

How Useful Are the Equity Analysts' Report?

Evidence from Malaysia

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Abstract

Using 657 Malaysian sell-side analyst recommendations from January 2010 until December 2015, this paper documents the usefulness of equity analyst reports to investors. The research findings revealed that target price and earnings forecast had a significant association with stock return. However, trading volume was shown to have an insignificant relationship with the return. Overall, our results indicate that the information content in the analyst report contained only 66.67% explanatory vis a vis stock return and only target price and earnings forecast were useful. This paper is expected to add value in enriching the literature available on analyst report especially in the context of Malaysian market.

JEL Mathematics Subject Classification: G10, G11, G12

Keywords: analyst report, information content, Malaysia, panel regression, usefulness

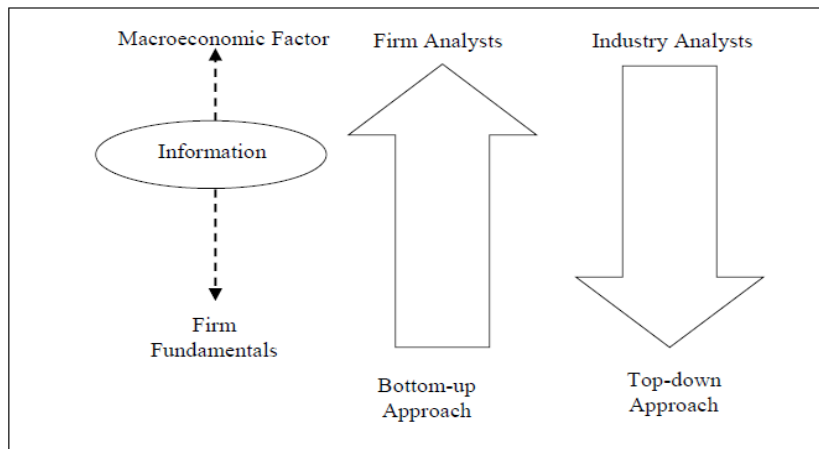
1. Introduction

The role of financial analysts or securities analysts is undeniably important in the capital market. Basically, as far as the role of information intermediaries is concerned, analysts generally provide three main information to the investors in making investment decision: target price, earnings forecast, and stock recommendations. There is an extensive body of literature postulating the significance

of the analyst report to the investors, which is not limited to Gleason and Lee (2003) who investigated the market's immediate response towards analyst revisions in earnings forecast and Womack (2006) who examined the value of stock recommendation. In addition, empirical evidence suggests that studies on the analyst report is one of the top research areas in the field of finance. By disclosing full information, in particular the target price, earnings forecast and trading volume in the analyst report, enhanced is the informational efficiency of the report. Such also assists investors to figure out and prioritise the information that significantly influence the stock price. Not only that, full disclosure of information will lead to the identification of company progression in different time horizons.

The information disclosure of analyst reports also differ in terms of the approaches used by analysts according to their type – the so called firm analysts and the industry analysts (see Figure 1). Firm analysts usually follow the bottom-up analysis and focus more on fundamental analysis such as cash flows, financing and investment decision. Industry analysts shadow using top-down analysis by zooming in macroeconomic views followed by industry then company recommendation (Bradshaw et al., 2012). Figure 1 portrays the basic information analysed by both firm analysts and industry analysts.

Figure 1: Firm Analysts versus Industry Analysts



Note: This figure portrays the basic information analysed by both firm analysts and industry analysts.

According to Beaver (2002), these are the information that contribute to the better construction of security prices in the market. Similarly, Fernandez (2001) argues that the processing of these kind of information is akin to the “life blood” of market players in enhancing their decision-making process. Apparently, releasing information that relate to a company is expected to reduce the problem of asymmetric information that haunts all investors in the market (Amir and Sougiannis, 1999; Fang and Yasuda, 2013). One of the important areas that has received attention when looking at the analyst report is the value of information in the report. This suggests that the information disclosed in the report will have signifi-

cant influence over the stock price, reflecting the degree of information power. However, this depends on the attitude of the information – whether it is positive or negative.

Despite the large volume of literature addressing the financial analyst, prior research tended to merely focus on the three different dimensions of analyst signals which include price effect, the accuracy of earnings forecast, and price responsiveness by using event studies. Moreover, only a small amount of studies have incorporated trading volume as an information content in the analyst report. Therefore, little is known on the value of information content in the report especially in the context of Malaysia when looking at the target price, earnings forecast and trading volume. Questions posed include which information do investors consider as more informative? Should investors focus on the three information content in making an investment decision or do they have to focus on other types of information as well?

In Malaysia, analysts have been shown to rely heavily on quantitative analysis alone in their reports. This thus leads to the issue of information content in the reports, in which the information provided are inadequate to predict and provide enough indication on share price movement. Even if the information provided is able to show share price movement, it will probably be in contrast to the reality of the situation. To put it simply, the target price may show one thing but the market price may end up differently, which can likely cause losses. Hence, this raises the question of how useful are the information content disclosed in the report which is expected to help investors make wise investment decisions? Our study seeks to address this issue by focusing on the value of information content based on the three types of outputs provided by analysts in their report. It is of further interest to carry out more research on the matter of information content and its relationship with stock return especially in the context of an emerging market like Malaysia since the majority of research have mainly focused on the Western context.

