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CEO Compensation in Japan: Why So Different from the United States?

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Abstract

In Mar. 2010, Japan's financial regulator implemented the country's first legislation concerning the disclosure of director compensation for named individuals. Using the first publicly available data for Japanese executives, we document direct evidence on the level, structure, and mechanisms of chief executive officer (CEO) compensation in Japan and perform a matched-sample comparison between Japan and the United States. In contrast to the findings of recent studies showing that international differentials in CEO pay have largely disappeared since the mid-2000s, our results show strikingly large differences between the Japanese and American systems that are difficult to explain by differences in conventional incentive contracts.

I. Introduction

In Mar. 2010, the Japanese regulator, the Financial Services Agency, implemented the country's first legislation concerning the disclosure of compensation for individually named directors. Beginning in 2010, publicly traded companies in Japan are required to disclose the amount of compensation paid to each of their directors if the remuneration for the relevant fiscal year is 100 million yen or more. The information to be disclosed includes the total amount of remuneration broken down by the type of payment, including salary, bonus, stock option grants, and retirement funds. Taking advantage of this new regulation, we conduct a comprehensive examination of executive compensation in Japan using the first publicly available data and conduct a close comparison of the Japanese system and the U.S. system. Existing studies have concentrated on Anglo-American countries, where executive compensation has been publicly disclosed for many years or even

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decades. Despite Japan's important role as a major economic power, however, studies of Japanese firms have been limited. Without direct access to compensation data for executives, researchers have tended to investigate these firms using a more circuitous approach by examining either the average compensation amount paid to all of a firm's directors (e.g., Kaplan (1994), Joh (1999)) or the imputed taxable income of executives derived from income tax records (e.g., Kato and Rockel (1992), Kato (1997)). In addition to the risk of the imprecise estimation of compensation amounts,[1] these indirect approaches are seriously constrained by a lack of data: There is no information on the compensation structure and stock options, both of which are important to our understanding of compensation practices and managerial incentives in Japan.

Under the new Japanese regulation, the level and structure of the compensation provided to the highest-paid corporate executives become public information. Our sample covers 424 companies that disclosed director compensation over the period from 2010 to 2015. Because top executives in Japan are typically directors and receive the highest compensation, most of these companies have disclosed the compensation amounts for the chief executive officer (CEO). Given the disclosure threshold of 100 million yen, our sample is confined to the highest-paid top executives and is hence relatively small compared with the entire sample of all listed Japanese companies. However, as our results show, pay uniformity across sectors and firm sizes in Japan means that our sample is not seriously biased toward the largest companies. Indeed, in terms of assets, sales, and market capitalization, our sample is representative of the Tokyo Stock Price Index (TOPIX) 500 companies.

Our results reveal that Japanese executive compensation practices are substantially different from the well-known Anglo-American model. We document distinct features of executive compensation in Japan. The first is the strong dominance of salary: Japanese CEOs' base salaries account for more than two-thirds of their total remuneration. Such salary dominance is observed across all industries and in all size groups. Another feature is that CEO pay is economically insensitive to the two important variables of firm size and performance and thus, to a large extent, exhibits pay uniformity across firms. These features suggest a unique compensation system that contrasts with that typically employed in U.S. companies. Although these features are in line with the general perception that Japanese managers earn less than their U.S. counterparts, our findings provide the first direct evidence on the level and structure of CEO compensation in Japan and allow us to quantify the differences between Japan and the United States.

To provide a formal test of the differences, we perform a matched-sample comparison of the two countries. The newly disclosed Japanese data allow us to compare all major components of compensation and to control for firm characteristics as well as CEO attributes. By matching each Japanese company in our sample with a U.S. company from the same industry and of a similar size, we obtain 274 pairs of one-for-one matched Japanese and U.S. firms. We first show

[1] In the first approach, the average compensation of the whole board can differ substantially from that paid to the top managers; in the second approach, an executive's actual compensation may be quite different from his or her taxable income in a year due to income sources other than salary, including tax-deductible items and nontaxable benefits.

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a striking difference in the structure of CEO pay between the two countries. On average, Japanese CEOs' base salaries account for 71% of their total compensation, whereas annual bonuses and grants of stock options, which are the major components of incentive pay in Japan,[2] together account for merely 23% of the total. On the contrary, U.S. CEOs' base salaries on average account for just 21% of their total compensation, whereas incentive pay consisting of bonuses, stock option awards, and restricted stock represents more than 73%. We then verify that CEO pay in Japan is relatively insensitive to firm size and performance. Although the pay–size relationship is positive, it is weak economically. We estimate the elasticity of CEO total compensation with respect to firm sales at 0.13, which is surprisingly small compared with that of 0.45 for U.S. CEOs. The pay–performance relationship is also much weaker in Japan. With all components of pay being included, the pay–performance sensitivity is a 5¢ change in CEO pay for every $1,000 change in shareholder value in Japan, compared with a sensitivity of 14¢ for U.S. CEOs.

The uniformly low levels of CEO salaries and weak pay–size relationship in Japan have an interesting implication for the debate over international pay differentials. It has long been believed that corporate executives in the United States are paid at significant premiums relative to executives in other countries. As a result of the increased disclosure of executive compensation globally, there has been a growing literature over the past two decades examining international comparisons. Recent studies report new evidence challenging this long-standing belief. By comparing CEO pay between the United States and 13 mostly developed economies (not including Japan), Fernandes, Ferreira, Matos, and Murphy (2013) find that international pay differentials have largely disappeared since the mid-2000s. They explain this as a consequence of increased competition in the global market for capital, customers, and managerial talent. Our findings suggest that Japan is an exception. After controlling for firm characteristics and executive attributes, we find that the total compensation paid to the average Japanese CEO in our sample is $1.1 million per year, whereas the average U.S. CEO earns $4.8 million per year, or 3.4 times higher than the Japanese level. Such a large pay gap is particularly striking given that Japan has been a major economic power in the world for decades and that this difference is obtained based on a period many years after the mid-2000s when the U.S. pay premium relative to other countries became modest or inessential.

Further contributing to this literature, our findings highlight a dimension of international pay differentials unaddressed in previous studies: Pay differential is an increasing function of firm size. This dimension is relevant because a country's firms can have a wide size distribution, and the distribution can be very different from that of other countries. Our results show that the relationship between CEO pay and firm size can vary greatly from country to country, which means that

[2]Japanese executives essentially do not receive restricted stock grants, although a very small number of companies, especially those listed on U.S. stock exchanges (e.g., Sony Corporation), have phantom restricted stock plans that grant certain fixed points every year to executives during their tenure and pay a cash amount that is calculated by multiplying the stock price by the accumulated points when triggered by an event such as the executive's resignation. This benefit is recorded under the category of retirement allowances.

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international pay differentials may be significantly greater when looking beyond the average-size companies. To the extent that both academic studies and public debate tend to focus on the highest-paid executives, it is more important to identify international pay differentials at the large-size companies.

Our study presents a case of great international differences in executive compensation. Given the scale and importance of the Japanese economy, the large differences between Japan and the United States seem surprising and are difficult to explain based on standard contractual terms or conventional economic mechanisms. Although we find some monitoring effects from traditional Japanese governance mechanisms (e.g., affiliated corporate groups and the main banks), such effects are limited. It is often argued that although U.S. firms emphasize high-powered incentive compensation and external market mechanisms, Japanese firms rely on the role of internal labor markets in employee motivation where stable employment relationships, reputation building, and long-term career concerns are important. Consistent with this argument, our results show a predominating role of internal promotion in CEO appointments and stronger long-term incentives for Japanese CEOs. Nevertheless, these differences do not explain the unusually large gap in the level of CEO pay between Japan and the United States. It is possible that the ultimate reasons for the great differences in the observable compensation schemes are associated with the unique Japanese tradition and culture, whose effects are difficult to model and quantify.

The remainder of the article is organized as follows: Section II briefly reviews the literature and describes the regulatory background regarding the disclosure of director compensation in Japan and related corporate governance issues. Section III describes the data and sample. Section IV provides evidence on CEO compensation in Japan based on the level, structure, and mechanisms of pay. Section V describes the matched-sample comparison between Japan and the United States. Section VI presents a discussion of some further issues arising from the distinct Japanese compensation system and explores potential explanations for the Japan–U.S. differences in CEO pay. Section VII concludes.

II. Background

A. Literature

The modern corporation is characterized by the separation of ownership and control. Agency theory maintains that a conflict of interest occurs when managers do not have enough incentive to pursue the long-term value of the firm. One important solution is to use well-designed compensation contracts to tie the interest of the manager to that of the shareholders. Executive compensation has hence attracted enormous academic attention, particularly since the seminal work of Jensen and Murphy (1990). Researchers from a wide range of fields, including economics, finance, accounting, and management, have undertaken extensive investigations of executive compensation and incentive contracts. A number of studies have examined the level and structure of executive pay and the pay–size and pay–performance relationships. These studies have addressed various theoretical and empirical issues and provided international evidence on executive compensation from a variety of locations, including the United States (e.g., Murphy (1985),

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Jensen and Murphy (1990), and Hall and Liebman (1998)), the United Kingdom (Conyon and Murphy (2000)), Canada (Craighead, Magnan, and Thorne (2004)), Australia (Merhebi, Pattenden, Swan, and Zhou (2006)), and other countries (Fernandes et al. (2013), Conyon, Fernandes, Ferreira, Matos, and Murphy (2013)).

These studies have mostly investigated Anglo-American countries where executive compensation is publicly disclosed. Without direct access to compensation data for Japanese executives, researchers have only indirectly examined Japanese firms. Two indirect approaches have been used in this stream of literature. In the first, the average of the total amount of compensation paid to all of a firm's directors is used as a proxy for executive compensation (Kaplan (1994), Joh (1999), Kubo (2005), Shuto (2007), and Yoshikawa, Rasheed, and Del Brio (2010)); in the other, the imputed taxable income estimated from income tax records is used as an approximation of the executive's compensation (Kato and Rockel (1992), Kato (1997), and Basu, Hwang, Mitsudome, and Weintrop (2007)). The usual conclusion of these indirect studies is that the executive compensation system in Japan is not much different from that in the United States, with similar patterns of pay associated with company size and corporate performance. Kato and Kubo (2006) present the only direct study of Japanese executive compensation that we are aware of. However, given that study's very restricted sample (provided by a compensation consulting firm), the authors can only examine CEO salaries and bonuses from 18 listed and 33 unlisted firms between 1986 and 1995, and it is therefore difficult to draw more general conclusions.

B. Corporate Governance and Director Compensation Disclosure in Japan

Managerial compensation contracts present an important dimension of corporate governance. Japan's distinctive corporate governance model and its reform over the past two decades have created the regulatory background for the pace and extent of executive compensation disclosure in Japan. Traditionally being a relationship- or consensus-oriented model, the Japanese model has three unique features: a stable ownership structure (characterized by significant bank holdings and reciprocal corporate cross-shareholdings), trading-ties-based corporate groups (e.g., a horizontally structured keiretsu through the main banks or a vertically structured keiretsu), and stable employment relationships. All these features highlight the roles of cooperation and trust between and within corporate organizations. These governance factors have direct implications for product market competition, corporate investment strategies, and employee motivation and hence are expected to impact compensation practices for top managers in Japan.

