay arrangements is the alignment of shareholder and executive interests (Jensen & Murphy (1990), Bebchuk & Fried (2003)). Research focuses on executive compensation as an instrument to overcome agency problems (for surveys of the vast number of contributions, see Gomez-Mejia & Wiseman (1997), Murphy (1999), Core, Guay & Larcker (2003), and Devers et al. (2007)). The recent financial crisis and the related bailout measures suggest that discussion of executive compensation should also include the eventual consequences of firm behavior on taxpayers and society. Potential instruments to moderate the relationship between executives, shareholders, and taxpayers, e.g., pay limits or taxes on excessive compensation, have not received much attention from research (see Bebchuk & Spamann (2010) and Faulkender, Kadyrzhanova, Prabhala & Senbet (2010), for two of the few examples). Although executive pay played an important role in the recent financial crisis, academic research has not analyzed the desired attributes, mechanisms, and implementation issues of pay regulation in corporations so far.

The scarce research on executive pay regulation yields few implications for academic research as well as for implementation in practice. Professional sports leagues, with their experience in determining, implementing and enforcing salary caps and luxury taxes, are a unique resource for deriving insights for the corporate sector. In this paper, we illustrate what regulators, shareholders and managers can learn from pay regulation in major sports leagues. We analyze regulation through salary caps and luxury taxes in professional sports leagues and derive implications for executive pay regulation. In sports, salary caps, the maximum amount a team can spend on player salaries, and luxury taxes, taxes on excess salary payments, have a long tradition. Examples of sports leagues with salary regulation are numerous: the National

Basketball Association (NBA), the National Football League (NFL) and the National Hockey League (NHL) each have a salary cap. Major League Baseball (MLB), as well as the NBA, have implemented a luxury tax.

In our analysis we employ the analogy between professional team sports and corporations, where we consider team owners and shareholders, and star athletes and corporate executives as analogues. We show that self-regulation initiatives can improve financial stability of national economies but that regulatory monitoring and enforcement are necessary. Additionally, international coordination of regulation efforts are vital to mitigate problems with the effectiveness of pay regulation arising in open markets. Our analysis further yields that collective bargaining reduces managerial power in the pay-setting process and mitigates the necessity for government intervention. We also establish that pay regulation contingent on performance in combination with retained compensation is the more effective regulatory model compared to an absolute cap. We further show that pay regulation of collectives yields a trade-off between the desired regulatory effect and firms' autonomy of setting individual compensation. A comparison of salary caps and luxury taxes shows that luxury taxes can be an advantageous alternative to salary caps. Luxury taxes reduce the net benefit of excessive compensation. Additionally, they lead to less distortions than salary caps and generate resources for redistribution. Contrasting hard and soft regulation, we find that soft regulation is less effective in limiting compensation but incentivizes continuity in performance. Finally, we argue that the enforcement of pay regulation is just as important in the corporate world as in the sports sector, and requires analogous degrees of control and penalties.

The remainder of this article is structured as follows. Section II introduces the peculiar economics of professional team sports and outlines the major differences between the professional team sports industry and traditional sectors. In Section III, we approach selected regulatory issues in executive compensation. We consider the insights gained from experience in professional team sports leagues to discuss fundamental questions related to the introduction and workings of salary caps and luxury taxes on executive compensation. Section IV concludes.

II. SALARY REGULATION IN PROFESSIONAL TEAM SPORTS

The professional team sports industry differs from traditional business sectors in a number of ways. Two particular economic peculiarities of professional team sports have led to the regulation of player salaries: competitive imbalance and the ruinous escalation of player salaries (Fort & Quirk (1995), Szymanski (2003)). First, there is a difference in professional sports between athletic and economic competition. From an athletic perspective, opposing teams are competitors. From an economic perspective, however, they are complementors. A single team cannot produce a marketable product. It needs at least one opponent. In team sports, leagues aggregate a number of teams and matches to produce a championship race. Fans prefer to attend matches with an uncertain outcome and enjoy close championship races (See Rottenberg (1956), Szymanski (2001), Borland & MacDonald (2003), Fort & Lee (2007)). Unlike enterprises such as General Electric, Wal-Mart, or Microsoft, which benefit from weak competitors in their respective industries, the New York Yankees, the Los Angeles Lakers, and Real Madrid need strong competitors to maximize their revenues.