This paper claims to enrich the existing literature on the analyst report which is moderately available in the Malaysian context. One distinct feature of this study as opposed to the rest of the available studies which have focused on Malaysia is that this study looks into the value of information content of the analyst report. To note, this study has managed to locate merely five studies relating to the field in the local context. The studies have dealt with various issues but not limited to Corporate Social Responsibilities (CSR) (Hatamleh, 2012), financial crisis (Farooq, 2008), analyst incentives (Madun, 2008), corporate governance, culture and analyst forecast (Wahab, 2015) and recommendation ratings (Yezegal, 2015). From the literature evidence, it can be clearly seen that even though some research on the analyst report have been done in Malaysia, nevertheless, minimal focus has been given towards the usefulness of the information content provided by analysts. This research extends its contribution towards the body of literature in this perspective and is expected to be a breakthrough pioneering research in the context of Malaysia. Another significance of this study is that it shows whether analysts' stock recommendations have any informational role that can be used by individual investors in designing a better investment strategy. If there is an informational role,

this then reflects that the analyst report is useful for the investors and vice versa. Additionally, the findings obtained here will also be useful for future theoretical developments.

The structural remainder of this paper is organised as follows: the second part discusses the literature on analyst report with a focus on the three dimensions of information content, namely target price, earnings forecast, and trading volume. The third section elaborates on the research methodology and the data collection method. Section four depicts the analytical part of the study and the last section provides the concluding remarks.

2. Literature Review, Hypotheses Development and Research Framework

2.1 Literature review on the information content of target price

Evidence on the information content of target price has been explicitly discussed in existing works. Account on this review is given based on a chronological order. In their early work, Groth et al. (1979) managed to prove the effect of target price as information content. The study postulated that a positive target price would cause the stock return to hold for at least six months. Following the post-recommendation period, the return would revert to its normal equilibrium. Groth et al. found that abnormal return occurred after the adjustment of transaction costs and the level of risks. To see the effect of the information content of target price with other variables such as the upgrade and downgrade revisions and trading volume, Elton et al. (1984) conducted a research to investigate the changes in information content and how they affected stock return. The authors employed beta to capture the robustness together with the other information content variables. For positive revision, stock price tended to be higher and realised higher return with good drifts. After two months of realising the return, the movement of return was observed to be low and encountered losses. Thus, it can be concluded that if the information content involves positive upgrades, then the chances to encounter return will be possible and vice versa.

Another study dealing with target price was done by Asquith et al. (2005). In this paper, the authors attempted to investigate the correlational movement of abnormal return and target price based on a one-year timeframe. The study concluded that target price accuracy was about 54.28 percent. A positive target price was expected to increase the share price to about 37.27 percent and a negative target price led to a minimum share price of 15.62 percent. Similar to Asquith et al. (2005), Bradshaw et al. (2012) contended that the expected return from the target price was larger compared to the realised stock price. The percentage of change in return for the target price was about 35 percent more than the actual stock return. The minimum range of return for the target price was 24 percent given the time framework of one year. A highly cited paper in the field of information content was produced by Womack (1996). This paper specifically dealt with price drift due to the recommendation and post-recommendation period. The author found that price drift appeared to be positive and strong when the recommendation together with the

target price were positive. Given the positive information in terms of recommendation, the price drift lasted for at least six months. This finding is also consistent with the majority of literatures which argued that investors will buy stocks when provided with positive and good recommendation (Guagliano et al., 2013; Da and Schaumburg, 2011).

The significance of target price has also been highlighted by Jegadeesh and Kim (2006) in which the authors attempted to investigate the relevance of target price in the context of G7 countries. The finding revealed that except for Italy, the target price and its relationship with abnormal return was significant, thus supporting the view that target price can be considered as good information content in the analyst report. The result also postulated that the relevance of target price was particularly high when it came to the United States and the effect remained the same even after the revision period. Although Jegadeesh and Kim's study showed that target price was significant in the United States, Cao and Kohlbeck (2011) argued otherwise, but nevertheless still in favour of the United States. The study by Cao and Kohlbeck basically aimed to investigate the quality of analysts, the element of biasness and market participants' reaction towards the analyst report on information announcements in the United States. The outcome of study showed that there was less effect of asymmetric information in the analyst report which subsequently did not affect the quality of target price derivation. When there was less effect to the analyst quality, the element of biasness was therefore not much robust and the market participants' confidence was also relatively high. Case in hold, Kliger and Kudryavtsey (2010) also highlighted that abnormal return was usually higher when there was positive upgrade as the risk of volatility was lower in the United States.

Following Jegadeesh and Kim, Kerl (2011) attempted to look at the accuracy of target price by zooming into sectorial analysis in the German market for a period of 2002 until 2004. The finding showed that the relationship between target price and industry specific factors was not significant. However, target price was found to be statistically significant with the informativeness of analyst report such as company size and reputation. Nevertheless, this is in opposition to Boni and Womack's (2006) earlier revelation whereby the authors stated that analyst reports which focused on industry level analysis tended to encounter an abnormal return of 1.23 percent and thus was strongly significant. The authors also analysed the industry effect by looking into monthly-basis return performance, and found that analyst recommendation worked well if analysts concentrated their analysis on industry level rather than categorise firms under winner and losing categories. In addition, Brav and Lehavy (2003) also documented that target price was able to explain short-term and long-term stock return. Together with target price, target price revision also seemed to have a strong impact to the movement of stock price.

