UNREALIZED GAINS AND LOSSES OF SECURITIES, ABNORMAL RETURN AND RISK SHARING AMONG BUSINESS PARTNER FIRMS

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ABSTRACT

We investigate the usefulness of fair-value accounting of investment securities in Japanese firms. In Japan, firms tend to hold shares of business partner firms to stabilize business relationships and to share risk. One implication of this partnership structure is that unrealized gains and losses of securities (URGS) in a Japanese firm may reflect the risk incurred by its business partners. We use a four-factor model to investigate the relation between URGS and abnormal returns. The results of our analyses show a positive correlation between URGS and abnormal returns.

Keywords: Japan, Fair Value, Abnormal Return, Corporate Governance, Securities

INTRODUCTION

Researchers and analysts have long considered fair-value information related to investment securities useful. To illustrate this, seminal studies on the usefulness of fair-value measurements of investment securities have decomposed bank assets that constitute total market value (Ahmed & Takeda, 1995; Barth, 1994). These studies have shown that changes in unrealized gains and losses of investment securities significantly affect a firm's stock returns. Several studies on financial institutions also demonstrated the utility of unrealized gains and losses of investment securities (Ahmed, Kilic & Lobo, 2006; Barth, Beaver & Landsman, 1996; Eccher, Ramesh & Thiagarajan, 1996; Nelson, 1996; Park, Park & Ro, 1999; Venkatachalam, 1996). However, Bloomfield, Nelson, and Smith (2006) indicated that using fair-value measurement practices can amplify the volatility of a firm's reported income and stock prices. Given these empirical discrepancies, further investigating the usefulness of fair-value measurement practices is important.

To this end, we explore the effect of unrealized gains and losses of investment securities on the abnormal returns of Japanese firms. Some researchers have examined how ownership structure and corporate governance can mitigate information asymmetry and agency problems among Japanese firms (Ang & Constand, 2002; Berglof & Perotti, 1994; Lichtenburg & Pushner, 1994; Prowse, 1992), largely focusing on shareholdings for business partners, as Japanese firms tend to hold business partner firm's securities. For example, as well known in Japanese industrial and corporate governance structure, firms that engage in cross-shareholding in the same industry are called industrial Keiretsu firms (Mayajima, 1994; Morck & Nakamura, 1999).

By maintaining long-term contractual relationships with business partners, firms can suppress their business partners' short-term opportunistic behavior. As such, firms can reduce transaction costs by maintaining long-term relationships with their business partners (Dyer & Hatch, 2006; Grossman & Hart, 1986; Hoshi, 1998; Qiu & Spencer, 2002; Spencer & Qiu, 2001). However, to maintain these long-term relationships, mitigating the agency problem between

suppliers and customers is necessary. Holding business partners' securities can thus mitigate agency problems with partner firms by facilitating information sharing between the firms and increasing the degree to which they can monitor each other (Hoshi, 1998). Additionally, if firms hold securities for each other, they can share risks and facilitate resource movements, thereby reducing the possibility of bankruptcy (Dewenter, 2003). For these reasons, if Japanese firms hold business partners' securities to mitigate agency problems, investment securities' unrealized gains and losses are likely correlated with abnormal returns and may serve to reflect a firm's performance and its business partner's risk in Japan.

Contract relationships based on price incentives can also effectively mitigate agency problems between suppliers and customers (Hoshi, 1998). As such, firms with strong bargaining power (SBP) may be able to negotiate favorable contracts, thereby reducing the likelihood to be harmed by a partner firm's negative performance. This situation is particularly likely, given that a firm's bargaining power is positively associated with advantageous contracts of inter-firm credit transactions (Dass, Kale & Nanda, 2015; Fisman & Raturi, 2004; Van Horen, 2005, 2016). Here, we explore whether a firm's bargaining power (measured by the price-cost margin) moderates the relationship between its unrealized gains and losses on investment securities and abnormal returns. The results of this analysis indicate that the relationship between unrealized gains and losses and abnormal returns is more pronounced among firms with weak bargaining power (WBP).

Importantly, if the market responds efficiently to new information, stock prices may be a viable proxy for the persistence of firm performance (Kothari, 2001; Ohlson, 1995). We also test whether securities' unrealized gains and losses affect the persistence of performance. The results indicate that firms whose investment securities have higher unrealized gains tend to have better persistence of performance, particularly among WBP firms. This finding suggests that, when a firm has WBP, the performance of its business partners has a greater effect on the persistence of its performance.

To address these issues, we have organized this paper into a series of interrelated sections. The next section features a review of previous research and investment securities within Japanese firms. Then, we propose several hypotheses to test the relationship between the unrealized gains and losses of investment securities and a firm's abnormal returns. In the following section, we describe how we selected our sample and provide some preliminary descriptive statistics associated with that sample. The subsequent section outlines the results of our main analyses, followed by a description of supplementary tests and their results in the next section. We offer some concluding remarks in the final section.

BACKGROUND AND HYPOTHESES

Previous Research on Fair-Value Measurement of Investment Securities

Many researchers and analysts have long considered fair-value accounting useful for accurately reflecting market-based information. However, the utility of fair-value accounting has been primarily explored for information related to financial institutions, because financial institutions tend to have a large number of securities with high market liquidity (Barth, 1994). In a seminal study on fair-value accounting practices associated with securities, Barth (1994) found that investment securities' fair values (unrealized gains and losses) are significantly correlated with a firm's stock price. Ahmed and Takeda (1995) investigated the effect of changes in investment securities' values by decomposing the bank assets that comprise the firm's total market value. They showed that, when the interest rate is accounted for, changes in securities' unrealized

gains and losses are significantly and positively related to firm value. Extant work on financial institutions further demonstrated the usefulness of unrealized gains and losses of investment securities (Ahmed et al., 2006; Barth et al., 1996; Eccher et al., 1996; Nelson, 1996; Park et al., 1999; Venkatachalam, 1996).

