

Article

# Foreign Monitoring and Predictability of Future Cash Flow

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**Abstract:** A company's sustainability is generally determined by whether it is able to create a positive long-term cash flow. This paper investigates whether the predictive ability of cash flows and earnings in forecasting future cash flows differs depending on the foreign investors' ownership. Based on firms listed in the Korea Stock Exchange market from 2000 to 2017, we find that earnings and cash flow components of financial statements enhance the predictability of future cash flow in the Korean stock market. Conversely, foreign investors showed a tendency to decide on investments based on operating cash flow instead of earnings when predicting future cash flow. These findings indicate that reliability towards earnings may fall since foreign investors' concerns are on the prospects of earnings management. These results were strengthened by the addition of several more analyses including cluster analyses, consideration of information asymmetry and the chaebol governance.

**Keywords:** foreign investors' ownership; earnings; cash flows; predictability of future cash flows

## 1. Introduction

Cash flow is paramount to the growth and sustainability of a business. Though impressive revenues give the appearance of financial health, they can be misleading. A company may well go out of business despite reporting positive revenues, because cash is usually needed in order to buy materials or pay operating expenses such as lease and labor. Even if a business earns a profit, it may be unable to grow without cash. If a company is unable to replenish inventory, it will not be able to generate new sales. This, in addition to an inability to afford operating expenses, would likely repel potential investors and limit financing. Without cash, a business cannot survive.

The sustainability of a company is often determined by its ability to generate a positive long-term cash flow, with inflows exceeding outflows in the long term. By delaying payment of debts or judiciously allocating resources, companies can survive for a short length of time despite making a loss but in the long term, companies must earn enough cash to meet its needs. Therefore, cash flow management is vital to sustaining a healthy business. The most common cause of bankruptcy is a failure to repay debts. The prospect of insolvency should encourage caution regarding a company's management of cash, as effective cash flow management not only helps to prevent bankruptcy but also enhances the financial outlook and sustainability of a business [1].

By analyzing financial reporting of Korean-listed companies, this paper reexamines the ability of earnings and operating cash flows to accurately predict future cash flows. Furthermore, this study examines external monitoring by foreign investors and analyzes the potentially mitigating effect those investors have on the agency problem regarding the corporate forecasting of future cash flow. One of the most fundamental functions of financial reporting is to forecast the timing, size and volatility of future cash flows. Financial statements are generally considered to be the most important source of future cash flow predictions. There has been a great deal of literature written on the effectiveness of earnings as a measure of company performance but when it comes to predicting future cash flow,

current cash flow is an equally important measure. Cash flow statements show the amount of money that goes into and comes out of a company over a specific period of time and they are prepared using cash-based accounting rather than the accrual-based accounting used to prepare the income statements that show earnings. Investors examining a company may prefer to analyze current cash flow over earnings, because earnings, which are more prone to manipulation, do not always accurately represent a firm's condition, as demonstrated by firms such as Enron and WorldCom. Cash flow statements, on the other hand, show the amount of actual cash a company has generated as well as its capability to meet its liabilities, which makes them crucially important to investors and debt holders.

Prior research shows that cash flow is more predictive of future cash flow than earnings [2,3] and Sloan [4] supports this idea by finding that cash flow is more persistent and therefore more predictive, than accruals. However, other studies find that accrual accounting alleviates some fluctuations in cash flow, which can be useful when evaluating a company [3,5,6]. This claim is backed up by Dechow [5] and Dechow et al. [6], who find that accrual accounting can enhance the accuracy of the valuation of a company by reconciling some matching and timing issues related to cash flow. The conceptual foundation of the Financial Accounting Standards Board (FASB) also assumes the primacy of accrual-based accounting (FASB, 1978).

The FASB has suggested that financial reporting can be helpful in predicting future cash flow (FASB, 1978). According to the FASB, the main purpose of financial statements is to provide investors, creditors and anyone otherwise interested in the financial health of a particular company with information with which they can assess the amount and timing of future cash flow, which is most accurately predicted by earnings (FASB, 1978). The basis of this claim may lie in the theory that accrual-based accounting of earnings mitigates matching and timing issues inherent in cash-based accounting [7]. Though a number of past studies have been conducted on the relative effectiveness of current cash flow versus current earnings in predicting future cash flow, those studies have mainly examined data from companies based in the United States. Later, Garrod and Hadi [8] and Al-Attar and Hussain [9] conducted similar studies using data from companies based in the United Kingdom. More recently, studies have been conducted using data from a number of other countries, such as Australia [10], Tunisia [11], Spain [12], India [13] and Nigeria [14]. Still, in regard to the effectiveness with which various aspects of financial reporting can be used to predict future cash flow, there has been little research done using data from companies based in emerging markets such as South Korea.

South Korea is an emerging market that, as of 2017, boasts the 12th-highest GDP in the world despite recently weathering two significant outflows of foreign capital—the 1997 Asian crisis and the 2008 global financial crisis [15]. The Korean stock market began liberalization in early 1992. The Korean economy was restructured following the 1997 Asian crisis and the ensuing International Monetary Fund bailout in May of 1998, which lifted most restrictions on foreign ownership. As other emerging markets started to open to foreign investors over the past two decades, the behavior of those investors has been studied from many angles. Recent studies have found that, in developing countries, stock market liberalization can improve investment and economic growth [16,17], pacify the volatility of stock returns, boost prices of information-efficient stocks [18,19] and promote transparent and well-run companies [20,21]. With this in mind, the Korean market serves as a good case study in the effects foreign investors have in emerging markets.

This paper compares two bases of future operating cash flow prediction—accrual-based earnings and operating cash flow. More precisely, this study investigates the differences in predictive abilities of earnings versus operating cash flow in regard to future cash flow as well as the investment patterns of foreign investors. The main finding of this study is that current earnings and cash flow information enhance the predictability of future cash flow. However, the presence of foreign investors noticeably enhances the predictability of future cash flow by emphasizing the analysis of operating cash flow rather than earnings when making investment decisions. The results of clustering analyses are consistent with the main results suggesting that the relationship between current operating cash flow, current earnings and future operating cash flow was still significant after controlling for the robustness.

Furthermore, this study finds that the effect of foreign investors' preference for operating cash flow to the prediction of future cash flow is more significant in chaebol governance mechanism and it is more pronounced in environments where monitoring is unobstructed by information asymmetry.

This study contributes to the literature by providing noteworthy implications. First, this study proves that it may be hasty generalization to consider accounting earnings as the solely critical factor for investment decision-making of market participants as suggested in prior studies. It is essential to bring in a fresh perspective through on this phenomenon through future cash flow predictability. As professional investors, foreign investors utilize current operating cash flow as the key investment decision-making factor when considering future cash-flow predictability. Another significant finding was that foreign investors preferred operating cash flow than accounting earnings of financial statements when making decisions on investment. This indicates the importance of exploring the tendency and investing behaviors of foreign investors in view of future cash flow when conducting research connected with foreign investors.

Second, this study adds to the preexisting literature by connecting the monitoring and investing techniques of foreign investors to the quality and utility of financial reporting. Other studies have found positive effects of foreign investors, including the reduced cost of capital [22], the promotion of investment in research and development [23], the positive spillover effect [24,25] and the instigation of changes in the corporate governance of domestic firms [26,27] but by testing only the relationship between variables connected to foreign investors and various other variables, these studies only provide superficial findings. However, this paper attempts to more substantially determine the role foreign investors play in recognizing the managerial agency problem, thereby making future operating cash flow more predictable.