A further economic peculiarity of professional team sports is the associative character of competition. No club can improve its position in the ranks without simultaneously worsening the position of at least one other team. The position of a team in the ranks is closely related to the team's financial success because teams with a better position receive more attention from fans, the media, sponsors, etc. The rank-order contest between teams may result in a rat race (Akerlof (1976)). As Whitney (1993) shows, teams tend to overbid each other for playing talent until they are close to bankruptcy. Recent developments in club finance in European football support this hypothesis. Many clubs are facing financial ruin after gambling on spiraling wages (Arnaut (2006), Dietl & Franck (2007), Deloitte & Touche (2009)).

Salary caps and luxury taxes, which are a surcharge on the part of a team's payroll that exceeds a salary threshold, emerged in the US major leagues with the introduction of free agency and were installed as a counterforce to free player movement (Fort & Quirk (1995), Dietl, Lang & Rathke (2010a)).¹ The definition of salary caps and luxury taxes in collective bargaining agreements leads to an exemption of these measures from antitrust action. Despite this exemption, major

1. The reserve clause was introduced in baseball in 1887 and gave club owners an exclusive option to unilaterally renew the annual contracts of their players, binding them to their clubs until release, retirement or trade. In contrast, "free agents" are players for whom no compensation is required and/or the original team has no matching rights. Therefore, free agents can freely offer their services to other teams.

sports leagues are often considered as profit-maximizing cartels, where pay regulation transfers rents from players to owners.

Currently, all four North American major team sports leagues have a salary cap and/or luxury tax. The NBA in 1983 became the first league to introduce a salary cap and has a salary cap of US\$ 57.7 million for the 2009/10 season. This cap limits the amount of money a team may spend on player salaries. In recent years, the salary cap has increased proportionally to the increase in the NBA's revenues. The NBA salary cap is a so-called "soft" cap, meaning that in contrast to a "hard" cap, there are several exceptions that allow teams to exceed the salary cap to sign players. These exceptions are mainly designed to enable teams to retain popular players. In 1999, the NBA also introduced a luxury tax system for those teams with an average team payroll exceeding the salary cap by a predefined amount. These teams have to pay a 100% tax to the league for each dollar that their payroll exceeds the tax level. In the NFL, the "hard" salary cap in 2009 was US\$ 128 million per team. The NHL operates with a hard salary cap such that each team has to spend less than US\$ 56.8 million on player salaries in the 2009/10 season. The MLB does not have a salary cap. However, Major League Baseball became the first league to introduce a luxury tax in 1996 as part of its collective bargaining agreement. The threshold at which the luxury tax accrues was US\$ 162 million per team in the 2009 season. It is important to note that there is significant heterogeneity between the major leagues regarding the design of salary caps (individual caps, rookie caps, etc.; for a comprehensive overview see, e.g., Kaplan, 2004).

There is wide agreement in the literature that salary caps and luxury taxes improve competitive balance in sports leagues because they prevent wealthy clubs with high market potential from bidding the full marginal value for additional talent (Fort & Quirk (1995), Rosen & Sanderson (2001)). This effect allows less wealthy, small-market clubs to retain star players. Additionally, salary caps can enhance social welfare when they limit large teams' spending (Dietl, Lang & Rathke (2009)). Moreover, a salary cap balances the salary distribution between players and increases club profits (Késenne (2000)). The welfare effect of luxury taxes is positive because league quality increases as a result of the combination of luxury taxes and redistribution of luxury tax proceeds (Dietl, Lang & Werner (2010b)). However, teams have incentives to circumvent regulation through salary caps and luxury taxes, therefore monitoring and enforcement activities are necessary (Fort & Quirk (1995), Dobson & Goddard (2001)).

III. INSIGHTS ON PAY REGULATION FROM MAJOR SPORTS LEAGUES

This article illustrates regulation practices in the professional team sports industry and derives insights for the corporate sector. We have shown how the necessity for regulation in professional team sports comes from two peculiarities of the sports sector: the preference for balanced competition and the consequences of a rank-order tournament. It is important to note that the corporate sector does not share these peculiarities. Competitors in a sector, for example finance companies, do not prefer balanced competition but want to outperform their competitors. Only on very few occasions, banks are also complementors. For example, liquid financial institutions have incentives to support their competitors, for instance by private bailouts, to avoid contagion from illiquid banks (Leitner (2005)). In general, however, a bank prefers weak competitors. The rank-order tournament observed in sports leagues does not exist in the same form in the corporate sector. Firms who outperform their competitors do not harm direct competitors to an analogous degree as it is the case in sports leagues.

These observations show that the rationales for pay regulation in major sports leagues do not exist in other industries. Consequently, the analysis of professional team sports cannot resolve the controversy over the need for executive pay regulation. Beyond this limitation, however, major sports leagues can offer valuable insights into what characterizes effective regulation of compensation. We therefore analyze regulation practices in major sports leagues and point out potential implications of these practices for the corporate sector.

