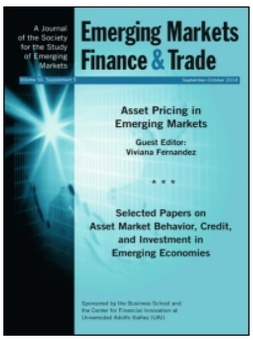

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Allocation of Cash Flows in Unionized Firms

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ABSTRACT: How do unionized firms use cash inflows? To answer this hitherto unexplored question, we adopt the system of equations developed by Dasgupta, Noe, and Wang (2011) to explicitly address possible interdependence of cash allocation decisions in unionized firms. Based on comprehensive firm-level unionization data for Korean companies from 1998 to 2008, we document that unionized firms allocate less cash to cash reserves and retirement of external financing than nonunionized firms do. More interestingly, inconsistent with previous findings, we also find that unionized firms utilize a greater portion of cash inflows to investment. This unexpected result of greater investment in unionized firms is in fact consistent with the view that employees are an important nonfinancial stakeholder who naturally cares about the long-term survival of the company; thus, they do not necessarily suppress value-increasing investments. Overall, our findings suggest that researchers need to consider cash flow sensitivities when examining interrelated cash allocation decisions.

KEY WORDS: Cash holdings, dividends, external financing, investment, labor unions

JEL classification: G31, G32

Managers in unionized firms drive operating, financing, and investing decisions to achieve more advantageous labor negotiation outcomes (e.g., Bronars and Deere 1991; DeAngelo and DeAngelo 1991; Klasa, Maxwell, and Ortiz-Molina 2009; Matsa 2010). They pay particular attention to cash flows because cash flows represent a compelling resource for wage demands. For example, when Metropolitan Transit Authority gained an unexpected $1 billion surplus due to a real estate boom in 2005, the New York City Transport Workers Union demanded a 24% pay raise over 3 years even though the surplus did not indicate improved operating performance.[1] By contrast, when Delta Air Lines faced financial distress in 2005, pilots agreed on salary cuts for the survival of the firm.[2] These examples suggest a possibility that managers facing strong labor unions render cash allocation decisions in favor of their bargaining position.

Prior studies independently examine various cash usages of unionized firms. First, unionized firms tend to hold less cash (Klasa, Maxwell, and Ortiz-Molina 2009) to shelter their resources from labor union's wage demand. Second, unionized firms maintain a high level of debt for bonding resources (Bronars and Deere 1991; Matsa 2010). A CFO survey by Graham and Harvey (2001) also finds that a high debt ratio helps firms gain concessions from their employees. Third, unionized firms are likely to cut dividends to obtain labor concessions by giving the impression that shareholders initiate sacrifices to alleviate the firm's financial difficulties (DeAngelo and DeAngelo 1991). Lastly, unionized firms limit the level and riskiness of investment because employees do not proportionally share the profit attributable to risky investment (Bronars, Deere, and Tracy 1994; Hirsch 1992). In sum, the literature collectively documents that cash allocation decisions of unionized firms are different from those of nonunionized peers.

Previous findings regarding cash allocation decisions in unionized firms, however, are puzzling. If unionized firms tend to maintain lower levels of cash reserves but make lower investments, pay less dividends, and retire less debt, where do unionized firms allocate generated cash (i.e., cash inflows)?

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To answer this question, we should examine the allocation of operating cash inflows in consideration of cross-sectional and intertemporal interdependence among financing and investing activities because (1) firms manage investing and financing activities simultaneously, not separately, and (2) they determine the level of cash reserves for capital requirement in future periods (Almeida, Campello, and Weisbach 2004; Campello, Graham, and Harvey 2010; Opler et al. 1999). To address this nature, following Dasgupta, Noe, and Wang (2011), we adopt a system of equations in which various uses of cash are simultaneously regressed on cash flows and other controls. This framework identifies the allocation of cash flows in four ways: changes in cash holdings, retirement of external financing, investment, and dividend.

The dynamic multi-equational model enables us to test corporate financial decisions simultaneously and to examine weighted usages of cash flows in unionized firms. In particular, the system equations provide us with three important advantages to addressing our research question. First, it effectively identifies and includes a set of major cash flow consumptions such as financing (i.e., cash holdings, external financing), investment, and distribution (i.e., payout). Chang et al. (2014) document that this defined set of cash flow usages explains almost all variations of the cash flow sensitivity. Specifically, the coefficients on cash flows add up to one even without constraining the sum to be one in separate regressions. Second, the system equations fit well to analyzing contemporaneous allocation of cash flows. Given the interdependent nature among cash usages, the opportunity costs of not using cash for one purpose should be related to the expected benefits of using cash for the other purpose. Simultaneous estimation thus assures more precise comparison among multiple cash flow consumptions. Third, an empirical model in Dasgupta, Noe, and Wang (2011) provides the tool to analyze intertemporal cash flow allocation by examining the sensitivities of cash flows on its consumptions over three consecutive years; thus, it allows us to observe where and how much of cash inflows are allocated not only cross-sectionally but also intertemporally. Given generally low levels of cash reserves in unionized firms, analyses conditioning on a dollar increase are a more appropriate approach in determining cash flow allocation. In sum, we believe that the system of equations effectively tells us how additional one dollar of cash flows today impacts a particular use of cash flows in the future, and whether the impact varies across unionization.

Based on a large sample of Korean listed firms from 1998 to 2008, we find the followings.[3] Korean companies on average respond to a dollar increase in transitory cash flows by allocating 8 cents to cash holdings, 69 cents to reduce debt or equity, 20 cents to investment, and 3 cents to dividends.[4] To explore how union strength influences the allocation of cash flows, we partition our sample based on the presence of labor unions and estimate the cash flow allocation for unionized firms and nonunionized firms separately. The findings suggest that in response to additional $1 increase in cash inflows in the current year, unionized firms reserve 14 cents in the same year. However, as they deplete reserved cash for investment in the next 2 years, their cash holdings are reduced to 7 cents which is lower than it is for nonunionized firms, which is consistent with Klasa, Maxwell, and Ortiz-Molina (2009). We also see that unionized firms retire less external finance than nonunionized firms do in response to a dollar increase in cash flows in the current period. However, the tendency of repayment is sharply contrasted. Unionized firms largely spend cash inflows to pay back debt, whereas nonunionized firms allocate big portions of cash inflows to retire equity financing.

The most unexpected result is greater cash flow allocation of unionized firms to investment. We find that unionized (nonunionized) firms allocate 35 (15) cents for investment in the current year in response to additional $1 of operating cash inflows in the current year. Unionized firms keep allocating cash flows to investment in the next 2 years by depleting reserved cash and by utilizing short-term debt financing. Thus, out of $1 additional cash inflows, unionized firms spend 57 cents on investment over 3 years, whereas nonunionized firms allocate 11 cents only. Our result that unionized firms allocate more cash flows to investment than nonunionized firms do is inconsistent with the results of prior studies that show relatively less investment expenditure in unionized firms (Connolly, Hirsch, and Hirschey 1986; Hirsch 1992). Anecdotal evidence in Korea, however, supports our results. The labor union of Korea Telecom (KT) has requested the firm to increase investment in facilities and in labor to

achieve sustainable growth, rather than to pay dividends.[5] Similarly, the labor union organized in Hyundai Heavy Industries has requested the firm to invest on research and development in order to strengthen the firm's competitiveness.[6]

The above finding reminds us that with their incentives aligned with those of bondholders, unions can curb shareholders' wealth expropriations (Chen, Kacperczyk, and Ortiz-Molina 2012) and possibly mitigate underinvestment (Subramaniam 1996). Likewise, acknowledging that labor unions could have the dual role as collective bargaining agents (i.e., rent seekers) and as stewards fighting for firms' survival and workers' long-term job security, our article questions earlier inferences on the negative association between investment and labor union's strength without consideration of cash flow levels.

