Factors affecting Abnormal Returns around Bonus Issue Announcements: 
An Empirical Analysis of CNX 500 companies

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ABSTRACT

The purpose of this paper is to find the determinants affecting the abnormal returns from bonus announcements for the period 2006 through 2014. The paper uses regression model for the study. The findings reveal that the firm size has a significant role in declining the abnormal returns. Promoters’ holding and abnormal returns are found to have significant and negative relation. The pre-cumulative average abnormal returns are responsible for significant improvement in abnormal returns. The abnormal returns in both the pre-crisis and post-crisis period were negative. The companies belonging to services sector generated significantly higher abnormal returns than the manufacturing sector.

Keywords: Information efficiency; Market efficiency; Trading volume; Bonus issues; Announcement effect.

1.0 Introduction

The stock markets in the present day have become complex and intriguing. Plethora of empirical literature signifies the importance of stock markets as they are the barometer of an economy. The stock market caters to the needs of different types of participants such as the investor, fund manager, management and the regulator. To maximise the return and to minimise the risk is an art of investment. The risk is intrinsic to any investment including the securities. There are number of factors that have an impact on the return of the securities which can be both external and internal to the organization. Considerable studies have been conducted to analyse the impact of such factors on the returns of securities and various stakeholders.

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One of the factors having a significant impact on the returns of securities is corporate announcements. The processing of corporate actions is an area where there is limited automation, harmonisation or even standardisation of standard practices. The intermediaries and investors are exposed to the potential impact of this limitation on risk and various initiatives undertaken in the industry are in the light of such risk. The market participants realise that implementation of their trading strategies and investment advice to their clients depends upon the accuracy and timely information of the corporate action. The corporate actions contain information about the future prospects of the firm in terms of its growth and profitability or changes in financial structure or operations of the firm. The corporate actions are also said to transfer wealth in the hands of shareholders and bondholders and have an influence over the value of the firm. The corporate action has impact on the average share price return, the share price return volatility and the trading velocity. Comprehensive literature review has resulted in identifying certain corporate actions that are of paramount importance such as bonus issues, stock splits, mergers and acquisitions, buyback of shares, dividend announcement, earnings announcements and spin off hence any information that is disseminated pertaining to these actions are also fairly critical. The bonus issues have monetary implication as they are substitute of cash for the firm. The study is an attempt to find out the factors affecting the abnormal returns on account of bonus issue announcements.

2.0 Review of Literature

Bonus shares are the additional shares given to the shareholders, based on the number of shares that shareholder owns. In order to provide for bonus issue a company capitalizes a part of its reserves thereby substituting them for dividends payout. In this process the company is able to conserve its cash and hence bonus is substitute for cash (Ghosh and Woolridge, 1988). The bonus issue announcement conveys strong signals to the investor that the company is in shortage of cash. One of the basic aims of the company to issue bonus is to encourage retail participation and increase equity base. The bonus issue announcement has an impact on the share prices of the announcing firm; it tends to provide a positive signal to the investor with respect to the future growth prospects of the company (Foster and Vickrey, 1978; Woolridge, 1983; and Grinblatt et al., 1984)

2.1 Foreign research studies related to bonus issues announcements

Numerous studies have been done abroad in this area. The results of the studies are mixed. A study done by Beaver (1968) found that announcements contain information if
they change investors’ attitude about the valuation of an asset. He found that higher price reaction to earnings announcement more in the week of announcement than in the non-report period and establish evidence of it. Ball, Brown and Finn (1977) investigated share price reaction around the announcement of ‘share capitalisation changes’ (bonus share issues, share splits and rights issues) in Australia for the period between 1960 and 1969 inclusive using monthly data. They found 20.2% abnormal return for 13 months up to including the month of bonus issue announcements.

On the other hand, Woolridge (1983) examined that the stock dividends provide signals from managers to the shareholders. In a sample of 317 stock dividend announcements was taken on the basis of daily returns and they find positive abnormal returns due to announcements. A study done by Masulis and Korwar (1985) observe in a sample of 1085 offerings by NYSE listed firms and 321 by AMEX listed firms, significant negative abnormal returns are statistically significant at 1% level following stock offerings announcement. The reaction is more for industrials than for public utilities. The cross-sectional analysis of stock announcement returns indicates that there is a positive association with the changes in leverage of the firm and a negative association with preceding stock returns and to decreases in management shareholdings.