1. (Self-)Imposed rules ensure the common benefit of competitors

Consider the following anecdote of an Englishman observing the process of riverboat towing in 19th century China. At that time, wooden boats were used to carry natural resources from inland China downstream to large coastal cities. After unloading, the empty boats were pulled back upstream by a group of men from the riverbank using a large tow. The Englishman was surprised when he saw that the men were whipped whenever they slacked down in their towing effort. He was shocked, however, when he learned that the men pulling the boat actually were the owners of the boat and had agreed to hire a monitor to whip them whenever necessary (Cheung (1983)).

Owners of professional sports teams face a similar dilemma as the riverboat towers. The owners profit from fan attention and to generate and maintain interest in sports competition, they want to ensure balanced competition. Consequently, different teams' payrolls and the resulting talent levels should be similar. Apart from this collective objective, individual team owners profit from a high league rank of their team. Because of the rank-order contest in professional team sports, the threat of an arms race emerges. So while the collective of club owners prefers balanced competition, each individual club owner tries to hire more talent by increasing his/her team's payroll in an effort to move up in the ranking. In the end, all owners end up with higher payrolls without improving their individual ranks. Like the Chinese riverboat towers, club owners are aware of the dangers abandoning common objectives and impose restrictions on themselves, for example the regulation of players' salaries (Fort & Quirk (1995)). They are also aware that each owner has an incentive to circumvent these payroll restrictions. Consequently, they also hire a monitor, the league authority, to ensure that the restrictions will be enforced (Franck (2003)).

Major sports leagues have reacted to the awareness that their business model can only be successful in the long run if they maintain self-imposed restrictions. In contrast to the corporate sector, the closed structure of major sports leagues additionally favors the effectiveness of self-regulation. Major sports leagues are focused on a small, homogeneous geographic region and team composition within a league is very stable. The coordinated self-regulation of teams in major sports leagues leads to financial stability as well as solid rents for owners and players (Fort (2003)). Teams understand that the collective discipline of a number of parties with similar interests is necessary to provide a basis for this successful coordination and therefore are willing to yield some of their autonomy.²

Additionally, professional sports teams are in a unique position with respect to employment opportunities for star athletes. No sports league (in the disciplines of American football, baseball, basketball, and ice hockey) outside North America can compete with the major leagues financially and with respect to public attention. Consequently, star players do not have significant outside options. LeBron James of the Miami Heat cannot simply leave the NBA and join another league without suffering major income losses. Teams outside the NBA cannot offer the same level of

2. For an analysis of potential anticompetitive consequences of professional sports leagues as joint ventures see Flynn & Gilbert (2001).

compensation.³ Professional athletes thus show lower salary elasticity than executives, and a decrease in salary does not necessarily lead to immediate exit to a foreign league. In contrast, a bank executive could easily escape compensation regulation by starting to work for a bank, which is not regulated.

Despite these differences between the corporate sector and major sports leagues, corporations can learn from the benefits of regulation in professional team sports. Corporations generally have concerns about regulation because of a loss of autonomy and the danger of an exit of executives to other economies. To mitigate the effects of external regulation, self-regulation of sectors analogous to the practice in major sports leagues could be an alternative to government intervention. Self-regulation by sectors, for example the banking sector, already is common practice (Chatov (1975), Gunningham (1991), Gunningham & Rees (1997)). An extension of self-regulation to executive compensation could reduce the necessity of extensive government intervention. However, self-regulation initiatives for corporate governance by the European Union have shown that they can be successful only if mandatory compliance, monitoring and enforcement accompany the initiatives (De Jong, DeJong, Mertens & Wasley (2005)).

The effectiveness of regulation in major sports leagues strongly depends on the coordination of individual teams to establish and enforce regulatory arrangements. Analogously, strong coordination efforts are vital for effective regulation, self-imposed as well as external, of business sectors and national economies, e.g., to limit outside options for executives by international implementation of regulatory measures (Acharya, Wachtel & Walter (2009)). Although coordination of business sectors or whole economies is much more complicated than in professional sports leagues, regulators have undertaken various coordination efforts in the recent past. The 2009 G-20 summit, which had salary caps for executive compensation on its agenda, is one example of concerted effort to avoid executive migration away from regulated economies. By including the world's major economies, the exit of executives from these economies could be mitigated. The introduction of compulsory caps on bankers' bonuses in the EU also mirrors that regulators understand the need for concerted efforts in compensation regulation. To avoid compensation-related fraud as well as the exit of talent, further elaboration of the regulatory arrangements is necessary.

