

The Impact of XBRL Adoption on Corporate Dividend Policy: Evidence from Korean Firms

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Abstract

Background/Objectives: The objective of this paper is to examine the impact of XBRL adoption on corporate dividend policy using a sample of Korean firms. **Methods/Statistical Analysis:** We use logistic regressions with a binary dependent variable, XBRL dummy, to investigate the relation between XBRL adoption and the likelihood of paying dividends. We also employ fixed effects panel regressions with dependent variables, dividend payout, dividend yield and dividend to assets, to examine the influence of XBRL adoption on the level of dividends. **Findings:** Our findings are as follows. First, for the logistic regression, we find that XBRL adoption is negatively related to the likelihood of paying dividends, indicating that firms are less likely to pay dividends after XBRL adoption. Second, for the fixed effects panel regression, we find a negative relation between XBRL adoption and the level of dividends, suggesting that firms pay lower dividends after XBRL adoption. **Improvements:** This study extends prior studies that XBRL adoption can mitigate a firm's information asymmetry in the perspective of corporate finance. This study also contributes to the literature on dividend policy by providing evidence that XBRL adoption affects corporate dividend policy. Overall, the result suggests that the XBRL plays a role in the determination of corporate dividend policy.

Keywords: Corporate Dividend Policy, Dividend, Signaling Theory, Financial Reporting Information Asymmetry, XBRL

1. Introduction

Financial reporting disclosure is important to firms, investors, auditors, and regulators because it can affect capital market through the accounting policies and the disclosure requirements. In particular, high-quality financial reporting helps market participants, including investors, to access better financial information and thus to more properly judge the quality of firms. XBRL is a web-based reporting and disclosure technology and an Internet-based language used for filing a firm's financial statements. XBRL enables users, including investors, financial analysts and governments, to easily extract, use and analyze firms' financial data in a matter of minutes. The U.S. Securities and Exchange Commission (SEC) claim that XBRL improves a firm's financial reporting environment and enhance information efficiency^{1,2}.

Prior literature examines various aspects of the XBRL, such as, the impact of XBRL³⁻⁷, the characteristics

of XBRL-tagged data⁸. In the context of information asymmetry, we investigate the impact of the adoption of XBRL. Our study contributes to the literature that explores whether XBRL adoption can affect the asymmetry information between managers and shareholders.

So far, prior studies show that XBRL adoption mitigates information asymmetry. However, these studies do not adequately discuss the impact of XBRL adoption in the perspective of corporate finance in more depth. Extending these prior studies to the area of corporate finance, this paper examines the impact of XBRL adoption on corporate dividend policy. The question of why a firm pays its dividends has been a puzzle in corporate finance. There are several competing theories regarding dividend policy. Among these theories, the dividend signaling theory proposes that firms pay dividends to signal information concerning about its future cash flows, suggesting that firms facing information asymmetry pay a higher level of dividends. Several studies on the dividend signaling theory

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examine whether information asymmetry is related to the level of dividends. For example, one study⁹ uses returns from insider trading as a proxy for information asymmetry. Similarly, using financial analysts' earnings forecast errors; another study¹⁰ investigates the effect of information asymmetry on the level of dividends. Unlike previous studies, we focus on the impact of XBRL that is effective in reducing information asymmetry in the determination of corporate dividend policy.

Since October 2007, Korean companies that are listed on the Korean Exchange (KRX) adopt XBRL. This study analyzes the effect of the adoption of XBRL on the likelihood of paying dividends or the level of dividends. Specifically, we regress on indicator variable for whether a firm pays its dividends, dividend payout, dividend yield, and dividends to total assets, as each dependent variable, respectively, after controlling for leverage, profitability, inside ownership, cash flow volatility, firm size, and growth opportunities. We also consider year fixed effects. Using a logit model, we find that the coefficient on the XBRL dummy is negative and significant ($p < 0.01$). Furthermore, the results from the fixed effects panel regressions shows that the coefficient on the XBRL dummy is negative and significant. Taken together, these findings indicate that the likelihood of paying dividends and the level of dividends decrease after a firm's XBRL adoption compared to the before its XBRL adoption. Overall, our findings suggest that XBRL adoption mitigates information asymmetry between managers and investors, and as a result, a firm is less likely to pay dividends.