Although research on the fair-value measurement of securities has focused almost exclusively on financial firms (e.g., banks), non-financial firms also hold many investment securities. For instance, in an analysis of STOXX Europe 600 Index firms from 2001 to 2009, Gebhardt (2012) indicated that the proportion of financial assets subject to IAS 39 was 32.2%. Simko (1999) examined the utility of using the fair-value measurement for non-financial firms' assets, showing that the unrealized gains and losses associated with financial assets (including securities) do not affect a firm's stock price. Moreover, Kanagaretnam, Mathieu, and Shehata (2009) investigated Canadian firms, and found value relevance of unrealized gains and losses of securities (URGS). Kubota, Suda, and Takehara (2011) also investigated the value relevance of other comprehensive income items in Japanese firms, and found a negative correlation between cumulative abnormal returns and the unrealized gains (losses) of securities. They also considered the culture of cross-holding in Japan, and found that the unrealized gains of securities are good news only in firms with low level of securities holding. However, because of their focus on the usefulness of comprehensive income, they investigated only the unrealized gains (losses) of securities on the balance sheet, and not detailed the impact of cross-holding on the information content of securities' unrealized gains (losses). As described above, these analyses indicate mixed results: the value relevance of URGS of non-financial firms is not clear. Additionally, in a similar line of research, while Bloomfield et al. (2006) showed that fair-value measurement of securities increases the volatility of a firm's profit and stock price, Brousseau, Gendron, Bélanger, and Coupland (2014) indicated that fair-value accounting for financial instruments of non-financial firms does not contribute to market volatility. Sikalidis and Leventis (2017) investigated the relation between dividend policy and unrealized gains and losses of financial instruments, and indicated that such unrealized gains and losses are transitory, meaning no relation exists between them. As a result, the usefulness of the fair-value measurement of securities in non-financial firms has yet to be indicated definitively. As such, it is necessary to investigate what type of information is included in the fair value of non-financial firm's investment securities.

Japanese Firms and Investment Securities

Japanese accounting standards dictate that traded securities are measured by their fair value (held-to-maturity securities are measured by the amortized cost method). Until 2010, details associated with investment of securities had not been formally announced. Japanese government required disclosing the details of the investment securities at 2010. Additionally, the Financial Services Agency of Japan and the Tokyo Stock Exchange announced the Corporate Governance Code, which provided guidelines for the corporate governance of listed firms since 2015. This code requires firms to disclose the ticker symbol and number of securities held to stabilize business transactions (through the strategic holding of shares). Unlike more codified laws and regulations, the Corporate Governance Code is not legally binding. Instead, firms must comply or explain whether they choose to implement the principle. If they choose not to implement it, they must explain why. The implementation of the Corporate Governance Code has resulted in many firms disclosing the details of their investment in securities as of 2015. For example, as of 2015, the Toyota Motor Company held securities in 200 other firms.

Table 1 provides a summary of 192 non-financial firms listed on the Nikkei 225 Index. We collected these data manually from the 2015 annual report. We find that Nikkei 225 Index firms hold an average of JPY 116 billion (across an average of 123 firms) in other firms' securities to maintain partnerships. Moreover, the percentage of securities for partnerships is approximately 79% of total investment securities. Figure 1 also represents the ratio of business partners' securities to total investment securities. We also observe that most investment securities are business partners' securities. These data indicate that most investment securities are portfolios of business partners, and URGS indicate portfolio performance in Japanese firms.

One reason many Japanese firms hold business partner's securities may be the culture of cross-holdings. Numerous Japanese firms stabilize their business relations with other firms by mutually possessing (i.e., cross-holding) each other's securities. Cross-held securities are typically held for a long period and are not sold. As previously mentioned, in Japan, two or more firms that hold each other's securities to maintain long-term relationships are called Keiretsu firms. This system of Japanese corporate governance differs from systems implemented in the United States or elsewhere (Morck & Nakamura, 1999). Since the 1990s, although cross-holding practices have changed as a function of bank mergers (Sakawa & Watanabel, 2012), many listed firms maintain partnerships with other firms through Keiretsu-style corporate governance structures (Kanno, 2016).Table 1 summarizes the business partners firms' securities of Nikkei 225 firms as of 2015. We manually collected the data. BPS represents business partners' securities.

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Table 1

SUMMARY OF DATA: HOLDINGS OF BUSINESS PARTNERS' STOCKS OF NIKKEI 225 INDEX FIRMS

	Mean	Median	Minimum	Maximum	S. D.
Number of BPS	123.35	93.00	0.00	591.00	108.16
Total BPS	116030.00	52994.00	0.00	2555400.00	231490.00
Total BPS to Total Investment securities ratio	0.79	0.97	0.00	1.00	0.29

Relationship between Investment Securities' Unrealized Gains and Losses, and Abnormal Returns

Holding business partner's securities may mitigate several agency problems deriving from long-term contractual relationships. In this section, we consider the reasons firms hold the securities of business partners based on prior research of cross-holding and Keiretsu. When building contracts with business partners, firms can opt to enter into long-term contracts or individually negotiate each inter-firm transaction. If the contracting firms choose to enter a long-term relationship, they can suppress each other's short-term opportunistic behavior (Baker, Gibbons & Murphy, 2002). These firms can also enjoy the benefits of relationship-specific investments from sharing assets among these firms, thereby increasing the efficiency of using those assets (Joskow, 1985, 1987, 1988; Klein, Crawford & Alchian, 1978; Milgrom & Roberts,

1992). Given these benefits, firms are likely to build long-term contractual relationships if they can resolve agency problems that may have emerged from other relationship types.

The figure represents the ratio of the distribution of total business partners' securities to total investment securities. The horizontal axis shows the ratio of business partner shares to investment securities, and the vertical axis shows frequency.