Harris and Gurel (1986) studied the price and volume changes in stocks listed on S&P 500 index for the period 1976-1983. The findings reveal that the volume increases by more than 3% immediately after an addition is announced. This increase is fully reversed after 2 weeks. Lijleblom (1989) examined the reaction of stock prices to announcements of stock dividends for the stocks that were listed on the Stockholm Stock Exchange (SSE). The findings indicated significantly positive reaction of share prices to the announcements of stock dividends hence supporting the signaling hypothesis.

McNichols and Dravid (1990) examined that the information signaling for the future earnings is determined by the split factor of the companies. The control factors in the study were differences in pre-split price and firm size. They found high degree of correlation between split factors and returns as there were significantly positive abnormal returns associated with stock dividend and split announcements. They found that these announcements reduced information asymmetry between management and shareholders regarding future earnings.

Kim and Verrecchia (1991) analyse price and volume change to information gap for 853 securities between 1986 to 1991 and find that the volume is not affected by the information content in the market. The average size of the trade has got a very marginally significant and positive relation with the firms that are smallest in NASDAQ but the returns to the security is positively correlated to the information contained in the announcements. Corrado and Zivney (1992) used sign test for abnormal security returns. The sign test is
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compared to t-test (parametric) and non-parametric rank test. Their results confirm that
sign test is more powerful than that of the t-test. Denis and Kadlec (1994) examined the
relation between returns, trading activity through probing systematic risk for share
repurchase and equity offering and repurchase of shares. The study does not find any
confirmation regarding changes in the systematic risk for either share repurchase or equity
offering.

Masse et al. (1997) studied the reaction of the market to major announcements
namely stock split, reverse stock splits and stock dividend in the Canadian stock markets.
The results indicate positive and significant market reaction to the stock splits and stock
dividends but the findings are more pronounced in the case of stock split with the CAAR
of 4.3% on the first trading day post announcement than stock dividends where the CAAR
is 1.4%. In case of reverse splits the market reaction to reverse stock split announcement is
positive and significant with the CAAR of 9.3%. The findings of this study are dissimilar to
the U.S studies.

Rankine and Stice (1997) found that the market reaction to announcement is more
pronounced and positive for stock dividend than for stock split. This implies that stock
dividends provide stronger signal in the market than stock splits. The returns for five day
period for stock dividend announcement were 2.70% which was positive and significant
and greater than 0.93% returns for stock splits. The findings reveal that earnings growth is
positively correlated with stock dividend announcing firms but not with stock splits
announcing firms.

Amihud et al. (1997) examined trading mechanism of the selected stocks of Tel
Aviv Stock Exchange to study for improvements in the value effects of trading. They
found that the CAAR for five days prior to the announcement was 5.5% approximately.
Also their findings revealed that there was a positive relationship price appreciation of
stock and liquidity gains. Papaioannou et al. (2000) examined the price reaction to stock
dividend on both the announcement and the ex-dividend day by firms listed on the Athens
Stock Exchange. The authors analyses earnings per share, dividends per share and trading
volume in both pre and post-announcement periods. The results exhibit statistically
insignificant abnormal returns on both the announcement and the ex-dividend day. The
analysis reveals a significant decline in the market-adjusted trading volume in the post
dividend period.

Barnes and Ma (2002) investigated the reaction of stock price to the
announcement of bonus issue for Chinese stock market. The announcements with high
bonus ratio lead to significantly positive return for both Chinese as well as foreign traders.
The market with high bonus ratio reacts more robustly than low bonus ratio to the
announcement of bonus proposals.
Amihud (2002) used data for the period 1964 through 1997 the illiquidity measures have positive effect on the expected stock return both cross-sectionally and over a period of time. The size of the firm and turnover has statistically significant and negative relation with the abnormal returns but illiquidity has significant positive relation. Elyasiani and Goldberg (2004) examined the market reaction to the improvement in liquidity in the market when the company issues new stocks. The stocks listed on NASDAQ, NYSE and AMEX been considered. The findings suggest that there is more liquidity when firm announces bonus and rights issue announcement. Balachandran et al. (2004) examined the impact of bonus announcement on the share price of Australian firms for the period 1992-2000. The findings reveal positively significant abnormal returns on the day of the event and one day post bonus announcements. However, abnormal returns attributable to bonus issue announcements are significantly less for financial companies than industrial non-financial companies and mining companies.

