IMES DISCUSSION PAPER SERIES

Effects of Accounting Conservatism on Corporate Investment Levels, Risk Taking, and Shareholder Value

Makoto Nakano, Fumitaka Otsubo, and Yusuke Takasu

Discussion Paper No. 2014-E-10

IMES

INSTITUTE FOR MONETARY AND ECONOMIC STUDIES

BANK OF JAPAN

2-1-1 NIHONBASHI-HONGOKUCHO

CHUO-KU, TOKYO 103-8660

JAPAN

IMES Discussion Paper Series 2014-E-10
October 2014

Effects of Accounting Conservatism on Corporate Investment Levels, Risk Taking, and Shareholder Value

Makoto Nakano*, Fumitaka Otsubo, and Yusuke Takasu*****

Abstract

We investigate the economic consequences of both conditional conservatism and unconditional conservatism from the perspective of stock market investors. Specifically, we empirically analyze how these two types of conservatism affect corporate investment levels, risk taking, and shareholder value (stock return) in Japan. The main results of the study are as follows. First, firms with a high level of conditional conservatism are more likely to curb investments, and the investments they do make tend to have low risk: A self-disciplining effect and an ex post monitoring effect are observed. Second, in contrast, firms with a high level of unconditional conservatism are more likely to make a relatively large amount of investments, and these investments tend to have high risk. These findings indicate that higher levels of unconditional conservatism more strongly limit the earnings downside risk arising from conditional conservatism. Thus, the risk-taking capacity of managers increases to a greater extent, implying that they are more likely to invest in high-risk projects: A risk-taking stimulatory effect is observed. Third, analysis of the effect of conservatism on shareholder value suggests that both conditional conservatism and unconditional conservatism improve the relationship between investment and shareholder value; in other words, investment efficiency might be increased. However, the results of this analysis are not robust enough to allow a definitive conclusion. A limitation of this study is that the observed economic impacts might not be attributable to accounting conservatism alone. Conservatism runs contrary to the neutrality of financial statements, so a critical topic for future research is separate examination of the repercussions of violating neutrality and the ill effects of conservatism.

Keywords: conditional conservatism; unconditional conservatism; neutrality; investment level; monitoring; risk taking; shareholder value (stock return)

JEL classification: M41

***** Professor, Graduate School of Commerce and Management, Hitotsubashi University (E-mail: makoto.nakano@r.hit-u.ac.jp)
****** Institute for Monetary and Economic Studies (currently, Financial Markets Department), Bank of Japan (E-mail:fumitaka.ootsubo@boj.or.jp)
******* Graduate School of Commerce and Management, Hitotsubashi University (E-mail: cd121006@g.hit-u.ac.jp)

This paper is a revised version of the paper submitted to the workshop on "Influence of Corporate Governance on Accounting Strategies and Corporate Performance" held by the Institute for Monetary and Economic Studies (IMES), Bank of Japan, on March 17, 2014. The workshop was chaired by the author Makoto Nakano during his time as a visiting scholar at the IMES. The authors would like to thank Akinobu Shuto (Kobe University), the participants in the workshop, Atsuto Suzuki, Mineko Furuichi, and the staff of the IMES for their useful comments. The views expressed in this paper are those of the authors and do not necessarily reflect the official views of the Bank of Japan.

1. Introduction

One of Japan's Corporate Accounting Principles is the "principle of conservatism," which stipulates the following: "To prepare for the possibility of adverse impact on corporate financial conditions, firms need to implement appropriate and prudent accounting procedures." However, Annotation 4 of this principle states that "corporate accounting procedures should be implemented based on careful judgment in preparation for any anticipated future risk; however, implementation of overly conservative accounting procedures should be avoided as doing so may present a distorted view of corporate financial conditions and performance." In consideration of this, the Corporate Accounting Principles of Japan recommend conservative accounting but forbid the implementation of excessively conservative accounting procedures in order to preserve the neutrality of financial information. Against this background, this paper examines how accounting conservatism in Japan affects corporate investment levels, risk taking, and shareholder value.

In collaboration with the U.S. Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB) has recently developed a conceptual framework[1] (IASB [2010], FASB [2010]) stating "[t]he objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity" (IASB [2010], OB2). In other words, the objective is to play a valuation role. Additionally, the principle aims to make neutrality one of the qualitative characteristics of financial information (QC12, 14). Accordingly, the IASB and FASB have eliminated conservatism and prudence from among the qualitative characteristics of financial information constituting the conceptual framework, as they could create a downward bias in financial information and interfere with neutrality (BC3.27).

Because of the international convergence of accounting standards, the decision to eliminate conservatism from the conceptual framework has also affected the Accounting Standards Board of Japan (ASBJ). Specifically, the discussion paper "A Conceptual

[1] The conceptual framework refers to standardization of concepts that form the basis of the creation and presentation of financial statements, and is considered as a prerequisite when the accounting standard setter implements revisions and developments in accounting standards. As the first step of the joint project to revise the conceptual framework, the IASB and FASB identified the qualitative characteristics and objectives of financial information in September 2010. Subsequently, the project was temporarily suspended before being resumed in 2012 as an independent project within the IASB.

Framework of Financial Accounting"[2] released by the ASBJ in 2006, conservatism and prudence are not included in the qualitative characteristics of financial information (ASBJ [2006]). In explaining the reason for this, Yaekura [2007] states "inclusion of the practice of conservatism in accounting creates an unnecessary tendency (bias) on the information received by the investor, and therefore it has been actively eliminated from the discussion regarding the qualitative characteristics of financial information." Due to this emphasis on neutrality, conservatism might be excluded from the Japanese conceptual framework.

However, the existence of accounting conservatism has long been acknowledged worldwide, and some scholars have noted the consistent effect it has had on accounting practice for more than 500 years (Basu [1997]). Other researchers have pointed out that within the framework of accounting standards, the level of conservatism shown by firms has increased in recent years (Givoly and Hayn [2000], Lobo and Zhou [2006]). There may, in fact, be an economic rationality behind the continuous practice of conservatism. A review of previous studies on this topic reveals the existence of various hypotheses for explaining the persistence of conservatism. Among them, the contracting explanation has been discussed as a likely hypothesis[3] (Watts [2003a, b]). Using this framework, much research has analyzed the economic determinants and consequences of conservatism, primarily from the perspective of creditor benefit. These have generally lent support to the contracting explanation. On the other hand, few previous studies have clarified the effects of eliminating conservatism on the primary users of financial information, stock market investors.

As described in detail in Section 2, accounting conservatism can be separated into conditional conservatism and unconditional conservatism. Recently, discussions have emerged regarding whether the economic consequences of conditional conservatism, the type that has been the target of analysis in many previous studies, differ from those of unconditional conservatism, the type that accounting standard setters aim to eliminate (Kanamori [2009], Ishida and Ito [2014]). This discussion concerns differences in the timing of expense/loss recording in both types of conservatism. In other words, while conditional conservatism refers to the timely recording of expense/loss in the event of bad news, unconditional conservatism is preventive and records future uncertain

[2] Sakurai [2013] is of the view that this discussion paper stipulates the ASBJ's objectives of financial reporting in Japan.

[3] According to the contracting explanation, conservatism provides a means of addressing the problem of moral hazard on the part of various entities when asymmetrical information and asymmetrical payoffs exist. Other proposed hypotheses are the litigation explanation, income tax explanation, and regulatory explanation (Watts [2003a, b]).

expense in advance of bad news. Conditional conservatism therefore increases the earnings downside risk, but when unconditional conservatism is simultaneously applied, the effect is preempted or suppressed. It is also believed that the two types of conservatism have qualitatively differential effects on investment decision making and the consequent shareholder value. However, almost no empirical research has been conducted to examine the economic consequences of unconditional conservatism.

This paper therefore examines the economic consequences of both types of conservatism from the perspective of stock market investors. Specifically, we empirically analyze the consequences of these two types of conservatism on investment levels, risk taking, and shareholder value (stock return) in Japanese firms. We use equity risk as a proxy for risk taking, and measure this by examining stock return volatility.

The main results of the analysis are as follows. First, for firms with a high level of conditional conservatism, investments are curbed. The evidence shows that even when the firms do make investments, firms with a high level of conditional conservatism tend to have low levels of risk. Second, on the other hand, firms with a high level of unconditional conservatism tend to make larger and riskier investments. This indicates that in the presence of a risk-averse manager, unconditional conservatism limits the earnings downside risk and increases both the risk-taking capacity of managers and the likelihood of investment in high-risk projects.

However, our analysis does not provide consistent evidence regarding the impact that such conservatism and its relationship with corporate investment have on shareholder value. A more detailed analysis of the relationship between conservatism and shareholder value will therefore be necessary.

This study contributes to the analysis of the economic consequences of the two types of conservatism from the perspective of stock market investors, especially the effect on risk taking. The results of this study show that it is essential for accounting standard setters to examine the qualitative characteristics of financial information and to consider how to maintain a desirable balance between neutrality and the two types of conservatism.

This paper is structured as follows. In Section 2 we discuss the two types of conservatism and the relationship between them. In Section 3 we provide an overview of the relevant research and state our hypotheses. We describe the research design in Section 4 and present the results of the analysis in Section 5. After verifying the robustness of the results in Section 6, we present our conclusions and some topics of future research in Section 7.

2. The two types of conservatism and their relationship

In recent years, accounting conservatism has been an important issue in accounting research and standards setting. In these discussions, conservatism is often divided into conditional conservatism and unconditional conservatism (Beaver and Ryan [2005]). Most prior research has focused on conditional conservatism, and only a small number of studies of unconditional conservatism have been conducted.

(1) Conditional conservatism

Conditional conservatism can be defined as the practice of a different standard of verifiability with regard to the recognition of revenue/profit and expense/loss in reaction to the occurrence of economic news (Watts [2003a]). In other words, when applying conditional conservatism, a stricter standard of verifiability is applied when recognizing good news as accounting revenue/profit than that applied when recognizing bad news as accounting expense/loss. As a result, under conditional conservatism, there is a tendency to emphasize bad news rather than good news in accounting earnings (Basu [1997]).Conditional conservatism can therefore be described as having asymmetric timeliness in relation to the recognition of economic news. Focusing on this asymmetry, Basu [1997] conducted a regression analysis of accounting earnings on stock returns and found that the negative return coefficient is greater than the positive return coefficient. This confirmed that in accounting earnings bad news tends to be recorded in a more timely manner than good news. From these results, Basu [1997] defined (conditional) conservatism as the idea that bad news is recorded in a timely manner in accounting earnings, whereas good news is not. Further, conditional conservatism can also be termed ex post or news-dependent conservatism (Beaver and Ryan [2005]). Examples of such conditional conservatism include the application of the lower of cost or market value method for inventory valuation and impairment of tangible fixed assets and goodwill (Ryan [2006]). In conditional conservative accounting processes, accounting earnings tend to be understated when compared with economic earnings.

(2) Unconditional conservatism

Unconditional conservatism can be defined as ex ante or news-independent conservatism (Beaver and Ryan [2005]). Unlike conditional conservatism, which records accounting expense/loss when asset values actually depreciate, unconditional conservatism recognizes accounting expense/loss ahead of the occurrence of economic news (Beaver and Ryan [2005]). Examples of unconditional conservatism include

immediate expense processing of intangible assets (such as R&D investment) and depreciation and amortization greater than the economic depreciation of tangible fixed assets and goodwill (i.e., accelerated depreciation). In addition, as with the application of historical cost accounting for investment projects for which the net present value (NPV) becomes positive, accounting processes that continually delay recognition of good news are also included. In unconditional conservative accounting processes, shareholder equity (i.e., the book value of net assets) tends to be understated when compared with market value.[4]

(3) Relationship between the two types of conservatism

Economic assets to which unconditional conservatism is applied can be classified into two types: those for which immediate expense processing is performed at the time of acquisition; and those for which preventive expense processing is applied in preparation for the future. Beaver and Ryan [2005] argue that conditional conservatism is preempted in the first type, and suppressed in the second type.[5] As Basu [2001] indicates, this argument assumes the existence of an inverse relation between the two types of conservatism. With the greater incorporation of unconditional conservatism, conditional conservatism is preempted or suppressed[6] (see the figure below). Therefore, when conditional conservatism is implemented, there is the possibility of a large expense/loss being recognized at some point in time. However, when unconditional conservatism is applied at the same time, the effects of conditional conservatism are preempted or suppressed (Beaver and Ryan [2005], Ryan[2006], Gassen, Fülbier, and Sellhorn [2006]). This function of unconditional conservatism is referred to as "accounting slack" (Beaver and Ryan [2005]).

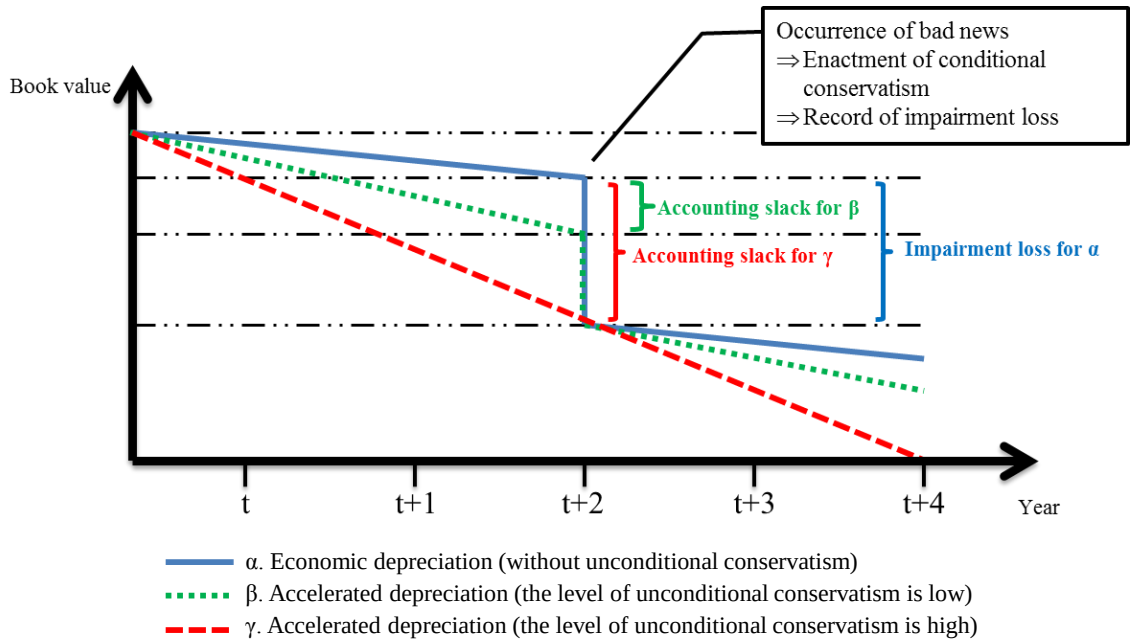
[4] Under unconditional conservatism, assets that are immediately expensed do not accrue additional costs at a later date, which may not be the case under conditional conservatism. Thus, there is a tendency to record higher future accounting earnings. However, in the case of immediate expense processing, shareholder equity on the balance sheet will be undervalued compared with that when conditional conservatism is applied. Further, even in case of assets to which unconditional conservatism practices, such as accelerated depreciation, are applied, historical cost undergoes preventive expense processing. Hence, the valuation of shareholder equity on the balance sheet tends to be more conservative under unconditional conservatism than under conditional conservatism. For this reason, unconditional conservatism is also termed Balance Sheet Conservatism (Sunder, Sunder, and Zhang [2011]).

[5] For example, when a target firm's assets are reevaluated and devalued at the time of company acquisition, the need for impairment processing decreases even if economic loss occurs in the concerned business division after the acquisition.

[6] In an analysis of Japanese firms, Takada [2008] found that for firms practicing a high level of unconditional conservatism with regard to net assets, the level of conditional conservatism practiced for earnings is lower. In an analysis of firms in developed countries, Gassen, Fülbier, and Sellhorn [2006] found that unconditional conservatism suppresses conditional conservatism.

