

Tax Motivated Trading Strategies and Stock Performance  
Around the Ex-Bonus Day and Ex-Rights Day

By

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## **Abstract**

Empirical evidence in India highlights extremely large positive abnormal performance on ex-bonus and ex-rights dates for equity. This paper argues that the tax regime can motivate trading strategies following around the ex-dates. The analysis also concludes that the tax regime can lead to significant positive abnormal performance if long-term investors are the equilibrium-price determining investors.

# **Tax Motivated Trading Strategies and Stock Performance around the Ex-Bonus Day and Ex-Rights Day**

## **1. Introduction**

An interesting documented anomaly in the Indian equity market is that of significant ex-bonus (Obaidullah, 1992) and ex-rights (Srinivasan, 1997) day positive abnormal performance. The abnormal performance reflects the excess of the ex-date price over the text-book theoretical price. The ex-rights abnormal performance was around 10% for both equity and fully convertible debenture issues. Theory would predict that the informational consequences of a bonus or rights issue would be occur when the issue is first announced, this event occurs well before the ex-date. The ex-date is specified in advance and shares are traded ex-bonus/rights from that date. There should be no systematic abnormal performance on the ex-date.

Institutional features and shareholder behavioural patterns may lead to the ex-rights price differing from the theoretical price (Srinivasan, 1997). One institutional feature is the possibility that a rights issue may be cancelled after the ex-rights date, the ex-rights price would, therefore, reflect residual uncertainty about the completion of the issue process. The second is the differential dividend eligibility - the new shares following a rights issue receive pro-rata dividends in the year of issue, while old shares receive the full dividend. Shareholder behaviour results in a certain proportions of rights lapsing - rights are neither exercised nor renounced and transferred (and the wealth of such shareholders reduces.) A rights issue can be completed if a minimum subscription of 90% of the issue is received<sup>1</sup>. The last implies that the actual rights issue may differ in size from than that assumed while computing a theoretical ex-rights price. However, the consequences of these do not in any significant way explain the magnitude of observed abnormal performance.

This paper seeks to provide a tax-based explanation for abnormal performance. It first argues that trading strategies around the ex-date can provide investors' excess returns. It then provides a plausible explanation for large ex-date abnormal performance.

The paper extends the logic of the ex-dividend behaviour of stock prices (Elton and Gruber 1970, Elton et. al 1984, and Kalay 1982). The paper does not address market microstructure explanations for abnormal performance on the execution day (Maloney and Mulherin 1992, Conrad and Conroy 1994, Nayar and Rozeff 2001).

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<sup>1</sup> Until 1995, firms were permitted to accept over-subscription of up to 10%.

The paper is organised as follows. Section 2 summarises the applicable tax provisions. Section 3 develops trading strategies around the ex-date for bonus issues and section 4 for rights issues. Section 5 provides numbers for the gain from trading strategies. Section 6 examines the tax consequences for ex-date price performance. Section 7 concludes the paper.

## **2. Tax Regime**

The tax regime described here has been in effect since 1<sup>st</sup> April 1995 (the income-tax assessment year 1996-97) for shares.

Capital gains (losses) arising from shares sold within a year of acquisition are deemed short-term. The rate of taxation is the normal income-tax rates. The highest base marginal level was 30% for individuals and 35% for domestic companies in the financial year 2000-01. (In addition to the base rate there was a surcharge that is ignored in this analysis).

Long-term capital gains (losses) arise when shares held for more than a year are sold, and were taxed at 20% in 2000-01.

Losses from sources such as business income can be set off against capital gains while computing tax. This effectively implies that tax benefits of such losses can be obtained immediately. More important for this article is that capital losses can be set off only against capital gains.

Capital gains represent the difference between the sale proceeds (net of transaction costs) and the cost of acquisition. In the case of shares acquired by purchase, the cost of acquisition is the actual price paid (including transaction costs) if the shares are sold within a year. In the case of long-term capital gains the cost of acquisition is the actual price paid (including transaction costs) adjusted by an "index" of inflation announced annually by the tax authorities.

Bonus shares are deemed, in the tax regime, to have been acquired at zero cost while computing capital gains tax. Shares obtained on a rights basis are deemed, in the tax regime, to have been acquired at the issue price, for the purpose of computing capital gains. These assumed acquisition values motivate ex-date strategies below.

## **3. Bonus Issues: Ex-date Trading Strategies**

We will explore below tax-based trading strategies that take advantage of on this zero-cost assumption for bonus shares..

We will throughout assume that an investor has adequate capital gains from other sources to take advantage of any capital losses that follow an ex-bonus/rights trading strategy. We will also assume away inflation, except where specifically incorporated. This implies that we can ignore inflation indexing in computing the cost of acquisition.

