Information Acquisition Costs and Analysts' Cash Flow Forecasts: The Role of Management Cash Flow Forecasts

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Abstract

We examine whether the provision of managerial cash flow forecasts is a significant predictor of analysts' decision to cover a firm with cash flow forecasts. Unlike managerial earnings forecasts, which are often issued to walk down analyst earnings estimates, managers issue cash flow forecasts to counter bad earnings news and lessen the cost of investor and analyst information acquisition (Wasley & Wu, 2006). Motivated by the increasing popularity of managerial cash flow forecasts and prior empirical evidence that analysts are less likely to follow a firm for which the costs of acquiring financial information are prohibitive (e.g., Liu, 2011), we predict and find that the provision of managerial cash flow forecasts is a significant determinant of the likelihood of analyst cash flow coverage. We also find that analysts are less likely to issue cash flow forecasts when the effort necessary to follow a firm is high. Together, the evidence suggests that the existence of management cash flow forecasts is an important determinant of analysts' cash flow coverage.

Keywords: analysts' cash flow forecasts, information acquisition costs, analysts' cash flow forecast rationality

1. Introduction

In this exploratory study, we examine whether the costs of cash flow information acquisition and processing are significant determinants of the likelihood that a firm receives at least one analyst cash flow forecast in a given year. Prior literature highlights the role of market demand for cash flow information in the determination of whether analysts issue cash flow forecasts (e.g., DeFond & Hung, 2003; Wasley & Wu, 2006; Call, Chen, & Tong, 2009). This literature, however, largely ignores factors associated with cash flow information acquisition and processing costs analysts face when deciding whether to issue cash flow forecasts. Our study addresses this knowledge gap.

In addition to mandatory financial disclosures such as 10-K reports, many firms provide discretionary disclosures to lower investor and analyst information acquisition and processing costs. These voluntary disclosures often include forward-looking information such as earnings and cash flow forecasts (e.g., Coffee, 1984; Dye, 1990; Bozanic, Roulstone & van Buskirk, 2018). Since the passage of Regulation Fair Disclosure (RegFD) in 2000, the number of firms providing cash flow forecasts has grown considerably. Wasley and Wu (2008) report that as of 2003, only three percent of U.S. public companies listed in the Compustat database issued management cash flow forecasts (MCFs). Between 2003 and 2010, that number grew to roughly 50% of listed firm, with the number of analysts issuing cash flow forecasts (ACFs) exceeding 60% (Mohanram, 2014; Radhakrishnan & Wu, 2014). Today MCFs are commonplace and increasingly important to investors (Kingma, Leguizamo & Bricco, 2024). Not surprisingly, a small but growing stream of research seeks to understand the determinants of ACFs.

Several empirical studies find that firm factors such as capital intensity, earnings volatility and accrual activity, and regulatory factors such as investor protection laws drive capital market demand for cash flow information (DeFond & Hung, 2003; DeFond & Hung, 2007). This stream of research, however, largely ignores the costs analysts face in acquiring and processing financial information. (Note 1) We consider two factors that may influence the cost of cash flow information acquisition and processing, namely the issuance of an MCF in a prior period (as a proxy for

acquisition costs) and the total number of firms analysts cover in the current period (as a proxy for processing costs) and examine whether these factors are significant determinants of ACFs. To do so, we employ logistic regression to model the likelihood of an ACF as a function of both factors, controlling for demand related determinants of ACFs, as suggested by prior research. (Note 2)

Our empirical results are the following: (1) analysts are more likely to issue cash flow forecast when management has previously issued cash flow forecasts; and (2) analysts are more likely to issue cash flow forecasts when the costs associated with processing this information are relatively low. For a sample of 7,133 firm-year observations, of which 739 issue MCFs in the prior period, we find a positive association between the existence of MCF in the prior period and ACF in the current period.

We make several contributions to the literature. First, by providing evidence that the issuance of at least one MCF in a prior period is a significant determinant of likelihood that a firm receives an ACF in the current period, we contribute to the stream of literature seeking to identify the determinants of ACFs. Our empirical results suggest that information acquisition and processing costs are important factors for analysts' decision to issue ACFs. We contribute to research highlighting the importance of corporate disclosure for analyst coverage in general. Most studies in this area focus on analyst earnings coverage and attributes of analyst earnings forecasts (e.g., DeFond & Hung, 2003; Barth, Kasznik, & McNichols, 2001). By documenting a significant positive association between the issuance of an MCF in the prior period (a negative association between the level of analyst effort available to process MCF information) and the likelihood of receiving an ACF, we expand this literature to the sphere of analyst cash flow forecasts. In doing so, we complement prior empirical evidence indicating that analysts prefer to follow firms for which financial information is more readily available (e.g., Land & Lundholm, 1996). Finally, we contribute to theory suggesting that voluntary disclosures, particularly forward-looking disclosures such as MCFs, reduce information asymmetry and increase the supply of value-relevant financial information in capital markets (see, e.g., Verrecchia, 2001; Bozanik et al., 2018).

