Are Analysts Opportunistic?
The Case of Seasoned Equity Offerings and
Regulation in the European Market

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Abstract

When firms manage earnings financial analysts are presented with a choice. If analysts forecast earnings that are close to the reported earnings, they are known to be accurate, while if they forecast earnings that are 'unmanaged' they are called informative. Scant existing literature on financial analysts' forecasts presents contradictory evidence as to whether analysts prefer forecast accuracy or informativeness. This study investigates forecasts around seasoned equity offerings when significant upwards earnings management exists as documented by previous studies. We expect analysts to disregard such management based on the findings of Louis et al. (2013) who report that analysts forego forecast accuracy for informativeness. Using individual analyst forecasts around SEOs issued in the EU from 2000-2016, we find that analyst forecast is generally not affected by the SEO issue except when we consider the size of the firm where forecasts decrease after an issue. The association remains insignificant considering other firm/issue characteristics as well as analyst characteristics likely to influence analysts to forecast accurately. For SEOs and forecasts issued before the implementation of the Market Abuse Directive in 2004, we find a positive significant association between the forecast and SEO issue. We conclude that greater transparency and reduced access to private information may have caused analysts to prefer informativeness over accuracy which may not necessarily be by choice.

Keywords: Analyst Forecast, Earnings Management, Seasoned Equity Offerings, Forecast Accuracy, Informativeness, Market Abuse Directive

1. Introduction

This study contributes to the literature on the nature of financial analyst earnings forecasts when firms manage earnings. We add to the evidence that analysts may generally prefer informativeness when forecasting earnings that are managed to help their clients make better investment decisions. This is in contrast to the implicit assumption in the literature that analysts forecast reported earnings as precisely as possible. Earnings forecasts of financial analysts have been extensively discussed in the literature on capital markets. On the other hand, earnings management by firms has also been greatly researched. However, current literature is scant on the discussion of the consolidation of the two topics. Few attempts have been made to find out what analysts forecast when earnings are managed. This study considers a specifically well-documented case of earnings management, Seasoned Equity Offerings (SEO). It examines analyst forecasts around SEOs to evaluate whether analysts prefer accuracy, which is forecast earnings that are expected to be reported, or informativeness, which is to forecast an earnings figure devoid of the managed component of earnings. While being accurate makes sense for analysts due to forecast accuracy being a benchmark of performance (Clement, 1999), being informative seems rather counter-intuitive. Yet, analysts may well want to forecast the unmanaged earnings for a firm which they believe represents the true performance of the firm. Following the theory proposed by Louis et al. (2013) that analysts deviate from management guidance in order to be more informative for their clients, we expect that analysts ignore the managed earnings component, even when they are aware of it, when forecasting earnings. Firms indulge in systematic and significant upwards earnings management around SEOs as shown in extant literature (Teoh et al. (1998), Rangan (1998), and Shivakumar (2000)). It is therefore expected that if analysts increase their forecasts after an SEO, they prefer accuracy whereas if they do not change their forecasts, they prefer informativeness. For a sample of 2,022 SEOs issued in the years 2000-2016, we find that SEO issue does not significantly alter analyst forecasts indicating analyst preference for informativeness, except when we test the combined effect of the issue and the size of the firm which is when the forecasts decrease again indicating deviation from accuracy. We run additional tests incorporating possible conflicts of interest between the analyst and the firm, forecasts issued right after the SEO filing, as well as analyst experience and find similar results. As we examine SEOs issued in Europe, we consider the Market Abuse Directive (MAD) brought as part of the Financial Services Action Plan in the

European Union. Fauver et al. (2017) report that the magnitude of earnings management around SEOs significantly reduced after the implementation of MAD for all EU countries, most of which are in our sample. We find that SEO issue is positively and significantly associated with analyst forecasts before the implementation of the directive whereas insignificant thereafter.

As the Market Abuse Directive restricts issuers to disclose sensitive information to analysts in private, it can be inferred that after the directive analysts had less inside information to be fully aware of earnings management. While analysts may be fully aware of the SEO being issued, they may not have the proper management guidance to forecast managed earnings as not all issuers will manipulate earnings. Thus, analysts may have given up on forecast accuracy as a consequence of better transparency in the market and not as a choice. However, before the directive analysts had access to private information allowing them to benefit from management guidance and increase their forecasts (incorporating earnings management) following an SEO issue accordingly. Analysts could be opportunistic and target forecast accuracy before MAD because quite simply it would be easier to go with management guidance than to forecast on their own. Management guidance is when managers issue earnings forecasts publicly or privately only to analysts to "guide" analyst earnings forecasts. Cotter et al. (2006) suggest that management guidance plays a vital role in leading analysts to forecast achievable earnings targets. Therefore, analysts would find it simpler to follow management forecasts given the information than to try to predict the unmanaged component of earnings only. Yet, after the directive, once this privilege of private information was lost, analysts had to predict earnings without guidance which they did by giving up forecast accuracy.

Our study builds on a small yet growing body of literature that analysts may do just the opposite to uncover mispricing and forecast earnings that are value-relevant (that give better returns over the medium and long-term). Whilst building on this evidence we find that there may still be instances when analysts prefer to be more accurate such as forecasting for larger firms or before the adoption of MAD. It shows that market conditions as well as analyst characteristics might affect the choice of an analyst to be accurate or informative. Analyst forecasts may not be easily generalized to be either accurate or informative without considering these crucial aspects. This study also adds value as it considers individual analyst forecasts unlike any of the few studies before it (Louis et al. consider mean consensus forecasts). Considering individual

forecasts adds to the dynamic attributes of individual analysts that help draw better conclusions about their earnings forecasts. Also, we work on a European sample which is much more diverse than the conventional US sample allowing us to make better generalizations.

