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Main Message:

During the crisis period, financial analysts focus more on specific sets of information such as cost control and strength of management whereas in the non-crisis period they focus more on information related to earnings and market outlook.

Key Points:

Extant literature offers little academic research on what information is relevant to the financial analysts during periods of serious economic stress.

Content analysis was applied on 90 analysts' reports from companies listed on the FTSE 100 index three sub-periods (i) pre-crisis (2006-2007), (ii) crisis (2007-2009) and (iii) post-crisis (2009-2010).

The findings suggest that although non-financial information may have been used more frequently and jointly to support recommendations; however, during the financial crisis period it is the financial information which plays the key role in guiding analysts.

JEL Classification Code: E44, G01, G15, G17

Abstract

This study examines the relevance of information set in sell-side analysts' publicly available reports during the recent financial crisis. Prior studies suggest that analysts use more non- financial than financial information to support stock recommendations but there is little academic research on what information is relevant to them during periods of serious economic stress. We analysed 90 analysts' reports from three sub-periods (i) pre-crisis (2006-2007), (ii) crisis (2007-2009) and (iii) post-crisis (2009-2010). Our findings suggest that during the crisis period, analysts focus more on specific sets of information such as cost control and strength of management whereas in the non-crisis period they focus more on information related to earnings and market outlook. The importance of the interdependency of financial and non-financial information is evident in their recommendation especially in crisis and post-crisis period as we find joint use of both set of information to support their recommendations. We conclude that although non-financial information may have been used more frequently and jointly to support recommendations, it is financial information which ultimately guides analysts' recommendations both in good times and in bad.

Keywords: Financial, Analysts, Crisis, Information, Recommendation, Relevance.

INTRODUCTION

This study examines the type of information (financial and non- financial) that is relevant to sell-side analysts across different economic environments, pre-crisis, crisis and post-crisis. Information is considered relevant when it affects decision-making. It is not surprising that the relevance of information set to investors and analysts is an important issue in accounting and finance research and in standard-setting. However, there is little direct evidence regarding what information is actually relevant to sell-side analysts, i.e. what information affect their decision-making under financial crisis conditions.

During a crisis period, there is more uncertainty about the future performance of companies and the market outlook than during a normal period. The phase of the financial crisis requires strategic reformulation of the companies' plans and financial setting in order to overcome their difficulties in the short run and meet new opportunities of growth (Kianfar et al., 2012). On the other hand, investors are likely to be in particular need of relevant information and expert analysis and thereby rely more on analyst research during market downturns than in normal periods. This obviously creates a challenge to analysts to understand what information is relevant during this volatile environment.

Analysts who make good use of information are likely to be valued more by the market participants as in this period good analysis should have the highest value. Bartram and Bodnar (2009) suggest that during the crisis, investor confidence significantly declined and firms experienced downward pressure on their stock prices. Likewise, Campello *et al.*'s (2011) survey on CFOs in 39 countries reveal that in order to reduce business risk and financial constraints, firms reduce investments in the crisis period. Investors and companies would therefore be interested into whether intermediaries (i.e. analysts) can help investors to better understand the market and company performance in a period when investors might be nervous because of uncertainty and volatility in the market and/or poor performance of the companies. Moreover, analysts should depend most heavily on management during crisis periods for reliable information because of uncertainty in the market. Therefore, analysts might provide more favourable views about the companies to please management during these periods. On the other hand, analyst employers would need the resources to run equity research departments which would be in short supply during crisis periods. As a result, their employers should expect a good flow of investment banking fees or commission from investors' trade.

While the crisis period should provide a challenging environment for companies, analysts and investors alike, this also provides us an interesting setting to examine

what information analysts use in their report to communicate to investors, what tones are used and what type of information is more relevant in their decision-making processes. In particular, our study sheds light on how analysts behave during a period of crisis i.e. what information analysts use, whether their reports have positive story dominance and whether financial information is important in their decision-making processes, not only in good times, but also in bad times.

We analysed equity research reports over the three time periods – pre-crisis (2006-2007), crisis (2007-2009) and post-crisis (2009-2010). Overall our result shows that during crisis periods, analysts act intelligently by focusing more on both sets of information e.g. cost control (financial) and strength of management (financial) and that their focus is different in non-crisis periods. We also conclude that positive views about financial aspects are the key for companies to receive positive recommendations from analysts both in good times and in bad.

Our paper makes some important contributions. The financial crisis provides us with a natural experimental setting in which to investigate several aspects of analyst use of information in their reports and the factors that drive their recommendations. We believe we make several novel contributions to the current body of knowledge two of which are noteworthy here. First, we explore the relevance of information set in investment decision-making both in good times

and in bad. This issue is important to preparers of accounts, investors and regulators. The preparers would be interested to know how market participants use their output and whether it is different under different conditions. The results will be useful for the market in general as market participants will better understand whether the judgement of investment professionals is based on verifiable and objective information or not. This is important for regulators as the results might allay some of their doubts about the quality of analyst work. Second, we show how analysts behave during times of crisis as compared to normal times. This is important since it seems investors rely on analyst reports and require analyst advice more during such periods. Analysts are considered to be economic agents (Bradshaw, 2011) and it is essential to understand the behaviour of an economic agent under different market conditions. This paper responds to the call of Bradshaw (2011) and Lo (2012) who suggest that the main gap in analyst literature is our lack of understanding of what analysts actually do.

The remainder of the paper is structured as follows. Section 2 reviews the literature. Section 3 presents the hypotheses. We address research design issues in Section 4. Section 5 discusses results and Section 6 discusses implications of our results and concludes the paper.

