Tax-loss selling and seasonal effects in the UK

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Abstract: We examine monthly seasonal returns for the UK during the period 1955-2003. We identify four distinct tax regimes during which both the incentive and ability to tax-loss sell varies. In support of the tax-loss selling hypothesis we find that the relationship between past losses and both January and April returns is strongest during tax regimes in which the incentives to off-set tax is high and weakest during regimes in which the incentive is low. Most intriguingly, our evidence suggests that tax reforms introduced in 1998 that had the aim of reducing short-term trading have been successful in limiting tax-loss selling by the company sector but not for the personal sector. Finally, neither the January nor April effect appears to be driven by the size effect.

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I. Introduction

The objective of this study is to test the tax-loss selling hypothesis. This predicts that at the end of the tax year investors sell stocks that have declined in value to realize the capital loss and offset it against capital gains tax (CGT) liability. At the beginning of the new tax year the prices of those stocks that were sold for tax purposes recover thereby resulting in high returns typically in January (Branch 1977; Dyl 1977; Reinganum 1983). The difficulty in testing this theory is in identifying hypotheses that are specific to tax-loss selling since the January effect is a a more general seasonal anomaly. Rival explanations for abnormal returns in January include window-dressing, the bid-ask bounce, and risk based explanations.[1]

Several studies compare the January returns of past winners with those of past losers since tax-loss selling should only apply to stocks that have unrealized capital losses. The problem with this evidence is that a negative relationship between January returns and past returns is not unique to the tax-loss selling hypothesis. The window dressing hypothesis also predicts high January returns for previous poor performers as institutional investors sell poorly performing stocks prior to declaring their holdings at the end of the year (Haugen and Lakoniskhok 1987; Lakonishok et al. 1991). For this reason it is important to develop additional tests of the hypothesis that do not solely rely on a negative turn-of-the-year effect. Poterba and Weisbenner (2001) propose a neat solution. They distinguish between tax regimes according to the magnitude of the incentive to sell to off-set tax and then test whether the relationship between past returns and seasonal premia varies according to tax regime. If window dressing is responsible for the January premium then the relationship between a stock's past

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[1] The issue is further complicated since the January effect is linked to other anomalies such as the winner's curse, momentum and the size effect.

performance and its January premium should not vary as the rules relating to CGT change.

Our paper makes several contributions to the literature. First it extends the scope of previous UK studies by applying the Poterba and Weisbenner (2001) methodology to an analysis of UK seasonality using a large data set. We identify three clear breakpoints that herald significant changes to the incentive and ability of both individuals and companies to tax-loss sell. This yields four distinct tax regimes whereas previous studies have distinguished just two regimes. Second, the UK market is of particular interest for the tax loss selling hypothesis. While many firms have a tax year that corresponds to the calendar year, the tax year ends on April 5th for individuals. Thus tax-loss selling by individuals should cause an April effect. Thus we can compare and contrast the January and April effects for the UK.

Finally, our empirical analysis yields several interesting findings. Our results provide more clearcut and robust support for the predictions of the tax-loss selling hypothesis than the extant literature. For much of the sample period there is stronger evidence for January than for April premia underlining the role of tax-loss selling by companies. The hypothesis is most strongly supported in Regime 3 (1983-1997) whose tax rules are the most conducive to tax-loss selling. From 1998 the UK government introduced rules that intended to restrict the ability of investors to tax-loss sell. The evidence suggests that these rules have been successful in restricting tax-loss selling by companies but not by individuals.

The rest of the paper is organised as follows. The relevant literature is reviewed in Section II. The changes to the UK tax system impacting on tax loss selling are documented in Section III. The data and methodology are introduced in Section IV and the results are analysed in Section V. A final section concludes.