Since the Japanese economic slump of the early 1990s, significant changes, especially as a consequence of the bank crisis, financial market deregulation, and increased international competition, have occurred to the traditional ownership structure. As the main banks' holdings and corporate cross-holdings were unwound, stock holdings by business-unrelated, independent domestic institutions and foreign institutions significantly increased. In particular, the increase in

foreign institutional holdings has been dramatic.[3] The switch of institutional stock ownership from business-related corporations to business-unrelated and, in particular, foreign institutions has direct implications for corporate governance mechanisms: When the main banks' and business groups' traditional roles are weakened, monitoring and discipline by independent, sophisticated domestic and foreign institutions become increasingly important (Aoki, Jackson, and Miyajima (2007)).

Associated with such changes are corporate governance reforms, which have been implemented since the 1990s. One important reform is an amendment made to the Commercial Code in 2002 that provides large companies the flexibility to adopt the U.S.-style three-committee board system.[4] The traditional corporate board in Japan is predominantly composed of insiders who are almost always internally promoted managers. Although such boards have advantages in terms of providing management advice, they are monitored by statutory auditors who are typically former employees who have very limited power. By adopting the U.S.-style board system, the statutory auditor meeting that is elected by the general meeting is replaced by three board-elected committees (auditing, nominating, and compensation) that advise the board. Thus, with the separation of monitoring and management and an increased proportion of independent directors, the style of Japanese corporate boards has gradually transformed from its traditional model toward the globally dominant U.S. model (Aoki et al. (2007), Chizema and Shinozawa (2012)), whereby the degree of transparency and the board's role in monitoring are enhanced.

It was against this regulatory background in Japan and financial market internationalization that discussions on director compensation disclosure received unprecedented public attention. In Oct. 2008, a study group was formed by the Japanese regulator, the Financial System Council, to review the issue. After eight sessions of deliberation, the study group submitted a proposal in June 2009 recommending substantially enhanced disclosures of director compensation along with other regulatory measures aimed at improving corporate governance. The new regulation took effect in Mar. 2010, under which publicly listed companies are required to disclose, beginning in 2010, the compensation provided to each of their directors so long as a director's total remuneration is 100 million yen or more. The disclosed information includes the total amount of director remuneration and a detailed breakdown by salary, bonus, stock option value, pension benefit, and other payments. Because most top executives are directors, the new regulation has made individuals' executive compensation public information.

Two disadvantages of the resulting Japanese data are worth noting. First, the Japanese regulation stipulates a high compensation threshold for disclosure, 100 million yen, which means that the majority of Japanese corporate directors are

[3] According to the Tokyo Stock Exchange 2011 Survey, foreign institutional ownership of Japanese companies increased from 4.7% in 1990 to 18.8% in 2000 and further to 26.7% in 2010, whereas ownership by business-related corporations decreased from 30.1% in 1990 to 21.8% in 2000 and has remained at a similar level since then.

[4] Alternatively, some companies compromise by adopting a mixed board system in which they keep the statutory auditor meeting and set up a compensation committee and/or a nominating committee. In our sample, 30% of the firms adopted a U.S.-style compensation committee, and 18% adopted all three committees.

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exempt. Although this limitation does not seem to cause a serious bias toward the largest companies, it inevitably restricts our access to information on executive compensation for smaller companies. Second, the information on executive stock options is limited to the Black–Scholes value of current-year option grants. Without information pertaining to the terms and structures of all option grants and, in particular, unexercised stock options, it is difficult for us to estimate the total effect of option incentives. On the other hand, as our results show, stock options currently only play a small role in managerial motivation in Japan. Thus, the lack of more detailed data on stock options should not pose a serious problem for our understanding of those executive incentives in Japan that are currently predominantly determined by direct cash compensation.

III. Data and Sample

Our sample is based on the Standard & Poor's (S&P) Compustat Global database of listed Japanese companies. For each year from 2010 to 2015,[5] we check the corporate governance section of all companies' securities reports for the information on director compensation. The securities reports are Japanese firms' annual reports compiled by the Electronic Disclosure for Investors' Network, which is the Japanese version of the U.S. Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system. We manually collect the director compensation data for each company as reported in the compensation section, which includes each director's total remuneration and its components in terms of salary, annual bonus, Black–Scholes value of stock option grants, pension benefits, and other payments. We identify an executive director as the CEO if he or she is specified as the company's chief executive or, following Kaplan (1994), the president when the company has no CEO, as the president is typically the top executive.[6] Information on executive position, age, tenure, and stock ownership is also manually collected from firms' securities reports.

We retrieve company financial data from the Fundamental Annual section of the Compustat Global database, and we retrieve stock price and return data from the Security Daily section. Our original sample has 424 companies, of which 226 reported director compensation for 3 or more years. A total of 317 companies reported CEO compensation, of which 190 reported such information for at least 3 years. Although most firms have strictly followed the 100-million-yen disclosure threshold, four also reported compensation below this level. After excluding 112 observations due to executive turnover, our final sample contains 307 firms with a total of 1,128 CEO years.

A potential concern with our sample is that it is biased toward the largest Japanese firms because of the high threshold for disclosure of director compensation. For greater clarity, we compare our sample with the companies on

[5]Japanese firms' fiscal years usually end on Mar. 31, so firms began to disclose individually named director compensation in June 2010. Our sample includes all annual reports released from June 2010 to Mar. 2016, which covers six consecutive years for almost all firms that have fiscal years ending from Mar. 2010 to Dec. 2015. To avoid confusion in the discussion, we refer to our first year of data as 2010 instead of fiscal year 2009.

[6]Close to half of the firms specify their top executive as the president.

two major stock market indexes for the Tokyo Stock Exchange (TSE) in Japan: the TOPIX 500 and the TOPIX 1000. The statistics on the firm variables in Table 1 show that based on total assets, sales, and market capitalization, our sample firms are on average approximately twice as large as the TOPIX 1000 firms but are closely comparable to those of TOPIX 500. Hence, in terms of firm size, our sample is reasonably representative of the TOPIX 500. One implication of this

TABLE 1

Summary Statistics of CEO Compensation and Firm Variables

Our sample in Table 1 consists of 307 Japanese companies that disclosed individual compensation paid to corporate directors during the years 2010–2015. Panel A presents summary statistics of selected variables for our sample. In addition to the components of chief executive officer (CEO) direct compensation, the Black–Scholes value of stock option grants and the value of stock awards are also reported. TOTAL_PAY is the sum of salary, bonuses, stock options, stock awards, pension, and other payments, including fringe benefits. ROA and ROE are the return on assets and the return on equity, respectively. For comparison purposes regarding firm characteristics, Panel B presents the summary statistics of selected firm variables for the Tokyo Stock Price Index (TOPIX) 1000 and the TOPIX 500 companies. Compensation variables are in millions of 2015 yen, and firm size variables are in billions of 2015 yen. All variables are winsorized by removing the 1% extreme values.

	Min.	Median	Mean	Max.	Std. Dev.	No. of Obs.
Panel A. Sample Firms						
CEO Compensation Variable						
SALARY	27.0	107.0	124.1	935.0	80.3	1,104
BONUS	0.0	24.2	33.1	383.3	42.8	1,109
STOCK_OPTION	0.0	0.0	11.5	227.5	26.2	1,109
STOCK_AWARDS	0.0	0.0	0.2	41.3	2.3	1,109
PENSION_BENEFIT	0.0	0.0	7.3	111.3	15.8	1,109
OTHER	0.0	0.0	0.1	12.9	0.8	1,108
TOTAL_PAY	88.3	151.2	182.5	1,017.4	106.6	1,118
SALARY/TOTAL_PAY (%)	18.3	71.0	70.6	100.0	20.2	1,107
BONUS/TOTAL_PAY (%)	0.0	16.3	18.2	70.7	17.4	1,109
STOCK_OPTION/TOTAL_PAY (%)	0.0	0.0	5.7	58.7	10.4	1,109
STOCK_AWARDS/TOTAL_PAY (%)	0.0	0.0	0.1	20.4	1.4	1,109
PENSION_BENEFIT/TOTAL_PAY (%)	0.0	0.0	4.2	55.8	8.8	1,109
Firm Variable						
TOTAL_ASSETS	5.30	348.30	3,263.40	209,922.40	15,195.30	1,094
SALES	4.10	335.60	1,333.60	20,909.40	2,624.60	1,094
MARKET_CAPITALIZATION	2.60	235.30	859.10	10,620.40	1,385.10	1,112
ROA (%)	−8.29	6.50	7.22	39.41	5.06	1,089
ROE (%)	−27.28	8.69	9.20	52.12	8.05	1,089
STOCK_RETURN (%)	−49.00	16.30	23.23	200.82	36.60	1,077
STOCK_VOLATILITY (%)	9.72	32.32	35.02	106.09	13.91	1,105
TOBINS_Q	0.56	1.11	1.28	4.99	0.57	1,089
LEVERAGE	0.11	0.51	0.51	0.95	0.20	1,094
Panel B. TOPIX 1000 and TOPIX 500 Firms						
TOPIX 1000						
TOTAL_ASSETS	19.70	249.90	1,244.60	42,912.10	3,040.90	5,540
SALES	14.00	188.70	570.90	11,121.60	1,186.60	5,540
MARKET_CAPITALIZATION	11.20	109.80	344.50	6,413.40	683.80	5,514
ROA (%)	−6.80	4.31	5.04	26.04	4.30	5,533
ROE (%)	−61.32	5.92	5.92	36.36	7.90	5,520
STOCK_RETURN (%)	−45.11	11.82	17.52	168.16	31.97	5,502
STOCK_VOLATILITY (%)	13.24	32.61	34.27	82.48	11.17	5,520
TOBINS_Q	0.56	1.00	1.10	3.82	0.36	5,514
LEVERAGE	0.07	0.52	0.53	0.97	0.23	5,540
TOPIX 500						
TOTAL_ASSETS	63.60	672.30	2,466.60	154,544.40	7,081.90	2,816
SALES	29.10	430.70	1,007.80	12,263.90	1,645.20	2,816
MARKET_CAPITALIZATION	45.60	288.50	634.40	7,378.30	959.30	2,811
ROA (%)	−6.21	4.23	5.14	24.42	4.35	2,814
ROE (%)	−47.16	6.25	6.19	32.90	7.25	2,816
STOCK_RETURN (%)	−44.16	12.30	17.12	146.27	29.82	2,809
STOCK_VOLATILITY (%)	14.25	31.06	32.04	64.77	9.34	2,815
TOBINS_Q	0.64	1.04	1.17	3.82	0.39	2,811
LEVERAGE	0.08	0.55	0.55	0.96	0.23	2,816

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observation is that CEO pay in Japan is not strongly associated with company size. In addition, all three return performance measures indicate notably better performances of the sample firms relative to the index firms, which suggests a positive relationship between executive pay and a firm's performance.

IV. Japanese Executive Compensation

A. Level and Structure of CEO Pay

Panel A of Table 1 presents summary statistics for the CEO compensation variables after the sample was winsorized by removing the top and/or bottom 1% extreme observations. In 2015 Japanese yen, the average salary, bonus, stock option grants, and pension benefits are 124 million, 33 million, 12 million, and 7 million, respectively. These four major components account for 71%, 18%, 6%, and 4%, respectively, of a CEO's total compensation. Stock awards and all other compensation in fringe benefits, such as payments for life insurance, medical insurance, housing, and car allowances, are negligibly small, accounting for less than 0.2%. These amounts indicate a salary-dominated compensation package for top Japanese executives, of which regular incentive pay in annual bonuses and stock option grants represents one-quarter of the total remuneration.