The next section discusses the literature on the issue at hand. Section 3 defines the hypotheses and describes the research design. Section 4 describes the sample and its characteristics. Section 5 discusses the results while section 6 concludes.

2. Existing Literature on Analyst Forecasts and Earnings Management

The motivation of this study is to better understand analysts' earnings forecasts for much weight is assigned to them by the capital markets. Existing literature shows that analyst forecast accuracy has been studied in great detail. Researchers have tried to evaluate what makes analysts' forecasts more accurate, that is, closer to the management's reported figures. Forecast accuracy is how close the analyst forecasted earnings to the actual reported figure. Intuitively all analysts strive to be as accurate as possible simply because a forecast is a prediction of the actual and the more accurate it is the better. However, an earnings forecast is just one component of the analyst report. Analysts routinely issue stock recommendations as well as price targets for firms in their reports. This suggests that analysts primarily focus on providing valuable information to their clients which means they may not always intend to be accurate. Considering cases when reported earnings do not reflect the true performance of the firm, analysts might tend to forecast earnings that do reflect such performance. Hence, when an analyst forecast is not accurate, it must be informative meaning that it reflects the true (unmanaged) earnings of the firm. These forecasts, along with other indicators, are widely used by investors to price securities as shown by investors' reaction to these forecasts releases. Value-irrelevant forecasts (that do not reflect the true performance of the firm) may be dangerous for investors to use as the investment decisions taken using these forecasts may result in losses over the medium and long-term. Forecast accuracy has also been used to determine the integrity of analysts by researchers and the analysts' compensations by their employers. Better compensation or even fame from forecasting 'accurately' might motivate analysts to be accurate. Clement (1999) studies what makes analysts more accurate while *The Wall Street Journal* and *Institutional Investor* rank analysts based on

popularity (Emery, et al., 2009). On the contrary, if analysts try to provide valuable information to their clients they would not prefer accuracy, and this criterion will be subject to reinterpretation. Cowen et al. (2006) find that analyst compensation is based on how much business the analyst brings, hence, how helpful s/he is for the client. Thus, informativeness is a key dimension in analyst earnings forecasts. Similarly, managers use these forecasts to set targets as well as influence them to achieve better stock performance. Firm managers also issue their own forecasts to influence market participants' decisions. As managers tend to predict earnings figures far from the reported GAAP numbers, analysts are also known to exclude certain items to 'better' forecast firm performance (Gu, et al., 2004) indicating analysts' preference to be more informative.

The literature on financial analysts' treatment of earnings management in their forecasts is conflicting. Abarbanell and Lehavy (2003) study the effect of stock price sensitivity to earnings news on earnings management and analysts' forecast errors. They find that analysts are either incapable or not motivated to anticipate completely the managed component of earnings. Burgstahler and Eames (2003) investigate analysts' earnings forecasts in cases of earnings management to avoid losses and small earnings decreases. They conclude that analysts do anticipate such earnings management in their forecasts to be more accurate; however, analysts are unable to consistently identify the firms that manage earnings to avoid small losses, leaving forecasts to be inaccurate (not informative). Whereas the former study does not establish analysts' intent to forecast the managed earnings component, the latter indicates that analysts do have such an intention. Burgstahler and Eames find that analysts usually predict earnings management that is not realized and fail to predict one that is realized (Burgstahler, et al., 2003 p. 256). They do this by analyzing the earnings forecasts of an analyst and note higher frequency of forecasts just to the right of zero earnings but no such frequency for the corresponding reported earnings. Through similar technique, the authors find weak evidence of analysts predicting earnings management to avoid earnings decreases concluding that analysts do not correctly anticipate which firms would be involved in earnings management and so the analysts are not a significant source of such earnings management. The authors invite other researchers to theorize their findings since intuition tells us that analysts should be well aware of earnings management especially with respect to the firms they follow. And if analysts frequently misjudge the earnings management what is the interpretation of their 'post-managed' earnings forecast?

Another limitation of this paper is that they consider two motivations of earnings management (avoiding losses and earnings decreases) whereas there are several other explanations as discussed later.

Porter (2006) finds that analysts include the effects of earnings management in their forecasts pointing out that Abarbanell and Lehavy's finding that analysts exclude the managed component is due to managers 'last minute' earnings manipulation and not because analysts want to exclude this component. Shane and Stock (2006) find that analysts fail to anticipate earnings management in the case when firms tend to shift income from quarter to quarter to benefit from tax reductions. They further show that this exclusion of the managed component is not because of a decision to ignore the shift in income but because of the incapability to identify temporary components of reported earnings. Our study addresses this issue directly by focusing on SEOs where the transaction is certain after its announcement and earnings are documented to have been managed unlike income shifting which is difficult for the analyst to predict for a firm. Givoly et al. (2008) identify cases where earnings are most likely to be managed upwards and find that analysts predict the earnings number that the firm will eventually report.

On the contrary, Louis et al. (2013) present a comprehensive view of the accuracy and informativeness of analysts' earnings forecasts accompanied by theoretical explanations. The authors are the first to argue that analysts' primary concern is not forecast accuracy and that they value informativeness for their clients. They support this idea by understanding analysts through their reports that tell that analysts routinely deviate from management guidance and provide estimates they know will differ from reported earnings. They explain that the analysts' reports are targeted towards clients with medium to long term investment horizons and so include forecasts that better predict long-term value. Analysts also tend to explain the reasons for their possible deviations from management's earnings figures in their reports. The authors explain that analysts do this because they have financial incentive to do so; their employers compensate them on investor feedback as well as stock picking ability whereas forecast accuracy is not factored in. The assumption in this paper is that analysts do not forecast an earnings figure and then remove possible earnings management, but that they come up with their own estimates of earnings they believe to be true. After the management's earnings preannouncement, analysts either revise these estimates following management guidance or ignore the preannouncement indicating

possible earnings management. They show that analysts do sacrifice their forecast accuracy for informativeness mostly for their clients. Their results show significant negative association between earnings management (using abnormal accruals proxy) and the deviation between analyst earnings forecast and management's preannounced earnings (analyst estimate minus preannounced earnings). That is, analysts deviate from the guidance as earnings are managed. Additionally, the authors also show that the analysts' deviation is actually informative to investors by finding no evidence of abnormal accrual mispricing when analysts deviate from preannounced earnings. Thus, they conclude that analysts prefer informativeness over accuracy.