II.   Literature review

Many studies have reported evidence of January returns being significantly higher than the returns during the rest of the year. Early studies presented evidence of high January returns in the US (Rozeff and Kinney, 1976; Keim, 1983), while subsequent work has demonstrated that this was an international phenomenon (Gultekin and Gultekin, 1983; Nassir and Mohammad, 1987; Ho, 1999), although less prominent in some emerging markets (Claessens et al. 1995; Fountas and Segedakis, 2002; Ho 1990). The tax-loss selling hypothesis provided an early explanation for the January effect (Branch, 1977; and Dyl, 1977). This predicts that, as the end of the tax-year approaches, investors sell stocks that have declined in value since their purchase to realize a capital loss and set it against capital gains to reduce tax liability. This selling pressure ends with the new tax year allowing these 'loser' stocks to recover in value.

The difficulty in testing the tax-loss selling hypothesis is to construct tests that distinguish it from other hypotheses that purport to explain the presence of a January premium. To this end many studies test for a relationship between a share's Potential for Tax-loss Selling (PTS) and its individual January premium. In this vein, Roll (1983) has shown that firms that experience more negative returns during the preceding year gained larger turn-of-the-year returns at the beginning of the next year. Reinganum (1983) demonstrates that January returns are higher for small firms whose prices had previously declined.

The problem with this approach is that it still does not exclude all alternative explanations. Most obviously, the window dressing explanation for a January effect also predicts a negative relationship between previous returns and the January premium. It follows that an important test for the tax-loss selling hypothesis is to compare the January effect under different tax regimes. One way of doing this is to

compare countries with different tax years or different incentives for tax-loss selling. For example, Australia has similar tax laws but a June tax year end, implying that we would expect to see a July premium while Canada (prior to 1973) and Japan did not have a CGT for individual shareholders. Despite this, Gultekin and Gultekin (1983) demonstrate a January effect in a range of countries including Australia, Canada and Japan. Australian returns show pronounced December–January and July–August seasonality and a premium for the smallest-firm decile of about four percent per month across all months which taken as a whole is "difficult to reconcile with the tax-loss selling hypothesis". Berges et al. (1984) found returns on the Toronto Stock Exchange are higher in January but with a weak relationship to PTS and, more importantly, that the effect is evident both prior and after the introduction of CGT in 1973.

Schultz (1985) examines equity returns in the US prior to the War Revenue Act of 1917, a period in which tax rates for investors were very low (or zero), and finds that there was no evidence of a turn-of-the-year effect prior to 1917. Using more recent data, Poterba and Weisbenner (2001) divide 1963-1996 into sub-periods in which one of three different tax regimes operate. They find that the correlation between previous losses and turn of the year returns is stronger in regimes where the incentive to realize losses is higher.

The UK offers an interesting testing ground for the tax-loss selling hypothesis for two reasons. First the tax year for individuals is focused on April rather than December-January. Second, the introduction of CGT in 1965 provides a natural laboratory experiment for testing the effect of tax loss selling. Arsad and Coutts (1997) find significant January and April effects in the FT30, a large stock index, over the sample period of 1935-1994. Breaking the sample into twelve arbitrary 5 year sub-periods shows that the April effect is strongest prior to the introduction of CGT

whereas the January effect is stronger after this event.[2] Despite this somewhat puzzling result, Arsad and Coutts suggest their evidence supports the tax-loss selling hypothesis.

Using a relatively small UK sample from 1988-94, Draper and Paudyal (1997) analyse the seasonality of bid-ask spreads and trading activity, in addition to market returns. They also support the notion of tax-loss selling as an explanation for high April returns but not for high January returns. They suggest that the tax-loss selling hypothesis implies that turnover should be high and returns low during the final month of the tax year and they demonstrate this holds for March but not for December.

Reinganum and Shapiro (1987) reject monthly seasonality prior to 1965 in the UK but not for the post-1965 period where January and April stand out as the months with the largest returns. They test the tax-loss explanation by ranking stocks according to their potential for tax-loss selling and constructing 'winner' and 'loser' portfolios with the lowest and highest PTS measures. Subtracting one from the other they find that the April return of the loser portfolio is significantly greater than that of the winner portfolio after but not before 1965 and that the difference between the two differentials is significant. By contrast, the difference between winner and loser January portfolios is significant for both the pre- and post-1965 periods and the post-1965 difference is not significantly greater than the pre-1965 difference. They conclude that, while the UK evidence supports tax-loss selling as an explanation for high April returns, it cannot solely explain the January effect.