Although the above literatures argued the positive impact of target price towards stock return movement, there are others which argued against this stance and instead considered target price as a different entity of good information content in the analyst report. For example, in the study performed by Da Silva (2013), the result postulated that target price as well as earnings per share did not really contain any significant information and had no influence in share return, thus embodying

less predictive lower. This view is also in line with Bradshaw and Brown's (2006) albeit in a different perspective in which the authors claimed that one of the reasons which caused this low predictive power was perhaps due to the analysts' lack of skills. This might affect the derivation of the target price, which then led to a different outcome where the target price might differ from the stock price.

In a study by Gleason and Mills (2008), it was argued that target price accuracy had less power in explaining the return behaviour for about 46 percent. This finding was made by analysing the methodology applied by the analyst in deriving the recommendation together with the capital gains. A similar view is also shared by Fontaine and Roger (2014). Similarly, Bonini et al. (2010) highlighted that target price was incrementally inaccurate for large firms, loss making companies and companies that had heavy momentum. Furthermore, Asquith et al. (2005) also argued that other variables tended to have more predictive power, such as the analysts' strength in terms of analysis, market, and management information compared to the target price.

Most of the literatures in this particular scope are in favour of the target price where it is considered as a wise and beneficial information content in the analyst report. Thus, the following hypothesis is developed to test this variable:

H1 = The information content of target price has a significant relationship with the cumulative abnormal return (CAR).

2.2 Literature review on the information content of earnings forecast

The literatures on earnings forecast have also been explicitly discussed in existing studies. One of the recent studies that deals with earnings forecast is Hou et al.'s (2014). In this paper, the authors investigated the relationship among earnings forecast revision, information volatility and capital gain whenever a revision took place in the earnings forecast. With a time horizon from 1992 until 2009, a sample size of 711 active stocks traded in the Australian Stock Exchange was collected. The findings revealed that stock price tended to increase when the earnings revision was positive and tended to drop in the case of negative revisions. A similar outcome was also found by Fama (1984) and Ali et al. (1992). Furthermore, the study also showed that investors' reaction seemed to be high for the under-reaction public information, such as the one related to the analysts' earnings prediction revision. The study also revealed that there was clear violation of the Efficient Market Hypothesis (EMH) as the investors did not merely rely on the earnings forecast. Rather, they looked at other information that can influence the share return. This finding is consistent to that of Baule and Wilke (2004), Miwa and Ueda (2014), and Li and Ding (2008).

In usual practice, analysts come out with accurate earnings forecast when the stock has bright outlooks (Ertimur, 2007). In some circumstances, the technique applied in deriving the earnings forecast by the analyst is also connected with the recommendation. For instance, based on earnings forecast, the strategy employed would be a long strategy for good and favourable stocks whereas a short strategy for underperforming stocks. This strategy was found to be statistically significant and encountered return of 0.737 percent. This result is also in line with Loh and

Mian (2006) and Carhart (1997). These studies have illustrated that earnings forecast accuracy that falls under the category of low quintile generally results in -0.529 percent and it is insignificant. On another perspective, highly accurate earnings forecast is subject to less quintile of 1.27 percent per month. It can thus be concluded that the analyst report is really beneficial to investors who rely on the information content and earnings forecast made by the analyst. This observation is also consistent with Jiang et al.'s (2014) who looked at China's stock market. The authors examined the information content of recommendation revision by using the OLS and the outcome was the same as the above studies. By contrast, Ekaputra et al. (2013) argued differently. According to them, although the upgrade or downgrade of target price influenced the stock price, investors did not place high importance on the earnings forecast. A similar view is postulated by Bjerring et al. (1983). Thus, this has led to the further puzzlement of whether earnings forecast really contain good information content or not.

In a different view, the accuracy of the information content of earnings forecast is somehow attached with analysts' characteristics (Clement & Tse, 2003). A study by Clement and Tse backed the idea that analysts failed to understand the analectic characteristics which would have significant impact. In a study carried out by Byard et al. (2011), the authors argued that analysts in general tended to underestimate firm earnings and found it difficult to decide which stocks should be included in the list of recommendation. Employing 100 hot-growth companies and quarterly earnings from 1985 until 2006, the study concluded that analyst recommendations took in all aspects of the stock prospect and the valuation in tracking the price of stocks. Similar to Byard et al. (2011), Ding et al. (2004) mentioned that the analyst forecast would be higher when there was positive earnings growth. However, it is excessively optimistic when there was negative earnings growth. A similar outcome is also cited in the study by Brown and Kennelly (1972). Even though these two studies showed some similarities, Hillary and Shon (2007) nevertheless illustrated that earnings forecast was found to be weak during the release day of the analyst report. This is true for sell recommendations due to market sentimental issues. This finding agrees to that of Fried and Givoly (1982) and Lui (1993).