Bechmann and Raaballe (2007) investigated stock dividend sand stock splits listed on the Copenhagen Stock Exchange (CSE) in Denmark. The findings reveal that the firms which increased cash dividends at the time of split announcement experienced significantly positive returns while the firms which didn’t declare cash dividend didn’t experience significantly abnormal returns. Vo and Batten (2010) examined all firms listed from January 2007 to June 2010 in the Ho Chi Minh Stock Exchange in Vietnam. The variables used for the study are turnover rate to measure the liquidity, log of the capitalisation of the firm at the end of each month, book to market ratio at the end of the preceding quarter, Beta is calculated using the price data of the previous year and the market return. The findings reveal that the liquidity is positively correlated with the stock returns i.e. liquidity is an important variable for asset pricing and the countries in the emerging economies should ease barriers to enhance liquidity.

Adaoglu and Lasfer (2011) in the sample of 371 bonus announcements for the firms listed on ISE (Turkey) for the period 1995–2006 found positive abnormal returns on the announcement dates, and predominantly for the firms that were financially weak which could not afford to pay dividend. Their findings find a very weak support for liquidity hypothesis but are consistent with signaling hypotheses, earnings hypothesis and paid-in-capital hypothesis.

2.2 Indian studies related to bonus issues announcements

Obaidullah (1992) examined the adjustment of stock prices to announcements of bonus issues in the Indian markets. The data comprises of 75 bonus announcements during the period 1987-89. The CAAR reflects an overall increase around the period of announcement. This leads to the reaction of market in the optimistic direction. The entire
adjustment relative to announcement of bonus takes place before the announcement. The findings suggest that Indian stock markets are efficient in semi strong form. Desai and Jain (1997) examined around 5,596 stock split announcements for the period 1976–91; the abnormal returns are 7.11%. The firms that initiate dividend experience significantly larger abnormal returns. The findings also support that more information is available for larger firms than the smaller ones. Information asymmetry is larger for small companies also the abnormal returns have a negative relationship with the size of the firm.

Mishra (2005) examined a sample of 46 bonus issue announcements in India for the period 1998-2004 and found statistically significant positive abnormal returns for the period of five days prior to the announcement. The results support that Indian markets are efficient in semi strong form. Malhotra et al. (2007) examined the reaction of share price to the announcement of Bonus Issue for a segment of Indian Companies for the period from 2000 to 2006. They found that there are negative reactions to the bonus announcements. The findings suggest that there is no leakage of information as the cumulative returns prior to announcement are not significant. The liquidity reduces after the announcements and also size of the company does not affect abnormal returns. The results also reflect that bonus factor conveys positive indication to the investors.

Marisetty et al. (2007) study examines around 67 companies for announcement of rights issue for the firms listed in Indian stock exchange. The findings suggest insignificant yet positive reaction to such announcement. The firms that have family association have more negative reaction to the price. The findings also suggest that price reaction to announcement is more in case of companies that have higher individual shareholding.

Dhar and Chhaocchharia (2008) examine the effects of stock splits and bonus announcement on the Indian stock market for the period 2000 to 2007. The findings indicate positive and significant AAR of 1.8% and 0.8% for bonus issues and stock splits announcements at 1% level. CAAR is also positive and significant. The findings supports signaling hypothesis and also that Indian markets are efficient in semi strong form.

Sharma and Singh (2009) studied the semi-strong form efficiency of the Indian stock market for announcements of bonus issues. Bonus issue announcements of the firms for the period covering 2002 to 2007 are examined. The CAAR on and around the announcement date, was positive. There was positive yet insignificant reaction of market to the bonus issue. Ray (2011) studied bonus issues and stock splits announcements for the period from 1996 to 2008. The event window is taken to be -30, 30. The results suggest that the Indian market reacts positively to the stock split announcements but not to bonus issues. The findings also suggest that there is significant increase in liquidity post bonus issue and stock split announcements.
Malhotra et al. (2012) examines the stock price liquidity changes before and after the bonus and rights issue announcements. The authors measured liquidity using raw trading volume ratio, relative trading volume ratio and liquidity ratio. They suggest that raw trading volume and relative trading volume have decreased around bonus and rights announcements, although the decrease is not significant. Market depth, which is measured by the liquidity ratio, has significantly decreased after the bonus and rights issue announcement in the Indian stock market. There is verification of negative and significant decrease in stock price liquidity for bonus and rights issue announcements alike to other issue announcements in US, UK and other emerging economies. The outcome support cash substitution hypothesis and signaling theory but discards liquidity hypothesis with respect to bonus and rights issue announcements. Joshipura and Nusrathunnisa (2013) examine the reaction of stock prices to bonus issue announcement and effective day in post global financial crisis period. A sample of 74 CNX 500 companies that announced bonus has been used for the period between 2008 through 2012. According to semi-strong form of efficient market hypothesis any information which is related with bonus announcement should be reflected in form of abnormal return on announcement day itself. The study supports signaling hypothesis and are consistent with the prior literature as there are significant positive abnormal returns on the announcement as well as effective day.