Finally, this study enhances understanding of the quality investing and effects of monitoring by foreign investors have on earnings management. The findings of this study suggest that the effect foreign monitoring has on the predictability of future cash flow is negatively correlated with information asymmetry and is more pronounced in chaebol governance systems. Further, the differences in various effects are determined by the examination of cross-sectional variations in the relationship between foreign ownership and cash flow predictability. The monitoring environment is also considered during the analysis, which allows for the identification of influences on those cross-sectional variations and ultimately suggests that the effectiveness of foreign investing is determined by the degree of transparency of the environment in which the foreign investor is operating.

This paper is organized in five sections—Section 2 explains the theoretical basis of the study and proposes the hypotheses, Section 3 describes the design of the research and the sample selection process, Section 4 presents the empirical results and Section 5 offers the conclusions.

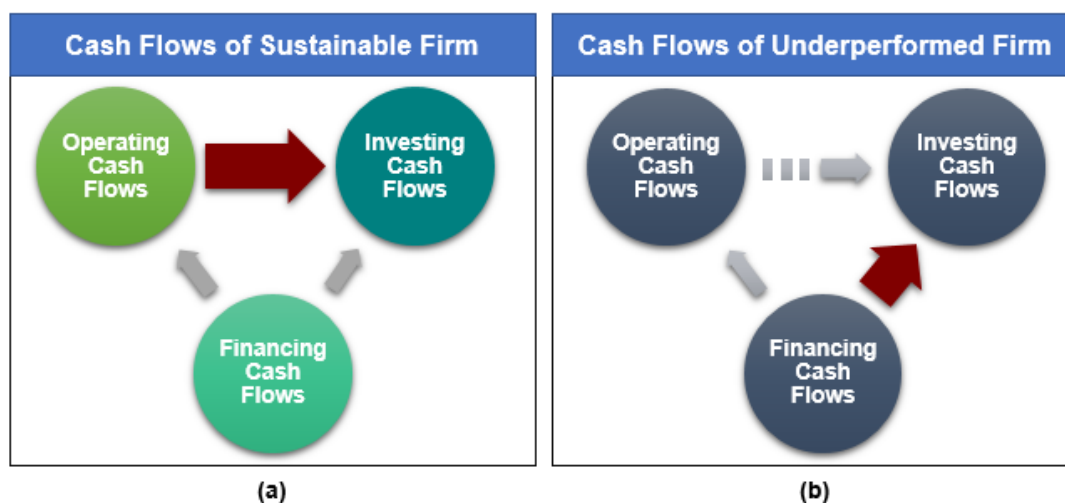
## 2. Related Research and Hypothesis Development

### 2.1. Prior Research on Predictability of Future Cash Flows

Cash sustains businesses and if it is not produced through normal operation, the sustainability of the company is at risk. Stable and sustainable companies (Figure 1a) do not invest more cash than they generate through normal operations. However, financially unhealthy companies (Figure 1b), invest more cash than they generate, thereby necessitating external fundraising. Those companies will be incapable of maintaining operation while also repaying their debts and will ultimately go bankrupt. Therefore, the financial health of a company and the sustainability of profits can be more accurately determined by examining the sources of cash inflows and outflows in financial reporting. A company's ability to generate positive cash flows is inextricable from its ability to sustainably generate value for its shareholders.

Since the FASB issued its statement regarding the primary objective of company-published accounting data in 1978, many empirical studies have focused on future cash flow prediction across various economies. The FASB (1978) postulated that accruals information, when combined with cash flow data, offer an additional measure of insight into future cash flows. As Dechow [5] and Dechow et al. [6] find, accrual-based accounting can reduce the inevitable matching and timing issues

found in cash flows over short timespans. This suggestion instigated a series of studies that sought to determine the role accrual-based accounting plays in the prediction of future cash flows.



**Figure 1.** (a) Cash flows of sustainable firm (b) Cash flows of an underperformed firm.

An early study that looked at a sample of 157 industrial companies based in the United States from 1963 to 1982 found that, regarding future cash flows, earnings were more predictive than current cash flows [28]. More than a decade later, Dechow et al. [6] supported this claim when they developed a model which suggests current earnings are more effective than current cash flow in the prediction of future cash flows and furthermore deduce that, since earnings are simply cash flow plus accruals, the superiority of earnings-based predictions must be attributed to accruals. Using a sample of 4397 Spanish companies from 1997 to 2001, Arnedo et al. [12] find that the earnings model produces a lower prediction error than the cash flow model, supporting the FASB's claim that the earnings model is more sustainable due to its accurate prediction of future cash flows.

Prior studies show that if the results of accrual-based accounting, when compared to those of a projection based on past cash flow, are nearer to actual future cash flows, then the enhanced accuracy must be attributed to the accrual base. Indeed, any additional operational information provided by earnings that is not provided by cash flow is a result of the accrual adjustment process, which converts cash flow into earnings [29]. It is with this in mind that Ali [30] examined the non-linear informational relationships between share returns and three variables—earnings, working capital and operating cash flow. The study shows that the incremental information in those variables proves their connection to returns, though when unusually high, operating cash flow does not provide incremental information [30].

On the other hand, several tests suggest the opposite. In testing the relationship between earnings and different cash flow measures, Bowen et al. [31] find that though traditional measures (i.e. net income plus amortization and depreciation and net income plus amortization, depreciation and variations that do not have an effect on working capital) are highly correlated with earnings, alternative measures are not. The authors also determine that traditional cash flow measures are in fact the most effective and sustainable component of financial statement at predicting future cash flow. Similarly, when examining the predictive ability of earnings, Finger [32] found that, though earnings and cash flow were relatively equally predictive of long-term future cash flow, cash flow is more predictive in the short term.

Furthermore, in a study of 323 companies listed on the Australian Stock Exchange between 1992 and 2004, Farshadfar et al. [7] find that, while current cash flows can effectively predict future cash flows for companies of all sizes, the effectiveness is positively correlated with the size of the company. In one of the few Korean studies, Park et al. [33], looking at 11,696 non-banking firm observations

between 1983 and 2009, found that, though current earnings were more predictive than current cash flow in regard to future cash flow in the 1980s, the opposite has been true since the 1990s.

In studying the relationship between share prices, a proxy for future cash flows and the information within accruals, earnings and cash flows, Sloan [4] finds that share prices are fully affected by that information only after it impacts future earnings. Furthermore, it appears that investors focus on earnings without differentiating between cash flow and accruals, the latter being less persistent than the former in relation to earnings. In the end, Sloan [4] finds that the behavior of investors is not irrational and does not see unrealized opportunities for profit, despite the fact that share prices do not completely express all available information.

Ultimately, though the purpose of accounting information is to assist with sustainable investment-related decisions, the ability of cash flows and earnings, both in general and relative to each other, to predict future cash flows remains unsettled.