Such salary dominance is not observed in executive compensation in other developed countries. In their recent study providing international comparisons, Fernandes et al. (2013) examine 1,648 U.S. firms and 1,615 non-U.S. firms from 13 countries, not including Japan, using CEO compensation data around the 2006 fiscal year.[7] The authors find that salary, bonuses, and stock awards (including option grants) account for 28%, 27%, and 39%, respectively, of a CEO's pay in the United States, and 46%, 24%, and 22% of a CEO's pay in the other, mostly European, countries. In contrast to this finding, our data for Japanese executives suggest large differences in the compensation structure between Japan and those countries.

Both the level and structure of CEO pay are expected to change with company size and to differ between industries. To verify that the summary statistics are not driven by any specific industry or size group, we also report them for industry and size subsamples. We divide the entire sample into four size groups and four broad industry groups. The size groups are based on sales quartiles, and the industry groups consist of manufacturing (Standard Industrial Classification (SIC) codes 20–39), financial services (codes 60–67), trade (codes 50–59), and others (which include mining, construction, transportation, services, and public administration).[8] Table 2 reports the by-size and by-industry summary statistics. Consistent with the whole sample, the subsample data indicate a percentage of salary in total pay of 65%–75% across industry and size groups. The percentages

[7]The 13 non-U.S. countries examined by Fernandes et al. (2013) are Australia, Belgium, Canada, France, Germany, Ireland, Italy, the Netherlands, Norway, South Africa, Sweden, Switzerland, and the United Kingdom.

[8]Our sample has no utility firms. The industry composition of our sample (57% in manufacturing, 8% in financial services, and 20% in trade) is close to that of all listed Japanese companies (45% in manufacturing, 10% in financial services, and 17% in trade).

TABLE 2

Summary Statistics of CEO Compensation by Industry and Firm Size

Our sample in Table 2 consists of 307 Japanese firms that disclosed individual compensation paid to corporate directors during the years 2010–2015. This table presents summary statistics of chief executive officer (CEO) pay by industry and size groups. The whole sample is divided into four size groups based on firm sales or into four broad industries. The four industries are manufacturing, financial services, trade (which includes wholesale trade and retail trade), and other industries (which include mining, construction, transportation, services, and public administration). Compensation variables (SALARY, BONUS, and STOCK_OPTION) are in millions of 2015 yen. The mean of each component of pay as a percentage of total remuneration (TOTAL_PAY) is reported in parentheses.

	SALARY		BONUS		STOCK_OPTION		TOTAL_PAY		
	Median	Mean	Median	Mean	Median	Mean	Median	Mean	No. of Obs.
Panel A. Firm Size Group									
Sales 1 (small)	113.2	123.5 (75.3%)	1.0	22.2 (13.4%)	0.0	5.5 (2.4%)	149.2	166.1	273
Sales 2	113.0	140.5 (71.1%)	17.7	34.7 (16.9%)	0.0	11.6 (5.3%)	160.6	200.6	274
Sales 3	103.6	110.9 (67.3%)	30.9	44.6 (22.5%)	0.0	15.2 (7.6%)	149.6	177.8	273
Sales 4 (large)	102.8	120.8 (66.9%)	34.1	38.8 (21.9%)	0.0	22.6 (9.3%)	149.7	186.5	274
Panel B. Industry Group									
Manufacturing	101.5	121.7 (68.8%)	29.0	39.5 (20.8%)	0.0	14.6 (6.5%)	148.4	182.6	640
Financial services	91.7	96.2 (64.7%)	29.0	34.6 (20.1%)	7.3	14.7 (8.8%)	134.0	155.5	89
Trade	120.9	139.0 (75.0%)	19.6	26.7 (14.3%)	0.0	9.2 (4.7%)	162.9	191.7	220
Other	118.2	129.6 (73.3%)	10.5	27.1 (14.3%)	0.0	13.9 (4.6%)	161.1	184.6	169

of bonuses and stock option grants are also of comparable magnitude to those for the whole sample.

The subsample statistics also yield another interesting observation: The cross-industry and by-size variations are unusually small in both the level and structure of CEO pay. Despite a noticeable increase in the use of annual bonuses and stock options by larger companies, the total compensation shows no meaningful difference in the median and only a modest difference in the mean between the top- and bottom-size quartile groups. In particular, the pay and pay structure are surprisingly uniformly distributed among the industry groups. This uniformity is consistent with the presumed consensus-oriented culture and governance model in Japan.

In addition to salary dominance and pay uniformity, our data also seem to suggest a notable negative effect of industry regulation on the level of compensation. Subject to the 100-million-yen disclosure threshold, our sample includes only 26 financial services firms and no utility firms. In contrast to the evidence from the United States and many other countries that corporate executives in the financial services sector typically receive the highest pay,[9] Japanese CEOs in this sector apparently earn lower compensation in the sample period than their peers from other sectors.

B. Determinants of CEO Pay

With the detailed information on compensation to named directors, we are able to examine the determinants of CEO pay and its components by including firm characteristics and governance variables as well as information on CEO

[9]For instance, the level of total compensation for CEOs of financial services firms ranks first in the United States and second in the United Kingdom (Conyon and Murphy (2000)).

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attributes. We use the following model for this examination:

$$\begin{aligned}(1)\quad \ln(\text{PAY}) = {} & \alpha_0 + \alpha_1 \ln(\text{SALES}) + \alpha_2 \text{ROA} + \alpha_3 \text{STOCK_VOLATILITY} \\ & + \alpha_4 \text{LEVERAGE} + \alpha_5 \text{TOBINS_Q} + \alpha_6 \text{ORIGINAL_HEAD} \\ & + \alpha_7 \text{CEO_AGE} + \alpha_8 \text{CEO_OWNERSHIP}_{-1} + \alpha_9 \text{KEIRETSU} \\ & + \alpha_{10} \text{DOMESTIC_IO} + \alpha_{11} \text{FOREIGN_IO} + \alpha_{12} \text{COMP_COMMITTEE} \\ & + \alpha_{13} \text{US_EX_LISTING} + \text{INDUSTRY_FE} + \varepsilon.\end{aligned}$$

The dependent variable is the natural logarithm of CEO salary and bonus or CEO total remuneration. The independent variables include five firm characteristics variables, which are the natural logarithm of sales, return on assets (ROA), stock return volatility, leverage, and Tobin's Q. As usual, sales are a proxy for firm size, and Tobin's Q is a proxy for growth opportunities.[10] Following Aggarwal and Samwick (1999), we compute stock return volatility as the annualized standard deviation of monthly stock returns over the previous 5 years, which has the advantage of minimizing potential effects of the 2008 financial crisis on stock market volatility in the following years.

Three CEO attributes variables are included in the model, which are the original-head dummy, CEO age, and lagged CEO stock ownership. We expect these variables to capture the effects of contractual factors such as managerial power, seniority, and equity incentives.[11] The influence of such factors that are associated with long-term employment relationships is widely believed to be an important organizational characteristic in Japan. We identify a CEO as the original head if he or she was the president or chairperson at the time the firm was founded. This information is available from the company's securities report. To avoid potential endogeneity, we use the lagged value of CEO stock ownership in the estimation.

To account for the roles of specific Japanese governance factors such as major business groups and the main banks, we include the dummy variable for Japanese keiretsu (KEIRETSU) and the variable of domestic financial institutional ownership (DOMESTIC_IO). Following Weinstein and Yafeh (1998), we use the 1992 list of major Japanese keiretsu groups edited by Dodwell Marketing Consultants and identify 75 firms in our sample as being from one of the keiretsu groups.[12] The information on stock holdings by domestic financial institutions is obtained from firms' securities reports.

To capture the impacts of the U.S. market and corporate governance influence factors on executive compensation practices in Japan, we control for foreign institutional ownership (FOREIGN_IO) and include the dummy variables for U.S.-style compensation committees (COMP_COMMITTEE) and cross-listings on U.S. stock exchanges (US_EX_LISTING). The information on stock holdings

[10]Previous studies also use total assets and market capitalization as alternative proxies for firm size. We examined these two variables and, in unreported results, found no material differences.

[11]CEO tenure with a firm can also be used as a proxy for seniority. As expected, these two variables are highly correlated with each other, as Japanese executives typically stay with a company until retirement.

[12]The list identifies eight major Japanese keiretsu groups: Fuyo, Sanwa, Dai-Ichi Kangyo (DKB), Sumitomo, Mitsui, Mitsubishi, Tokai, and IBJ.

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by foreign institutions and the adoption of a U.S.-style compensation committee is also available from Japanese firms' securities reports. During our sample period, a total of 22 Japanese firms are cross-listed on one of the three U.S. stock exchanges (New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ), among which 15 are identified in our sample. In addition, industry fixed effects for the Fama–French 30 industries are included.

We note a data truncation problem in our sample: Due to the 100-million-yen disclosure threshold, observations of CEO total compensation that are below this threshold are excluded from the sample. As a result, total pay is a limited dependent variable, and thus ordinary least squares (OLS) estimates are biased and inconsistent. Previous studies suggest using truncated regression techniques to circumvent the econometric issues arising from data truncation (e.g., Amemiya (1973), Newey (2001)). Therefore, for comparison purposes, we report both OLS and truncated regressions.[13]

Table 3 presents the regression results, with columns 1 and 2 for the truncated model regressions and columns 3 and 4 for the OLS regressions. The coefficient estimates are mostly consistent between the two estimators with regard to sign and statistical significance. However, as expected, the OLS estimates are notably biased toward 0 for most of the coefficients. Our discussion will focus on the truncated regressions. For convenience of interpretation, we take the first-order differential of the dependent variable, $\Delta PAY/PAY$, as the percentage change of CEO pay, which equals the change of the corresponding explanatory variable multiplied by its coefficient. Our major findings from this test can be summarized as follows: First, there is a positive, although relatively weak, association between CEO pay and firm size. The overall size effect is estimated by the elasticity of total remuneration with respect to sales, which is 0.14. This elasticity estimate is substantially smaller than the elasticity of 0.38 for the United States and 0.35 for European countries reported by Conyon et al. (2013).[14] This relatively invariant CEO pay with respect to company size is not common. Essentially all previous studies from a variety of countries report a strong executive pay–firm size relationship, which is consistent with the prediction of the allocation theory of control that more talented managers occupy top positions in larger firms (Rosen (1992)). However, our observation is consistent with the presumed typical managerial labor market practice in Japan that in the absence of market competition, firms rely on an internal labor market to select top executives (Gabaix and Landier (2008)).

Consistent with Conyon and Murphy (2000), CEO pay is positively related to stock return volatility, indicating higher levels of pay for managers serving in riskier environments. There is also a negative effect of leverage on the level of

[13]To obtain a truncated regression for salary and bonuses (which together account for 88.8% of the total compensation paid to Japanese CEOs), we artificially truncate the data on total salary and bonuses at 100 million yen. This approach reduces the sample size by 12% for the regressions for these two components of pay.