3.0 Data and Methodology

The study has taken a sample of bonus and stock split announcement made by companies listed at NSE around January 2006 to December 2014 (Table 1). The ‘event day’ for each company is taken as the date of ‘Board of Directors meeting’ in which the decision to issue bonus shares is announced. Board of directors meeting date is the first time at which these announcements come into foray. So this is the best date to be treated as the event date. The board meeting dates for the announcements and data of daily share prices and market index regarding the companies selected for sample have been collected from CAPITALINE Plus and CMIE Prowess 4.1.

Table 1: Companies announcing Bonus Issue for the period January 2006-December 2014

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Bonus Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Crisis</td>
<td>51</td>
</tr>
<tr>
<td>During Crisis</td>
<td>39</td>
</tr>
<tr>
<td>Post Crisis</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
</tr>
</tbody>
</table>

Source: CAPITALINE Plus and CMIE Prowess
Some companies have been omitted on the basis of the following filters:-

- The companies for which bonus issue coincide with other events like right issue, De-
  merger announcement etc.
- Companies for which data on announcement date is not accessible with precision

In the literature, both monthly and daily stock return data have been employed. For instance, Fama, et al. (1969), and Brown and Warner (1980) used monthly stock return data. Daily returns are more conventional than monthly returns (Fama, 1976). The assessment of parameters from daily returns is complicated due to no synchronous trading (Scholes and William, 1977). Finally, monthly returns have a greater standard deviation than daily returns (Brown and Warner, 1985). However, Brown and Warner (1985) provided evidence that the mean abnormal returns in a cross section of securities converge to normality as the number of securities in the sample increases.

3.1 Cross sectional regression

A cross-sectional regression model is used to examine the association between announcement period abnormal return sand arrange of variables, which may have influenced his share price reaction. The dependent variable is the abnormal return a son day 0. The set of explanatory variables and the anticipated signs of their coefficients are outlined below.

**Age**: Age of the company is taken to be the difference between the date of incorporation and date of announcement of bonus issues. The investor has positive perception towards the firm which has been longer in existence as over the years wins the investor confidence. It also observed that older firms usually get good ratings from the credit rating companies.

H$_{0j}$: The age of the company announcing bonus issue has no significant impact on the abnormal returns.

H$_{1j}$: The age of the company announcing bonus issue has got a significant role in improving the abnormal returns.

**Bonus (BON)**: BON is the proportion of number of shares offered divided by the number of shares outstanding. The coefficient of this variable is anticipated to be positive. This variable helps to gauge the impact of bonus issue in the minds of shareholder. The justification for including this variable as an explanatory variable is consequent to the information content of bonus share. The larger the size of the bonus share issue, the greater information content. Therefore, a positive coefficient is predictable.
H₀₂: The size of the bonus issue has no significant impact on the abnormal returns of the announcing company.
H₁₃: The size of the bonus issue has got a significant role in improving the abnormal returns of the announcing company.

Pre-cumulative Average abnormal return (PRECAAR): PRECAAR is the cumulative average abnormal returns from 20 days prior to 2 days prior to the announcement of bonus. If the market anticipates the leak of information about the issue of bonus, investors will start bidding up the prices preceding to the announcement date. The coefficient of this variable is anticipated to be negative as larger the bidding up prior to the announcement the lesser the extent of the price reaction on the announcement date.
H₀₃: The pre cumulative average abnormal returns of the company announcing bonus issue has no significant impact on their abnormal returns.
H₁₃: The pre cumulative average abnormal returns of the company announcing bonus issue has got a significant role in decreasing their abnormal returns.

Market value of the firm (SIZE): SIZE is the natural logarithm of the market value of the company-31 to -150 days prior to the announcement date. We have taken average of the market capitalisation of the discussed window. It is expected that this coefficient will have a negative sign since smaller companies have greater information asymmetry and therefore the signaling effect of the bonus announcement will be greater than a comparable signal from larger companies. This supports the neglected firm hypothesis.
H₀₄: The market value of the company announcing bonus issues has got no significant impact on the abnormal returns.
H₁₄: The market value of the company announcing bonus issues has got a significant role in decreasing the abnormal returns.