## 2.2. Foreign Investors' Monitoring

As emerging markets have become liberalized, the behavior of foreign investors has been the subject of a significant amount of research and analysis. It is critical for emerging markets to attract foreign investors in order to improve the liquidity of individual companies as well as the market as a whole and thanks in part to the elimination of restrictions on foreign equity ownership following the 1997 Asian financial crisis, foreign investment in Korean markets has steadily increased. By the end of 2000, foreign equity in Korean firms had increased by 30.0% and climbed to 42.0% by then end of 2004 and though foreign ownership dipped in the following years, it still accounted for 31.2% of the total market value as of the end of 2010 (Korea Exchange 2010). This suggests that foreign investment remains vital to the Korean stock market.

Previous studies, such as those conducted by Mikkelsen and Ruback [34], Rosenstein and Wyatt [35], Barclay and Holderness [36], Becker et al. [37] and Weisbach [38], find a positive relationship between foreign investment and performance of firms. This finding is the foundation of the efficient monitoring hypothesis, which posits that foreign investors are better equipped to collect, process and trade private company information [39,40]. Foreign investors are generally sophisticated institutional investors, especially foreign investors who focus on emerging markets and the experience and expertise they have gained from previous trading provides them with more refined research techniques and more capital than domestic investors [41,42]. As Kim and Verrecchia [43] put it, these foreign investors are "elite information processors," and their acumen positively influences emerging markets by spreading productivity as well as improvements in technology.

Foreign institutional investors also provide emerging markets with enhanced monitoring [44]. This monitoring can either be direct (influencing management decisions through voting rights) or indirect (threatening to sell shares) and Gillian and Starks [26] find that either form of monitoring by foreign investors spurs improvements in corporate governance systems. Chien [45] and Aggarwal et al. [20] also find that foreign investors can improve a firm by pressuring the board to hire a sufficient number of independent directors. Furthermore, many foreign investors are privy to additional corporate information, because they employ private analysts to gather data on firms in their portfolios as well as those which may be potential investment opportunities [46]. That information is used to determine such things as the technological capabilities of a company, a product's market share and the intrinsic value of a firm's earnings forecast. Analysts who work for foreign investors also maintain intimate relationships with managers, especially managers of companies in which the investor has invested a substantial amount of money and through those relationships the analysts essentially monitor the investing, operating and financing decisions made by those managers as well as the outcomes of those decisions [46].



### 2.3. Hypothesis Development

One of the most important functions of a financial statement is assisting in the prediction of a firm's sustainable future cash flow and though a considerable amount of research has been conducted on the subject, questions remain as to whether cash flows or accrual-based earnings are more predictive of future cash flows. Furthermore, the relative effectiveness of earnings and cash flows in predicting future cash flows in emerging markets has been largely ignored. This paper contributes to the ongoing debate through the examination of monitoring by foreign investors in order to determine its effect on the predictability of future cash flows. Based on the following, it is predicted that the proportion of foreign ownership of a firm will be directly connected to the degree to which that firm accurately predicts future cash flows based on either earnings or cash flows.

Standard setters such as the FASB assert that accrual-based earnings are better indicators of a firm's ability to generate future cash flow than information limited to previous cash flows (FASB, 1978). Accrual-based earnings are considered an indicator in this regard because earnings are believed to mitigate matching and timing issues inherent in cash flow data [5]. However, due to the assumptions on which their determinations are based, accruals are often distorted by measurement errors which deteriorates the ability of earnings to predict sustainability. Generally Accepted Accounting Principles also grant management a degree of discretion in the amount and nature of information disclosed in financial reporting of earnings, such as the recognition of expenses and revenues, write-downs of assets and the adjustment of depreciation schedules. Foreign monitoring by institutional investors can alleviate these problems of opportunistic reporting of unsustainable earnings by enhancing discipline within a firm, which ultimately increases the transparency of financial statements. Since they are generally less socially and personally connected with domestic corporate insiders, foreign investors may also be better equipped or positioned than domestic investors to oversee management and affect sustainable decision making. At the same time, that discipline and transparency may act as deterrents for managers who manipulate earnings and thereby deteriorate sustainability, therefore diminishing entrenchment. For these reasons, this paper predicts a positive correlation between foreign ownership and the degree to which earnings predict future cash flows.

It is important to remember, however, that investors are not the only users of financial information [47]. Creditors, for example, also utilize financial information and their focuses and goals may be different than those of stock investors. Since, as S&P explains, "Interest or principal payments cannot be served out of earnings, which is just an accounting concept," earnings are seemingly disregarded in the rating process, whereas the analysis of cash flow is generally the primary factor in credit decisions (S&P, 2006). This seemingly indicates that cash flow is more illuminating than accrual-based earnings when attempting to determine the future cash flow of a firm. Since stock market participants seemingly fixate on total earnings while ignoring differences in accruals and cash flows, it is unclear whether the superior predictive ability of earnings, which is supported by a number of studies, occurs as a result of an actual correlation or simply because earnings affect the behavior of stock market participants more than cash flows affect behavior [4]. Some studies, however, show that fluctuations in cash flows can affect the sustainability of future cash flows [3,5,6]. Others conclude that cash flows cannot be considered value attributes because they do not account for investments in operating assets [48]. With this in mind, the aforementioned advantages and techniques that foreign investors bring to a firm can augment unsustainable cash flow information when determining potential future cash flows [49]. These advantages are evidenced by the reliable ability of foreign investors to buy and sell before positive and negative earnings surprises, respectively, as well as their established superiority over domestic investors in long-term position trading, where investment information is included in operating assets [50–52].

Based on these arguments, this paper proposes the following hypothesis, stated in the null form:

**Hypothesis 1a:** *There is no relationship between foreign ownership and the degree to which earnings predict future cash flows.*

**Hypothesis 1b:** *There is no relationship between foreign ownership and the degree to which cash flows predict future cash flows.*

### 3. Research Design and Sample Description

#### 3.1. Research Model

We use two regression models (Model 1 & Model 2) to predict the future cash flows. CFO is primarily measured through the equations developed by Dechow et al. [6]. Skipping firm subscripts to be concise, we have:

$$\text{(Model 1)} \quad CFO_{t+1} = \beta_0 + \beta_1 CFO_t + \beta_2 E_t + \varepsilon_{t+1} \quad (1)$$

$$\text{(Model 2)} \quad CFO_{t+1} = \beta_0 + \beta_1 CFO_t + \varepsilon_{t+1} \quad (2)$$

$$CFO_{t+1} = \beta_0 + \beta_1 E_t + \varepsilon_{t+1} \quad (3)$$

where  $CFO$  = operating cash flow, it is defined as net cash flow from operating activities obtained from the cash flow statement adjusted for extraordinary items and discontinued operations;  $E$  = earnings before extraordinary items; We deflate all variables by the average of total assets between the beginning and the end of the fiscal year.

Model 1 expects that one-year ahead operating cash flow is a function of current operating cash flow and current operating earnings. If both earnings and operating cash flow in the current period have predictive ability in future operating cash flow and earnings is more predictable than operating cash flow,  $\beta_2$  will represent a greater positive coefficient than  $\beta_1$  and vice versa. Moreover, model 2 consists of two detailed equations. Equation (2) indicates benchmark “operating cash flow only” model and Equation (3) includes aggregate earnings as an independent variable. Model 2 can compare the relative superiority of the predictive ability of future operating cash flow between current operating cash flow and current earnings by comparing the adjusted  $R^2$  in Equation (2) with that in Equation (3).