[14]The magnitude of this elasticity is comparable to those reported in previous studies of Japanese executive compensation from indirect approaches. For instance, using a sample of 174 Japanese firms during 1992–1996, Basu et al. (2007) document a pay–sales elasticity of 0.11, where the imputed taxable income is used as the proxy for executive compensation.

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TABLE 3
Determinants of CEO Compensation

Table 3 presents the results of our regression analysis for the determination of chief executive officer (CEO) pay. The dependent variable is the natural logarithm value of salary plus annual bonus (ln(SALARY_BONUS)) or total remuneration (ln(TOTAL_PAY)). Columns 1 and 2 report the truncated model regressions, and columns 3 and 4 report the ordinary least squares (OLS) model regressions. The standard truncated regression technique is applied to our compensation data because observations of CEO total compensation below the disclosure threshold of 100 million yen are mechanically excluded from the sample. The original head dummy equals 1 if the CEO was the chief executive or chairperson at the time the company was founded, and 0 otherwise. The keiretsu dummy equals 1 for firms from a major keiretsu group, and 0 otherwise. Domestic financial institutional ownership (DOMESTIC_IO) and foreign institutional ownership (FOREIGN_IO) are provided as the percentage of the firm's total shares outstanding. The U.S.-style compensation committee dummy (COMP_COMMITTEE) equals 1 if the firm has established a U.S.-style compensation committee, and 0 otherwise. The cross-listing on U.S. stock exchange dummy (US_EX_LISTING) equals 1 if the firm is cross-listed on one of the major U.S. stock exchanges (NYSE, AMEX, or NASDAQ), and 0 otherwise. *p*-values are reported in parentheses. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Truncated Regression		OLS Regression	
	ln(SALARY_BONUS)	ln(TOTAL_PAY)	ln(SALARY_BONUS)	ln(TOTAL_PAY)
Variable	1	2	3	4
Intercept	0.852 (0.353)	1.793** (0.001)	3.902** (0.000)	4.048** (0.000)
ln(SALES)	0.128** (0.004)	0.139** (0.000)	0.040** (0.001)	0.047** (0.000)
ROA	1.020 (0.395)	0.305 (0.714)	0.531 (0.131)	0.077 (0.823)
STOCK_VOLATILITY	1.461** (0.000)	1.293** (0.000)	0.539** (0.000)	0.526** (0.000)
LEVERAGE	−0.271 (0.366)	−0.458* (0.034)	−0.048 (0.578)	−0.147 (0.087)
TOBINS_Q	−0.157 (0.167)	−0.058 (0.407)	−0.068* (0.038)	−0.022 (0.452)
ORIGINAL_HEAD	0.201 (0.129)	0.095 (0.298)	0.090* (0.021)	0.037 (0.336)
CEO_AGE	0.014* (0.010)	0.015** (0.000)	0.005** (0.000)	0.006** (0.000)
$CEO_OWNERSHIP_{-1}$	0.007 (0.234)	0.011* (0.012)	0.004 (0.057)	0.005** (0.010)
KEIRETSU	−0.168 (0.192)	−0.221* (0.014)	−0.056 (0.101)	−0.072* (0.035)
DOMESTIC_IO	−0.023** (0.000)	−0.020** (0.000)	−0.006** (0.000)	−0.008** (0.000)
FOREIGN_IO	0.015** (0.000)	0.011** (0.000)	0.006** (0.000)	0.005** (0.000)
COMP_COMMITTEE	0.089 (0.440)	0.132 (0.102)	−0.014 (0.654)	0.038 (0.222)
US_EX_LISTING	0.221 (0.307)	0.368* (0.015)	0.086 (0.177)	0.153* (0.017)
INDUSTRY_FE	Yes	Yes	Yes	Yes
Adj. R^2	0.133	0.158	0.173	0.172
No. of obs.	886	1,012	996	1,012

total pay. This finding supports the argument that firms with higher levels of debt are associated with more intensive external monitoring (Basu et al. (2007)).

Second, CEO compensation is positively associated with CEO age and share ownership. The estimates indicate that CEO total pay increases by 1.5% for each 1-year increase in age and by 1.1% for a 1-percentage-point increase in the CEO's stock holdings. This finding is consistent with the presumed role of seniority in managerial compensation practices in Japan. Age presents an intuitive measure of seniority, and the level of ownership reflects the CEO's importance or power in the company and hence is also related to seniority.

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Third, CEO total compensation is negatively associated with keiretsu groups and domestic financial institutional ownership. On average, CEOs from the keiretsu groups receive 22% less in total remuneration than those from independent firms, and their total pay decreases by 20% for every 10-percentage-point increase in ownership of domestic financial institutions. We view this finding as evidence of the role of traditional Japanese governance schemes in curbing managerial pay through the monitoring by affiliated business groups and the main banks, as well as evidence of an association with reduced product-market competition.[15]

Lastly but importantly, our results indicate a notable influence of U.S. market and foreign investors on the level of compensation paid to Japanese CEOs. This influence includes a positive effect on CEO pay of both foreign institutional ownership and Japanese firms' cross-listings on U.S. stock exchanges. These effects are economically strong: For every 10-percentage-point increase in foreign institutional ownership, CEO total remuneration increases by 11%, and cross-listing on U.S. exchanges raises total remuneration by an astonishing 37%. One might view this effect as an undesirable influence of the U.S. practices in the managerial power scenario (Bebchuk, Fried, and Walker (2002)), whereby the setting of executive compensation is itself an agency problem. However, it is also possible that this effect is efficient in the sense that U.S. market pressures have helped the Japanese managerial labor market to become more competitive globally, as evidenced by more competitive compensation packages paid to Japanese executives. Consistent with this argument, we find that the proportion of CEOs who are foreigners is significantly higher for firms under greater international influence: It is 6.6% for the one-third of our sample firms that have the highest average foreign institutional ownership and only 0.5% for the other two-thirds; further, the proportion is 5.9% for the cross-listed firms and 2.4% for those without a cross-listing in the United States. Although these preliminary results do not identify the causal relationship, they show a strong association between CEOs' background as foreigners and an international-market influence on CEO compensation in Japan.

C. Pay–Performance Relationship

Managerial incentives are typically characterized by the executive pay–performance relationship. Following Jensen and Murphy (1990), we estimate the arithmetic pay–performance sensitivity for Japanese CEOs using the following baseline model:

$$\Delta \text{PAY} = \beta_0 + \beta_1 \Delta \text{SW}. \tag{2}$$

The dependent variable is the change in CEO pay in a year. The independent variable is the change in the firm's shareholder wealth (SW) in that

[15] In a cross-sectional regression using CEO imputed taxable income data, Kato (1997) reports that CEOs of keiretsu firms earn 21% less than those of independent firms. Conversely, in a pooled sample regression using executive imputed taxable income, Basu et al. (2007) document insignificant effects of both keiretsu and the main banks on executive pay.

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year, which is calculated as the stock return rate multiplied by the beginning-of-year firm market value. The coefficient β_1 is our main focus, which estimates the pay–performance sensitivity. To allow the sensitivity to change with corporate governance factors, we add an interaction term of ΔSW with each of the governance variables defined in equation (1). It has been documented that the pay–performance sensitivity is negatively associated with company size (Garen (1994)). We therefore also include in the model the interaction of ΔSW with ln(SALES).

The dependent variable in this model, yearly change in pay, is not truncated at any value as that in equation (1). However, a sample-selection problem can present here: A CEO's pay change in a year is not observed when his or her total compensation in that year or the previous year is below the disclosure threshold of 100 million yen. When this problem results in nonrandom selection of the sample, it causes inconsistent estimates with the OLS model. To address potential selection bias, we use the standard 2-stage estimation method, commonly known as the Heckit model, developed by Heckman (1979). In the first stage, we estimate a binary choice model to predict the compensation disclosure probability for each CEO, from which we calculate the inverse Mills ratio (IMR), a transformation of the predicted probability. Then, in the second stage, we estimate equation (2) by including the IMR as an additional explanatory variable. For a reliable implementation of this method, we need to identify exogenous independent variables in the first-stage choice model that impose "exclusion restrictions"; such variables, although being useful explanatory variables in the first-stage model, can be validly excluded from the set of independent variables in the second-stage model.[16] For our test, we consider the firm's average size and leverage over previous years to have this property. Specifically, we use the average ln(SALES) and average leverage ratio over the past 2 years, $t-1$ and $t-2$, as our instrumental variables. On the one hand, because firm characteristics do not change rapidly from year to year, these variables of recent years are still indicative of the firm's current-year size and leverage and thus are useful explanatory variables in the first-stage choice model. On the other hand, these past years' characteristics have no plausible reason to be directly associated with the current year's change in CEO pay. The exclusion restriction property is well verified with our data for both instrumental variables, where yearly changes in CEO pay are largely driven by company performance.[17] Therefore, we impose exclusion restrictions by including these two instrumental variables, in addition to those specified in equation (2), in the first-stage choice model.

Table 4 presents the results of our regression analysis, where the dependent variable is the change in salary, bonus, or total compensation. We perform

[16]Exclusion restriction requires an exogenous independent variable in the first-stage regression to have no direct impact on the dependent variable in the second-stage regression so that any association between the two must be indirect through the IMR variable estimated from the first-stage model.

[17]The regressions in Table 3 suggest that CEO pay is affected by firm-characteristic variables, including size and leverage. For yearly changes in pay, however, such an effect is limited as long as year-to-year changes in firm fundamentals are limited. In particular, such an effect is from contemporaneous changes in firm characteristics but without a direct link to those variables' historical average levels.

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TABLE 4
CEO Pay–Performance Sensitivity