Promoter Holding (PROMHOLD): In India, the majority of business firms are promoted by some families. Large portion of shares are held by those families as promoters' holding. The announcement of the bonus announcement is known by the promoters beforehand. The greater the percentage of promoters' holding the lesser would be the proportion of free floating shares available for regular trading. Hence, it is hypothesized that higher the promoters holding, the lesser is information irregularity and less abnormal returns around the bonus announcements. Promoters’ holding is taken as one quarter prior to the date of announcement.
H₀₅: Promoters’ holding has no significant role in altering the abnormal returns owing to bonus announcements.
H₁₅: High promoters’ holding significantly decreases the abnormal returns owing to bonus announcements.
Institution Holding (INSTHOLD): Institutional ownership is defined as the number of shares held by institutions at the end of the quarter divided by the total number of outstanding shares held at the end of the quarter. Institution holding one quarter prior to the announcements is taken.

H₀: Institutions’ holding has no significant role in altering the abnormal returns owing to bonus announcements.

H₁: Higher institutions’ holding significantly decreasing the abnormal returns owing to bonus announcements.

Dummy Variable: Dummy variables represent the attribute or a qualitative variable in linear regression model. In our study we use two dummy variables to represent three time horizons namely pre-crisis, during-crisis and post-crisis and one for the industry categorization into manufacturing and service. The pre-crisis period is coded 0 for both dummy regressors. The pre-crisis represents the baseline category to which other time horizons are compared. The two dummy variables D₁ and D₂ represent the time frame of during crisis and post crisis. Similarly D₃ represents the dummy variable for industry takes the value of 1 if it is a manufacturing industry, otherwise 0.

In the cross sectional regression analysis we study the three time frames namely pre-crisis, during-crisis and post-crisis. The crisis refers to sub mortgage crisis that happened in the US in the year 2007. We have identified the date of crisis to be 23rd September 2008 due to the collapse of Lehman Brothers. This day was the start of credit crisis and Indian economy developed resilience to face the crisis owing to conservative banking system and monetary policy adopted by the government and the RBI. The recovery period is considered to be 1st January 2011. The operational definitions of dependent and independent variables in the cross sectional regressions are given in Table 2. Hence, we propose four models each for bonus issues’ abnormal returns whereby identifying factors affecting the returns on the announcements.

**Model I: Regression model without industry and crisis effects**

\[ AAR = \alpha + \beta_1 AGE + \beta_2 BON + \beta_3 \text{LOG(SIZE)} + \beta_4 PROMHOLD + \beta_5 INSTHOLD + \beta_6 \text{PRECAAR} \]

where \( \alpha = \) Intercept

\( \beta_1 = \) Coefficient of age of the company

\( \beta_2 = \) Coefficient of bonus factor

\( \beta_3 = \) Coefficient of size of company

\( \beta_4 = \) Coefficient of promoter holding

\( \beta_5 = \) Coefficient of institutional holding

\( \beta_6 = \) Coefficient of pre CAAR
Factors affecting Abnormal Returns around Bonus Issue Announcements

Table 2: Operational Definitions of Dependent and Independent Variables used in Cross Sectional Regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Operational Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR</td>
<td>Average Abnormal Returns on Announcement of Bonus Issue</td>
</tr>
<tr>
<td>BON</td>
<td>Bonus issue size</td>
</tr>
<tr>
<td>PRECAAR</td>
<td>Pre Cumulative Abnormal Return(-30 to -2) days from the announcement</td>
</tr>
<tr>
<td>SIZE</td>
<td>Market Capitalisation of The Firm</td>
</tr>
<tr>
<td>PROMHOLD</td>
<td>Promoter Holding</td>
</tr>
<tr>
<td>INSTHOLD</td>
<td>Institution Holding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dummy Variables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Crisis</td>
<td>( D_1 = D_2 = 0 )</td>
</tr>
<tr>
<td>During Crisis</td>
<td>( D_1 = 1 ), Otherwise ( D_2 = 0 )</td>
</tr>
<tr>
<td>Post Crisis</td>
<td>( D_2 = 1 ), Otherwise ( D_1 = 0 )</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>( D_3 = 1 ), Otherwise ( D_3 = 0 )</td>
</tr>
</tbody>
</table>

Model II: Regression model considering the industry effect

\[
AAR = \alpha + \beta_1 \text{AGE} + \beta_2 \text{BON} + \beta_3 \text{LOG(SIZE)} + \beta_4 \text{PROMHOLD} + \beta_5 \text{INSTHOLD} + \beta_6 \text{PRECAAR} + \beta_7 D_3
\]

where \( \alpha \) = Intercept of service companies
\( \beta_1 \) = Coefficient of age of the company
\( \beta_2 \) = Coefficient of bonus factor
\( \beta_3 \) = Coefficient of size of company
\( \beta_4 \) = Coefficient of promoter holding
\( \beta_5 \) = Coefficient of institutional holding
\( \beta_6 \) = Coefficient of pre CAAR
\( \beta_7 \) = Coefficient of manufacturing companies