The results by Byard et al. (2011) were objected by Hall & Tacon (2010) in which the latter's finding revealed that the analyst report postulated higher level of earnings accuracy in different stages of the environment and became profitable recommendation. However, this was subject to certain restrictions, rendering the analysts' predisposal in proposing stocks with higher price, good momentum and low book value. This has subsequently led to biasness in selecting only profitable recommendations. Hence, although the analyst recommendation was acceptable, it failed to produce good stock recommendation in certain instances. These results were obtained based on the Australian context using the calendar time series data and employing the R-Square analysis as a main source of analysis. In a different perspective, Lys and Sohn (1990) contended that earnings forecast was comprehensive and informative if there was good corporate accounting disclosure. The discovery made by Lys and Sohn disclosed that earning forecast represented

66 percent of information attached in the stock price during the release date of the earnings forecast.

Comparatively, Loh and Stulz (2011) highlighted that employing complex measurement in calculating earnings forecast resulted in the inaccuracy of earnings and failed to capture information content prior to changes in price. Furthermore, Clarke et al. (2007) postulated that earnings forecast did not work well in forecasting the performance of firms during the bankruptcy period. This conclusion was made based on the US market using a sample size of 384 firms. By contrast, Chang et al. (2008) stated that unfavourable earnings forecast tended to be more robust compared to favourable earnings forecast. Furthermore, they argued that investors placed more importance on the information disclosure that came from independent sources they regard it as more convincing.

Although the studies by Loh and Stulz, Clarke et al. and Chang et al. were in favour of the result for earnings forecast, Khalik and Ajinkya's (1982) finding objected to the results made by the above studies. Employing 288 analyst reports produced by Merrill and Lynch analyst experts which focused on earnings forecast, the authors proved that there was a significant influence over the return given the changes in earnings forecast during the period of 1977 until 1978. Similarly, in the studies by Lin and McNichols (1995) and Stickel (1995), the researchers found that earnings forecast contained good information content and received higher importance among investors when making an investment decision as it signalled firm prosperity for the present and future, thus subsequently led to abnormal return.

Nevertheless, uncertainties are there when it comes to earnings forecast. For example, Conroy et al. (1993) analysed the accuracy of earnings forecast generated by the analyst in both the United States (US) and Japan. The outcome of the study revealed that US analysts were better at enhancing the accuracy of earnings forecast. This result was perhaps due to the differing abilities between American and Japanese analysts in analysing stocks. The same point was also made in a more recent study by Walther and Willis (2013). Another study by Francis and Soffer (1997) looked at the issue from a different perspective in terms of the analyst ratings and earnings forecast errors involved in the report. The finding postulated that information on rating and earnings forecast errors had an influence over the return. Positive rating information resulted in abnormal return whereas earnings forecast errors tended to be higher especially during a short-term horizon. This is in line with the results made by Biglari et al. (2013) and Devos et al. (2007) with regard to forecast errors and earnings forecast.

On the other hand, Booth et al. (2014) documented whether analysts led the herd in stock recommendations. The study employed panel regression and used quarter calendar time-series data covering from 1999 till 2001. It was found that a majority of notes in the analyst report mainly focused on sell-side analyst. The result suggested there was a strong justification for stock price movement towards the analyst notes even after the control of some variables such as earnings forecast announcement, conference call and external information. In addition, Welch (2000), Jegadeesh and Kim (2006) and McNichols and O'Brien (1997) also postulated a similar outcome whereby price changes were significant when there

were changes in the existing information in the report. Usually, this would result in abnormal return and the price deviation was also close enough. In opposition, Finger and Landsman (2003) revealed that optimistic abnormal return generally resulted in higher mean of earnings forecast error and earnings forecast revision, and forecasted earnings to price ratio. Francis et al. (2002) disagreed with Finger and Landsman by contending that there was no evidence to support whether investors' reaction and responsiveness, and earnings announcement negatively associated to one another. However, Lys and Sohn (1990) argued that even though earnings forecasts appeared to be relevant, the authors concluded that this may be reflective in some cases but not for all environment.

As far as the information content of earnings forecast is concerned, the outcomes of the reliability of earnings forecast in the existing literature are mixed. This this causes an unambiguous understanding as to whether earnings forecast is reflective of the information content in the analyst report. To test the significance of this variable, the following hypothesis is developed:

H2= The information content of earnings forecast has a significant relationship with the cumulative abnormal return (CAR).

2.3 Literature review on the information content of trading volume

The literature on trading volume as an information content is also being widely researched by many researchers. One of the prominent literatures that deals with trading volume is the study by Kim and Verrecchia (1991). The finding of their work showed that investors' expectation of the stock price escalated the trading volume of the shares. In addition, the authors also revealed that there was a statistical relationship between trading volume and stock price. In general, there is no specific theory that addresses the concept of trading volume unlike assets pricing in which various theories have been proposed to explain the concept.

Therefore, it is important to know to what extent the information content of trading volume influences the return. Karpoff (1986) came out with three justifications as to why the trading volume could be considered as an important information content. First is subject to the investors' attitude in treating the trading volume. Some investors, classified as the homogeneous investors, read the information differently. The second reason would be the unambiguous conclusion on the trading volume such as to what extent the readily available information influenced the stock price, particularly since some information are easily reflected by the trading volume while some are not. Finally, there is no clear conclusion on the matter of trading volume as the impact of trading volume is lower in an imperfect market and stagnant depending on the type of market.