Until recently, most research has indicated that accounting standard setters have been promoting the "elimination of conservatism." In fact, it is more correct to say that they have been promoting the elimination of unconditional conservatism and the expansion of conditional conservatism. When Kanamori [2009] surveyed the Statement of Financial Accounting Standards released by the FASB in 1973-2002, she found that in about 40% of the standards targeted in the survey, unconditional conservatism had been eliminated. In addition, Kanamori [2009] argues that, along with as research subsequent to Basu [1997], Watts' [2003a] conclusion that U.S. accounting practices over the past 30 years have become more (conditionally) conservative confirms the elimination of unconditional conservatism.

Figure: Depreciation and impairment of tangible fixed assets[7]



Note: Impairment loss recorded in β and γ is the balance after deducting each accounting slack from impairment loss in α.

[7] The figure shows an "inverse relation" between conditional conservatism and unconditional conservatism. Alpha shows the book value of assets when accounting depreciation is equal to economic depreciation. Both beta and gamma show the book value of assets when unconditional conservatism (accelerated depreciation) is used. Moreover, the level of unconditional conservatism for gamma is higher than that for beta. Although timely expense/loss recognition is required in connection with bad news, the amount which should be recognized is dependent on the extent of unconditional conservatism. In other words, because of larger accounting slack, room for conditional conservatism is more suppressed when expense/loss is recognized in a preventive manner before bad news.

3. Related research and hypotheses

Broadly categorized, research related to conservatism comprises two trends: analysis of the determinants of conservatism and analysis of the economic consequences of conservatism. This section provides an overview of the relevant research regarding these trends and presents the hypotheses of this study.

(1) Prior research on the determinants of conservatism

To date, various studies have examined the determinants of conservatism. According to these studies, the main determinants of conservatism can be understood from the perspective of creditors and stock market investors.[8] Previous studies of debt contracts have primarily analyzed the relationship between conservatism and agency problems between shareholders and creditors. For example, Ahmed *et al.* [2002] and Usui [2004] found that for firms in which there are serious conflicts of interest (i.e., agency problems) between shareholders and creditors over dividend policy, the level[9] of (unconditional) conservatism is high.[10] Further, Ball, Robin, and Sadka [2008] analyzed the level of conditional and unconditional conservatism in 22 countries and found that the level of conservatism is high in countries where bond markets are large in proportion to gross national product (GNP).

More recent research has directly focused on the relationship between conservatism

[8] Besides these groups, company stakeholders include consumers, suppliers and employees. However, their perspectives have not been fully understood in prior literature. It is also possible to partly explain conservatism with regard to earnings management from the perspective of managers. Simultaneously, however, the understatement bias of net assets on the balance sheet and earnings on income statements has been observed for many years around the world. It is difficult to explain the persistence of accounting conservatism solely from the perspective of earnings management (Ohta [2013]). It is also difficult to identify conservatism and earnings management of the earnings compression type (i.e., big bath). Therefore, this paper only provides a summary of previous research related to the determinants of conservatism from the perspective of shareholders and creditors.

[9] It is assumed that the level of conservatism is determined by managers within the framework of accounting standards. However, analysis of whether differences in the levels of conservatism by firm-year depend on changes in accounting standards or the discretion of managers was not conducted in either this study or most prior studies. Some recent studies, however, have attempted to specify the difference between them (e.g., Lawrence, Sloan, and Sun [2013]). It is important to consider this issue in future research.

[10] Ahmed *et al.* [2002] used ROA standard deviation (proxy variable of business risk), dividend levels, and leverage as proxies for conflict of interest. Similarly, Usui [2004] conducted an analysis targeting Japanese firms using dividend levels and leverage as two indicators. While Usui [2004] conducted a similar analysis of conditional conservatism, he could not obtain evidence indicating that the level of conflict of interest is the determinant in the level of conditional conservatism.

and default risk. For example, Chen *et al*. [2010] found that in China, a country where almost all fundraising is conducted via indirect financing, the level of (conditional) conservatism is influenced by the presence or absence of government guarantees.[11] Nikolaev [2010] discovered that for firms with debt covenants (i.e., firms with a high level of default risk), there is a high level of timely expense/loss recognition, or conditional conservatism. Tan [2013] discovered that for firms in violation of debt covenants, the level of (conditional) conservatism becomes high immediately after the violation, and is more marked for firms with a high level of business risk and strong creditor negotiation power.

The above-mentioned prior research indicates that firms with serious agency problems between shareholders and creditors or those firms with a high level of default risk tend to be characterized by a high level of conservatism. This tendency suggests that both types of conservatism have the contracting role[12] in the suppression of conflicts of interest between shareholders and creditors.

As seen above, the majority of prior research into the determinants of conservatism has focused on benefits to creditors. However, LaFond and Watts [2008] shows that conservatism can also bring benefits to outside equity investors. Having found that the level of (conditional) conservatism is high in firms with a high level of information asymmetry between managers and shareholders, LaFond and Watts [2008] proposed a new hypothesis: Conservatism serves the governance role when it suppresses earnings management by managers and the information role when it mitigates the level of information asymmetry. In an analysis of the relationship between the level of (conditional) conservatism and the ratio of manager shareholding, Shuto and Takada [2010] found the level of (conditional) conservatism tends to be high in firms where there are serious agency problems between managers and shareholders[13]. The results led

[11] In a study that classified firms into state-owned enterprises whose debt are guaranteed by the government and non-state-owned enterprises whose debt is not guaranteed by the government, Chen *et.al* [2010] obtained evidence that the level of (conditional) conservatism is high for non-state-owned enterprises. After classifying banks into state-owned banks that expect to be bailed by the government during managerial crises and non-state-owned banks that do not expect to be bailed out, they clarified that the level of (conditional) conservatism is high for firms borrowing from non-state-owned banks.

[12] Takada [2009] provides details on the contracting role of conservatism. Suda [2000], Kusano [2014], and Tokuga and Ota [2014] explain the contracting role of accounting information in general.

[13] Shuto and Takada [2010] hypothesizes that both the incentive alignment effect and the management entrenchment effect affect the relationship between managerial ownership and (conditional) conservatism. They find that there is a negative relationship between managerial ownership and (conditional) conservatism when it seems that the alignment effect is stronger than the entrenchment effect (i.e., the level of managerial ownership is low or high) and agency cost is relatively low. They also report that there is a positive relationship between managerial ownership

them to conclude that conservatism can help to resolve these problems, possibly leading to a decrease in agency costs of firms.[14]

(2) Prior research on the economic consequences of conservatism

Prior research on the economic consequences of conservatism can be classified according to research focus. This focus is generally one of three factors: (1) funding cost, (2) investment level, or (3) shareholder value. For the first factor, the empirical results of research on the effects of conservatism on debt costs reveal that both conditional and unconditional conservatism lead to the streamlining of debt contracts. Ahmed *et al.* [2002] provided empirical evidence that when the level of (unconditional) conservatism is high, credit ratings improve and debt costs decrease. Further, Zhang [2008] provided evidence that firms with a high level of (conditional) conservatism tend to violate debt covenants early and have low debt costs. Wittenberg-Moerman [2008] found that firms with a high level of (conditional) conservatism have smaller bid-ask spreads in secondary loan markets and high bond liquidity (i.e., low liquidity risk premium). In an analysis of Japanese firms, Nakamura [2009] found that a high level of (conditional) conservatism lowers debt costs. However, several studies provided empirical evidence that conditional conservatism reduces the cost of equity capital (e.g., Li [2010], Garcia Lara, Garcia Osma, and Penalva [2011]).

Prior research on the impact of conservatism on the level of investment shows that the economic consequences of the two types of conservatism are different. In an analysis of Japanese firms, Ishida and Ito [2014] found a negative correlation between the level of conditional conservatism and capital investment levels and a positive correlation between the level of unconditional conservatism and capital investment levels. If the managers in the study are assumed to have been risk-averse, we may interpret this finding to show that managers are reluctant to invest due to fear of having to record an early expense/loss under conditional conservatism.[15] Unconditional conservatism, on the other hand, generates accounting slack that preempts or suppresses conditional conservatism, lowering the psychological barriers for risk taking by managers.[16]

---

and (conditional) conservatism when it seems that the entrenchment effect is stronger than the alignment effect (i.e., the level of managerial ownership is intermediate) and agency cost is relatively high.

[14] LaFond and Roychowdhury [2008] obtained results similar to those of Shuto and Takada [2010].

[15] Roychowdhury [2010] indicates that if conditional conservatism is imposed, risk-averse managers will fear early recording of expense/loss and possibly avoid even making positive NPV investments.

[16] Jacson [2008] and Jackson, Liu, and Cecchini [2009] found that firms that apply accelerated

However, prior research also suggests that the effect of conditional conservatism on investment levels depends on both the corporate investment situation and the external environment. For example, Garcia Lara, Garcia Osma, and Penalva [2010] found that an increase in the level of (conditional) conservatism can curb investment in over-investing firms, but promote it in under-investing firms. In an analysis restricted to the period of the financial crisis,[17] when it was expected that most firms would under-invest, Watts and Zuo [2012] obtained results showing that (conditional) conservatism promotes capital investment.

Among the studies that have analyzed the effect of conditional conservatism on shareholder value, Garcia Lara, Garcia Osma, and Penalva [2010] obtained results consistent with their hypothesis that (conditional) conservatism not only decreases over- and under-investment but also improves corporate investment efficiency and future earnings. In an analysis based on the hypothesis that (conditional) conservatism strengthens the governance power over managers, Ahmed and Duellman [2011] found that a high level of (conditional) conservatism leads to an increase in future operating cash flow and gross profit margin and a decrease in future special items charges such as impairment. In an analysis restricted to the period of the financial crisis, Watts and Zuo [2012] and Francis, Hasan, and Wu [2013] found that firms that practiced a high level of (conditional) conservatism before the crisis fared better with respect to stock returns. The empirical evidence obtained by the limited number of studies thus indicates that the practice of conditional conservatism generally leads to increased corporate earnings and shareholder value. However, as few studies have examined unconditional conservatism,[18] its impact on these factors is unclear.

(3) Hypotheses

According to the agency theory, when a moral hazard exists in the relationship between managers and shareholders, managers may not pursue investment opportunities, even if they are positive NPV. Even worse, there is a possibility that resources may be allocated to negative NPV investment projects. In other words, acting in their own self-

---

depreciation (unconditional conservatism) tend to engage in larger capital investment and asset replacement than those that do not.

[17] In a survey study targeting 1,050 CFOs in the U.S., Europe, and Asia, Campello, Graham, and Harvey [2010] found that the majority (86% in the case of the U.S.) reported having abandoned attractive investment opportunities during the financial crisis due to borrowing constraints.

[18] Interestingly, analyzing the effect of the level of unconditional conservatism before the crisis on stock returns during the crisis, Francis, Hasan, and Wu [2013] found that it had the same effect as the level of conditional conservatism.

interest, managers may misuse free cash flows and make business decisions based on short-term goals (Jensen [1986]). This moral hazard is worsened by information asymmetry between managers and shareholders. Disclosure of accounting information and financial reporting plays a large role in alleviating information asymmetry and moral hazard and is believed to function as a means of monitoring managers.

Does conservatism, then, have any effect on corporate investment levels and risk taking, and consequently on shareholder value? To date, a great deal of research on the economic consequences of conservatism has been conducted. However, little of it has focused on the benefits for stock market investors. In addition, very little research has been conducted on the potential differences in the economic consequences of the two types of conservatism. This paper aims to fill this research gap by examining several hypotheses regarding the economic consequences of each of the two types of conservatism on Japanese firms from the perspective of stock market investors.

(i) Conditional conservatism

Conditional conservatism is an accounting process that seeks to recognize bad news, or economic losses, as accounting expense/loss in a timely manner. If a firm is applying conditional conservatism, it becomes difficult to delay the recognition of accounting expense/loss from an unprofitable project until the next generation of executives. There is a higher possibility that managers will record this accounting expense/loss during their tenure. The monitoring of managerial investment decision making is therefore more intense, and there is increased likelihood that managers will refrain from beginning investment projects not only with a negative NPV but also a positive NPV with low initial profitability[19] (e.g., Ball and Shivakumar [2005], Francis and Martin [2010]). Such strengthening of the ex ante monitoring process is also referred to as the self-disciplining effect (Garcia Lara, Garcia Osma, and Penalva [2010]).

The practice of conditional conservatism also strengthens the monitoring process after investment implementation. According to Pinnuck and Lillis [2007], a decline in stock prices and an increase in debt costs at the time of the recognition of accounting expense/loss serve as triggers for the board of directors, major shareholders, and regulatory authorities to intervene in management. This can lead the managers of firms experiencing expenses/losses to pursue abandonment options to quickly improve performance and divest unprofitable projects. For this reason, a high level of conditional

[19] With respect to the listed Japanese firms targeted for analysis in this paper, it is assumed that due to the presence of effective governance that includes adherence to listing standards and implementation of statutory audits, managers do not practice conservatism opportunistically.

conservatism leads managers to practice early withdrawal before the recording of deficits in projects in which profitability is clearly low or for which the NPV is negative. This is known as the ex post monitoring effect. This therefore promotes the divestment of unprofitable investments or of investments with low profitability.

In this manner, conditional conservatism suppresses investment in projects that are either unprofitable or have low profitability by strengthening the ex ante monitoring process of managers. In addition, the strengthening of the ex post monitoring process even when NPV is positive promotes the withdrawal from projects with low profitability. This effect is assumed to be applicable to both R&D projects and capital investment. Based on the facts and assumptions presented above, we can hypothesize that a high level of conditional conservatism[20]lowers the level of net investment,[21] as stated in Hypothesis 1-1:

Hypothesis 1-1: Firms practicing a higher level of conditional conservatism engage in a lower level of net investment.

For firms with a high level of conditional conservatism, the earnings downside risk is increased even for projects with a positive NPV at the outset because the recording of a considerable amount of accounting expense/loss will be required in the event of bad news, or economic expense/loss, ex post facto. For this reason, managers fear the recording of considerable expenses/losses during their tenures, leading them to suppress investment in projects with a high level of business risk and to tend toward early withdrawal in case of an ex post increase in the risk of a project.[22] Based on the facts

[20] The proposed hypothesis is based on assumption that the level of conditional and unconditional conservatism is stable for each firm. As the level of conservatism for each firm is influenced by the presence of relatively stable corporate governance variables, including the composition of the board of directors and the shareholders, it can be assumed that the level of conservatism for individual firms will have some degree of persistence (for details see Asano and Furuichi [2014]). With respect to the data analyzed in this paper, a statistically significant positive correlation was found between the current conditional conservatism (unconditional conservatism) and previous conditional conservatism (unconditional conservatism).

[21] As Nakano and Takasu [2013] points out, the listed Japanese firms are generally among the most cash-rich in the world and about half are in negative net debt status. From the perspective of the external environment of Japanese firms, the implementation of various policies such as the leveling out of the policy interest rate and the government credit guarantee program or the presence of intensified competition among financial institutions has left little room for lowering debt costs. Hence, in the case of Japanese firms, there is a low likelihood that fundraising leads to investment constraints. As discussed in Section 3(2), compared to firms in other countries, Japanese firms are less influenced by the improvement effect of investment constraints dependent on conditional conservatism.

[22] Kravet [2012] assumes that managers are risk-averse and conscious of the negative effects of

and assumptions presented above, it can be hypothesized that firms practicing a high level of conditional conservatism will pursue low-risk investments, as stated in Hypothesis 1-2.

Hypothesis 1-2: Net investment by firms practicing a higher level of conditional conservatism causes greater decreases of stock return volatility.

Prior research has shown that conditional conservatism can also affect shareholder value by impacting corporate investment levels and risk taking. As conditional conservatism strengthens the ex ante and ex post managerial monitoring process, consequently suppressing corporate over-investment,[23] it could also positively affect shareholder value and investment efficiency (Garcia Lara, Garcia Osma, and Penalva [2010]). On the other hand, if conditional conservatism excessively tightens the monitoring process, corporate investment levels and risk taking are suppressed more than necessary, leading to under-investment and negatively affecting investment efficiency and shareholder value. As the practice of conditional conservatism yields both negative and positive effects on investment efficiency and shareholder value, the overall impact it has on Japanese firms in general is determined by the relative magnitude of these effects. In consideration of this, we propose Hypothesis 1-3.

Hypothesis 1-3: The level of conditional conservatism changes the effect of corporate net investment on shareholder value.

(ii) Unconditional conservatism

Unconditional conservatism is an accounting process that records accounting expense/loss early, rather than focusing on the actual depreciation of asset value. This strengthens the monitoring process when examining investment projects, increasing the possibility of managers implementing, in advance, only projects with positive NPV.