Model III: Regression model considering the effect of financial crisis

\[
AAR = \alpha + \beta_1 \text{AGE} + \beta_2 \text{BON} + \beta_3 \text{LOG(SIZE)} + \beta_4 \text{PROMHOLD} + \beta_5 \text{INSTHOLD} + \beta_6 \text{PRECAAR} + \beta_7 D_1 + \beta_8 D_2
\]

where \( \alpha \) = Intercept of pre-crisis period
\( \beta_1 \) = Coefficient of age of the company
\( \beta_2 \) = Coefficient of bonus factor
\( \beta_3 \) = Coefficient of size of company
\( \beta_4 \) = Coefficient of promoter holding
\( \beta_5 = \text{Coefficient of institutional holding} \)
\( \beta_6 = \text{Coefficient of pre-CAAR} \)
\( \beta_7 = \text{Coefficient of during crisis period} \)
\( \beta_8 = \text{Coefficient of post-crisis period} \)

**Model IV: Regression considering industry and crisis effects**

\[
AAR = \alpha + \beta_1 \text{AGE} + \beta_2 \text{BON} + \beta_3 \text{LOG(SIZE)} + \beta_4 \text{PROMHOLD} \\
+ \beta_5 \text{INSTHOLD} + \beta_6 \text{PRECAAR} + \beta_7 \text{D}_1 + \beta_8 \text{D}_2 + \beta_9 \text{D}_3 \\
+ \beta_{10} \text{D}_4 \text{D}_3 + \beta_{11} \text{D}_2 \text{D}_3
\]

where
\( \alpha = \text{Intercept of service sector during pre-crisis period} \)
\( \beta_1 = \text{Coefficient of age of the company} \)
\( \beta_2 = \text{Coefficient of bonus factor} \)
\( \beta_3 = \text{Coefficient of size of company} \)
\( \beta_4 = \text{Coefficient of promoter holding} \)
\( \beta_5 = \text{Coefficient of institutional holding} \)
\( \beta_6 = \text{Coefficient of Pre CAAR} \)
\( \alpha + \beta_7 = \text{Intercept of service sector during crisis period} \)
\( \alpha + \beta_8 = \text{Intercept of service sector post-crisis period} \)
\( \alpha + \beta_9 = \text{Intercept of manufacturing sector during pre-crisis period} \)
\( \alpha + \beta_{10} = \text{Intercept of manufacturing sector during crisis period} \)
\( \alpha + \beta_{11} = \text{Intercept of manufacturing sector during post-crisis period} \)

The hypothesized signs of the model coefficients are presented in Table 3. The study employs linear regression to test the various research hypotheses developed. The linear regression is based on various assumptions that need to be fulfilled in order to obtain reliable results.

**Table 3: Expected Relationship between Dependent and Independent Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Predictive Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>+</td>
</tr>
<tr>
<td>Bonus Factor</td>
<td>+</td>
</tr>
<tr>
<td>Market Capitalisation</td>
<td>+</td>
</tr>
<tr>
<td>Promoter Holding</td>
<td>-</td>
</tr>
<tr>
<td>Institutional Holding</td>
<td>-</td>
</tr>
<tr>
<td>Pre-CAAR</td>
<td>+</td>
</tr>
</tbody>
</table>
Factors affecting Abnormal Returns around Bonus Issue Announcements

a. **Outliers**: Outliers are those observations in the study that have relatively extreme values that might manipulate the accuracy of the regression analysis performed. After applying diagnostic tests it was revealed that there were outlying observations. Any observation with residual of 3.0 or more in absolute value is considered an outlier. Two observations in the bonus issue announcement were identified as outliers based on this condition and removed from the sample.

b. **Multicollinearity**: Multicollinearity arises in the data due to the existence of high correlation among independent (explanatory) variables in the regression model. We find that the VIF of the variables was less than 10 in all the four models of bonus issues.

c. **Normality**: Regression assumes that variables have normal distributions. Non-normally distributed variables (highly skewed or kurtotic variables, or variables with substantial outliers) can distort relationships and significance tests. The JarqueBera test was applied for all the four models of bonus issues and its value was not significant at 5%.

- $H_0$: The residuals are normally distributed
- $H_1$: The residuals are not normally distributed

d. **Heteroskedasticity**: The residuals from the least square regression model were examined for the presence of heteroskedasticity. The heteroskedasticity tests have been performed and the observed $R^2$ and corresponding p-values are not significant in all the four models of bonus issues as described in Table 4.