The initial study on trading volume as an information content was initiated by Beaver in 1968. According to Beaver, trading volume contains the element of significant information. By definition, the information content of trading volume is referred to as changes in expectation due to certain event, subsequently leading to changes in stock prices. If the event is positive, there will be an increase in the trading volume and vice versa. Therefore, it is subject to scenario or event that embodies positive and negative information which will allow the investors to change

their investment size or strategy, thus leading to changes in the volume. The importance of this variable has also been investigated by Kim and Verrecchia (1991b). They found that there was a strong association between information and trading volume, especially for public announcements. When the public information is positive, the investors will then decide based on the information and make a speculative move using their own analysis together with the fundamental information. All in all, it will change the trading volume. This view is also consistent with the arguments made by Landsman and Maydew (2002) and Coval and Stafford (2007), in which there is no clear evidence to suggest that earnings announcement influences the stock price. However, when it involves trading volume, the impact is robust and significant. A similar outcome is postulated by Conrad and Niden, (1992) and Kerl and Walter (2008).

The recent investigation by Savor (2012) portrayed the positive association between trading volume and price drift. Together with other variables such as firm size, it was found that trading volume appeared to be more powerful in explaining the stock return behaviour during the period of 1995 until 2009. The study concluded that investors would normally respond less to fundamental news but the responsiveness was higher for non-fundamental information. Case in hold, holding the same viewpoint as voiced by Savor (2012), Jegadeesh et al. (2004) claimed that analysts tend to recommend glamorous stocks with higher growth rate together with good momentum and higher trading volume.

The study by Li (2005) aimed to investigate whether analyst recommendations were able to improve the picking ability of investors for investment purposes. Utilising the calendar time-series data, Li divulged that stocks with positive upgrade in the report tended to receive high attention from the investors as they realise abnormal return. Apart from positive upgrade, other information content such as trading volume, book market ratio, and market momentum were also in a favourable position. This result is consistent with Brown et al.'s (2013) where the trading volume affected stock prices in the short term as well as the long term.

A more recent study by Devos et al. (2015) hypothesised that stocks with low R-Square tended to encounter higher price responsiveness, higher trading volume and large differences in terms of bid-ask spread in the analyst report. The impact seemed to be marginal for small firms compared to large firms. This study was investigated based on the event study approach to capture how stock return synchronicity related to the information content in the analyst report. Chan and Fong (1996) argued that in the case of the Hong Kong market, the analyst report was highly demanded by the investors due to its informativeness which can cause the trading volume of that particular stock to increase.

Based on the selected literatures above, the majority of literatures lay claim that trading volume is a good information content in the analyst report. However, Karpoff's (1986) viewpoint differed to the above studies. According to Karpoff, the impact of trading volume remained unequivocal given the different interpretations of the investors. For example, if the investor has high expectation to the certain information that was available in the market, then it would push up the trading volume.

Nevertheless, this may not necessarily be true since the trading volume could also decrease even with positive and favourable information due to the investor's wrong interpretation and perception. Campbell et al.'s (1993) finding is consistent with Karpoff with slight differences. Employing GARCH analysis, Campbell et al. showed that increment in trading volume led to lower return whereas decrement in trading increased the stock return. Furthermore, the research carried out by Cooper et al. (2001) using normal regression analysis found that trading volume and earnings forecast had less impact on stock return and were powerless in explaining stock price movement.

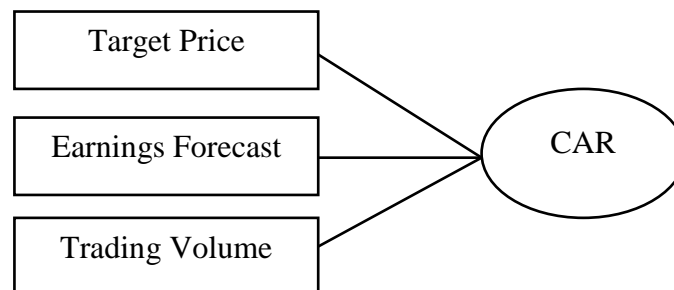
Looking at the evidence above, it can be seen that there is yet a unanimous decision relating to trading volume. The matter remains unambiguous since there are conflicting results in the existing literature. Thus, to test the significance of trading volume, the following hypothesis has been developed:

H3= The information content of trading volume has a significant relationship with the cumulative abnormal return (CAR).

2.4 Research Framework

From the above literature, the following research framework was developed for this study. To recall, the variables used to capture the usefulness of the analyst report to the investors consist of target price, earnings forecast and trading volume. These three variables will be regressed with the dependent variable, which is the cumulative abnormal return (CAR).

Figure 2: Research Framework



Note: This figure shows that the research framework used in this study consists of three important information content in the analyst report.