III. Tax-loss selling and the UK tax system

The most important distinguishing feature about the UK tax system concerns the tax

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[2] Of the twelve sub-periods, there are four significant April effects, three of which are prior to 1965. And there are four significant January effects, all after 1965.

year-end. For individuals it is April 5th, and for companies, 31st March. These are the dates for which the Government sets its tax rates. However, whilst individuals are taxed based on their income for the 12 months ending April 5th, companies are liable to corporation tax based on the twelve months ending on the annual reporting date falling within the fiscal year ending 31 March. The annual reporting date can be fixed at any date within the year although the common assumption that companies choose a December tax year-end is well supported. Draper and Paudyal (1997) show that 35% of their 1,763 sample of companies during 1994 had a December year-end and 21% had a March year-end. Updating this to 2006, from a sample of 2,113 companies 36% have a December year-end and 19% have a March year-end, suggesting that the distribution of year-ends changes little over time.[3]

The overall importance of individual shareholders has been in decline in the UK in recent decades. In 1963 individuals owned 54% of ordinary shares listed on the UK market. This figure fell to 28% in 1981 and 14% in 2002. Pension funds and Insurance companies have seen their holdings increase from 16% in 1963 to 36% in 2002, while the holdings of the 'rest of the world' has increased from 7% to 32% over the same time span.[4] These trends imply a decline in the April premium that is independent of the tax regime.

When defining regimes we need to take account of the impact of both the overall tax framework and the level of taxation on the propensity for tax-loss selling. The most important consideration is the tax rules in operation, in particular how they relate to

[3] We also find that the final month of the other two quarters are popular year-ends, with 11% and 9% of companies having a June and September year-end respectively. The corresponding figures for 1994 were 7% (June) and 8% (September).
[4] There are a number of causes for this latter increase. The Office for National Statistics cite the following: "The increase since 1994 partly reflects international mergers where the new company is listed in the UK, floatation of UK subsidiaries of foreign companies on which the parent has retained a significant stake, companies moving their domicile to the UK, improvements to the classification of holdings and the 1997 reclassification of £6.1 billion of shareholdings in the UK offshore islands to rest of the world" (ONS 2003).

off-setting losses through the CGT share identification rules which have been subject to alteration over the period 1965-2003. The first key date is 1965, when CGT was introduced. Prior to this there were negligible incentives for tax-loss selling for either individuals or companies, as isolated gains not in the nature of trade were untaxed.[5] From April 1965-1982 all acquisitions of shares of the same class in the same company were pooled. The purchase of individual blocks of shares lost their identity in the pool, instead the pool was regarded as a single asset with all the shares in the pool treated as though they were acquired at the same average cost.

In 1982 Indexation Allowances were introduced to provide relief from the effects of inflation so that only the genuine gain in share value would be taxed. As a consequence it became necessary to identify the precise date at which particular blocks of shares were purchased. Share pooling arrangements were therefore stopped for both companies and individuals with effect from March/April 1982 and new identification rules were introduced which meant that disposals were matched against shares held in the following order: 1) first against acquisitions on the same day; 2) against acquisitions in the previous twelve months on a first in first out basis; 3) against other acquisitions on a last in first out basis. The last in first out basis also applied to assets held on 6 April 1965.

Pooling was reintroduced in 1985 for most shares acquired after March 1982, replacing the previous identification rules. This did not, however, represent a return to the strict share by share pooling rules of 1965-82. Three pools were introduced: the 'new pool' (now referred to as the Section 104 pool) of shares acquired after 1982; the '1982 Pool', holding shares acquired between 1965-82 and the pre-1965 pool. Any losses could be set off against any gains made within the pool. In contrast, prior to

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[5] Although as Reinganum and Shapiro (1987) note, individuals who are classified as traders may have the gains and losses from their trading taxed as income.