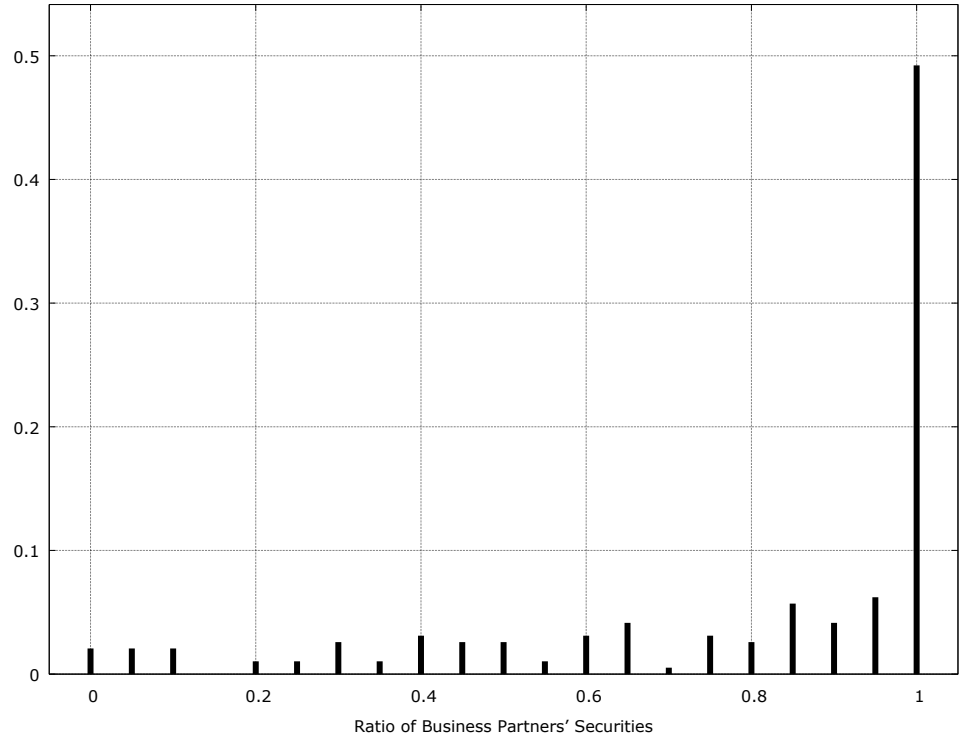

FIGURE 1
THE DISTRIBUTION OF TOTAL BUSINESS PARTNERS' SECURITIES TO TOTAL INVESTMENT SECURITIES RATIO

One effective method for mitigating the agency problem between firms (i.e., suppliers and customers) is to implement cross-holding securities with their respective business partners (Hoshi, 1998). This method is similarly used to reduce agency costs between managers and shareholders, although the relationship typically involves compensation linked to stock prices. However, Grossman and Hart (1986) indicated that ownership structure alone is insufficient for completely resolving the agency problem. They also advocated for investing in relationship-specific assets to improve the contractual relationship.

A second approach for mitigating the agency problem is mutual monitoring. Previous research showed that cross-holding among Japanese firms causes risk to be shared among contractually related firms (Asanuma & Kikutani, 1992; Kawasaki & McMillan, 1987), which can in turn cause firms to monitor one another. Nakatani (1984), Aoki (1990), and Sheard (1989, 1994) argued that cross-holding effectively protects managers and firms from hostile takeovers and other financial crises. Caves and Uekusa (1976), Nakatani (1984), and Genay (1991) similarly contended that firms organized as Keiretsu lower the variance of their profits. Related to this finding, in an evaluation of Keiretsu firms in terms of size, diversity, monitoring, and resources

transfers, Dewenter (2003) showed that risk sharing is associated with firms' Keiretsu structure. However, risk sharing among firms is not unique to one country: Khanna and Yafeh (2005) showed that risk sharing among groups of firms is a common practice not only in Japan, but also Korea and Thailand.

Here, we investigate the relationship between securities' unrealized gains and losses, and a firm's abnormal returns. Japanese firms tend to own their business partners' securities to maintain long-term contractual relationships. For this reason, unrealized gains and losses on securities likely represent the business partner's performance or incurred risk. If a firm holds stock of its business partner to mitigate agency costs, the latter's performance is inherently linked to the holding firm's performance, thereby transferring the business partner's risk to the holding firm. This way, if firms face unrealized losses of securities, the shareholders' cost will increase and their returns will be abnormally small. Therefore, we propose the following hypothesis:

H1 A positive correlation exists between securities' unrealized gains and abnormal returns.

However, the performance of a firm's business partners may not always affect the firm's performance. According to Hoshi (1998), the agency problem between firms can be mitigated by entering contracts based on price incentives. For example, if a supplier's efforts are unobservable, contracts with fixed price incentives can effectively resolve the agency problem, because suppliers can enjoy cost reductions. However, for contracts based on fixed price incentives, suppliers bear the risk of the costs attributable to factors beyond the firm's control. Therefore, if the supplier has SBP, negotiating advantageous price conditions in the partnership contracts may be possible. For example, if two firms agree on a price contract related to costs, suppliers can transfer some of their risks to the customer.

Prior research on the influence of bargaining power on business relations focused heavily on trade credit (Dass et al., 2015; Fisman & Raturi, 2004; Van Horen, 2005, 2016). This research has largely shown that sellers often seek to be paid in cash. As such, sellers in strong bargaining positions can use inter-firm credit under favorable conditions, and vice versa. For these reasons, bargaining power likely moderates the relationship between unrealized gains and losses of investment securities and abnormal returns. Therefore, we propose the following hypothesis:

H2 The positive correlation between the unrealized gains of securities and abnormal returns is stronger for firms with weaker bargaining power.

SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

We collected the sample for our study from the Nikkei NEEDs Financial Quest database. All data were selected on the basis of the following criteria.

a. The firm-year is between 2006 and 2015.
b. The firm is listed in the First Section of the Tokyo Stock Exchange.
c. The firm is not part of the financial industry (e.g., banks, insurance companies, other financial services).
d. All data needed to test the variables are available.

After identifying the firms that fit these criteria, we removed those for which our main values of URGS and stock return minus risk free rate (RET_RF) were more than three standard deviations from the mean value. In total, we identified 14,665 firm-years to use as data. We use

URGS as the proxy of portfolio performance of business partners and RET_RF to observe the conversion of business partners' risk by forming URGS portfolios.

Table 2 shows the descriptive statistics of the firms and the correlations among the key variables under investigation. The most interesting variable to be evaluated is URGS (i.e., unrealized gains/losses of securities [non-operating items] + unrealized gains/losses of securities [extraordinary items] + Δ net unrealized gains on securities [net assets items]), which is deflated by total assets using the term t – 1. The mean value of URGS is 0.000 and ranges from −0.054 to 0.054.

RET_RF is defined by subtracting the yield of Japanese government bonds with a maturity of 10 years from the annual stock return for the same month of the fiscal year. The mean (median) value for RET_RF is 0.039 (0.003), with annual returns of approximately 3.9% (0.3%). The values of RET_RF range from −1.011 to 1.753.

We include lnMV, MTB, and OI in the descriptive statistics to observe the characteristics of each portfolio: lnMV is the natural logarithm of stock market capitalization in the fiscal year; MTB is equal to a firm's total market capitalization in the fiscal year, divided by the book value of the firm's net assets. These two variables are used to observe scale and value effects. OI is calculated by dividing operating income by sales. Consistent with Gaspar & Massa (2006) and Dass et al. (2015), OI represents the price-cost margin and is used as a proxy for bargaining power.