LITERATURE REVIEW

Analysts are important information intermediaries in the capital market. A vast amount of literature exists on characteristics of analyst research outputs and their impact on share price and suggest that analyst research output has value relevance (Womack, 1996; Barber et al., 2001; Asquith et al., 2005, Frankel et al., 2006; Twedt & Rees, 2012; Huang et al., 2014; De Franco et al., 2015; Jennings, 2018)[2].

Sell-side analysts are considered sophisticated users of financial information and it is natural to assume that they are better able to process complex information than non-professional investors. Non-professional investors do not have the time, resources and technical expertise to conduct in-depth analyses of companies (Schipper, 1991; Bradshaw, 2011) and prior evidence shows that sell-side analysts provide more accurate forecasts than buy-side analysts (Cowen et al., 2006). Although Imam and Spence (2016) and Abhayawansa et al. (2018) suggest that analysts' forecasts are not necessarily the most important aspects of their work. Prior research also suggests that investors respond to analyst opinions not only in normal periods but also in difficult market conditions. Indeed, Arand and Kerl (2012) suggest that investors rely on analysts more during crisis periods. Equally, Goetzmann and Dhar (2006) examined investor behaviour during the dot.com bubble and found that information from brokers determined investors' contrarian

views. Prior research also shows a change in a firm's information environment with a change in business environment. For instance, Chang et al. (2007) show that the information asymmetry of Korean firms is lower after the crisis than before. Earlier Loh and Miah (2003) find that forecasts made during the Asian crisis in Singapore contained systematic biases and analysts' forecasts did not fully incorporate negative earnings-related news. Their findings are consistent with those of Arand and Kerl (2012) who show that the accuracy of analysts' forecasts significantly deteriorates during a crisis.

Some content analysis based studies (Breton & Taffler, 2001; Barker and Imam, 2008) examine the role of financial and non-financial information in analysts' decision-making processes. The study by Barker and Imam (2008) indicates that analysts' perceptions of earnings quality is determined by both financial and non-financial information. Breton and Taffler's (2001) findings indicate that even though financial forecast occupies a large proportion of analysts' reports non-financial qualitative information relating to a company's management and strategy is the most important factor in guiding analysts' recommendation[6]. Coram et al. (2011) use verbal protocol analysis and find that analysts pay substantial attention to non-financial performance indicators in company valuations. They also show that when financial information is positive (negative), more attention is given to non-financial (financial statements) performance indicators. More recently,

Yukselturk and Tucker (2015) provide evidence on analysts' sentiment and recommendations.

Research on analyst performance and behaviour across different market condition is rare. Arand and Kerl (2012) find that analysts provide a positive view about corporate performance and stock return during the recent financial crisis. Like Loh and Miah (2003) who examine the impact of the Asian Crisis on analysts' performance and Sidhu and Tan (2011) who examine the performance of US and Australian analysts during their recent financial crisis, Arand and Kerl (2012) suggest that analysts' accuracy with respect to target price and earnings forecast deteriorate during a crisis period. Sidhu and Tan (2011), however, suggest that during the recent financial crisis, analysts in the US and Australia were quick to respond to rapidly changing (declining) market expectations. Despite this result, they find that investors rely on analysts' research output more during a crisis period than during a normal period. However, there is little direct evidence on what analysts actually do, what information they use and what role financial and non- financial information plays in their decision-making process during a time of crisis[3].

HYPOTHESES

We develop three hypotheses. The first two hypotheses examine analyst usage of information (financial and non- financial) and the tones analysts use in reports in each sub-period. The third hypothesis is developed to understand the specific role of financial information in analyst decision making processes. We are particularly interested in testing the association between positive financial information and positive recommendations during crisis periods; the understanding of the role of financial information is important during such periods as it is more verifiable than non- financial information but not easily predictable because of uncertainty about future corporate performance.

Prior studies (Breton & Taffler, 2001) show that analysts use non- financial information more prevalently in their reports, but the ratio of financial and non-financial information used in reports is consistent across sectors (Barker & Imam, 2008). During crisis periods, more emphasis could be placed on financial information to show the investors of the importance of verifiable information during such times or, alternatively, on non-financial information to show additional information they have about non- financial aspects of firms (Barker, 1998). Therefore, we formulate the following hypothesis.

Hypothesis 1: *There is no significant difference in the usage of* financial *and non- financial information in analyst reports in each sub-period (pre-crisis, crisis, post-crisis).*

The behavioural literature suggests that analysts suffer from cognitive bias; for instance, they overreact to good news but underreact to bad news (DeBondt & Thaler, 1990; Easterwood & Nutt, 1999). Consistent with this, Fogarty & Rogers (2005) and Hussainey and Walker (2008) suggest that analysts are disproportionately sensitive (resistant) to good (bad) news. Prior research also reveals that the desire to cement investment banking ties, to generate trade and to maintain access to management leads analysts to provide positive stories. Given that analysts are motivated to sell positive stories, they need to use more positive words in their communications with the market. During a financial crisis when the future is uncertain, analysts could use more (less) positive words regarding financial (non- financial) aspects of a firm and vice-a-versa. The purpose of the following hypothesis is to test whether analyst tone used in reports regarding financial and non- financial information is different in the three sub-periods.