1982 the separate pools of shares for each class in each company meant that there was less opportunity to tax loss sell, as gains/losses were calculated on a share by share basis. From 1985-97[6] the maximum opportunity for tax loss selling was provided by the share identification rules which allowed for the three general pools of shares to be used as the basis for calculating capital gains.

A central intention of the 1998 Finance Act was to encourage long-term investment and to prevent undue tax-avoidance. Thus it brought in measures to counteract bed and breakfasting of shares, defined as when shares are sold and then reacquired the following day (or within 30 days under the FA1998 definition).[7] The opportunities for tax loss selling were thus reduced considerably by the need to identify shares in a specific order to match against disposals to create gains/losses.[8] The use of the share identification rules to counter 'bed-and-breakfasting' suggests that the Government at least believed that the previous identification rules had allowed a greater degree of tax-avoidance to take place. The introduction of a taper relief for individuals also had the effect of encouraging long-term investment by reducing the proportion of capital gains that are taxed according to the length of time the asset has

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[6] And particularly from 1989, from when shares acquired before 1982 could be rebased and added to the 'new pool'

[7] The 30 day rule is intended to counter bed and breakfasting. As from April 1998, the chargeable gain or loss for a share that is bought within 30 days of selling is based on the difference between the selling price less the repurchase price.

[8] For individuals this order was: 1) Against acquisitions on the same day; 2) Against acquisitions within the 30 days following the disposal; 3) Against acquisitions preceding the disposal, but after 5 April 1998, on a last in first out (LIFO) basis; 4) Against shares in a Section 104 holding, but without identifying any particular shares in that holding; 5) Against shares in a 1982 holding, but without identifying with any particular shares in that holding; 6) Against shares held on 6 April 1965, again on a LIFO basis; 7) Finally against acquisitions following the disposal (and not already identified under stage 2 above), taking the earliest acquisition first. For companies and other concerns within the charge to Corporation Tax, disposals of shares of the same class in the same company held in the same capacity must be identified in the following order: 1) Against acquisitions on the same day; 2) Against acquisitions in the prescribed period which is either one month or six months; 3) Against acquisitions in the previous nine days; 4) Against shares in the `Section 104 holding'; 5) Against shares in the `1982 holding'; 6) Against shares held on 6 April 1965 on a last in first out (LIFO) basis; 7) Finally against subsequent acquisitions of shares, taking the earliest acquisition first.

been owned,[9] while for companies, corporation tax rates continued to decline, especially for smaller companies.

These changes suggest four tax regimes with clear differences in the opportunity for tax-loss selling.

Regime 1: 1955-1965. Very limited tax-loss selling in the absence of CGT.

Regime 2: 1966-1982. The introduction of CGT and corporation tax with restrictive pooling open up opportunities for tax-loss selling.

Regime 3: 1983-1997. The temporary lifting of pooling followed by the implementation of a more generous pooling regime further facilitates tax-loss selling.

Regime 4: 1998-2003. The clamp down on bed and breakfasting and introduction of incentives for longer term investment creates a climate that is less conducive for tax-loss selling.

IV.   Data and methodology

Our sample is taken from the London Share Price Data Base (LSPD) tape compiled by the London Business School. The LSPD contains monthly data on share prices from 1955 to 2003. We restrict our sample to those companies with at least three consecutive years of observations, giving us between 1078 and 1880 observations in each month. Average returns for each regime are reported in Table 1.

[Table 1 around here]

There is evidence of an April premium in all regimes and a January premium in all regimes with the exception of Regime 1.[10] The January premium is the more variable

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[9] The introduction of this taper was gradual. In 1998/98 92.5% of the gain on business assets held for one year is chargeable, falling to 50% for assets held for ten years. By 2002/03 the corresponding figures were 50% and 25% respectively.

