

# Tournament Structures in Japan and the U.S. *Why are They Different and Will they Change?*

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## Abstract

Organizational reward systems based on rank order tournaments are used throughout the world. Still, the tournament structures applied in different countries differ substantially: While in the U.S., promotion tournaments are the most prominent, Japanese organizations predominantly make use of bonus payment tournaments. In our paper, we ask why tournament structures might have evolved so differently in the two countries. Referring to recent advances in tournament theory showing that Japanese bonus payment tournaments dominate U.S. type promotion tournaments if employees are sufficiently risk-averse, we search for evidence that might hint at a higher degree of risk-aversion of Japanese as opposed to U.S. employees. Having identified cultural as well as institutional factors that indeed might foster a higher degree of risk aversion on the part of Japanese employees, we render one potential explanation why tournament structures in Japan differ from those in the U.S.. To the extent that institutional factors are currently changing in Japan, we expect to observe changes in tournament structures as well. We conclude by discussing the recent changes in Japanese institutions and culture and their potential implications for the future use of tournament structures.

**Keywords:** *rank order tournaments, risk-aversion, culture, institutions*

## 1. Introduction

Since the seminal paper by Lazear and Rosen (1981), compensation systems relying on tournament structures have achieved much attention in the literature (for recent surveys see Connelly, Tihanyi, Crook & Gangloff, 2013 or Knoeber & Tsoulouhas, 2013). In a tournament, an employee is rewarded according to his *relative* performance, i.e. according to his performance compared to the one of his colleagues. While tournament compensation systems are to be found all over the world, there are significant international differences in their design. The most prominent types of tournaments are the bonus payment tournament in Japan (J-type-tournament) and the promotion tournament in the U.S. (U-type-tournament). Whereas the literature on tournaments remains silent on the question why these different types of tournaments might have evolved, our paper undertakes a first step in that direction by highlighting *one* specific factor that might play a role in explaining the observed differences in tournament structures: the degree of risk-aversion on the part of employees. By referring to cultural as well as institutional factors that might hint at a larger degree of risk aversion on the part of Japanese employees as opposed to U.S. employees, we do not only uncover one potential explanatory factor for the evolution of different types of tournaments in the two countries, but we also contribute to the body of literature on how cultural and institutional factors might reinforce each other (see e.g. Black, 2001 or Posthuma 2009). In a final step of our paper we highlight the recent changes in the Japanese employment system and discuss in how far these recent trends might change future tournament structures in Japan.

We proceed as follows: After having characterized the different types of tournaments used in the U.S. and Japan (section 2), we briefly review the current state of research concerning the two types of tournaments (section 3). Here, we primarily refer to the work of Kräkel (2003) who compares U- and J-type-tournaments and analyses their efficiency within one model setting (for a comparison of the precision of U- and J-type tournaments see Schöttner,

2005). Among others, Kräkel (2003) identifies risk aversion on the part of employees as one potential determinant of the superiority of the Japanese *bonus payment tournament* as compared to the U.S. *promotion tournament*. In section 4, we present existing empirical evidence on Japanese employees being indeed more risk averse than their U.S. counterparts and hence offer *one* potential explanation of why the two types of tournaments might have evolved so differently in the two countries. To support our argument, we refer to cultural as well as to institutional factors that hint at or would seem to foster a higher degree of risk aversion on the part of Japanese employees. Section 5 highlights recent changes in the Japanese employment system and discusses their potential implications for the type of tournament used. Section 6 concludes with a short summary and discussion.

## 2. Tournament Structures in the U.S. and Japan

Comparable to the design of sporting contests (e.g. golf and tennis tournaments), in rank order tournaments within companies a fixed prize money (e.g. a bonus sum, travel incentive or promotion) is distributed according to the relative performance of a specified group of contestants (see e.g. Milgrom & Roberts, 1992; O’Keeffe, Viscusi & Zeckhauser, 1984, Backes-Gellner & Pull 2013). While in the U.S., promotion tournaments are the most prevalent, bonus payment tournaments are characteristic of Japan.