One weakness of the study by Louis et al. is that they use mean consensus forecasts for most of their tests which may not fully capture the individuality of analysts. It is quite possible that some of the analysts included in the consensus may prefer accuracy while others opt for informativeness. Considering the mean forecast may well mitigate such effects to an extent. Furthermore, mean forecasts may be meaningless if the forecast dispersion is large. Also, their study estimates earnings management only by using discretionary accruals as a proxy, which has its own pitfalls. They do not consider any other cases where earnings management is more likely. While they may argue that the earnings are likely to be managed in their simple owing to higher discretionary accruals, we use a sample where earnings are better documented to have been managed upwards significantly.

3. Hypotheses Development and Research Design

To investigate whether analyst forecasts are accurate or informative we need a sample of firms that are highly suspected to manage earnings. There exist several motivations for firms to manage earnings which have been well documented in the literature. Healy (1985) presented that managers use discretionary accruals to manipulate earnings upwards when their bonuses are linked to these earnings. Burgstahler and Dichev (1997) report that firms manage earnings to avoid reporting earnings decreases or losses. Healy and Wahlen (1999) review that managers may manage earnings to inflate stock prices around capital market transactions such as mergers and acquisitions, debt issue, or stock issue. For our analysis, we chose to study analyst forecasts around an SEO issue for several reasons. One, it is well documented in the literature that firms

systematically manage earnings only upwards, and not downwards, around an SEO issue as we discuss shortly. Two, the SEO filing date gives us a neat benchmark to pick analyst forecasts before and after that date to analyze the change. Three, SEO issue is reported to motivate managers to manipulate earnings using both accrual-based as well as real earnings management activities (Cohen, et al., 2010). And four, the magnitude of expected earnings management around SEOs is high. It follows from the literature that reported earnings around SEOs have significant impact on future earnings, allowing us to capture the complexity of forecasts around these transactions. Previous studies suggest that SEOs are followed by a decrease in earnings as well as stock performance (Spiess, et al., 1995), (Rangan, 1998), (Shivakumar, 2000) and so analysts might prefer estimating unmanaged earnings that reflect the true performance of the firm in the medium and long-term. However, earnings management under any circumstance could lead to poor performance in the medium and long-term for firms, so, using SEO issue does not bias our study toward analyst preference for informativeness.

Using seasoned equity issuers from 1976 to 1989 Teoh et al. (1998) show that issuers report higher net income (than performance matched industry peers) in the year of issue and report underperformance in the subsequent two years. Rangan (2008) documents that earnings management, proxied by discretionary accruals, are positive and significant in the quarters 0 and 1 where quarter 0 is defined as the quarter that has the first earnings announcement after the SEO announcement. This relationship is further cemented by Shivakumar (2000) who finds positive abnormal accruals from quarters -4 to 4. These findings suggest that managers engage in systematic and significant upwards earnings manipulation around the time of an SEO issue. Rangan (2008) further tests whether these SEO issues are 'timed' when accruals are high and finds no evidence. It can then be concurred that when as SEO is announced, analysts are fully aware of possible earnings manipulation. We analyze the relationship between an SEO issue and analyst forecast using individual analyst forecasts before and after the SEO. We therefore pursue the important question addressing analyst forecasts that whether analysts intentionally incorporate earnings management in their forecasts for better accuracy, or ignore it for informativeness.

The goal of this study is to look for the association between analysts' earnings forecast and the earnings management and explore the nature of this association. If analysts prefer

accuracy a greater positive association between the forecast and earnings management should exist. On the other hand, if analysts prefer informativeness we expect little or no association between their forecasts and known earnings manipulation. Basing our study on Louis et al. (2013) who report findings against the majority of literature on analysts preferring accuracy, we hypothesize that analysts exclude from their earnings forecasts the earnings management component for better informativeness for their clients. Notably because analysts are unable to estimate the nature and magnitude of the management, they are likely to exclude it. If analysts include the earnings management component it will have implications for investors relying on their forecasts as well as researchers using these forecasts for further studies. We expect analysts to ignore the SEO issue which is around the time when management is known to manipulate earnings following our formal hypothesis:

> **H**: Analysts exclude from their forecasts earnings management when they know that the management has incentives to manipulate earnings

We test our first hypothesis using individual analyst forecasts around SEOs using the following regression model:

$$AF_{ijt} = \alpha_0 + \alpha_1 SEO_{jt} + \alpha_2 EPS_{jt-1} + \alpha_3 CHE_{jt-1} + \alpha_4 OCF_{jt-1} + \alpha_5 SIZE_{jt-1} + \alpha_6 FOW_{jt} + \alpha_7 FH_{ijt} + \varepsilon_{ijt}$$

(1)

The variables are as follows:

AF is the last analyst forecast before the SEO filing date and the first forecast after it, scaled by beginning share price;

SEO is a binary variable that takes the value one if the forecast is made after the SEO filing and zero otherwise;

EPS is earnings for year -1, scaled by beginning share price;

CHE is the change in EPS from year -2 to year -1, scaled by beginning share price;

OCF is the operating cash flow for year -1, scaled by beginning market capitalization;

SIZE is the logarithm of the market capitalization of the firm at the beginning of year 0;

FOW is the logarithm of the number of analysts following the firm in year 0;