We are the first to adopt a system of equations to synthesize a set of previous findings in literature on various cash consumption decisions in unionized firms. Our research question is of particular interest because prior studies examine the impact of union strength on various cash usage in isolation and thus do not effectively control for the interrelation between several cash usages, and intertemporal allocation of cash inflows. Incorporating such interdependent nature of corporate financial decisions consequently leads to correct inferences. Applying the system of equations allows researchers to capture the sensitivity of various cash outflows to cash inflows. Furthermore, taking advantage of the unique firm-level union data in Korea provides us with a rare opportunity to reliably observe the dynamic association between unionization and cash consumption decisions at the firm level. We thus believe that this article offers a comprehensive understanding of the investing and financial policy in unionized firms and the role of labor unions as nonfinancial stakeholders in Korea.

The rest of our article is organized as follows. The "Related Research" section presents an overview of related literature. The "Research Design" section outlines our empirical methodology and The "Empirical Results" section provides empirical results. The "Impact of Financial Constraints" section shows an impact of financial constraints on the results and the "Conclusion" section concludes.

Related Research

Labor unions strive to exert influence to preserve their bargaining power against management. They impact managerial decisions in a number of ways.[7] A traditional view models unions as rent-seekers because labor unions have incentives to use strike threats to extract quasi-rents from firms (Baldwin 1983; Grout 1984). As a response, managers facing strong labor unions identify means to shelter firm resources and gain a bargaining advantage over the unions. For example, firms with stronger labor unions tend to hold smaller cash reserves (Klasa, Maxwell, and Ortiz-Molina 2009), issue more debts (Bronars and Deere 1991; Matsa 2010), and pay lower dividends to achieve labor concessions (DeAngelo and DeAngelo 1991).

Regarding cash flow allocation decisions, prior studies provide a comprehensive review on the role of labor unions. We discuss the related research based on major cash flow consuming activities such as financing (i.e., cash holdings, external financing), investment, and distribution (i.e., payout).

First, regarding labor unions' impact on firms' financing decisions, managers bargaining with strong unions reduce cash reserves because holding large cash reserves likely provokes employees' strong wage demands (Klasa, Maxwell, and Ortiz-Molina 2009). When external financing is required, unionized firms encounter a high cost of raising equity due to union-induced inflexible operations (Chen, Kacperczyk, and Ortiz-Molina 2011). In contrast, the empirical evidence of labor unions' influence on debt financing is still mixed and inconclusive. Chen, Kacperczyk, and Ortiz-Molina (2012) document that the presence of strong unions is viewed favorably in bond markets because unionized firms exhibit low risk-taking behaviors and are unlikely to be an acquisition target, resulting in low bond yields for unionized firms. Managers in such firms also prefer debt to equity for the bonding effect, resulting in high leverage in unionized firms (Bronars and Deere 1991). Another stream of the literature, however, suggests that employees would demand compensation for the high risk associated with the excessive use of debts; thus, the leverage ratio can be rather low in unionized firms (Chemmanur, Cheng, and Zhang 2013).

Second, prior research supports unions' assessments of managers' investment decisions that are consistent with a bondholders' perspective, generally suggesting that unions prefer less risk than shareholders or managers (Chen, Kacperczyk, and Ortiz-Molina 2012; Connolly, Hirsch, and Hirschey 1986; Faleye, Mehrotra, and Morck 2006). Chen, Kacperczyk, and Ortiz-Molina (2012) show that firms in more unionized industries tend to undertake less risky investment. Similarly, Connolly, Hirsch, and Hirschey (1986) find that unionization produces a limiting influence on research and development investment. Faleye, Mehrotra, and Morck (2006) study a sample of firms with union block (equity) ownership and find that despite unions' significant equity stakes that could potentially increase in value with firm risk, these firms avoid risks and exhibit lower total factor productivity. This finding suggests that unions sacrifice long-term firm value over short-term stability. Recently, however, Cho et al. (2016) document that labor unions play a value-increasing role by curbing overinvestment for firms prone to excessive investment.

Third, prior studies on how unions affect corporate payouts are relatively scarce. Based on data from seven steel producers, DeAngelo and DeAngelo (1991) document that unionized firms likely cut dividends to make it appear that shareholders initiate sacrifices (i.e., cut dividends) and thereby obtain labor concessions when these firms attempt to alleviate financial distress. In contrast, Chen, Kacperczyk, and Ortiz-Molina (2011) argue that because of low operating flexibility in unionized firms, shareholders require a higher rate of return in such firms than in nonunionized firms. Likewise, if shareholders in unionized firms demand more for dividends for the same reason, it is also plausible that unionized firms pay dividends more than nonunionized firms do.

Collective understanding on unionized firms' cash flow allocation leaves us with a hitherto unexplored question: where do unionized firms allocate one unit of cash inflows? Cash flow allocation decisions are cross-sectionally and intertemporally interdependent, thus allocating a dollar for one purpose could inversely affect the other potential usages of cash. Borrowing from Dasgupta et al.'s (2011) systems of equations, we consider the interdependent and intertemporal nature of cash allocation decisions.

Research Designs

The Cash Flow Identity and Cash Flow Sensitivity

Internally generated funds, referred to as cash flows from operations (*OCF*), are important for various corporate activities. Dasgupta, Noe, and Wang (2011) classify a firm's usage of cash flows into four categories.

$$OCF = \triangle CASHHOLDING - EXTERNAL\ FINANCE + INVESTMENT + DIVIDEND$$

On the left-hand side of the equation is internally generated cash flows from operations. The right-hand side refers to a set of cash outflows (i.e., cash consumption). Internally generated cash flows increase cash balance, reduce external finance, increase investment, and are paid out as dividends. Dasgupta, Noe, and Wang (2011) assume that cash outflows must be equal to cash inflows, which is called the cash flow identity. Chang et al. (2014) prove the validity of the cash flow identity.

System of Equations

We apply the cash flow identity to examine the cash flow sensitivities to various uses of cash in unionized firms. As we previously discussed, the research design of cash flow sensitivity naturally allows us to control for a different cash-generating ability between unionized and nonunionized firms. However, one of the concerns for static-single equation analysis is the implicit assumption of "all else being equal." This assumption fails to capture the dynamic nature of corporate financial decisions and leads to misleading results (Gatchev, Pulvino, and Tarhan 2010).