The paper proceeds as follows. In Section 2, we review prior literature and develop a hypothesis. Section 3 describes sample selection and empirical methodologies. In Section 4, we present empirical results. Section 5 concludes the paper.

2. Prior Literature and Hypothesis Development

XBRL not only increases the usefulness of financial data, but also improves the quality of financial reporting information¹. XBRL can also enhance the financial disclosure environment in the stock market by providing high quality information to relevant investors. A higher level of corporate financial disclosure can reduce information asymmetry¹¹⁻¹³.

Using a sample from Korean stock market, one study² investigates whether XBRL adoption mitigates information asymmetry. They find a negative and significant relation

between XBR Ladoption and information asymmetry, suggesting that firms can reduce information asymmetry by introducing XBRL. Another study⁵ examines whether mandatory XBRL disclosure can affect the financial information environment. They document that XBRL mandatory filing significantly reduces information asymmetry. More recently, one study¹ investigates the relation between XBRL and information efficiency. They provide evidence that the use of XBRL can enhance information efficiency in the capital market. Taken together, the findings from prior studies suggest that firms mitigate information asymmetry through the introduction of XBRL.

The dividend signaling theory suggests that, in a situation of information asymmetry, firms pay dividends to convey their private information about their true values¹⁴⁻¹⁶. According to the theory, firms with severe information asymmetry or with limited ways of mitigating asymmetric information are more likely to pay its dividends compared to counterparts. These firms may become undervalued in a capital market due to their information asymmetry and thus likely increase dividends to address the undervaluation problem. The dividend signaling theory implies that information asymmetry is positively related to the level of dividends.

In October 2007, Korea mandated that firms listed on the Korean Exchange (KRX) adopt XBRL for financial reporting. Since Korea has highly advanced technologies and Internet penetration rates, the XBRL adoption can facilitates investors to better acquire financial information in real time. It implies that Korean public firms mitigate information asymmetry through the adoption of XBRL. Therefore, we predict that the level of dividends decreases after the XRL adoption. This is because information asymmetry between managers and shareholders decreases due to XBRL adoption. The prediction is consistent with the dividend signaling theory.

3. Research Design

3.1 Model Specification and Variables

As noted earlier, we examine the relation between XRL adoption and the likelihood of paying dividends and the level of dividends. To this end, we estimate the following regression model:

$$Dividendproxies_{it} = f(XBRL_{Dummy_{it}}, Controls_{it}) + \varepsilon_{it}$$

In the model, we use each of four dividend proxies, such as dividend dummy, dividend payout, dividend yield, and dividend to asset, as a dependent variable. For the dividend dummy, we set the value of the indicator variable to one if a firm pays dividends and zero otherwise. Likewise, we use dividend payout ratio and dividend to total assets to capture the level of dividends as dividend proxies. For the XBRL dummy, we consider a situation in which Korean public firms adopt the XBRL in October 2007 and thus assign the XBRL dummy variable to one during the period after the adoption of XBRL (e.g., after the fiscal year 2007) and zero otherwise. If our hypothesis holds, then we expect a positive coefficient on the XBRL dummy.

Furthermore, based on previous studies, we include control variables, such as leverage, profitability, insider ownership, cash flow volatility, turnover ratio, firm size, and growth opportunity. As one study points out¹⁷, when firms finance with debt, managers are likely to face more monitoring from external stakeholders, such as banks, credit rating agencies, and financial analysts. In this situation, the agency costs between shareholders and managers can be reduced. Thus, firms may pay less dividends because they have less incentive to use dividend policy as mechanism for managerial monitoring. Furthermore, for the debt financing, debt holders can impose debt covenant that restricts the level of dividend payments. Thus, we expect negative relations between leverage and the likelihood of paying dividends and the level of dividends. We measure leverage as the ratio of total debt to total assets.

Prior literature documents a positive relation between profitability and the level of dividends^{18,19}. Firms with higher profitability are likely to pay more dividends due to high earnings generated in the current period. We measure profitability as the ratio of Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) to total assets.