A shareholder (who possessed shares prior to the bonus announcement) can gain using two possible strategies, if the ex-bonus price is at its theoretical level. In these strategies we ignore the one-day "normal" return between the ex-bonus and cum-bonus dates. This is the expected equilibrium return; given the magnitude of ex-date abnormal performance ignoring the one-day return does not materially alter the gains from the strategies.

### Strategy 1

Assume that a shareholder had acquired  $n$  shares at time 't0' at a per share price of  $P_{t0}$ , and that the firm announces a  $b:1$  bonus with the last cum-bonus date at time 't1'. The market price on this cum-bonus date, in the absence of a bonus issue, is  $P_{t1}$  and satisfies the inequality in equation 1.

$$(1) P_{t0} > \frac{P_{t1}}{(1 + b)}$$

Irrespective of any future price (at time 't2')  $P_{t2}$ , it is optimal for the shareholder to sell a fraction  $f$  (equation 2) of her holdings on the ex-bonus date, and repurchase the same fraction on that date. With the investment unchanged the shareholder gains  $G_1 T_1$  (equation 3) at time 't1' and loses an amount  $G_1 T_2$  at time 't2'. The magnitude of gains depends on whether or not  $T_1$  is greater than  $T_2$ . Note that this gain is relative to holding throughout (starting from 't0' and selling at time 't2'). This situation is interesting in that gains can be made with effective security-holding remaining unchanged. Also this optimum  $f$  is fortunately equivalent to selling exactly the entire initial holding of shares, there is no need to invoke short-selling. In this strategy the tax regime is used to provide a tax credit around the ex-bonus date.

$$(2) f = \frac{1}{(1 + b)}$$

$$(3) G_1 = \left( P_{t0} - \frac{P_{t1}}{(1 + b)} \right) n$$

In addition to possible gains to an existing shareholder, an investor can gain from trading around the ex-date, as shown below.

### Strategy 2

This is an active version of Strategy 1 for an investor who does not own shares when the bonus issue is announced. An investor can acquire  $n$  shares on the last cum-bonus date at price  $P_{t1}$ , sell an optimal fraction  $f$  (as in equation 2) on the

following ex-bonus date, and acquire this fraction  $f$  on the same date. This will effectively reduce the cost of acquisition by an amount  $G_2 T_1$  (equation 4) immediately.  $T_1$  will perform be the short-term capital gains tax rate. An amount  $G_2 T_2$  will be lost at the time of sale of the holding. If the holding is sold after a year, gains will arise both from timing and from differential tax rates. This is a gain relative to buying at 't1' and selling at time 't2.' The absolute return earned by this strategy will obviously be determined by  $P_2$ . This essentially tax-driven gain can motivate trading around ex-date.

$$(4) \quad G_2 = P_{t1} \left( \frac{b}{(1+b)} \right)^n$$

While the bonus ratio  $[b:1]$  is a matter of indifference in standard finance, shareholders are motivated to seek high  $b$ , given tax benefits. Again, as with the previous strategy, the tax regime is used to provide a tax credit around the ex-bonus date.

### ***Bonus Issues: The Impact of Issue Regulations***

Bonus issues are governed by SEBI (Securities and Exchange Board of India) regulations. Current guidelines were applicable from April 1994. These effectively allow a firm to make bonus issues from free reserves (retained earnings and share premium collected in cash.) No bonus issue can be made within 12 months of a public/rights issue.

In the following analysis, we ignore share premium and focus on retained earnings. The amount of retained earnings set a ceiling on 'b' above. This amount is a function of the time elapsed since the last bonus issue, the return on book equity (ROE) or alternatively the earnings per share, and the dividend payout ratio.

With a constant-growth valuation model, we have the following ceiling on  $b_t$  (the value of  $b$ , in equation 1 above, in Year 't').  $S_0$  and  $R_0$  are the initial paid-up share capital and reserves respectively. ROE is the return on book equity (paid-up share capital plus reserves) and DIV is the dividend payout ratio.

$$(5) \quad b_t \leq \left( \left( \frac{R_0}{S_0} + 1 \right) \{1 + \text{ROE}(1 - \text{DIV})\}^t - 1 \right)$$

This can be alternatively written as in equation 6, where  $\text{EPS}_1$  is the earnings per share at the end of time '1'

$$(6) \quad b_t \leq R_0 + (\text{EPS}_1 (1 - \text{DIV})) \left( \frac{(1 + g)^t - 1}{g} \right)$$

In this constant-growth model the condition in equation (1) is satisfied as an equality if the initial reserves  $R_0$  is zero. A shareholder can only make gain  $G_1$ . With positive  $R_0$ , the

condition is always satisfied. That is, a firm can always make bonus issues at terms that provide shareholders gains  $G_1$  or  $G_2$ .