### 2.1 Promotion Tournaments in the U.S.

In a stylized *promotion tournament*, employees on one hierarchical level compete for a position on the next hierarchical level while the wages attached to these levels increase from one hierarchical level to the next. The winner of a tournament on a given hierarchical level receives the tournament prize, that is, (s)he is promoted to the next level of the hierarchy and receives a higher salary. Those contestants who did not succeed in a promotion tournament remain in the same job and receive their previous remuneration (Lazear & Oyer, 2004). Because of its prevalence in the U.S., the stylized promotion tournament is also called *U-type tournament* (see e.g. Kräkel, 2002).

A distinctive hierarchical structure is symptomatic of many particularly large U.S. firms: Jobs are specified by job descriptions (Kanemoto & MacLeod, 1991) with wages being attached to jobs (Bognanno, 2001; Kanemoto & MacLeod, 1992) and increasing with hierarchical levels (Kanemoto & MacLeod, 1991). In a well-known case study using personnel data of a large U.S. firm over a period of twenty years, Baker, Gibbs & Holmström (1994a, 1994b) show that about 70 percent of the variance in wages can indeed be explained by hierarchical levels. Promotions in a stylized U.S. firm are based on an employee’s relative performance where an employee competes against his/her colleagues on one hierarchical level to reach the next (Kräkel, 2003). As a result we observe what Doeringer and Piore (1971) called “internal labour markets”. On the basis of a dataset on executives from more than 600 U.S. firms over a period of eight years, Bognanno (2001) accordingly finds that comparatively more executives in the highest hierarchical levels have been promoted from within the firm than have been hired from the external labour market. A further finding in that context concerns the convexity of the wage-hierarchy-relationship: In Bognanno’s study (2001), an executive’s remuneration rises from the fourth hierarchical level to the third by 21 percent, from the fourth to the second by 65 percent and from the fourth to the highest level by 151 percent (see also Konrad & Deckop, 2001 for wide disparities between worker and executive pay in the U.S.). This convexity of the wage structure is a characteristic trait of promotion tournaments with subsequently higher wage increases being necessary to compensate participants for the loss of the option value of being able to participate in subsequent higher-level tournaments (Rosen, 1986).

### 2.2 Bonus Payment Tournaments in Japan

In a stylized *bonus payment tournament*, employees compete for their share of a fixed wage bill or bonus payment sum (Kanemoto & MacLeod, 1992; Kräkel, 2003) where an individual worker’s share depends on his relative performance in the evaluation process (Endo, 1994). Even though there are also promotion tournaments in Japan (see e.g. Kiyotaki, 2004; Ariga, 2006), the prevalence of bonus payment tournaments in Japan has led to them being called *J-type tournaments* (see e.g. Kräkel, 2002).

For a long time, in Japanese firms, full-time employees received a bonus twice a year (Ito, 1992). While there are bonuses in the U.S., too, the peculiarity of the Japanese bonus system is their larger size (The Japan Institute for Labour Policy and Training, 2006) with biannual bonuses making up about 15 to 30 percent of an employee’s annual income (Hori & Shimizutani, 2002; Ito, 1992; Kanemoto and MacLeod, 1991). The bonus sum paid to the employees as a whole depends on the corporate performance in the last period (Itoh, 1991) and is negotiated between employer and union (Kanemoto & MacLeod, 1991, 1992). Despite a series of significant changes in the Japanese labour market, the phenomenon of bonus payments is still observable (Benson & Debroux, 2004; Hori & Shimizutani,

2002). The share of the bonus an individual employee receives is determined by his relative performance which is measured in the continuous process of evaluation (“*satei*”) (Endo, 1994; Ito, 1992; Kanemoto & MacLeod, 1992). Bonus payments, hence, are used as “competitive incentives” (Benson & Debroux, 2004; Watanabe, 2000) where Japanese employees compete with one another in a tournament (Endo, 1994) with the appraisal system becoming more and more “performance-oriented” (Shibata, 2002). While performance evaluations play an important role in U-type tournaments as well, an important difference between both tournament types is that performance appraisals in promotion tournaments serve as basis for discrete promotion decisions while the *satei* system in bonus payment tournaments determines an employee’s share of a fixed bonus payment sum.