Table 4 presents the results of our regression analysis for chief executive officer (CEO) pay–performance sensitivity. The dependent variable is the change in base salary, annual bonus, or total remuneration, in millions of yen. ΔSW is the change in shareholder wealth, in billions of yen, calculated as the stock return rate in a year multiplied by the beginning-of-year firm market value. Panel A reports the Heckit model regressions, and Panel B reports the ordinary least squares (OLS) regressions. The Heckman 2-stage estimation method (or the Heckit model) is used to correct for potential sample-selection bias caused by the disclosure threshold. The inverse Mills ratio (IMR) is obtained from the first-stage choice model that estimates the probability of disclosure of a CEO's compensation. The variance inflation factor of IMR is reported as a diagnostic test for multicollinearity. The keiretsu dummy (KEIRETSU) equals 1 for firms from a major keiretsu group, and 0 otherwise. Domestic financial institutional ownership (DOMESTIC_IO) and foreign institutional ownership (FOREIGN_IO) are expressed as the percentage of the firm's total shares outstanding. The U.S.-style compensation committee dummy (COMP_COMMITTEE) equals 1 if the firm has established a U.S.-style compensation committee, and 0 otherwise. The cross-listing on U.S. stock exchange dummy (US_EX_LISTING) equals 1 if the firm is cross-listed on one of the major U.S. stock exchanges (NYSE, AMEX, or NASDAQ), and 0 otherwise. *p*-values are reported in parentheses. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	ΔSALARY		ΔBONUS		ΔTOTAL_PAY	
Variable	1	2	3	4	5	6
Panel A. Heckit Model Regression						
Intercept	0.761	0.355	−3.774	−1.467	−3.669	−0.258
	(0.820)	(0.919)	(0.330)	(0.709)	(0.540)	(0.966)
ΔSW	0.003	−0.019	0.015**	0.180**	0.024**	0.155*
	(0.335)	(0.669)	(0.000)	(0.004)	(0.000)	(0.031)
ΔSW × ln(SALES)		0.001		−0.011**		−0.010*
		(0.637)		(0.001)		(0.023)
ΔSW × KEIRETSU		−0.003		−0.003		−0.024*
		(0.602)		(0.672)		(0.033)
ΔSW × DOMESTIC_IO		0.000		0.000		−0.000
		(0.930)		(0.796)		(0.642)
ΔSW × FOREIGN_IO		0.000		0.000		0.001
		(0.608)		(0.809)		(0.101)
ΔSW × COMP_COMMITTEE		−0.000		−0.004		0.002
		(0.975)		(0.438)		(0.837)
ΔSW × US_EX_LISTING		−0.001		0.013		0.030*
		(0.886)		(0.116)		(0.015)
IMR	0.594	0.924	3.285	1.346	4.631	2.060
	(0.793)	(0.692)	(0.195)	(0.599)	(0.252)	(0.613)
Variance inflation factor of IMR	1.14	1.20	1.13	1.19	1.14	1.20
Adj. R^2	−0.002	−0.014	0.057	0.081	0.049	0.069
No. of obs.	478	477	390	389	483	482
Panel B. OLS Regression						
Intercept	2.763**	2.841**	1.188	0.816	5.036**	5.026**
	(0.003)	(0.003)	(0.282)	(0.456)	(0.002)	(0.002)
ΔSW	0.002	−0.010	0.015**	0.223**	0.024**	0.191**
	(0.385)	(0.825)	(0.000)	(0.000)	(0.000)	(0.009)
ΔSW × ln(SALES)		0.001		−0.015**		−0.012**
		(0.705)		(0.000)		(0.007)
ΔSW × KEIRETSU		−0.004		−0.004		−0.024*
		(0.520)		(0.550)		(0.026)
ΔSW × DOMESTIC_IO		−0.000		0.000		−0.001
		(0.904)		(0.796)		(0.322)
ΔSW × FOREIGN_IO		0.000		0.000		0.001
		(0.900)		(0.879)		(0.069)
ΔSW × COMP_COMMITTEE		−0.003		0.005		0.007
		(0.580)		(0.402)		(0.454)
ΔSW × US_EX_LISTING		0.001		0.012		0.041**
		(0.860)		(0.104)		(0.002)
Adj. R^2	−0.000	−0.008	0.051	0.090	0.038	0.063
No. of obs.	669	668	500	499	678	677

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the test for salary and bonus separately to identify their different effects on the pay–performance relationship.[18] The Heckit model regressions are reported in Panel A and the OLS regressions in Panel B. The coefficient on the IMR in the Heckit model captures the effect of selection bias. It is statistically insignificant in all of the Heckit model regressions, implying the absence of selection bias. Coinciding with this inference, the major coefficients are closely comparable in magnitude and statistical significance levels between the OLS and Heckit estimation, confirming that the IMR control is inessential. To obtain a diagnostic test for multicollinearity and hence the reliability of the control of the IMR, we also report its variance inflation factors (VIFs). At a value close to 1, all of the VIFs are substantially smaller than the threshold value of 10 for exhibiting high multicollinearity (see, e.g., Belsley, Kuh, and Welsch (1980)).[19] All of these findings show that our results do not suffer from selection effects. However, we also note the general difficulty and complexity of addressing endogeneity due to imperfect instrument variables. Lennox et al. (2012) point out the importance of sensitivity analysis in this regard. We therefore conduct a careful sensitivity analysis by examining various specifications using suitable exogenous independent variables in the first-stage model estimation. In untabulated results, our sensitivity analysis further confirms that our results are robust.[20]

The regressions in columns 1–4 of Table 4 show a clear difference in the pay–performance relationship between salary and bonus: The sensitivity coefficient is positive and statistically highly significant for bonus, whereas it is statistically not different from 0 for salary.[21] This result is consistent with previous studies from other countries, reflecting the different roles of base salary and annual incentive pay in CEO compensation. For total remuneration, the coefficient on ΔSW in the Heckit model in column 5 yields an average sensitivity of 0.024 for CEO pay to shareholder wealth.[22] That is, with all components of compensation being

[18] As in previous studies, we do not perform this test separately for other components of pay, including grants of stock options, restricted stock awards, and various fringe benefits. Although these components also contribute to the overall pay–performance relationship, their mechanisms are complex, and their effects on the sensitivity, as part of direct compensation, are limited. This consideration particularly applies to Japanese firms, where these components represent a much smaller part of total compensation and the data of these components are frequently 0.

[19] Little (1985) and Lennox, Francis, and Wang (2012) show that, depending on the validity of the exclusion restrictions, the Heckit model estimates can be fragile and suffer from multicollinearity due to model misspecification; conversely, without the IMR term, OLS estimates are typically robust and are less likely to suffer from high multicollinearity. With the similar parameter estimates and same inferences, the two methods in our test are highly consistent in this regard.

[20] We also note that due to data limitations (e.g., our managerial attributes and corporate governance variables only cover TOPIX 1000 firms), our first-stage choice model is estimated using the TOPIX 1000 as the sample universe. Although the TOPIX 1000 is a reasonable representative sample of the Japanese economy, it remains unclear whether our results are sensitive to the sample universe choice. To this end, we have also obtained and compared all regression results among alternative suitable sample-universe choices, including the TOPIX 1000, the TOPIX 500, and the size-based top-300 TOPIX firms.

[21] The sample size is smaller for bonus than for salary due to the fact that a small number of firms either did not have a clearly defined bonus plan or did not disclose information on their bonus plans.

[22] It is worth noting that the marginal effect of an independent variable in the Heckit model generally consists of two components: The first is the direct effect of the independent variable on the mean of the dependent variable, which is captured by the explicit parameter estimate in the second-stage regression, and the second is an indirect effect through the IMR variable when the independent

included, CEO pay on average increases by 24 yen for every 1,000,000-yen increase in shareholder wealth. This sensitivity is statistically highly significant. The magnitude of this sensitivity, however, is very small compared with the typical CEO pay–performance sensitivities in other countries. We leave a detailed discussion of the difference between Japan and the United States to Section V.

The coefficients on the interaction terms with the governance variables estimate the effects of these variables on the pay–performance sensitivity. With the regression for CEO total compensation in column 6 of Table 4, the coefficient on the keiretsu dummy indicates a significant negative impact on the sensitivity. This impact is consistent with a substitution effect of keiretsu for compensation schemes in motivating and disciplining managers. Moreover, although the adoption of a U.S.-style compensation committee has no effect, foreign institutional ownership and cross-listing on U.S. stock exchanges increase the sensitivity significantly or marginally significantly. CEO total pay–performance sensitivity increases by 10 yen for every 10-percentage-point increase in foreign institutional ownership and further increases by 30 yen if the company is also listed on a major U.S. stock exchange.

These results have two interesting implications regarding managerial incentive contracting. First, there is a significant U.S. market influence on executive compensation practices in Japan. This influence is either direct from foreign institutional investors or indirect through Japanese firms' cross-listings in the United States. Although cross-listed Japanese firms are not required to follow the U.S. disclosure rules regarding executive compensation, the presence of U.S. investors is expected to exert pressure on the board, thus leading to necessary adjustments to account for cultural or traditional differences in corporate governance, including executive compensation policies. The second implication is that there is no evidence for the presumed role of a U.S.-style board compensation committee in the design of executive compensation toward a performance-based system. There has been a long debate in the literature about the monitoring role of the board of directors in executive compensation (e.g., Bebchuk et al. (2002), Chhaochharia and Grinstein (2009)). Our result from Japanese firms does not show a significant role of the board in this regard.

V. A Comparison between Japan and the United States

There are good reasons to perform a close comparison of executive compensation between Japan and the United States. Although both countries are major players in the global economy, they have sharply contrasting cultural and institutional backgrounds and organizational structures. These differences raise many interesting questions: What motivates corporate managers in the two countries? To what extent does each country's executive compensation system impact its economy? Is one of the systems superior to the other in terms of its role in

variable also appears in the first-stage model and changes the probability of selection. As a result, the magnitude, sign, and statistical significance of the marginal effect can all be different from the explicit parameter estimate (Greene (2003)). Therefore, unless there is no selection bias, such that the coefficient on the IMR variable is statistically not different from 0 (as is the case for our results), the explicit parameter estimates alone are insufficient to indicate the marginal effects of the independent variables.

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facilitating the long-term growth of the economy? Despite their importance, these questions are difficult to address and have largely remained unanswered. With the first publicly available data on Japanese executives, however, we are able to perform a close, direct comparison between the two countries, thus providing direct evidence of Japan–U.S. differences in compensation systems and shedding new light on some of these issues.

The recent international comparisons by Conyon et al. (2013) and Fernandes et al. (2013) show that executive compensation practices largely converged globally in the 2000s as a consequence of increased globalization of the world's economies. However, due to data constraints, these studies have been unable to include Asian countries. In particular, it remains interesting to examine whether this observation also applies to Japan, which, as a major economic power, has a distinct governance system compared to the Anglo-American system.

To minimize potential effects of firm heterogeneity, we construct matched samples to control for industry and company size, which are both important factors that affect the level and structure of executive pay. For each Japanese firm in our sample, we identify a matching U.S. firm from the S&P ExecuComp database based on the following criterion: The matching firm must be in the same industry sector based on the Fama–French 30-industry classification, and it must have total assets of between 50% and 150% of its Japanese counterpart. The matching process results in 274 pairs of matched firms.[23]

We retrieve financial data for U.S. firms from the S&P Compustat database and stock price and return data from the Center for Research in Security Prices (CRSP) stock databases. The information on CEO tenure and founder status is obtained from the Bloomberg database. Since the 2006 amendments to the disclosure rules regarding executive compensation, U.S. firms have disclosed executive compensation in six categories: salary, bonuses, nonequity incentive plans, stock awards, stock option grants, and all other compensation. Bonuses are now defined as discretionary payments, and the previous performance-based annual bonus and long-term incentive plans (LTIPs) are now reported as nonequity incentive plans. We thus combine U.S. CEOs' bonuses and nonequity incentive plans as one component, which is then compared with the bonus component in Japanese firms. All other payments consist of various fringe benefits including pension benefits. All compensation variables are converted to 2015 U.S. dollars.

Table 5 reports summary statistics for CEO pay and firm variables for the matched Japanese and U.S. samples. The results show unusually large differences in both the level and structure of CEO compensation between the two countries. The highest-paid Japanese CEOs earn $2.0 million a year on average, which is only 26.7% of the U.S. counterpart of $7.5 million. This difference is much greater than the 100%–200% raw premium paid to U.S. CEOs relative to those in other countries examined by Fernandes et al. (2013).

The compensation structure between salary (the relatively fixed component of pay) and the components of incentive pay presents another striking difference

[23]To match for company size, different matching criteria for the size variable have been used in previous studies. We use the [50%, 150%] size range in our matching considering the sample size of our data. As a robustness check, we also examined our results using alternative, more or less restrictive matching criteria but found no material differences.