Hypothesis 2: *There is significant difference in analyst tone with regard to financial and non- financial information in analyst reports in each sub-period (pre-crisis, crisis and post-crisis).*

As we have seen, prior studies (Breton & Taffler, 2001) find that analysts use more non- financial information in their reports to support stock

recommendations. However, Barker and Imam (2008) find that it is analysts' views on financial information which ultimately impact stock recommendations despite this greater usage of non- financial information. Given that during a crisis period the future is uncertain, investors might be expected to rely more on information which is verifiable i.e. financial information. On the other hand, because of the market volatility, forecasting financial numbers can be more problematic than in normal periods. As such, analysts might weigh positive (or negative) news about financial differently in different economic conditions. Therefore, we develop the following hypothesis.

> ***Hypothesis 3:*** *There is an association between positive views about financial aspects of firms and analyst positive recommendations.*

RESEARCH DESIGN ISSUES

We employed content analysis to understand whether financial information matters to analysts. This approach allows one to draw inferences from text (Weber, 1990) and to understand how analysts come up with their recommendations. As argued by Breton and Taffler (2001), content analysis is unobtrusive and can be used to analyse any literature. More importantly, it allows one to assess the relative importance of different information categories.

This paper examines analyst reports for companies listed on the FTSE 100 index published between 2006 and 2010[4]. The analysts' reports are split into three time frames: pre-crisis period (April, 2006—September, 2007), crisis period (October, 2007—March, 2009) and post-crisis period (April, 2009—September, 2010)[5].

We download the reports from Thomson One Banker database. The reports selected must be at least ten pages long. Industry reports as well as daily notes are excluded as we want a controlled experiment for these 30 companies for three sub-periods. For every company, one equity report from one of the top five investment banks available after the publication of company annual report in a sub-period is considered in the sample. We select equity reports published after annual reports for two reasons. First, it should enable us to examine analyst reports with the most up-to-date publicly available information for the firms. Second, during a crisis period firms may try to influence analysts to calm the market and impart optimism if information is not publicly available. This could happen prior to the fiscal year-end when actual earnings are realised.

Where there are multiple equity reports available in a sub-period that satisfy the above criteria, we take the latest one available. Where multiple reports are available on the same date and satisfy the above criteria, we select the longest report available for the respective company on the day.

The first step of our content analysis is to develop a key words dictionary and then classify key words appearing in analysts' reports into two main themes[6]. To do this we first read five reports from each sub-period and selected key words therein with information from previous studies to form our dictionary. These fifteen reports are not included in final sample. We then develop two main categories: financial and non- financial. The final key word dictionary contains 23 financial key words and 24 non- financial keywords. We also use synonyms for key words to make the analysis more comprehensive. The next step is to analyse every sentence and count the number of times key words appear in the 90 equity reports. It is important to note that we consider context when determining key words in line with Clatworthy and Jones (2003) and Barker & Imam (2008).

Guided by prior studies (Breton & Taffler, 2001: Clatworthy & Jones, 2003; Barker & Imam, 2008), two broad themes/categories are further segregated according to their attitudinal indicators: positive v. negative. In order to classify financial or non- financial information as positive or negative, statements need substantiation. We only classify information as positive or negative if there is a clear statement about positive or negative aspects of financial or non-financial key words. We exclude words with a neutral tone as these words are subjective and ambiguous. According to Breton and Taffler (2001), neutral key words are

descriptive in nature and used to substantiate facts whereas analysts tend to use key words with a positive/negative tone to support their recommendations.

In order to understand the use of financial and non- financial information in analysts' reports and the role of different types of information in their recommendations, all reports are classified into four types based on tone with respect to financial and non- financial information: Type I: reports with more positive financial references than negative financial references Type II: reports with more negative financial references than positive financial references Type III: reports with more positive non- financial references than negative non- financial references and Type IV: reports with more negative non- financial references than positive non- financial references.

We also classify all reports into four more categories where analysts provide mixed references with respect to financial and non- financial information. The reports in Cat-1 have positive financial and positive non- financial references dominance, Cat-2 have positive financial but negative non- financial references dominance, Cat-3 have positive non- financial but negative financial references dominance and finally Cat- 4 have negative non- financial and negative financial references dominance. We use this classification to examine the association between different types of information and analyst recommendations in the three

sub-periods. Finally, we use logit analysis to examine the role of positive financial information in positive recommendations in good times (i.e. pre and post-crisis period) and in bad (i.e. crisis period).

Content analysis is not without limitations. As discussed by Weber (1990) and Krippendorff (1990), it may not be realistic to assume that the frequency of a word appearing in a report is directly proportional to the importance of the information. In addition, classification of key words into two categories is a subjective process. How a key word gets classified depends on a researcher's knowledge in the subject area as well as their interpretation of key words' context (Breton & Taffler, 2001). Breton and Taffler (2001) and Barker and Imam (2008) overcome this limitation by employing research assistants to group key words into thematic categories to minimise the level of individual subjectivity. In this study, multiple coders are used to classify key words into thematic categories and to understand the analysts' tone. We found no significant differences between the coders' categorisations.

FINDINGS

Panel A of Table 1 illustrates summary statistics for the 90 reports analysed. The lengths of the reports range from 10 to 76 pages with a mean of 16 and 17 and

median of 13 and 16 across three sub-periods. Panel B and C suggest, over the three periods, analysts consistently provide favourable recommendations. Between 2006 and 2010, the total number of buy, hold and sell recommendations is 58 (64percent), 18 (20percent) and 14 (16percent) respectively. There are 4.8 (1.8) times as many buy over sell recommendations prior to the crisis (during the crisis). In our post-crisis sample, we observe only one report with sell recommendation. On average, there are 4.2 times as many buy over sell recommendations. Prior studies suggest that analysts are motivated to sell stories (Fogarty & Rogers, 2005) and when investors' risk appetite is high (pre-crisis and post-crisis), analysts tend to be more generous with buy recommendations (Barker & Imam, 2008).