[10] For Regime 1, our January premium is slightly higher to that estimated by Reinganum and Shapiro

of the two. It is at its highest during Regimes 2 and 3 but is much reduced during

Regime 4 when tax rules limited the ability for tax-loss selling. The presence of an

April premium in Regime 1 is somewhat puzzling given the absence of a CGT during

that period and the highest April premium is seen in Regime 4.

We estimate panel regressions similar to those specified by Poterba and

Weisbenner (2001). Our dependent variable is the monthly return for each stock

inclusive of dividends in the months of January and April. To proxy for loss selling

potential we construct the variable $LOSS_{i,t-1}$ which measures the log change in price

of stock *i* during the previous 6 months if the stock has declined in value, and

otherwise takes the value of zero.[11] We control for past gains, with $GAIN_{i,t-1}$ that

takes the value of the log change in price over the preceding 6 months for stocks that

have increased in value and zero otherwise. We also control for stock size and account

for trading costs with the inverse of the stock price, 1/PRICE. Finally, we include firm

fixed effects, c_i, and annual dummies, d_t. Our final model takes the form

$$R_{Jan,i,t} = \gamma_{S,i}GAIN_{i,t-1} + \beta_{S,i}LOSS_{i,t-1} + \psi(1/PRICE_{i,t-1}) + \lambda size_{i,t-1} + \theta d_t + c_i + \varepsilon_{i,t}$$

$$R_{April,i,t} = \gamma_{S,i}GAIN_{i,t-1} + \beta_{S,i}LOSS_{i,t-1} + \psi(1/PRICE_{i,t-1}) + \lambda size_{i,t-1} + \theta d_t + c_i + \varepsilon_{i,t}$$

If tax-loss selling by individual investors is an important contributory factor to

seasonal effects, then we would expect to find negative coefficients for the LOSS

variable with changes in tax rules affecting the relative magnitudes of those

coefficients. Our first prediction is that tax-loss selling did not take place during

Regime 1 but did occur in the other three regimes. Accordingly we expect β to be

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(1987) for the same period, while our April premium is a little higher. This difference is explained by
our different filtering system as we only include stocks with at least 6 months of prior observations. We
also include stocks for which we do not have size information.

[11] We also tried defining LOSS over the previous 12 months. Results were qualitatively similar, though
less pronounced. On balance we believe our 6 month definition is more appropriate because tax-loss
traders are more likely to be frequent traders and so the 6 month LOSS measure is likely to be the more
relevant of the two.

insignificantly different from zero for the first regime but negative in the other three regimes.

Prediction 1A: $\beta_1 = 0$

Prediction 1B: $\beta_2, \beta_3, \beta_4 < 0$

Our second prediction distinguishes between the tax regimes in which capital gains were systematically taxed. Our analysis of the British tax system over the past fifty years indicates that the incentive and ability to off-set tax by selling stocks to incur capital losses peaked during Regime 3 whereas the ability to tax-loss sell was lowest during the recent Regime 4. Accordingly we have the following prediction.

Prediction 2: $\beta_3 < \beta_2 < \beta_4$

V. Empirical evidence

We report the results for our panel regressions in Table 2.

[Table 2 around here]

Predictions 1A and 1B are accepted for April returns. In other words, in Regime 1 the LOSS coefficient for April is statistically insignificant and it is significantly negative in the other three regimes. The same is true for January except for Regime 4 where the coefficient is significant but positive.

The test results for prediction 2 are reported in Table 3 and the coefficients of interest are presented in Figure 1.

[Table 3 around here]

[Figure 1 around here]

For the two regimes associated with tax regimes that are most conducive to tax-loss selling the relationship between past losses and seasonality is relatively large for January returns. The corresponding April effect is considerably smaller in Regime 2

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but is comparable in Regime 3.The most negative coefficient for January LOSS is obtained for Regime 3 which is significantly lower than that for Regime 2 which in turn is significantly lower than for Regime 4 (see Figure 1). This ranking is in accordance with Prediction 2 and indicates that tax-loss selling by companies with December year-ends varies systemically with tax regime changes. The most negative April LOSS coefficient also obtains inRegime 3 and is significantly less than that for both Regimes 2 and 4. Contrary to Prediction 2, the Regime 4 and 2 coefficients are indistinguishable.[12] Thus Predition 2 is partially supported for April.