TABLE 5

Summary Statistics for the Japan–U.S. Comparison: The Level and Structure of CEO Pay

Table 5 presents summary statistics for chief executive officer (CEO) pay and key firm variables for the matched sample. The sample consists of a total of 941 pairs of CEO-year observations whose companies are industry- and size-matched between Japanese and U.S. firms. Japanese pay amounts are converted to USD using each year's average USD/JPY exchange rate. Compensation and firm variables are in millions of 2015 USD. All variables are winsorized by removing the 1% extreme values. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Japan				United States				Japan–U.S. Difference	
	Mean	Median	Std. Dev.	No. of Obs.	Mean	Median	Std. Dev.	No. of Obs.	Mean	Median
Panel A. CEO Pay Variable										
SALARY	1.409	1.201	0.958	921	0.969	0.952	0.498	937	0.440**	0.249**
BONUS	0.356	0.253	0.483	925	1.772	1.219	1.989	937	−1.415**	−0.966**
STOCK_OPTION	0.111	0.000	0.230	925	1.498	0.504	2.266	937	−1.388**	−0.504**
RESTRICTED_STOCK	0.003	0.000	0.029	925	2.790	1.683	3.364	937	−2.787**	−1.683**
ALL_OTHER_PAYMENTS	0.086	0.000	0.183	924	0.233	0.109	0.468	937	−0.147**	−0.109**
TOTAL_PAY	2.023	1.679	1.191	934	7.542	5.891	6.156	933	−5.519**	−4.212**
SALARY/TOTAL_PAY (%)	71.37	72.54	20.23	923	21.15	15.56	16.63	937	50.22**	56.98**
BONUS/TOTAL_PAY (%)	17.77	15.33	17.42	925	23.14	21.42	16.17	937	−5.37**	−6.09**
STOCK_OPTION/TOTAL_PAY (%)	5.34	0.00	9.69	925	17.53	12.49	20.39	937	−12.19**	−12.49**
RESTRICTED_STOCK/TOTAL_PAY (%)	0.16	0.00	1.70	925	32.77	33.13	24.21	937	−32.62**	−33.13**
Panel B. Firm Variable										
ASSETS	22,290	3,219	105,345	933	17,868	3,204	64,299	933	4,422	15
SALES	9,541	3,042	17,205	933	8,208	3,578	13,544	933	1,333	−536
MARKET_CAPITALIZATION	7,476	2,339	11,537	933	10,835	3,553	18,261	931	−3,359**	−1,214**
LEVERAGE	0.50	0.50	0.20	910	0.56	0.55	0.23	928	−0.05**	−0.05**
STOCK_VOLATILITY	0.35	0.32	0.12	925	0.40	0.36	0.17	905	−0.05**	−0.04**

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between the two countries. Japanese CEOs are paid a dominant base salary, which, at an average of $1.4 million, accounts for 71.4% of their total remuneration. Conversely, the average salary paid to U.S. CEOs is close to $1 million, accounting for only 21.2% of their total compensation. In contrast, total incentive pay, consisting of annual bonuses, stock options, and restricted stock awards, is on average close to $0.5 million for Japanese CEOs and $6.1 million for U.S. CEOs, which accounts for 23.3% and 73.4% of the total compensation for Japanese and U.S. CEOs, respectively. These contrasting compensation structures are associated with lower uncertainty in the compensation packages for Japanese CEOs: The standard deviation of total compensation is $1.2 million for Japanese CEOs and $6.2 million for U.S. CEOs, which, after standardization by mean compensation, becomes 0.59 and 0.82, respectively.

These observations imply significant differences in the determinants of pay and in the pay–performance relationship between the two countries. Table 6 presents our regression results for the determinants of CEO pay. The specification is based on the baseline model, equation (1), and is also estimated using both OLS and the truncated technique. To allow sufficient flexibility for the model to capture Japan–U.S. differences, we include in the model the Japan dummy and its interaction with each of the explanatory variables. The coefficients on the variables without the Japan dummy apply to U.S. CEOs, and those with the dummy variable capture the Japan–U.S. differences. In this approach, we allow the differences to vary with firm characteristics. This approach is suitable for our comparison because CEO pay differs significantly between Japan and the United States, not only in the level of pay but also in the pay mechanisms.

Among all variables, firm size presents the most important determinant of CEO pay, which is also the key factor affecting the difference between the two countries. In particular, the difference does not emerge as a constant component of pay but as a striking difference in the pay–size relationship. For U.S. CEOs, the truncated regression estimates the CEO pay-to-sales elasticity at 0.45, which can be compared with the Japanese counterpart of only 0.13. In addition to the differing size effect, Japanese CEOs receive higher compensation in firms with higher stock return volatility or lower leverage. The difference in the volatility effect is particularly notable and indicates significantly greater compensation to Japanese CEOs for taking the same level of stock risk.

These results mean that the Japan–U.S. difference in CEO pay is a function of firm characteristics. To obtain a more complete picture of the difference, we calculate predicted values of CEO total pay using the truncated regression in column 2 for selected values of sales and stock return volatility, the two firm characteristics that show the largest differences between the two countries. As shown in Table 7, Japanese CEO pay is relatively invariant to sales levels, and consequently, the Japan–U.S. difference increases strongly with company size. At sales of $3 billion and stock return volatility of 30% (which are close to the sample medians), Japanese CEOs receive $1.02 million, whereas U.S. CEOs receive $4.87 million, or 377% higher. However, at the firm sales level of $50 million (which is close to the average sales of the smallest 1% of firms in our sample), the pay difference essentially disappears. Conversely, CEO pay in Japan increases notably as stock return volatility increases, whereas it is essentially invariant to volatility

TABLE 6
Comparison of Determinants of Compensation

Table 6 reports the results of our regression analysis for the comparison of the determinants of chief executive officer (CEO) pay between Japan and the United States. Columns 1 and 2 report the truncated model regressions, and columns 3 and 4 report the ordinary least squares (OLS) regressions. The dependent and independent variables are defined similarly as in Table 3. JAPAN is a dummy variable for Japanese firms. Variables in Japanese yen are converted to USD using each year's average USD/JPY exchange rate. *p*-values are reported in parentheses. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Truncated Regression		OLS Regression	
Variable	ln(SALARY_BONUS) 1	ln(TOTAL_PAY) 2	ln(SALARY_BONUS) 3	ln(TOTAL_PAY) 4
Intercept	−3.480** (0.000)	−2.071** (0.000)	−2.574** (0.000)	−1.953** (0.000)
ln(SALES)	0.403** (0.000)	0.450** (0.000)	0.317** (0.000)	0.440** (0.000)
ROA	2.111** (0.001)	−0.034 (0.939)	2.329** (0.000)	0.538 (0.121)
STOCK_VOLATILITY	0.146 (0.467)	−0.176 (0.228)	0.256* (0.022)	−0.232* (0.049)
LEVERAGE	0.116 (0.466)	−0.038 (0.757)	0.237** (0.008)	−0.058 (0.537)
TOBINS_Q	−0.138* (0.023)	0.098* (0.016)	−0.078* (0.013)	0.072* (0.030)
FOUNDER	−0.044 (0.744)	0.184* (0.046)	0.078 (0.274)	0.245** (0.001)
CEO_AGE	0.007 (0.131)	−0.001 (0.843)	0.005 (0.059)	−0.000 (0.875)
$CEO_OWNERSHIP_{-1}$	0.041** (0.001)	0.013 (0.119)	0.003 (0.636)	−0.000 (0.941)
JAPAN	1.619** (0.009)	1.007* (0.035)	2.126** (0.000)	1.890** (0.000)
JAPAN × ln(SALES)	−0.272** (0.000)	−0.319** (0.000)	−0.261** (0.000)	−0.387** (0.000)
JAPAN × ROA	−0.907 (0.483)	1.670 (0.106)	−1.135 (0.052)	0.463 (0.446)
JAPAN × VOLATILITY	1.219** (0.003)	1.371** (0.000)	0.360 (0.062)	0.771** (0.000)
JAPAN × LEVERAGE	−0.804** (0.008)	−0.526* (0.031)	−0.437** (0.001)	−0.128 (0.354)
JAPAN × TOBINS_Q	0.271* (0.029)	−0.043 (0.632)	−0.031 (0.569)	−0.138* (0.011)
JAPAN × FOUNDER	0.228 (0.183)	0.102 (0.433)	0.053 (0.537)	−0.133 (0.137)
JAPAN × CEO_AGE	−0.008 (0.263)	−0.004 (0.474)	−0.002 (0.626)	0.002 (0.671)
$JAPAN \times CEO_OWNERSHIP_{-1}$	−0.020 (0.132)	0.005 (0.617)	0.004 (0.602)	0.008 (0.238)
INDUSTRY_FE	Yes	Yes	Yes	Yes
Adj. R^2	0.353	0.650	0.416	0.673
No. of obs.	1,155	1,429	1,632	1,649

in U.S. firms. As a result, the Japan–U.S. difference becomes smaller for firms with higher stock return volatility.

To compare the pay–performance relationships, we run regressions using the baseline model, equation (2), by including a dummy variable for Japanese firms and its interaction with ΔSW. The interaction term captures the average difference in the pay–performance sensitivity between Japan and the United States. Table 8 presents the regression results, with columns 1–3 for the Heckit

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TABLE 7

Predicted CEO Total Pay: Japan versus the United States

Table 7 reports the predicted total compensation for nonfounder chief executive officers (CEOs) from the second regression in Table 6, assuming sample average values for the firm-characteristic and CEO-attribute variables. Compensation and firm sales are in millions of 2015 USD.

Stock Return Volatility	50	200	1,000	3,000	10,000
Panel A. Japan					
20%	0.53	0.64	0.79	0.91	1.06
30%	0.60	0.72	0.89	1.02	1.20
40%	0.67	0.81	1.00	1.15	1.35
50%	0.76	0.91	1.13	1.30	1.52
60%	0.86	1.03	1.27	1.46	1.71
Panel B. United States					
20%	0.79	1.47	3.03	4.96	8.53
30%	0.77	1.44	2.97	4.87	8.38
40%	0.76	1.42	2.92	4.79	8.23
50%	0.75	1.39	2.87	4.71	8.09
60%	0.73	1.37	2.82	4.62	7.95
Panel C. U.S.–Japan Difference					
20%	49%	130%	284%	445%	705%
30%	28%	100%	234%	377%	598%
40%	13%	75%	192%	317%	510%
50%	−1%	53%	154%	262%	432%
60%	−15%	33%	122%	216%	365%

TABLE 8

Comparison of Pay–Performance Sensitivity

Table 8 presents the results of our regression analysis for the comparison of pay–performance sensitivity between Japan and the United States. Columns 1–3 report the Heckit model regressions, and columns 4–6 report the ordinary least squares (OLS) regressions. The dependent and independent variables are defined similarly as in Table 4. JAPAN is a dummy variable for Japanese firms. Japanese pay amounts are converted to USD using each year's average USD/JPY exchange rate. *p*-values are reported in parentheses. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Heckit Model Regression			OLS Regression		
	ΔSALARY	ΔBONUS	ΔTOTAL_PAY	ΔSALARY	ΔBONUS	ΔTOTAL_PAY
Variable	1	2	3	4	5	6
Intercept	−0.045 (0.351)	−0.302 (0.169)	−0.299 (0.502)	0.030** (0.006)	−0.054 (0.207)	0.098 (0.265)
JAPAN	−0.034 (0.058)	0.076 (0.342)	−0.057 (0.733)	−0.045** (0.003)	0.049 (0.440)	−0.111 (0.358)
ΔSW	−0.001 (0.867)	0.112** (0.000)	0.140** (0.000)	−0.001 (0.760)	0.111** (0.000)	0.138** (0.000)
JAPAN × ΔSW	0.007 (0.188)	−0.081** (0.001)	−0.092 (0.054)	0.007 (0.221)	−0.089** (0.000)	−0.104* (0.015)
Inverse Mills ratio (IMR)	0.040 (0.113)	0.138 (0.230)	0.219 (0.350)			
Variance inflation factor of IMR	1.07	1.04	1.07			
Adj. R^2	0.009	0.062	0.021	0.006	0.061	0.022
No. of obs.	952	866	958	1,127	978	1,136

model and columns 4–6 for the OLS estimation. In the first-stage estimation for the Heckman correction, TOPIX 1000 is used as the sample universe for Japanese firms, and ExecuComp is used as the sample universe for U.S. firms. The pay–performance sensitivity estimates from the Heckit model and OLS are very close, suggesting little selection bias. We further perform detailed sensitivity analyses and, in untabulated results, confirm that the results are very robust.