- $H_0$: The residuals are not heteroskedastic
- $H_1$: The residuals are heteroskedastic

<table>
<thead>
<tr>
<th>Table 4: Heteroskedasticity Test: ARCH for Bonus Announcements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Model I</td>
</tr>
<tr>
<td>Model II</td>
</tr>
<tr>
<td>Model III</td>
</tr>
<tr>
<td>Model IV</td>
</tr>
</tbody>
</table>

e. **Serial Correlation**: The residuals from the least square regression model were checked to examine for the existence of serial correlation. The observed $R^2$ and corresponding p-values are not significant in all the four models of bonus issues as discussed in Table 5.

- $H_0$: The residuals are not serially correlated.
- $H_1$: The residuals are serially correlated.
Table 5: Breusch-Godfrey Serial Correlation LM Test for Bonus Announcements

<table>
<thead>
<tr>
<th></th>
<th>F-statistic</th>
<th>Prob. F</th>
<th>Obs*R-squared</th>
<th>Prob. Chi-Square(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model I</td>
<td>0.79908</td>
<td>0.452</td>
<td>1.6916</td>
<td>0.4292</td>
</tr>
<tr>
<td>Model II</td>
<td>0.88041</td>
<td>0.4172</td>
<td>1.87617</td>
<td>0.3914</td>
</tr>
<tr>
<td>Model III</td>
<td>0.16828</td>
<td>0.8453</td>
<td>0.36272</td>
<td>0.8341</td>
</tr>
<tr>
<td>Model IV</td>
<td>0.29539</td>
<td>0.7448</td>
<td>0.65648</td>
<td>0.7202</td>
</tr>
</tbody>
</table>

4.0 Empirical Results

We employed four regression models for checking the impact of various variables on the abnormal returns received on account of bonus announcement on the event day. The regression model is generally significant (p-value = 0.001298) with an adjusted R-square of 0.115864. Hypothesis I (H₁) predicts that abnormal returns will increase as the size of the firm increases. Table 6 shows that the coefficient on firm size (FS) is negative and highly significant (p = 0.0316). The firm size as measured Log of Market Capitalisation is negatively related to altering the abnormal returns which was found to be significant at 5% level and inconsistent with that of Brennan and Copeland (1988). This finding is in support of neglected firm hypothesis which state that if there is a little known information about a firm, its shares will trade at a discount. This has been found for smaller firms with lower market capitalisation which may go for stock split to attract more number of market participants (Grinblatt, Masulis, and Titman, 1984; Wulff, 2002). Our results are inconsistent with the studies of Balachandran et al. (2004) and Adagoğlu (2005) where it was found that the size of the company has no effect on the abnormal returns.

The results reveal promoters’ holdings and Pre CAAR have got a significant effect in determining the abnormal returns. Our results are consistent with Szewczyk and Tsetsekos (1993). We also found a significant and a negative association between promoters’ holding and abnormal returns on announcement at 5% level of significance (p-value = 0.0373). Thus, the null hypothesis is rejected. Higher promoters’ holding means that the percentage of tradable shares is lower, thereby reducing the information asymmetry along with a reduction in abnormal returns. Besides this, the pre CAAR has also got significant as well as positive relationship with the abnormal returns. According to Han and Suk (1995), the effect of insider ownership should become greater as information asymmetry between insiders and outsiders increases. For the firms that have high insider ownership, the market in general reacts more positively to split announcements than from firms with lower insider ownership because a stock split
signal by a firm with higher insider ownership is viewed as more credible and should receive a more positive market response. The value of its coefficient is 1.84% highly significant and positive at 1% level. Malhotra et al. (2007) have proposed in their work that the coefficient of CAR should be negative in case the bidding is greater in pre-announcement period which will have an effect on decreasing the price reaction on announcement period. Our results are in support of the given argument which signals that there is no information leakage before the announcement of the bonus news.

The intercept coefficients of the model is significant which indicates the presence of several other factors also that affects the companies’ abnormal returns besides the explanatory variables taken up in the study. The R-squared value or the overall explanatory power of the model is 15.57%. There was no autocorrelation as the Durbin Watson statistic value is 1.76. The model doesn’t face the issues of multicollinearity and heteroscedasticity which have been already tested and reported in Table 6.