3. According to Forbes.com, James earned US\$ 40m in 2009, of which US\$ 16m were salary payments by his team.

2. Collective bargaining ensures sustainable operations

In professional team sports, salary caps and luxury taxes are established via collective bargaining between the players union and the team owners. Both sides negotiate general work conditions, including the maximum (and in some cases minimum) percentage of league revenues, which players can receive as salaries (Késenne (2007)). As this percentage is established via a collective agreement, antitrust law cannot be applied to the bargaining outcome, including the salary regulations (Jacobs & Winter (1971), Marburger (1997)). Many other ways of regulating salaries, such as the dictation of salary caps by team owners, would be prohibited by antitrust law (Rosner & Shropshire (2004)).

The North American major leagues show that collective bargaining between principals and high-income agents can ensure sustainable levels of compensation as well as financial stability of a league and its teams. The collective bargaining process allows both team owners and players to voice their interests and continue the bargaining until they reach a bilateral agreement. Homogeneous interests give team owners an advantageous bargaining position opposite to the players, who face more coordination problems because of their number and the resulting range of interests. In contrast, player talent shows low substitutability and supply of skilled labor in the past was limited, which gave the players an advantage (Rosen & Sanderson (2001)). However, at present major sports leagues' increasingly global sourcing of playing talent worsens players' bargaining position. In the case that an agreement on a salary cap or luxury tax cannot be established, a strike (by the players) or lockout (by the teams) may occur. This can result in the partial or entire loss of a season, as has occurred in the recent past, for example in the 1998/99 NBA and 2004/05 NHL lockouts (Staudohar (1999, 2005)). The forgone earnings related to lockouts pressure both team owners and players to reach an agreement.

Collective bargaining in major sports leagues provides insights for executive compensation in the corporate sector. Collective bargaining between shareholders and executives can increase shareholder participation in the setting of executive compensation and reduces managerial power in the compensation setting process (Bebchuk, Fried & Walker (2002), Bebchuk & Fried (2003)). Therefore, collective bargaining reduces excessive compensation. However, if shareholders and executives collectively bargained over compensation arrangements, they would not include perspectives outside the scope of their interests. Regulatory intervention would thus still be necessary to eliminate incentives with potentially harmful

external effects (Bebchuk & Spamann (2010)). The regulator, as the controlling instance, has to ensure that shareholders and executives do not disregard taxpayer interests.

The bargaining parties in professional sports leagues are team owners and players. For the corporate sector, the choice of bargaining parties is not as obvious. Collective bargaining could take place between shareholders and executives within one firm, within one sector, or within national or international boundaries. The coordination costs of a collective bargaining process rise with the spread and sector specificity of bargaining parties. The regulator has to address this conflict between coordination costs and the comprehensiveness of the bargaining outcome. Professional sports teams allocate large fractions of total revenues to a small number of employees with highly developed sector-specific skills. The process of collective bargaining, which has proven useful in the sports sector, may thus be most effective in business sectors displaying a similar personnel quality and salary structure, such as investment banks, hedge funds, and businesses organized as professional partnerships (Levin & Tadelis (2005)).

Recent changes in executive pay policies toward more shareholder influence underline the relevance of the principle of collective bargaining in the corporate environment. The “Say on Pay” initiatives in, e.g., the US and the UK support this impression. These initiatives aim at introducing the right for shareholders to vote on executive compensation proposals and have achieved this in several major economies already (Minder (2007), Cavanagh & Sadler (2009), Dew-Becker (2009), Conyon & Sadler (2010)). Other proposals, for example advisory say on pay by shareholders and full independence of compensation committees also aim at reducing managerial power in the process of compensation setting, emphasizing the importance of arms-length bargaining over compensation arrangements (Bebchuk & Fried (2006)).

3. Collective regulatory measures are effective when performance is transparent

All North American major sports leagues operate with collective pay regulation. There are salary caps and luxury taxes for entire teams.⁴ These collective measures ensure the financial viability of team operations because they determine total salary spending. At the same time, this practice allows teams (to a large extent) to freely

4. Individual pay regulation only occurs, when a league allows exceptions to the collective measure and there is the danger of excessive individual player salaries.

allocate the total amount defined by the salary cap to individual players (Staudohar (1998)). An NFL team, for example, might invest the full amount of the salary cap in the quarterback and employ cheap players for all other positions. At another extreme, it might pay each player an identical salary. In general, given constraints such as the availability of talent, conformity to league rules about acquiring players of opponents, and other side restrictions, teams are free to make their optimal decisions.