The coefficient estimate for the sensitivity of CEO total remuneration indicates a substantially weaker pay–performance relationship for Japanese firms. With the Heckit model, the regression in column 3 estimates the pay–performance sensitivity at 0.140 for U.S. CEOs, which represents a 14¢ increase in CEO total pay for every $1,000 increase in shareholder wealth. Adding to this sensitivity the coefficient for the interaction term with the Japan dummy yields the sensitivity for Japanese CEOs, which drops to 0.048. That is, Japanese CEOs' total compensation increases by less than 5¢ for every $1,000 increase in shareholder wealth. Such a small sensitivity for Japanese firms is consistent with our previous finding that the compensation packages to Japanese CEOs are relatively insensitive to firm characteristics and performance.

From the sensitivity estimates for salary and bonus, we have another observation: The difference in the sensitivity of total remuneration between Japan and the United States is mainly due to the difference from bonus. On the one hand, in both countries, CEO base salary does not meaningfully change with the firm's shareholder value. On the other hand, the difference in the sensitivity from bonus alone is comparable in magnitude with, and statistically more significant than, the difference in the sensitivity from total remuneration. From the Heckit estimation, the Japan–U.S. difference in the sensitivity of bonus is 0.081, which accounts for 88% of the difference in the total pay–performance sensitivity. The implication here is that for the compensation package to Japanese CEOs to provide an incentive strength comparable to that in the United States, it is necessary to tie the payment of bonus in Japan substantially more closely to shareholder value.

Alternatively, this objective can also be achieved by increasing the use of bonus and reducing the portion of salary in total pay. However, the statistics in Table 5 show that the proportion of bonus in total remuneration is less than 6 percentage points lower in Japan, whereas the proportion of salary is more than 50 percentage points higher. The high proportion of salary with Japanese firms is in direct contrast to the high proportions of stock options and restricted stock with U.S. firms. As a long-term incentive scheme, stock option grants and restricted stock awards typically do not follow a close relationship with the firm's current performance, although they are key to maintaining managerial equity holdings in the long term.[24]

We now compare CEO equity ownership, which is believed to provide important managerial incentives in U.S. firms.[25] Panel A of Table 9 presents a comparison of unexercised stock options between Japanese and U.S. CEOs. Because the Japanese disclosure rules do not cover directors' option holdings, there is no direct information on CEOs' unexercised options, so we have estimated the amounts for Japanese CEOs as follows: By assuming that the mechanisms

[24]For instance, Yermack (1995) addresses whether U.S. companies award stock options to their chief executives effectively. After a detailed examination, he concludes that the patterns of executive stock option grants cannot be explained by agency theory or mechanisms of optimal incentive contracting.

[25]In addition to providing managerial incentives, equity holdings in unexercised stock options may have an unintended effect: They induce managerial manipulation of stock price performance (Zheng and Zhou (2012)). However, the role of share ownership in motivation is less clear for nonmanagerial employees (Meng, Ning, Zhou, and Zhu (2011)).

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TABLE 9
CEO Equity Holdings

Table 9 presents summary statistics for the comparison of chief executive officer (CEO) equity ownership, age, and tenure between Japan and the United States. Stock ownership and unexercised stock options are expressed as the percentage of the firm's total shares outstanding. For Japanese CEOs, we estimate their unexercised stock options using the following approximation: Under the assumption that the mechanisms governing the vesting and exercise of executive stock options are similar between the two countries, we first obtain the ratio of U.S. CEOs' stock option grants (in Black–Scholes value) to the firm's market capitalization and the CEOs' unexercised options as the percentage of the firm's total shares outstanding, and then we apply the relationship between this option-grants ratio and the option-holdings percentage to Japanese CEOs. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Japanese CEOs			U.S. CEOs			Japan–U.S. Difference	
	Mean	Median	No. of Obs.	Mean	Median	No. of Obs.	Mean	Median
Panel A. CEO Unexercised Stock Options (%)								
All CEOs	0.14	0.00	925	0.84	0.50	935	−0.70**	−0.50**
Founder CEOs	0.27	0.00	199	1.31	0.92	73	−1.04**	−0.92**
Nonfounder CEOs	0.10	0.00	726	0.80	0.48	862	−0.70**	−0.48**
Panel B. CEO Ownership (%)								
All CEOs	4.67	0.28	919	1.43	0.30	933	3.24**	−0.02
Founder CEOs	12.41	5.05	200	5.86	4.60	75	6.56**	0.45**
Nonfounder CEOs	2.52	0.09	719	1.04	0.27	858	1.48**	−0.18**
Panel C. CEO Age (Year)								
All CEOs	63.8	64.0	934	57.4	57.0	934	6.4**	7.0**
Founder CEOs	65.5	65.0	202	64.3	65.0	75	1.2	0.0
Nonfounder CEOs	63.4	63.0	732	56.8	57.0	859	6.6**	6.0**
Panel D. CEO Tenure (Year)								
All CEOs	34.3	36.0	935	16.8	14.0	898	17.5**	22.0**
Founder CEOs	35.0	35.0	205	24.4	22.0	73	10.6**	13.0**
Nonfounder CEOs	34.1	36.0	730	16.1	13.0	825	18.0**	23.0**

governing the vesting and exercise of executive stock options are similar between the two countries, we consider a similar link between unexercised stock options and annual option grants. Hence, for each U.S. firm, we obtain the ratio of the CEO's stock option grants in Black–Scholes value to the firm's market capitalization and the CEO's unexercised options as a percentage of the firm's total shares outstanding, and we then apply the relationship between the two to the matched Japanese firm. In this approach, we estimate Japanese CEOs' option holdings as the percentage of the firms' total shares outstanding at an average of 0.14%, which is much lower than the average of 0.84% for U.S. CEOs. Such a large difference in option holdings is observed for both founder CEOs and nonfounder CEOs. This result squares with the observation from Table 5 that option grants on average account for 5.34% and 17.53% of total compensation for Japanese and U.S. CEOs, respectively, suggesting a substantially smaller role of option incentives for Japanese managers.

Panel B of Table 9 presents the results from the comparison of CEO stock ownership. Japanese CEOs own an average of 4.67%, and a median of 0.28%, of their firm's total shares, which can be compared with the U.S. counterparts of 1.43% and 0.30%, respectively. These amounts show comparable levels of CEO ownership between the two countries, although the average ownership is higher for Japanese CEOs (whose ownership distribution is apparently more skewed). The subsample results further show that this difference comes from founder CEOs. Whereas 22% of Japanese CEOs are founders who on average hold 12.41% of their firms' shares, only 8% of U.S. CEOs are founders, and their average

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ownership is lower at 5.86%. Conversely, for nonfounders, the median ownership results indicate that the majority of Japanese CEOs have substantially lower ownership than their U.S. counterparts.

The finding that CEO ownership in Japan is comparable to that in the United States seems surprising and inconsistent with the conventional view that executive ownership is considerably lower in Japan. In addition to the founder-CEO effect, the summary statistics in Panels C and D of Table 9 further show striking differences in two CEO attributes, age and tenure, relating to managerial seniority. For nonfounders in particular, Japanese CEOs are 6.6 years older on average and have stayed with the same employer for 18 years longer than their U.S. counterparts. This difference is expected to have a substantially greater cumulative effect on managerial ownership in Japan. There are three channels for a Japanese company to introduce stock-based compensation: a phantom restricted stock plan, a stock option plan, and a directors' shareholding association. The first channel is uncommon, but the other two have become increasingly popular.[26] Directors' shareholding associations are unique to Japan; they are established to help directors purchase the company's common shares with the aim of preventing insider trading. Although such associations work as an employee stock ownership plan, they only apply to a company's directors, executive officers, and auditors. In terms of share units per year, neither option grants nor share purchases by Japanese executives are comparable to the typical restricted stock or option plans in the United States. However, Japanese CEOs' long-term employment relationship with their firms enables them to gradually increase their ownership stake over a long period, which is particularly important to nonfounder CEOs who do not initially have sizable shareholdings. Coinciding with this observation, in unreported results, we find that Japanese nonfounder CEOs' stockholdings in total share units rarely decline over their entire tenure. The annual frequency of declines in share units, which reflect selling activities, is only 7% for Japanese nonfounder CEOs, which sharply contrasts with that of 27% for U.S. nonfounder CEOs.

It is worth noting that our data period is shortly after the global financial crisis of 2008. Thus, a further question is whether the Japan–U.S. differences in CEO compensation that we document present a phenomenon from a special period, driven by the unusual 2008 financial meltdown. It is possible that executive compensation schemes (incentive pay in particular) were strongly affected by the severe financial market conditions, and such effects may have varied between different countries. To investigate, we divide the sample period into two subperiods, 2010–2012 and 2013–2015, and we then perform the Japan–U.S. comparison for the two subperiods separately. In unreported results, we find no material changes in the Japan–U.S. differences from the first subperiod (when there was more likely to be a prolonged financial crisis effect) to the second subperiod (when the

[26] As part of the compensation package to corporate executives, stock options have been used in Japan since as early as 1997 (Kato, Lemmon, Luo, and Schallheim (2005)). Prior to 1997, under the Japanese Commercial Code (Article 210), Japanese firms were effectively precluded by law from using stock options in executive compensation. Following the Commercial Code amendments of June 1997, firms are allowed to use option-based compensation. A recent survey by Daiwa Institute of Research (2010) shows that 46% of the sample firms have adopted a stock option plan, and 11% have established directors' shareholding associations.

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possibility of such an effect became remote). Indeed, we do not see any clear pattern in the Japan–U.S. differences as increasing or decreasing over time during the whole sample period.

Taken together, our results show that other than for founder CEOs, Japanese managers are associated with weaker equity incentives. This result is determined based on the very low levels of stock option grants to and share purchases by Japanese CEOs. Although managers in Japan typically stay with the same firm until they retire, most nonfounders, who represent the majority, are unable to cumulate equity ownership to the levels held by U.S. CEOs.