To address this issue, we utilize the system of equations model to incorporate the dynamic nature of cash allocation decisions:

$$\Delta CASHHOLDING_{i,t} = a_{1,i} + b_1 OCF_{i,t} + + c_1 OCF_{i,t-1} + d_1 OCF_{i,t-2} + \Sigma CONTROLS + e_{1,i,t} \quad (1)$$

$$-EXTERNAL\ FINANCE_{i,t} = a_{2,i} + b_2 OCF_{i,t} + + c_2 OCF_{i,t-1} + d_2 OCF_{i,t-2} + \Sigma CONTROLS + e_{2,i,t} \quad (2)$$

$$INVESTMENT_{i,t} = a_{3,i} + b_3 OCF_{i,t} + + c_3 OCF_{i,t-1} + d_3 OCF_{i,t-2} + \Sigma CONTROLS + e_{3,i,t} \quad (3)$$

$$DIVIDEND_{i,t} = a_{4,i} + b_4 OCF_{i,t} + + c_4 OCF_{i,t-1} + d_4 OCF_{i,t-2} + \Sigma CONTROLS + e_{4,i,t} \quad (4)$$

where the dependent variable is one of the four cash outflow variables—changes in cash holding, retirement of external financing, total investment, and dividends of firm i in period t. Changes in cash holdings ($\Delta CASHHOLDING$) are measured as changes in cash and cash equivalents. External financing (*EXTERNAL FINANCE*) is the sum of net equity issuance and net debt issuances, where *equity issuance* includes sale and purchase of common and preferred stock and *debt issuance* includes changes in short-term debt and long-term debt issuance and reduction. External financing is multiplied by (−1) to capture the retirement of external funds. Investment (*INVESTMENT*) is measured as net cash flows from investing activities multiplied by (−1). Dividend (*DIVIDEND*) refers to cash dividends. The independent variables interested in are cash flows from operations (*OCF*), which is measured by net cash flows from operating activities plus the exchange rate effect. *CONTROLS* is a set of firm-specific variables that could potentially affect the use of cash based on Dasgupta, Noe, and Wang (2011). All variables are defined in the Appendix.

Since operating cash flows (*OCF*) at time *t*, $t - 1$, and $t - 2$ are examined in the model, all dependent variables and operating cash flow variables are deflated by the 3-year-lagged book value of total assets for comparability. All variables are demeaned by their firm-specific sample mean in order to eliminate firm-specific effects. The year-fixed effect is also included in the model.[8]

In Equations (1)–(4), the coefficients on operating cash flows capture the cash flow sensitivity. For example, the contemporaneous coefficient on *OCF* of Equation (3), b_3, can be interpreted as how much cash flows a firm allocates for investment this year if the firm has additional $1 of cash inflows this year. The 1 (2)-period lagged coefficient, c_3 (d_3), can be interpreted as how much cash flows a firm spends on investment in 1 year (2 years) later when the firm has additional $1 of cash inflows this year.[9] Thus, the sum of b_3, c_3, and d_3 refers to the cumulative cash flow sensitivity of investment over three consecutive years in response to additional $1 of cash inflows in the current year. Therefore, the simultaneous equations model presents how a cash flow shock in the current year can affect different uses of cash flows in the current and future years.

Data

Our sample is comprised manufacturing firms listed on the Korea Stock Exchange and the Korean Securities Dealers Automated Quotations from 1998 to 2008. Until the demise of the disclosure requirement at the end of 2008, Korean listed companies had been required to disclose the number of union members in their annual reports.[10] We manually collect the number of union members for

each firm. Financial data are obtained from TS2000. Stock returns and credit rating data are extracted from DataGuide.

Analyzing Korean companies provides a rare opportunity to answer our research questions. Most prior studies examining US companies lack firm-level variations of union data. Instead, they tend to rely on industry-level unionization rates or estimated firm-level proxies, which unavoidably contain significant measurement errors.[11] By contrast, Korean data allow us to construct comprehensive error-free unionization measures for each firm in a given year. Moreover, labor unions in Korea play a significant role as a nonfinancial stakeholder (Chung et al. 2016).

Following Dasgupta, Noe, and Wang (2011), we demean all regression variables by their firm-specific sample mean to eliminate firm-specific effects. To reduce the impact of outliers, we exclude observations with a negative or zero book assets. Also, we delete firms whose annual asset growth is larger than 200%.[12] Furthermore, all variables except indicator variables are winsorized at the top and the bottom 1% of the sample. Since we test intertemporal usages of cash flows for three consecutive years, each firm-year observation must have cash flow data for the preceding 2 years. The final sample includes 1533 unique firms for 9878 firm-year observations.

Empirical Results

Descriptive Statistics

Panel A of Table 1 presents summary statistics. About 45% of sample firms have at least one union members and its unionization ratio is, on average, 47.4% (i.e., *r_union* given *d_union* = 1). The unionization ratio of the entire sample firms decreases to 21.3% if nonunionized firms are included.

Panel B of Table 1 compares firm characteristics between unionized firms (*d_union* = 1) and nonunionized firms (*d_union* = 0). Changes in cash holdings and dividends are not statistically different between the two groups. However, unionized firms make less investment (Hirsch 1992). Also, unionized firms externally borrow funds less than nonunionized firms do. This is mainly attributable to equity financing which accounts for 0.071 out of 0.101 for the mean difference of external finance between the two groups. This is consistent with the view that the incentive of labor unions is often diverged from that of shareholders, which consequently increases the cost of equity (Chen, Kacperczyk, and Ortiz-Molina 2011). Net cash flows of unionized firms are significantly higher than are those of nonunionized firms, which implies that unionized firms might have less incentive to rely on external financing and, instead, they depend more on internally generated cash flows.

Unionization and Cash Flow Sensitivities

Table 2 reports the effects of labor union on cash holdings, leverage, dividend payout, and investment after controlling the influence of firm characteristics by using OLS regressions. The incremental effects of labor union are captured by *d_union*. Column (1) shows that unionized firms hold less cash than nonunionized firms do, which is qualitatively consistent with Klasa, Maxwell, and Ortiz-Molina (2009). In Column (2), we find that unionized firms have lower leverage than do nonunionized firms, supporting the view that unionized firms choose lower financial leverage to offset the higher operating leverage attributable to unions' potential demand for raising wages and/or strike threats (Simintzi, Vig, and Volpin 2015) and to reduce workers' exposure to unemployment risk (Berk, Stanton, and Zechner 2010). In Columns (3) and (4), the low leverage ratio for unionized firms is common for both short-term and long-term debts. Column (5) presents that unionized firms invest less than nonunionized firms do by 1.7% of the value of the lagged total assets (Hirsch 1992). Further, Column (6) shows that unionized firms pay out less dividends than nonunionized firms do (DeAngelo and DeAngelo 1991).

Table 1. Descriptive statistics.