Next, we modified aforementioned Dechow et al. [6] model by incorporating foreign investors to make interaction variables with operating cash flow and earnings. And to allow for variations across firms in the same industry-year observation, the model includes industry fixed effect dummies and year fixed dummies. Specifically, the study estimates the following two models:

$$\text{(Model 3)} \quad CFO_{t+1} = \beta_0 + \beta_1 CFO_t + \beta_2 E_t + \beta_3 FOR_t + \beta_4 CFO \times FOR_t + \beta_5 E \times FOR_t + \varepsilon_{t+1} \quad (4)$$

$$\text{(Model 4)} \quad CFO_{t+1} = \beta_0 + \beta_1 CFO_t + \beta_2 FOR_t + \beta_3 CFO \times FOR_t + \varepsilon_{t+1} \quad (5)$$

$$CFO_{t+1} = \beta_0 + \beta_1 E_t + \beta_2 FOR_t + \beta_3 E \times FOR_t + \varepsilon_{t+1} \quad (6)$$

where  $CFO$  = operating cash flow, it is defined as net cash flow from operating activities obtained from the cash flow statement adjusted for extraordinary items and discontinued operations;  $E$  = earnings before extraordinary items;  $FOR$  = percentage of outstanding common shares held by foreign investors; We deflate all variables by the average of total assets between the beginning and the end of the fiscal year.

The Equation (4) is the modified regression of the Equation (1) by including the foreign ownership variable as the interaction variable between earnings and operating cash flow, respectively. First, as shown in Equation (1), if the operating cash flow and earnings of the current period are capable of predicting future cash flow,  $\beta_1$  and  $\beta_2$  will correspondingly have a significant positive (+) value.  $\beta_4$  is the interaction variable between operating cash flow and foreign ownership and  $\beta_5$  indicates the interaction variable between earnings and foreign ownership. This implies the incremental effects of foreign ownership on forecasting the future operating cash flow. In other words, if the ability of current operating cash flow to predict future operating cash flow increases more than the earnings as the foreign ownership increases, the interaction variable between the operating cash flow and the foreign ownership will have a greater significant coefficient than the interaction variable between the earnings and the foreign ownership variable. Conversely, if a foreign investor’s ownership increases

its future operating cash flow predictability through earnings in the current period, thus, if the foreign investor prefers an entity whose future operating cash flow is better forecasted through earnings than the entity that better predicts future operating cash flow by current cash flow, it would appear that the coefficient of  $E \times FOR$  will be greater than the coefficient of  $CFO \times FOR$ .

Similarly, if the operating cash flow and earnings in Equations (5) and (6) are capable of predicting future cash flow,  $\beta_1$  in each equation will also have significant positive (+) value. In addition, if current operating cash flow of an entity with a higher foreign ownership has a superior ability to predict future cash flow than current earnings, the adjusted  $R^2$  in Equation (5) will appear larger than that in Equation (6) and vice versa.

### 3.2. Sample Selection

Table 1 shows the sampling process for this study. Listed companies on the Korea Stock Exchange (KSE) market as of December 31, 2017 are the components of the sample. They correspond to criteria including: (1) companies (excluding financial companies) listed on the KSE market with December closing accounts and (2) companies in the FnGuide database that held financial statements and foreign ownership. Every industry is recognized by a two-digit industry code. The extreme top and bottom 1% of dependent and independent variable outcomes are winsorized to reduce the effects of outliers. The following table displays complete firm-year observation values.

**Table 1.** The sample.

Initial Observations form 2000 to 2017	12,269
<b>Less:</b>	
Closing fiscal year in months other than December/Financial companies	787
Equity is less than zero	615
Companies without one-year-ahead operating cash flow	1227
Companies with no financial statements and foreign ownership	1368
Final observation	8272

## 4. Empirical Results

### 4.1. Descriptive Statistics

To explore the ability of the current earnings with high foreign ownership to predict future cash flow, the descriptive statistics were first presented in Table 2. Most of the variables show a rather larger average compared to the median, which is seen as the result of some companies that have decent cash flow and earnings being included in the sample. In addition, the average value of foreign ownership variable ( $FOR$ ) was higher than the median and the maximum value was 60.7%, which is significantly higher than the median, although excluding the upper extreme value of 1% by winsorization. This is assumed to have resulted from the favoritism of foreign investment in some companies as they are clearly preferred by foreign investors.

**Table 2.** Descriptive Statistics.

Variables	Mean	STD	Min	Median	Max
$CFO_{t+1}$	0.049	0.093	-1.541	0.046	0.904
$CFO_t$	0.051	0.081	-0.204	0.048	0.297
$E_t$	0.047	0.065	-0.151	0.042	0.253
$FOR_t$	0.100	0.139	0.000	0.035	0.607

Notes: Variable definition:  $CFO$  = operating cash flow, it is defined as net cash flow from operating activities obtained from the cash flow statement adjusted for extraordinary items and discontinued operations;  $E$  = operating income before extraordinary items;  $FOR$  = percentage of outstanding common shares held by foreign investors; We deflate all variables by the average of total assets between the beginning and the end of the fiscal year.



The Pearson correlation matrix for the major variables utilized in this study is presented in Table 3. Next, there is a significant positive correlation between future operating cash flow, current operating cash flow, earnings in the current period and foreign ownership. This indicates that the current period's operating cash flow, earnings and foreign shareholding are useful in predicting future operating cash flow.

**Table 3.** A Correlation Matrix.

	(1)	(2)	(3)	(4)
$CFO_{t+1}$ (1)	1.000	0.381 ( $<0.001$ )	0.435 ( $<0.001$ )	0.236 ( $<0.001$ )
$CFO_t$ (2)		1.000	0.570 ( $<0.001$ )	0.280 ( $<0.001$ )
$E_t$ (3)			1.000	0.295 ( $<0.001$ )
$FOR_t$ (4)				1.000

Notes: Variable definition:  $CFO$  = operating cash flow, it is defined as net cash flow from operating activities obtained from the cash flow statement adjusted for extraordinary items and discontinued operations;  $E$  = operating income before extraordinary items;  $FOR$  = percentage of outstanding common shares held by foreign investors; We deflate all variables by the average of total assets between the beginning and the end of the fiscal year.

#### 4.2. Main Results

Table 4 presents the results of the multivariate test of hypothesis 1 based on the estimation in Equations (4)–(6). For the Equation (4) in Table 4, the coefficients for  $CFO$  and  $E$  were 0.126 and 0.487, respectively, reporting a significant positive (+) value. This means that both operating cash flow and earnings have additional predictive power for forecasting future operating cash flow. The difference (0.361) between the two coefficients indicates that current earnings have higher predictability in forecasting future operating cash flow than current operating cash flow. These results are consistent with the empirical results reported by the study of Lee [53] and can be said to be higher coefficients. As in the study of Nam [54], it is estimated that the forecasting capacity of operating cash flow for future operating cash flow has gradually been strengthened against earnings since the 1990s foreign exchange crisis, however, it is not sufficient to exceed the effect of earnings. Moreover, as a result of the F-test to examine the difference between the regression coefficients of  $CFO$  and  $E$  through Panel B, the F value also significantly appears at the 1% level, proving that earnings have a greater predictive power for future operating cash flow than current operating cash flow. Next, compared with the Equation (5) that predicted future operating cash flow through operating cash flow and the Equation (6) that forecasted future operating cash flow by current operating cash flow, the explanatory power of the forecasting model through cash flow (=18.3%) was lower than that of the forecasting model through earnings (=22.5%), confirming once again that earnings show relatively higher predictability than operating cash flows.