VI. Discussion

Our examination has revealed distinctive features of the Japanese executive compensation system, which differs in many ways from the widely documented American system. These features include the dominance of salary, a relatively low level of pay, and a low variation in pay. As a result, Japanese CEO compensation exhibits strong uniformity across industries and firm sizes in both the level and structure of pay and a low sensitivity of pay to corporate performance. Given the recent international comparison study conducted by Fernandes et al. (2013), our results appear to depict Japan as an outlier. Regarding the pay level (which concerns the research question of how much managers are paid), we estimate the total compensation of a U.S. CEO of an average-size firm at $4.8 million, but we find the total compensation to be only $1.1 million for the Japanese counterpart after controlling for firm characteristics and CEO attributes. This difference is unusually large and contrasts with the finding of Fernandes et al. (2013) that the U.S. pay premium relative to the 13 countries they examine declined significantly in the 2000s and had become economically modest.

Regarding the pay structure (which concerns the research question of how managers are paid), our results show an apparent lack of high-powered incentive pay for Japanese CEOs. Existing studies have emphasized the role of equity holdings in managerial motivation. Indeed, equity holdings appear to have become the major contributor to the pay–performance relationship globally. With our sample of U.S. firms, CEO pay–performance sensitivity is a mere 14¢ change in total compensation for every $1,000 change in shareholder wealth, which can be compared with a sensitivity of $3.00 from median stock ownership alone. Similarly, for Japanese CEOs, the pay–performance sensitivity is a 5¢ change in CEO pay for every $1,000 change in shareholder wealth, which contrasts with the sensitivity of $2.80 from median CEO ownership. That is, the sensitivity from ownership is 21 times the sensitivity from total pay in the United States and 56 times that in Japan. These results raise a further question: How much does direct pay matter for managerial motivation? The academic literature on managerial incentives has focused on the magnitude of the pay–performance sensitivity, with an emphasis on the role of equity holdings. However, the debate in the general public has largely centered on direct compensation based on the argument that it is unjustifiably high. The U.S. and Japanese compensation systems appear to be two extremes. At one end, the U.S. model includes the highest level of pay together with the largest variation in pay; at the other extreme, the Japanese model includes

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what is possibly the lowest level of pay together with the smallest pay variation. With risk-averse managers, high levels of pay can be justified with high variations in pay as long as compensation is performance based. However, if direct compensation ultimately contributes little to managerial motivation, then pay uncertainty becomes unavoidably costly because, by forcing managers to face pay uncertainty, it is necessary to increase the amount of compensation regardless of its effectiveness in providing incentives.

Optimal contracting theory also points to alternative disciplinary schemes, such as internal monitoring by the board of directors, external discipline by the market for corporate control, and the role of large shareholders. However, such schemes also seem to be weak in Japan. With low CEO turnover and a weak link between CEO turnover and performance (e.g., Kaplan (1994), Kang and Shivdasani (1995)), the disciplinary role of internal monitoring is apparently relatively weak in Japan. The market for corporate control was previously nonexistent in Japan, and despite recent developments toward a hybrid Americanized version of the model (Colcera (2007)), it is still not comparable to that in the United States. Our results do suggest a role of traditional Japanese governance mechanisms, such as the main banks and keiretsu groups, in affecting the level and pay–performance relationship in Japan. This role, however, is limited compared to the large differences between the two countries. Indeed, as discussed previously, together with the process of financial market deregulation and governance reform in Japan since the early 1990s, there has been a consistent trend of a declining influence of domestic financial institutions and keiretsu groups. Therefore, such traditional governance mechanisms are not likely to play a major role in motivating and disciplining managers in Japan.

However, Japan's unique long-term employment relationships and reputation-highlighted features tend to suggest unique incentive mechanisms other than standard contracts that rely on explicit (and often short-term) performance measures and pecuniary awards. In particular, the internal organizational structure (or "ranking hierarchy" as stated by Aoki (1988)) in Japan may play a major role in managerial motivation, where job standardization and rank-based internal promotion are important. It is beyond the scope of this study to provide a formal examination of this role and to quantify its incentive effect. However, our sample allows us to provide a direct check on two important aspects of this role: the intensity of internal promotion in CEO appointments and post-CEO positions. The first aspect can help to clarify whether internal promotion to the top management positions predominates in Japan, and the second aspect can shed light on the career concerns of Japanese CEOs beyond their regular corporate positions.

Panel A of Table 10 presents summary statistics for the first aspect, where the frequency of internal appointments relative to external hiring is compared between Japan and the United States. Researchers often define a CEO successor as an insider if the appointment goes to a person at least half a year or 1 year after that person joined the firm. To take into account Japanese CEOs' unusually long tenures, we use two alternative definitions that require an insider to have a preappointment tenure with the firm of at least 1 or 2 years. As expected, the results for both definitions indicate a predominant role for internal appointments in Japan.

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TABLE 10

Internal Promotion in CEO Appointment and Post-CEO Positions

Panel A of Table 10 presents summary statistics for the comparison between Japan and the United States of the role of internal promotion (in contrast to external recruitment) in chief executive officer (CEO) appointments. The sample for this comparison consists of all matched pairs of Japanese and U.S. firms that have information about the CEO for the year he or she was appointed as CEO and for the year he or she joined the company. These two variables allow us to determine CEOs' preappointment tenures with the firm and thus to identify their background as an insider or outsider successor at appointment. We obtain this information for Japanese CEOs by manually collecting data from firms' securities reports. For U.S. CEOs, we obtain this information mainly from the Standard & Poor's (S&P) ExecuComp database, which is further supplemented with information from the Bloomberg database. We use two alternative definitions to define insider CEOs. In the first definition, insider CEOs are those who were appointed as CEO after joining the firm for 1 or more years. In the second definition, they were appointed as CEO after joining the firm for 2 or more years. In Panel B, we compare the frequency of holding post-CEO positions (as the board chairperson) between Japanese and U.S. CEOs. The information on departed CEOs and the immediate post-turnover chairpersons are manually collected from firms' securities reports for Japanese firms and from corporate proxy filings posted on the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system for U.S. firms. * and ** indicate statistical significance at the 5% and 1% levels, respectively.

	Japanese CEOs			U.S. CEOs			Japan–U.S. Difference	
	Mean	Median	Appointed or Departed CEOs	Mean	Median	Appointed or Departed CEOs	Mean	Median
Panel A. Internal Promotion in CEO Appointment								
Under the first insider definition:								
Inside succession as percentage of total CEO appointment (%)	92.7	100.0	891	66.3	100.0	891	26.4**	0.0**
Insider CEO tenure with firm at appointment (year)	20.1	19.0	825	11.8	9.0	591	8.3**	10.0**
Under the second insider definition:								
Inside succession as percentage of total CEO appointment (%)	91.7	100.0	891	63.0	100.0	891	28.7**	0.0**
Insider CEO tenure with firm at appointment (year)	20.3	19.0	816	12.3	10.0	561	8.0**	9.0**
Panel B. Chairperson Position after CEO Turnover								
Percentage of departed CEOs becoming chairperson (%)	67.7	100.0	31	25.9	0.0	27	41.8**	100.0**
CEO age at departure (year)	65.1	66.0	33	60.3	60.0	27	4.8**	6.0**

Under the first definition, the percentage of inside CEO successions is 92.7% for Japan and 66.3% for the United States. In other words, whereas one-third of the new CEOs in the United States are hired from the external managerial labor market, the comparable percentage for Japan is merely 7.3%. It is also interesting to note that insider CEOs at U.S. firms have an average tenure of 12 years before becoming CEO, whereas the average tenure for the Japanese counterparts is as long as 20 years.

In addition to a strong internal-promotion system, other organizational factors beyond regular corporate positions can also play a role in Japan, where career reputation and social status are deemed to be of special importance. For instance, retired CEOs often assume chairperson positions, and the chairpersons of influential companies further move on to become leaders of major business associations (e.g., Keidanren). These factors are apparently relevant to chief executives for whom regular internal promotion schemes no longer apply. To shed light on this issue, we identify board chairpersons in the immediate post-CEO turnover period for our sample and compare the frequency of departed CEOs becoming the board chairperson. The results are reported in Panel B of Table 10. Out of a total of 31 identifiable post-turnover chairpersons of Japanese firms, 21 (or 67.7%) are the departed CEO; conversely, only 7 (or 25.9%) of 27 departed U.S. CEOs are the chairperson. These results become even more contrasting after we exclude the six departed CEOs from each side who held a dual CEO–chair position and remained

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as the chairperson after turnover. For such non-chair CEOs, the percentage becoming the board chairperson after departure is 60.0% for Japanese CEOs and only 4.8% for U.S. CEOs. These results are consistent with the notion that Japanese CEOs have stronger long-term (even beyond employment) incentives than their U.S. counterparts associated with postretirement career concerns.

Therefore, it is difficult to draw a conclusion regarding the effectiveness of the Japanese executive compensation system relative to that in the United States concerning managerial motivation. An interesting question here is whether such differences in incentive mechanisms between Japan and the United States can explain the surprisingly large difference in the level of CEO pay between the two countries. Given the predominant role of the internal labor market in Japan, one way to address this issue is to examine the role of external recruitment, as opposed to internal promotion, in the CEO pay–firm size relationship. As our results have shown, this relationship is key to the Japan–U.S. difference. To this end, we reexamine the regressions in Table 6 for CEO total compensation by also including a dummy variable for externally recruited CEOs and its interaction with the size variable. In this examination, we use alternative definitions of outsider CEOs and obtain regression results for the matched sample and for the Japanese and U.S. subsamples separately. In unreported tables, our results show little effect of external recruitment on the pay–size relationship for U.S. firms or Japanese firms. The coefficient on the interaction term of outsider CEO and firm size has mixed signs and is statistically not different from 0 in all of the regressions. Although there is some mixed evidence of pay premium for outsider CEOs, its magnitude is small, and it explains little of the Japan–U.S. difference. Our tentative conclusion is that the sharp difference in the level of CEO pay cannot be explained by standard contractual terms or conventional, measurable firm and managerial characteristics.

VII. Conclusion

Using the first publicly available data on compensation provided to individually named Japanese directors, we conduct a direct comprehensive study of the level, structure, and mechanisms of CEO compensation in Japan. Our study contributes to the literature in two dimensions. First, by providing direct evidence from Japan, we fill a gap in the literature that has so far focused on Anglo-American countries. Our findings identify a distinct, Japanese-specific compensation system that differs from the extensively examined American system in significant ways. Japanese CEOs are paid a dominant base salary that, on average, accounts for two-thirds of their total compensation. Although pay generally increases with firm size and performance, the pay–size and pay–performance relationships are economically weak. Traditional Japanese governance factors, such as financial institutions and keiretsu groups, seem to play a role in managerial discipline. In particular, the presence of foreign institutional investors and the cross-listing of Japanese firms on U.S. exchanges exert significant influences on the compensation system.

Second, by constructing matched samples, we perform a close comparison between Japan and the United States. This comparison is interesting because it is between two major economic powers with contrasting cultures and corporate

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governance systems. Our comparison yields new evidence on international pay differentials. By comparing the United States with other (mostly European) counties, Fernandes et al. (2013) find that executive compensation practices have substantially converged to the U.S. model and that international pay differentials have largely disappeared since the mid-2000s. Our results show that this pattern does not apply to Japan. Despite an international influence from foreign institutional investors and the cross-listing of Japanese firms on U.S. stock exchanges, the executive compensation system in Japan has maintained its distinct features and remains substantially different from the U.S. system, even at the present time.

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