As seen in Section 2(3), when conditional conservatism and unconditional conservatism coexist, unconditional conservatism not only generates accounting slack,

---

unexpected recording expense/loss and violating debt covenants. Managers avoid investment in projects with a high level of risk, even where NPV is positive. Consistent with this hypothesis, he found a negative correlation between the level of (conditional) conservatism and the level of acquisition riskiness measured in terms of the volatility of abnormal stock returns in corporate acquisitions in the U.S.

[23] Following Garcia Lara, Garcia Osma, and Penalva [2010], it is assumed that the situation in which investment efficiency is maximum, is one of optimal investment.

but also preempts and suppresses the effect of conditional conservatism. Therefore, when practicing a high level of unconditional conservatism as a precautionary measure, future uncertain accounting expense/loss associated with a project is recorded and the earnings downside risk due to the enactment of conditional conservatism is limited. As a result, the psychological barriers to managerial risk taking decrease,[24] and managers therefore consider the initiation or continuation of investment in projects in which the NPV is positive, even if the projects have low profitability and high business risk. This is referred to as the risk-taking stimulatory effect.[25] We therefore hypothesize that the enactment of unconditional conservatism has a positive effect on corporate investment levels and risk taking, as stated in Hypotheses 2-1 and 2-2.

Hypothesis 2-1: Firms practicing a higher level of unconditional conservatism engage in a higher level of net investment.

Hypothesis 2-2: Net investment by firms practicing a higher level of unconditional conservatism causes greater increases of stock return volatility.

By influencing investment levels and risk taking, unconditional conservatism may also affect shareholder value. Practicing unconditional conservatism strengthens the ex ante monitoring process, improving corporate investment efficiency and, through the risk-taking stimulatory effect, decreasing under-investment. This positively affects shareholder value. On the other hand, when the enactment of unconditional conservatism encourages excessive risk taking by managers, it could lead to corporate over-investment and have a negative effect on investment efficiency and shareholder

[24] When unconditional conservatism is applied to a certain kind of asset for which managers may not expect economic depreciation in the future, such as goodwill generated by M&A, it can be unclear that unconditional conservatism decreases the psychological barriers to managerial risk taking because managers may not expect these assets' downside risk. The hypothesis here assumes a situation that unconditional conservatism is applied to other kind of assets for which managers expect future economic depreciation, such as buildings, machinery, and equipment for business use.

[25] Managers conduct big-bath accounting (extreme earnings compression behavior) to aim for future profit improvement at the time of management turnover or at the time of earnings downturn (Shuto [2013]). When using this method, enactment of conditional conservatism with impairment or adjustment of the estimate of impairment of individual reserve fund is utilized. With regard to preemption and suppression of the scope of enactment of future conditional conservatism, big-bath accounting is considered to have economic functions similar to unconditional conservatism (immediate expense processing). However, there is a significant difference between conditional conservatism (big-bath accounting) and unconditional conservatism (immediate expense processing) in terms of the room for manager discretion. For this reason, as indicated in footnote 19, this paper does not discuss big-bath accounting.

value. Thus, as practicing unconditional conservatism may have both positive and negative effects on investment efficiency and shareholder value, its overall impact on shareholder value cannot be determined a priori, but only empirically, as is expressed in Hypothesis 2-3.

Hypothesis 2-3: The level of unconditional conservatism changes the effect of net investment on shareholder value.

4. Research design

(1) Analytical framework

(i) Quantification of conditional conservatism

Taking the pioneering model proposed by Basu [1997] as its basis, the modeling of conditional conservatism has been quantified in various ways. The quantification of the level of conditional conservatism as given by Basu [1997] is per Eq. (1).

$$NI_{i,t} = \alpha + \beta_1 D_{i,t} + \beta_2 R_{i,t} + \beta_3 D_{i,t} \times R_{i,t} + \varepsilon_{i,t} \qquad (1)$$

Here, $NI_{i,t}$ is the net income of firm *i* for the period *t;* $R_{i,t}$ is stock returns from three months after the beginning of period *t* to three months after the end of period *t;* and $D_{i,t}$ is a dummy variable equal to 1 when $R_{i,t}$ is negative and 0 otherwise. Since in this case $NI_{i,t}$ represents accounting earnings and $R_{i,t}$ represents the proxy variable of economic earnings, coefficient β_2 represents the average extent of change in accounting earnings against fluctuations in economic earnings. Coefficient β_3 represents the extent of incremental fluctuations of accounting earnings in the case of economic loss. Various prior studies have measured the extent of asymmetry in the reactions to economic profit and economic loss in terms of accounting earnings, as represented by coefficient β_3. A high value of β_3 means that accounting earnings respond more quickly to economic loss than to economic profit. This indicates a high level of conditional conservatism.

To use Eq.(1) to measure the level of each firm's conditional conservatism, we must conduct a time-series regression for each firm. If this cannot be conducted with a considerable degree of continuous observation, the estimation of the level of conditional conservatism for the firm-year may be constrained. To ease this constraint, Khan and Watts [2009] further developed the Basu [1997] model and presented the following model to measure the level of conditional conservatism by firm-year:

$$NI_t = \alpha + \beta_1 D_{i,t} + \beta_2 R_{i,t}\left(\gamma_1 + \gamma_2 MV_{i,t} + \gamma_3 MtoB_{i,t} + \gamma_4 Leverage_{i,t}\right) + \beta_3 D_{i,t} \times R_{i,t}\left(\delta_1 + \delta_2 MV_{i,t} + \delta_3 MtoB_{i,t} + \delta_4 Leverage_{i,t}\right) + \left(\mu_1 MV_{i,t} + \mu_2 MtoB_{i,t} + \mu_3 Leverage_{i,t}\right) + \mu_4 D_{i,t} \times MV_{i,t} + \mu_5 D_{i,t} \times MtoB_{i,t} + \mu_6 D_{i,t} \times Leverage_{i,t} + \varepsilon_{i,t} \quad (2)$$

Here, $MV_{i,t}$ is the natural logarithm of market value of equity for the end of period *t* for firm *i*; $MtoB_{i,t}$ is the market-to-book ratio obtained by dividing the market value of equity at the end of period *t* by the book value of equity at the same period; $Leverage_{i,t}$ is the interest-bearing debt ratio obtained by dividing the interest-bearing debt by the market value of equity at the end of period *t*. Eq. (2) assumes that the three firm-specific characteristics of firm size ($MV_{i,t}$), market-to-book ratio ($MtoB_{i,t}$), and $Leverage_{i,t}$ define the timeliness of accounting earnings with regard to both economic profit and loss for each firm-year observation. According to Khan and Watts [2009], it is possible to explain the relationship between these firm-specific characteristics and conditional conservatism from the perspective of agency costs. We generally expect that the smaller firm finds it more difficult to acquire information, resulting in an increase in agency costs arising from information asymmetry. On the other hand, we expect that for firms with growth opportunities, information asymmetry increases and therefore agency cost increases. Generally, while the market value of equity includes market expectations with regard to firm growth, this expectation is not reflected in accounting book value. Therefore, market-to-book ratio (PBR) here is used as a proxy variable for firm growth. Since greater leverage increases the conflict of interest between shareholders and creditors, we expect that the level of conditional conservatism increases. When we estimate Eq. (2) by OLS using our sample, firm size and leverage coefficients each shows significantly positive and negative values, respectively. Even though no significant coefficients were obtained for PBR, the estimated result was similar to that of Khan and Watts [2009]. As firm size, PBR, and leverage are typically used when employing Khan and Watts' [2009] method, these three variables are used in this paper to measure the level of conditional conservatism.

When performing a cross-sectional regression for each year using Eq. (2), each coefficient for the equation can be estimated. Using the estimated value ($\widehat{\delta_1}$、$\widehat{\delta_2}$、$\widehat{\delta_3}$、$\widehat{\delta_4}$) of the coefficients representing the extent of influence of the three firm-specific characteristics, $CSCORE_{i,t}$ is calculated for each firm-year observation with Eq. (3).[26]

[26] In Eq. (2), it is assumed that the portion ($\delta_1 + \delta_2 MV_{i,t} + \delta_3 MtoB_{i,t} + \delta_4 Leverage_{i,t}$) determines the level of conditional conservatism (the incremental timeliness of accounting earnings when

$$CSCORE_{i,t} = \widehat{\delta_1} + \widehat{\delta_2} MV_{i,t} + \widehat{\delta_3} MtoB_{i,t} + \widehat{\delta_4} Leverage_{i,t} \qquad (3)$$

$CSCORE_{i,t}$ represents the level of conditional conservatism of the firm-year observation: the greater this value, the higher the expected level of conditional conservatism.[27]

(ii) Quantification of unconditional conservatism

The following model proposed by Beaver and Ryan [2000] is used to quantify the level of unconditional conservatism:

$$BtoM_{i,t} = \alpha_t + \alpha_i + \sum_{j=0}^{6} \beta_j RETURN_{i,t-j} + \varepsilon_{i,t} \qquad (4)$$

Here, $BtoM_{i,t}$ is the book-to-market ratio obtained by dividing the book value of equity by the market value of equity at the end of period *t*, and $RETURN_{i,t-j}$ is stock returns for the 12 months from the beginning of period $t - j$ to the end of period $t - j$. Since Eq. (4) uses the fixed-effects model for estimation, α_t and α_i represents year effects and firm effects, respectively. Beaver and Ryan [2000] assumes that α_i in Eq. (4) represents the level of unconditional conservatism. This is because in $BtoM_{i,t}$, the portion unexplained by past stock returns but explained by firm fixed effects (such as immediate expense processing of intangible assets and accelerated depreciation of tangible fixed assets), is believed to arise from the undervaluation of the book value of net asset value when compared to economic value.

For the panel estimates for Eq. (4), Beaver and Ryan [2000] reported that they obtained the same results for four-year, eight-year, and 13-year windows. To ensure an adequate sample size was available, the panel estimation in this paper uses a four-year window. Specifically, the four-year data set from the period *t*- 3 to the period *t* [28] is used

---

economic loss is recognized) and $CSCORE_{i,t}$ is calculated using the estimated coefficients and the three firm-specific characteristics for each firm-year observation.

[27] To examine the extent to which the calculated $CSCORE_{i,t}$ is able to catch the level of conditional conservatism, Khan and Watts [2009] created decile portfolios based on $CSCORE_{i,t}$. They found that in the case of estimating Eq. (1) for each decile, for deciles with large $CSCORE_{i,t}$, in other words, for portfolios for which a high level of conditional conservatism can be expected, the estimated coefficient $\beta_3$will increases. This indicates that the level of conditional conservatism based on Basu [1997] used in most prior research is consistent with the level of conditional conservatism based on $CSCORE_{i,t}$.

[28] We need stock returns ($RETURN_{i,t-6}$) for the period six years prior to estimate the level of

to estimate the level of unconditional conservatism for each firm-year observation at the time of period *t*. This fixed effect estimated by Eq. (4) means that the greater the fixed effect for each firm, the lower the level of unconditional conservatism.[29] To align the direction of codes of the proxy variables for conditional conservatism and unconditional conservatism, we use the value of α_i multiplied by -1 as the proxy variable for unconditional conservatism.

(iii) Relationship between conservatism and investment level

This paper analyzes the effect of conservatism on managers' investment decision making. In particular, we focus on the effect of conservatism on corporate investment levels, risk taking, and shareholder value. This section describes the estimation model used to analyze the relationship between conservatism and investment levels. To control for the various factors that affect corporate investment levels, our analysis uses Eq. (5).

$$\begin{aligned} NETINV_{i,t+1} = {} & \alpha_0 + \beta_1 Conservatism_{i,t} + \beta_2 NETINV_{i,t} + \beta_3 CASH_{i,t} + \beta_4 SIZE_{i,t} \\ & + \beta_5 LEV_{i,t} + \beta_6 PPE_{i,t} + \beta_7 SG_{i,t} + \beta_8 VSG_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} COD_{i,t} \\ & + \beta_{11} FOREIGN_{i,t} + \beta_{12} BANK_{i,t} + \alpha_i + \Sigma \alpha_t Year + \varepsilon_{i,t} \qquad (5) \\ & Conservatism_{i,t} \in \{STCC_{i,t}, STUCC_{i,t}\} \end{aligned}$$

Future net investment ($NETINV_{i,t+1}$)is a dependent variable calculated by dividing net investment in period $t + 1$(fixed assets net investment plus R&D spending) by the average of total assets during period $t + 1$. This variable includes R&D spending and the net amount of capital investment and fixed-asset sales.

Noise generation is one challenge in estimating conditional conservatism ($CSORE_{i,t}$)and unconditional conservatism ($UCC_{i,t}$). To reduce this noise, previous

---

unconditional conservatism at period *t* for a given firm. That is, we require stock returns from period *t* - 9 to period *t* continuously.

[29] For example, it is assumed that there are two observation, A and B, that have the same level of past stock returns, but that the market-to-book value ($MtoB_{i,t}$) of A is greater than $MtoB_{i,t}$ of B. Since the level of past stock returns is expected to act as a proxy for the market valuation with regard to earnings and future growth, the difference in $MtoB_{i,t}$ of A and B is expected to be determined by the difference in the level of unconditional conservatism. In other words, Firm A's book value is expected to be relatively undervalued compared with that of B because of a differing level of unconditional conservatism.

Therefore, if $MtoB_{i,t}$ is used as the dependent variable for Eq. (4), the fixed effects (α_i) can be expected to be positively related to the level of unconditional conservatism. However, Beaver and Ryan [2000] uses the book-to-market ratio ($BtoM_{i,t}$), which is the inverse value of the $MtoB_{i,t,}$ as the dependent variables. As this is method used in this paper, if the fixed effects in Eq. (4). are small, the level of unconditional conservatism will be high.

studies (Zhang [2008], Louis, Sun, and Urcan [2012] and Ishida and Ito [2014]) ranked each variable by year in ascending order, and used the variable obtained by dividing this rank value by the number of observations for the year. As in previous research, this paper uses the annual standardized value are used as proxy variables for conditional and unconditional conservatism.

In the analysis of Eq. (5), we focus on the variable $Conservatism_{i,t}$. If conditional conservatism and unconditional conservatism suppresses or promotes investment behavior, coefficient β_1 takes a negative or positive sign, respectively. For Eq. (5), lagged net investment ($NETINV_{i,t}$), cash on hand ($CASH_{i,t}$), firm size ($SIZE_{i,t}$), leverage ($LEV_{i,t}$), property, plant, and equipment ($PPE_{i,t}$), growth ($SG_{i,t}$), business uncertainty ($VSG_{i,t}$), profitability ($CFO_{i,t}$), debt costs ($COD_{i,t}$), and governance ($FOREIGN_{i,t}, BANK_{i,t}$) are used as control variables. $CASH_{i,t}$ is calculated as the cash holdings at the end of period *t* divided by the total assets at the end of period *t*. Since cash holdings can be used as investment funds, $CASH_{i,t}$ is expected to be positively associated with future net investment. $SIZE_{i,t}$ is defined as the natural logarithm of total assets at the end of period *t*. It is expected that the larger the firm, the higher the risk tolerance with respect to large investments. Future net investment is therefore expected to be positively associated with firm size. However, as investment opportunities may be limited in large, mature firms, the correlation between the two in these firms could be negative. $LEV_{i,t}$ is calculated as the interest-bearing debt divided by the total assets at the end of period *t.* It is believed that the higher the firms leverage, the more difficult it is to obtain additional funding; thus, leverage is expected to be negatively correlated with future net investment. $PPE_{i,t}$ represents the ratio of property, plant, and equipment to the total assets. If a high level of capital stock implies aggressive investment, we expect to see a positive correlation between future net investment and the level of property, plant, and equipment. On the other hand, if a high ratio implies that the level of capital stock is sufficient, we would see a negative correlation with future net investment. $SG_{i,t}$ represents the geometric mean growth rate of sales from period *t* - 4 to period *t.* It is hypothesized that abundant opportunities for growth lead to an increase in future net investment. $VSG_{i,t}$ represents the standard deviation of the sales growth ratio from period *t* - 4 to period *t.* Because the firm may be reluctant to invest when facing a high level of business uncertainty, we expect to see a negative correlation between business uncertainty and future net investment. $CFO_{i,t}$ is defined as operating cash flow generated during period *t* divided by sales during the period. When cash flow is abundant, investment funds can be covered by internal reserves. We therefore expect a positive correlation with future net investment. $COD_{i,t}$ represents the long-term

borrowing interest rate at the end of period *t*, obtained using schedule of borrowing in the annual securities report. Since higher debt costs lead to an increase in procurement costs for investment funds, we expect a decrease in future net investment.