Table 1: Summary statistics of reports

	Pre-crisis (2006-2007)	Crisis (2007-2009)	Post-crisis (2009-2010)
Number of reports	30	30	30
Number of months in each sub-period	18	18	18
Panel A: Report length			
Mean pages	17	16	16
Median pages	16	13	14
Standard Deviation	5.74	7.51	5.39
Panel B: Recommendations			
Buy	19 (64%)	16 (53%)	23 (77%)
Hold	7 (23%)	5 (17%)	6 (20%)
Sell	4 (13%)	9 (30%)	1 (3%)
Panel C: Change in recommendations from last sub-period report			

Upgrade	-	4 (13%)	14 (47%)
Reiteration	-	17 (57%)	12 (40%)
Downgrade	-	9 (30%)	4 (13%)

It is also interesting to observe from Panel C that the majority of the companies are able to maintain similar recommendations from the last sub-period. During the crisis (post-crisis) period, there are more downgrades (upgrades) than during the previous sub-period. In an unreported result, we find more dramatic change in recommendations (buy to sell or sell to buy) for companies during the crisis period than in any other. We do not observe any systematic evidence that analysts panic during the crisis time and swing from over-optimism to over-pessimism.

Table 2 shows the breakdown of financial and non- financial key words used by analysts over the three sub-periods. Table 2 suggests that over the three sub-periods, non- financial key words are used more prevalently than financial key words. This is consistent with prior studies (Breton & Taffler, 2001, Barker & Imam, 2008).

Table 2: Financial and non- financial keywords used in three sub-periods

Non- financial key words	Pre-crisis	Crisis	Post-crisis	Total
Growth	217 (28.5%)	159 (22.0%)	134 (21.8%)	510 (24.3%)
Market	146 (19.2%)	102 (14.1%)	72 (11.7%	320 (15.3%)
Management	63	107	69	239

Financial keywords	Pre-crisis	Crisis	Post-crisis	Total
Profit	68 (14%)	96 (15.9%)	95 (19.7%)	259 (16.5%)
Earnings	44 (9.0%)	78 (12.9%)	62 (12.8%)	184 (11.7%)
Costs	56	87	34	177

	(8.3%)	(14.8%)	(11.2%)	(11.4%)
	52	66	70	188
Sales	(6.8%)	(9.1%)	(11.4%)	(8.9%)
	38	41	28	107
Volume	(5.0%)	(5.7%)	(4.6%)	(5.1%)
	17	45	20	82
Demand	(2.2%)	(6.2%)	(3.3%)	(3.9%)
	13	36	49	98
Products	(1.7%)	(5.0%)	(8.0%)	(4.7%)
	24	29	24	77
Acquisition	(3.2%)	(4.0%)	(3.9%)	(3.6%)
	26	19	21	66
Development	(3.4%)	(2.6%)	(3.4%)	(3.1%)
	28	22	11	61
Investment	(3.7%)	(3.0%)	(1.8%)	(2.9%)
	18	17	18	53
Addition	(2.4%)	(2.4%)	(2.9%)	(2.5%)
	16	9	19	44
Control	(2.1%)	(1.2%)	(2.9%)	(2.1%)
	15	9	18	42
Customers	(2.0%)	(1.2%)	(2.9%)	(2.1%)
	20	9	12	41
Competitive	(2.6%)	(1.2%)	(2.0%)	(2.1%)
	12	13	14	39
Contracts	(1.6%)	(1.8%)	(2.0%)	(2.0%)
	26	5	2	33
Bid	(3.4%)	(0.0%)	(0.0%)	(1.6%)
	9	9	14	32
Restructuring	(1.2%)	(0.0%	(2.0%)	(1.5%)
	7	6	6	19
Disposal	(0.01%)	(0.0%)	(0.0%)	(0.0%)
	4	8	7	19
Orders	(0.01%)	(0.0%)	(0.0%)	(0.0%)
	3	7	1	12
Merger	(0.01%)	(0.0%)	(0.0%)	(0.0%)
	3	0	3	6
Innovative	(0.01%)	(0%)	(0.0%)	(0.0%)
		3	2	5
Objective	0 (0%)	(0.0%)	(0.0%)	(0.0%)
	3	1	0	4
Leadership	(0.01%)	(0.0%)	(0%)	(0.0%)
	1	0	0	1
Productivity	(0%)	(0%)	(0%)	(0%)
Total	**761**	**722**	**614**	**2097**