FH is the logarithm of the number of days between the analyst earnings forecast date and the actual earnings announcement date

Year 0 is the financial year in which the SEO is issued. We expect α_1 to be zero as an SEO issue indicates upwards earnings management and analysts who prefer informativeness will not incorporate this managed component in their forecasts. In contrast, and contrary to our hypothesis α_1 should be positive if analysts prefer forecast accuracy and forecast earnings closer to the reported managed earnings figure. Our model is based on the review of forecasting literature by Brown (1993) who points out that the literature suggests that analyst impound both private and publicly available information in their forecasts. We include previous reported earnings (*EPS*) as well as the change in earnings (*CHE*) because analysts evidently base their forecasts on these values as shown by greater number of forecasts around earnings announcements. These variables also help control for the variation in the forecast. We control for financial performance by including operating cash flow (*OCF*) as better operating performance leads to higher forecasts. Brown et al. (1987), Collins et al. (1987), and Freeman (1987) show that analysts forecast better (relative to time-series models) for larger firms. This means that if analysts are opportunistic, they will be more accurate for larger firms comparatively. Therefore, we include a proxy (*SIZE*) which controls for the size of the firm. Kross et al. (1990) suggest that analysts forecast better when a firm has greater coverage. We control for the number of analysts (*FOW*) that follow the firm around the SEO to capture the coverage of the firm. Also, greater analyst following indicates a relatively larger firm thus affecting analyst forecast. Finally, we control for the number of days between the actual earnings announcement and the analyst forecast announcement (*FH*) as studies suggest that recent forecasts are more 'accurate' (O'brien, 1988).

4. Sample

We obtained an initial sample of all seasoned equity offerings from 2000-2016 by all European firms through Thomson One Banker Deals Analysis database. Financial services firms, real estate firms, and firms with duplicate issues on the same date were excluded following Rangan (1998). Next, we obtained the individual analyst forecasts, forecast period end dates,

actual reported earnings from I/B/E/S, and other financial data required for our tests from Compustat Global IQ for the remaining observations. We dropped observations with missing data, as well as observations in excess of 100% in absolute value for analyst forecasts or earnings following Rangan (1998). A final sample of 2,022 offerings from 1,269 firms remains for our main tests. We use the SEO filing date as the benchmark to define forecasts before and after. As found in previous studies, more than 90% of firms first announce the SEO on the filing date (Purnanandam, et al., 2006). The SEO filing date hence proxies the SEO announcement date accurately. This means that analysts, as well as investors and other market participants, are unaware of SEO issue before this date. Hence we include the last analyst forecast before the filing date and the first analyst forecast after the filing date in our analysis. Analysts that issued estimates before the SEO filing and not after, or vice versa, were dropped. Analysts who issue estimates before and not after imply that the SEO issue does not alter their forecast, indicating their preference for informativeness. Dropping these analyst forecasts would not bias the results toward our hypothesis. Whereas analysts who issue a forecast only after the SEO do not provide us with incremental information about the change in their forecasts and are hence dropped. Forecasts made more than 180 days before or 180 days after the filing date were also dropped as older forecasts may contain information other than SEO announcement. Figure 1 shows the timeline of a sample firm-year. Each offering has an average of approximately 12 forecasts before and after the issue so the total number of observations is 24,368.

**Fig. 1: Timeline of analyst forecast and SEO issue**
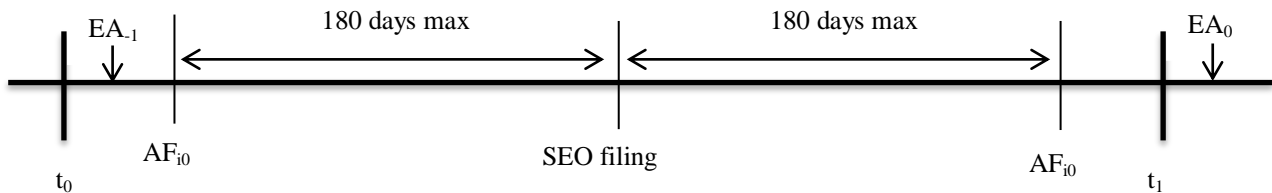
EA_{-1} is the last earnings announcement before the SEO filing.

EA_0 is the earnings announcement of the year of issue.

AF_{i0} is the forecast by analyst i for year 0.

All forecasts issued on the day of the SEO filing are considered to have been issued after the SEO as the information is now publicly available. There are approximately an average of 44 days between the forecast and the filing on either side of the issue. Figure 2 shows a histogram of analyst forecasts around the SEO filing date. An evident spike around the filing date shows that analysts rush to update their forecasts by incorporating the new information in the market. This does not necessarily mean that analysts will include or ignore the earnings management component in their forecasts; it simply indicates that analysts wish to revise their estimates after this new information. As Louis et al. (2013) conjecture that analysts form their own estimates rather than following the management and that an SEO issue leads to poor subsequent earnings performance (Teoh et al. 1998), analysts may tend to this and other aspects when revising their forecasts.