These findings demonstrate that changes to the tax regime influences seasonal trading behaviour and resulting seasonal premia. Previous studies of UK seasonality have focused on the introduction of CGT in 1965 and found an impact post-1965. Our findings demonstrate that subsequent major changes to CGT rules have influenced this seasonality. Moreover, by distinguishing between tax regimes we have been able to conduct new tests of the tax-loss selling hypothesis. The large negative relationship between past performance and loss-selling for Regime 3 strongly supports the tax-loss selling hypothesis as does the increase in these coefficients as we move from Regime 3 to Regime 4.

One result that was not predicted is the difference between the behaviour of January and April returns during the most recent Regime 4. The results reported in Table 1 show that the January premium was a mere 0.95% during this period whereas the April premium was 2.92%. The LOSS coefficients for the same Regime shows

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[12] One explanation for this finding is that, although the incentives and ability to tax-loss sell may have declined, individuals are now more aware of personal money management issues and as a result are more likely to trade actively to minimise the tax burden. This is consistent with the relatively low April LOSS coefficient for Regime 2.

evidence of tax-loss selling during March-April but not during December. These findings suggest that the post-1997 attempts to reduce tax-loss selling and increase long-term investment have achieved some success in the case of corporate tax-loss selling but less so for the personal sector. It may be that individuals are better able to circumvent the restrictions than are companies. Anecdotal evidence from advice given by tax advisers suggest that, while the 30-day rule has put an end to bed and breakfasting, alternative strategies have been adopted. Legal tax avoidance measures include selling shares to incur the capital loss before buying them back in the name of the spouse, known as 'bed and spousing', or buying the shares back in an ISA tax-free savings account, a practice known as 'bed and ISAing'.

Studies of the January effect in the US find a strong link with the size effect, with smaller stocks being associated with abnormal January returns . Evidence for a link between size and seasonality in the UK is more mixed with Draper and Paudyal (1997) finding more prominent seasonality amongst smaller stocks, whereas Clare et al. (1995) find no such relationship. We thus check whether our findings for both January and April are driven by the size effect. Table 4 presents the LOSS coefficients estimated for different size deciles.

[Table 4 around here]

In regimes 1, 2 and 4 there is no clear relationship between size and the LOSS coefficients. Only for Regime 3, where the incentive to tax-loss sell is at its highest, is there a relationship between stock size and the LOSS coefficients with nine of the 10 coefficients for the smallest five deciles being negative and an almost monotonic reduction in (absolute) magnitude as we move from the lowest to the 5th decile. These findings are consistent with those of both Draper and Paudyal and Clare et al., since the former used a relatively small sample, 1988-1994, that falls within our Regime 3,

while the latter used a larger sample, 1955-1990, spanning our first three regimes.

VI.   Conclusions

We examine monthly seasonal returns for the UK during the period 1955-2003 and find evidence of abnormally high returns in January and April. Previous studies have attributed these premia partly to tax-loss selling by simply distinguishing between pre- and post-1965 regimes when CGT was first introduced. We adopt the Poterba and Weissbenner (2001) methodology of a finer split of the sample period by tax regimes. This facilitates a more robust test of the extent to which tax-loss selling is the cause of seasonal patterns. An examination of changes to UK company and individual tax rules reveal three clear breakpoints which yield four separate regimes. The introduction of CGT in 1965 and subsequent change to share identification rules is merely the first breakpoint. This is followed by two other breakpoints. One was the relaxation of share pooling arrangements from 1983 while the final major change was the introduction of restrictions to short-term trading for tax purposes from 1998.

While there is no evidence of a negative relationship between past returns and tax year-end returns in the pre-CGT Regime 1, this relationship was strongest during Regime 3 when the incentive and ability to tax-loss sell was at its greatest. These findings add to the literature by providing a more robust support for the tax-loss selling hypothesis than previous UK studies and by demonstrating that the magnitude of tax-loss selling varies significantly with changes subsequent to the initial implementation of CGT in 1965.