Panel A. Summary statistics

Variable	*N*	Mean	Std	p25	Median	p75
Δ*CASHHOLDING*	9878	0.004	0.091	–0.020	0.001	0.025
INVESTMENT	9878	0.111	0.244	0.000	0.052	0.144
EXTERNAL FINANCE	9878	0.122	0.296	–0.007	0.035	0.145
External equity finance	9878	0.055	0.198	0.000	0.000	0.001
External debt finance	9878	0.065	0.186	–0.011	0.016	0.106
External short-term debt finance	9878	0.013	0.108	–0.024	0.000	0.041
External long-term debt finance	9878	0.052	0.143	0.000	0.000	0.069
DIVIDEND	9878	0.008	0.012	0.000	0.003	0.013
OCF	9878	0.036	0.168	–0.021	0.043	0.114
tobinq	9878	1.092	0.562	0.761	0.926	1.219
size	9878	11.710	1.445	10.660	11.440	12.440
lev	9878	0.295	0.223	0.117	0.276	0.435
zscore	9878	1.401	1.274	0.920	1.480	2.091
ret_vol	9878	0.041	0.012	0.032	0.041	0.050
stock_turn	9878	0.046	0.183	0.005	0.012	0.026
ret	9878	0.317	0.697	–0.089	0.174	0.516
d_union	9878	0.448	0.497	0.000	0.000	1.000
r_union	9855	0.213	0.283	0.000	0.000	0.469
r_union (given *d_union* = 1)	4421	0.474	0.233	0.293	0.505	0.662

Panel B. Comparison between unionized firms and nonunionized firms

	Unionized firms		Nonunionized firms		Differences
Variable	Mean	Median	Mean	Median	*t*-Test
Δ*CASHHOLDING*	0.005	0.001	0.004	0.000	0.001
INVESTMENT	0.072	0.046	0.142	0.061	–0.070***
EXTERNAL FINANCE	0.066	0.024	0.167	0.046	–0.101***
External equity finance	0.016	0.000	0.087	0.000	–0.071***
External debt finance	0.049	0.017	0.077	0.015	–0.028***
External short-term debt finance	0.006	0.000	0.018	0.000	–0.012***
External long-term debt finance	0.044	0.002	0.058	0.000	–0.015***
DIVIDEND	0.008	0.005	0.008	0.000	0.000
OCF	0.064	0.059	0.013	0.026	0.051***
Number of observations	4421		5457		

Notes: The sample consists of 9878 firm-years between 1998 and 2008. The sample is manufacturing firms listed on the Korea Stock Exchange (KSE) and the Korean Securities Dealers Automated Quotations (KOSDAQ). Panel A provides summary statistics for all sample firms. Panel B compares firm characteristics between unionized firms and nonunionized firms. *d_union* is an indicator variable set to 1 if some employees are union members, and zero otherwise. *r_union* is the unionization ratio calculated as the ratio of the number of union members to the number of total employees. *r_union (give d_union = 1)* is the unionization ratio of unionized firms only (i.e., nonunionized firms excluded). All continuous variables are winsorized at the top and the bottom 1% of the sample. All other variables are defined in the Appendix. T-values are provided in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

For the robustness checks, we test using the unionization ratio (*r_union*) instead of the union dummy variable (*d_union*). The results are unchanged. In sum, these replication results are consistent with the findings of prior studies on the impact of labor unions.

Table 2. Unionization and corporate financial decisions.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	***CASHHOLDING***	***leverage***	**Short-term leverage**	**Long-term leverage**	***INVESTMENT***	***div_cash***
d_union_t	−0.007*	−0.019***	−0.011***	−0.008**	−0.017***	−0.001***
	(−1.68)	(−4.44)	(−3.26)	(−2.52)	(−5.15)	(−4.10)
$tobinq_t$	0.046***	0.026***	−0.008**	0.023***	0.033***	0.003***
	(9.08)	(5.02)	(−2.43)	(6.42)	(6.73)	(12.60)
$size_t$	−0.010***	0.023***	−0.003**	0.026***	0.009***	0.000
	(−5.84)	(11.59)	(−2.27)	(17.53)	(5.98)	(0.63)
lev_t	−0.202***				−0.059***	−0.009***
	(−19.91)				(−5.13)	(−22.65)
$zscore_t$	0.011***	−0.037***	−0.022***	−0.008***	0.013***	−0.000*
	(4.66)	(−11.14)	(−9.76)	(−3.56)	(4.44)	(−1.83)
d_rating_t	−0.033***	0.042***	0.032***	0.014***	−0.002	−0.001***
	(−7.97)	(7.85)	(7.97)	(3.61)	(−0.35)	(−4.07)
ret_vol_t	−0.354*	3.428***	1.164***	2.336***	0.597***	−0.179***
	(−1.85)	(16.40)	(7.82)	(14.62)	(3.09)	(−21.53)
$stock\_turn_t$	−0.039***	−0.007	0.002	0.002	−0.011	−0.000
	(−2.92)	(−0.44)	(0.15)	(0.18)	(−0.67)	(−0.07)
ret_t	−0.004	−0.019***	−0.003	−0.014***	−0.001	0.000**
	(−1.29)	(−5.88)	(−1.25)	(−6.01)	(−0.30)	(2.41)
roa_t	0.018	−0.064**	−0.019	−0.075***	−0.301***	0.012***
	(0.82)	(−2.30)	(−0.98)	(−4.16)	(−9.59)	(15.61)
$tang_t$	−0.297***	0.161***	0.036***	0.126***	0.006	−0.003***
	(−25.11)	(12.34)	(3.85)	(13.13)	(0.55)	(−6.75)
sg_t	−0.029***	0.013*	0.011**	0.008	0.049***	0.000

(*Continued*)

Table 2. Unionization and corporate financial decisions. (Continued).

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	***CASHHOLDING***	***leverage***	**Short-term leverage**	**Long-term leverage**	***INVESTMENT***	***div_cash***
	(–4.42)	(1.90)	(2.17)	(1.57)	(6.21)	(1.35)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9878	9878	9878	9878	9878	9878
Adjusted *R*-squared	0.238	0.378	0.216	0.258	0.154	0.351

Notes: Table 2 presents the results of OLS regressions. The sample consists of 9878 firm-years between 1998 and 2008. Our sample is made up of manufacturing firms listed on the Korea Stock Exchange (KSE) and the Korean Securities Dealers Automated Quotations (KOSDAQ). All dependent variables except *INVESTMENT* are constructed with balance sheet information. *CASHHOLDING* is the level of reserved cash measured as the sum of cash and short-term investment divided by net assets. *leverage* is calculated as the sum of short-term debt and long-term debt scaled by total assets. *div_cash* is the cash dividends divided by lagged total assets. *INVESTMENT* is measured as the net cash flows from investing activities multiplied by (−1) and scaled by lagged total assets. *d_union* is an indicator variable set to 1 if some employees are union members, and zero otherwise. All other independent variables are defined in the Appendix, but the values are measured at time *t*. All continuous variables are winsorized at the top and the bottom 1% of the sample. Industry and year fixed effects are included. T-values are provided in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

In the previous section, Table 2 shows how unionized firms differently use cash. However, we suspect that the results in Table 2 may be inaccurate because cash-generating abilities are likely different between unionized and nonunionized firms. Thus, this section focuses on the cash flow sensitivity between these two groups. Before employing the system of equations model, we present the results of separate regressions to see how cash flow sensitivity varies with unionization (Chen and Chen 2013). We interact the union variables (*d_union*) with operating cash flows (*OCF*) to examine the impact of labor unions on financial policy decisions conditional on a unit of cash inflows. The coefficients on *OCF* present the cash flow sensitivity of nonunionized firms, and the coefficients on the interaction terms between *OCF* and *d_union* (*OCF* × *d_union*) capture the incremental cash flow sensitivity of unionized firms.