3. Data and Methodology

The research design for this study follows the quantitative research design as it involves several empirical investigations. The focus of this research lies in analyst recommendations for KLSE-listed companies on daily basis, covering from year 2010 till 2015. Most of the analyst reports were downloaded from the Bursa Malaysia repository system. The details on stock prices, Kuala Lumpur Composite Index (KLCI) points, and trading volume were obtained from financial database terminals such as DataStream and Bloomberg. For the initial stage, a total of 850 analyst reports were downloaded and only 657 reports were used for analysis purposes.

The remaining 193 were omitted as some companies underwent changes, such as delisting from Bursa Malaysia, merger and acquisition (M&A), changes in ownership, etc. In addition, some of the required information were not available in Datastream and the reports given to such exemption were also excluded. Even though analyst reports will usually include recommendations regarding buying, holding, and selling, for the purpose of analysis, only recommendations involving selling were used. The existing literature argues that buy recommendations involve the element of biasness and the larger deviation of prices occurs during sell recommendation rather than buy and holding recommendations. In addition, to see whether investors make the correct investment decisions, the sell recommendation is therefore the better sample to refer to in deciding whether the investors make profit or vice versa.

As stated in the earlier section, the variables chosen for the study are three important information contents extracted purely based on the literature evidence. The variables on information contents include target price, earnings forecast, and trading volume. Further details of the variables are given in Table 1.

Table 1: Definition of Variables

Variables	Definition	Expected Sign
TP	Reflects the target price derived by the analyst on day i th.	(+), (-)
EF	Indicates the earnings forecast on day i th.	(+), (-)
TVOL	Shows the current trading volume on day i th.	(+), (-)

Note: This table shows the variables used in the research. The variables consist of TP, EF and TVOL. The TP and EF values are given in the analyst report. The trading volume was obtained partially from the analyst report and data stream. The trading volume was adjusted using the log function. The expected sign was obtained from the existing literature and will be compared with the actual result to see the differences.

In investigating the information content of the analyst report, this research employed the panel regression analysis closely following Feng et al. (2015) and Huang et al. (2009). The panel regression analysis has been widely applied in various investigations relating to the predictive power and information content of the analyst report. Justification for the use of panel data analysis is due to the nature of the data as it involves daily basis and cross-sectional data. As mentioned by Lein and Li (2013), the existing literature has made evident of the increased awareness in the benefits of panel data analysis over cross-sectional and time-series data. Due to that, the different data sets were analysed at different time horizons and categorical variables. Moreover, the literature has also proven that when the panel data analysis is doubly proxied by individuals and time, it therefore avoids unobservable individual heterogeneity. The panel regressions analysis is also employed to discover the association between explanatory variables with abnormal

stock return that may exist because of the announcement effects in the capital market. The consistency of the results is obtained by looking at the pooled regression to compare the results. However, the final result and discussion of the model will be based on the Hausman test.

Once the data collection was completed the calculation of Cumulative Abnormal Return (CAR) follows closely similar approach to Chen and Chu (2009) and Huang et al. (2009) which is based on market-adjusted return. Firstly, the raw return was computed for each recommendation. The daily abnormal return (AR) was calculated as follows:

$$\overline{AR} = \sum_{t=1}^n (R_{i,t} - R_{m,t}) \tag{1}$$

where $R_{i,t}$ refers to stock return whereas $R_{m,t}$ is the KLCI index return.

To calculate the daily basis stock return, the following formula was employed:

$$R_{i,t} = \frac{D_{i,t} + P_{t1} - P_{t0}}{P_{t0}} \tag{2}$$

where $D_{i,t}$ = dividend received during day t

P_{t1} = the current stock price during day t

P_{t0} = the stock price for the day before t

In order to calculate the market return, the research used the following equation:

$$R_{m,t} = \frac{KLCIindex_{t1} - KLCIindex_{t0}}{KLCIindex_{t0}} \tag{3}$$

where $KLCIindex_{t1}$ = KLCI index value for day t

$KLCIindex_{t0}$ = KLCI index value for the day before t

The final process was to calculate the CAR for day t as:

$$CAR_t = \sum_n^t \overline{AR}_T \tag{4}$$

Following the completion of CAR calculation was the development of the research model. The panel techniques consisted two regression models, which were the fixed effect model (FEM) and random effect model (REM). In order to select the best model from these two models, this study subjected itself to the Hausman test. The research adopted the following regression equation:

$$CAR_{i,t} = \beta_0 + \beta_{1i}(TP)_{1i} + \beta_{2i}(EF)_{2i} + \beta_{3i}(TVOL)_{3i} + \varepsilon_i \tag{5}$$

Furthermore, batteries of diagnostics tests were also performed to check the reliability and validity of the data used in the research. The diagnostics tests included the Variance Inflation Factor (VIF), correlation analysis, heteroscedasticity test, serial auto-correlation, and the Hausman test. Result from the unbalanced panel data revealed that not all of the information contained in the analyst report were able to detect stock returns movement. In the event where serial correlation and heteroscedasticity issues were observed, the study ran the model with robust standard errors.