Fig. 2: Histogram of analyst forecasts around SEO filing
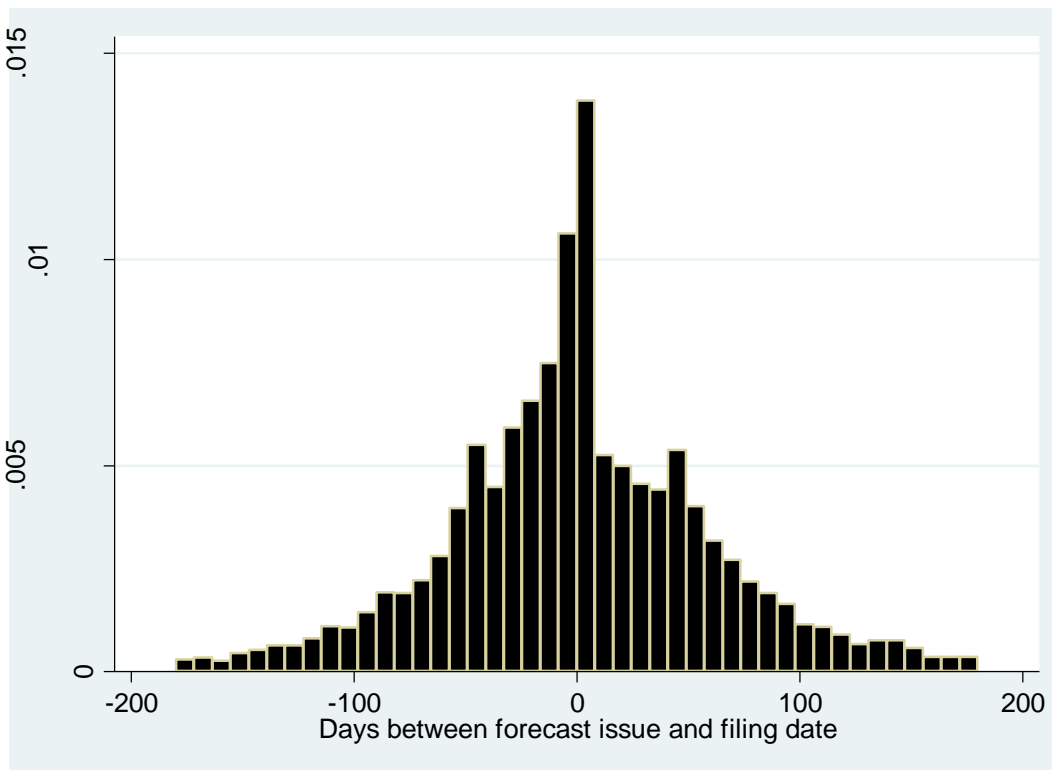
The distribution of the 2,022 SEOs in our sample is presented in Table 1. 2009 is the year with the greatest number of SEOs issued with 227 whereas a general increasing trend over time is observed in the sample. 644 SEOs were issued by UK firms followed by 228 German and 215 French firms. The distribution of the SEOs among the industries is fairly balanced with

Industrials and High technology firms issuing more than others in our sample. 1,141 SEOs have forecasts issued by four or less analysts in our sample whereas 31 SEOs have forecasts issued by twenty-five or more analysts. This means that the latter will have at least fifty forecasts each that enter the sample. Most of the firms in our sample issue only once during the sample period (794 or 63%) while 65 firms issue four or more times during the period.

Table 1: Sample characteristics

Year	SEOs	Country	SEOs	Industry	SEOs	Analysts/SEO	SEOs
2000	48	UK	644	Industrials	414	1-4	1,141
2001	46	Germany	228	High Technology	305	5-14	644
2002	41	France	215	Healthcare	251	15-24	206
2003	60	Norway	165	Energy & Power	216	25 or more	31
2004	116	Sweden	140	Materials	222	**Total**	**2,022**
2005	104	Spain	95	Consumer Products	157		
2006	92	Italy	69	Media &		**Bookrunner/SEO**	**SEOs**
2007	89	Finland	66	Entertainment	138	1 book runner	1,435
2008	81	Switzerland	59	Consumer Staples	133	2-3 book runners	516
2009	227	Netherlands	58	Retail	93	4 or more	71
2010	162	Belgium	46	Telecommunications	92	**Total**	**2,022**
2011	158	Denmark	43	Government &			
2012	148	Poland	33	Agencies	1	**SEO/firm**	**Firms**
2013	178	Austria	23			1 issue	794
2014	159	Russia	23			2 issues	299
2015	142	Turkey	21			3 issues	111
2016	171	Others	94			4 or more	65
Total	**2,022**	**Total**	**2,022**	**Total**	**2,022**	**Total**	**1,269**

Table 2 presents descriptive statistics about the SEOs as well as other variables from equation (1). Our SEO sample is skewed heavily towards the right as average total assets before the issue as well as total proceeds from the issue are larger than their respective medians. The

median value of assets before the issue is $777 million while the median proceeds from the issue are $73 million. Table 2 also presents summary statistics of the dependent variable, analyst forecasts. The mean analyst forecast is 5.7% of the share price while Table 2 also reports the breakdown statistics of the forecasts before and after the issue. Financial performance of the SEO firms in our sample for year -1 shows that the average reported earnings is 1.7% of the share price and average operating cash flow is 3.5% of the share price. Mean return on assets is negative while the median is 2.6% of the share price.

Table 2: Descriptive statistics

	#	Mean	Q1	Median	Q3	St. Dev.
Assets before offer (in millions of $)	2,022	7,442	142	777	3,490	24,070
SEO proceeds (in millions of $)	1,973	295	20	73	215	802
Shares offered (in millions)	1,876	87.1	2.5	8.6	28.6	1,039
Analyst forecasts (all – per share price)	24,496	0.057	0.029	0.065	0.092	0.083
• Forecasts per share before SEO filing	12,248	0.058	0.031	0.066	0.092	0.081
• Forecasts per share after SEO filing	12,248	0.056	0.027	0.064	0.091	0.084
Days between forecast and filing (before)	12,248	43	61	33	14	38
Days between forecast and filing (after)	12,248	45	11	35	66	41
Reported earnings year -1 (EPS)	2,022	0.017	0.001	0.049	0.080	0.137
Operating cash flow year -1 (OCF)	2,022	0.035	0.013	0.067	0.113	0.199
Return on assets year -1 (ROA)	2,022	-0.022	-0.019	0.026	0.060	0.211

Table 3 reports the correlation matrix for the main variables in equation (1). Analyst forecast (AF) is not correlated with SEO issue (SEO) though moderately correlated with earnings indicators (EPS and LOSS). SEO issue is not correlated with any of the other variables in the

equation. The size of the firm (SIZE) proxied by the value of total assets before offer is highly positively correlated with the number of analysts following the firm at the time of issue (FOW) which shows that larger firms are covered by more analysts.