### 3. The Efficiency Properties of J- and U-Type-Tournaments Compared

The incentive effects of rank order tournaments have been analyzed for almost 30 years now with the basic model of a promotion tournament having been developed by Lazear and Rosen in 1981. The seminal paper by Lazear and Rosen inspired a lot of theoretical and empirical work on rank order tournaments. While part of this literature closely follows the Lazear and Rosen framework and concentrates on promotion tournaments as observed in U.S. firms, the incentive effects of Japanese bonus payment tournaments are analyzed by e.g. Okuno (1984) and Kanemoto & MacLeod (1991, 1992). To the best of our knowledge, Kräkel (2002, 2003) is the only one to compare the efficiency of both types of tournaments (J- and U-type tournaments) in one model setting. Within his model setting, Kräkel is able to show that in a situation with homogeneous and risk-neutral employees, the type of tournament does *not* affect the effort levels of the contestants. A bonus payment tournament and a promotion tournament both induce efficient and identical incentives. However, in a model extension Kräkel assumes risk-averse (but still homogeneous) employees and comes to the following conclusion: In such a situation, the J-type bonus payment tournament leads to generally higher effort levels than the U-type promotion tournament. In other words, J-type tournaments dominate U-type tournaments when employees are sufficiently risk-averse. The intuition for the dominance of the J-type tournament in case of risk averse employees is that U-type tournaments represent a higher risk lottery compared to J-type tournaments. Hence, a J-type tournament has the comparative advantage of being able to create incentives at lower costs in terms of a lower risk premium to be paid.

### 4. Risk Aversion in Japan and the U.S.: Culture and Institutions

If, as Kräkel’s (2003) analysis reveals, J-type tournaments are superior in the case of risk-averse employees, one reason for the use of J-type tournaments in Japan as opposed to U-type tournaments might be that workers in Japan are more risk-averse than their U.S. counterparts. A differing degree of risk aversion between Japanese and U.S. workers might hence represent *one* potential explanation why tournament structures have evolved so differently in the two countries.

In the following, we present different indicators that might hint at U.S. employees being less risk-averse than their Japanese counterparts. In section 4.1, we concentrate on *cultural factors* as identified by the work of Hofstede (2001a) that hint at a higher degree of risk aversion on the part of Japanese employees, and in section 4.2, we highlight *institutional factors* that would seem to suggest a higher degree of risk exposure of Japanese as opposed to U.S. workers. As both types of factors hint in the same direction, cultural and institutional factors might indeed reinforce each other.

#### 4.1 Culture: Uncertainty Avoidance in Japan and the U.S.

One reason for a higher degree of risk-aversion on the part of Japanese as opposed to U.S. employees might be a cultural one: While there has been a whole set of studies trying to detect cultural differences between countries, the study undertaken by Hofstede (2001a) is and still remains to be the most prominent. As among others, Hofstede identifies cultural differences concerning the readiness of members of a society to cope with situations of ambiguity and uncertainty, Hofstede’s study particularly qualifies for the analysis undertaken here.

While Hofstede’s study originates from the late sixties and early seventies, its results have been replicated repeatedly and would still seem valid today (for an overview see Sondergaard, 1994; Hofstede, 2001b).(Note 1) In his famous study, Hofstede surveyed about 116,000 employees at IBM all over the world and identified four dimensions of cultural differences between workers from different countries: (1) power distance, (2) uncertainty avoidance, (3) individualism and (4) masculinity.(Note 2) While U.S. and Japanese workers differ in all four dimensions, the disparity in “uncertainty avoidance” is – concerning differences in ranks – by far the most striking with Japan being ranked 7<sup>th</sup>, and U.S. workers being ranked 43<sup>rd</sup> (out of 53 countries).(Note 3)