#### 4. Rights Issues: Ex-date Trading Strategies

Shares obtained on a rights basis are assumed to have been acquired at the issue price, for the purpose of computing capital gains. The previous discussion on bonus issues provides the optimal course of action.

##### Rights Issue Strategy 1

Suppose a firm announces an  $r:1$  rights issue at price  $P_1$ . Assume that an investor acquires  $n$  shares at a price  $P_{t1}$  on the last cum-rights date. She subscribes to the eligible rights and sells  $n$  shares on the ex-rights date. She gains  $G_3 T_1$  immediately (equation 7) provided equation 8 is satisfied. As before, with strategy 3, an amount  $G_3 T_2$  will be lost at the time of sale of the holding. Again, this gain is relative to buying on 't1' and selling on 't2' in the absence of a rights issue.

$$(7) \quad G_3 = P_{t1} \left( \frac{(r - P_1 / P_{t1})}{(1+r)} \right) n$$

$$(8) \quad r > \frac{P_1}{P_{t1}}$$

Again in standard finance, the rights issue price and the issue ratio [ $r:1$ ] are a matter of indifference. However, taxation motivates shareholders to seek a low issue price and a high  $r$ .

A rights issue, above par, will also ensure non-zero share premium. With a constant-growth model, this implies that a bonus issue can be made thereafter at terms that satisfy equation 2 and provide for gains  $G_1$  or  $G_2$ .

#### 5. Trading Strategies: Magnitude of Gain

This section looks at order of magnitude of gains from strategy 3. To simplify, we have assumed the shares acquired under these strategies (i.e. excluding shares sold on the ex-date) are held for one year after the ex-date and then sold (so that the transaction attracts long-term capital gains). The marginal income tax rate (applicable to short-term capital gains) is assumed to be 30%, the long-term capital gains at 20%, and the investor's annual opportunity cost at 15%.

Table 1 shows the relative gains (over buying on 't1' and selling on 't2' in the absence of a bonus/rights issue) that strategy 3 can produce. These gains represent the additional present value from optimal strategies as a percentage of the last cum-date price. The row with  $P_f=0$  represents a bonus issue. The opportunity to make such gains could drive ex-date prices significantly above their theoretical levels.

## 6. Ex-date Abnormal Performance

We now develop restrictions on the ex-date price for bonus issues, for an investor to be indifferent from selling cum-bonus or ex-bonus.

Assume that a shareholder had acquired  $n_0$  shares at time 't0' at a per share price of  $P_0$ , and that the firm announces a b:1 bonus at time 't1', and the cum-bonus market price is  $P_{t1}$ . The ex-bonus price is  $P_b$ .

The shareholder is indifferent between selling cum-bonus and ex-bonus if

$$n_0\{P_{t1} - T_1(P_{t1} - P_0)\} = n_0\{P_b - T_1(P_b - P_0)\} + n_0b\{P_b - T_iP_b\}$$

Where  $T_1$  is the effective tax rate on the initial holdings and  $T_i$  is the normal income tax rate on short-term capital gains. This yields the following.

$$(9) \quad P_b = \{P_{t1}(1 - T_1)\} / (1 - T_1 + b(1 - T_i))$$

If the date of acquisition 't0' is such that the effective tax  $T_1$  is the normal income tax rate,  $P_b$  reduces to the standard text-book value. If however the initial shares have been held for longer than one year, then the ex-bonus price  $P_b$  will be higher than the theoretical price. For capital gains tax of 30% and income tax of 30%, the ex-bonus price is 6.67% higher than the theoretical price for a 1:1 bonus issue. The premium increases to 9.09% for a 2:1 bonus issue. Thus the tax regime can cause a significant abnormal performance if it is assumed that 'long-term investors are the equilibrium-price-determining investors.' (see Bharadwaj and Brooks, 1999). The predicted abnormal performance compares, in order of magnitude, with the observed (Srinivasan, 1997).

## 7. Conclusion

The tax regime implies that following a bonus or a rights issue, the security owned by an investor is partitioned into two holdings with differential tax consequences. This can motivate trading strategies around the ex-date, that offer tax related gains. This can also lead to the ex-date price being significantly higher than the theoretical price. This is broadly consistent with empirical findings on ex-date abnormal performance.



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**Table 1: Relative Gains from Bonus and Rights Issues**

$P_i/P_{t1}$	Values of b or r			
	0.5	1	2	3
0.0	4.20%	6.30%	8.41%	9.46%
0.1	3.36%	5.67%	7.99%	9.14%
0.2	2.52%	5.04%	7.57%	8.83%
0.3	1.68%	4.41%	7.14%	8.51%
0.4	0.84%	3.78%	6.72%	8.20%
0.5	0.00%	3.15%	6.30%	7.88%
0.6	-0.84%	2.52%	5.88%	7.57%

**Note:**  $P_i/P_{t1}=0$  represents a bonus issue