	(11.5%)	(14.4%)	(7.0%)	(11.3%)
	66	56	34	156
EBITDA/EBIT	(13.6%)	(9.3%)	(7.0%)	(10.0%)
	43	54	45	142
Margins	(8.8%)	(9.3%)	(9.3%)	(9.0%)
	24	31	49	104
Results	(4.9%)	(5.1%)	(10.1%)	(6.6%)
	18	38	17	73
Debt	(3.7%)	(6.3%)	(3.5%)	(4.6%)
	22	36	15	73
Share price	(4.5%)	(6.0%)	(3.1%)	(4.6%)
	21	22	23	66
Dividends	(4.3%)	(3.6%)	(4.8%)	(4.2%)
	31	14	18	63
Capital	(6.4%)	(2.3%)	(3.7%)	(4.1%)
	21		26	53
Returns	(4.3%)	6 (1.0%)	(5.4%)	(3.4%)
	22	16	10	48
Cyclical	(4.3%)	(2.3%)	(2.1%)	(3.1%)
	5	16	15	36
Contribution	(1.0%)	(2.3%)	(3.1%)	(2.3%)
	9	12	14	35
Gearing	(1.8%)	(2.0%)	(3.1%)	(2.3%)
	4	14	9	27
Losses	(1.0%)	(2.3%)	(1.9%)	(1.7%)
	12	8	6	26
Exceptional	(2.5%)	(1.3%)	(1.2%)	(1.7%)
	9	8	3	20
Equity	(1.8%)	(1.3%)	(0.0%)	(1.3%)
	4		5	9
Persistence	(1.0%)	0 (0%)	(1.0%)	(0.0%)
	1	5	1	7
Recurring	(0.0%)	(1.0%)	(0.0%)	(0.0%)
	1	3	1	5
Liquidity	(0.0%)	(0.0%)	(0.0%)	(0.0%)
	4	0	0	4
Transitory	(1.0%)	(0%)	(0%)	(0.0%)
	1	2	1	4
Borrowings	(0.0%)	(0.0%)	(0.0%)	(0.0%)
	1	1	0	2
Special Item	(0.0%)	(0.0%)	(0%)	(0.0%)
Total	**487**	**603**	**483**	**1573**

Based on results in Table 2, it appears that analysts place more emphasis on cost control during crisis periods as compared to earnings. Prior to the crisis, when companies are enjoying the benefits of healthy economic growth, 'EBIT/EBITDA'

is the second most frequently used financial key word. However, 'costs' is the second most frequently used financial key word during the crisis period. Prior research suggests that analysts are motivated to generate news stories and tend to present the positive aspects of companies they cover. During a crisis period, when companies have poor performance, analysts might need to focus on aspects of financial information other than earnings. In the non- financial key words section, 'management' is the second most frequently used key word during the crisis period. Good management plays a significant role in cost efficiency in a company. Therefore, it is not surprising that analysts use these two key words, ‘costs’ and ‘management’ more frequently as they sell the story of an efficient company which might be suffering poor earnings performance due to a sluggish economy. Based on the chi-square statistics, it appears that the disparity in usage of financial and non-financial information by analysts in the pre and post-crisis periods is significant. During these periods, the difference between the financial and non-financial group is significant at 5 percent and 1 percent levels respectively. Even though analysts use more non- financial information (46 percent financial information vs. 54 percent non- financial information) during the crisis period, the chi-square statistic is not statistically significant. Therefore, the test results suggest that there is no significant difference in pre and post-crisis periods but that there is in the crisis period. Therefore, we can conclude that the results support hypothesis 1 in the pre and post-crisis periods, but not in the crisis period.

Table 4 provides a breakdown of the key words into positive v. negative tone. From the chi-square results, it is apparent that the difference in usage of financial and non- financial information when split into positive and negative tone is significant (p value is 0.032, 0.038 and 0.042 in pre-crisis, crisis and post-crisis respectively) in all three sub-periods. Therefore, we accept Hypothesis 2.

Table 3: Positive and negative tone in analysts' reports across three sub-periods

Sub-period	**Pre-crisis**		**Crisis**		**Post-crisis**		**Total**	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Financial	180	121	213	154	189	63	582	338
Non- financial	311	140	333	180	268	129	912	449
	491	261	546	334	457	192	1494	787
Chi Square	**4.586**		**4.293**		**4.155**		**2.552**	
p-value	**0.032***		**0.038***		**0.042***		**0.110**	

Notes: The table shows positive and negative tones used in 90 analyst reports with regard to financial and non- financial information across three sub-periods. Neutral tones are excluded. * results are significant at the 5% level.

Table 4: Classification of reports into positive/negative tone and recommendations across three sub-periods

Sub-period	Pre-crisis			Crisis			Post-crisis			Total
Recommendations	Buy	Hold & Sell	Total	Buy	Hold & Sell	Total	Buy	Hold& Sell	Total	
Panel A: Type I and II reports and associated recommendations										
Reports with more	17	4	21	15	8	23	22	3	25	69 (77%)

Positive FIN reference-Type-I										
Reports with more negative FIN reference-Type II	2	7	9	1	6	7	1	4	5	21 (23%)
	19	11	30	16	14	30	23	7	30	90 (100%)
Panel B: Type III and IV reports and associated recommendations										
Reports with more positive non-FIN reference- Type III	18	3	21	12	4	16	16	4	20	57 (63%)
Reports with more negative non-FIN reference-Type-IV	1	8	9	4	10	14	7	3	10	33 (37%)
	19	11	30	16	14	30	23	7	30	90 (100%)
Panel C: Positive and negative financial and non-financial references in reports and associated recommendations										
Cat-1 (Type I and III)	16	1	17	12	2	14	15	3	18	49 (55%)
Cat-2 (Type I and IV)	1	3	4	3	6	9	7	0	7	20 (22%)
Cat-3 (Type II and III)	2	2	4	0	2	2	1	1	2	8 (8%)
Cat-4 (Type II and IV)	0	5	5	1	4	5	0	3	3	13 (15%)
Total reports		30			30			30		90 (100%)

Notes: Hold and sell recommendations are considered as non-buy or non-positive recommendation and are grouped together

Table 3 suggests that non- financial key words dominate financial key words over the three periods. Over three periods, Table 3 also shows that analysts use more positive-tone key words as compared to negative-tone key words. The split of positive/negative tone key words was approximately 68 percent/32 percent during the pre and post-crisis periods. During the crisis period, analysts become less generous with their "praise" for companies and the split of positive/negative tone key words dropped to 62 percent/38 percent. Even though the drop is not

significant, it shows that analysts are aware of investors' sentiments and manage their choice of words so as not to appear out of touch, which could prove costly especially in times of economic stress. On the whole, there is good news dominance in analysts' reports across all three sub-periods. This is consistent with Fogarty and Rogers (2005) who suggest that good news predominates bad news in analyst reports.