Table 2

DESCRIPTIVE STATISTICS AND CORRELATION MATRIX (N = 14,665)

	Mean	Median	Minimum	Maximum	S. D.
RET_RF	0.039	0.003	-1.011	1.753	0.376
URGS	0.000	0.000	-0.054	0.054	0.012
lnMV	10.758	10.534	2.225	17.171	1.602
MTB	1.232	0.955	-96.036	45.004	1.442
OI	0.060	0.048	-0.915	0.689	0.071
	RET_RF	URGS	lnMV	MTB	OI
RET_RF	1.000	0.404	0.169	0.142	0.071
URGS		1.000	0.087	0.030	0.021
lnMV			1.000	0.231	0.288
MTB				1.000	0.266
OI					1.000

Panel A of Table 3 shows the descriptive statistics associated with each variable by URGS quintile. Both the mean and median of the URGS associated with P3 are 0.000; P1 and P2 have positive URGS values, and P4 and P5 negative URGS ones. The mean value of P1's URGS is 0.016, and its unrealized securities gain equals approximately 1.6% of total assets. The mean value of URGS for P5 is −0.016.

Table 3 A

SUMMARY OF URGS QUINTILE PORTFOLIOS

Panel A	RET_RF	URGS	lnMV	MTB	OI
P1	n=2933				
Mean	0.265	0.016	11.017	1.257	0.062
Median	0.206	0.012	10.825	1.009	0.050
S. D.	0.364	0.010	1.533	1.228	0.064
P2	n=2933				
Mean	0.169	0.003	10.922	1.282	0.061
Median	0.114	0.003	10.710	0.982	0.048
S. D.	0.345	0.001	1.649	1.382	0.071
P3	n=2933				
Mean	0.070	0.000	10.620	1.320	0.062
Median	0.025	0.000	10.418	1.003	0.049
S. D.	0.378	0.000	1.611	2.179	0.069
P4	n=2933				
Mean	-0.099	-0.003	10.636	1.180	0.062
Median	-0.104	-0.002	10.373	0.933	0.049
S. D.	0.291	0.001	1.628	0.906	0.071
P5	n=2933				
Mean	-0.209	-0.016	10.595	1.120	0.056
Median	-0.228	-0.013	10.382	0.866	0.042
S. D.	0.280	0.010	1.540	1.177	0.078

We created portfolios according to the URGS. P1 is the largest and P5 the smallest URGS portfolio.

Table 3 B

SUMMARY OF URGS QUINTILE PORTFOLIOS

Panel B	RET_RF	URGS	lnMV	MTB	OI	RET_RF	URGS	lnMV	MTB	OI
	WBP1	n=	2412			SBP1	n=	521		
Mean	0.257	0.016	10.916	1.162	0.044	0.306	0.016	11.489	1.695	0.142
Median	0.192	0.012	10.693	0.948	0.041	0.269	0.012	11.325	1.350	0.120
S. D.	0.358	0.010	1.517	1.140	0.042	0.387	0.009	1.520	1.498	0.084
	WBP2	n=	2346			SBP2	n=	587		
Mean	0.164	0.003	10.742	1.154	0.040	0.190	0.003	11.641	1.791	0.144
Median	0.103	0.003	10.524	0.913	0.037	0.149	0.003	11.386	1.378	0.115
S. D.	0.336	0.001	1.583	1.270	0.046	0.380	0.001	1.716	1.665	0.090
	WBP3	n=	2344			SBP3	n=	589		
Mean	0.061	0.000	10.473	1.164	0.042	0.107	0.000	11.204	1.941	0.142
Median	0.014	0.000	10.302	0.932	0.039	0.066	0.000	10.853	1.436	0.125
S. D.	0.377	0.001	1.562	2.233	0.049	0.377	0.000	1.672	1.818	0.079
	WBP4	n=	2351			SBP4	n=	582		
Mean	-0.103	-0.003	10.509	1.086	0.041	-0.080	-0.003	11.146	1.561	0.145
Median	-0.105	-0.003	10.239	0.882	0.039	-0.102	-0.002	10.928	1.233	0.122
S. D.	0.284	0.001	1.586	0.792	0.049	0.315	0.001	1.694	1.193	0.086
	WBP5	n=	2405			SBP5	n=	528		
Mean	-0.220	-0.016	10.464	1.009	0.036	-0.160	-0.017	11.194	1.623	0.147
Median	-0.236	-0.013	10.263	0.811	0.034	-0.188	-0.014	10.914	1.221	0.128
S. D.	0.274	0.010	1.502	1.051	0.060	0.301	0.010	1.570	1.535	0.087

We created portfolios according to the URGS and profit margin. WBP represents a portfolio of firms with weak bargaining power. SBP represents a portfolio of firms with strong

bargaining power. We classify firm-years with top 20% profit margin in each industry in each period as firm-years with SBP, and those in other firm-years as WBP companies. WBP1 (SBP1) is the largest and WBP5 (SBP5) the smallest URGS portfolio.

The mean value of RET_RF is 0.265 for P1 and −0.209 for P5. For both P1 and P5, a positive relationship exists between returns and securities' unrealized gains. This result provides support for Hypothesis 1. No extreme differences exist across portfolios in terms of lnMV of MTB. However, the descriptive statistics indicate that P5's mean OI value is smaller than that of other portfolios. Therefore, we should check for differences between P1 and P5, as well as between P2 and P4.

Panel B of Table 3 categorizes firm-years in the top 20% in terms of the price-cost margin for each period and industry by URGS quintile. We assume that firms in the top 20% in terms of the price-cost margin have SBP. WBP represents a portfolio of firm-years with weak bargaining power, and includes firm-years not included in the SBP. For both WBP5 and SBP5, where URGS is smaller, RET_RF is smaller than WBP1 and SBP1 (large URGS). However, lnMV and MTB are different across portfolios, indicating that they may affect stock returns. Again, the mean value of OI is also different between WBP1 and WBP5, so we should also check for differences between WBP1 and WBP5, as well as between WBP2 and WBP4.We created portfolios according to the URGS. P1 is the largest and P5 the smallest URGS portfolio.

MAIN RESULTS

Because each portfolio differs in terms of lnMV and MTB, we use the capital asset pricing model (CAPM) and the four-factor model to observe each portfolio's annual abnormal returns.