According to Hofstede (1998), uncertainty avoidance refers to a society's tolerance of uncertainty and ambiguity. Members of societies that are characterized to a large extent by uncertainty avoidance such as is the case in Japan feel uncomfortable in unstructured situations and aim at minimizing the incidence of such situations. Although uncertainty avoidance and risk aversion are not necessarily synonymous (see e.g. Hofstede, 2001a), a larger degree of uncertainty avoidance of Japanese compared to U.S. employees should still hint at a larger degree of risk aversion of Japanese workers. Consequently, the fact that members of the Japanese society are to a larger degree characterized by uncertainty avoidance might explain why in Japan, bonus payment tournaments are used rather than promotion tournaments.

#### 4.2 Institutions: Employee Mobility and Human Capital Specificity in Japan and the U.S.

Concerning institutional differences between Japan and the U.S. that might foster differing degrees of risk aversion on the part of employees, particularly two seem to qualify for our analysis: *employee mobility* on the one hand and *human capital specificity* on the other. While it might seem debatable whether employee mobility and human capital specificity are truly indicative of risk aversion (rather than risk exposure), the seminal work on implicit contract theory (e.g. Azariadis, 1975; Gordon, 1976) argues that both, employee mobility and human capital specificity, determine the degree of *risk aversion* on the part of employees. The underlying conjecture seems to be that an increasing risk exposure on the part of employees is analogous to a higher risk aversion. In what follows, we start from this conjecture and present comparative data on employee mobility and human capital specificity for Japan and the U.S..

##### 4.2.1 Employee Mobility

Among others, van Ours (1990), renders comparative information on job turnover in Japan, the UK, France, Sweden, the Netherlands and the U.S. with job turnover rates in Japan (and the Netherlands) being "substantially lower than in the other countries". While turnover rates are indicative of both, employee mobility and an employer's hire & fire strategies, Sousa-Poza & Henneberger (2004) render information on employee mobility in the sense of an employee's willingness to take up a new job: In their data set, on average, 23.8 percent of the 18,000 employees surveyed find it "very likely" (9.3 percent) or "likely" (14.5 percent) that they will try to find a job with another firm or organization within the next 12 months. (Note 4) While the figures for U.S. employees are well above average (with 14.3 percent finding it "very likely" and 16.7 percent finding it "likely"), the figures for Japanese employees are the lowest in the sample (1.8 and 8.5 percent respectively).

In their study, Sousa-Poza and Henneberger (2004) also analyze the determinants of differing turnover intentions: In addition to demographic characteristics (e.g., age, marital status, years of schooling), a number of job variables (e.g., union membership, working time, income) and subjective characteristics (e.g., job satisfaction, job security, labour market opportunities) play a role. Concerning institutional differences between Japan and the U.S., labour market opportunities for displaced employees are much less favourable in Japan compared to the U.S. (Gilson & Roe 1999 even speak of a "closed external labour market" in Japan) with labour market (displacement) programmes in the two countries further fostering the different adjustment mechanisms (see Mourdoukoutas & Roy, 1994). Furthermore, Japanese companies grant one-time severance payments to employees at separation depending on an employee's age and seniority (Usuki, 2003; Kanemoto & MacLeod, 1991; Aoki, 1988) rendering it profitable for an employee to stay with its current employer until retirement (Usuki, 2003). A further institutional determinant of turnover-intentions which is also not included in the analysis by Sousa-Poza and Henneberger (2004) is the existence of seniority-wage-profiles: The steeper seniority-wage-profiles are, the greater is the loss that an employee will have to bear when he quits his job in search of a new one. While we observe seniority-wage-profiles in both countries, seniority-wage profiles in Japan are considerably steeper than in the U.S. (see Holzhausen, 2000 or the early study by Hashimoto & Raisian, 1985) where the wage profile for white-collar workers rises even more sharply than that of blue-collar workers (The Japan Institute for Labour Policy and Training, 2006). Being displaced in Japan, consequently results in significant job displacement or job change penalties: While Bognanno and Delgado (2008) find job displacement penalties in Japan to amount to about 26% on average, Farber (2003) calculates job displacement penalties in the U.S. to make up 11% on average (for earlier studies on job displacement penalties in the U.S. see Hamermesh, 1989; Fallick, 1996 & Farber, 1997). In spite of the recent changes in the Japanese labour market, Bognanno and Kambayashi (2013) showed job displacement penalties in Japan to even have grown in the period from 1991 to 2005.