Panel A of Table 4 suggests that there are more reports in the sample with positive financial references than negative financial references across all sub-periods and that there is a decreasing trend in reporting negative financial information from the pre-crisis to post-crisis periods. In fact, in the post-crisis period, only 5 reports out of 30 are dominated by negative financial references. This suggests that analysts are more optimistic about positive aspect of financial and provide positive stories about financial aspects of firms more in crisis and post-crisis periods than in a pre-crisis period.

Panel A also suggests that during the crisis period, analysts justify negative recommendations with more negative non- financial information than in other periods. During the post crisis period, out of 7 reports with negative non- financial and positive financial references dominance, all such reports receive positive recommendations.

Panel B shows a similar pattern with respect to non- financial information in the pre- and post-crisis periods. During the crisis, an almost equal number of reports have positive and negative references with respect to non- financial information. Analysts possibly use negative non- financial information sparingly during times of crisis to hedge their bets, but provide positive stories (good news) through positive financial information. This shows the importance of financial information to analysts and investors. Analysts can be negative about non- financial aspects of firms during a crisis, but positive about financial aspects to provide positive views about the stock. Rather less surprisingly, it is during the crisis period when analysts need to make significant changes in their tone and it seems analysts are able to tailor their reporting style and tone in reports according to market conditions.

Panel B also suggests that during a crisis, when analysts are positive (negative) about non- financial, they are likely to recommend buy (sell and hold) recommendations. A similar pattern exists in the pre-crisis period. However, in the post-crisis period, out of 10 reports when they are negative about non-financial aspects, 7 receive positive recommendations.

Panel C shows that across all three sub-periods, analysts are uniformly positive (Cat-1) in 55 percent reports and uniformly negative (Cat-4) 15 percent of the time. Cat-2 and Cat-3 reports make up the remaining 30 percent. Hence, even when analysts are less optimistic on certain aspects (either financial or non-financial) of a business, they will mitigate the impact of their opinion by peppering it with some positive news. This is consistent across different economic environments and supports the good news bias hypothesis. When analysts express negative opinion on non- financial information, in 20 reports (22 percent) they provide positive references to financial information (Cat-2). However, in only 8 reports (9 percent) out of 90, are analysts negative about financial aspect of firms, but positive about non- financial aspect (Cat-3). The difference is more apparent during the crisis period (e.g. in 9-2=7 reports). Financial seems to play an important role in analysts' reports and the trend is more apparent during crisis times. In crisis, 19 reports (63 percent) out of 30 reports have same signals on both aspects.

The findings in Panel C also suggest that in the pre-crisis period, when analysts are negative on non-financial aspects of a firm, they can be either positive on financial aspects (Cat-2) or negative on financial aspects (Cat-4). However, during crisis and post-crisis periods, when analysts are negative on non- financial aspects of firms, they are twice as likely to be positive on financial aspects (Cat-2).

When market conditions are tough for businesses, analysts have to be frank and give a negative view towards non-financial information. The impact of negative non-financial views is mitigated through the use of positive financial information.

Panel C shows that reports in the uniformly positive Cat-1 (55 percent) have the most number of buy recommendations over the three periods. The reports in Cat-2 (12 percent) have the second highest frequency of buy recommendations. This ratio is consistent across different market conditions. When analysts are positive on financial and non- financial aspects (Cat-1) of a firm, a buy recommendation is issued in 90 percent of cases. Using the finding for Cat-1 as a benchmark, one would expect reports in Cat-4 to be heavily dominated by sell recommendations. However, this only holds true during the crisis period. In all three sub-periods, when analysts are negative on all aspects of a firm (Cat-4), a sell recommendation is issued in only 54 percent of the reports and hold recommendation is issued in 38 percent reports. It is important to note that most of the sell recommendation reports are from the crisis period.

Panel C also shows that in the crisis period, when analysts are positive about financial aspects but negative about non- financial aspects, out of 9 reports 6 have either sell (2) or hold (4) recommendations. However, in the post-crisis period, 7 reports have positive financial but negative non-financial references and all these

reports have buy recommendations. This could suggest that in crisis analysts are cautious and rightly so. However, in the post-crisis period, they realise that this is a time to provide positive stories and rely on financial to do so. Non-financial information might help them to be cautious and hedge their bets if anything goes wrong, but financial information ultimately drives their recommendations. In Cat-3, out of 8 reports with negative financial references, 5 reports have sell recommendations. For reports in Cat-2, analysts are positive on financial aspects of firm but negative on non-financial aspects. With the exception of the crisis period, analysts issue at least a hold recommendation for Cat-2 reports in other sub-periods.

The findings from Tables 2 and 3 may give us the impression that analysts rely primarily on non-financial information to guide their recommendations. However, the results in Table 4 show that the importance of financial information may have been understated by prior research. The total number of reports with positive references to financial information (69) was more than the number of reports with positive references to non- financial information (57). Figure 1 shows the distribution of analysts' recommendations and report categories across the three sub-periods. The figures emphasise that analysts' reports are dominated by buy recommendations and positive information regardless of economic environment.