We created portfolios according to the URGS and profit margin. WBP represents a portfolio of firms with weak bargaining power. SBP represents a portfolio of firms with strong bargaining power. We classify firm-years with top 20% profit margin in each industry in each period as firm-years with SBP, and those in other firm-years as WBP companies. WBP1 (SBP1) is the largest and WBP5 (SBP5) the smallest URGS portfolio.

$$RET\_RF_t = \alpha + \beta_1 MP_t + \varepsilon, \quad (1)$$

$$RET\_RF_t = \alpha + \beta_1 MP_t + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \varepsilon. \quad (2)$$

Consistent with Fama and French (1996), MP, SMB, and HML denote the market premium, scale effect, and value effect, respectively. Moreover, consistent with Carhart (1997), MOM is a momentum factor. For all URGS portfolios, the constant term α shows an abnormal return after controlling for these risk factors.

Table 4 shows the results by URGS quintile. Panel A shows that the abnormal returns decrease from P1 (0.053) to P5 (−0.067). Abnormal returns, controlled for by market premiums, differ between P1 and P5 by 0.120. This difference is significant at the 1% level. The difference between P2 and P4 is similar to the test result for P1 versus P5. Panel B shows the results of the four-factor model, which are similar to the Panel A results from the CAPM. Specifically, Panel B shows that abnormal returns decreased from 0.017 in P1 to −0.054 in P5. The difference in abnormal returns between P1 and P5 after controlling for the market premium, scale effect, value effect, and momentum, is significant at the 1% level. The difference between P2 and P4 is similar to the test result for P1 versus P5. These results also provide support for Hypothesis 1.

Table 5 shows the results, with firms organized into quintiles in terms of their respective price-cost margins. As previously indicated, firms in the top 20% of their industry and period in terms of the price-cost margin are considered to have SBP. All others are considered to have WBP. Panel A shows that, for firms with WBP, abnormal returns in the WBP1 (WBP5) quintile have a maximum (minimum) URGS value of 0.046 (−0.079). The results also indicate that the abnormal returns associated with WBP4 (−0.043) and WBP5 (−0.079) are statistically significant ($p < 0.01$). The difference in abnormal returns between WBP1 and WBP5 is 0.125, which is also statistically significant at the 1% level. The difference between WBP2 and WBP4 is similar to the test results for WBP1 versus WBP5. The abnormal return associated with SBP1 (SBP5) is 0.083 (−0.016). The difference between SBP1 and SBP5 is also statistically significant at the 1% level. The difference between SBP2 and SBP4 is similar to the test result for SBP1 versus SBP5. However, we observe that the differences between WBP3 and SBP3, as well as between WBP5 and SBP5, are statistically significant. These results indicate that the differences between WBP and SBP with high URGS are not statistically significant, and that the differences between portfolios with low URGS are statistically significant. This suggests that the abnormal returns drop as URGS decreases with WBP rather than with SBP. This result is consistent with Hypothesis 2.

Table 4
HYPOTHESIS 1 RESULTS

Panel A		const		MP								Adj.R2	n
P1	coeff	0.053		0.843								0.073	2933
	t-ratio	3.932	a	16.470	a								
P2	coeff	0.030		0.744								0.072	2933
	t-ratio	3.077	a	14.800	a								
P3	coeff	0.010		0.687								0.100	2933
	t-ratio	1.453		17.440	a								
P4	coeff	-0.038		0.644								0.187	2933
	t-ratio	-6.524	a	22.660	a								
P5	coeff	-0.067		0.577								0.164	2933
	t-ratio	-6.652	a	18.260	a								
P1-P5	diff const	0.120											
	F-ratio	50.888	a										
P2-P4	diff const	0.068											
	F-ratio	35.642	a										
Panel B		const		MP		SMB		HML		MOM		Adj.R2	n
P1	coeff	0.017		1.064		0.494		0.469		-0.243		0.086	2933
	t-ratio	0.998		13.700	a	3.211	a	1.316		-4.742	a		
P2	coeff	0.014		0.824		0.099		-0.047		-0.223		0.084	2933
	t-ratio	0.923		10.270	a	0.773		-0.162		-5.217	a		
P3	coeff	-0.022		0.815		0.783		0.212		-0.082		0.121	2933
	t-ratio	-2.073	b	13.340	a	8.847	a	1.009		-1.778	c		
P4	coeff	-0.050		0.735		0.541		0.242		-0.038		0.218	2933
	t-ratio	-7.961	a	14.860	a	10.340	a	1.773	c	-0.685			
P5	coeff	-0.054		0.657		0.597		0.132		-0.197		0.203	2933
	t-ratio	-5.377	a	10.730	a	9.869	a	1.064		-2.125	b		
P1-P5	diff const	0.070											
	F-ratio	13.006	a										
P2-P4	diff const	0.065											
	F-ratio	14.591	a										

a: $p < 0.01$, b: $p < 0.05$, c: $p < 0.10$. We calculated t-ratios using White's standard error, and created portfolios according to the URGS. P1 is the largest and P5 the smallest URGS portfolio.

Table 5 A
HYPOTHESIS 2 RESULTS

Panel A		const		MP								Adj.R2	n
WBP1	coeff	0.046		0.830								0.068	2412
	t-ratio	2.960	a	14.190	a								
WBP2	coeff	0.021		0.761								0.078	2346
	t-ratio	2.019	b	14.620	a								
WBP3	coeff	-0.005		0.724								0.110	2344
	t-ratio	-0.607		16.560	a								
WBP4	coeff	-0.043		0.641								0.193	2351
	t-ratio	-6.779	a	20.490	a								
WBP5	coeff	-0.079		0.572								0.166	2405
	t-ratio	-7.432	a	17.070	a								
WBP1-WBP5	diff const	0.125											
	F-ratio	43.828	a										
WBP2-WBP4	diff const	0.064											
	F-ratio	27.685	a										
		const		MP								Adj.R2	n
SBP1	coeff	0.083		0.912								0.100	521
	t-ratio	3.172		8.551	a								
			a										
SBP2	coeff	0.065		0.691								0.055	587
	t-ratio	2.556	b	5.143	a								
SBP3	coeff	0.063		0.562								0.069	589
	t-ratio	4.249	a	6.447	a								
SBP4	coeff	-0.018		0.656								0.165	582
	t-ratio	-1.268		9.706	a								
SBP5	coeff	-0.016		0.594								0.160	528
	t-ratio	-0.590		7.110	a								
SBP1-SBP5	diff const	0.100											
	F-ratio	6.870	a										
SBP2-SBP4	diff const	0.083											
	F-ratio	8.113	a										
		WBP1-SBP1		WBP2-SBP2		WBP3-SBP3		WBP4-SBP4		WBP5-SBP5			
	diff const	-0.037		-0.044		-0.068		-0.025		-0.062			
	F-ratio	1.477		2.572		16.520	a	2.427		4.515	a		