Our results provide an early indication of the relative success of the substantial tax reforms undertaken by the 1997 Labour Government that were intended to close tax loopholes and reduce short-termism. The negligible January premium for Regime 4

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along with a positive relationship between past returns and January returns suggests that changes to the tax rules were successful in reducing tax-loss selling by the company sector. However, the continuing presence of an April premium along with the negative relationship between a stock's past performance and its April return indicates that the new rules have been less successful at limiting tax-loss selling by individuals. It would appear that new tax avoidance strategies such as 'bed and spousing' and 'bed and ISAing' have enabled tax-loss selling to continue for individual investors.

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Table 1: Monthly returns

		Return	p-value		Return	p-value
Regime 1: 1956-65	R_{Jan}	0.0139	0.000	R_{April}	0.0298	0.000
	$R_{non\text{-}Jan}$	0.0132	0.000	$R_{non\text{-}April}$	0.0118	0.000
	$R_{Jan}\text{-}R_{nonJan}$	0.0006	0.454	$R_{April}\text{-}R_{nonApril}$	0.0181	0.000
Regime 2: 1966-82	R_{Jan}	0.0502	0.000	R_{April}	0.0360	0.000
	$R_{non\text{-}Jan}$	0.0081	0.000	$R_{non\text{-}April}$	0.0092	0.000
	$R_{Jan}\text{-}R_{nonJan}$	0.0421	0.000	$R_{April}\text{-}R_{nonApril}$	0.0268	0.000
Regime 3: 1983-97	R_{Jan}	0.0359	0.000	R_{April}	0.0210	0.000
	$R_{non\text{-}Jan}$	0.0042	0.000	$R_{non\text{-}April}$	0.0056	0.000
	$R_{Jan}\text{-}R_{nonJan}$	0.0317	0.000	$R_{April}\text{-}R_{nonApril}$	0.0154	0.000
Regime 4: 1998-2003	R_{Jan}	-0.0003	0.880	R_{April}	0.0178	0.000
	$R_{non\text{-}Jan}$	-0.0098	0.000	$R_{non\text{-}April}$	-0.0113	0.000
	$R_{Jan}\text{-}R_{nonJan}$	0.0095	0.000	$R_{April}\text{-}R_{nonApril}$	0.0292	0.000
Whole sample	R_{Jan}	0.0314	0.000	R_{April}	0.0273	0.000
	$R_{non\text{-}Jan}$	0.0053	0.000	$R_{non\text{-}April}$	0.0056	0.000
	$R_{Jan}\text{-}R_{nonJan}$	0.0260	0.000	$R_{April}\text{-}R_{nonApril}$	0.0216	0.000

Table 2: Panel regression results

Panel A: January

	tax regime1	tax regime2	tax regime3	tax regime4
Loss	-0.0148	-0.1168	-0.1458	0.0542
	(0.170)	(0.000)	(0.000)	(0.000)
Gain	-0.0192	0.0255	-0.0595	0.0424
	(0.003)	(0.000)	(0.000)	(0.038)
Price	0.1906	0.2245	0.2330	0.1634
	(0.000)	(0.000)	(0.000)	(0.000)
Size	-3.764	-5.226	-5.2181	-2.8379
	(0.000)	(0.000)	(0.000)	(0.042)
R^2	0.054	0.314	0.101	0.036
Sample size	11,951	25,252	25,789	8,145

Panel B: April

	tax regime1	tax regime2	tax regime3	tax regime4
Loss	0.0115	-0.0299	-0.1228	-0.0445
	(0.267)	(0.000)	(0.000)	(0.000)
Gain	0.0345	0.03257	-0.0391	-0.0450
	(0.000)	(0.000)	(0.000)	(0.002)
Price	0.1986	0.1980	0.0290	0.12699
	(0.000)	(0.000)	(0.159)	(0.000)
Size	0.6224	-3.4875	-4.0856	-2.3516
	(0.555)	(0.000)	(0.001)	(0.010)
R^2	0.040	0.105	0.064	0.089
Sample size	12,806	26,665	25,315	7,647

Note: *p*-values are reported in parentheses.