Table 3: Correlation matrix

	AF	SEO	EPS	CHE	OCF	SIZE	FOW	FH
AF	1.00							
SEO	-0.01	1.00						
EPS	0.57	0.00	1.00					
CHE	0.17	0.00	0.40	1.00				
OCF	0.22	0.00	0.25	0.02	1.00			
SIZE	0.07	0.00	0.14	0.02	-0.20	1.00		
FOW	0.13	0.00	0.18	0.00	0.25	0.42	1.00	
FH	0.03	-0.40	-0.02	0.00	-0.02	-0.03	-0.05	1.00

5. Results

5.1. Change in analyst forecasts around SEOs

We run a multiple linear regression using equation (1) with fixed effects for country, industry, as well as year and clustered standard errors and the results are presented in Table 4. As per expectation, we find no association between AF and SEO as the insignificant coefficient is almost zero in column 1. This result indicates analyst preference for informativeness. Our model captures nearly 38% of the variation in analyst forecasts as shown by the adjusted R-squared. EPS and OCF, indicators of performance are positively associated with analyst forecasts with both statistical and economic significance. SIZE has no association with analyst forecast however as suggested in extant literature (Brown et al. 1987) that the size of the firm affects analyst forecasts, we introduce an interaction between SEO and SIZE to capture the combined effect of SEO issue and size on analyst forecast, and the results are shown in column (2). The coefficient of SEO becomes negative and significant while the coefficient of the interaction term is positive though extremely small. The coefficient of SIZE is also negative and greater in

absolute value than the coefficient of the interaction term (not shown due to rounding). This shows that analysts generally decrease their forecasts after an SEO issue and the effect is stronger for larger firms than for smaller firms. One explanation for this reduction is that for larger firms analysts follow management guidance to forecast earnings (which is not the only item of their report) and so forecast in line with such guidance. As soon as the SEO is announced analysts figure that the guidance may already include an earnings management component and attempt to remove it from their forecasts. This explanation is contrary to the assumption made by Louis et al (2013) that analysts come up with their own forecasts. However, literature suggests that analysts regularly follow management guidance and even overweigh it when the guidance is credible and useful (Feng, et al., 2010). It would then be practical for analysts to attempt to deviate from such guidance when they feel that it is no more credible or useful. The number of analysts following a firm has an insignificant association with analyst forecast. Forecast horizon (FH) is positively associated as the number of days between the forecast and actual announcement reduces, uncertainty reduces, and analysts correct their forecasts for over-optimism. This is documented in the literature as the information dissemination hypothesis (Kross et al. 1990) as well as analyst optimism (Ackert, et al., 1997). It posits that initially with uncertainty in the market about the firm, analysts forecast over-optimistic earnings. Gradually, as the uncertainty reduces analysts would correct their forecasts causing a positive relationship between AF and FH.

Table 4: Association between AF and SEO – equation (1)

	Column (1)		Column (2)	
AF	Coefficient	t-value	Coefficient	t-value
Intercept	0.006	0.22	0.009	0.33
SEO	0.000	0.75	-0.006**	-2.13
SIZE	-0.001	-0.55	-0.001	-0.46
SEO*SIZE			0.001**	2.55
EPS	0.419***	9.23	0.419***	9.23
CHE	-0.047	-1.02	-0.047	-1.02
OCF	0.033**	2.38	0.033**	2.38
FOW	0.005	1.18	0.005	1.18

FH	0.004**	1.97	0.004**	1.98
Year fixed effects	Yes		Yes	
Country fixed effects	Yes		Yes	
Industry fixed effects	Yes		Yes	
# obs.	24,368		24,368	
Adj. R^2	0.379		0.379	

*=significant at 10%, **=significant at 5%, ***=significant at 1% level; t-values are based on standard errors adjusted for 974 clusters in country-industry-year

By ignoring an SEO issue analysts refuse to increase their forecasts to include the earnings management component, hence being more informative. An alternate explanation is that analysts may be unable to predict the managed component and may decide to leave their forecast unchanged, hence the lack of association with an SEO. These explanations are inconsistent with the findings of Burgstahler et al., (2003) who report that analysts try but are unable to correctly predict earnings management. If analysts tried to predict the managed component in order to be more accurate there would still be a positive relation between forecast and SEO, as earnings are managed upwards around SEOs.

5.2. Association between analyst forecast and SEO for high-value issues

It is possible that analysts may prefer accuracy for larger firms as these firms are more prestigious and might bring more recognition for the analyst. Also, larger firms may be able to influence and sway analyst forecasts in their own favor. Analysts might also notice the earnings manipulation brought by an SEO only if that SEO is of higher value. Moreover, research exploring the idea of earnings management around SEOs ends up with a sample tilted towards larger firms and higher value SEO issues (Rangan 1998, Shivakumar 2000). We therefore include an indicator variable that captures the log value of the SEO proceeds, the total value of proceeds of the issue from all markets taken from Thomson One Banker, (SEOVAL) and an interaction term between SEO and SEOVAL.

$$AF_{ijt} = \alpha_0 + \alpha_1 SEO_{jt} + \alpha_2 SEOVAL_{jt} + \alpha_3 SEO*SEOVAL_{jt} + \alpha_4 EPS_{jt-1} + \alpha_5 CHE_{jt-1} + \alpha_6 OCF_{jt-1} + \alpha_7 SIZE_{jt-1} + \alpha_8 FOW_{jt} + \alpha_9 FH_{ijt} + \varepsilon_{ijt} \quad (2)$$

Table 5 presents the regression results from equation (2). The interaction term in column (2), which captures the association between analyst forecast and SEO value when SEO equals one, is insignificant. The coefficient of the new variable SEOVAL is significant in our model. It means

generally analysts forecasts slightly higher for firms with higher value issues. This relationship does not indicate that analysts increase their forecasts particularly after an SEO issue. Coefficients of other variables remain the same as from equation (1).