When managers have certain levels of ownership, they tend to seek their private interests. When insider ownership low, firms can use dividends as corporate governance devices. In a situation when insider ownership is less than the level of managerial entrenchment, the cost of equity would increase as the insider ownership becomes lower. Thus, it may be needed to strengthen monitoring from the capital market by increasing dividends. In contrast, higher insider ownership can help align the interests between managers and external shareholders,

thereby reducing the cost of equity. Thus, firms may be less likely to pay dividends. Based on this logic, we expect that insider ownership is negatively related to the level of dividends. In the case of Korea, controlling shareholders exercise significant power in the stock market. We measure insider ownership as the ratio of the number of shares owned by the controlling shareholders to total shares outstanding.

In general, external financing is costlier than internal financing due to transaction costs. A firm that needs external financing due to its high uncertainty of future cash flow is likely to prefer internal financing by lowering the level of dividends. Thus, we expect a negative relation between cash flow volatility and the level of dividends as in the study²⁰. We use stock return volatility as a proxy for cash flow volatility. The stock return volatility is calculated as the annualized standard deviation of the stock return.

When stock market liquidity is high, investors can more easily realize capital gains as a substitute of dividends through their stock trading. As a firm's trading volume and trading turnover become high, it prefers homemade dividends to actual dividends. Hence, we expect a negative relation between trading turnover and the level of dividends. We measure trading turnover as the ratio of yearly average trading volume to total shares outstanding.

Several studies show that large firms are likely to pay more dividends²¹. Large firms actively have external financing because of lower transaction costs related to stock issuance. Thus, we expect that firm size is positively related to the level of dividends. We calculate firm size as the logarithm of total assets.

One study²² finds a negative relation between growth opportunities and dividend payments. Firms with high growth opportunities tend to increase financing for future investments and retain its earnings to use as internal financing. On the other hand, another study¹⁸ shows that firms with low growth opportunities are likely to pay dividends. We proxy for growth opportunities using the ratio of the sum of the market value of equity and the book value of total liabilities to the book value of total assets.

Finally, after the global financial crisis of 2008, the financing environment of firms deteriorates. For this reason, firms conservatively implement their dividend policy. Thus, to control for this situation, we include year dummy variables in the regression model.

3.2 Data and Descriptive Statistics

Annual financial data comes from KIS-Value Database. The database is provided by Korea Investors Service (KIS). Our sample period is from 2005 to 2011. We restrict the sample to all non-financial companies listed on the Korea Exchange (KRX). We also use firms with fiscal year-ends in December. We exclude firms that have impaired capital, supervised issues and qualified audit opinions, or are involved in mergers and acquisitions (M&A). We also delete firm-years with missing data for any of the variables. Our final sample contains 579 firms and 3,690 firm-years between 2005 and 2011.

Table 1 reports the descriptive statistics for the sample and the mean difference between pre- and post-XBRL adoption. Panel A shows that the mean of the dividend payout ratio is about 0.233, indicating that Korean firms pay 23 percent of their net income as dividend payment. Furthermore, one study reports that the payout ratios of firms in Australia, France, Germany, UK, and USA are 0.386, 0.257, 0.259, 0.253, and 0.094, respectively²⁰. Like firms in these countries, Korean firms have similar payout ratios. Furthermore, the control variables, such as leverage, profitability, insider ownership, cash flow volatility, turnover ratio, firm size and growth opportunity, are evenly distributed between the top and bottom of the 5 percent, centered at mean. This means that there is no problem regarding these variables.

Panel B shows the mean and median of four dividend proxies corresponding to the pre- and post- XBRL adoption. The mean and median have consistently declined after XBRL adoption compared to before XBRL adoption. Figure 1 visually depicts the pattern of mean and median. Figure 1 shows the pattern of yearly median dividend payout ratio in Korean firms. As shown in the Figure 1, the payout ratio, on average, has significantly decreased after 2007. More specifically, the average payout ratio consistently remains at about 17 percent from 2005 to 2007, but the percent falls by 12.5 percent after 2007 and thereafter keeps the low level.