Concerning employee mobility as reflected by turnover intentions, one might hence conclude that Japanese workers will typically be less mobile than their U.S. counterparts and will consequently be characterized by a greater degree of risk-aversion (or risk exposure) – rendering bonus payment tournaments more adequate for the Japanese context.

#### 4.2.2 Human Capital Specificity

As a consequence of lower turnover rates in Japan as compared to the U.S. (Holzhausen, 2000), the human capital a Japanese employee typically acquires throughout his career will be more firm-specific in nature than the human capital typically acquired by a U.S. employee. Even if the institution of lifetime employment is not to be taken literally (see e.g. Cheng & Kalleberg, 1996) and is also partly eroding (Robinson & Shimizu, 2006), average job tenure in Japan is far higher than average job tenure in the U.S.: In 2001, average job tenure in Japan was 12.2 years while average job tenure in the U.S. in 1998 was only 6.6 years. The difference in the respective share of employees with a job tenure of 10 years or more in Japan as opposed to the U.S. is illustrative as well: In 1998, in Japan 43.9 percent of employees had been with their current employer for 10 years or more whereas the comparative figure for the U.S. in 2002 was only 26.2 percent. Employees who had been with their current employer for less than one year represented 8.3 percent of the Japanese workforce in 1998 and 24.8 percent of the U.S. workforce in 2002 (Auer, Berg & Coulibaly, 2004; for similar results see Burgess, 1999). The higher job tenure of Japanese workers does affect the composition of human capital being acquired during an employee's working life: During his career, a Japanese employee is primarily provided with on-the-job and in-house training by the employer (Ito, 1992). The human capital of Japanese employees will hence typically comprise larger shares of firm-specific human capital while U.S. employees will invest more heavily in industry-specific human capital (Gilson & Roe, 1999). A higher degree of asset specificity will also make an asset holder more risk averse or expose him to a generally higher risk.

Hence, the higher degree of specificity of a Japanese worker's human capital again hints at Japanese employees being more risk averse than their U.S. counterparts – again rendering bonus payment tournaments more adequate for the Japanese context.

### 5. Recent Institutional and Cultural Changes in Japan and Their Implications

In light of the changing *institutional* structure of the Japanese employment system (Benson & Debroux, 2004; Holzhausen, 2000) it might well be questioned whether J-tournaments will still be observed in Japan in the future. Among the most prominent institutional changes in Japan is (a) the reported end of lifetime employment (however, see Robinson & Shimizu, 2006, Kato, 2001, Selmer, 2001 and Ono, 2010 for a relativization) and (b) the increasing role of performance in determining wages (see e.g. the General Survey of Working Conditions conducted in 2012 by the Ministry of Health, Labour and Welfare). Concerning lifetime employment, the practice is indeed changing and has been eroding recently, although still 36.1% of companies intend to basically maintain the practice according to the Survey on Corporate Human Resource Strategies and Workers' Attitude towards Work (The Japan Institute for Labour Policy and Training, 2006). Although employee tenure in Japan is comparatively long by international comparison, it is in fact slowly shrinking and the average tenure of all employees in 2003 was 0.4 years longer (12.2 years) than what was in 2007 according to the Basic Survey on Wage Structure (The Japan Institute for Labour Policy and Training, 2012). At the same time the labour market is more and more segmented, and employee mobility increases: The ratio of non-permanent workers such as part-time workers and temporary agency workers has risen from 16.6% in 1986 to 33.2% in 2006 (Futagami, 2006). Additionally, the number of young people who change jobs is increasing. According to the Ministry of Health, Labour and Welfare (2013), 31.0% of new university graduates quitted their jobs in 2010 and separated from their company within the first 3 years. While the end of lifetime employment might indeed foster a lower degree of risk aversion on the part of Japanese employees (through generating a higher degree of mobility and less firm-specific human capital) and hence might speak in favour of a future establishment of U-type tournaments in Japan, the expected increasing role of performance in determining wages basically reinforces the use of tournament structures in general (no matter if J- or U-type tournaments).