$FOREIGN_{i,t}$ represents the foreign ownership ratio at the end of period *t*. Yonezawa and Sasaki [2001] found that a higher foreign ownership ratio suppresses overinvestment. However, if foreign investors invest in firms with high opportunity for growth, we expect a positive correlation between future net investment and the foreign ownership ratio. A high $BANK_{i,t}$, which represents the financial-institution shareholding ratio, indicates a strong relationship with the bank. If this relationship leads to greater flexibility with respect to fundraising, there should be a positive correlation between future net investment and financial institution shareholding ratio.

(iv) Relationship between conservatism and equity risk

In this paper, equity risk is utilized as a proxy variable for corporate risk taking. The estimation model for the relationship between conservatism and equity risk is as indicated in Eq. (6).

$$\begin{aligned} TVOL_{i,t\sim t+3} = {} & \alpha_0 + \beta_1 Conservatism_{i,t} + \beta_2 Conservatism_{i,t} x NETINV_{i,t} \\ & + \beta_3 NETINV_{i,t} + \beta_4 CASH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 VSG_{i,t} \\ & + \beta_8 CFO_{i,t} + \beta_9 FOREIGN_{i,t} + \beta_{10} BANK_{i,t} + \alpha_i + \Sigma\alpha_t Year \\ & + \varepsilon_{i,t} \qquad (6) \\ & Conservatism_{i,t} \in \{STCC_{i,t}, STUCC_{i,t}\}. \end{aligned}$$

The dependent variable in this model is future stock return volatility ($TVOL_{i,t\sim t+3}$), which is the standard deviation of the monthly stock return from the end of June in year *t* to the end of June in year *t* + 3. If the risk inherent in corporate investments is high, the uncertainty of future earnings increases, resulting in an increase in equity risk (stock return volatility).

In the analysis of Eq. (6), we focus on the coefficient β_2 of the cross terms between $Conservatism_{i,t}$ and $NETINV_{i,t}$. If firms with a high level of conditional conservatism tend to avoid high-risk investments, then coefficient β_2 is expected to be negative. In contrast, if the psychological barriers to risk taking faced by managers decrease due to the accounting slack generated by unconditional conservatism, coefficient β_2 is expected to be positive, since riskier investments will be promoted.

For Eq. (6), cash on hand ($CASH_{i,t}$), firm size ($SIZE_{i,t}$), leverage ($LEV_{i,t}$), business uncertainty ($VSG_{i,t}$), profitability ($CFO_{i,t}$), and governance ($FOREIGN_{i,t}$, $BANK_{i,t}$) are

used as control variables. For firms with abundant cash on hand ($CASH_{i,t}$), business risk is expected to decrease as there is lower asset risk. Larger firms are also expected to have lower business risk, as they tend to have more diversified business portfolios. Cash on hand and firm size may therefore both have an impact on both business and equity risk. If leverage ($LEV_{i,t}$) and/or uncertainty ($VSG_{i,t}$) are high, equity risk is expected to increase. According to the risk-return relation, high profitability ($CFO_{i,t}$) is expected to be positively correlated with risk. However, if high profitability indicates a more mature firm, there is the possibility of it having a negative correlation with risk.

Since foreign investors are assumed to pursue financial gain and they evaluate the call option factor on stock,[30] a high foreign ownership ratio ($FOREIGN_{i,t}$) might encourage corporate risk taking. In addition, if the financial-institution shareholding ratio ($BANK_{i,t}$) is tied to the bank holding ratio, a high financial-institution shareholding ratio could indicate a strong relationship with banks. Given that debt value has the aspects of put options related to firm value, a banks intention as a creditor is reflected in its corporate behavior. Banks may therefore suppress a borrowers' level of risk taking. Hence, the financial-institution shareholding ratio may have a negative correlation with equity risk.

(v) Relationship between conservatism and stock return

The estimation model shown in Eq. (7) is used to determine the effect of conservatism on stock return (the proxy for shareholder value) via corporate investment.

$$\begin{aligned} BHAR_{i,t\sim t+3} = {} & \alpha_0 + \beta_1 Conservatism_{i,t} + \beta_2 Conservatism_{i,t} x NETINV_{i,t} \\ & + \beta_3 NETINV_{i,t} + \beta_4 CASH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 SG_{i,t} \\ & + \beta_8 VSG_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} FOREIGN_{i,t} + \beta_{11} BANK_{i,t} + \alpha_i \\ & + \Sigma \alpha_t Year + \varepsilon_{i,t} \qquad (7) \\ & Conservatism_{i,t} \in \{STCC_{i,t}, STUCC_{i,t}\} \end{aligned}$$

The dependent variable is future buy-and-hold abnormal return ($BHAR_{i,t\sim t+3}$). This variable refers to the level of buy-and-hold abnormal return from the end of June in year *t* to the end of June in year *t* + 3.[31] In this paper, buy-and-hold abnormal return is

[30] Since stock incorporates the characteristics of call options related to firm value, an increase in risk is associated with an increase in return.

[31] As a proxy variable for shareholder value, the Tobin Q or cumulative abnormal stock returns, among others, can also be used. However, in this paper PBR is used as the base for the proxy variable for unconditional conservatism. Considering the extent of similarities between the Tobin Q and PBR, using the Tobin Q would have been inappropriate. Further, with respect to buy-and-hold

calculated as the buy-and-hold return of the firm from the end of June in year *t* to the end of June in year *t* + 3 minus the weighted average buy-and-hold return of the portfolio (benchmark portfolio[32]) comprising a group of firms similar in size, as measured by the market value of equity, and the PBR for the firm in question.

As with Eq. (6), Eq. (7) focuses on the coefficient β_2 of the cross terms ($Conservatism_{i,t}xNETINV_{i,t}$) . If conservatism improves (worsens) corporate investment efficiency, coefficient β_2 will be positive (negative). For Eq. (7), the variables used are cash on hand ($CASH_{i,t}$), firm size ($SIZE_{i,t}$), leverage ($LEV_{i,t}$), growth ($SG_{i,t}$), business uncertainty ($VSG_{i,t}$), profitability ($CFO_{i,t}$), and governance ($FOREIGN_{i,t}, BANK_{i,t}$). A high level of cash on hand ($CASH_{i,t}$) may worsen agency problems between managers and shareholders, and may have a negative effect on shareholder value (e.g., Jensen [1986]). Firm size ($SIZE_{i,t}$) is controlled, to a certain extent, in the calculation of future buy-and-hold abnormal returns; however, the size effect[33] with respect to stock price may not have been entirely excluded. In that case, we may observe a negative correlation between firm size and future buy-and-hold abnormal returns. High leverage ($LEV_{i,t}$) increases risk for shareholders. On average the return to shareholders increases with the level of risk, and the leverage coefficient will therefore be expected to be positive. If growth ($SG_{i,t}$) is high, stock return is also expected to be high. However, if past growth has been high, PBR may already be high. In this case, high growth (high $SG_{i,t}$ and high PBR) may have a negative influence on stock return due to the value effect.[34] Since business uncertainty ($VSG_{i,t}$) is an expression of business risk, it is expected to have a positive correlation with equity risk. Based on the risk-return relationship, we expect a positive correlation between shareholder value and business uncertainty. Although a clear expectation of profitability ($CFO_{i,t}$) cannot be made, it is included because it would control firm fundamentals.

As a high foreign shareholding ratio ($FOREIGN_{i,t}$) or financial-institution shareholding ratio ($BANK_{i,t}$) is expected to lead to an increase in the incentives for

---

abnormal return and cumulative abnormal stock return, the former is typically used in the type of long-window analysis seen in this paper.

[32] The following method was used to create a benchmark portfolio. Five quintile portfolios were formed for all listed firms in Japan based on the market value of equity at the end of June in year *t*. For each portfolio, five quintile portfolios were formed based on PBR. PBR was obtained by dividing the market value of equity at the end of June in year *t* by the book value of net assets at the end of March year *t*. As a result of this procedure, 25 pairs of size- and PBR-adjusted portfolios were formed. These portfolios are recalculated every year at the end of June.

[33] Generally, small-cap stocks have high risk and high return (Fama and French [1993, 1995]).

[34] It is known that undervalued stock (i.e., PBR is low) generally has high return in the future (Fama and French [1993, 1995]).

shareholders to monitor corporate management, both variables are positively correlated with shareholder value.

In the estimation of Eq. (5)-(7), the presence of firm-specific effects is confirmed in our sample as part of the ex ante analysis. The Hausman test also leads us to adopt the fixed-effects model rather than the random-effects model. To control for firm-specific effects (α_i), the firm fixed-effects model is used for the estimation of Eq. (5)-(7) and the year dummies (*Year*) are included to control for time effects.

(2) Sample selection

The data used in this paper are collected from the Nikkei Financial QUEST2.0 database for the period from March 1990 to March 2013. The firms targeted are listed non-financial firms. The estimation window of Eq. (5)-(7) ranges from year 2000 to 2010, as the cash flow information essential for this analysis only became available from year 2000 onward. To ensure the accuracy of the analysis, samples are extracted according to the following criteria:

1. End of fiscal year in March.
2. Twelve months in the fiscal year.
3. Fully compliant with Japanese accounting standards.
4. All financial and market data available for all variables necessary for analysis.
5. To ensure that the results are not sensitive to outliers, except for dummy variables, variables in the top and bottom 0.5% have been eliminated for each year.[35]

Applying these screening criteria to the entire sample yielded 12,880 firm-year, 13,170 firm-year, and 13,032 firm-year samples for the estimations of Eq. (5), (6), and (7), respectively. Different screening criteria are applied for Eq. (2) and (4), which are used for quantifying conditional and unconditional conservatism. For Eq. (2), firm-years that meet the following criteria in addition to criteria 1-3 are included in the samples: (a) book value of equity is greater than 0; (b) collection of variables required for estimation of Eq. (2) is possible; and (c) firms for which each variable used in Eq. (2) is not included in the top and bottom 0.5% for each year. For Eq. (4), firm-years that meet the following criteria in addition to criteria 1-3 are included in the samples: (d) book value of equity is greater than 0; (e) $RETURN_{i,t-j}$ is less than 3; (f) $BtoM_{i,t}$ is less than 4; and (g) data collection for the variables is continuously possible during the estimation window (balanced panel). For firm-years that violate these criteria, $RETURN_{i,t-j}$ and

[35] However, with respect to $FOREIGN_{i,t}$ and $BANK_{i,t}$ only those above 0.5% are excluded. This is because there are several observations whose shareholding ratios are 0%.

$BtoM_{i,t}$ are winsorized at 3 and 4, respectively.[36]

With respect to samples that undergo such screening, the descriptive statistics of each variable used for analysis is indicated in each panel of Table 1 and the correlation matrix is shown in each panel of Table 2. In panel A of Table 2, an increased level of conditional (unconditional) conservatism can be observed as the future net investment decreases (increases). As seen in any panel of Table 2, the correlation coefficient of conditional conservatism and unconditional conservatism is significantly negative. This is consistent with the claim in Section 2 that the two types of conservatism are alternatives to each other.

In Table 2, a high correlation can also be seen between several variables, indicating that multicollinearity is a concern in the estimation of this model. To check this, the variance inflation factor (VIF) is calculated for each estimation. The result is less than 10, the level at which multicollinearity generally becomes a concern. Therefore, as multicollinearity is not considered a major concern in this study, these variables are included when conducting the model estimation.

[36] Criteria (d)-(g) aim to reduce the effect of outliers on the estimation results of Eq.(4) following Beaver and Ryan [2000].

Table1: Descriptive Statistics

Panel A: Conservatism and Investment Level

	MEAN	Std Dev	MIN	25%	50%	75%	MAX	N
$NETINV_{i,t+1}$	0.0485	0.0415	-0.2162	0.0182	0.0416	0.0719	0.2397	12,880
$CSCORE_{i,t}$	0.1084	0.3389	-2.2489	-0.0420	0.1230	0.3083	1.6830	12,880
$UCC_{i,t}$	0.0083	0.5918	-2.1185	-0.3226	0.0899	0.4173	1.6724	12,880
$NETINV_{i,t}$	0.0483	0.0410	-0.1307	0.0181	0.0414	0.0713	0.2397	12,880
$CASH_{i,t}$	0.1088	0.0665	0.0059	0.0592	0.0961	0.1446	0.4255	12,880
$SIZE_{i,t}$	11.2529	1.3380	7.8140	10.2832	11.1146	12.0938	15.3234	12,880
$LEV_{i,t}$	0.2569	0.1642	0.0002	0.1238	0.2406	0.3683	0.7965	12,880
$PPE_{i,t}$	0.2037	0.1107	0.0101	0.1208	0.1926	0.2698	0.7051	12,880
$SG_{i,t}$	0.0092	0.0636	-0.2300	-0.0298	0.0030	0.0413	0.3636	12,880
$VSG_{i,t}$	0.0983	0.0808	0.0066	0.0442	0.0759	0.1255	0.7121	12,880
$CFO_{i,t}$	0.0575	0.0553	-0.2470	0.0240	0.0546	0.0876	0.3572	12,880
$COD_{i,t}$	0.0197	0.0083	0.0037	0.0146	0.0183	0.0225	0.0742	12,880
$FOREIGN_{i,t}$	0.0796	0.0935	0.0000	0.0088	0.0394	0.1232	0.5053	12,880
$BANK_{i,t}$	0.2723	0.1335	0.0000	0.1674	0.2646	0.3701	0.6499	12,880

Note:

$CSCORE_{i,t}$ = Khan and Watts [2009] scale of conditional conservatism

$UCC_{i,t}$ = Beaver and Ryan [2000] scale of unconditional conservatism

$NETINV_{i,t}$ = net investments for t (fixed assets net investment + R&D expenses) ÷ average total assets during t

$CASH_{i,t}$ = cash holdings at the end of period t ÷ total assets at the end of period t

$SIZE_{i,t}$ = natural logarithmic value of total asset at the end of period t

$LEV_{i,t}$ = interest-bearing debt at the end of period t ÷ total assets at the end of period t

$PPE_{i,t}$ = depreciable tangible fixed assets at the end of period t ÷ total assets at the end of period t

$SG_{i,t}$ = geometric average growth rate of sales from period $t-4$ to period t

$VSG_{i,t}$ = standard deviation of sales growth rate for each term from period $t-4$ to period t

$CFO_{i,t}$ = cash flow from operation for period t ÷ sales for period t

$COD_{i,t}$ = average long-term loan interest at the end of period t

$FOREIGN_{i,t}$ = foreign stock holding ratio at the end of period t

$BANK_{i,t}$ = financial-institution holding ratio at the end of period t

Panel B: Conservatism and Equity Risk

	MEAN	Std Dev	MIN	25%	50%	75%	MAX	N
$TV_{i,t\sim t+3}$	0.0994	0.0417	0.0232	0.0704	0.0917	0.1197	0.3761	13,170
$CSCORE_{i,t}$	0.1013	0.3565	-2.2382	-0.0696	0.1133	0.3182	1.7570	13,170
$UCC_{i,t}$	-0.0253	0.5818	-2.1346	-0.3549	0.0467	0.3749	1.6834	13,170
$NETINV_{i,t}$	0.0480	0.0411	-0.1103	0.0172	0.0403	0.0709	0.2397	13,170
$CASH_{i,t}$	0.1156	0.0774	0.0053	0.0595	0.0986	0.1517	0.5348	13,170
$SIZE_{i,t}$	11.1670	1.3230	8.1956	10.1931	11.0147	11.9988	15.3234	13,170
$LEV_{i,t}$	0.2224	0.1742	0.0000	0.0687	0.1995	0.3439	0.7616	13,170
$VSG_{i,t}$	0.0940	0.0790	0.0057	0.0426	0.0718	0.1189	0.7887	13,170
$CFO_{i,t}$	0.0593	0.0587	-0.2036	0.0238	0.0551	0.0901	0.3572	13,170
$FOREIGN_{i,t}$	0.0805	0.0937	0.0000	0.0093	0.0412	0.1232	0.5053	13,170
$BANK_{i,t}$	0.2688	0.1339	0.0003	0.1642	0.2583	0.3662	0.6499	13,170