Column (1) of Table 3 shows that nonunionized firms save \$0.068 out of \$1 of additional operating cash inflows. Although unionized firms reserve \$0.027 more than nonunionized firms do, it is statistically insignificant. Column (2) shows that nonunionized firms spend \$0.744 out of an additional dollar of operating cash inflows to reduce external financing. The incremental cash flow sensitivity of unionization is −0.302, which indicates that unionized firms spend \$0.302 less than nonunionized firms do for the retirement of external financing.

We further divide external financing into equity financing and debt financing. Column (3) shows that unionized firms retire less external equity financing than nonunionized firms do. While nonunionized firms spend \$0.345 out of \$1 of additional operating cash inflows on retirement, unionized firms spend only \$0.026 (=0.345–0.319). This implies that equity financing of unionized firms is highly independent from cash flow shocks. This also suggests that unionized firms do not utilize share repurchase as a mean of distributing wealth to shareholders because share repurchase could weaken firms' bargaining power against labor unions. By contrast, Column (5) shows that unionized firms spend \$0.08 more on retiring short-term debt than nonunionized firms do.

Interestingly, Column (7) documents that unionized firms allocate \$0.249 more for investment than nonunionized firms do when they have additional \$1 of operating cash inflows, which is in sharp contrast to the findings of prior studies (Hirsch 1992). The higher cash flow sensitivity of investment also indicates that unionized firms are more dependent on internally generated cash for their investment (Chen and Chen 2013).

Column (8) shows that unionized firms pay out more dividends. Unionized (nonunionized) firms pay \$0.007 (\$0.002) out of additional \$1 of operating cash flows. The result is consistent with a shareholders' demand for a high premium for unionized firms (Chen, Kacperczyk, and Ortiz-Molina 2011) but inconsistent with dividend cuts in unionized firms to gain labor concessions (DeAngelo and DeAngelo 1991).

In summary, unlike nonunionized firms, unionized firms tend to allocate cash inflows to the repayment of short-term debt, investment, and dividend, but they are less likely to allocate cash inflows for the retirement of equity financing. However, these results do not consider cross-sectional and intertemporal interdependence between cash flow allocation decisions. In the next session, we move on to the systems of equations to consider the dynamic nature of cash flow allocation decisions.

The System of Equations

Table 4 presents the results from the system of equations. Panel A shows when unionized firms have additional \$1 of cash inflows in year *t*, cash flows are allocated as \$0.14 to add cash balance, \$0.507 to retire external financing, \$0.351 to increase investment, and \$0.002 to pay out dividends. Compared with nonunionized firms in Panel B, unionized firms are more likely to reserve cash balance and make investment but are less likely to pay back external financing in year *t*.

With additional \$1 of operating cash inflows, unionized firms reserve \$0.14 in the current year, but they deplete this reserved cash in the next 2 years by \$0.024 and \$0.048, respectively. As a result, unionized firms reserve \$0.068 over 3 years, whereas nonunionized firms reserve \$0.083, which is consistent with prior literature that unionized firms save less cash holdings internally (Klasa, Maxwell, and Ortiz-Molina 2009).

Table 3. Unionization and cash flow sensitivities.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Δ*CASHHOLDING***	**–*EXTERNAL FINANCE***	**–external equity finance**	**–external debt finance**	**–external short-term debt finance**	**–external long-term debt finance**	***INVESTMENT***	***DIVIDEND***
OCF_t	0.068***	0.744***	0.345***	0.353***	0.171***	0.174***	0.175***	0.002*
	(5.25)	(21.43)	(11.70)	(15.97)	(12.78)	(9.94)	(5.98)	(1.94)
$OCF_t \times d\_union_t$	0.027	–0.302***	–0.319***	0.035	0.080***	–0.038	0.249***	0.005***
	(1.51)	(–6.62)	(–7.99)	(1.09)	(3.80)	(–1.48)	(6.21)	(3.38)
d_union_t	0.000	0.015***	0.010***	0.005	0.000	0.003	–0.014***	–0.001***
	(0.04)	(3.35)	(2.72)	(1.48)	(0.04)	(1.33)	(–3.64)	(–5.71)
$tobinq_{t-1}$	–0.002	–0.060***	–0.035***	–0.022***	–0.006***	–0.015***	0.059***	0.002***
	(–0.86)	(–10.88)	(–7.45)	(–6.45)	(–3.18)	(–5.30)	(12.40)	(10.88)
$size_{t-1}$	–0.004***	0.016***	0.014***	–0.000	–0.001	0.001	–0.014***	0.000
	(–6.80)	(9.17)	(11.95)	(–0.08)	(–1.24)	(0.51)	(–9.36)	(0.80)
lev_{t-1}	–0.002	0.038***	0.000	0.031***	0.020***	0.006	–0.091***	–0.007***
	(–0.49)	(2.89)	(0.04)	(3.59)	(3.67)	(0.94)	(–8.33)	(–17.63)
$zscore_{t-1}$	–0.004***	0.003	0.020***	–0.017***	–0.012***	–0.005***	0.001	0.002***
	(–3.51)	(1.07)	(8.00)	(–9.43)	(–10.76)	(–3.25)	(0.24)	(19.33)
d_rating_t	0.005***	–0.052***	–0.012***	–0.038***	0.005**	–0.042***	0.028***	–0.000**
	(2.74)	(–10.96)	(–3.72)	(–10.39)	(2.06)	(–13.73)	(6.56)	(–2.34)
ret_vol_t	0.313***	–0.638***	–0.889***	0.234*	0.111	0.123	0.293	–0.136***
	(3.97)	(–3.13)	(–5.56)	(1.70)	(1.21)	(1.15)	(1.61)	(–16.90)
$stock\_turn_t$	–0.011*	0.047**	0.030*	0.003	0.006	–0.004	–0.024	–0.000
	(–1.89)	(2.56)	(1.85)	(0.27)	(0.89)	(–0.46)	(–1.51)	(–0.75)
ret_{t-1}	0.003***	–0.020***	–0.011***	–0.008***	0.002**	–0.010***	0.014***	–0.000
	(3.04)	(–7.19)	(–5.06)	(–3.86)	(2.27)	(–6.28)	(6.07)	(–0.80)
roa_t	0.027***	0.239***	0.174***	0.056***	–0.021***	0.073***	–0.250***	0.004***
	(3.82)	(10.62)	(8.94)	(4.15)	(–2.73)	(6.67)	(–12.80)	(8.19)
$tang_{t-1}$	0.011**	–0.055***	0.002	–0.051***	–0.026***	–0.025***	0.032***	–0.002***

	(2.43)	(−3.91)	(0.15)	(−5.48)	(−4.31)	(−3.45)	(2.66)	(−3.26)
sg_{t-1}	0.003	−0.026***	−0.007	−0.023***	−0.008***	−0.014***	0.025***	−0.001***
	(1.11)	(−3.45)	(−1.23)	(−4.60)	(−2.75)	(−3.29)	(3.75)	(−3.53)
Industry FE	yes	yes	yes	yes	yes	yes	yes	Yes
Year FE	yes	yes	yes	yes	yes	yes	yes	Yes
Observations	9878	9878	9878	9878	9878	9878	9878	9 878
Adjusted *R*-squared	0.035	0.442	0.427	0.164	0.116	0.135	0.218	0.355