However, this freedom of salary distribution does not lead to arbitrariness in a team's decision-making. Teams consider different aspects such as their league standing, fan demand and advertisers' preference for team success and star players when they make their decisions on how much to spend on whom (Scully (1974), Scully (2004)). Consequently, the freedom of allocation of the salary cap in general does not lead to extreme allocations and is also an important instrument for teams to adjust to the preferences of their stakeholders (Frick, Prinz & Winkelmann (2003), DeBrock, Hendricks & Koenker (2004)).

Individual athlete performance is observable and quantifiable, which is an important determinant of the effectiveness of collective pay regulation in professional team sports. Consequently, as there are no incentives to shirk when compensation includes continuous information on the past marginal product, the largest proportion of players' compensation comes from their base salaries (in analogy to Fama (1980)); performance-related pay only constitutes an insignificant percentage of player salaries. Athletes earn their contracted salary independent of their scoring average or their teams' win percentage. One vital extrinsic incentive for athletes to perform well is related to long-term career concerns: strong performance improves a player's bargaining power in future contracts. The weight of this incentive, in combination with intrinsic competitive motivation and other financial benefits related to commercial endorsements, renders performance-based pay apart from fixed salaries unnecessary (Krautmann & Oppenheimer (2002)). These observations have two consequences on collective regulation: players do not have incentives for shirking under collective regulation and regulation is facilitated because compensation arrangements have a simple structure. Experience from major sports leagues implies that collective salary regulation limits excessive compensation and at the same time preserves teams' autonomy in allocating individual compensation.

Regulators can learn from collective pay regulation in professional team sports. Just as athletic competition ensures that a quarterback has strong teammates, executive

pay would not be concentrated on a single individual, neglecting other positions in executive boards. Instead, a collective salary cap enables an allocation of compensation aligned with each firm's objectives. If regulators dictate a corporation how much to spend on each executive, this eliminates the corporation's capacity to act optimally contingent on the market situation and to address agency problems (Eisenhardt (1989), Carpenter & Sanders (2002)). The regulator, apart from the regulation objective, has to consider this dependence of corporations on their autonomy (Cyert, Kang & Kumar (2002)). Collective instead of individual regulatory arrangements could therefore be a less restrictive alternative of regulating executive pay.

Compared to professional team sports, where athlete performance is observable, an executive's contribution to firm performance is less transparent. Most empirical studies thus focus on executive compensation and firm performance, and not individual performance (see Murphy (1985), Murphy (1986), Jensen & Murphy (1990), Gibbons & Murphy (1992); Bushman, Indjejikian & Smith (1996) outline the problems related to individual executive performance and compensation). Although the individual performance of executives is difficult to measure, performance-pay constitutes a substantial fraction of total compensation. Collective pay regulation, for example a pay limit for the executive board, would not infringe this practice. However, the allocation of regulated pay could lead to conflicts over who receives what part. Such conflicts also exist without pay regulation, but are intensified because binding regulation reduces available pay.

In the discussion of collective pay regulation it is important to note that in contrast to professional team sports there is no fixed size of executive boards. Consequently, adequate collective regulatory measures for different sizes of executive boards are necessary to guarantee uniform treatment of individual firms. The regulator has to consider the resulting room for manipulation, because corporations could appoint dummy members of the executive board to mitigate regulatory restrictions, for example.

Experience from major sports leagues shows that collective regulatory arrangements can limit excessive compensation. It is not straightforward to see, whether they can also incentivize executives to take fewer decisions with negative externalities on society. Individual measures can achieve this objective more accurately. However, they strongly impair corporations' autonomy in setting executive pay. This

autonomy is vital for corporations, and there is an essential trade-off between corporate autonomy and regulatory accuracy.

4. Pay regulation contingent on performance with retained compensation correcting for substandard performance reduces focus on short run

In the major leagues, pay regulation in the form of salary caps and luxury taxes of both absolute and relative nature can be found. An absolute salary cap, e.g., can be understood as a limit to compensation defined independently of financial performance, i.e. it is a fixed amount of money. A relative salary cap, the predominant form of salary regulation, can be defined as the proportion of a financial statistic such as revenue or profits. In this case, financial indicators determine the actual extent of the regulatory measure. In the major sports leagues, salary caps for entire teams are set relative to projected league revenues of the current season (Marburger (2006), Dietl, et al. (2009)). For instance, in the NBA, teams and players have agreed upon a payroll cap for each team of 51% of projected basketball-related income of the league (BRI, i.e., gate revenues, TV contracts, merchandizing, and others), divided by the 30 teams in the league. In the MLB, as another example, the luxury tax threshold is independent of revenues.