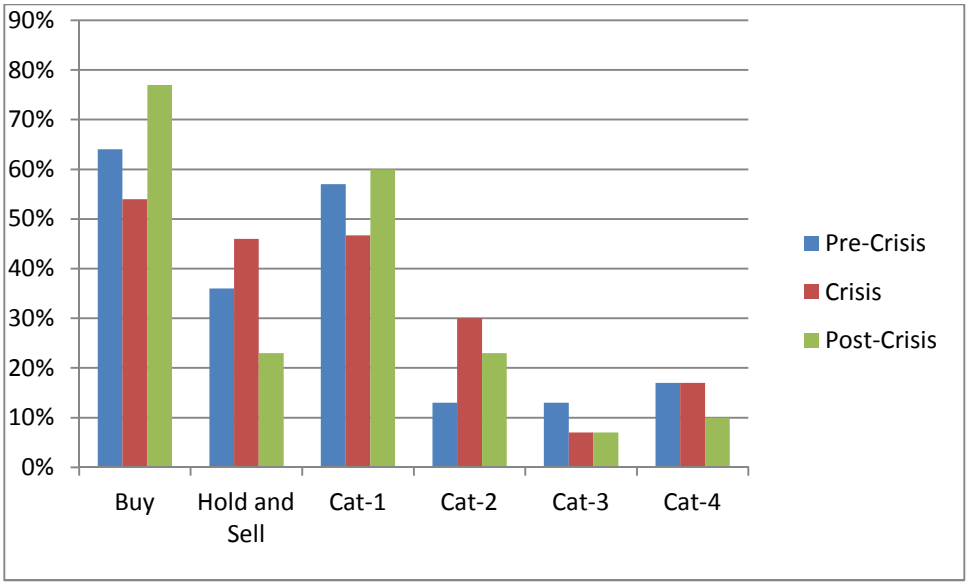

Figure 1: Analysts' recommendations and categories of reports across three sub-periods

Note: Figure 1 shows distribution (%) of analysts' recommendations and categories of 90 reports across three sub-periods (i.e. 30 reports for each period). The reports in Cat-1 have positive financial and positive non-financial references dominance, Cat-2 have positive financial but negative non- financial references dominance, Cat-3 have positive non-financial but negative financial references dominance and finally Cat- 4 have negative non- financial and negative financial references dominance.

Table 5: Positive financial information and Buy recommendations

	Coefficient	S.E	Test statistics	p value	95% Conf. interval		Pseudo R^2
Panel A: Full sample							
Cat- 1&2	2.727853	0.6277011	4.35	0.000**	1.197581	3.958124	0.2086
Constant	-1.144692	0.5557189	-2.60	0.009	-2.53611	-0.35773	
Panel B: Pre crisis							
Cat- 1&2	2.699682	0.9755412	2.77	0.006**	0.787656	4.611708	0.2395
Constant	-1.252763	0.8017837	-1.56	0.118	-2.82423	0.318704	
Panel C: Crisis							
Cat- 1&2	2.420368	1.165476	2.08	0.038*	0.136078	4.704658	0.1446

Constant	-1.791759	1.080123	-1.66	0.097	-3.90876	0.325244	
Panel D: Post-crisis							
Cat- 1&2	3.378725	1.127624	2.65	0.008**	0.877341	5.880108	0.2837
Constant	-1.386294	1.118034	-1.24	0.215	-3.5776	0.805012	

Note: The table shows results of logit analysis to examine association between category of reports with positive financial information (Cat-1 and Cat-2) and buy recommendations across the three sub-periods. * and ** results are significant at the 5% and 1% levels respectively.

Table 5 reinforces the results of Table 4 and shows that when analysts are positive on financial information (Cat-1 and Cat-2), a buy recommendation is the likely outcome. Like Breton and Taffler (2001) a logit analysis is carried out. Table 5 presents key results from the test. Panel A suggest that analysts' positive view of financial information leads to positive recommendations. This result is statistically significant at a 1 percent level.

It is also evident that even though non- financial information is more widely used to 'spice up' analyst reports or to hedge analyst bets, financial information is the key to analyst positive recommendations even when corporate earnings are unpredictable and the market outlook is gloomy. The results in Panel B to D suggest that the association is stronger in non-crisis periods. In the pre-crisis period, the co-efficient is 2.7 with a p value of 0.0006 (significant at 1 percent level) whereas in the crisis period, the co-efficient is 2.42 with a p value of 0.038

(significant at 5 percent level). Panel D shows a co-efficient of 3.38 with a p value of 0.008 (significant at 1 percent level) in the post-crisis period which suggests that the association is the strongest in the post-crisis period[7]. Overall, we conclude that favourable recommendations are associated with positive financial information irrespective of the economic environment and that financial information plays a dominant role in analysts' decision- making processes both in good times and in bad.

CONCLUSION

During a crisis period, there is more uncertainty about the future performance of companies and the market outlook than during a normal period. The investors are likely to be in particular need of relevant information and expert analysis and thereby rely more on analyst research during market downturns than in normal periods[1]. This obviously creates a challenge to analysts to understand what information is relevant in investment decisions during this volatile environment. Using content analysis, this paper adds to the relevant literature in this area by studying what information set is relevant to analysts not only in normal periods but also in periods of crisis. Our analysis produces interesting results.