4. Findings and Discussions

4.1 Discussion of Diagnostic Test

The analysis begins with the diagnostic test to ensure that the data are fit for the research purpose. Firstly, the panel unit root test was performed using the Fisher-type unit root test based on Phillips-Perron analysis for all variables, further indicating that there were unit roots in all of the variables. In terms of the variance inflation factor (VIF) test, the majority of the variables scored a mean value of less than 10.00, indicating that there was no issue of multicollinearity. More than the overall mean for VIF was just 1.01, which was less than 10.00. This further confirmed that there was no issue with the data used. Secondly, correlation analysis was performed in order to see the degree of a variable's linearly in relation to another variable. The matrix of correlation postulated the issue of collinearity, which was similar to the variance inflation factor (VIF). Based on the result of the correlation analysis, it can be clearly noted that all correlation values were lesser than 70 percent (rule of thumb), indicating that there was no existence of multicollinearity in the model. The variables were thus determined fit for running the analysis.

The next step was to test for heteroskedasticity in checking for variation of error terms across the number of observations. To perform this, the Breusch Pagan or Cook-Weisberg test was employed. The p-value (0.000) for this test was significant, postulating that there was the issue of heteroskedasticity in this model. Thus, to deal with heteroskedasticity, the model was further run with robust standard errors. The next process was to determine whether the data encountered the issue of serial auto-correlation or not. To do this, Wooldridge test was used. The p-value was significant (0.0660), indicating that there was no presence of serial correlation in the model. Finally, to choose the right model between the fixed effect (FEM) and random effect (REM), the Hausman test was applied. The result from this analysis revealed that the fixed effect model was appropriate as the p-value was significant. Therefore, all discussions will be based on the FEM model.

4.2 Discussion of Summary Statistics

Table 2 postulates a summary of statistics for all variables. Overall, a noticeably wide variation occurred at target price (TP) where the minimum and maximum values

were 0.01000 and 73.15000 respectively. This clearly shows that TP plays an important role as an information content in the analyst report. Although the minimum and maximum range showed a wider difference, in terms of standard deviation, TP was found to highly deviate with the value of 13.78792. This indicates the possibility of higher TP inaccuracy due to the large deviation.

On the other hand, earnings forecast (EF) possessed high inconsistency in terms of minimum and maximum values ranging from -34.3000 and 79.0000. Small differences can be found in the CAR where the values were -14.8500 and 15.8100 accordingly. The TVOL recorded 5.703783 and 17.9293660 in minimum and maximum values, indicating that it had a strong influence with stock price movement. Furthermore, TVOL also scored high with the mean value of 12.94747. It is noteworthy to analyse the mean for the CAR when it is relatively small, in this case was 0.675147, as it suggests that there may be other factors that influence the CAR apart from these three variables.

Table 2: Summary of Statistics

Variable	Mean	Std. Dev.	Min	Max
CAR	0.675147	2.759739	-14.850000	15.810000
TP	7.676664	13.78792	0.010000	73.150000
EF	3.055417	9.038891	-34.300000	79.000000
TVOL	12.94747	2.419834	5.703783	17.923660

Note: This table shows the result of the descriptive statistics performed. The timeframe used was daily basis spanning from January, 2010 to December, 2015. The number of observation was 657. The analyst reports were downloaded from the Bursa Malaysia repository system. The Cumulative Abnormal Return was calculated based on market adjusted model.

4.3 Discussion of Result

Referring to Table 2 and as mentioned, the selected model for panel data analysis was the FEM-Robust. The R-squared value of differences in CAR at 2.61 percent could be explained by the variables that were included in analysis. Both FEM-Robust and FEM showed similar results with POLS, in which TP and EF had been shown to have significant relationship with the CAR. In other words, only 66.67 percent of the variables were found to associate with the CAR. However, the relationship was negative only for TP and positive for EF based on the coefficient sign in FEM-Robust. Da Silva (2013) argued the target price negatively relates to the CAR because it does not represent the information content due to the lack of accuracy in deriving target price. This view is also supported by Bradshaw et al. (2012) where the authors maintained that the lack of adequate skills by analysts in deriving target price has caused target price to have a negative relationship with the CAR. This subsequently results in the analysts' lack of predictive power, especially in projecting the target price. Similar to this study finding, Kerl (2011) investigated the accuracy of target price for selected analyst reports. The paper found the target price had an inverse correlation with firm-specific factors and positively connected to the size of analysis, the size of the firms, and the reputation of the investment bank.

The study concluded that the conflict of interest was insignificant to the forecast accuracy.

In terms of earnings forecast, the result showed a positive association with the CAR based on the FEM-Robust. This means that if the earnings forecast was positive, a higher CAR was revealed. This is evidenced in many existing literatures as well. For example, the study performed by Hou et al. (2014) revealed that positive earnings forecast together with positive upgrade on earning forecast built investors' confidence towards a firm's stock performance, subsequently leading to a positive gain. This finding is also consistent with Fama (1984) and Ali et al. (1992). According to the FEM-Robust result, the trading volume appeared to be insignificant with the CAR. Thus, it has no informational role in the analyst report. This could be contributed by the fact that trading volume is dependent on the investors' interpretation and expectation. Furthermore, the variable of trading volume continues to be unambiguous when it comes to its actual classification as an element of information content. The studies investigated by Barber and Loeffler (1993) and Cooper et al. (2001) concluded that trading volume contained less information and insignificantly influenced returns. Karpoff's (1986) views differed in comparison to the above literature. Generally speaking, if the investor has a different expectation compared to earlier ones, this new information will lead to the rise in trading volume. However, this may not always be true since trading volume can also decrease if the sequence in the information was different and caused further divergence in the price of shares due to the shareholders' wrong interpretation. In other words, the interpretation of trading volume depends on the investors perception and signals.

