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Ex day effects of the 2003 dividend tax cut ☆,☆☆

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ABSTRACT

We analyze ex day dynamics around the May 2003 dividend tax cut in a framework with arbitrageurs as liquidity providers. Raw returns and ratios for all groups don't change significantly around the event but the volatilities decline significantly. The volume declines more (less) strongly for high (low) yields. This is consistent with the reduction in the differential tax rates leading to a reduced demand for capital losses around the ex day, and a reduction in informed trading. The price dynamics for the one week before and after periods also support a market microstructure explanation. Evidence on market quality is mixed.

1. Introduction

The impact of the differential taxation between dividends and capital gains on stock prices has been studied for almost 60 years (see Campbell and Beranek (1955)). A great deal of effort has been devoted to discern any asset pricing effects. Researchers have examined ex day price and volume related clientele effects, impacts of regulatory and tax law changes, and effects of distributions such as cash and stock etc. The results, to say the least, have been inconclusive (see Hartzmark and Solomon (2013) and Thornock (2013) for recent evidence).

An early study of ex day price adjustments is presented by Elton and Gruber (1970) who equate the long-term sellers' after-tax cash flows on cum and ex days and compute implied tax rates. They propose the existence of dividend clienteles, i.e., low (high) dividend yield stocks are held by high (low) tax bracket investors. Researchers such as Miller and Scholes (1982) have criticized Elton and Gruber's (1970) evidence saying that it's a *problem* in need of researchers' attention.

A potential resolution to the ex day anomaly is the *discreteness model* proposed by Bali and Hite (1998). They show that since stock market prices adjust in multiples of a tick size, while dividends are almost continuous, price drops on ex days equal the dividends rounded *down*. They show that the price-drop-to-dividend ratios when plotted against dividends follow a saw-tooth pattern, an effect which subsumes the clientele evidence. Bali (2003a) incorporates bid-ask spreads in the model and relates the proportional price drop to spread effects in the intercept and dividend pricing (discreteness) effects in the slope coefficient.

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We add to the literature by testing if the liquidity provision based models, as in Kyle (1985), are capable of explaining the ex day dynamics around the Jobs and Growth Tax Relief Reconciliation Act of 2003 in the US (the 2003 dividend tax cut hereafter). This Act was passed by Congress and signed into law in May 2003. It reduced the highest marginal income tax rate from 38.5% to 15% and the capital gains tax rate from 20% to 15%. Evidence in favor of a model consistent with no-arbitrage would lend credence to the argument that a description exists within which the existing data can be reconciled.

Two other studies have analyzed ex day dynamics around this Act, i.e., Cloyd, Li, and Weaver (2006) and Zhang, Farrell, and Brown (2008). Cloyd et al. (2006) present price-drop-to-dividend ratios and do not find that the ratio behaves in a manner dictated by the tax clientele hypothesis. They also discuss the inappropriateness of using this measure since small dividends in the denominator lead to heteroscedasticity issues. Zhang et al. (2008) do not omit small dividends from their analysis, and support dividend clienteles.

Our results support the contention that arbitrageurs are the marginal price setters for our sample. The tax clienteles hypothesis predicts that the ex day returns would fall subsequent to the 2003 dividend tax cut and that this would be most prominent for low yield stocks in which the high tax bracket investors are hypothesized to specialize. We find that the ex day returns and ratios don't change significantly from the pre- to the post-event period for either the high or the low yield group, while their volatilities decline. The evidence is consistent with the argument that a reduction in differential taxes between dividends and capital gains, and a reduction in capital gains tax rate, lead to a reduction in the demand for capital losses. This should lead to a decline in trading volume, which we document.

This paper contributes to the literature in many ways. First, we show that the levels of price changes don't change significantly while their volatilities decline which is also consistent with a reduction in informed trading post event. Second, we create a model of proportional ex day price drop that provides a good description of ex day price behavior around the 2003 dividend tax cut. The model can explain why the returns are zero or negative for high yields (buying cum and selling ex) and small, but positive, for low yields (selling cum and buying ex). This model is an equilibrium description consistent with no-arbitrage. Third, we document the return and excess volume for the week before and the week after the ex days. The results support higher spread measures for high yields and reduced dividend aversion post-event. Fourth, we provide liquidity results from the one week before and the one week after the ex day periods by relating the returns to the spread measure and excess volume around the event. The effects of the Act on market quality are ambiguous.

There are three main points: (i) the effects of the 2003 dividend tax cut are consistent with a market microstructure explanation and a reduction in informed trading, (ii) the Act led to increased investor purchases after the ex day post-event (indicating reduced dividend aversion), and also to reduced dividend capture, (iii) the effects on market quality are inconclusive with it falling for low yields in the week before the ex day period, and mixed in the period after the ex day.

This article is organized as follows: Section 2 presents the literature review, section 3 details the model and section 4 presents the analysis. Section 5 concludes.

2. Literature review

Miller and Modigliani's (1961) dividend policy irrelevance proposition states that in perfect markets, a firm's market value is independent of its dividend policy. So, if reality runs a close parallel to the assumptions they choose, then firms with differential dividend policies are priced independently by the market. They use the no-arbitrage argument to support their proposition saying that if otherwise, then the overpriced firms will continue to issue equity claims until the equal-price equilibrium is established.

Elton and Gruber (1970) presume that investors sort themselves across the dividend yield spectrum and are dividend averse due to lower effective rates on capital gains. They find that the ex day relative price declines rise with dividend yields, leading to high (low) imputed tax rates for low (high) dividend yield stocks. They conclude in favor of tax clienteles.

Market imperfections, referred to in Miller and Modigliani (1961), can occur along transaction costs and information dimensions as well; and Elton and Gruber's (1970) contention is not the only possible explanation. Kalay (1982) argues that short-term, tax neutral traders would arbitrage away any tax premium implicit in ex day price adjustments. He presents bounds within which the ratios must lie, but can't explain why the ratios rise with dividend yields.

Later work analyzed the introduction of negotiated commissions in May 1975 (e.g., Karpoff and Walkling (1988) and Boyd and Jagannathan (1994)). Their results generally support the argument that arbitrageurs became the marginal price setters, at least for high yields, post event. This leaves unanswered the questions as to who is at the margin pre event, and, what about the low dividend yield group?

It is interesting to note that at this stage, the research became more divergent. Grammatikos (1989) and Eades, Hess, and Kim (1994) reach *opposite* conclusions as to the effects of the 1984 Tax Reform Act. Grammatikos (1989) claims that returns, at least for high yields, rose indicating that corporations were at the margin, and were no longer so post event. Eades et al. (1994) claim the opposite, saying that dividend capture increased post event. Michaely (1991) and Robin (1991) reach differing conclusions as to the effects of the Tax Reform Act of 1986 with Michaely (1991) claiming that short-term traders or corporations were at the margin and Robin (1991) claiming that long-term investors were at the margin.

Dubofsky (1992) relates the ex day price adjustments to the NYSE rules which say that on ex days the limit orders to sell are not adjusted while those to buy are. He also shows that the return just below and equal to a tick multiple exceeds the return just above. Although some evidence had appeared against the dividend clientele hypothesis, a significant impact was made by the Bali and Hite (1998) discreteness hypothesis. They claim that since prices adjust in multiples of a tick size, existence of transaction costs for the liquidity providers, and long-term investors' dividend aversion due to taxes, together are sufficient conditions for the data to exhibit the pattern documented by Elton and Gruber (1970). Further, Bali and Hite show that the relative price decline was falling in between