We find that analysts use more non- financial than financial information in their reports across the three sub-periods. Over these three sub-periods, the split in

financial and non- financial information usage is remarkably consistent. Even though analysts' optimism is slightly affected by the challenging market environment of the financial crisis period, they are found to be generally optimistic across time. Perhaps analysts are cognizant of market pressures and reputation risk and, therefore, are less generous with their 'praises' during financial crisis.

Our findings suggest that financial information plays an important role in analysts' decision making process even in crisis periods. Financial based information is more readily verifiable than non- financial based information so analysts have more latitude in using non- financial based information without being shown to be wrong especially in an environment when market outlook is gloomy and corporate earnings are unpredictable. Analysts remain overconfident despite poor economic environment because they know they can defend their assumptions and support their positive stories with the help of non- financial information, in case anything goes wrong in future. Indeed non- financial information is qualitative and gives analysts more freedom to express their views. What is more, the interpretation of non- financial information is subjective and that makes it harder for investors to fault analysts for their views. On the other hand, financial information is objective and easily verifiable. If analysts are to express any views on the financial aspect of a company, they must be certain of their opinion and

ready to defend it. In this respect, financial information because of its objective nature provides investors with a reliable basis for investment decisions especially in bad times. Financial information helps investors to verify (or at least question) analyst assumptions and positive stories. Like Barker and Imam (2008), we suggest that non- financial information is used to contextualise and add meaning to financial data and possibly to hedge their bets.

Consistent with previous studies (Fogarty & Rogers, 2005, Hussainey & Walker, 2008), we also find that there is good news dominance in majority of analysts' reports. This support analyst incentive based hypotheses (Das et al., 1998, O'Brien et al., 2005; Groysberg et al., 2011). Due to the incentive to generate trading interests for their employers in a difficult economic environment, analysts need to find ways to present companies they are covering in the best possible light, even in a period when corporate earnings and stock returns are unpredictable. Perhaps during crisis periods, analysts do not want to stop flow of information from management and, as a result, they provide positive stories about the stock to please management. It might be that analysts, like many investors, may refuse to downgrade company forecasts in the belief that the crisis should have no lasting effect on firm fundamentals as it is basically a macro economic problem.

We believe that even in a difficult economic environment, analysts like to produce positive stories because they understand that the market needs positive stories all the more in such an environment. This study suggests that analysts act intelligently and tailor their communication strategy according to market conditions. During a crisis period when corporate earnings are volatile and unpredictable, analysts focus more on cost control (financial information) and strength of management (non- financial information) and base their analysis around these issues in a positive way. There is a shift of focus toward earnings (financial information) and market outlook (non- financial information) during pre and post-crisis periods. When market outlook is poor (crisis period), because of overconfidence and confirmation bias, analysts might under-weigh a negative piece of information but overweigh positive information. The question is why so many analysts behave in this way and why so many reports have positive stories during the crisis period. One explanation is that analysts know it is particularly costly to have a view which is different from others in a crisis period. They simply do not want to contradict other views in an uncertain environment (Fogarty & Rogers, 2005: p.339).

In summary, we suggest that investors who invest during crisis periods (and also in non-crisis periods) should feel confident that the recommendations of analysts are based on both types of information even though financial information is the

dominant one. The regulators should find comfort about analyst work that although there might be economic and behavioural bias, the main intermediaries in the market are well-informed and provide a valuable service to the investors so that investors can make an informed choice. Our result is in line with Fogarty and Rogers (2005) who suggest that analysts are obligated to create displays that suggest they can reliably produce informed opinions about future financial results. Though their reports could be biased with positive stories, the verifiable financial information drives their recommendations. The information that is channelled through private communication with management is important to contextualise issues, but their decision is never made solely on that basis. The standard setters should be satisfied that an important market participant values the output of financial reporting both in good times and in bad, but that non- financial information available in different parts of annual reports also get attention. Since narrative reporting is not subject to the same level of accounting standards compliance than financial statements, a step in this direction might be the right approach.

Notes:

[1] A counter argument would be that if the market participants are aware of analyst bias and the inferior quality of analyst research, they should put less emphasis on analyst reports during a market downturn.

[2] Bradshaw (2011), Ramnath et al. (2008), Brown (2003) and Schipper (1991) provide an overview of analyst research.

[3] See Baek et al. (2004) for evidence on the Korean financial crisis and Ang and Ma (2001) for evidence on the Asian crisis in countries like Indonesia, Korea, Malaysia, and Thailand.

[4] The sample covers companies in the high growth industries (pharmaceutical, technology, oil and gas and mining) as well as those in stable growth industries (utilities, telecommunications, food producers, industrial and consumer). Financial companies (banks, asset management and insurance companies) are excluded from this.

[5] Like Arand and Kerl (2012), we define October 2007 as the starting point of the crisis period as this was the point at which Dow Jones' total return index started to decline after reaching its peak. From April 2009, the market started to recover again.

[6] All 90 reports are scanned manually for key words in context (KWIC). The computer software like Diction can make the key words classification more efficient but it is not without limitations. The pre-defined dictionaries in this software are not usually designed for analysing analyst reports.

[7] We also regressed all three categories to examine the association between all three categories with positive references (Cat-1, Cat-2 and Cat-3) and buy recommendations. The results suggest that there is an association between Cat 1 (co-efficient is 4.45, p value 0.000) and Cat-2 (co-efficient is 2.68, p value 0.018) and buy recommendations. The result for Cat-3 is not statistically significant (co-efficient is 1.97, p value 0.121).

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