Salary caps for individual players, as they exist in the NBA, can be relative or absolute in nature. The individual salary cap for an NBA player is contingent on the number of years he has played in the league and on the payroll cap. The longer a player's tenure in the NBA, the higher is his individual cap. Additionally, the cap is either a fixed amount or a percentage of the payroll cap, whichever figure is higher. Note that in the past, the fixed amount was always smaller than the percentage of the total payroll. This shows that absolute salary caps do exist but are not binding if there is a choice between an absolute and a relative cap. The other North American major leagues considered in this work show analogous patterns with respect to the choice between absolute and relative salary caps.

The dominance of a salary cap in proportion of total league revenues stems from a number of advantages: a salary cap of this form aligns team owner and player interests, because players face less restrictive caps when the league is more successful financially. At the same time, this practice ensures a league's financial viability because salary payments are limited to a proportion of total earnings. Additionally, if total earnings fall short of projections, there are mechanisms which ensure that teams

do not have to pay salaries that exceed their actual earnings. For example, the so-called escrow system allows teams to withhold eight to ten percent of player salaries until actual BRI is known. The withheld money in the league's escrow account is only paid to the players if BRI meets projections.

In the corporate sector, opinions diverge over whether executive pay should be capped at a certain absolute amount or whether it should be capped relative to a company's earnings. The Obama administration suggested a \$500,000 salary cap on yearly cash compensation for executives in firms receiving TARP funds. The heads of state of England, France, and Germany have discussed the introduction of salary caps for executives, which are determined relative to a company's revenues.

The dependence of pay arrangements on performance measures influences risk-taking behavior. Excessive risk-taking by executives and the related lack of consideration for future consequences of present decisions is a vital topic in current discussion over executive compensation (Bebchuk & Spamann (2010), Faulkender, et al. (2010)). Major sports leagues imply that pay regulation should refer to actual performance, but also that the regulator should be able to adapt pay levels in cases where overall sector performance is below expectations. In the case of professional team sports, a salary cap that allows for stricter limits if league revenues turn out lower than projected ensures financial viability of present and future operations. In the corporate sector, such regulation allows executives to enhance their earnings through strong performance, similar to current practice of performance pay and in line with incentive theory (Murphy (1999), Conyon (2006)). Additionally, the regulator retains a percentage of compensation until a future date. Such an escrow system effects that executives take long-term consequences of their decisions into consideration.

Performance of professional athletes does not have long-term consequences on team performance. In contrast, an executive's decisions can influence firm performance for years. This difference is important when considering retained earnings, because the period of time for which the regulator retains a percentage of earnings should depend on the permanence of executive decisions. The longer the effects of decisions persist in the future, the longer the period of maintaining the escrow account should turn out.

In response to the financial crisis, the European Union has introduced a deferment of several years of a percentage of bonus payments for banking executives beginning 2011. Such a measure is analogous to a pay regulation relative to performance: the

bonus may be cancelled in case that the banks' financial situation deteriorates in the future. Consequently, there is a safeguard for negative future developments as well as the incentive for decision-making which integrates financially sustainable performance.

5. Luxury taxes lead to higher efficiency of talent allocation than salary caps

The major leagues show different approaches to the limitation of player salaries, involving both salary caps and luxury taxes. The NFL, for example, operates with a salary cap. The league has to approve all contracts between a team and a player; therefore, the salary cap cannot be exceeded. The MLB, on the other hand, operates with a luxury tax. In the NBA, a combination of a salary cap and a luxury tax is in place. If a team's payroll for players exceeds the luxury tax threshold, which is set above the salary cap, it has to pay a tax to the league for the overage. These examples show that in professional sports the different measures achieve similar objectives (Dietl, et al. (2010b)).

A salary cap sets a strict limit on total compensation per team or per player. As a result, teams' expenditures on talent converge. This leads to an improved competitive balance, but also to an inefficient allocation of talent. Players do not necessarily play for the team where their marginal productivity yields the highest return. In leagues with comparatively few games per season (e.g., an NFL team has 16 regular season games), the inefficient allocation of talent does not lead to forgone revenues. Almost all teams sell out all games. Other leagues have many more games, an MLB team, for example, has 162 regular season games. Consequently, it is more difficult to fill the stadium at every game, especially in large markets where alternatives abound. Large-market teams have to field stars to fill their stadia. In terms of the allocation of players with respect to their marginal return, these leagues require higher efficiency, i.e., the best players should play in the largest markets. Under the MLB's luxury tax, rich teams can spend more on players than small teams, with the restraint that a luxury tax accrues. Given that large-market teams have a higher marginal return on talent, this leads to a more efficient allocation of playing talent. In this sense, the luxury tax is economically superior to the salary cap (Rosen & Sanderson (2001)). From an economic perspective, this could explain different regulatory regimes in different leagues (Scully (2004)).