The remainder of the paper is as follows. Section 2 discusses prior research and hypothesis development. Section 3 describes the data and research design. Section 4 presents the empirical results, and section 5 concludes.

2. Prior Research and Hypothesis Development

Analysts are information intermediaries that acquire, analyze and provide professional interpretation to corporate financial information that is then sold to investors for profit (Bhushan 1989). Nowadays, most analyst reports include earnings forecasts and cash flow forecasts (Kingma et al., 2024). Relative to earnings, however, cash flow forecasting requires more precise financial information and is considered inherently more difficult (Dechow, Kothari & Watts, 1998; Nallareddy, Sethuraman & Venkatachalam, 2018). Financial analysts must therefore weigh the potential benefits of issuing cash flow forecasts, both in terms of the profits generated by selling investment reports and/or reputational gains associated with forecast quality, against the costs necessary to generate cash flow forecasts. Acquiring firm-specific financial information through private channels is inherently costly (Coffee, 1984; Veldkamp, 2006) and theory suggests that MCFs have the potential to reduce analyst information acquisition and processing costs (Langberg & Sivaramakrishnan, 2008; Beuselinck et al., 2017). However, while prior studies indicate that analysts rely on firm disclosure to forecast earnings (Ajinkya & Gift, 1984; Ajinkya et al., 2005), relatively less is known about the role of disclosure for ACFs.

ACFs can improve investors' ability to decipher earnings and earnings estimates, particularly for firms with complex operating and accounting characteristics, and thus increase analyst profits from selling analyst reports (DeFond and Hung, 2003) and have been shown to lower incidences of the accrual anomaly (e.g., Mohanram, 2014) and the mispricing of accruals and cash flows (e.g., Radhakrishnan and Wu, 2014). Analysts must invest time and other resources into cash flow forecasts, however. Costs may include reputational and profit penalties for inaccurate ACFs (Givoly, Hayn, and Lehavy, 2009), costs of acquiring financial information necessary for estimating cash flows (Lee and Lee, 2024), and costs associated with the extra effort needed to analyze and process this information. The focus of our study is on the latter two, which must be considered ex-ante to issuing ACFs and thus are likely to directly influence analysts' decision of whether to include cash flow forecasts in their analyst report.

Our study is similar to Lang & Lundholm (1996), who examine the relation between voluntary disclosure and analyst following. Using data from the Report of the Financial Analysts Federation Corporate Information Committee (FAF Report 1985-89), which relies on analyst evaluations of firm disclosure, they provide evidence that firms with more extensive disclosure policies tend to have a larger analyst following and conclude that firms can attract analysts (and improve the accuracy of analysts' forecasts) by providing more voluntary disclosure. Subsequent research criticizes the use of analysts' self-evaluations to measure voluntary disclosure, as these can introduce subjectivity bias into empirical models and often fail to disentangle voluntary disclosure from mandatory disclosure (see, e.g., Beyer et al., 2010). Following the recommendation by Beyer et al. (2010), who argue that earnings and cash flow forecasts are truly voluntary and represent a firm's voluntary disclosure policy better than subjective measures, we proxy for the costs of acquiring cash flow information using MCFs.

Most theoretical disclosure models suggest that MCFs will reduce analysts' information acquisition costs, and thus increase the net benefits of covering a firm. However, some models suggest that in certain cases the opposite may be true. Diamond's (1985) model of voluntary disclosure in equilibrium, for example, indicates that voluntary disclosure may reduce the payoffs associated with acquiring information through private channels, and thus the benefits to analysts for covering a firm. His model, however, does not consider information costs that simultaneously decrease. If information acquisition costs decrease in similar magnitude to benefits, the net benefit of issuing ACFs may not significantly change. If, however, costs decrease in greater (lesser) magnitude, the net benefits of issuing ACFs may increase (decrease). Given these conflicting possibilities, we state our first hypothesis in the null.

H1: The issuance of at least one management cash flow forecast in a prior period, as a proxy for the costs of information acquisition, is not associated with the likelihood that the firm receives at least one analyst cash flow forecast in the following period.

We additionally consider whether the cost of processing cash flow information is a significant predictor of the likelihood that a firm receives at least one ACF. Barth et al. (2001) suggest that the effort necessary to forecast earnings is increasing in the total number of firms an analyst follows. Analyst resources and attention are limited; when an analyst covers multiple firms, the effort necessary for forecasting earnings and cash flows increases. Consistent with the line of reasoning, we present our second hypothesis in the alternative form.