Notes: Table 3 presents the results of OLS regressions. The sample consists of 9878 firm-years between 1998 and 2008. Our sample is manufacturing firms listed on the Korea Stock Exchange (KSE) and the Korean Securities Dealers Automated Quotations (KOSDAQ). All dependent variables are extracted from cash flow statement. *ΔCASHHOLDING* is the changes in cash and cash equivalents divided by lagged book value of total assets. *−EXTERNAL FINANCE* is the retirement of external finance measured as multiplying (−1) on the sum of net equity issuance and net debt issuances, where *equity issuance* includes sale and purchase of common and preferred stock and *debt issuance* includes changes in current debt and long-term debt issuance and reduction, scaled by lagged book value of total assets. *INVESTMENT* is calculated as net cash flows from investing activities multiplied by (−1) divided by lagged book value of total assets. *DIVIDEND* refers to cash dividends divided by lagged book value of total assets. *OCF* is cash flows from operation, which is measured by net cash flows from operating activities plus the exchange rate effect scaled by lagged book value of total assets. All other variables are defined in the Appendix. Cash flows from operation (*OCF*) and its interaction terms with union dummy (*OCF* × *d_union*) are included in the models. We use each dependent variable at time *t* and each independent variable at time *t* or *t* − 1 following prior literature (e.g., Chang et al. 2014; Dasgupta, Noe, and Wang 2011). All continuous variables are winsorized at the top and the bottom 1% of the sample. Industry and year-fixed effects are included. T-values are provided in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

We also find that unionized firms allocate less cash flows to reduce external finance than unionized firms do. In response to additional $1 of cash inflows in the current year, nonunionized firms spend $0.784 to retire external financing over 3 years, but unionized firms allocate $0.333 only. Unlike nonunionized firms, unionized firms pay back $0.507 in the current year but borrow cash again from external fund providers in the next 2 years by $0.104 and $0.07, respectively.

The most surprising finding in our article is that unionized firms put a greater portion of cash inflows toward investment. Unionized firms allocate $0.567 for investment over three consecutive years, but nonunionized firms spend only $0.111 in response to additional $1 of operating cash inflows. Depleting reserved cash and borrowing external funds are two sources of funding for investment. Unionized firms use $0.024 and $0.048 in year $t + 1$ and $t + 2$, out of $0.14 of cash holdings reserved in year t. They borrow $0.104 and $0.07 from external fund providers in year $t + 1$ and $t + 2$. By using these cash flows, unionized firms are able to keep allocating additional cash flows for investment over the following 2 years, $0.113 and $0.103, respectively.

Overall, Table 4 documents that unionized firms allocate cash inflows to the cash balance and the retirement of external financing to a lesser extent. More importantly, the result highlights that (1) unionized firms allocate more cash flows for investment than nonunionized firms do and (2) unionized firms actively make the cash flow allocation decisions by transmitting cash flows cross-sectionally and intertemporally to increase future investment.

We extend the analysis of Table 4 by considering various financing sources. First, we divide external financing into equity financing and debt financing. Debt investors, along with labor unions, prefer to avoid excessive risks (Chen, Kacperczyk, and Ortiz-Molina 2012). On the other hand, shareholders are not necessarily risk-averse because their payoffs have no upper limit. Therefore, the presence of a labor union could be an obstacle to equity financing, but they should not necessarily be an obstacle to debt financing (Chen, Kacperczyk, and Ortiz-Molina 2011, 2012).

However, labor unions could also create a conflict in debt financing by increasing firms' operating risks. The collective behavior of labor unions increases operating uncertainty (Chen, Kacperczyk, and Ortiz-Molina 2011), which could make debt holders reluctant to lend money with a long-term maturity. This conjecture is also consistent with high investment in unionized firms because short-term debt can be an effective mechanism to monitor management by alleviating the underinvestment problem (Myers 1977). Thus, we further separate debt financing into short-term and long-term debt financing. We expect that cash flow sensitivities of external financing vary with unionization. For brevity's sake, we report the regression coefficients of equity and debt financing only.

Panel A of Table 5 documents that nonunionized firms keep distributing cash flows to shareholders, spending $0.445 out of $1 over 3 years. However, unionized firms spend only $0.115 to shareholders, which is consistent with the view that unions curb shareholders' wealth expropriations (Chen, Kacperczyk, and Ortiz-Molina 2012).

Panel B indicates that unionized firms utilize short-term debt financing rather than long-term debt financing.[13] This result supports the view that debt holders attempt to resolve potential conflicts with labor unions through shortening debt maturity (Myers 1977) and debt holders likely use short-term debt as a monitoring tool (Gul and Goodwin 2010).[14] Therefore, to resolve a possible timing mismatch between the short loan maturity and relatively long-term investment, unionized firms are more likely to rely on internally generated cash flows for current and future investment and to actively transmit cash flows cross-sectionally and intertemporally for a stable supply of funds.

Impact of Financial Constraints

We conduct a subsample analysis based on financial constraints. Dasgupta, Noe, and Wang (2011) argue that cash flow allocation decisions are affected by financial constraints, and we believe that this subsample test can provide insight about the incremental impact of labor unions beyond that of financial constraints. A financially unconstrained firm is categorized if a firm has a bond rating because it has better access to the public debt market (Acharya, Almeida, and Campello 2007;

Table 4. System of equations: Cash flow sensitivities over 3-year periods.

Panel A: Unionized firms

	OCF			tobinq	Size	lev	zscore	d_rating	ret_vol	stock_turn	ret	CUM-CFS
	t – 2	*t* – 1	*t*	*3-year*	*3-year*	*t* – 3	*t* – 3	*3-year*	*3-year*	*3-year*	*3-year*	*3-year*
Δ*CASHHOLDING*	–0.048***	–0.024**	0.140***	–0.003	–0.004	0.010	0.003	0.000	0.237	0.004	0.005**	0.068
	(–3.66)	(–2.08)	(13.54)	(–0.64)	(–1.03)	(1.10)	(1.43)	(–0.04)	(1.24)	(0.24)	(2.18)	
(–1) *EXTERNAL FINANCE*	–0.070***	–0.104***	0.507***	–0.067***	0.012	0.090***	–0.004	–0.002	0.629*	–0.022	–0.022***	0.333
	(–2.68)	(–4.45)	(24.49)	(–6.92)	(1.56)	(5.05)	(–1.15)	(–0.58)	(1.65)	(–0.76)	(–4.95)	
INVESTMENT	0.103***	0.113***	0.351***	0.066***	–0.011	–0.095***	0.001	0.002	–0.701*	0.019	0.016***	0.567
	(3.98)	(4.83)	(16.98)	(6.82)	(–1.39)	(–5.36)	(0.31)	(0.53)	(–1.84)	(0.64)	(3.67)	
DIVIDEND	0.014***	0.016***	0.002**	0.004***	0.003***	–0.005***	0.000**	0.000	–0.165***	0.000	0.001***	0.032
	(10.75)	(13.38)	(2.01)	(8.75)	(6.83)	(–5.10)	(2.44)	(1.36)	(–8.55)	(–0.02)	(3.95)	

(*Continued*)

Table 4. System of equations: Cash flow sensitivities over 3-year periods. (Continued).