Table 5: Association between AF and SEO with respect to SEOVAL – equation (2)

	Column (1)		Column (2)	
AF	Coefficient	t-value	Coefficient	t-value
Intercept	-0.003	-0.10	-0.002	-0.06
SEO	0.001	0.52	-0.002	-0.83
SEOVAL	0.002**	2.16	0.002**	1.99
SEO*SEOVAL			0.000	1.46
Controls	Yes		Yes	
Year fixed effects	Yes		Yes	
Country fixed effects	Yes		Yes	
Industry fixed effects	Yes		Yes	
# obs.	23,756		23,882	
Adj. R^2	0.374		0.374	

*=significant at 10%, **=significant at 5%, ***=significant at 1% level; t-values are based on standard errors adjusted for 958 clusters in country-industry-year

5.3. Association between analyst forecast and SEO given possible conflicts of interest

In our next model we test whether possible conflicts of interest may cause analysts to be accurate. Since we deal with SEO issues and sell-side analysts, our sample contains analysts that work for financial institutions that are also book runners or lead managers of said SEO issues. These institutions mostly have the responsibility of carrying out the SEO by selling shares in the market. When an analyst employed by an institution issues a forecast for a firm that also employs that institution as a book runner, it is expected that the analyst would forecast over-optimistic earnings. Moreover, this may also be affected by how experienced the analyst is (Clement, 1999). Experienced analysts may feel more confident and may not be swayed by this conflict of interest as opposed to less experienced analysts. Thus, we include a binary variable (BRO) that takes the value one if the analyst is employed by the same financial institution that is a book runner or manager of the firm for which the analyst provides a forecast, and zero otherwise. We also include a control for analyst experience (EXP) calculated by the log number of days

between the first forecast available of that analyst on IBES and the forecast date. Since our sample begins decades after the first available analyst forecasts on IBES, there will be no measurement errors for analysts who have experience before their first forecast appears on IBES.

$$AF_{ijt} = \alpha_0 + \alpha_1 SEO_{jt} + \alpha_2 BRO_{jt} + \alpha_3 EXP_{it} + \alpha_4 SEO*BRO_{jt} + \alpha_5 SEO*EXP_{jt} + \alpha_6 BRO*EXP_{jt} + \alpha_7 SEO*BRO*EXP_{jt} + \alpha_8 EPS_{jt-1} + \alpha_9 CHE_{jt-1} + \alpha_{10} OCF_{jt} + \alpha_{11} SIZE_{jt} + \alpha_{12} FOW_{jt} + \alpha_{13} FH_{ijt} + \varepsilon_{ijt} \tag{3}$$

Table 6 presents the regression results from equation (3). The interaction term SEO*BRO in column (2) shows that being employed by an institution that is also the book runner of the firm does not affect analyst forecast with SEO issue. This relationship is not affected even after controlling for analyst experience. When testing equation (3) without interactions in column (1), we observe that analysts facing conflict of interest generally forecast higher than their counterparts. Clearly the interaction between analyst experience and analysts facing conflict of interest better estimates the association of these variables with analyst forecast as seen in column (2). Therefore, possible conflict of interest and analyst experience does not alter the decision of analysts to prefer informativeness over accuracy even when accuracy might be in the best of their employer's interest. The rest of our variables behave similarly to the previous estimations.

Table 6: Association between AF and SEO with possible conflicts on interest – equation (3)

AF	Column (1)		Column (2)	
	Coefficient	t-value	Coefficient	t-value
Intercept	-0.002	-0.06	0.001	0.05
SEO	0.000	0.26	-0.001	-0.40
BRO	0.005**	2.07	-0.025**	-1.97
EXP	0.001	1.55	0.000	0.54
SEO*BRO			-0.002	-0.16
SEO*EXP			0.000	0.56
BRO*EXP			0.004**	2.42
SEO*BRO*EXP			0.000	0.13
Controls	Yes		Yes	
Year fixed effects	Yes		Yes	
Country fixed effects	Yes		Yes	

Industry fixed effects	Yes	Yes
# obs.	24,368	24,368
Adj. R^2	0.380	0.380

*=significant at 10%, **=significant at 5%, ***=significant at 1% level; t-values are based on standard errors adjusted for 974 clusters in country-industry-year

5.4. Association between analyst forecast and SEO in a shorter window

It may seem that as we consider analyst forecasts 180 days prior to the SEO filing date as well as 180 days after it, our results may contain noise from all the other events happening during that period. We conduct our tests on forecasts that were issued within two days of SEO filing, which is when the density of forecasts in our sample is the highest as seen in Figure 2. Therein, we consider only forecasts that were issued on day 0, 1, or 2 of the filing and include the corresponding analyst forecast before the filing. The average number of days before the SEO filing and analyst forecast is 46 while the median is 37. These forecasts are ones that are reacting immediately to the SEO filing and are expected to incorporate information solely from the SEO issue. Table 7 presents results from the regression of equation (1): column (1) uses only forecasts that are within two days of SEO filing and column (2) uses the rest of the observations for comparison. The coefficient of SEO remains insignificant even for forecasts made right after the SEO filing. It shows that analysts who update their forecasts immediately after the SEO filing do not incorporate earnings management in their forecasts and our conclusions are unaltered.