Note:

$TV_{i,t\sim t+3}$ = standard deviation for monthly stock return from the end of June in year t to the end of June in year t + 3

Panel C: Conservatism and Stock Return

	MEAN	Std Dev	MIN	25%	50%	75%	MAX	N
$BHAR_{i,t\sim t+3}$	-0.0823	0.5666	-2.2376	-0.3839	-0.1370	0.1366	4.6584	13,032
$CSCORE_{i,t}$	0.1005	0.3538	-2.2382	-0.0700	0.1127	0.3166	1.6830	13,032
$UCC_{i,t}$	-0.0245	0.5801	-2.1346	-0.3509	0.0479	0.3748	1.6834	13,032
$NETINV_{i,t}$	0.0480	0.0409	-0.1103	0.0173	0.0404	0.0708	0.2397	13,032
$CASH_{i,t}$	0.1153	0.0773	0.0053	0.0593	0.0983	0.1513	0.5348	13,032
$SIZE_{i,t}$	11.1742	1.3231	8.1956	10.1994	11.0197	12.0010	15.3234	13,032
$LEV_{i,t}$	0.2219	0.1740	0.0000	0.0686	0.1989	0.3429	0.7769	13,032
$SG_{i,t}$	0.0150	0.0637	-0.2300	-0.0244	0.0088	0.0472	0.3597	13,032
$VSG_{i,t}$	0.0922	0.0759	0.0057	0.0421	0.0711	0.1175	0.7263	13,032
$CFO_{i,t}$	0.0597	0.0584	-0.2002	0.0241	0.0554	0.0903	0.3572	13,032
$FOREIGN_{i,t}$	0.0803	0.0936	0.0000	0.0092	0.0409	0.1231	0.5053	13,032
$BANK_{i,t}$	0.2697	0.1339	0.0006	0.1650	0.2593	0.3672	0.6499	13,032

Note:

$BHAR_{t\sim t+3}$ = buy-and-hold abnormal return from the end of June in year t to the end of June in year t + 3

Table 2: Correlation Matrix

Panel A: Conservatism and Investment Level

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
① $NETINV_{i,t+1}$		**-0.2732**	**0.1542**	**0.7743**	**-0.0529**	**0.2214**	**-0.1240**	**0.4248**	**0.2639**	**-0.0615**	**0.3796**	**-0.0609**	**0.3247**	**0.2033**
② $STCC_{i,t}$	**-0.2660**		**-0.3457**	**-0.2725**	**0.1194**	**-0.6911**	**-0.0482**	**-0.1313**	**-0.1756**	**0.0545**	**-0.2088**	**0.0414**	**-0.5510**	**-0.4233**
③ $STUCC_{i,t}$	**0.1423**	**-0.3414**		**0.1476**	**-0.0878**	**0.2522**	**0.2857**	**0.1025**	**0.0223**	**-0.0692**	**0.0958**	**0.0752**	**0.1133**	**0.1611**
④ $NETINV_{i,t}$	**0.7332**	**-0.2675**	**0.1359**		**-0.0872**	**0.2192**	**-0.1039**	**0.4517**	**0.2727**	**-0.0561**	**0.3494**	**-0.0701**	**0.3135**	**0.1932**
⑤ $CASH_{i,t}$	**-0.0253**	**0.0998**	**-0.0764**	**-0.0687**		**-0.2055**	**-0.3041**	**-0.3289**	**-0.1092**	**0.1259**	**0.0614**	0.0067	**0.0295**	**-0.1109**
⑥ $SIZE_{i,t}$	**0.2187**	**-0.6766**	**0.2671**	**0.2196**	**-0.2022**		**0.0588**	**0.1028**	**0.1616**	**-0.0811**	**0.1472**	-0.0143	**0.6660**	**0.5825**
⑦ $LEV_{i,t}$	**-0.1538**	**-0.0435**	**0.3114**	**-0.1274**	**-0.2952**	**0.0856**		**0.2670**	**-0.1286**	**0.0444**	**-0.0505**	**0.1773**	**-0.2456**	**0.0565**
⑧ $PPE_{i,t}$	**0.3287**	**-0.1160**	**0.1016**	**0.3634**	**-0.3175**	**0.1093**	**0.2986**		**0.1112**	**-0.1162**	**0.3960**	**0.0398**	0.0154	**0.1099**
⑨ $SG_{i,t}$	**0.2444**	**-0.1720**	0.0036	**0.2526**	**-0.0990**	**0.1574**	**-0.1135**	**0.0836**		**-0.0629**	**0.1195**	**-0.0675**	**0.2375**	**0.0990**
⑩ $VSG_{i,t}$	**-0.0386**	**0.0442**	**-0.0545**	**-0.0290**	**0.1272**	**-0.0774**	**0.0260**	**-0.0930**	**0.0549**		-0.0021	**0.0298**	-0.0021	**-0.1041**
⑪ $CFO_{i,t}$	**0.3168**	**-0.1936**	**0.0892**	**0.2897**	**0.0968**	**0.1476**	**-0.0370**	**0.3719**	**0.0921**	-0.0082		0.0027	**0.2266**	**0.1442**
⑫ $COD_{i,t}$	0.0111	-0.0035	**0.0649**	0.0025	**0.0344**	**0.0294**	**0.0609**	**0.0443**	**-0.0205**	-0.0128	**0.0258**		**-0.0763**	**0.0350**
⑬ $FOREIGN_{i,t}$	**0.3164**	**-0.5188**	**0.1607**	**0.3047**	**0.0781**	**0.5830**	**-0.2206**	-0.0038	**0.2027**	0.0005	**0.2096**	0.0090		**0.4442**
⑭ $BANK_{i,t}$	**0.1854**	**-0.4233**	**0.1662**	**0.1736**	**-0.1075**	**0.5711**	**0.0561**	**0.1094**	**0.0868**	**-0.1043**	**0.1297**	**0.0631**	**0.3635**	

Note:

$STCC_{i,t}$ = annually standardized value for $CSCORE_{i,t}$

$STUCC_{i,t}$ = annually standardized value for $UCC_{i,t}$

The lower left triangular matrix is the Pearson correlation coefficient and the upper right triangular matrix is the Spearman correlation coefficient. The values in bold are significant at the 5% level.

Panel B: Conservatism and Equity Risk

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
① $TV_{i,t\sim t+3}$		**0.0412**	-0.0159	**-0.0345**	**-0.0280**	**-0.0448**	**0.2572**	**0.2570**	**-0.1196**	**0.0204**	**-0.0470**
② $STCC_{i,t}$	**0.0804**		**-0.3335**	**-0.2664**	**0.1176**	**-0.6780**	**-0.0631**	**0.0630**	**-0.2243**	**-0.5318**	**-0.4225**
③ $STUCC_{i,t}$	-0.0006	**-0.3291**		**0.1766**	**-0.0689**	**0.2509**	**0.2658**	**-0.0717**	**0.1240**	**0.1150**	**0.1866**
④ $NETINV_{i,t}$	**-0.0374**	**-0.2597**	**0.1597**		**-0.0954**	**0.2113**	**-0.0536**	**-0.0764**	**0.3674**	**0.2937**	**0.1920**
⑤ $CASH_{i,t}$	**-0.0378**	**0.0960**	**-0.0492**	**-0.0770**		**-0.2179**	**-0.3358**	**0.1007**	**0.0720**	**0.0481**	**-0.1136**
⑥ $SIZE_{i,t}$	**-0.0937**	**-0.6663**	**0.2684**	**0.2150**	**-0.2152**		**0.1335**	**-0.0816**	**0.1556**	**0.6305**	**0.5867**
⑦ $LEV_{i,t}$	**0.2386**	**-0.0614**	**0.2989**	**-0.0885**	**-0.3318**	**0.1530**		**0.0382**	**-0.0694**	**-0.2292**	**0.1474**
⑧ $VSG_{i,t}$	**0.1873**	**0.0436**	**-0.0444**	**-0.0401**	**0.1094**	**-0.0768**	**0.0257**		**-0.0302**	**-0.0282**	**-0.0888**
⑨ $CFO_{i,t}$	**-0.1408**	**-0.2093**	**0.1142**	**0.2964**	**0.1173**	**0.1659**	**-0.0463**	**-0.0225**		**0.2479**	**0.1518**
⑩ $FOREIGN_{i,t}$	-0.0047	**-0.5100**	**0.1704**	**0.2954**	**0.1012**	**0.5597**	**-0.2022**	**-0.0140**	**0.2331**		**0.4148**
⑪ $BANK_{i,t}$	**-0.0896**	**-0.4247**	**0.1905**	**0.1734**	**-0.1207**	**0.5754**	**0.1344**	**-0.0826**	**0.1363**	**0.3484**	

Note:

The lower left triangular matrix is the Pearson correlation coefficient and the upper right triangular matrix is the Spearman correlation coefficient. The values in bold are significant at the 5% level.

Panel C: Conservatism and Stock Return

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
① $BHAR_{i,t\sim t+3}$		**-0.1178**	**0.1295**	**0.0833**	**-0.0510**	**0.1901**	**0.0394**	**0.0997**	**-0.0213**	**0.0784**	**0.1561**	**0.0852**
② $STCC_{i,t}$	**-0.0852**		**-0.3364**	**-0.2658**	**0.1204**	**-0.6770**	**-0.0657**	**-0.2090**	**0.0641**	**-0.2242**	**-0.5310**	**-0.4191**
③ $STUCC_{i,t}$	**0.0861**	**-0.3319**		**0.1803**	**-0.0711**	**0.2564**	**0.2644**	**0.0477**	**-0.0791**	**0.1282**	**0.1153**	**0.1893**
④ $NETINV_{i,t}$	**0.0479**	**-0.2598**	**0.1629**		**-0.0945**	**0.2105**	**-0.0520**	**0.2908**	**-0.0739**	**0.3662**	**0.2910**	**0.1916**
⑤ $CASH_{i,t}$	**-0.0392**	**0.0990**	**-0.0508**	**-0.0766**		**-0.2220**	**-0.3420**	**-0.0759**	**0.0993**	**0.0685**	**0.0473**	**-0.1173**
⑥ $SIZE_{i,t}$	**0.1519**	**-0.6651**	**0.2734**	**0.2149**	**-0.2189**		**0.1396**	**0.1750**	**-0.0790**	**0.1553**	**0.6288**	**0.5840**
⑦ $LEV_{i,t}$	**0.0737**	**-0.0642**	**0.2980**	**-0.0870**	**-0.3379**	**0.1596**		**-0.1165**	**0.0335**	**-0.0638**	**-0.2279**	**0.1549**
⑧ $SG_{i,t}$	**0.0519**	**-0.2051**	**0.0276**	**0.2675**	**-0.0566**	**0.1768**	**-0.1084**		-0.0052	**0.1353**	**0.2887**	**0.0914**
⑨ $VSG_{i,t}$	0.0036	**0.0479**	**-0.0492**	**-0.0370**	**0.1057**	**-0.0744**	**0.0208**	**0.1198**		**-0.0280**	**-0.0241**	**-0.0838**
⑩ $CFO_{i,t}$	**0.0735**	**-0.2082**	**0.1190**	**0.2970**	**0.1139**	**0.1658**	**-0.0378**	**0.1126**	**-0.0217**		**0.2439**	**0.1511**
⑪ $FOREIGN_{i,t}$	**0.0854**	**-0.5088**	**0.1721**	**0.2938**	**0.1004**	**0.5584**	**-0.2000**	**0.2486**	-0.0121	**0.2293**		**0.4125**
⑫ $BANK_{i,t}$	**0.0698**	**-0.4213**	**0.1936**	**0.1730**	**-0.1239**	**0.5737**	**0.1424**	**0.0823**	**-0.0795**	**0.1350**	**0.3445**	

Note:
The lower left triangular matrix is the Pearson correlation coefficient and the upper right triangular matrix is the Spearman correlation coefficient. The values in bold are significant at the 5% level.

5. Results

(1) Effect of conservatism on investment levels

Table 3 shows the estimation result of Eq. (5) using future net investment ($NETINV_{i,t+1}$), the proxy variable for corporate investment level, as the dependent variable. The estimation results on the left side of the table show the effect of conditional conservatism on future net investment and those on the right side show the effect of unconditional conservatism on future net investment.

The conditional conservatism coefficient on the left side is significantly negative, indicating that a high level of conditional conservatism suppresses future net investment. This is consistent with hypothesis 1-1. Moreover, the unconditional conservatism coefficient on the right side is significantly positive, indicating that a high level of unconditional conservatism promotes future net investment. This is consistent with hypothesis 2-1.

These results are consistent with the results of Ishida and Ito [2014], who found that a high level of conditional conservatism leads to a decrease in capital investment levels, whereas unconditional conservatism has the opposite effect.

When examining the control variables, we find that the coefficients of both firm size ($SIZE_t$) and property, plant, and equipment (PPE_t) are significantly negative. These results are inconsistent with those of Ishida and Ito [2014]. Additional analysis, however, reveals that the differences arise from the inclusion of firm fixed effects in this study. As discussed in Section 4(1), preliminary investigation for this study revealed the existence of firm fixed effects, and some control for them was deemed essential. This

estimation was therefore conducted using the firm fixed-effects model. For other control variables, the coefficient sign is consistent with our assumptions.

Table 3: Conservatism and Investment Levels

Dependent Variable	$NETINV_{i,t+1}$		$NETINV_{i,t+1}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	0.1262	[7.89] ***	0.1156	[7.22] ***
$STCC_{i,t}$	-0.0030	[-2.46] **		
$STUCC_{i,t}$			0.0090	[4.93] ***
$NETINV_{i,t}$	0.1576	[16.94] ***	0.1584	[17.04] ***
$CASH_{i,t}$	0.0345	[5.18] ***	0.0347	[5.22] ***
$SIZE_{i,t}$	-0.0053	[-3.68] ***	-0.0048	[-3.33] ***
$LEV_{i,t}$	-0.0672	[-17.41] ***	-0.0717	[-17.99] ***
$PPE_{i,t}$	-0.0586	[-7.88] ***	-0.0585	[-7.88] ***
$SG_{i,t}$	0.0383	[7.56] ***	0.0395	[7.82] ***
$VSG_{i,t}$	-0.0047	[-1.18]	-0.0040	[-1.02]
$CFO_{i,t}$	0.0076	[1.40]	0.0066	[1.21]
$COD_{i,t}$	-0.1063	[-2.83] ***	-0.1084	[-2.89] ***
$FOREIGN_{i,t}$	0.0187	[3.16] ***	0.0190	[3.24] ***
$BANK_{i,t}$	0.0111	[2.13] **	0.0124	[2.39] **
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1303		0.1317	
N	12880		12880	

Note:
***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

(2) Effect of conservatism on equity risk

Table 4 shows the results of Eq. (6). This estimation takes future stock return volatility ($TVOL_{i,t\sim t+3}$), the proxy variable for corporate risk taking, as the dependent variable. The left side of the table shows the estimation results when conditional conservatism is adopted. The focus of this study is the cross term of conservatism and current net investment ($NETINV_{i,t}$), which, as shown on the left side of the table, is significantly negative. This result indicates that current net investment has a smaller impact on future stock return volatility for firms with a high level of conditional conservatism. This implies that a high level of conditional conservatism leads managers to invest in lower-risk projects, consistent with hypothesis 1-2. We can see the contrast on the right side of the table, which shows that when unconditional conservatism is used, the coefficient of the cross term of conservatism and net investment is significantly positive. This implies that for firms with a high level of unconditional conservatism, the influence of current net investment on future stock return volatility is larger, leading managers to invest in higher-risk projects, consistent with hypothesis 2-2.

Upon examining the control variables, we find that the coefficients of current net investment are different for conditional conservatism and unconditional conservatism. This might be because the coefficient of the cross terms of the estimation results takes a negative value in the case of conditional conservatism and a positive value in the case of unconditional conservatism. Although not shown in the table, the exclusion of the cross terms of conservatism and current net investment from the estimation model before conducting an additional estimation confirmed that the coefficient of current net investment is not statistically significant. In other words, if other factors are controlled, current net investment does not have a significant impact on equity risk. If the hypothesis holds true and the coefficient of the cross term of conditional conservatism and current net investment is negative and the cross term of unconditional conservatism and current net investment is positive, then even when an impact of current net investment on risk is not observed, the current net investment coefficient and cross term coefficient may be inversely related. For business uncertainty ($VSG_{i,t}$), the sign is the inverse of the ex ante prediction. Additional analysis again confirms that this is due to the introduction of firm fixed effects. Although it is important to consider why there is a negative correlation between business uncertainty and equity risk when firm fixed effects are considered, this topic is beyond the scope of this paper.