To check for consistency, the results were compared with the pooled OLS regression, revealing the R-squared value of 0.036200, which meant a total of 3.62 percent of differences in the CAR was explained by the variables that were included in the analysis. Two significant information contents which influenced the CAR were revealed following this analysis, namely TP and EF while the trading volume remained insignificant. The coefficient of these two variable under POLS was positive, indicating that the information content of TP and EF had positive significant relationship with the CAR. These results are consistent with the findings of Barber et al. (2007) as well as Jegadeesh and Kim (2006), in which the researchers concluded that target price was positively significant to stock returns with higher elasticities. This is because the target price derived by the analyst has already incorporated all of the positive aspects of the firm's progression. Thus, a higher target price indicates that the firm is doing well. This will convey a strong signal to the investors and will encourage them to invest in the company's shares (see Asquith et al., 2005, Guagliano et al., 2013; Da and Schaumburg, 2011). Result of the random effect was similar to the general model of POLS.

Table 3: Overall Pooled OLS Regression and Panel Data Analysis

Independent Variables	Dependent Variables (CAR)			
	POLS	FEM	FEM - Robust	REM
TP	0.0336343*** (0.0077651)	-0.1218787** (0.05019540)	- 0.1218787*** (0.0301378)	0.0336343*** (0.0077651)
EF	0.0219447* (0.0118149)	0.02934400** (0.01366630)	0.02934400* (0.0180096)	0.0219447* (0.0118149)
TVOL	0.0241581 (0.0439305)	-0.0001636 (0.06539000)	-0.0001636 (0.0856069)	0.0241581 (0.0439305)
Constant	0.0371113 (0.5860097)	1.52322900 (0.92496210)	1.52322900 (1.1995800)	0.0371113 (0.5860097)
R ²	0.0362000	0.02610000	0.02610000	0.0362000
F-test	8.1800000	3.45000000	8.85000000	24.550000

Note: This table reports the overall result of the analysis. Markings of *, **, *** denote significance at 10%, 5% and 1% respectively. POLS refers to pooled OLS, REM refers to Random Effect Model, FEM refers to Fixed Effect Model, and FEM-Robust refers to Fixed Effect Model based on Standard Robust Errors. The standard errors for POLS, FEM, and REM are in parentheses, and the robust standard errors are in parentheses for FEM-Robust. The number of observations was 657 for all models. The cumulative abnormal return (CAR) was calculated based on market-adjusted model. The timeframe used was daily basis spanning from January, 2010 to December, 2015.

4.4 Decision of the Hypotheses

Table 4: Hypotheses Decision

Hypothesis	Relationship	Decision
H1 = The information content of target price has a significant relationship with the cumulative abnormal return (CAR).	Negative	Supported
H2 = The information content of earnings forecast has a significant relationship with the cumulative abnormal return (CAR).	Positive	Supported
H3 = The information content of trading volume has a significant relationship with the cumulative abnormal return (CAR).	Negative	Not supported

Note: This table shows the result of the hypothesis decision whether they are supported or vice versa.

5. Conclusion and policy implications

This paper has analysed a sample of 657 stock recommendations issued by brokerage houses in the Kuala Lumpur Stock Exchange between 2010 and 2015 to verify whether the information disclosed in the report are useful or vice versa to the investors. Two findings emerged from the present research. First, from the descriptive

statistics, it was made clear that the deviation of target price was high, revealing that TP generated by the analyst had a higher risk and tendency towards inaccuracy. In terms of the CAR, the mean value was small, suggesting that there may be other factors that influence the CAR apart from these three identified variables. Secondly, the result has revealed that the information content of TP and EF were significant to the CAR, whereas the TVOL had no influence over the CAR at all. Thus, it can be concluded that TP and EF contained information content, thus supporting null hypotheses one and two. Trading volume was found to be statistically insignificant, meaning that only TP and EF were found to be significantly useful. Nevertheless, this does not mean that investors merely rely on TP and EF in making investment decisions. The more information related to firms investors have access to, the better are they able to make wise decisions on investments.

There are two policy implications resulting from this research. First is the managerial implication in which it is noteworthy to point out that the finding of this study has confirmed that the analyst report has managed to retain its position as a good source of reference for those who wish to make investment decisions. At the same time, investors are also encouraged to refer to as many source of information and investigation as possible before investing. Equally, the research finding may also be useful to analyst firms in analysing investors' behaviour in order to enhance their reporting styles and skills. Second, the theoretical implication of this study is expected to enrich the body of knowledge, especially in the related literatures within the context of analyst report in Malaysia. This is because studies which have been conducted in Malaysia had focused on scopes which were not specific to the usefulness of the report to investors. Therefore, the current research claims to theoretically implicate the matter of information content in the analyst report. It has further answered the question of whether the analyst report is transmitting adequate information to the investors or vice versa.

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