H2: The number of analysts covering a firm is positively associated with the likelihood that the firm receives an analyst cash flow forecast in the following period.

3. Data and Research Design

We obtain analysts' forecast data from I/B/E/S Detail History US Edition. Following Wasley and Wu (2006), we hand-collect management cash flow forecast data using a keyword search to identify MCFs in press releases appearing on the Factiva database (covering all press releases appearing on the Dow Jones Newswires and in The Wall Street Journal). Our research requires that the forecast be attributable to management or the company and includes the term "cash flow" appearing in close proximity to terms like "expects," "predicts," "sees," "projects," or "puts." We obtain additional MCF data from the Company Issued Guidance (CIG) database from First Call. We obtain firm financial data from Compustat and stock data from CRSP. Our combined MCF sample includes 1,085 MCFs issued between January 2002 and December 2004. (Note 3) We require that multiple management cash flow forecasts in the same fiscal year be counted as one observation, which reduces the sample to 739 unique MCF observations. Our final sample consists of 7,133 firm-year observations (739 observations for firms that issue at least one MCF by year + 6,394 observations for firms that do not).

To test H1, we follow DeFond and Hung (2003) and model the likelihood that a firm receives an ACF as a function of a set of controls for market demand for cash flow forecasts and a dichotomous variable (MCF_{t-1}) equal to 1 if management issued at least one MCF in the prior year, 0 otherwise. We exclude the accounting choice heterogeneity variable from DeFond and Hung's (2003) model, as Wasley and Wu (2006) show that the coefficient on that variable is significant. Specifically, we run the following logistic regression (variable definitions are provided in Appendix A):

$$ACF_t = \beta_0 + \beta_1 MCF_{t-1} + \beta_2 ACCRUAL_t + \beta_3 E\_VOL_t + \beta_4 CAP\_INT_t + \beta_5 ALTMAN\_Z_t + \beta_6 SIZE_t + \varepsilon_t \quad (1)$$

We expect that coefficients β_1 through β_4 will be positive and that the coefficient on β_5 will be negative. Firm size is included as a control variable because prior studies suggest that size proxies for a firm's risk and information environment. Wasley and Wu (2006) examine the determinants of MCFs and find that the likelihood that management issues an MCF is greater in periods for which there is a large increase in operating cash flows, when analysts forecast a loss, when management specifically reveals in their earning guidance that earnings will be either below or above expectations, and when the firm is young. They additionally show that the likelihood of an MCF is increasing in the market demand for cash flow information, similar to DeFond and Hung (2003) study. Because MCF decisions are dependent upon market demand for cash flow information, we estimate two specifications of equation (1). The first specification is presented above. The second specification include both DeFond and Hung's (2003) set of market information demand variable and Wasley and Wu's (2006) set of MCF determinants.

To test H2, we estimate equation (2) below, which is an expanded version of equation (1) that includes an additional control for analyst effort. Following Barth et al. (2001), we define EFF as the sum of the number of firms covered by a firm's analysts who issue either earnings or cash flow forecasts, or both, in a particular year divided by the number of analysts covering the firm in that year. We multiply this measure by -1 so that EFF is increasing in effort. We expect that the coefficient on EFF will be negative, indicating that the likelihood that a firm receives an ACF is decreasing in the effort analysts expend to cover the firm, given their other responsibilities.

We include four determinants of MCFs identified by Wasley and Wu (2006): (1) CH_OCF, change in operating cash flow, (2) CF_VOL, operating cash flow volatility, (3) FA_EF_NEG, an indicator variable equal to 1 if the mean analyst annual earnings forecast issued within one year of the fiscal year-end is negative and 0 otherwise, and (4) FIRM_AGE, the number of years with stock price information on the CRSP database.

$$ACF_t = \gamma_0 + \gamma_1 MCF_{t-1} + \gamma_2 EFF_t + \gamma_3 ACCRUAL_t + \gamma_4 E\_VOL_t + \gamma_5 CAP\_INT_t + \gamma_6 ALTMAN\_Z_t + \gamma_7 SIZE_t + \gamma_8 CH\_OCF_t + \gamma_9 CF\_VOL_t + \gamma_{10} FA\_EF\_NEG + \gamma_{11} FIRM\_AGE + \varepsilon \quad (2)$$

4. Empirical Results

Table 1 reports descriptive statistics for the sample firms used to test H1 and H2, partitioned on whether the firms have analyst cash flow forecasts. Only 10% of the firms for which analysts' issue ACFs, issue MCFs. Only 4% of the firms that do not issue ACFs issue MCFs. The average number of firms covered by the firm's analysts (*EFF*) is between 14 for firms without analysts' cash flow forecasts and 16 for firms with analysts' cash flow forecasts. The medians are very similar to the means. Firms for which ACFs are issued have slightly higher accruals. Compared to firms without analysts' cash flow forecasts, firms with analysts' cash flow forecasts have higher capital intensity, lower financial health (as measured by the Altman Z score), lower cash flow volatility, and are bigger in size, less likely to receive negative earnings forecasts from analysts, and are, on average, 5 or more years older than firms for which ACFs are not issued. These descriptive statistics are similar to those reported in prior studies.