However, while institutional factors might well change over time, *cultural differences* have shown to be quite persistent and might not be eroded so easily. Still, there are already changes in the value system to be observed in Japan (see e.g. Honda, 2005) such that a reduction in "uncertainty avoidance" on the part of Japanese employees might not be completely excluded for the future. One indicator of a changing business culture might be the new ventures emerging outside the traditional Japanese management systems fostered by government initiatives to improve the climate for entrepreneurship (Futagami & Helms, 2009). However, while even cultural factors hence might change over time, Kirkman, Lowe and Gibson (2006) point out that only relatively low amounts of variance in employee behaviour can actually be explained by cultural factors. Hence, cultural factors should not be over-emphasized when it comes to explaining and predicting employee behaviour or the rise and fall of institutions.

## 6. Summary and Discussion

In our paper, we analyze the two quite different types of tournaments established in U.S. and in Japanese firms and offer *one* potential explanation why these tournaments might have evolved so differently in these two countries during the last century. Kräkel (2003) shows analytically that the *J-type tournament* dominates the *U-type tournament* if contestants are sufficiently risk-averse. In the course of our argumentation, we presented empirical evidence on cultural differences (*uncertainty avoidance*) and institutional differences affecting *employee mobility* and *human capital specificity* (e.g. seniority-wage-profiles, lifetime employment) between Japan and the U.S. that might have resulted in a greater degree of risk aversion on the part of Japanese employees: Japanese workers for a long time were to a larger degree characterized by uncertainty avoidance than their U.S. counterparts, they were less mobile and their human capital comprised larger shares of firm-specific human capital. All of these factors hint at a potentially larger degree of risk aversion of Japanese employees as opposed to U.S. employees – representing *one* potential explanation for the evolution of the two different types of tournaments in the two countries. Cultural factors and institutional factors indeed seemed to have reinforced each other contributing to and taking account of a higher risk-aversion of Japanese as opposed to U.S. employees. As a consequence of the recent changes in the Japanese employment system, however, we expect that Japanese firms in the near future will reconsider the use of J-type tournaments and might indeed slowly move to an increased use of U-type tournaments.

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## Notes

Note 1. Hofstede's results also form the basis of an increasing literature on the effects of cultural factors on human resource management strategies (see e.g. Olie, 1995; Hu, Au & Fock, 2004 or Ryan, McFarland, Baron & Page, 1999), on the perceived effectiveness of managerial influence strategies in general (see the recent meta analysis by Fu et al., 2004) or on the choice of entry mode when entering a foreign market (see e.g. the overview by Harzing, 2003). Recently, Kirkman et al. (2006) review a quarter century of empirical research incorporating Hofstede's framework.

Note 2. In the early 80s, the IBM study was supplemented by a survey among 2,300 students from Asian countries and again the four dimensions of cultural differences became visible. However, one further dimension was identified: the Long-Term-Orientation of workers. Here, Japanese workers ranked fourth while U.S. workers achieved a rank far behind (rank 17 out of 23 countries). The results concerning long-term-orientation render further support to our argumentation in section 4.1: The lower turnover rates in Japan and the lower turnover intentions of Japanese workers might well be reinforced by cultural factors and not only be driven by economic necessities. Here, however, we only refer to the results of the IBM study.

Note 3. Concerning power distance, workers from both countries are found in the midfield; concerning individualism, U.S. workers rank first, but Japanese workers are also to be found in the first half of countries, while the reverse is true for masculinity.

Note 4. The question being asked was "All in all, how likely is it that you will try to find a job within another firm or organization within the next 12 months?". For the U.S., there were 804 observations; for Japan 739 (Sousa-Poza and Henneberger, 2004).