In contrast, the relationship between foreign ownership and the ability to predict future operating cash flow of earnings and operating cash flow has reported different patterns of results. First, the coefficient of interaction variable between operating cash flow and foreign ownership was 0.622 ( $t = 6.58$ ) and the interaction variable between operating cash flow and foreign ownership was  $-0.375$  ( $t = -3.28$ ), each showing significant values at the 1% significance level. This can be interpreted as a result of foreign investors' interest in companies that have a higher predictive ability for future operating cash flow through current cash flow than in earnings. In other words, although earnings have been shown to be superior in predictability to that of operating cash flow in literature, since foreign investors make investment decisions by considering their ability to predict future operating cash flow, their decision may determine that current operating cash flow is preferable to those that predict future operating cash flow rather than current earnings. This investment behavior of foreign

investors is a prudent investment pattern. They exclude earnings but prefer cash flows in investment decision because earnings include an accrual that can be distorted at the discretion of the manager. Also, the earnings itself can be a means of managers' earnings management, which leads to a result of more confidence in operating cash flow with relatively little room for earnings management.

**Table 4.** Multivariate Analysis of Cash flow and Earning to Future Cash Flow Prediction.

Panel A: Regression Results						
Variable	Equation (4)		Equation (5)		Equation (6)	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	0.007	1.92 *	0.013	3.29 ***	0.010	2.64 ***
CFO	0.126	7.77 ***	0.324	22.78 ***		
E	0.487	23.43 ***			0.566	31.90 ***
FOR	0.040	4.00 ***	0.052	5.30 ***	0.068	7.04 ***
CFO × FOR	0.622	6.58 ***	0.526	6.99 ***		
E × FOR	−0.375	−3.28 ***			0.138	1.55
Industry Dummy	Included		Included		Included	
Year Dummy	Included		Included		Included	
F-value	85.16 ***		63.02 ***		81.22 ***	
Adj. R <sup>2</sup>	0.245		0.183		0.225	
Observations	8272		8272		8272	
Panel B. F-test						
F-test of $\beta_1 = \beta_2$			F-value			
			122.98 ***			

1) See Table 2 for definitions of the variables. 2) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

#### 4.3. Endogeneity Test for Foreign Investors' Preference of Investments

In capital market research, the endogeneity problem can arise when the explanatory variables and the error terms are correlated in a regression model, resulting in biased and inconsistent parameter estimates. In other words, most corporate financial decisions are likely to be determined endogenously.

The empirical results in this study indicate a more preference in cash flows to predict future cash flows for firms with intensive monitoring by foreign investors. These outcomes imply that foreign ownership function as effective monitors by applying advanced techniques, thus improving reporting quality, increasing liquidity and ultimately increasing firm value [40]. However, this interpretation may not apply if the results are derived from firm-specific characteristics endogenous to foreign investors' investment choices. For example, there are many firm fundamentals can determine foreign ownership and cash flows simultaneously or from the beginning, foreign investors may decide to invest for promising companies with low agency costs in order to guarantee relatively high reporting quality.

Therefore, propensity score matching (PSM) is used to control for the potential endogeneity of foreign investors' investing behavior. First of all, we use a logistic regression model to predict these behaviors and estimate propensity scores.

$$FOR_t = \beta_0 + \beta_1 SIZE_t + \beta_2 ROA_t + \beta_3 CHAEBOL_t + \beta_4 BETA_t + \varepsilon_{t+1} \quad (7)$$

where  $FOR$  = A dummy variable that equals one if a firm has an above-median percentage of outstanding common shares held by foreign investors in year  $t$  and 0 otherwise;  $SIZE$  = Ln (Total assets);  $ROA$  = Net income / total assets;  $CHAEBOL$  = An indicator variable that equals to one if a firm belongs to a chaebol group and 0 otherwise;  $BETA$  = Systematic risk measured based on daily data.

In Equation (7), we include the variables that have the incentives to engage in foreign investment. Foreign investors are likely to invest in larger and more profitable firms since those firms prefer financial stability and conservative management, which leads to preventing managers from engaging in opportunistic behavior [55]. In this reason, we include firm size (*SIZE*) and return on assets (*ROA*) in the regression model. Chaebol affiliated firms can have extensive support in the form of subsidiaries and protection from the government, resulting in lower volatility and risk. Similarly, foreign investors prefer to invest in firms with lower systematic risk. Hence, chaebol affiliation dummy (*CHAEBOL*) and corporate beta (*BETA*) are included to proxy for corporate risk [56].

In a next process, firms that monitored by foreign investors are matched with unmonitored firms with the closest predicted value from Equation (7) within a maximum distance of 3% [57]. Firms with foreign investors that cannot be matched with any unmonitored firms are excluded from the analyses, since predicted values for the latter firms are not included within the specified distance of 3%. Consequently, there is a decrease in the number of firm-year observations in comparison to that in the main regression analyses.

Table 5 shows the empirical results for the propensity score-matched samples and they are qualitatively similar to those for main hypothesis. This implies that the superiority of current cash flows component to predict future operating cash flows remains robust even when controlling for the potential problem of endogeneity concerning foreign investors' choice of investments.

**Table 5.** Endogeneity Test using Propensity Score-matched Samples.

Variables	Propensity Score-Matched Sample: Matched Using the Full Model	
	Coefficient	t-stat.
Intercept	0.020	5.12 ***
<i>CFO</i>	0.128	6.41 ***
<i>E</i>	0.368	13.93 ***
<i>FOR</i>	0.014	1.49
<i>CFO</i> × <i>FOR</i>	0.608	6.46 ***
<i>E</i> × <i>FOR</i>	−0.040	−0.35
Industry Dummy	Included	
Year Dummy	Included	
Adjusted <i>R</i> <sup>2</sup>	0.276	
F-stat.	67.96 ***	
observations	5620	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.4. Other Endogeneity Problem and Remedies—Fixed Effects and Firm-Year Clustering Analyses

Two situations can make foreign investors endogenous [58]. The first is that causality either runs from operating cash flows to the foreign investors or causality runs both ways. A random shock that enters the regression model through the error term can affect our dependent variable. Since future cash flows affects the foreign investors and foreign monitoring will be correlated with the error term, generating a biased coefficient on the foreign investors. The second situation is that the foreign investors and operating cash flows have no direct effect each other, however they are spuriously correlated with some unknown or third variable. If the third variables are not controlled for, the error term will absorb the effect of this variable. Hence, the error term will be correlated with the foreign investors, causing biased and inconsistent estimates.

To deal with above situations we include firm fixed effects in regression model. These remedies try to control for unobservable determinants of operating cash flows to mitigate omitted variable bias. Moreover, this study incorporates year and firm in attempt to cluster analyses. This assists as a control for the possibility either that residuals are not equally shared or that a correlation between the group of residuals exists [59]. Clustering of this kind leads to more conservative t-statistics. This is found

by the calculation of standard deviations which show the samples' time series and cross-sectional correlations [59]. Through this, more-accurate predictions on individual outcomes and sound results can be retrieved with the empirical findings of this study.