Several interesting and contrasting results were observed for the governance variable. While foreign shareholding ($FOREIGN_{i,t}$) promotes risk taking, financial-institution shareholding ($BANK_{i,t}$) suppresses it, suggesting that governance factors affect corporate risk taking in different ways.

Table 4: Conservatism and Equity Risk

Dependent Variable	$TV_{i,t\sim t+3}$		$TV_{i,t\sim t+3}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	0.1304	[7.27] ***	0.1124	[6.25] ***
$STCC_{i,t}$	0.0079	[4.77] ***		
$STCC_{i,t}xNETINV_{i,t}$	-0.1629	[-5.89] ***		
$STUCC_{i,t}$			0.0164	[6.35] ***
$STUCC_{i,t}xNETINV_{i,t}$			0.0656	[2.10] **
$NETINV_{i,t}$	0.0696	[4.13] ***	-0.0397	[-2.08] **
$CASH_{i,t}$	0.0079	[1.20]	0.0093	[1.42]
$SIZE_{i,t}$	-0.0037	[-2.23] **	-0.0022	[-1.33]
$LEV_{i,t}$	0.0578	[13.01] ***	0.0471	[10.30] ***
$VSG_{i,t}$	-0.0145	[-3.24] ***	-0.0129	[-2.89] ***
$CFO_{i,t}$	-0.0372	[-6.25] ***	-0.0400	[-6.72] ***
$FOREIGN_{i,t}$	0.0661	[9.99] ***	0.0636	[9.73] ***
$BANK_{i,t}$	-0.0179	[-3.07] ***	-0.0138	[-2.37] ***
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1433		0.147	
N	13170		13170	

Note:
***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

(3) Effect of conservatism on stock return

Table 5 shows the results for Eq. (7). with future buy-and-hold abnormal return ($BHAR_{i,t\sim t+3}$), which is the proxy variable of shareholder value, as a dependent variable.

The left side of the table shows the significantly positive influence of the level of conditional conservatism on corporate investment efficiency. So far our results have indicated that conditional conservatism suppresses the level of corporate investment and promotes investment in low-risk projects. As indicated in Section 3(2), the presence of the self-disciplining effect and the ex post monitoring effect leads to the suppression of investment in projects with a low level of return as compared to risk, and the suppression of investment in projects with a high level of risk as compared to return. This may result in improved corporate investment efficiency.

On the other hand, the analysis thus far indicates that unconditional conservatism increases the level of corporate investment and promotes investment in high-risk projects, as shown in Section 3(2). The right side of the table shows that unconditional conservatism has a significantly positive influence on corporate investment efficiency. As unconditional conservatism reduces the psychological barriers to managerial risk taking, it may promote investment in projects with high risk and high returns.

For the control variables, cash on hand ($CASH_{i,t}$), firm size ($SIZE_{i,t}$), and leverage

($LEV_{i,t}$), the results obtained are consistent with our expectations. However, current net investment ($NETINV_{i,t}$), foreign shareholding ($FOREIGN_{i,t}$), and financial-institution shareholding ($BANK_{i,t}$), show results that are contrary to our expectations. Additional analysis shows that the reason for this discrepancy could be the adoption of the firm fixed-effects model similar to the analysis regarding investment levels. As indicated in Section 4(1), given the existence of firm fixed effects, there should be some attempt to control these effects. This paper therefore uses the firm fixed-effects model for estimation.

Table 5: Conservatism and Stock Return

Dependent Variable	$BHAR_{i,t\sim t+3}$		$BHAR_{i,t\sim t+3}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	6.9310	[19.90] ***	7.1390	[20.30] ***
$STCC_{i,t}$	0.1554	[5.14] ***		
$STCC_{i,t}xNETINV_{i,t}$	1.2380	[2.44] **		
$STUCC_{i,t}$			0.0255	[0.54]
$STUCC_{i,t}xNETINV_{i,t}$			1.3556	[2.36] **
$NETINV_{i,t}$	-1.6673	[-5.41] ***	-1.7814	[-5.04] ***
$CASH_{i,t}$	-0.3398	[-2.84] ***	-0.2697	[-2.25] **
$SIZE_{i,t}$	-0.6069	[-19.02] ***	-0.6180	[-19.31] ***
$LEV_{i,t}$	1.3879	[16.76] ***	1.3135	[15.33] ***
$SG_{i,t}$	-0.5672	[-5.42] ***	-0.6293	[-6.01] ***
$VSG_{i,t}$	-0.0240	[-0.28]	0.0185	[0.21]
$CFO_{i,t}$	0.0835	[0.76]	0.0338	[0.31]
$FOREIGN_{i,t}$	-1.6959	[-14.03] ***	-1.8859	[-15.72] ***
$BANK_{i,t}$	-1.6427	[-15.39] ***	-1.6218	[-15.07] ***
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1574		0.1522	
N	13,032		13,032	

Note:
***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

6. Robustness check

This section examines the robustness of the estimation results of the main analysis.

(1) Other measurement windows related to the dependent variables

We first confirm the robustness of the estimation results by changing the measurement period of the dependent variables. For future net investment, future stock return volatility, and future buy-and-hold abnormal return in the main analysis, we use future net investment for the following year (period t + 1) or future stock return

volatility and future buy-and-hold abnormal return for the future three years (period *t* to *t* + 3). For the latter two stock-price-related indicators, we conduct additional analysis with the one-year, two-year, four-year, and five-year monthly stock return volatility and buy-and-hold abnormal return as the dependent variables. For this analysis we assume that a reasonable amount of time is required to observe corporate investment outcomes.

Table 6 shows the estimation results obtained by changing the measurement period of the dependent variables.

Table 6: Other Measurement Windows Related to Dependent Variables

Panel A: Conservatism and Equity Risk

Dependent Variable	$TV_{i,t\sim t+1}$	$TV_{i,t\sim t+1}$	$TV_{i,t\sim t+2}$	$TV_{i,t\sim t+2}$	$TV_{i,t\sim t+3}$	$TV_{i,t\sim t+3}$	$TV_{i,t\sim t+4}$	$TV_{i,t\sim t+4}$	$TV_{i,t\sim t+5}$	$TV_{i,t\sim t+5}$
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]
Intercept	0.2080	0.2083	0.1575	0.1487	0.1029	0.0855	0.0735	0.0528	0.0453	0.0365
	[9.74]***	[9.75]***	[8.41]***	[7.93]***	[5.88]***	[4.88]***	[4.42]***	[3.18]***	[2.79]***	[2.25]**
$STCC_{i,t}$	0.0063		0.0047		0.0070		0.0057		0.0050	
	[2.86]***		[2.60]***		[4.40]***		[4.03]***		[3.99]***	
$STCC_{i,t}xNETINV_{i,t}$	-0.1465		-0.1377		-0.1534		-0.1468		-0.1277	
	[-4.11]***		[-4.59]***		[-5.80]***		[-6.21]***		[-5.92]***	
$STUCC_{i,t}$		-0.0030		0.0077		0.0159		0.0165		0.0145
		[-0.97]		[2.84]***		[6.40]***		[7.12]***		[6.38]***
$STUCC_{i,t}xNETINV_{i,t}$		0.0232		0.0294		0.0599		0.0953		0.1217
		[0.59]		[0.88]		[2.00]**		[3.49]***		[4.62]***
$NETINV_{i,t}$	0.0542	-0.0275	0.0509	-0.0282	0.0683	-0.0331	0.0685	-0.0468	0.0567	-0.0668
	[2.52]**	[-1.15]	[2.81]***	[-1.38]	[4.23]***	[-1.80]*	[4.69]***	[-2.77]***	[4.20]***	[-4.10]***
$CASH_{i,t}$	0.0006	0.0002	-0.0032	-0.0029	0.0056	0.0070	-0.0044	-0.0045	-0.0135	-0.0152
	[0.08]	[0.02]	[-0.47]	[-0.43]	[0.88]	[1.11]	[-0.74]	[-0.76]	[-2.34]**	[-2.66]***
$SIZE_{i,t}$	-0.0116	-0.0112	-0.0063	-0.0055	-0.0012	0.0002	0.0017	0.0033	0.0039	0.0044
	[-5.94]***	[-5.74]***	[-3.65]***	[-3.21]***	[-0.74]	[0.13]	[1.10]	[2.17]**	[2.60]***	[3.00]***
$LEV_{i,t}$	0.0818	0.0826	0.0687	0.0640	0.0587	0.0485	0.0498	0.0386	0.0412	0.0318
	[15.24]***	[14.95]***	[14.76]***	[13.35]***	[13.72]***	[10.99]***	[12.36]***	[9.32]***	[10.60]***	[7.97]***
$VSG_{i,t}$	-0.0012	-0.0014	-0.0086	-0.0079	-0.0150	-0.0133	-0.0171	-0.0159	-0.0168	-0.0158
	[-0.22]	[-0.26]	[-1.88]*	[-1.73]*	[-3.50]***	[-3.12]***	[-4.30]***	[-4.01]***	[-4.48]***	[-4.24]***
$CFO_{i,t}$	-0.0245	-0.0240	-0.0331	-0.0342	-0.0352	-0.0381	-0.0348	-0.0378	-0.0285	-0.0303
	[-3.32]***	[-3.25]***	[-5.23]***	[-5.40]***	[-6.16]***	[-6.66]***	[-6.50]***	[-7.09]***	[-5.61]***	[-5.99]***
$FOREIGN_{i,t}$	0.0637	0.0656	0.0652	0.0658	0.0671	0.0649	0.0612	0.0585	0.0608	0.0580
	[7.72]***	[8.02]***	[9.30]***	[9.48]***	[10.55]***	[10.32]***	[10.51]***	[10.19]***	[11.33]***	[10.98]***
$BANK_{i,t}$	-0.0268	-0.0274	-0.0281	-0.0265	-0.0184	-0.0146	-0.0087	-0.0033	0.0018	0.0075
	[-3.61]***	[-3.68]***	[-4.49]***	[-4.20]***	[-3.30]***	[-2.60]***	[-1.72]*	[-0.65]	[0.39]	[1.59]
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.1701	0.1692	0.1672	0.1669	0.1559	0.1596	0.1325	0.1404	0.0897	0.0994
N	16,174	16,174	14,579	14,579	13,033	13,033	11,550	11,550	10,123	10,123

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

Panel B: Conservatism and Stock Return

Dependent Variable	$BHAR_{i,t\sim t+1}$	$BHAR_{i,t\sim t+1}$	$BHAR_{i,t\sim t+2}$	$BHAR_{i,t\sim t+2}$	$BHAR_{i,t\sim t+3}$	$BHAR_{i,t\sim t+3}$	$BHAR_{i,t\sim t+4}$	$BHAR_{i,t\sim t+4}$	$BHAR_{i,t\sim t+5}$	$BHAR_{i,t\sim t+5}$
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]	[t-value]
Intercept	1.8379	2.0215	4.4116	4.5477	6.8318	7.0120	7.9302	8.1730	7.8320	8.1823
	[11.63]***	[12.73]***	[17.87]***	[18.34]***	[19.62]***	[19.97]***	[16.16]***	[16.52]***	[12.20]***	[12.58]***
$STCC_{i,t}$	0.1205		0.0871		0.1598		0.1760		0.3529	
	[7.80]***		[3.86]***		[5.39]***		[4.60]***		[7.95]***	
$STCC_{i,t}xNETINV_{i,t}$	0.1216		0.4134		0.8519		1.6477		1.3086	
	[0.48]		[1.10]		[1.72]*		[2.55]**		[1.70]*	
$STUCC_{i,t}$		-0.0656		-0.0343		0.0430		0.0512		-0.0499
		[-2.95]***		[-1.01]		[0.92]		[0.80]		[-0.61]
$STUCC_{i,t}xNETINV_{i,t}$		0.3338		0.2984		0.8473		1.2527		0.9650
		[1.21]		[0.72]		[1.51]		[1.68]*		[1.02]
$NETINV_{i,t}$	-0.3572	-0.4876	-0.6642	-0.6345	-1.3206	-1.3636	-2.1109	-1.9891	-2.1227	-2.0068
	[-2.35]**	[-2.87]***	[-2.94]***	[-2.49]**	[-4.38]***	[-3.94]***	[-5.33]***	[-4.30]***	[-4.42]***	[-3.40]***
$CASH_{i,t}$	0.0391	0.0672	-0.0387	-0.0118	-0.2542	-0.1897	-0.5255	-0.4420	-0.5606	-0.3968
	[0.70]	[1.21]	[-0.45]	[-0.14]	[-2.16]**	[-1.61]	[-3.24]***	[-2.72]***	[-2.74]***	[-1.93]*
$SIZE_{i,t}$	-0.1615	-0.1689	-0.3847	-0.3907	-0.6002	-0.6091	-0.7103	-0.7248	-0.7093	-0.7206
	[-11.15]***	[-11.63]***	[-17.02]***	[-17.27]***	[-18.84]***	[-19.07]***	[-15.84]***	[-16.12]***	[-12.12]***	[-12.19]***
$LEV_{i,t}$	0.2841	0.2918	0.6984	0.6934	1.3612	1.2893	2.1083	2.0345	2.6505	2.6190
	[7.35]***	[7.34]***	[11.78]***	[11.39]***	[16.63]***	[15.25]***	[18.77]***	[17.53]***	[18.63]***	[17.78]***
$SG_{i,t}$	-0.2476	-0.2846	-0.3314	-0.3629	-0.5848	-0.6480	-1.3116	-1.3937	-1.6575	-1.8432
	[-5.05]***	[-5.79]***	[-4.43]***	[-4.85]***	[-5.67]***	[-6.28]***	[-8.99]***	[-9.55]***	[-9.04]***	[-9.99]***
$VSG_{i,t}$	0.0176	0.0227	-0.0559	-0.0481	-0.0484	-0.0118	-0.0162	0.0341	-0.2401	-0.1502
	[0.46]	[0.59]	[-0.95]	[-0.81]	[-0.58]	[-0.14]	[-0.14]	[0.29]	[-1.67]*	[-1.04]
$CFO_{i,t}$	0.0913	0.0772	0.0592	0.0440	0.0925	0.0497	-0.2662	-0.3195	-0.8072	-0.8947
	[1.76]*	[1.48]	[0.75]	[0.56]	[0.86]	[0.46]	[-1.84]*	[-2.20]**	[-4.47]***	[-4.92]***
$FOREIGN_{i,t}$	-0.3825	-0.4677	-1.0024	-1.0808	-1.5867	-1.7585	-2.2170	-2.4513	-2.3134	-2.6756
	[-6.51]***	[-8.03]***	[-11.39]***	[-12.41]***	[-13.28]***	[-14.83]***	[-13.99]***	[-15.57]***	[-12.02]***	[-13.93]***
$BANK_{i,t}$	-0.5501	-0.5733	-1.0651	-1.0779	-1.6038	-1.5952	-2.0050	-1.9821	-2.3728	-2.4195
	[-10.46]***	[-10.83]***	[-13.58]***	[-13.66]***	[-15.31]***	[-15.10]***	[-14.57]***	[-14.27]***	[-14.27]***	[-14.33]***
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.076	0.0695	0.1081	0.1057	0.1542	0.1491	0.1779	0.1724	0.1934	0.1796
N	15,941	15,941	14,343	14,343	12,810	12,810	11,342	11,342	9,935	9,935

Note:
***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

In panel A (conservatism and equity risk), the effect of conditional conservatism is not significant in the short term, here considered the one- and two-year window. However, for windows of three years or greater, we find that a significant result is obtained for both conditional and unconditional conservatism. Since investments often require some time to become profitable, the above result shows a high level of robustness.

In panel B (conservatism and stock return), which uses future buy-and-hold abnormal return as a dependent variable, the coefficients of the cross term between conditional conservatism and current net investment are always positive, but they reach a significant level in only windows of three years or greater. On the other hand, the coefficients of the cross term between unconditional conservatism and current net investment, are only

statistically significant in windows of four years or greater.