Panel B of Table 5 relates to the four-factor model. For firm-years with WBP, the abnormal returns of WBP3 (−0.033), WBP4 (−0.058), and WBP5 (−0.067) are statistically significant at the 1% level. The difference in returns between WBP1 and WBP5 is 0.076, which is statistically significant at the 1% level. The difference between WBP2 and WBP4 is similar to the test results for WBP1 versus WBP5. In contrast, for the abnormal returns associated with SBP portfolios, the value for SBP1 (0.063) is only significant at the 10% level. The difference in

abnormal returns between SBP1 and SBP5 is not statistically significant. The difference between SBP2 and SBP4 is similar to the test results for SBP1 versus SBP5. No significant differences exist between WBP1 and SBP1, or between WBP2 and SBP2. However, the differences between WBP3 and SBP3, WBP4 and SBP4, and WBP5 and SBP5 are significant ($p < 0.05$). These results show that firms with WBP experience negative abnormal returns when URGS is small. These results are also consistent with Hypothesis 2.

Table 5B
HYPOTHESIS 2 RESULTS

Panel B		const		MP		SMB		HML		MOM		Adj.R2	n
WBP1	coeff	0.009		1.060		0.377		0.293		-0.327		0.088	2412
	t-ratio	0.474		12.120	a	2.144	b	0.690		-5.675	a		
WBP2	coeff	0.011		0.811		0.036		-0.201		-0.224		0.091	2346
	t-ratio	0.608		8.888	a	0.243		-0.613		-4.854	a		
WBP3	coeff	-0.033		0.837		0.811		0.086		-0.077		0.134	2344
	t-ratio	-2.802	a	12.090	a	8.183	a	0.366		-1.520			
WBP4	coeff	-0.058		0.771		0.554		0.380		0.012		0.224	2351
	t-ratio	-8.566	a	14.250	a	9.806	a	2.547	b	0.197			
WBP5	coeff	-0.067		0.641		0.527		0.137		-0.221		0.200	2405
	t-ratio	-6.330	a	10.460	a	8.316	a	1.066		-2.303	b		
WBP1-WBP5	diff const	0.076											
	F-ratio	12.451	a										
WBP2-WBP4	diff const	0.068											
	F-ratio	12.861	a										
		const		MP		SMB		HML		MOM		Adj. R2	n
SBP1	coeff	0.063		1.007		0.830		0.489		0.174		0.105	521
	t-ratio	1.648	c	5.874	a	2.659	a	0.711		1.683	c		
SBP2	coeff	0.031		0.867		0.298		0.457		-0.210		0.059	587
	t-ratio	0.911		4.968	a	1.204		0.730		-1.925	c		
SBP3	coeff	0.019		0.765		0.690		0.737		-0.131		0.083	589
	t-ratio	0.925		5.951	a	3.629	a	1.595		-1.199			
SBP4	coeff	-0.022		0.611		0.509		-0.229		-0.196		0.202	582
	t-ratio	-1.408		5.249	a	3.911	a	-0.713		-1.411			
SBP5	coeff	0.007		0.721		0.949		0.083		-0.083		0.223	528
	t-ratio	0.270		4.163	a	5.599	a	0.254		-0.339			
SBP1-SBP5	diff const	0.056											
	F-ratio	1.484											
SBP2-SBP4	diff const	0.054											
	F-ratio	2.021											
		WBP1-SBP1		WBP2-SBP2		WBP3-SBP3		WBP4-SBP4		WBP5-SBP5			
	diff const	-0.054		-0.020		-0.053		-0.035		-0.074			
	F-ratio	1.622		0.275		4.818	b	4.128	b	7.058	a		

a: $p < 0.01$, b: $p < 0.05$, c: $p < 0.10$. We calculated t-ratios using White's standard error. We created portfolios according to the URGS and profit margin. WBP represents a portfolio of firms with weak bargaining power. SBP represents a portfolio of firms with strong bargaining power. We classify firm-years with top 20% profit margin in each industry in each period as firm-years with SBP, and those in others as firm-years with WBP. WBP1 (SBP1) is the largest WBP5 (SBP5) the smallest URGS portfolio.

ADDITIONAL TESTING

Here, we expand on the analysis in the previous section to investigate why the valuation of securities' gains and losses is related to abnormal returns. As previously indicated, firms hold business partners' securities to reduce agency costs, thereby dispersing the risks associated with variations in business performance, as well as the risk of bankruptcy. If holding business securities transfers risk, the performance of partnered firms is likely to be linked to the holding firm's performance variance. Further, if the market recognizes the link between the two firms' performance, URGS should influence increases or decreases in stock returns. Past accounting research has shown that the persistence of performance is a predictor of stock returns (Kothari, 2001; Ohlson, 1995). As such, we estimate the following model:

$$Performance_{t+1} = \gamma + \delta_1 Performance_t + \delta_2 URGS_t \qquad (3)$$

$$+\delta_3 Performance_t * URGS_t + \varepsilon.$$

For this estimation, we use net income (NI) as proxy for firm performance. NI is divided by total assets in the previous term. Ordinary least squares is used to estimate Equation 3.

Model 1 in Table 6 shows the persistence of NI among all samples and the URGS effects. According to Model 1, the persistence of NI is 0.593 ($p<0.01$). Furthermore, the value of the term that interacts URGS with NI is 3.650 ($p < 0.01$). Model 2, which includes a year dummy, shows similar results.

Model 3 in Table 6 shows the persistence of NI and the effects of URGS for firm-years with WBP. It indicates the value of the NI persistence to be 0.518 ($p<0.01$). Furthermore, the coefficient for the interaction term linking URGS and NI is 4.605 ($p < 0.01$). Model 4, which includes a year dummy, also shows similar results. These results suggest that, when the URGS declines in firms with weak bargaining power, the business partner's risk is converted to the holding firms and the persistence of the performance becomes smaller.

Models 5 in Table 6 show the persistence of NI and the effects of URGS for firm-years with SBP. The coefficients associated with NI are statistically significant ($p < 0.01$). However, the positive coefficient associated with the interaction term (URGS × NI) is not significant. Model 6, which includes a year dummy, also shows similar results. These results suggest that Japanese firms hold business partners' securities to share their risks, and firms with SBP tend to negotiate contracts with favorable conditions.

