Mispricing and Anomalies: An Exogenous Shock to Short Selling from the Dividend Tax Law Change

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Motivations & Objectives

The source of anomalies remains unclear: Risk or Mispricing?

- Behavioral biases create mispricing
- Limits-to-arbitrage such as short-selling constraints prevent investors from exploiting mispricing, mainly overpricing. Thus, overpriced stocks generate lower future stock returns

How to disentangle the above two explanations?

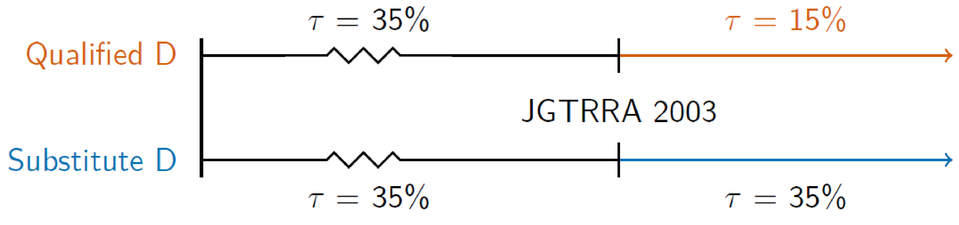
- Exploit a novel **exogenous shock** to short-selling from differential tax treatments.
  - Exogenous shock & Matched control samples
- Study **the most comprehensive set of anomalies**: 182 significant ones among 355 unique anomalies including various options related variables
- Construct a more powerful mispricing measure − net overpriced score ($NOPS$), inspired by Stambaugh, Yu, and Yuan (2015) and Engelberg, McLean, and Pontiff (2018)
- Provide strong evidence that overall anomalies are driven by mispricing and limits-to-arbitrage, but valuation anomalies seem not to be driven by mispricing.

Hypothesis: Arbitrage is more difficult in the month of dividend, thus mispricing (overpricing) is more severe, and consequently, the anomalies are stronger in the month after the dividend record month.

The Exogenous Shock to Short-Selling

After the Job and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003, equity lenders are reluctant to lend shares around the **dividend record dates** because substitute dividends that they would receive are taxed at ordinary income rates while qualified dividends are taxed at 15 percent, thus creating a negative shock to short selling. Thornock (2013) first documents this shock.

For example, a mutual fund in the 35% marginal tax bracket owns 100,000 shares of a firm with a price of \$200 and a dividend payment of \$0.20.



- After JGTRRA, the dividend of \$20,000 could be taxed at 15% (\$3,000)
- If the fund lends shares, the substitute dividend would be taxed at 35% (\$7,000)

NOPS & Research Design

NOPS: for each stock and each month,

- $NShort$ ($NLong$) : # of anomalies in the *decile* short (long) side portfolio
- $NOPS \equiv NShort - NLong$, negatively correlated with future stock returns

A stock-level DiD panel regression framework:

$$ret_{i,t} = \eta_t + b_1 NOPS_{i,t-1} + b_2 DivR_{i,t-1} + b_3 NOPS_{i,t-1} * DivR_{i,t-1} + b_4 NOPS_{i,t-1} * JGTRRA_{t-1}$$

$$+ b_5 DivR_{i,t-1} * JGTRRA_{t-1} + b_6 \Big(NOPS_{i,t-1} * DivR_{i,t-1} * JGTRRA_{t-1} \Big) + \varepsilon_{i,t}, \quad (1)$$

- $JGTRRA_t$: a dummy variable which equals to one if month t if after May 2003 (after the JGTRRA)
- $DivR_{i,t-1}$: a dummy variable that equals to one if stock i reports a dividend record date in month $t-1$

Main DiD coefficient, b_6, captures the differential response to JGTRRA of anomalies between the dividend record month and the other months.

Main Results (1985:07 - 2019:12)

Fixed Effects	Time	Time	Firm & Time	Firm & Time
Standard Error Clusters	Time	Firm & Time	Time	Firm & Time
NOPS	−0.095***	−0.095***	−0.100***	−0.100***
	(−9.02)	(−9.00)	(−11.07)	(−11.12)
DivR	0.077	0.077	−0.273***	−0.273***
	(0.37)	(0.37)	(−2.78)	(−2.77)
*NOPS*DivR*	0.046***	0.046***	0.031***	0.031***
	(4.55)	(4.55)	(4.76)	(4.76)
*NOPS*JGTRRA*	0.055***	0.055***	0.062***	0.062***
	(4.56)	(4.55)	(5.76)	(5.79)
*DivR*JGTRRA*	−0.148	−0.148	0.081	0.081
	(−0.62)	(−0.62)	(0.43)	(0.43)
*NOPS*DivR*JGTRRA*	−0.035***	−0.035***	−0.028***	−0.028***
	(−2.83)	(−2.82)	(−2.89)	(−2.89)

- The DiD results also hold when we remove the Reg SHO periods (2003:07 - 2007:06)