Table 2 presents Pearson correlations among variables. As expected, the relation between each dividend proxy and control variables is consistent with our predictions and statistically significant. Notably, we find a negative and significant ($p < 0.01$) correlation between the XBRL dummy and each dividend proxy. This correlation implies that after XBRL adoption, a firm's payout ratio has decreased as its information asymmetry declines. Due to

Table 1. Descriptive Statistics

Panel A: Descriptive Statistics

Variables	Mean	Std. Dev.	5%	Median	95%
Dividend dummy	0.708	0.455	0.000	1.000	1.000
Dividend payout	0.233	0.318	0.000	0.141	1.000
Dividend yield	0.023	0.044	0.000	0.013	0.065
Dividend to asset	0.005	0.010	0.000	0.006	0.026
XBRL dummy	0.597	0.491	0.000	1.000	1.000
Leverage	0.440	0.191	0.125	0.448	0.753
Profitability	0.073	0.067	-0.027	0.069	0.195
Insider ownership (%)	41.866	16.312	15.620	41.88	70.000
Cash flow volatility (%)	49.413	17.015	26.138	46.520	83.574
Turnover ratio	0.149	0.244	0.008	0.065	0.643
Firm size (billion won)	1,667	6,056	46	261	7,257
Growth opportunity	1.037	0.493	0.536	0.905	2.047

Panel B: Differences in Mean and Median between Pre- and Post-XBRL Periods

Variables	Pre-Adoption		Post-Adoption		Test of Mean Differences (t-value)
	Mean	Median	Mean	Median	
Dividend dummy	0.747	1.000	0.681	1.000	4.34***
Dividend payout	0.257	0.175	0.216	0.120	3.83***
Dividend yield	0.030	0.015	0.018	0.012	7.70***
Dividend to asset	0.009	0.007	0.007	0.004	5.76***

*** indicate statistical significance at the 0.01 level (two-tailed).

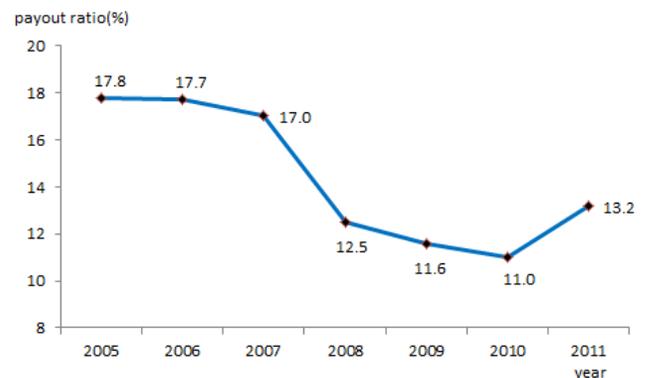


Figure 1. Trends in median of dividend payout ratio across years.

the limitation of the univariate analysis, we further run a regression model, after controlling for previously identified determinants affecting dividend payments such as leverage, profitability, cash flow volatility, turnover ratio, firm size, and growth opportunity.

4. Empirical Results

We examine the impact of XBRL adoption on corporate dividend policy. All continuous variables are winsorized

Table 2. Correlations

XBRL dummy	Dividend dummy	Dividend payout	Dividend yield	Dividend to asset
XBRL dummy	-0.071***	-0.063***	-0.126***	-0.094***
Leverage	-0.288***	-0.125***	-0.092***	-0.328***
Profitability	0.382***	0.003	0.128***	0.501***
Insider ownership	0.108***	0.077***	0.066***	0.049***
Cash flow volatility	-0.349***	-0.150***	-0.172***	-0.282***
Turnover ratio	-0.240***	-0.099***	-0.002	-0.152***
Firm size	0.229***	0.022	-0.107***	0.073***
Growth opportunity	-0.057***	-0.080***	-0.130***	0.279***

*** indicate statistical significance at the 0.01 level (two-tailed).

at the 1 percent and 99 percent levels. Furthermore, we use robust-standard errors²³.