Table 6
PERFORMANCE PERSISTENCE

All	Model 1				Model 2		
	coeff	t-ratio			coeff	t-ratio	
const	0.012	25.230	a		0.015	17.640	a
URGS	0.255	7.189	a		-0.060	-1.522	
NI	0.593	51.430	a		0.612	52.110	a
NI*URGS	3.650	4.064	a		2.829	3.221	a
year dum	no				yes		
Adj.R2	0.379				0.422		
n	12860				12860		
WBP	Model 3				Model 4		
	coeff	t-ratio			coeff	t-ratio	
const	0.012	24.690	a		0.015	16.090	a
URGS	0.295	8.373	a		-0.015	-0.364	
NI	0.518	36.380	a		0.542	36.750	a
NI*URGS	4.605	4.362	a		3.510	3.346	a
year dum	no				yes		
Adj.R2	0.288				0.335		
n	10466				10466		
SBP	Model 5				Model 6		
	coeff	t-ratio			coeff	t-ratio	
const	0.013	8.560	a		0.018	8.600	a
URGS	0.158	1.205			-0.230	-1.612	
NI	0.684	27.850	a		0.693	27.860	a
NI*URGS	2.595	1.255			2.517	1.227	
year dum	no				yes		
Adj.R2	0.416				0.464		
n	2394				2394		

a: $p < 0.01$, b: $p < 0.05$, c: $p < 0.10$. We calculated t-ratios using White's standard error. We created portfolios according to the profit margin. WBP represents a portfolio of firms with weak bargaining power. SBP represents a portfolio of firms with strong bargaining power. We classify firm-years with top 20% profit margin in each industry in each period as SBP companies, and those in other firm-years as WBP.

CONCLUSION

Research on the fair-value accounting of securities has shown it is useful for reflecting market-based information in financial statements. However, most extant research on the topic has focused on financial institutions and failed to comprehensively evaluate non-financial firms. Moreover, past research has not theoretically explained why the fair value of securities effectively explains stock prices.

Japanese firms tend to hold securities in the firms with which they engage in business partnerships. This practice is pervasive: more than 79% of the securities of firms listed on the Nikkei 225 Index have securities in business partner firms. Holding business partners' securities reduces agency costs among firms in business partnerships by distributing risks and the

likelihood of bankruptcy. Therefore, we considered that unrealized gains and losses in Japanese firms that are associated with investment securities can affect the costs incurred by them and their stockholders. In other words, investment securities' unrealized gains and losses significantly relate to a firm's abnormal returns. We estimated a four-factor model using data from Japanese firms to investigate the relationship between securities' unrealized gains and losses and abnormal returns. The results of this analysis indicate that a positive relationship exists between securities' unrealized gains and losses and abnormal returns.

We also used the price-cost margin as a proxy for a firm's relative bargaining power to test whether bargaining power affects the nature of contractual relationships among firms. The results of our analyses show that the positive relationship between securities' unrealized gains and losses and abnormal returns is more pronounced among firms with WBP than those with SBP. This finding suggests that firms with SBP are more likely to enter relationships with favorable conditions. Finally, we investigated the impact of securities' unrealized gains and losses on the persistence of a firm's performance. These analyses clearly demonstrated that unrealized gains and losses significantly affect the persistence of performance, especially among firms with WBP.

Taken together, the results of our analysis suggest that URGS are useful for understanding a firm's performance from the viewpoint of multi-firm analysis. Our results suggest that Japanese firms hold securities to mitigate the agency problem that emerges among business partner firms. As such, URGS may provide some information regarding the risk incurred by a firm's business partners.

ENDNOTES

1 We use the three-digit code of the Nikkei industrial classification.
2 The data for these four factors were collected from Koji Ota's website (http://www2.itc.kansai-u.ac.jp/~koji_ota/). We converted each monthly premium to a yearly premium by multiplying the geometric mean of the 12 months in a fiscal year by 12.
3 We also tested a three-factor model. The results of this analysis were qualitatively similar to the results of the four-factor model.
4 The sample used for this additional test excludes firm-year values that null NI data for the following term. We also exclude firm-years more than three standard deviations from the mean in terms of NI as outliers.

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REFERENCES

Ahmed, A.S. & Takeda, C. (1995). Stock market valuation of gains and losses on commercial banks' investment securities: An empirical analysis. *Journal of Accounting and Economies, 20*(2),207-225.

Ahmed, A.S., Kilic, E. & Lobo, G.J. (2006). Does recognition versus disclosure matter? Evidence from value-relevance of banks' recognized and disclosed derivative financial instruments. *The Accounting Review, 81*(3), 567-588.

Ang, J.S. & Constand, R.C. (2002). The portfolio behavior of Japanese corporations' stable shareholders. *Journal of Multinational Financial Management, 12*(2), 89-106.

Aoki, M. (1990). Toward an economic model of the Japanese firm. *Journal of Economic Literature, 28*(1), 1-27.

Asanuma, B. & Kikutani, T. (1992). Risk absorption in Japanese subcontracting: A microeconometric study of the automobile industry. *Journal of the Japanese and International Economies, 6*(1), 1-29.