Table 6 documents the results of the Fixed Effects and firm-year clustering analyses. Generally, the findings seem to be parallel with the main results. This suggests that the relation among current operating cash flow, current earnings and future operating cash flow was significant even while the robustness was controlled.

**Table 6.** Other Endogeneity Problem and Remedies.

<b>Panel A. Fixed Effects</b>			
<b>Variables</b>	<b>Coefficient</b>	<b>t-stat.</b>	
<i>CFO</i>	0.126	7.77	***
<i>E</i>	0.487	23.43	***
<i>FOR</i>	0.040	4.00	***
<i>CFO</i> × <i>FOR</i>	0.622	6.58	***
<i>E</i> × <i>FOR</i>	−0.375	−3.28	***
Industry Dummy		Included	
Year Dummy		Included	
Adjusted $R^2$		0.411	
F-stat.		175.54 ***	
observations		8272	
<b>Panel B. Firm-year Clustering Analyses</b>			
<b>Variables</b>	<b>Coefficient</b>	<b>t-stat.</b>	
Intercept	0.007	1.36	
<i>CFO</i>	0.126	5.03	***
<i>E</i>	0.487	11.86	***
<i>FOR</i>	0.040	3.33	***
<i>CFO</i> × <i>FOR</i>	0.622	4.05	***
<i>E</i> × <i>FOR</i>	−0.375	−2.07	**
Industry Dummy		Included	
Year Dummy		Included	
Adjusted $R^2$		0.248	
F-stat.		35.23 ***	
observations		8272	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.5. The Effect of Firm Size

This paper examines the effect of firm size on the relation among current operating cash flow, current earnings and future operating cash flow. As suggested in a research from Dang et al. [60], firm size is the key control variable in empirical tests and they affect the independent and dependent variables simultaneously. In other words, the empirical finding of this study could differ for large and small firm groups. Since firm size represents a corporate information environment, it is possible that larger firms showing a good environment can be monitored efficiently by foreign investors. This study reconciles this prediction into the empirical test by interacting firm size dummy variable with the foreign ownership.

The empirical findings are shown in Table 7. *Large\_firm* equals one if the firm size is above the median value and zero otherwise. The coefficient on *CFO*×*FOR*×*Large\_firm* is positively significant at 1% level and the coefficient of *E*×*FOR*×*Large\_firm* is negatively significant with a 1% significance. These results suggest that the association among foreign investors, current cash flows and future cash flows is more pronounced in large firms than small firms. Overall, the results report strong evidence

that the larger firm sub-sample, whose information environment is superior to that of the small firm sub-sample, demands and benefits more from foreign monitoring.

**Table 7.** The Effect of Firm Size.

Variables	Coefficient	t-stat.	
Intercept	0.004	1.08	
CFO	0.128	7.93	***
E	0.481	23.11	***
FOR	0.036	3.03	***
Large_firm	0.005	2.57	***
CFO × FOR	−0.098	−0.59	
E × FOR	0.298	1.67	*
CFO × FOR × Large_firm	0.938	5.26	***
E × FOR × Large_firm	−0.895	−4.64	***
Industry Dummy		Included	
Year Dummy		Included	
Adjusted R <sup>2</sup>		0.248	
F-stat.		79.24	***
observations		8,272	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.6. The Impact of Information Asymmetry

Based on the level of the agency problem between shareholders and management, the effect of foreign investors' investing preference may vary. In most cases, managers hold more information concerning management activities and performance of firms compared to external shareholders. When profound information asymmetry exists between shareholders and managers, the manager who has an advantageous position may take opportunistic actions, utilizing private information for personal benefit. Furthermore, managers have the tendency of raising earnings due to career concerns [61]. The investors' power in disciplining managers is weakened due to low disclosure resulting from information asymmetry. As a result, entrenching or changing managers become difficult [62]. In reality, rent-seeking managers have incentives in aggravating information asymmetry by choosing projects that cover up the performance of the firm [63]. This indicates that foreign investors' investing preference can diversify according to the level of information asymmetry.

This paper considers two alternative proxies for information asymmetry between managers and external investors, in order to analyze its influence. The first proxy is stock return volatility, measured by the standard deviation of market excess returns per week throughout a year. Similar to Lim [64], we quantify weekly returns from Thursday to Wednesday to lessen nonsynchronous trading or bid-ask bounce effects in prices on prices per day. An estimation period of one year is selected for conveying a fair number of observations. High stock return volatility becomes an indicator variable which derives to one when firms have stock return volatility above the median in year  $t$  or zero. It is possible for firms with high stock return volatility to go through high information asymmetry. Secondly, the average daily turnover rate is used as a proxy for information asymmetry. Average daily turnover rate is measured by the average daily turnover in percentage throughout the past six months. Daily turnover becomes the ratio between the daily traded number of shares and the number of shares outstanding when the day ends. A high average daily turnover rate can also become an indicator variable equaling to one when firms have stock turnovers above the median in year  $t$  or zero. More severe levels of information asymmetry are prone to show from firms with higher stock turnovers.

Table 8 shows the additional regression results of testing the impact of information asymmetry in predictability of operating cash flow and earnings. As shown in Panel A of Column 2, the coefficient of CFO×FOR is significantly positive, indicating that foreign investors' preference on operating cash



flow to predict future operating cash flow is evident in high information asymmetry environments. Moreover, the coefficient of  $E \times FOR$  in Panel A of Column 2 shows a significantly negative value, meaning that foreign investors do not prefer earnings when predicting future operating cash flow, as discretionary components in earnings may be manipulated by managers. These empirical results were similar for Panel B. In other words, although information asymmetry was measured at a different proxy of average daily turnover rate, it was found that under high information asymmetry environments, foreign investors preferred operating cash flow over earnings. This was because earnings were likely to be manipulated by managers when predicting future operating cash flow.

**Table 8.** The Impact of Information Asymmetry.

<b>Panel A. Stock Return Volatility</b>				
Variables	High		Low	
	Coefficient	t-stat.	Coefficient	t-stat.
Intercept	0.006	1.05	0.010	2.07 **
CFO	0.102	4.25 ***	0.147	6.72 ***
E	0.542	17.26 ***	0.435	15.51 ***
FOR	0.040	2.80 ***	0.041	2.91 ***
CFO×FOR	0.835	6.29 ***	0.371	2.74 ***
E×FOR	−0.619	−3.82 ***	−0.148	−0.91
IND Dummy	Included		Included	
YEAR Dummy	Included		Included	
Adjusted R <sup>2</sup>	0.250		0.233	
F-stat.	44.21 ***		40.20 ***	
observations	4146		4126	
<b>Panel B. Average Daily Turnover Rate</b>				
Variables	High		Low	
	Coefficient	t-stat.	Coefficient	t-stat.
Intercept	0.003	0.62	0.018	4.36 ***
CFO	0.126	5.24 ***	0.111	5.25 ***
E	0.561	18.12 ***	0.330	11.88 ***
FOR	0.053	3.06 ***	0.004	0.42
CFO×FOR	0.521	2.97 ***	0.700	6.89 ***
E×FOR	−0.556	−2.56 **	−0.013	−0.11
IND Dummy	Included		Included	
YEAR Dummy	Included		Included	
Adjusted R <sup>2</sup>	0.214		0.284	
F-stat.	35.59 ***		53.37 ***	
observations	4047		4225	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.7. The Impact of Chaebol Governance

Firms from countries with highly developed economies face agency problems occurring from the division of ownership and management. Despite this fact, firms in Korea experience critical agency problems led from conflicts of interest among the controlling and external shareholders [65,66]. Analogous to East Asian countries' economies, the Korean economy consists of profound business groups called chaebol firms. They are legally independent and horizontally, vertically distributed. A pyramidal or interlocking ownership structure takes place as controlling shareholders from a chaebol group steers control over all group member firms. Hence, through conflicts of interest among internal and external shareholders, group member firms are capable of experiencing detrimental agency problems.