Panel B. Nonunionized firms

	OCF	tobinq			size	lev	zscore	d_rating	ret_vol	stock_turn	ret	CUM-CFS
	t – 2	*t* – 1	*t*	*3-year*	*3-year*	*t* – 3	*t* – 3	*3-year*	*3-year*	*3-year*	*3-year*	*3-year*
Δ*CASHHOLDING*	–0.005	–0.029**	0.117***	–0.007	–0.023***	0.006	0.001	–0.001	0.183	–0.013	0.004	0.083
	(–0.40)	(–2.54)	(11.98)	(–1.45)	(–4.86)	(0.47)	(0.70)	(–0.17)	(0.68)	(–1.11)	(1.53)	
(–1) *EXTERNAL FINANCE*	–0.002	0.034	0.752***	–0.122***	0.032***	0.093***	0.024***	–0.005	0.887	0.071**	–0.044***	0.784
	(–0.05)	(1.19)	(30.70)	(–10.11)	(2.60)	(3.00)	(5.61)	(–0.51)	(1.31)	(2.34)	(–6.23)	
INVESTMENT	–0.002	–0.016	0.129***	0.125***	–0.009	–0.095***	–0.025***	0.005	–0.89	–0.058*	0.039***	0.111
	(–0.07)	(–0.56)	(5.40)	(10.68)	(–0.75)	(–3.15)	(–6.09)	(0.57)	(–1.35)	(–1.96)	(5.68)	
DIVIDEND	0.010***	0.011***	0.002***	0.004***	0.001**	–0.004***	0.000	0.000	–0.180***	0.000	0.001***	0.023
	(8.56)	(11.32)	(2.77)	(9.07)	(2.13)	(–3.72)	(1.24)	(0.51)	(–8.14)	(0.18)	(2.82)	

Notes: The cash flow identity defines that internally generated funds (i.e., cash flows from operations) are used in four major ways: adding to cash balance, retiring external finance, making investment, and paying out dividends. Table 4 provides the results of the system of equations, which regresses four equations simultaneously on common independent variables. The sample consists of 9878 firm-years from 1998 to 2008. Our sample is comprised manufacturing firms listed on the Korea Stock Exchange (KSE) and the Korean Securities Dealers Automated Quotations (KOSDAQ). The four major uses of cash are dependent variables extracted from cash flow statements. All variables are defined in the Appendix. Each variable is demeaned by its firm-specific sample mean to eliminate the firm-specific effects. Year-fixed effect is incorporated into the model. All continuous variables are winsorized at the top and the bottom 1% of the sample. T-values are provided in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5. System of equations: Equity versus debt financing.

Panel A. Equity and debt financing

	OCF			CUM-CFS
	t – 2	*t* – 1	*t*	*3-year*
Unionized firms				
(–1) equity finance	–0.005	0.032**	0.088***	0.115
	(–0.36)	(2.41)	(7.50)	
(–1) debt finance	–0.061***	–0.141***	0.403***	0.201
	(–2.67)	(–6.86)	(22.19)	
Nonunionized firms				
(–1) equity finance	0.066***	0.071***	0.308***	0.445
	(2.68)	(3.43)	(17.40)	
(–1) debt finance	–0.088***	–0.013	0.410***	0.309
	(–3.63)	(–0.65)	(23.61)	

Panel B. Short-term and long-term debt financing

	OCF			CUM-CFS
	t – 2	*t* – 1	*T*	*3-year*
Unionized firms				
(–1) short-term debt finance	–0.098***	–0.109***	0.242***	0.035
	(–5.88)	(–7.30)	(18.31)	
(–1) long-term debt finance	0.024	–0.016	0.150***	0.158
	(1.27)	(–0.99)	(10.10)	
Nonunionized firms				
(–1) short-term debt finance	–0.035**	–0.088***	0.181***	0.058
	(–2.47)	(–7.30)	(17.74)	
(–1) long-term debt finance	–0.049***	0.062***	0.200***	0.213
	(–2.64)	(3.92)	(14.83)	

(1) $\Delta CASHHOLDING_{i,t} = a_{1,I} + b_1 OCF_{i,t} + c_1 OCF_{i,t-1} + d_1 OCF_{i,t-2} + \sum CONTROLS + e_{1,i,t}$

(2) $-\text{EQUITY FINANCE}_{i,t} = a_{2,i} + b_2 OCF_{i,t} + c_2 OCF_{i,t-1} + d_2 OCF_{i,t-2} + \sum CONTROLS + e_{2,i,t}$

(3) $\text{DEBT FINANCE}_{i,t} = a_{3,i} + b_3 OCF_{i,t} + c_3 OCF_{i,t-1} + d_3 OCF_{i,t-2} + \sum CONTROLS + e_{3,i,t}$

(*debt finance* is divided into *short-term* and *long-term debt finance* for Panel B)

(4) $INVESTMENT_{i,t} = a_{4,i} + b_4 OCF_{i,t} + c_4 OCF_{i,t-1} + d_4 OCF_{i,t-2} + \sum CONTROLS + e_{4,i,t}$

(5) $DIVIDEND_{i,t} = a_{5,i} + b_5 OCF_{i,t} + c_5 OCF_{i,t-1} + d_5 OCF_{i,t-2} + \sum CONTROLS + e_{5,i,t}$

Notes: External finance is divided into external equity financing and external debt financing. Panel A provides the results of the system of equations, which regresses five dependent variables simultaneously on common independent variables. External debt financing is further divided into external short-term debt financing and external long-term debt financing. Panel B provides the results of the system of equations, which regresses six dependent variables simultaneously on common independent variables. For brevity's sake, we only report the regression coefficients of equity and debt financing. All variables are defined in the Appendix. Each variable is demeaned by its firm-specific sample mean to eliminate the firm-specific effects. Year-fixed effect is incorporated into the models. All continuous variables are winsorized at the top and the bottom 1% of the sample. T-values are provided in parentheses below the coefficient estimates. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Almeida, Campello, and Weisbach 2004; Faulkender and Wang 2006). Untabulated results confirm that unionized firms allocate more cash flows for investment than nonunionized firms do regardless of the financial constraints.[15] The results are also quantitatively and qualitatively similar if we define financial constrains based on other classifications using firm size, sales, or payout ratio.

Conclusion

This article revisits cash flow allocation decisions in unionized firms but addresses a hitherto unexplored question—how unionized firms utilize internally generated cash. Our study differs from prior studies because we adopt the system of equations developed by Dasgupta, Noe, and Wang (2011) to consider the possible interdependence of cash allocation decisions. As long as these decisions are intertemporally and cross-sectionally related, ignorance of such interdependence might result in nontrivial errors in assessing the role of labor unions in various cash flow allocation decisions. As such, this article echoes the importance of considering cash flow sensitivities in examining interrelated cash flow allocation decisions.

Based on firm-level unionization rates of Korean listed companies from 1998 to 2008, we document that when unionized firms earn a dollar increase in cash flows, they tend to allocate less cash flows to cash reserves and to the retirement of external finance than nonunionized firms do. These results are generally consistent with prior research. Strikingly, however, we find that unionized firms put a significant portion of cash inflows toward investment. The seemingly inconsistent results of investment decisions in unionized firms are in fact consistent with the view that employees are an important nonfinancial stakeholder who naturally cares about the long-term survival of the company.