Baker, G., Gibbons, R. & Murphy, K.J. (2002). Relational contracts and the theory of the firm. *Quarterly Journal of Economics, 117*(1), 39-84.
Barth, M.E. (1994). Fair value accounting: evidence from investment securities and the market valuation of banks. *The Accounting Review, 69*(1), 1-25.
Barth, M.E., Beaver, W.H. & Landsman, W.R. (1996). Value-relevance of banks' fair value disclosures under SFAS No. *The Accounting Review, 71*(4), 513-537.
Berglof, E. & Perotti, E. (1994). The governance structure of the Japanese Financial Keiretsu. *Journal of Financial Economics, 36*(2), 259-284.
Bloomfield, R.J., Nelson, M.W. & Smith, S.D. (2006). Feedback loops, fair value accounting and correlated investments. *Review of Accounting Studies, 11*(2), 377-416.
Brousseau, C., Gendron, M., Bélanger, P. & Coupland, J. (2014). Does fair value accounting contribute to market price volatility? An experimental approach. *Accounting and Finance, 54*(4), 1033-1061.
Carhart, M.M. (1997). On persistence in mutual fund performance. *Journal of Finance, 52*(1), 57-82.
Caves, R.E. & Uekusa, M. (1976). *Industrial organization in Japan*. Washington, DC: The Brookings Institution.
Dass, N., Kale, J. & Nanda, V. (2015). Trade credit, relationship-specific investment, and product-market power. *Review of Finance, 19*(5), 1867-1923.
Dewenter, K.L. (2003). The risk-sharing role of Japanese keiretsu business groups: Evidence from restructuring in the 1990s. *Japan and the World Economy, 15*(3), 261-274.
Dyer, J.H. & Hatch, N.W. (2006). Relation-specific capabilities and barriers to knowledge transfers: Creating advantage through network relationships. *Strategic Management Journal, 27*(8), 701-719.
Eccher, E.A., Ramesh, K. & Thiagarajan, S.R. (1996). Fair value disclosures by bank holding companies. *Journal of Accounting and Economics, 22*(1-3), 79-117.
Fama, E.F. & French, K.R. (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance, 51*(1), 55-84.
Fisman, R. & Raturi, M. (2004). Does competition encourage credit provision? Evidence from African trade credit relationships. *Review of Economics and Statistics, 86*(1), 345-352.
Gaspar, J. & Massa, M. (2006). Idiosyncratic volatility and product market competition. *Journal of Business, 79*(6), 3125-3152.
Gebhardt, G. (2012). Financial instruments in non-financial firms: What do we know? *Accounting and Business Research, 42*(3), 267-289.
Genay, H. (1991). Japan's corporate groups. *Economic Perspectives, 15*(1), 20-30.
Grossman, S.J. & Hart, O.D. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy, 94*(4), 691-718.
Hoshi, T. (1998). Japanese corporate governance as a system. In K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch & S. Prigge (Eds.), *Comparative Corporate Governance: The State of the Art and Emerging Research* (pp. 847-875). Oxford, UK: Oxford University Press.
Joskow, P.L. (1985). Vertical integration and long-term contracts: The case of coal-burning electric generating plants. *Journal of Law, Economics, and Organization, 1*(1), 33-80.
Joskow, P.L. (1987). Contract duration and relationship-specific investments: empirical evidence from coal markets. *American Economic Review, 77*(1), 168-185.
Joskow, P.L. (1988). Asset specificity and the structure of vertical relationships: empirical evidence. *Journal of Law, Economics and Organization, 4*(1), 95-117.
Kanagaretnam, K., Mathieu, R. & Shehata, M. (2009). Usefulness of comprehensive income reporting in Canada. *Journal of Accounting and Public Policy 28*(4) 349-365.
Kanno, M. (2016). Network structures and credit risk in the cross-shareholdings among listed Japanese companies. SSRN. Retrieved May 13, 2017, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2842688
Kawasaki, S. & McMillan, J. (1987). The design of contracts: evidence from Japanese subcontracting. *Journal of the Japanese and International Economies, 1*(3), 327-349.
Khanna, T. & Yafeh, Y. (2005). Business groups and risk sharing around the world. *The Journal of Business, 78*(1), 301-340.
Klein, B., Crawford, R.G. & Alchian, A.A. (1978). Vertical integration, appropriable rents and the competitive contracting process. *Journal of Law and Economics, 21*(2), 297-326.
Kothari, S.P. (2001). Capital markets research in accounting. *Journal of Accounting and Economics, 31*(1-3), 105-231.
Kubota, K., Suda, K. & Takehara, H. (2011). Information content of other comprehensive income and net income: evidence for Japanese firms. *Asia-Pacific Journal of Accounting and Economics, 18*(2), 145-168.

Lichtenburg, F.R. & Pushner, G.M. (1994). Owner structure and corporate performance in Japan. *Japan and the World Economy, 6*(3), 239-261.

Mayajima, H. (1994). The transformation of Zaibatsu to post-war corporate groups-From hierarchically integrated groups to horizontally integrated groups. *Journal of the Japanese and International Economies, 8*(3), 293-328.

Milgrom, P. & John, R. (1992). *Economics, organization and management*. Upper Saddle River, NJ: Prentice Hall.

Morck, R. & Nakamura, M. (1999) Banks and corporate control in Japan. *Journal of Finance, 54*(1), 319-339.

Nakatani, I. (1984). The economic role of corporate financial grouping. In Aoki, M. (Ed.), *Economic Analysis of the Japanese Firm* (pp. 227-258). New York: North-Holland.

Nelson, K.K. (1996). Fair value accounting for commercial banks: An empirical analysis of SFAS No. 107. *The Accounting Review, 71*(2), 161-182.

Ohlson, J.A. (1995). Earnings, book values and dividends in equity valuation. *Contemporary Accounting Research, 11*(2), 661-687.

Park, M.S., Park, T. & Ro, B.T. (1999). Fair value disclosures for investment securities and bank equity: Evidence from SFAS No. 115. *Journal of Accounting, Auditing and Finance, 14*(3), 347-370.

Prowse, S.D. (1992). The structure of corporate ownership in Japan. *Journal of Finance, 47*(3), 1121-1140.

Qiu, L.D. & Spencer, B.J. (2002). Keiretsu and relationship-specific investment: Implications for market-opening trade policy. *Journal of International Economics, 58*(1), 49-79.

Sakawa, H. & Watanabel, N. (2012). Corporate governance and initial public offerings in Japan. In A. Zattoni & W. Judge (Eds.), *Corporate Governance and Initial Public Offerings: An International Perspective* (pp. 238-261). New York: Cambridge University Press.

Sheard, P. (1989). The main bank system and corporate monitoring and control in Japan. *Journal of Economic Behavior and Organization, 11*(3), 399-422.

Sheard, P. (1994). Interlocking shareholding and corporate governance in Japan. In M. Aoki & R. Dore (Eds.), *The Japanese Firm: The Sources of Competitive Strength* (pp. 310-349). Oxford, UK: Oxford University Press.

Sikalidis, A. & Leventis, S. (2017). The impact of unrealized fair value adjustments on dividend policy. *European Accounting Review, 26*(2), 283-310.

Simko, P.J. (1999). Financial instrument fair values and nonfinancial firms. *Journal of Accounting, Auditing and Finance, 14*(3), 247-274.

Spencer, B.J. & Qiu, L.D. (2001). Keiretsu and relationship-specific investment: A barrier to trade? *International Economic Review, 42*(4), 871-901.

Van Horen, N. (2005). Trade credit as a competitiveness tool: Evidence from developing countries. SSRN. Retrieved May 13, 2017, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=562410

Van Horen, N. (2016). Customer market power and the provision of trade credit. *World Bank Policy Research Working Paper,* 4284.

Venkatachalam, M. (1996). Value-relevance of banks' derivatives disclosures. *Journal of Accounting and Economics, 22*(1-3), 327-355.