Table 1. Descriptive statistics for variables used in the logit model (N=7,133)

Observations	Mean	Std dev	Q1	Median	Q3	t-test p-value, Wilcoxon p-value
MCF (%)						
With cash flow forecasts	0.10	0.30	0	0	0	<0.01
Without cash flow forecasts	0.04	0.19	0	0	0	<0.01
EFF						
With cash flow forecasts	-15.80	4.87	-17.85	-15.07	-13.00	<0.01
Without cash flow forecasts	-13.95	5.07	-16.22	-13.70	-11.24	<0.01
ACCRUAL						
With cash flow forecasts	-0.07	0.08	-0.10	-0.06	-0.03	<0.01
Without cash flow forecasts	-0.09	0.12	-0.12	-0.07	-0.03	<0.01
E_VOL						
With cash flow forecasts	2.37	7.36	0.36	0.70	1.59	0.03
Without cash flow forecasts	2.76	8.56	0.45	0.96	1.98	<0.01
CAP_INT						
With cash flow forecasts	1.09	1.58	0.31	0.63	1.09	<0.01
Without cash flow forecasts	0.74	1.26	0.22	0.38	0.74	<0.01
ALTMAN_Z						
With cash flow forecasts	4.69	6.60	1.84	2.72	4.85	<0.01
Without cash flow forecasts	6.40	8.47	2.23	3.91	7.18	<0.01
SIZE						
With cash flow forecasts	7.17	1.35	6.25	7.21	8.29	<0.01
Without cash flow forecasts	5.61	1.27	4.70	5.56	6.44	<0.01
CH_OCF						
With cash flow forecasts	0.02	0.08	-0.01	0.01	0.04	0.07
Without cash flow forecasts	0.02	0.11	-0.03	0.01	0.06	0.69
CF_VOL						
With cash flow forecasts	1.03	4.95	0.20	0.39	0.70	<0.01
Without cash flow forecasts	2.06	7.20	0.33	0.60	1.27	<0.01
FA_EF_NEG						
With cash flow forecasts	0.11	0.31	0	0	0	<0.01
Without cash flow forecasts	0.27	0.45	0	0	1	<0.01
FIRM_AGE						
With cash flow forecasts	18.48	13.86	7	13	33	<0.01
Without cash flow forecasts	13.16	10.88	5	9	18	<0.01

Note: t-statistics are reported in the parentheses.

Table 2 presents Pearson (Spearman) correlations for the variables used in equations (1) and (2). Analysts' cash flow forecasts are positively associated with management cash flow forecasts accruals, capital intensity, firm size, and firm age and negatively related to analyst effort, earnings volatility, firm's financial health, cash flow volatility, and negative analysts' earnings forecasts. The positive correlation between MCFs and ACFs (0.13, Pearson) and the negative association between analyst effort and ACFs (-0.18, Pearson) suggest that analysts benefit from the information provided by MCFs (as a cost of information acquisition) and lower effort (as a cost of information processing) necessary to issue ACFs.