Table 3: Beta differentials

Panel A: January

	Regime 1	Regime 2	Regime 3
Regime 2	-0.1020 (0.000)		
Regime 3	-0.1310 (0.000)	-0.0290 (0.033)	
Regime 4	0.0690 (0.000)	0.1710 (0.000)	0.2000 (0.000)

Panel B: April

	Regime 1	Regime 2	Regime 3
Regime 2	-0.0414 (0.000)		
Regime 3	-0.1343 (0.000)	-0.0929 (0.000)	
Regime 4	-0.0561 (0.000)	-0.0147 (0.435)	0.0782 (0.000)

Note: p-values in parentheses.

Table 4: Loss coefficients by size decile

Size decile	Regime1	Regime2	Regime3	Regime4
1st (smallest)	-0.0257	0.0425	-0.2558	-0.0381
	(0.046)	(0.056)	(0.000)	(0.226)
2nd	-0.0721	-0.0983	-0.1908	0.1277
	(0.159)	(0.000)	(0.000)	(0.000)
3rd	-0.0152	-0.2544	-0.1357	0.0685
	(0.529)	(0.000)	(0.001)	(0.051)
4th	-0.1155	0.0655	-0.0776	0.0797
	(0.112)	(0.012)	(0.008)	(0.008)
5th	-0.0292	-0.1924	-0.0912	0.1153
	(0.258)	(0.000)	(0.016)	(0.000)
6th	0.0048	-0.3122	0.0695	0.1068
	(0.912)	(0.000)	(0.171)	(0.001)
7th	-0.0565	0.2749	0.1537	0.1524
	(0.031)	(0.000)	(0.002)	(0.000)
8th	-0.0032	-0.2491	0.0120	0.1612
	(0.928)	(0.000)	(0.849)	(0.000)
9th	-0.0073	-0.2888	0.0057	0.1187
	(0.818)	(0.000)	(0.936)	(0.000)
10th (largest)	0.0001	-0.4222	0.0724	0.2306
	(0.999)	(0.000)	(0.697)	(0.000)

Panel B: April

Size decile	Regime1	Regime2	Regime3	Regime4
1st (smallest)	0.0375	-0.0669	-0.2696	0.0150
	(0.014)	(0.000)	(0.000)	(0.682)
2nd	0.1462	-0.0455	-0.2143	-0.0379
	(0.008)	(0.010)	(0.000)	(0.250)
3rd	0.1018	-0.0707	-0.0405	-0.0190
	(0.017)	(0.000)	(0.258)	(0.624)
4th	-0.0236	-0.0686	-0.0769	-0.1442
	(0.624)	(0.002)	(0.000)	(0.000)
5th	-0.0084	-0.0955	0.0553	-0.1343
	(0.772)	(0.000)	(0.162)	(0.000)
6th	0.0353	-0.0483	-0.2242	-0.0887
	(0.465)	(0.014)	(0.000)	(0.008)
7th	-0.0102	-0.0345	0.0906	-0.0732
	(0.674)	(0.101)	(0.038)	(0.022)
8th	-0.0362	0.0268	0.0047	-0.0763
	(0.379)	(0.242)	(0.920)	(0.012)
9th	-0.0321	-0.0354	0.0135	-0.0438
	(0.347)	(0.174)	(0.795)	(0.197)
10th (largest)	0.0126	-0.0680	-0.1330	-0.1150
	(0.689)	(0.012)	(0.012)	(0.000)

Notes: Each year stocks are ranked and attributed to size dummies according to their size decile. Regressions are estimated using dummies interacting with all the variables. Only the LOSS coefficients are reported. p-values in parentheses.

Figure 1: Beta coefficients