Table 3 reports the results of logistic regressions with a dependent variable, dividend dummy, and fixed effects panel regressions for dividend payout, dividend yield, and dividend to asset. We find a negative and significant coefficient on the XBRL dummy in all regression. The result reported in the logit model shows that the coefficient on the XBRL dummy is -0.483, indicating that when a firm adopts XBRL, the logarithm of the odd ratio showing the ratio between the probability of paying dividends and that of not paying dividends has decreased by 0.483. In other words, this result indicates that the likelihood of paying dividends when a firm adopts XBRL is less than when a firm does not adopt XBRL. The result from the fixed effects panel regression shows that, for the dividend payout as a dependent variable, the coefficient on the XBRL dummy is -0.053, which indicate that a firm's payout ratio, on average, decreases by around 5.3 percent points after a firm's XBRL adoption compared to the before its XBRL adoption. Likewise, for the dividend yield as a dependent variable, the estimated coefficient on the XBRL dummy is -0.015. It demonstrates that a firm's dividend yield, on average, decreases by about 1.5 percent points after XBRL adoption. This result indicates that the value of investment strategy considering dividends has significantly declined after XBRL adoption compared to before. These findings

Table 3. Effect of XBRL adoption on corporate dividend policy

	Exp. Sign	Logit	Fixed-Effects		
		Dividend dummy	Dividend to Net Income	Dividend to Market Price	Dividend to Asset
XBRL dummy	-	-0.483*** (-2.90)	-0.053** (-2.47)	-0.015*** (-5.50)	-0.001** (-2.24)
Leverage	-	-3.695*** (-12.50)	-0.189*** (-3.30)	-0.006 (-0.70)	-0.011*** (-7.58)
Profitability	+	15.601*** (14.58)	-0.770*** (-6.36)	0.090*** (5.88)	0.036*** (11.65)
Insider ownership	-	0.007** (2.27)	0.002** (2.10)	-0.000 (-0.17)	-0.001** (-2.48)
Cash flow volatility	-	-0.022*** (-6.42)	-0.001* (-1.90)	-0.001*** (-3.99)	-0.000 (-0.45)
Turnover ratio	-	-0.159 (-0.76)	0.048* (1.84)	0.010 (1.54)	-0.001 (-1.08)
Firm size	+	0.428*** (10.44)	0.050** (2.12)	-0.004 (-1.53)	-0.001 (-0.94)
Growth opportunity	-	0.745*** (-6.20)	0.001 (0.05)	-0.014*** (-8.21)	0.003*** (6.54)
Year dummies		Yes	Yes	Yes	Yes
Pseudo R ²		0.339			
Adjusted R ²			0.326	0.370	0.759
Number of obs		3,690	3,690	3,690	3,690

***, **, * indicate significance at the 0.01, 0.05 and 0.10 levels, respectively. Numbers in parentheses are t-value based on White's standard errors.

of the decrease in the likelihood of paying dividends and the level of dividends support my hypothesis that XBRL adoption mitigates information asymmetry, and, as a result, firms pay less dividends.

Furthermore, we find that the coefficients on leverage and cash flow volatility are negative and significant, consistent with our predictions. As we discussed earlier, a firm with high leverage tends to face more monitoring from outsiders and thus may have less incentive to utilize dividend policy as a managerial monitoring device. In addition, debt holders can impose a debt covenant that limits the level of dividends paid. Thus, we predict a negative relation between leverage and the level of dividends. Furthermore, the negative relation between cash flow volatility and the level of dividends indicates that, in a case of firms that need external financing due to uncertainty of future cash flow, such firms seek to use internal financing by reducing the level of dividends. Lastly, the estimated signs of other control variables, such as profitability, insider ownership, turnover ratio, firm size, and growth opportunity, are inconsistent pattern in all regressions, but are statistically significant.

5. Conclusion

This study extends prior studies that XBRL adoption can mitigate a firm's information asymmetry in the perspective of corporate finance. Prior studies argue that firms can reduce information asymmetry by adopting XBRL. According to the dividend signaling theory, a firm pays dividend to convey information about its future cash flows, suggesting that firm with higher information asymmetry pay more dividends. In line with the theory, we assert that if XBRL is effective in reducing a firm's asymmetric information, its dividend payments are expected to decrease.

We examine the relation between the XBRL dummy and the level of dividends, after controlling for leverage, profitability, cash flow volatility, turnover ratio, firm size, and growth opportunities. We find that the XBRL dummy is negatively related to each dividend proxy in all regression models. These findings indicate that the level of dividends decreases after XBRL adoption, which is consistent with the dividend signaling theory. Overall, our study contributes to the literature on dividend policy by providing evidence that XBRL adoption affects corporate dividend policy.

6. References

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