The results shown in table 6 indicate that the results of the main analysis of the effect of conservatism on investment risks are robust. However, depending on the measurement period, the results of the main analysis may not be robust with respect to the impact of conservatism on corporate investment efficiency.

(2) Analysis using an alternative investment scale

Next, we examine the robustness of the results of the main analysis by changing the investment scale. In the main analysis, we focus on the calculated net investment amount based on R&D spending and net amount of capital investment. However, as R&D expenses are often unavailable in the database, the level of net investment differs depending on the presence or absence of R&D spending. Therefore, instead of our main investment variable, we focus here on net capital investment ($NETCAPEX_{i,t}$), which represents the value obtained by dividing the amount of net capital investment, defined as fixed assets acquisition minus fixed assets sales, by the average of total assets during period *t*.

Each panel in table 7 shows the estimation results of the robustness analysis utilizing our alternative investment scale, net capital investment ($NETCAPEX_{i,t}$). In all panels, results similar to the main analysis results are obtained, indicating that the results are robust even when we consider only net capital investment.

Table 7: Alternative Investment Measure

Panel A: Conservatism and Investment Levels

Dependent Variable	$NETCAPEX_{i,t+1}$		$NETCAPEX_{i,t+1}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	0.0907	[6.32] ***	0.0834	[5.80] ***
$STCC_{i,t}$	-0.0030	[-2.80] ***		
$STUCC_{i,t}$			0.0050	[3.10] ***
$NETCAPEX_{i,t}$	0.1692	[18.19] ***	0.1707	[18.35] ***
$CASH_{i,t}$	0.0337	[5.64] ***	0.0334	[5.60] ***
$SIZE_{i,t}$	-0.0034	[-2.61] ***	-0.0030	[-2.37] **
$LEV_{i,t}$	-0.0585	[-16.90] ***	-0.0608	[-16.99] ***
$PPE_{i,t}$	-0.0698	[-10.44] ***	-0.0701	[-10.49] ***
$SG_{i,t}$	0.0378	[8.32] ***	0.0389	[8.57] ***
$VSG_{i,t}$	-0.0046	[-1.30]	-0.0044	[-1.23]
$CFO_{i,t}$	0.0058	[1.18]	0.0055	[1.12]
$COD_{i,t}$	-0.0717	[-2.13] **	-0.0727	[-2.16] **
$FOREIGN_{i,t}$	0.0138	[2.60] ***	0.0150	[2.86] ***
$BANK_{i,t}$	0.0125	[2.67] ***	0.0135	[2.89] ***
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1342		0.1343	
N	12868		12868	

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

Panel B: Conservatism and Equity Risk

Dependent Variable	$TV_{i,t\sim t+3}$		$TV_{i,t\sim t+3}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	0.1277	[7.11] ***	0.1102	[6.13] ***
$STCC_{i,t}$	0.0066	[4.31] ***		
$STCC_{i,t}xNETCAPEX_{i,t}$	-0.1930	[-5.70] ***		
$STUCC_{i,t}$			0.0170	[7.12] ***
$STUCC_{i,t}xNETCAPEX_{i,t}$			0.0789	[2.12] **
$NETCAPEX_{i,t}$	0.0801	[3.91] ***	-0.0498	[-2.31] **
$CASH_{i,t}$	0.0072	[1.11]	0.0089	[1.36]
$SIZE_{i,t}$	-0.0033	[-2.02] **	-0.0020	[-1.21]
$LEV_{i,t}$	0.0574	[12.92] ***	0.0465	[10.18] ***
$VSG_{i,t}$	-0.0144	[-3.23] ***	-0.0129	[-2.88] ***
$CFO_{i,t}$	-0.0371	[-6.23] ***	-0.0400	[-6.72] ***
$FOREIGN_{i,t}$	0.0665	[10.05] ***	0.0635	[9.71] ***
$BANK_{i,t}$	-0.0185	[-3.18] ***	-0.0147	[-2.53] **
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1430		0.1468	
N	13162		13162	

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

Panel C: Conservatism and Stock Return

Dependent Variable	$BHAR_{i,t\sim t+3}$		$BHAR_{i,t\sim t+3}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	6.8812	[19.74] ***	7.0705	[20.12] ***
$STCC_{i,t}$	0.1443	[5.11] ***		
$STCC_{i,t}xNETCAPEX_{i,t}$	2.2933	[3.69] ***		
$STUCC_{i,t}$			0.0391	[0.88]
$STUCC_{i,t}xNETCAPEX_{i,t}$			1.4910	[2.17] **
$NETINV_{i,t}$	-2.3739	[-6.33] ***	-1.9635	[-4.92] ***
$CASH_{i,t}$	-0.3419	[-2.85] ***	-0.2715	[-2.26] **
$SIZE_{i,t}$	-0.6029	[-18.90] ***	-0.6135	[-19.16] ***
$LEV_{i,t}$	1.3862	[16.74] ***	1.3145	[15.36] ***
$SG_{i,t}$	-0.5549	[-5.30] ***	-0.6257	[-5.97] ***
$VSG_{i,t}$	-0.0320	[-0.37]	0.0157	[0.18]
$CFO_{i,t}$	0.0879	[0.80]	0.0421	[0.38]
$FOREIGN_{i,t}$	-1.6971	[-14.05] ***	-1.8879	[-15.74] ***
$BANK_{i,t}$	-1.6391	[-15.35] ***	-1.6239	[-15.09] ***
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1582		0.1523	
N	13023		13023	

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

(3) Inverse relationship between conservatism and investment behavior

The final analysis considers the endogeneity between the accounting process and investment behavior. Although the focus of this study is examining the effects of conditional and unconditional conservatism on corporate investment behavior, we should also consider possibility of the existence of an inverse causality. In other words, it is possible that the main analysis results could be attributed to the existence of an inverse causality, in which managers consider that an investment in high-risk projects weakens the level of conditional conservatism or strengthens the level of unconditional conservatism. We therefore follow the example of Garcia Lara, Garcia Osma, and Penalva [2010], and use lagged conservatism measures. In the analysis of the relationship between conservatism and investment level, we use the conservatism measure for period t - 1 to explain the investment level for period t + 1. Similarly, for the analysis of conservatism and equity risk or stock return, the cross terms of the level of conservatism for period t - 2 and the investment level of period t are used to evaluate the relationship between the level of conservatism and corporate risk taking or shareholder value. By considering a lag of two periods between the two variables, the impact of investment behavior on the accounting process could be assumed to have been mitigated.

Each panel in Table 8 shows the estimation results of the above robustness analysis. Whereas the coefficient between conditional conservatism and investment level shown in panel A is negative but not statistically significant, the coefficient between unconditional conservatism and investment level is significant and positive. In the relationship between conditional conservatism and equity risk in panel B, the coefficients of the cross terms between conditional conservatism (unconditional conservatism) and current net investment are significantly positive (negative), and are consistent with the results of the main analysis. Panel C shows the relationship between conservatism and stock return, where the coefficients of the cross terms between current net investment and conditional or unconditional conservatism are not significant.

Table 8: Endogeneity between Conservatism and Investment Behavior

Panel A: Conservatism and Investment Levels

Dependent Variable	$NETINV_{i,t+1}$		$NETINV_{i,t+1}$	
	Coefficient	[t-value]	Coefficient	[t-value]
Intercept	0.1059	[6.54] ***	0.1011	[6.27] ***
$STCC_{i,t-1}$	-0.0016	[-1.36]		
$STUCC_{i,t-1}$			0.0047	[2.71] ***
$NETINV_{i,t}$	0.1444	[15.48] ***	0.1445	[15.50] ***
$CASH_{i,t}$	0.0306	[4.57] ***	0.0305	[4.56] ***
$SIZE_{i,t}$	-0.0033	[-2.28] **	-0.0031	[-2.16] **
$LEV_{i,t}$	-0.0724	[-18.96] ***	-0.0744	[-19.09] ***
$PPE_{i,t}$	-0.0562	[-7.54] ***	-0.0559	[-7.50] ***
$SG_{i,t}$	0.0360	[7.02] ***	0.0361	[7.05] ***
$VSG_{i,t}$	-0.0046	[-1.15]	-0.0036	[-0.91]
$CFO_{i,t}$	0.0063	[1.15]	0.0056	[1.02]
$COD_{i,t}$	-0.0936	[-2.50] **	-0.0918	[-2.45] **
$FOREIGN_{i,t}$	0.0192	[3.30] ***	0.0194	[3.36] ***
$BANK_{i,t}$	0.0085	[1.67] *	0.0095	[1.88] *
Year effect	Yes		Yes	
Firm effect	Yes		Yes	
Within R^2	0.1294		0.1298	
N	12,570		12,570	

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

Panel B: Conservatism and Equity Risk

Dependent Variable	$TV_{i,t\sim t+3}$			$TV_{i,t\sim t+3}$		
	Coefficient	[t-value]		Coefficient	[t-value]	
Intercept	0.1187	[5.83]	***	0.1190	[5.86]	***
$STCC_{i-2,t}$	0.0015	[0.90]				
$STCC_{i-2,t}xNETINV_{i,t}$	-0.0892	[-3.13]	***			
$STUCC_{i,t-2}$				0.0144	[5.19]	***
$STUCC_{i,t-2}xNETINV_{i,t}$				0.0780	[2.40]	**
$NETINV_{i,t}$	0.0319	[1.79]	*	-0.0491	[-2.44]	**
$CASH_{i,t}$	0.0065	[0.90]		0.0046	[0.64]	
$SIZE_{i,t}$	-0.0018	[-0.98]		-0.0024	[-1.31]	
$LEV_{i,t}$	0.0615	[12.55]	***	0.0577	[11.73]	***
$VSG_{i,t}$	-0.0151	[-3.13]	***	-0.0138	[-2.86]	***
$CFO_{i,t}$	-0.0358	[-5.56]	***	-0.0372	[-5.80]	***
$FOREIGN_{i,t}$	0.0673	[9.42]	***	0.0685	[9.66]	***
$BANK_{i,t}$	-0.0284	[-4.46]	***	-0.0221	[-3.45]	***
Year effect	Yes			Yes		
Firm effect	Yes			Yes		
Within R^2	0.1514			0.1567		
N	11240			11240		

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

Panel C: Conservatism and Stock Return

Dependent Variable	$BHAR_{i,t\sim t+3}$			$BHAR_{i,t\sim t+3}$		
	Coefficient	[t-value]		Coefficient	[t-value]	
Intercept	8.5054	[20.69]	***	8.8916	[21.59]	***
$STCC_{i,t-2}$	0.1550	[4.86]	***			
$STCC_{i,t-2}xNETINV_{i,t}$	0.4082	[0.76]				
$STUCC_{i,t-2}$				0.1596	[3.02]	***
$STUCC_{i,t-2}xNETINV_{i,t}$				0.3898	[0.63]	
$NETINV_{i,t}$	-1.4517	[-4.32]	***	-1.4425	[-3.76]	***
$CASH_{i,t}$	-0.4090	[-2.98]	***	-0.3901	[-2.84]	***
$SIZE_{i,t}$	-0.7464	[-20.00]	***	-0.7816	[-20.89]	***
$LEV_{i,t}$	1.6770	[17.72]	***	1.6673	[17.51]	***
$SG_{i,t}$	-0.6281	[-5.36]	***	-0.5559	[-4.72]	***
$VSG_{i,t}$	-0.0922	[-0.97]		-0.1144	[-1.21]	
$CFO_{i,t}$	0.0570	[0.47]		0.0154	[0.13]	
$FOREIGN_{i,t}$	-2.0434	[-15.02]	***	-2.1375	[-15.76]	***
$BANK_{i,t}$	-1.9273	[-15.98]	***	-1.8677	[-15.34]	***
Year effect	Yes			Yes		
Firm effect	Yes			Yes		
Within R^2	0.1868			0.1841		
N	11,113			11,113		

Note:

***, **, and * indicate sifnificance at the 1%, 5%, and 10% levels, respectively.

(4) Robustness check summary

The robustness check of the main analysis indicates that the results for the effect of conditional conservatism on investment levels are not robust, while the results for the effect of unconditional conservatism on investment levels are robust. When we examine the relationship between conditional or unconditional conservatism and equity risk, we find evidence supporting the main analysis results. Results from throughout the study indicate that a high level of conditional conservatism results in managers investing in low-risk investments, while unconditional conservatism incentivizes high-risk investments.

However, when we examine the impact of these changes in investment behavior on stock return, our results are inconsistent with the main analysis when we utilize the dependent variables for multiple periods and in the robustness analysis of endogeneity suggesting the existence of an inverse causality. Even if conservatism affects corporate investment behavior, its effect on shareholder value may vary according to the investment environment. For example, an economic and investment environment prone to over- or under-investment may be characterized by the existence of an inverse relationship between conservatism and shareholder value. However, in addition to the analysis that considers endogeneity, we utilize the lag period conservatism variable used by Garcia Lara, Garcia Osma, and Penalva [2010]. While this approach mitigates concerns regarding endogeneity, using a lagged conservatism measure may weaken the relationship between each dependent variable and conservatism, and caution should be exercised in interpreting the results.

7. Conclusion

This study evaluates the economic consequences of conservatism in Japan from the perspective of stock market investors by analyzing the effects of the two types of conservatism on corporate investment levels, risk taking, and shareholder value. The main results of the study indicate that a high level of conditional conservatism suppresses investment in new projects and promotes the sale of existing investments. Firms practicing a high level of conditional conservatism tend to invest in low-risk projects.

In contrast, our results show that firms practicing a high level of unconditional conservatism invest in more projects. These projects also tend to have higher risk. These results indicate that practicing a high level of unconditional conservatism leads to a limited downside risk. If managers are assumed to be risk-averse, then unconditional

conservatism increases the risk-taking capacity of managers and investment in high-risk projects becomes possible.

In this manner, the analysis in this study indicates that both conditional conservatism and unconditional conservatism affects corporate selection of investment criteria. However, in the analysis of the effect on shareholder value through corporate investment behavior, while the main analysis shows that both types of conservatism could improve investment efficiency, the robustness analysis indicates that the results of the main analysis lack robustness. This finding leads to consideration of why, despite evidence that conservatism impacts corporate investment behavior, consistent results are not obtained with respect to its effect on shareholder value. This topic requires further research in the future.

Many prior studies have analyzed the economic impact and determinants of conservatism primarily from the perspective of creditor benefit. As seen in Section 3(1), the results of recent research suggest that from the stock market investor perspective, conservatism reduces the level of information asymmetry and helps resolve the problem of moral hazard or adverse selection. Some of this research has also reported an impact on investment levels. On the other hand, little research has examined the effect of conservatism on corporate risk taking and shareholder value, and even less research has investigated the economic impact of unconditional conservatism.

This study contributes to the knowledge base regarding the economic consequences of conservatism on investment levels, risk taking, and shareholder value from the perspective of stock market investors. In addition, by clarifying the differential effects of conditional and unconditional conservatism on these variables, this study raises awareness of the importance of the different economic consequences of these two types of conservatism. The findings of this study are important for researchers exploring the desirable balance between conservatism and neutrality and for the bodies that set accounting standards.

As seen in Section 1, the accounting standards setter works in a conceptual framework that assumes that the main objective of financial reporting is to enable decision making, that neutrality should be a qualitative characteristic of financial information, and that conservatism and prudence that conflicts with neutrality should be eliminated. In contrast, since financial information is used for decision making in various types of contracts, a certain level of conservatism may be permissible.[37] With respect to individual standards, and as Kanamori [2009] identified with regards to the

[37] See remarks by Ouchi in Institute for Monetary and Economic Studies, Bank of Japan [2014] pp. 27-28.

U.S. standards, putting a high priority on neutrality leads to the elimination of unconditional conservatism and its replacement with conditional conservatism.

As indicated by past research, both types of conservatism enable the streamlining of contracts but the results of this study and several others indicate that they may have varying economic consequences on corporate investment levels, risk taking, and shareholder value. Hence, when setting accounting standards, eliminating conservatism, or changing the type of conservatism, it is important to consider the unexpected economic consequences of these actions for firms or stock market investors.