Table 2. Correlation coefficients among regression variables

	ACF	MCF	EFF	ACCRUAL	E_VOL	CAP_INT	ALTMAN_Z	SIZE	CH_OCF	CF_VOL	FA_EF_NEG	FIRM_AGE
ACF		0.13	-0.18	0.07	-0.03	0.12	-0.11	0.52	-0.02	-0.08	-0.21	0.22
		<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.01
MCF	0.13		-0.01	0.00	-0.02	0.02	-0.09	0.19	-0.01	-0.03	-0.01	0.10
	<0.01		0.23	0.8	0.14	0.15	<0.01	<0.01	0.67	0.01	0.36	<0.01
EFF	-0.20	-0.02		-0.03	0.04	-0.19	0.08	-0.19	0.04	0.02	0.06	-0.20
	<0.01	0.18		0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01
ACCRUAL	0.04	-0.02	-0.01		-0.01	-0.08	0.10	0.13	0.10	-0.04	-0.23	0.13
	<0.01	0.17	0.25		0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
E_VOL	-0.11	0.00	0.08	-0.14		-0.01	-0.02	-0.10	-0.01	0.02	0.00	-0.01
	<0.01	0.94	<0.01	<0.01		0.31	0.11	<0.01	0.4	0.04	0.68	0.36
CAP_INT	0.20	0.07	-0.21	-0.13	-0.03		-0.04	-0.01	0.01	-0.04	0.20	-0.01
	<0.01	<0.01	<0.01	<0.01	0.03		<0.01	0.35	0.58	<0.01	<0.01	0.61
ALTMAN_Z	-0.17	-0.14	0.14	0.10	-0.11	-0.39		0.01	0.02	0.00	0.07	-0.20
	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		0.25	0.21	0.86	<0.01	<0.01
SIZE	0.52	0.19	-0.21	0.09	-0.20	0.12	-0.02		-0.04	-0.12	-0.26	0.38
	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05		<0.01	<0.01	<0.01	<0.01
CH_OCF	0.00	0.00	0.04	0.23	0.01	-0.01	0.00	0.00		0.04	-0.07	-0.10
	0.69	0.7	<0.01	<0.01	0.57	0.28	0.86	0.74		<0.01	<0.01	<0.01
CF_VOL	-0.25	-0.11	0.13	0.03	0.50	-0.20	0.04	-0.38	0.00		0.13	-0.11
	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.92		<0.01	<0.01
FA_EF_NEG	-0.21	-0.01	0.06	-0.17	0.17	0.18	-0.06	-0.27	-0.08	0.30		-0.24
	<0.01	0.36	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01
FIRM_AGE	0.19	0.08	-0.12	0.10	-0.11	0.18	-0.20	0.33	-0.11	-0.19	-0.25	
	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	

Note: Pearson (Spearman) correlations are in the upper (lower) triangle.

Table 3 presents logistic regression results from estimating equation (1), without and with MCF_{t-1} and EFF. Panel A reports equation (1) regression estimates without (first set of columns) and with (second set of columns) the MCF_{t-1} indicator variable. The coefficients are similar to those reported in the DeFond and Hung (2003). Analysts are more likely to issue cash flow forecasts for firms that have high accruals, more volatile earnings, higher capital intensity, lower financial health, and are larger in size. When we include MCF_{t-1} as an additional determinant, the coefficient 0.29, and is significant at the .05 level. This result suggests that analysts are more likely to issue ACFs when the firms have issued at least one MCF in the prior period.

Table 3. Logistic regression results of the effect of management cash flow forecasts in the prior period on the likelihood that a firm receives an analyst cash flow forecasts in the current period

Panel A. Logistic regression estimates from estimating equation (1) without MCF_{t-1}, and with MCF_{t-1}

	Predicted sign	Coefficient	p-value for t-statistic	Coefficient	p-value for t-statistic
Intercept	N/A	-5.77	<0.01	-5.74	<0.01
MCF_{t-1}	+			0.29	0.02
ACCRUAL	+	0.50	0.08	0.52	0.07
E_VOL	+	0.01	<0.01	0.01	<0.01
CAP_INT	+	0.24	<0.01	0.24	<0.01
ALTMAN_Z	-	-0.04	<0.01	-0.04	<0.01
SIZE	N/A	0.89	<0.01	0.89	<0.01
Model summary statistics					
-2 log likelihood		7494		7488	
Model chi-square		2385		2390	
p-value		<0.01		<0.01	
Pseudo R^2		0.284		0.285	

Panel B. Logistic regression estimates from estimating equation (1) with EFF, and with EFF and MCF_{t-1}

	Predicted sign	Coefficient	p-value for t-statistic	Coefficient	p-value for t-statistic
Intercept	N/A	-6.15	<0.01	-6.12	<0.01
EFF	-	-0.03	<0.01	-0.03	0.02
MCF_{t-1}	+			0.29	<0.01
ACCRUAL	+	0.46	0.11	0.47	0.099
E_VOL	+	0.01	<0.01	0.01	<0.01
CAP_INT	+	0.22	<0.01	0.22	<0.01
ALTMAN_Z	-	-0.04	<0.01	-0.04	<0.01
SIZE	N/A	0.88	<0.01	0.87	<0.01
Model summary statistics					
-2 log likelihood	7464			7458	
Model chi-square	2415			2420	
p-value	<0.01			<0.01	
Pseudo R^2	0.287			0.288	

Panel B shows that when EFF is included as the sole information (processing) cost variable, the coefficient is -0.03, significant at the .01 level. When we include both EFF (processing cost) and MCF_{t-1} (acquisition cost), the coefficients on both variables remain significant. Including both variables in the model slightly increases the Pseudo R^2s, suggesting that adding EFF provides incremental explanatory power. In summary, our regression results suggest that analysts are more likely to issue an ACF when the cost of acquiring cash flow information is lower due to management issuing at least one MCF in the prior period and when the costs of processing cash flow information are lower due to lower required effort on the part of the analyst.