Luxury taxes show another important difference to salary caps: while they do not imply a strict salary limit, they generate tax revenues from teams that exceed the luxury tax threshold. The league can redistribute these tax revenues among smaller teams or use the revenues for pursuing collective league interests apart from balanced competition.

Corporate executives should also earn according to their marginal product to ensure efficiency (Fama (1980)). Consequently, considering current practice in major sports leagues, a mechanism similar to the luxury tax in sports is preferable over a salary cap. A luxury tax allows pay according to an executive's performance and the value the executive adds to a firm. The tax controls pay by increasing a firm's cost of executive pay, therefore there is a regulating effect. Luxury tax payments generate resources the regulator can redistribute or save in a fund for financial relief programs. However, a measure like the luxury tax only makes overage compensation more costly and does not strictly limit it. Salary caps do not allow such overage and therefore facilitate regulation.

In the US, several models of taxing executive compensation in firms, which have accepted larger amounts of federal bailout funds, have been discussed. For example, the US House of Representatives approved a 90% tax on bonuses in such firms. Additionally, many CEO's have donated their bonuses in times of public criticism of their compensation. Michael Geoghegan of HSBC, for example, donated GB£ 4 million of his bonus in the year 2009. Some companies consider charity rules to reduce connotations of greed. Goldman Sachs considered obliging its executives to donate parts of their bonuses. These donations may be interpreted as a self-imposed luxury tax, which incurs only in the case that executive compensation exceeds an implicit threshold, defined by public opinion. These cases show that the corporate world already shows different compulsory and voluntary types of taxes on compensation. The luxury tax mechanism and its comparison to a salary cap therefore merit closer attention.

6. Soft salary caps can impede regulation, but also reward experience and successful careers

In professional team sports, the design of salary caps can take on two forms with respect to the rigor of the cap. A salary cap can be hard, that is, fixed and without exceptions, or it can be soft, that is, it can be adapted under specific circumstances. Hard salary caps in sports leagues ensure equal opportunities for competitors.

Opponents may freely compete for players subject to the uniform salary cap. All competitors in a league face the same salary cap. Soft salary caps allow for individual exceptions to the salary limit under certain conditions. Teams can thus adapt to specific circumstances and spend more on very important and experienced players, for example. Soft salary caps are a less effective measure because exceptions are possible, and affected parties will try to exploit all available exceptions in their favor.

In the major leagues, hard caps as well as soft caps can be found. The NFL, for instance, has a hard cap, meaning that total salaries paid in a season have to be below a certain limit. Otherwise, sanctions are imposed on the team that has violated the salary cap. The NBA, as another example, has a soft salary cap; a soft cap implies that there are numerous exceptions to the general salary limits. These exceptions lead to a large proportion of teams exceeding the salary cap to better adapt to team- and player-specific requirements. The NBA makes exceptions so that teams can hold on to merited players when their contracts expire. One such exception is named after former NBA star Larry Bird. To re-sign him, his team had to exceed the salary cap. As a consequence, the exception was introduced that a team could re-sign star players who either had played a number of years without being waived (i.e., fired) or had not changed teams as a free agent. If these conditions hold, the contract does not count towards the salary cap. This so-called “Bird exception” awards the privilege of retaining franchise players. Other exceptions, such as the “Early Bird” and “Non-Bird” exceptions, are installed, which allow moderate salary growth to players who have not been waived for two consecutive seasons or remain with their original team (for a comprehensive overview on exceptions to the NBA salary cap, see Hill & Groothuis (2001)).

Exceptions reduce the effectiveness of regulatory interventions. Where they apply, they relax the restrictions of installed regulations. This can undermine the regulatory mechanism to a degree where it becomes virtually ineffective, as the case of the NBA has shown. For example, Michael Jordan earned salaries of more than US\$ 30m per season, where his salary alone would have exceeded the team salary cap. He signed these contracts under the Larry Bird exception, therefore they never counted towards the cap. Today, the NBA has eliminated this loophole by installing an individual salary cap.

For executive compensation such loopholes would have similar consequences and discredit the regulation attempt. However, exceptions also allow the adaptation to specific circumstances and may therefore also be used as incentives. In some major

sports leagues, merited players face softer regulation than others. Similarly, experienced company executives with a solid career could face less restrictive salary caps. Such an exception incentivizes present and future executives to invest in continuous performance to be able to obtain exception status in the future. This way, large compensation for executives accrues in the future and reflects a seniority principle (Hutchens (1989)). Salary caps could therefore help to render short-term-oriented, risk-taking behavior less attractive to executives.