Table 6: Results of Cross Sectional Regression – Bonus Announcements

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$ t</td>
<td>$\beta$ t</td>
<td>$\beta$ t</td>
<td>$\beta$ t</td>
</tr>
<tr>
<td>C</td>
<td>2.9864</td>
<td>2.3647***</td>
<td>2.7738</td>
<td>2.1873***</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0408</td>
<td>1.6367</td>
<td>0.0419</td>
<td>1.6692*</td>
</tr>
<tr>
<td>BONUS</td>
<td>-0.2695</td>
<td>-0.5762</td>
<td>-0.2413</td>
<td>-0.5102</td>
</tr>
<tr>
<td>INSTHOLD</td>
<td>-0.0138</td>
<td>-0.3522</td>
<td>-0.0152</td>
<td>-0.3849</td>
</tr>
<tr>
<td>PROHOLD</td>
<td>-0.022</td>
<td>-2.0828**</td>
<td>-0.0221</td>
<td>-2.0848**</td>
</tr>
<tr>
<td>PRECAAR</td>
<td>1.8375</td>
<td>2.8885***</td>
<td>1.8355</td>
<td>2.8763***</td>
</tr>
<tr>
<td>MKT_CAP</td>
<td>-0.6549</td>
<td>-2.1738**</td>
<td>-0.6387</td>
<td>-2.0998**</td>
</tr>
<tr>
<td>MFG (D3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DURING(D1)</td>
<td>-0.5911</td>
<td>-0.4683</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST(D2)</td>
<td></td>
<td></td>
<td>-0.7444</td>
<td>-0.5701</td>
</tr>
<tr>
<td>D1D3</td>
<td>-3.179</td>
<td>-1.9692</td>
<td>-3.6365</td>
<td>-1.2907</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.1558</td>
<td>0.1572</td>
<td>0.1828</td>
<td>0.185</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.1159</td>
<td>0.1104</td>
<td>0.1305</td>
<td>0.1115</td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.9049</td>
<td>3.3578</td>
<td>3.4942</td>
<td>2.5176</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.0013</td>
<td>0.0026</td>
<td>0.0011</td>
<td>0.0068</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>1.7604</td>
<td>1.76</td>
<td>1.8249</td>
<td>1.8234</td>
</tr>
</tbody>
</table>

In the second model, we again found the size of the company, cumulative average abnormal returns prior to announcement, and promoters’ holdings significantly
affecting the abnormal returns in the same manner as discussed for model 1. The type of industry does not significantly affect the abnormal returns. We found a positive association between the age of the firm and the abnormal returns at 10% level of significance. This indicates that investors have a preference for buying and holding the shares of older or mature firms announcing bonus announcements. In the third model, with the introduction of crisis dummy variables, we found improvement in the R-squared and Adjusted R-squared from 0.15 to 0.17 and 0.11 to 0.13 respectively. The overall model is again significant using F-statistic. The factors namely size of the company, Pre CAAR and promoters’ holdings have the same and significant impact on the abnormal returns as earlier models. The results depict a reduction in the abnormal returns of the companies announcing the bonus announcements during crisis as well as post crisis. The decrease is highly significant in the post crisis at 1% level. The US financial crisis has taken a huge toll on the investors’ sentiment which dried up the liquidity and the interest in the stock market all over the world.

The fourth model deals with interactive dummy variable of crisis and industry. We find that the intercept of service sector during pre-crisis is significant at 5% level of significance which means that the investors having their shares in Service based companies received positive abnormal returns on bonus issue announcements. The reason could be that the contribution of service sector to the GDP before the onset of crisis was high. On the other hand, the service sector during the crisis and post crisis got insignificant but positive returns.

4.1 Implications

In our cross sectional regression performed on bonus issues announcements; the abnormal returns are negatively related to the market capitalisation. We can infer that the investors should also start investing in companies with small market capitalisations. A new investor with smaller disposable incomes can easily invest into small cap companies owing to their low market price as compared to large cap companies. Also, with the technological advancements, the interest of a retail investor is also increasing in the stock markets. The management of the companies announcing bonus issues can use them as a cash substitution strategy.

5.0 Conclusion

The present study focuses on finding out the determinants of abnormal returns around announcement of bonus issues. The sample companies were taken from CNX 500 index from the period of 2006 through 2014. It has used a cross sectional regression
to fulfil the objective. We found that the firm size is responsible for decreasing the abnormal returns which was found to be significant at 5% level. This finding is in support of neglected firm hypothesis which state that if there is a little known information about a firm, its shares will trade at a discount. We also found a significant and a negative association between promoters’ holding and abnormal returns on announcement at 5% level of significance. The cumulative returns prior to the announcement have also got a significant as well as positive relationship with the abnormal returns. There was a significant decline in the abnormal returns during crisis as well as post crisis. The service sector remained winner before crisis as it provided significantly higher abnormal returns to the investors.

References