As a sensitivity test, we control for the chaebol governance mechanism. Chaebol membership indicates the firm is an affiliate of a large business group designated by the Korea Fair Trade Commission (KFTC). To investigate the effect of chaebol governance on the relation between future operating cash flow and current operating cash flow and income, we apply the subsample analysis in the existing regression model.

Table 9 presents the results of the subsample analysis on the impact of chaebol governance. Among the sample we analyzed, there were 2182 firm-year observations with chaebol governance. The first column of Table 6 shows the estimated coefficients for chaebol firms and the second column represents the coefficients for non-chaebol firms in our regression models using future operating cash flow as the dependent variable. The coefficient for the interaction term of  $CFO \times FOR$  is significantly positive at the 1% level and the coefficient for the interaction term of  $E \times FOR$  is negative with the 5% significance level under the chaebol governance. However, we cannot find any significance on the interaction terms of  $CFO \times FOR$  and  $E \times FOR$  under non-chaebol firms. These results are consistent with the main finding in that foreign investors' preference on current operating cash flow for predicting future operating cash flow is evident only for chaebol firms. Where there are high agency problems such as in firms with chaebol affiliation, foreign investors prefer current operating cash flow to earnings in forecasting future operating cash flow. This can be interpreted that foreign investors consider the possibility of manipulating earnings by managers due to agent problems. This means that cash flow is considered a more important component than earnings that may be bias.

**Table 9.** The Impact of Chaebol Governance.

Variables	Chaebol		Non-Chaebol	
	Coefficient	t-stat.	Coefficient	t-stat.
Intercept	0.021	3.48 ***	0.002	0.52
<i>CFO</i>	0.193	5.67 ***	0.117	6.32 ***
<i>E</i>	0.336	7.24 ***	0.505	21.42 ***
<i>FOR</i>	0.016	1.00	0.039	3.06 ***
$CFO \times FOR$	0.874	6.33 ***	0.119	0.88
$E \times FOR$	-0.454	-2.40 **	0.058	0.39
IND Dummy	Included		Included	
YEAR Dummy	Included		Included	
Adjusted $R^2$	0.334		0.220	
F-stat.	36.35 ***		54.88 ***	
observations	2182		6090	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.8. The External Governance Mechanism—The Effect of Industry-Level Competition

This section examines the effect of industry-level product market competition on the regression of future cash flows. The level of competition can either increase or decrease the predictability of future cash flows. First of all, the level of competition can increase the predictability. Competition plays an external governance mechanism which enforces managers to exercise their best efforts not to fall behind in the competition [67,68]. The good governance mechanism leads to better monitoring by outside shareholders. Consequently, the predictability of future cash flows can increase.

On the contrary, intense competition may deter predictability through various channels [69]. First, competition can discourage the monitoring mechanism by accelerating the managerial opportunistic behaviors to win in the competition. Further, under intense competition, managers may be reluctant to release important information to minimize proprietary costs which leads to low predictability. As a result, the amount of information decreases in the market, which incurs information asymmetry to discourage foreign investors' monitoring mechanism.

Our main measure of product market competition is the *HHI*. The *HHI* is computed as the sum of squared market shares,

$$HHI_{jt} = \sum_{i=1}^{Nj} S_{ijt}^2 \quad (8)$$

where  $S_{ijt}$  is the market share of firm  $i$  in industry  $j$  in year  $t$ . Market shares are computed from using firms' sales. When computing the *HHI*, we exclude firms for which sales are either missing or negative. The *HHI* is a commonly used measure in the empirical industrial organization literature and is well grounded in theory [70]. By multiplying negative one, we make higher values mean higher competition for all measures.

Table 10 shows the results of testing of the effect of industry-level competition on the main analyses. As shown in 'High-competition' and 'Low-competition column' in Table 10, the coefficients of *CFO*×*FOR* is significantly positive, indicating that high competition encourages the foreign investors' monitoring role. Further, the coefficient of *E*×*FOR* is significantly negative only in 'High-competition column' meaning that low preference in earnings due to discretionary aspects in earnings by foreign investors may be observed for firms with high competition that represents good information environment.

**Table 10.** The Effect of Industry-level Competition.

Variables	High-Competition		Low-Competition	
	Coefficient	t-stat.	Coefficient	t-stat.
Intercept	0.005	1.19	-0.007	-1.01
<i>CFO</i>	0.178	7.17 ***	0.078	3.66 ***
<i>E</i>	0.515	16.57 ***	0.457	16.24 ***
<i>FOR</i>	0.063	4.18 ***	0.028	2.09 **
<i>CFO</i> × <i>FOR</i>	0.694	5.10 ***	0.544	4.09 ***
<i>E</i> × <i>FOR</i>	-0.681	-3.99 ***	-0.129	-0.82
IND Dummy	Included		Included	
YEAR Dummy	Included		Included	
Adjusted $R^2$	0.288		0.207	
F-stat.	63.02 ***		38.43 ***	
observations	4132		4140	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.9. The Internal Governance Mechanism—The Effect of Equity Incentives

As for the proxy for internal governance mechanism, this study examines the effect of managerial stock option on previous findings. Prior studies argue that managerial risk-aversion and wealth constraints imply that managers can have powerful incentives with even small fractional shareholdings [71–73]. Smith and Watts [74] report that the pervasiveness of growth options makes it more difficult for outside stakeholders to determine the relevance of managers' behaviors. The use of equity-based compensation such as stock options or restricted stock decreases monitoring costs by providing incentives for managers to maximize shareholder value. Gaver and Gaver [75] and Himmelberg et al. [76] also support this hypothesis by reporting a positive association between proxies of growth options and managerial equity incentives.

By following Core and Guay [73], the results of using the grants of stock option as a proxy of an internal governance mechanism are shown in Table 11. 'Stock Option column' indicated the sub-sample that the managerial stock option is granted and 'No Stock Option column' implies the sub-sample with no stock option. The interaction terms of *CFO*×*FOR* in both columns show significantly positive value meaning that foreign investors prefer cash flows to earnings when to predict the future operating cash flows. Furthermore, the interaction term of *E*×*FOR* in 'Stock Option column' is negative but not significant. And the interaction term of *E*×*FOR* in 'No Stock Option column' is also negative with 1%

significance. This indicates that in a good governance environment with a managerial stock option, foreign investors do not assess earnings negatively. However, the results of sub-samples without stock options show that foreign investors do not use earnings information to predict future cash flows. Since companies that have never been granted stock options have a poor internal governance environment, which means that managers can take opportunistic actions. In this situation, earnings information, which includes discretionary accruals, may have distorted results in predicting future cash flows.