Our results imply that unions whose incentives are aligned with those of bondholders can curb shareholders' wealth expropriations (Chen, Kacperczyk, and Ortiz-Molina 2012) and possibly mitigate underinvestment (Subramaniam 1996). Likewise, acknowledging that labor unions could have a dual role as collective bargaining agents and as stewards fighting for firms' survival and workers' long-term job security, our article questions earlier inferences regarding the cash flow consumption decisions of unionized firms. We call for readers' caution in interpreting prior evidence if it ignores interdependence of cash-related decisions in the analyses.

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Notes

1. *See* "Transit strike deadline: The surplus; How extra money complicates transit pay negotiations," *The New York Times*, December 15, 2005.

2. *See* "Delta tells pilots union it may seek concessions as cash dwindles," *The Wall Street Journal*, August 22, 2005.

3. We exploit Korean union data to mitigate the concerns of measurement errors in measuring unionization rates. Korean listed firms are required to report the number of union workers in their annual reports, which allows us to measure a comprehensive firm-year level unionization rates. In fact, recently, published studies using a US sample might be vulnerable to measurement errors because firm-level data of labor unions are not available in the United States. Instead, they usually rely on the industry-level unionization rate or the estimated firm-level proxies.

4. Those results are untabulated. The table will be provided upon request.

5. *See* "Investment in facilities rather than dividend; the KT labor union appeals to the management," *The Hankyoreh*, March 15, 2007.

6. *See* http://www.hhiun.or.kr/index.php?mid=Newspaper&document_srl=3342.

7. Labor unions have the ability to influence firms' decisions by threatening to withdraw their contributions to firms through work stoppages or strikes and through equity block ownership that gives them a voice in corporate governance (Agrawal 2012; Faleye, Mehrotra, and Morck 2006; Prevost, Rao, and Williams 2012).

8. Since cash outflows should be equal to cash inflows, the contemporaneous cash flow coefficients must add up to one (i.e., $b_1 + b_2 + b_3 + b_4 = 1$), which is called the "adding-up constraint" (Chang et al. 2014). Furthermore, the coefficients on any control variables must add up to zero across the four equations in this specification (Chang et al. 2014; Dasgupta, Noe, and Wang 2011; Gatchev, Pulvino, and Tarhan 2010). Since $\sum_{k=1}^{4} b_k = 1$, $\sum_{k=1}^{4} c_k = 0$, and $\sum_{k=1}^{4} d_k = 0$, the cumulative cash flow sensitivities over 3 years also add up to one.

9. While c_3 (d_3) usually represents the impact of an additional dollar of cash flows in the previous year (before 2 years) on investment in the current year, it can also be interpreted as how much the firm allocates additional one dollar of cash flows in the current year to investment in the next year (in 2 years later) (Dasgupta, Noe, and Wang 2011).

10. Due to the mandatory disclosure requirement for Korean listed firms, we are able to obtain detailed information of labor unions such as the number of male and female members, their total and average salaries, and affiliated labor unions until 2008. Since we no longer collect such information after the requirement was removed, our sample period ends in 2008.

11. Admitting to this potential limitation, some researchers have employed industry-level measures of the unionization rate based on survey data (Chen, Kacperczyk, and Ortiz-Molina 2012; Hilary 2006; Matsa 2010). For example, to measure labor strength, Hilary (2006) uses the interaction of the industry-level unionization rate (i.e., the percentage of employees in the three-digit industry who are represented by a labor union) and the firm-level labor intensity (i.e., the firm's number of employees scaled by total assets). More recently, other studies try to construct the firm-level data by aggregating establishment-level data from the Federal Mediation and Conciliation Service (FMCS), but the data are also far from comprehensive. For example, Chyz et al. (2013) identify less than 300 distinct firms from FMCS. Moreover, this "estimated" firm-level proxy for unionization rate can suffer from nontrivial measurement errors. We also note that some studies use small-sample firm-level survey data provided by Barry Hirsch as sensitivity checks (e.g., Klasa, Maxwell, and Hernán 2009). See Hirsch (1991) for more details.

12. Changes in the cutoff point do not alter the results.

13. In response to an additional dollar of operating cash flow in the current year, unionized firms repay existing short-term debt ($0.242) at first to adjust debt capacity. Then, they borrow short-term debt again in the next 2 years (i.e., $0.109 and $0.098). However, there are no significant patterns for the long-term debt financing in the next 2 years.

14. Gul and Goodwin (2010) highlight the monitoring role of short-term debt and find a negative relation between short-term debt and audit fee.

15. The results of financially unconstrained firms show that with an additional operating cash inflows in the current year, unionized firms allocate $0.401 toward investment, which is greater than the amount allocated by nonunionized firms by $0.147. Cumulative cash flow sensitivities over 3 years (*CUM-CFS*) also show that unionized firms spend more cash on investment than nonunionized firms ($0.439 vs. 0.127) do. The results of financial constrained firms are similar. Unionized firms spend $0.362 on investment in response to the cash flow shock in the current year, which is greater than the amount spent by nonunionized firms by $0.186. *CUM-CFS*s further show that unionized firms allocate more cash to investment than nonunionized firms ($0.631 vs. 0.186) do.

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Appendix

Variables	Measures
(Δ)*CASHHOLDING*	(Change in) Cash and cash equivalents scaled by the 3-year-lagged book value of total assets
INVESTMENT	Net cash flow from investing activities multiplied by (−1) scaled by the 3-period-lagged book value of total assets
EXTERNAL FINANCE	The sum of net equity issuance and net debt issuances divided by the 3-period-lagged book value of total assets, where *equity issuance* includes the sale and purchase of common and preferred stock and *debt issuance* includes changes in the current debt and long-term debt issuances and reduction
DIVIDEND	Cash dividends scaled by the 3-year-lagged book value of total assets
OCF	Net cash flow from operating activities plus the exchange rate effect divided by the 3-period-lagged book value of total assets
tobinq	The 3-year average Tobin's *Q* measured as the ratio of market capitalization plus the book value of debt to total assets
lev	The 3-year-lagged leverage computed as debt in current liabilities plus long-term debt scaled by total assets
zscore	The 3-year-lagged financial distress measure following Altman (1968): *Z-score* = 1.2 × (current assets − current liabilities)/total assets + 1.4 × retained earnings/total assets + 3.3 × (pretax income + interest expenses)/total assets + 0.999 × sales/total assets
size	The 3-year average of the logarithm of total assets
d_rating	An indicator variable set to 1 if a firm has credit rating in any of the years $t-2$, $t-1$, or t, and 0 otherwise
ret_vol	The 3-year average of standard deviation of daily stock returns for the years $t-2$, $t-1$, and t
stock_turn	The 3-year average of stock turnover for the years $t-2$, $t-1$, and t measured as the mean monthly volume over a fiscal year divided by the mean share outstanding over a fiscal year
ret	The 3-year average of annual compounded monthly stock returns for the years $t-3$, $t-2$, and $t-1$
d_union	An indicator variable set to 1 if some employees are union members, and 0 otherwise
r_union	The ratio of the number of union members to the number of total employees
roa	Income before extraordinary items scaled by the lagged total assets
tang	Tangibility, PP&E divided by total assets
sg	Sales growth, changes in sales divided by the lagged sales