The results presented in Table 3 are the result of estimating equation (1), which omits the set of MCF determinants identified by Wasley and Wu (2006). In Table 4 we present the logistic regression results of estimating equation (2), in which we include the following four variables from their model: (1) CH_OCF, change in operating cash flow, (2)

CF_VOL, operating cash flow volatility, (3) FA_EF_NEG, an indicator variable equal to 1 if the mean analyst annual earnings forecast issued within one year of the fiscal year-end is negative and 0 otherwise, and (4) FIRM_AGE, the number of years with stock price information on the CRSP database.

The coefficient on ACCRUAL is no longer significant. The coefficients on CH_OCF and CF_VOL are insignificant as well. However, the coefficients on MCF_{t-1} and EFF remain significant and in the same directions as in Table 3.

Table 4. Logistic regression results from estimating equation (2) with only MCF_{t-1} and with MCF_{t-1} and EFF together

	Predicted sign	Coefficient	p-value for t-statistic	Coefficient	p-value for t-statistic	Coefficient	p-value for t-statistic
Intercept	N/A	-5.44	<0.01	-5.86	<0.01	-5.82	<0.01
MCF_{t-1}	+	0.33	<0.01			0.34	<0.01
EFF	-			-0.03	<0.01	-0.03	<0.01
ACCRUAL	+	0.08	0.80	0.04	0.89	0.05	0.87
E_VOL	+	0.01	<0.01	0.01	<0.01	0.01	<0.01
CAP_INT	+	0.28	<0.01	0.26	<0.01	0.26	<0.01
ALTMAN_Z	-	-0.04	<0.01	-0.04	<0.01	-0.04	<0.01
SIZE	N/A	0.87	<0.01	0.87	<0.01	0.86	<0.01
CH_OCF	N/A	-0.26	0.41	-0.21	0.51	-0.21	0.50
CF_VOL	N/A	-0.001	0.78	-0.002	0.68	-0.002	0.71
FA_EF_NEG	N/A	-0.76	<0.01	-0.73	<0.01	-0.74	<0.01
FIRM_AGE	N/A	-0.007	<0.01	-0.008	<0.01	-0.008	<0.01
Model summary statistics							
-2 log likelihood		7397		7377		7369	
Model chi-square		2481		2501		2509	
p-value		<0.01		<0.01		<0.01	
Pseudo R^2		0.294		0.296		0.297	

5. Conclusion

This study examines whether the cost associated with analyst information acquisition and processing are determinants of the likelihood that a firm receives an analyst cash flow forecast. We measure the cost of information acquisition as the issuance of at least one management cash flow forecast in the prior period, and the cost of information processing as the average analyst effort necessary to incorporate cash flow information into their own forecast. Prior research suggests that analysts depend heavily on voluntary disclosures such as earnings and cash flow forecasts and may derive profit benefits by providing cash flow forecasts to investors in their analyst reports. We argue that when deciding whether to provide a cash flow forecast, analysts will weigh the incremental benefits against the costs to acquire and process requisite financial information.

We find that analysts are more likely to issue cash flow forecasts when management has previously issued cash flow forecasts and when the costs associated with processing this information are comparatively low. The results support the notion that management cash flow forecasts increase the net benefit to financial analysts of including cash flow forecasts in their reports by lowering the costs associated with information acquisition and processing.

Our results may also be of interest to managers. Analyst coverage has been linked to lower information asymmetry in stock prices, lower costs of capital, greater institutional investment, and higher firm valuations, among other things (e.g., Chang, Dasgupta and Hilary 2006; Kimbrough, 2007; Bowen, Chen and Cheng, 2008). If issuing MCFs attracts analyst cash flow coverage, more managers may consider issuing cash flow guidance.

References

Ajinkya, B., & Gift, M. (1984). Corporate managers' earnings forecasts and symmetrical adjustments of market expectations. *Journal of Accounting Research, 22*, 425-444. https://doi.org/10.2307/2490657

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors, and the properties of management earnings forecasts. *Journal of Accounting Research, 43*, 343-376. https://doi.org/10.1111/j.1475-679x.2005.00174.x

Altman, E. I. (1968). Financial ratios, discriminant analysis, and the prediction of corporate bankruptcy. *The Journal of Finance, 23*, 589-609. https://doi.org/10.2307/2978933

Barth, E. B., Kasznik, R., & McNichols, M. F. (2001). Analyst coverage and intangible assets. *Journal of Accounting Research, 39*(1), 1-34. https://doi.org/10.1111/1475-679X.00001