Table 7: Association between AF and SEO in a shorter window – equation (1) split

AF	Column (1)		Column (2)	
	Coefficient	t-value	Coefficient	t-value
Intercept	-0.001	-0.02	0.008	0.31
SEO	-0.001	-0.38	0.000	0.39
EPS	0.347***	6.05	0.431***	9.41
CHE	-0.107	-1.42	-0.034	-0.82
OCF	0.023	0.80	0.034**	2.56
SIZE	-0.001	-0.37	-0.001	-0.47
FOW	0.003	0.54	0.005	1.13
FH	0.002	0.36	0.004**	2.04

Year fixed effects	Yes		Yes	
Country fixed effects	Yes		Yes	
Industry fixed effects	Yes		Yes	
# obs.	3,246		21,122	
Adj. R^2	0.328		0.395	

*=significant at 10%, **=significant at 5%, ***=significant at 1% level; t-values are based on standard errors adjusted for clustering in country-industry-year

5.5. Association between analyst forecast and SEO before and after the Market Abuse Directive

Fauver et al. (2017) find that the Market Abuse Directive has influenced European capital markets positively reducing information asymmetry and enhancing transparency. They show using a control sample of non-EU firms as well as a control sample of non-SEO firms that earnings management around SEOs has significantly reduced whereas post-offer stock performance has improved after the enactment of MAD. It is therefore imperative to study analyst forecasts before and after the enactment of MAD in order to better understand analyst forecasts around SEOs. For the EU firms in our sample, we use the implementation date of MAD to split our sample. The results are reported in Table 8 with column (1) presenting analyst forecasts before MAD adoption and column (2) after.

Table 8: Association between AF and SEO before and after the Market Abuse Directive

	Column (1)		**Column (2)**	
AF	Coefficient	t-value	Coefficient	t-value
Intercept	0.008	0.22	0.000	0.01
SEO	0.006**	2.08	-0.001	-0.81
EPS	0.396***	5.45	0.419***	8.14
CHE	-0.034	-0.56	-0.050	-0.87
OCF	0.026	1.55	0.032*	1.82
SIZE	-0.007**	-2.34	0.000	0.10
FOW	0.014*	1.87	0.004	1.00
FH	0.014***	2.69	0.001	0.76
Year fixed effects	Yes		Yes	
Country fixed effects	Yes		Yes	

Industry fixed effects	Yes	Yes
# obs.	3,146	18,872
Adj. R^2	0.458	0.407

*=significant at 10%, **=significant at 5%, ***=significant at 1% level; t-values are based on standard errors adjusted for clustering in country-industry-year

The coefficient of SEO for observations before MAD adoption is positive and statistically significant. An SEO issue before MAD adoption is associated with an average increase in analyst forecast of 0.6% per share price which represents 12% of its mean value (8.4% of its standard deviation) representing economic significance. As the directive aimed to reduce information asymmetry and increase transparency in transactions in the capital markets, significant reduction in the earnings management around SEOs was reported. Before the directive analysts were able to establish possible earnings manipulation as well as being able to incorporate it in their forecasts. It was easier to predict the managed earnings component as management was allowed to disclose sensitive information to analysts in private. It is possible that analysts preferred to be accurate as it was more rewarding at that time (Clement 1999). However, after the adoption of MAD analysts ignored the managed component of earnings because it was harder to predict and calculate. After MAD earnings management around SEOs reduced so possibly it became hard for analysts to evaluate the managed component and they tended to be informative.

6. Conclusion

Analyst forecasts are important because investors assign high values to them, management is keen on beating analyst targets, and researchers use forecast accuracy rampantly in capital market studies. Rewards and compensations for the analysts themselves are associated with forecast accuracy. Higher accuracy may entail increased compensation and bonuses from employers, greater reputation and media coverage, and better career prospects. On the contrary, analysts would also want to be more informative to protect their clients by foregoing accuracy in cases such as earnings management. Research suggests that much of analysts' compensation is based on their stock picking performance and feedback from customers. To clients the analysts may communicate the information directly; however, less sophisticated investors who follow the analysts must better interpret the reported figure. For management, this figure is important because they want to see whether their guidance affects analysts, or whether analysts are able to

discover their manipulation techniques. Management needs to know what earnings figure the analyst is going to forecast for it to meet the forecast. The forecast is also vital for academic purposes. With numerous studies using forecast errors as proxies, a better understanding of the forecast figure is essential to correctly interpret the findings of such studies. As this study aims to interpret analyst earnings forecasts given earnings management by firms, it aids both the professional and academic accounting world to better utilize these earnings forecasts.

Our results indicate that analysts prefer informativeness over accuracy especially after the Market Abuse Directive. By observing firms that issue SEOs and are likely to have manipulated earnings upwards, we find no association between analyst forecast and SEO issue for different specifications of our model. We control for variables that are best known to predict analyst forecasts such as previous earnings, trend in earnings, performance measures, and size. We also control for analyst following, analyst experience, and suspected conflicts of interest. Our model separately tests forecasts that were made immediately after the SEO filing as well as forecasts before MAD adoption. We find no association between analyst forecast and SEO issue except for the specification before MAD implementation for which we find a statistically and economically significant positive association. We conclude that with less strict restrictions on private information trading, analysts found it easier to be more accurate than informative.

Our study contributes to the literature by studying analyst forecasts around SEOs, a time when earnings management is widespread. Previous studies have failed to systematically prove whether analysts deliberately include or exclude earnings management and remain conflicting. We also consider individual analysts rather than the consensus which none of the previous studies do. By doing so, we aim to understand the nature of individual analysts by characterizing them according to their behavior in terms of incorporating earnings management in their forecasts. Additionally, we look at the data from the European Union rather than the United States. The US market is known to act and behave in a certain traditional way and that all studies that originate in the US may not have implications around the world. The EU is a market much more diverse and multicultural than the US market allowing the studies conducted in it to have greater implications.

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