This study has at least four limitations. First, there was insufficient analysis of the relationship between conservatism and the governance system.[38] Contrasting results were obtained for the two governance variables in the analysis on equity risk. While a high ratio of foreign shareholding ($FOREIGN_{i,t}$) was found to promote risk taking, a high ratio of financial-institution shareholding ($BANK_{i,t}$) was found to suppress risk taking. Examination of the impact of the self-disciplining effect or the ex post monitoring effect of conditional conservatism and the risk taking stimulatory effect of unconditional conservatism, as well as of the impact of use of other governance systems, is an interesting theme for future research.

It is also important to investigate the relationship between conservatism and the legal/legislative systems used within a governance system. According to an international comparative study by Ball, Kothari, and Robin [2000], code law country's accounting income is less timely, particularly in incorporating economic losses. While this study examined only Japanese firms, it may be important to investigate the broader governance systems through international comparisons.

Second, this study did not investigate the differential effects of conservatism in differing economic and investment environments. If conditional conservatism has the self-disciplining effect or the ex post monitoring effect, excessive conservatism could lead to corporate under-investment, and the risk-taking stimulatory effect of unconditional conservatism could lead to over-investment.

Third, this study did not investigate the opportunity loss resulting from the violation of neutrality and expense/revenue matching in financial statements. Even if conservatism has a positive effect on creditors and stock market investors, if it has a negative effect on neutrality or the expense/revenue matching principle, it should not be overemphasized. The analysis in this paper confirms that while conservatism promotes

[38] For more discussion of the relationship between corporate governance, firm value (shareholder value), and earnings management such as conservatism and income smoothing, see for example, Asano and Furuichi [2014].

investment and risk taking and has a positive effect on shareholder value, it does interfere with neutrality in financial statements, such that its practice does not necessarily lead to the neutral expression of economic activity and economic value.

Finally, it is also important to examine the robustness of the two conservatism scales used in this study. Although the scales developed by Beaver and Ryan [2000] and Khan and Watts [2009] have been widely used in past research on conservatism, they have faced criticism. For example, although they were estimated using market data on stock returns, it is unclear whether stock returns is a reliable proxy variable for economic earnings. Besides ensuring the robustness of the results obtained in this study, it is essential to investigate the conservatism scale in a diverse manner, including measurement of the validity of the level of conservatism through a focus on individual accounting processes and an examination of the relationship between accounting processes and the above two conservatism proxy scales.

In his discussion of neutrality in accounting standards and economic consequences, Solomons [1978] used a car speedometer as an analogy. He explained that in order to achieve the policy objective of reducing accidents on expressways, it may be effective to inflate the reading shown on the speedometer, since increased attention to the speedometer encourages safe driving. However, if this policy of inflation becomes public knowledge, the positive impact of attention to the speedometer is lost, leading to increased lack of attention to the speedometer and a situation in which both drivers and police officers may not know the actual speed. A similar situation is a matter of concern with regard to conservatism. Using the analogy of cartography, Solomons [1978] asked his readers to consider several questions. Which types of maps can be considered reliable? Would a map that induces or restrains human behavior be reliable? Would a map that excludes important landmarks be considered reliable? Would a map that understates (or overstates) the distance between areas or the elevation be considered reliable? In a similar manner, Solomons [1978] asked whether people would consider immediate expense processing of R&D expenses and off-balance accounting statements to be a reliable means of recording expenses, which is an issue directly related to unconditional conservatism. Another consideration is whether the extent of the impact of accounting standards on human behavior or the representative faithfulness of economic status is a criterion for judging the pros and cons of accounting standards. Future research is needed to investigate the possible negative impact of conservatism and the cost of compromising neutrality.

Reference

Accounting Standards Board of Japan (ASBJ), "The Discussion Paper: Conceptual Framework of Financial Accounting," ASBJ, 2006.

Ahmed, Anwer S., Bruce K. Billings, Richard M. Morton, and Mary Stanford-Harris, "The Role of Accounting Conservatism in Mitigating Bondholder-Shareholder Conflicts over Dividend Policy and in Reducing Debt Costs," *The Accounting Review*, 77(4), 2002, pp.867-890.

————, and Scott Duellman, "Evidence on the Role of Accounting Conservatism in Monitoring Managers' Investment Decisions," *Accounting & Finance*, 51(3), 2011, pp.609-633.

Asano, Takashi, and Mineko Furuichi, "Influence of Corporate Governance Structure on Accounting Strategies and Corporate Performance," IMES Discussion Paper No.2014-J-5, Institute for Monetary and Economic Studies, Bank of Japan, 2014 (Japanese).

Ball, Ray, S.P. Kothari, and Ashok Robin, "The Effect of International Institutional Factors on Properties of Accounting Earnings," *Journal of Accounting and Economics*, 29(1), 2000, pp.1-51.

————, and Lakshmanan Shivakumar, "Earnings Quality in UK Private Firms: Comparative Loss Recognition Timeliness," *Journal of Accounting and Economics*, 39(1), 2005, pp.83-128.

————, Ashok Robin, and Gil Sadka, "Is Financial Reporting Shaped by Equity Markets or by Debt Markets? An International Study of Timeliness and Conservatism," *Review of Accounting Studies*, 13, 2008, pp.168-205.

Basu, Sudipta, "The Conservatism Principle and the Asymmetric Timeliness of Earnings," *Journal of Accounting and Economics*, 24(1), 1997, pp.3-37.

————, "Discussion of On the Asymmetric Recognition of Good and Bad News in France, Germany and the United Kingdom," *Journal of Business Finance & Accounting* , 28(9-10), 2001, pp.1333-1349.

Beaver, William H., and Stephen G. Ryan, "Biases and Lags in Book Value and Their Effects on the Ability of the Book-to-Market Ratio to Predict Book Return on Equity," *Journal of Accounting Research*, 38(1), 2000, pp.127-148.

————, and ————, "Conditional and Unconditional Conservatism: Concepts and Modeling," *Review of Accounting Studies*, 10(2-3), 2005, pp.269-309.

Campello, Murillo, John R. Graham, and Campbell R. Harvey, "The Real Effects of Financial Constraints: Evidence from a Financial Crisis," *Journal of Financial Economics*, 97(3), 2010, pp.470-487.

Chen, Hanwen, Jeff Zeyun Chen, Gerald J. Lobo, and Yanyan Wang, "Association Between Borrower and Lender State Ownership and Accounting Conservatism," *Journal of Accounting Research*, 48(5), 2010, pp.973-1014.

Fama, Eugene F., and Kenneth R. French, "Common Risk Factors in the Returns on Stocks and Bonds," *Journal of Financial Economics*, 33(1), 1993, pp.3-56.

————, and ————, "Size and Book-to-Market Factors in Earnings and Returns," *The Journal of Finance*, 50(1), 1995, pp.131-155.

Financial Accounting Standards Board (FASB), *Statement of Financial Accounting Concepts No.8: Conceptual Framework for Financial Reporting, Chapter 1, The Objective of General Purpose Financial Reporting, and Chapter 3, Qualitative Characteristics of Useful Financial Information*, FASB, 2010.

Francis, Bill, Iftekhar Hasan, and Qiang Wu, "The Benefits of Conservative Accounting to Shareholders: Evidence from the Financial Crisis," *Accounting Horizons*, 27(2), 2013, pp.319-346.

Francis, Jere R., and Xiumin Martin, "Acquisition Profitability and Timely Loss Recognition," *Journal of Accounting and Economics*, 49, 2010, pp.161-178.

Garcia Lara, Juan Manuel, Beatriz Garcia Osma, and Fernando Penalva, "Accounting Conservatism and Firm Investment Efficiency," working paper, 2010.

————, ————, and ————, "Conditional Conservatism and Cost of Capital," *Review of Accouting Studies*, 16(2), 2011, pp.247-271.

Gassen, Joachim, Rolf Uwe Fülbier, and Thorsten Sellhorn, "International Differences in Conditional Conservatism - The Role of Unconditional Conservatism and Income Smoothing," *European Accounting Review*, 15(4), 2006, pp.527-564.

Givoly, Dan, and Carla Hayn, "The Changing Time-Series Properties of Earnings, Cash Flows and Accruals: Has Financial Reporting become more Conservative?" *Journal of Accounting and Economics*, 29(3), 2000, pp.287-320.

Institute for Monetary and Economic Studies (IMES), "Summary of the Workshop on 'Influence of the Expansion of Fair Valuation on the Contracting Role of Accounting'," *Kin'yu Kenkyu* (Monetary and Economic Studies), 33(1), IMES, Bank of Japan, 2014a (Japanese).

————, "Summary of the Workshop on 'Influence of Corporate Governance on Accounting Strategies and Corporate Performance'," IMES Discussion Paper No.2014-J-7, Institute for Monetary and Economic Studies, Bank of Japan, 2014b (Japanese).

International Accounting Standards Board (IASB), *Conceptual Framework for Financial Reporting 2010*, IASB, 2010.

Ishida, Souhei, and Kunio Ito, "The Effect of Accounting Conservatism on Corporate Investment Behavior," in Kunio Ito and Makoto Nakano, eds. *International Perspectives on Accounting and Corporate Behavior*, Chapter 3, Springer, 2014, pp.59-80.

Jackson, Scott B., "The Effect of Firms' Depreciation Method Choice on Managers' Capital Investment Decisions," *The Accounting Review*, 83(2), 2008, pp.351-376.

————, Xiaotao(Kelvin) Liu, and Mark Cecchini, "Economic Consequences of Firm's Depreciation Method Choice: Evidence from Capital Investments," *Journal of Accounting and Economics*, 48(1), 2009, pp.54-68.

Jensen, Michael C., "Agency Costs of Free Cash Flow, Corpotrate Finance, and Takeovers," *The American Economic Review*, 76(2), 1986, pp.323-329.

Kanamori, Eri, "Two Concepts and the Persistence of Accounting Conservatism. in Commemoration of Prof. Kunio Chiyoda and Prof. Watanabe Takashi," *The Ritsumeikan Business Review*, 47(5), 2009, pp. 177-192 (Japanese).

Khan, Mozaffar, and Ross L. Watts, "Estimation and Empirical Properties of a Firm-Year Measure of Accounting Conservatism," *Journal of Accounting and Economics*, 48, 2009, pp.132-150.

Kravet, Todd D., "Accounting Conservatism and Managerial Risk-Taking: Corporate Acquisitions," *Journal of Accounting and Economics*, 57(2-3), 2014, pp.218-240.

Kusano, Masaki, "The Expansion of Fair Valuation and the Contracting Role of Accounting," *Kin'yu Kenkyu* (Monetary and Economic Studies), 33(1), IMES, Bank of Japan, 2014 (Japanese).

LaFond, Ryan, and Ross L. Watts, "The Information Role of Conservatism," *The Accounting Review*, 83(2), 2008, pp.447-478.

————, and Sugata Roychowdhury, "Managerial Ownership and Accounting Conservatism," *Journal of Accounting Research*, 46(1), 2008, pp.101-135.

Lawrence, Alastair, Richard Sloan, and Yuan Sun, "Non-discretionary Conservatism: Evidence and Implications," *Journal of Accounting and Economics*, 56(2-3), 2013, pp.112-133.

Li, Xi, "Accounting Conservatism and Cost of Capital: International Analysys," working paper, *London Business School*, 2009.

Lobo, Gerald J., and Jian Zhou, "Did Conservatism in Financial Reporting Increase after the Sarbanes-Oxley Act? Initial Evidence," *Accounting Horizons*, 20(1), 2006, pp.57-73.

Louis, Henock, Amy X. Sun, and Oktay Urcan, "Value of Cash Holdings and Accounting Conservatism," *Contemporary Accounting Research*, 29(4), 2012,

pp.1249-1271.

Nakamura, Ryosuke, "Empirical Studies on Conservatism ― The Effects of Conservative Accounting Practice on Agency Costs," Doctoral thesis, Hitotsubashi University, 2009 (Japanese).

Nakano, Makoto, and Yusuke Takasu, "Determinants of Cash Holding in Japan," in Graduate School of Commerce and Management Center for Japanese Business Sutdies, Hitotsubashi University, ed., *Frontier of Japanese Business Studies*, 9, Yuhikaku, 2013, pp. 55-67 (Japanese).

Nikolaev, Valeri V., "Debt Covenants and Accounting Conservatism," *Journal of Accounting Research*, 48(1), 2010, pp.137-176.

Ohta, Yasuhiro, "Accounting Conservatism and Firm Characteristics," working paper, 2013.

Pinnuck, Matt, and Anne M. Lillis, "Profits Versus Losses: Does Reporting an Accounting Loss Act as a Heuristic Trigger to Exercise the Abandonment Option and Divest Employees?" *The Accounting Review*, 82(4), 2007, pp.1031-1053.

Roychowdhury, Sugata, "Discussion of: 'Acquisition Profitability and Timely Loss Recognition' by J. Francis and X. Martin," *Journal of Accounting and Economics*, 49(1-2), 2010, pp.179-183.

Ryan, Stephen G., "Identifying Conditional Conservatism," *European Accounting Review*, 15(4), 2006, pp.511-525.

Sakurai, Hisakatsu, "Empirical Accounting Studies and Designing of Accounting System," in Kunio Ito and Skurai Hisakatsu, eds., *Series of Contemporary Accounting Studies Vol.3: Usefulness of Accounting Information,* Chuokeizai Sha, 2013, pp. 459-480 (Japanese).

Shuto, Akinobu, and Tomomi Takada, "Managerial Ownership and Accounting Conservatism in Japan: A Test of Management Entrenchment Effect," *Journal of Business Finance & Accounting*, 37(7-8), 2010, pp.815-840.

————, "The Purpose and Effect of Big Bath," *Accounting Magazine,* 65(2), 2013, pp. 49-57 (Japanese).

Solomons, David, "The Politicization of Accounting," *Journal of Accountancy*, November 1978, pp.65-72.

Suda, Kazuyuki, *Positive Theory of Financial Accounting,* Hakuto-Shobo, 2000 (Japanese).

Sunder, Jayanthi, Shyam V. Sunder, and Jingjing Zhang, "Balance Sheet Conservatism and Debt Contracting," working paper, 2011.

Takada, Tomomi, "An Empirical Analysis of the Relation Between Conservatism

Measures," *Contemporary Disclosure Research*, 8, 2008 (Japanese).

————, "The Quantification and Role of Conservatism (2)," *Accounting Magazine*, 61(2), 2009 (Japanese).

Tan, Liang, "Creditor Control Rights, State of Nature Verification, and Financial Reporting Conservatism," *Journal of Accounting and Economics*, 55(1), 2013, pp. 1-22.

Tokuga, Yoshihiro, and Yoko Ota, "Influence of the Expansion of Fair Valuation on the Contracting Role of Accounting: A Normative Study," *Kin'yu Kenkyu* (Monetary and Economic Studies), 31(3), IMES, Bank of Japan, 2014 (Japanese).

Usui, Akira, "The Economic Role of Conservative Accounting Measurement in Stock Valuation," *Kin'yu Kenkyu* (Monetary and Economic Studies), 23(1), IMES, Bank of Japan, 2004 (Japanese).

Watts, Ross L., "Conservatism in Accounting Part Ⅰ: Explanations and Implications," *Accounting Horizons*, 17(3), 2003a, pp.207-221.

————, "Conservatism in Accounting Part Ⅱ: Evidence and Research Opportunities," *Accounting Horizons*, 17(4), 2003b, pp.287-301.

————, and Luo Zuo, "Accounting Conservatism and Firm Value: Evidence from the Global Financial Crisis," working paper, 2012.

Wittenberg-Moerman, Regina, "The Role of Information Asymmetry and Financial Reporting Quality in Debt Trading: Evidence from the Secondary Loan Market," *Journal of Accounting and Economics*, 46(2-3), 2008, pp.240-260.

Yaekura, Takashi, "Conseptual Framework and Empirical Research," in Shizuki Saito, ed., *Objectives of Financial Reporting, Qualitative Characteristics of Accounting Information, Elements of Financial Statements, Recognition and Measurement in Financial Statements*, Chuokeizai Sha, 2007, pp. 120-134 (Japanese).

Yonezawa, Yasuhiro, and Takafumi Sasaki, "Corporate Governance and over Investment Problem," *Financial Review*, 60, Ministry of Finance Japan, 2001 (Japanese).

Zhang, Jieying, "The Contracting Benefits of Accounting Conservatism to Lenders and Borrowers," *Journal of Accounting and Economics*, 45(1), 2008, pp.27-54.