Beyer, A., Cohen, D., Lys, T., & Walther, B. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics, 50*(2-3), 296-343. https://doi.org/10.1016/j.jacceco.2010.10.003

Beuselinck, C., Joos, P. P., Khurana, I. K., & van Der Meulen, S. (2017). Which analysts benefited most from mandatory IFRS adoption in Europe? *Journal of International Accounting Research, 16*(3), 171-190. https://doi.org/10.2308/jiar-51918

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of Accounting and Economics, 11*(2-3), 255-274. https://doi.org/10.1016/0165-4101(89)90008-6

Bowen, R. M., Chen, X., & Cheng, Q. (2008). Analyst coverage and the cost of raising equity capital: Evidence from underpricing of seasoned equity offerings. *Contemporary Accounting Research, 25*(3), 657-700. https://doi.org/10.1506/car.25.3.1

Bozanic, Z., Roulstone, D. T., & Van Buskirk, A. (2018). Management earnings forecasts and other forward-looking statements. *Journal of Accounting and Economics, 65*(1), 1-20. https://doi.org/10.1016/j.jacceco.2017.11.008

Call, A. C., Chen, S., & Tong, Y. H. (2009). Are analysts' earnings forecasts more accurate when accompanied by cash flow forecasts? *Review of Accounting Studies, 14*(2-3), 358-391. https://doi.org/10.1007/s11142-009-9086-7

Call, A. C., Chen, S., & Tong, Y. H. (2013). Are analysts' cash flow forecasts naïve extensions of their own earnings forecasts? *Contemporary Accounting Research, 30*(2), 438-465. https://doi.org/10.1111/j.1911-3846.2012.01184.x

Coffee, J. (1984). Market failure and the economic case for a mandatory disclosure system. *Virginia Law Review, 70*(4), 717-753. https://doi.org/10.2307/1073083

Dai, R., Ding, H., & Zhang, F. (2024). Understand analysts' use of macroeconomic news. *Journal of Accounting, Auditing ana Finance, forthcoming*. https://doi.org/10.1177/0148558X231216132

DeFond, M., & Hung, M. (2003). An empirical analysis of analysts' cash flow forecasts. *Journal of Accounting and Economics, 35*, 73-100. https://doi.org/10.1016/S0165-4101(02)00098-8

DeFond, M. L., & Hung, M. (2007). Investor protection and analysts' cash flow forecasts around the world. *Review of Accounting Studies, 12*, 377-419. https://doi.org/10.1007/s11142-007-9030-7

Diamond, D. (1985). Optimal release of information by firms. *Journal of Finance, 50*(4), 1071-1094. https://doi.org/10.2307/2328395

Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal of Accounting and Economics, 25*(2), 133-168. https://doi.org/10.1016/S0165-4101(98)00020-2

Dye, R. (1990). Mandatory versus voluntary disclosures: The cases of financial and real externalities. *The Accounting Review, 65*(1), 1-24. https://www.jstor.org/stable/247874

Gilson, S. C., Healy, P. M., Noe, C. F., & Palepu, K. G. (2001). Analyst specialization and conglomerate stock breakups. *Journal of Accounting Research, 39*(3), 565-582. https://doi.org/10.1111/1475-679X.00028

Givoly, D., Hayn, C., & Lehavy, R. (2009). The quality of analysts' cash flow forecasts. *The Accounting Review, 84*(6), 1877-1911. https://doi.org/10.2308/accr.2009.84.6.1877

Kimbrough, M. D. (2007). The influences of financial statement recognition and analyst coverage on the market's valuation of R&D capital. *The Accounting Review, 82*(5), 1195-1225. https://doi.org/10.2308/accr.2007.82.5.1195

Kingma, P., Leguizamo, A., & Bricco, C. (2024). *Cash forecasting: Difficult, disappointing and more urgent than ever*. EY Parthenon. Available at: https://www.ey.com/en_us/insights/strategy/cash-forecasting-difficult-and-more-urgent-than-ever.