**Table 11.** The Effect of Equity Incentives.

Variables	Stock Option		No Stock Option	
	Coefficient	t-stat.	Coefficient	t-stat.
Intercept	0.011	0.94	0.006	1.71 *
CFO	0.161	3.42 ***	0.113	6.54 ***
E	0.524	8.72 ***	0.481	21.76 ***
FOR	0.050	1.81 *	0.039	3.65 ***
CFO×FOR	0.678	2.89 ***	0.544	5.11 ***
E×FOR	-0.468	-1.57	-0.362	-2.91 ***
IND Dummy	Included		Included	
YEAR Dummy	Included		Included	
Adjusted R <sup>2</sup>	0.327		0.221	
F-stat.	22.51 ***		63.15 ***	
observations	1280		6992	

1) \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively. 2) See Table 2 for definitions of the variables.

#### 4.10. Other Governance Mechanism

Even though the current study does not directly analyze the impact of other types of governance mechanism on the predictability of future operating cash flows, there is a possibility that better information environment by the good governance mechanism can positively affect foreign investors' predictability. For example, effective governance system such as mutual monitoring among the executives [77], industry tournament incentives [78] and risk-adjusted inside debt [79] may help investors to precisely predict future operating cash flows. Since literature on cash flow predictability has generally concentrated on the difference in predictability of current earnings and cash flows when they examine its effect on future operating cash flows, it will be intriguing for future studies to consider the impact of various types of governance mechanism on the difference in predictability of future cash flows.

## 5. Conclusions

The inflow of foreign investors into the domestic market from 1992 has been gradually increasing until today and they are regarded as having their positions as professional investors. Moreover, with the introduction of the fourth industrial revolution, open innovation becomes the core corporate strategy that firms implement to combine in-house research and development, expertise and capabilities with external knowledge on product and technology development. More companies are shifting their innovation strategy towards 'open innovation model' in South Korea regardless of the sector and industry. For example, 'Deloitte's 2017 Global Health Sciences Outlook Report' documented that the probability of success in developing new drugs through the open innovation model is three times higher than that of conventional closed models. Meanwhile, many researchers have long considered foreign direct investment an important channel for the transfer of technology to emerging markets, since the recent inflow of foreign investors contains knowledge about new technologies and materials, production methods or organizational management skills. In this regard, although the research on foreign investors, who are perceived as crucial market participants to trigger open innovation in the

South Korean market, have been constantly conducted through various measurements and research methods from early 1990s to the present, the fact that no research exists regarding the foreign investors and the future operating cash flow predictability can greatly contribute to the revitalization of research in this field.

Thus, this study examines whether the future operating cash flow predictability of current operating cash flow and current earnings vary with the foreign investors' ownership of a company. Since corporate value can be measured with the current valuation on future cash flow, considering the predictability of future operating cash flow can be said to have a significant meaning for the entire market participants including foreign investors when making decisions on investment. Prior studies report that the future operating cash flow predictability of accounting earnings is much higher than the future operating cash flow predictability though operating cash flow [7]. In fact, predictability retains utility as information reflecting corporate intrinsic values in capital market. Nevertheless, unlike the investment decision-making factor of regular investors who are solely fixed to earnings of the financial statement, in case of foreign investors retaining superior information power in the capital market, they might have more interest in operating cash flow from which the investment profits come. Thus, this study will first observe which factor between the operating cash flow and accounting earnings predicts the future cash flow predictability better in the domestic capital market of Korea. Afterwards, it will analyze whether operating cash flow and earnings for future cash flow predictability rise as the foreign ownership increases. This is to clarify which factor in the financial statement between cash flow and accounting earnings the foreign investors consider more when predicting future cash flow for decision-making on investment.

As a result, the future operating cash flow predictability in the Korean capital market was found to be the same as the existing prior studies which have sample periods before this study and the predictability of accounting earnings appeared relatively higher than the predictability of operating cash flow. Moreover, in case of foreign investors who are the main interesting variable of this study, they appeared to make decisions on investment considering more of operating cash flow than accounting earnings when predicting future cash flow. Such a tendency can seemingly be the result caused by the fact that foreign investors, who are regarded as prudent investors, relatively have more interest on operating cash flows over earnings that are likely to be distorted by managerial earnings management. However, in situations where foreign investors are not able to distinguish accruals from the accounting earnings or where they receive low profit, they would follow the second best plan of making decisions on investment regarding definite operating cash flow even though information value may be relatively lacking. Moreover, since foreign investors have the ability to analyze distinguishing the accounting earnings, the reliability towards accounting earnings can be decreased [54]. These results appeared robust to several alternative specifications of our models, a series of additional analyses, including fixed effects and cluster analyses [59], firm size [60], consideration of information asymmetry [64], the chaebol governance [65,66], the industry-level competition as an external governance mechanism [68] and the grants of stock option as an internal governance mechanism [73].

This paper contributes to the growing body of literature in several ways. First, to our knowledge, there is little literature that assess the effect of foreign monitoring on predictability of future operating cash flows in South Korea. With the financial liberalization of emerging market, foreign investors' trading behaviors have attracted much attention from academic and regulatory bodies. Also attracting foreign investment is vitally crucial in global capital markets in order to improve the liquidity of Korean firms and the overall capital market. The prior studies report that foreign investors occupy a superior position in collecting, processing and trading on private information [40]. The empirical finding that foreign investors are likely to make decisions on investment considering more of operating cash flows rather than accounting earnings indicates that current earnings are not sustainable measure to predict future cash flows. This is because the accrual component of earnings can be manipulated through discretionary accruals that reverse in subsequent periods and deteriorate earnings sustainability. Therefore, the results of this study can warn the naïve investors that temporarily overvalue the earnings



sustainability of issuing firms and consequently, are disappointed by the decrease in earnings due to the earnings management. Second, the empirical findings of this paper should be of interest to sophisticated investors, especially foreign investors evaluating South Korean firms. For instance, professional investors outside South Korea may use current cash flows of firms in South Korea more efficiently, as current cash flows allow little room for earnings management compared to current earnings. Future study can construct on these outcomes by concentrating on other proxies of monitoring and by investigating data from other emerging markets where sophisticated investors such as foreign investors and financial analysts are concerned for investments. Finally, although some prior studies examine the relation between current operating cash flows, current earnings and future operating cash flows by centering on the developed nations such as European Union and United States, there is scarce research documenting from emerging market such as South Korea because of the discrepancies in the level of openness in the foreign currency market. This study can complement prior studies that attempt to link predictability of future cash flows to sophisticated monitoring mechanism.

This paper is subject to limitations. For example, nevertheless the fact that focuses on the foreign investors can provide a powerful setting to examine the research topics on financial liberalization of emerging market, it can be hard to generalize the empirical results to other countries with different capital environments. Furthermore, although this study incorporates the various robust tests, there can exist the possibility of omitted variable problems. This is because we are not able to precisely measure the foreign monitoring due to the difficulty that there are many firm fundamentals that can determine foreign ownership and cash flows simultaneously. Still, this paper contributes to the prior studies through a presentation of how monitoring effect of foreign investors impacts the association between current cash flows, current earnings and future operating future cash flows by comparing the degree of foreign investors' investing preference.

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