7. Enforcement of salary caps and luxury taxes requires detailed information on the structure of compensation and strict sanctions in case of transgressions

When a sports team exceeds the salary cap - and the excess does not fall under one of the exceptions in the case of a soft salary cap - sanctions come into effect. Sanctions for rule violations are severe once a positive proof is obtained. The punishment may take on several forms: from financial penalties over suspension of the involved player to the loss of draft rights for one or more seasons. Professional team sports show that salary caps are only effective to the extent that they are well defined and enforceable (Dietl, Franck & Nuesch (2006)).

In the major leagues, potential loopholes for circumventing the salary cap are eliminated by additional regulatory intervention. Incompliance with league rules, once it is discovered, is addressed rigorously. However, salary caps are circumvented frequently, and circumvention attempts are various (Fort & Quirk (1995)). One prominent example in the recent past has been the postponing of actual salaries to the future by signing undervalued contracts for a period of time until one of the salary cap exceptions allows high-value contracts. In essence, incompliance with the rules cannot be verified unless there is a written account of the undisclosed agreement. This was the case with the professional basketball player Joe Smith and his NBA team, the Minnesota Timberwolves. Once their written agreement over illicitly bypassing the salary cap became public, heavy penalties were inflicted on the participating parties, that is, to the player, his team, his team's management, and his agent (Staudohar (1998)). The league commissioner voided Smith's contract, the Timberwolves' senior management was temporarily suspended, the Timberwolves had to pay a fine of US\$ 3 million, and the team lost future draft rights. Another example of concealed practices to impede the enforcement of salary caps are teams underreporting revenues to pay lower salaries to their players (e.g., Quirk (1997)).

While this practice keeps salaries under control, it may harm the acceptance of collective agreements when it is discovered.

With regard to a salary cap, firms and executives have similar incentives as those faced by professional sports teams and players. Executives prefer higher to lower pay, and firms want to attract and retain the best executives available; to attract the best executives, the compensation a firm offers also has to be the highest among its competitors. Consequently, circumventing the salary cap, although possibly harmful in a larger context, may be in the interest of both parties. This yields an exemplary situation of a moral hazard (Holmstrom (1982)). Circumvention can be achieved by spotting and exploiting potential loopholes in the salary cap mechanisms or by taking actions incompliant to defined rules, such as concealed agreements over side-payments or non-monetary compensation.

To ensure adherence to the salary cap and therefore its stabilizing effects, a regulatory entity has to install well-defined rules and enforce compliance with the salary cap. This becomes the more difficult, the more complex the pay arrangements are. Executive compensation, in contrast to athletes' pay, is not transparent to the general public. Additionally, it generally shows more components, for example postretirement payments, which makes it more difficult to control total remuneration (Bebchuk & Fried (2006)). Exhaustive categorization and publication of compensation components is therefore necessary to enable regulatory authorities to control total compensation (See, e.g., Murphy (1999) and Faulkender et al. (2010)). For example, the classification and extent of deferred payments and contingent compensation as introduced in the EU merits attention.

Penalties for illicit circumventions have to correspond to the consequences that an ineffectiveness of the cap could have (in analogy to Becker (1968)). Sanctions for violations should be severe to a degree analogous to professional sports. Additionally, consequent monitoring is a vital subsidiary for the successful enforcement of salary caps for executives (Alchian & Demsetz (1972), Fama & Jensen (1983)).

IV. CONCLUSION

The regulation of executive compensation is currently widely discussed by regulators, shareholders and managers. Fundamental economic analysis of the use and potential consequences of executive pay regulation is necessary to adequately account for this discussion. As a potential starting point for this research, professional team sports leagues provide a unique laboratory for deriving insights on the introduction, workings, and consequences of the regulation of executive compensation. We transfer these valuable insights to an analysis of executive pay regulation and illustrate what politicians, regulators, and economists can learn from major sports leagues. Key implications relate to the introduction, determining, and targeting of salary caps and luxury taxes, the discussion of luxury taxes as an alternative to salary caps, as well as the rigor and enforcement of these regulatory mechanisms.

With the derivation of implications from practice in major sports leagues we want to contribute to the discussion of executive pay regulation. We see our contribution as a new perspective, which merits attention because of the success and the long tradition of salary caps and luxury taxes in professional sports. However, we are aware that the discussion of insights cannot take place without pointing out the institutional differences between professional team sports and the corporate sector. Nevertheless, the valuable insights remain and can enrich the discussion of measures to regulate executive compensation with a new perspective.

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