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *The Accounting Review, 71*(4), 467-492. https://www.jstor.org/stable/248567

Langberg, N., & Sivaramakrishnan, K. (2008). Voluntary disclosures and information production by analysts. *Journal of Accounting and Economics, 46*(1), 78-100. https://doi.org/10.1016/j.jacceco.2007.11.004

Lee, B. B.-H., & Lee, J. J. (2024). Financial statement comparability and analysts' optimism for accruals. *The British Accounting Review, 56*(3), 101303. https://doi.org/10.1016/j.bar.2023.101303

Liu, M. H. (2011). Analysts' incentives to produce industry-level versus firm-specific information. *Journal of Financial and Quantitative Analysis, 46*, 757-784. https://doi.org/10.1017/S0022109011000056

Mohanram, P. S. (2014). Analysts' cash flow forecasts and the decline of the accruals anomaly. *Contemporary Accounting Research, 31*(4), 1143-1170. https://doi.org/10.1111/1911-3846.12056

Nallareddy, S., Sethuraman, M., & Venkatachalam, M. (2018). *Earnings or cash flows: Which is a better predictor of future cash flow*? Working Paper, Harvard University. Available at SSRN, 3054644. https://www.hbs.edu/faculty/Shared%20Documents/conferences/2018-imo/NSV%20HBS.PDF

Radhakrishnan, S., & Wu, S. (2014). Analysts' cash flow forecasts and accrual mispricing. *Contemporary Accounting Research, 31*(4), 1191-1219. https://doi.org/10.1111/1911-3846.12060

Veldkamp, L. L. (2006). Information markets and the comovement of asset prices. *Review of Economic Studies, 73*(3), 823-845. https://doi.org/10.1111/j.1467-937X.2006.00397.x

Verrecchia, R. (2001). Essays on disclosure. *Journal of Accounting and Economics, 32*, 97-180. https://doi.org/10.1016/S0165-4101(01)00025-8

Wasley, C. E., & Wu, J. S. (2006). Why do managers voluntarily issue cash flow forecasts? *Journal of Accounting Research, 44*(2), 389-429. https://doi.org/10.1111/j.1475-679X.2006.00206.x

Notes

Note 1. Although not identical, most of the demand factors facing the analysts and firm management are the same. For example, large positive accruals may incentivize analysts to issue cash flow forecasts while discouraging management from cash flow issuance.

Note 2. The omitted correlated variable problem is not a major concern in our study because the average Pseudo-$R2$ in the DeFond and Hung (2003) model is 0.20, which provides adequate explanatory power. Therefore, the omitted demand variables, if present, should not drive the results in our study.

Note 3. Wasley and Wu's (2006) management cash flow forecast data cover the mid-1979 to October 2003 and are comprised of 2,090 press releases screened to contain actual management cash flow forecasts. Our hand collected management cash flow forecast data (after screening) include 1,085 new presses containing actual management cash flow forecasts. It is not surprising that by covering 2002 to 2004, our sample size is half of Wasley and Wu's because the percentage of Compustat firms with a management cash flow forecast increases from 0.3% in 1993 to 3.0% in 2002.

Appendix A

Definitions of Variables

ACF = Dummy variable equal to one if a firm year has both earnings and cash flow annual forecasts issued by analysts within a year and 0 if the firm has only earnings forecasts issued by analysts.

MCF = Dummy variable equal to one if the firm issues either annual or quarterly cash flow forecast(s) during the year and 0 if the firm does not issue cash flow guidance.

EFF = the negative number of firms followed by the firm's analysts, i.e., the sum of the number of firms covered by a firm's analysts who issue either earnings or cash flow forecasts, or both, in a particular year divided by the number of analysts covering the firm in that year.

ACCRUAL = (Net income before extra-ordinary items minus operating cash flows)/total assets, measured in the year immediately prior to the forecasted year.

E_VOL = Earnings volatility, which is the coefficient of variation of earnings measured over 1997 to 2004, calculated as |standard deviation of earnings/mean of earnings|, where earnings is earnings before extra-ordinary items scaled by beginning stock price.

CAP_INT = Capital intensity, which is the ratio of gross property, plant and equipment divided by sales revenue in the year immediately prior to the forecasted year.

ALTMAN_Z = Altman's Z-score measured in the year immediately prior to the forecasted year. Following Altman (1968), the Z score equals 1.2(Net working capital/Total assets) + 1.4(Retained earnings/Total assets) + 3.3(Earnings before interest and taxes/Total assets) + 0.6(Market value of equity/Book value of liabilities) + 1.0(Sales/Total assets). Lower Altman's Z-scores indicate poorer financial health.

SIZE = The natural log of market value of equity in millions of dollars, measured in the year immediately prior to the forecasted year.

CH_OCF = The firm's operating cash flow in the forecasted year minus that in the previous year, deflated by lagged total assets.

CF_VOL = The coefficient of variation of operating cash flows measured over 1997 to 2004, calculated as |standard deviation of cash flows/mean of cash flows|, where cash flows is operating cash flows before extra-ordinary items scaled by beginning total assets.

AEF_NEG = 1 if the mean analyst annual earnings forecast issued within one year of the fiscal year-end is negative and 0 otherwise.

FIRM_AGE = Measured (in years) as the current year minus the first year that stock price information for the firm is available on the CRSP database.