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## **Do firms follow dividend smoothing and pecking order when they alter their capital structure?**

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- Previous studies have not investigated **whether and to what extent firms smooth their dividends around corporate financing events.**
- We initially examine whether dividend smoothing varies across firms with financing surplus and financing deficit.
- Going deeper, we explore **the impact of equity and debt issues, and equity and debt repurchases on dividend smoothing.**
- We test whether dividend paying firms follow pecking order hypothesis when they issue / repurchase debt or equity.
- We investigate whether dividend smoothing and pecking order behavior differ across the size of a) deficit / surplus b) equity / debt issues and c) debt / equity repurchases

- We show that corporate financing decisions impact on dividend smoothing.
- Debt issuing firms smooth dividends more than equity issuing firms whereas debt repurchasing firms smooth dividends less compared to equity repurchasing firms.
- We find that debt issuing and debt repurchasing firms follow pecking order hypothesis whereas equity issuing and equity repurchasing firms do not follow pecking order hypothesis.
- There is no significant variation in dividend smoothing across large debt and equity issues whereas firms with large debt redemptions smooth dividends much less.
- The pecking order coefficient decrease for firms with large debt issues and repurchases.

- Since the seminal paper of Lintner (1958), many empirical studies document that dividend paying firms smooth their dividends; Fama & Babiak (1968); Brav et al. (2005); Leary & Michaely, 2011; Michaely & Roberts, 2012; Javakhadze et al., 2014; Hoang and Hoxha, 2016; Balli et al. (2022).
- A “strict” version of pecking order theory, which argues that firms may prefer to hold cash and avoid issuing equity by reducing dividend payments; Myers (1984); Fama and French (2012) . A “less strict” version of the pecking order is documented in the literature, which suggests that firms can issue equity depending on their level of debt capacity; Myers and Majluf (1984); Shyam-Sunder and Myers (1999); Chirinko and Singha (2000); Frank and Goyal (2003); Leary and Roberts (2010).
- De Yong et al. (2010) provide evidence that the pecking order coefficient is higher for firms with financing surplus (0.9) than for firms with financing deficit (0.7) and highlight the role of debt capacity.

We formulate the following hypotheses:

- ✓ H1a: Firms smooth dividends under financing deficit and financing surplus

Firms avoid cutting dividends and follow a “sticky” dividend policy in both deficit or surplus regimes → signaling good news for bondholders, shareholders and investors

- ✓ H1b: Firms with surplus have a higher pecking order coefficient than firms with deficit
- ✓ H2a: Debt issuing firms exhibit dividend smoothing and pecking order behavior
- ✓ H2b: Equity issuing firms smooth dividends less and do not follow pecking order behavior
- ✓ H3a: Equity repurchasing firms increase dividend smoothing and do not follow pecking order
- ✓ H3b: Debt repurchasing firms decrease dividend smoothing and follow pecking order

- ✓ We collect financial data for the US firms from COMPUSTAT from 1960-2020.
- ✓ We focus on dividend paying firms with more than five consecutive years of dividend payments.
- ✓ We include firms in the sample with non-missing data for debt issues (redemptions) and equity issues (repurchases) for more than five consecutive years.
- ✓ We exclude financials and utility firms.
- ✓ We exclude firms with financial deficit equal to zero.
- ✓ To deal with outliers winsorize all firm-specific variables at the 0.5<sup>th</sup> and 99.5<sup>th</sup> percentiles of their distributions.
- ✓ Our final sample consist of 3,173 US firms with 59,796 firm-year observations

$$DPS_{i,t} = \alpha_0 + \alpha_1 DPS_{i,t-1} + \alpha_2 EPS_{i,t} + e_{i,t} \quad (1)$$

$$DPS_{i,t} = \alpha_0 + \alpha_1 DPS_{i,t-1} + \alpha_2 EPS_{i,t} + b_1 DPS_{i,t-1} DEF_{i,t} + e_{i,t} \quad (2)$$

where SOA:  $1-(\alpha_1+b_1)$  for Deficit

$$DPS_{i,t} = \alpha_0 + \alpha_1 DPS_{i,t-1} + \alpha_2 EPS_{i,t} + b_1 DPS_{i,t-1} Eqiss_{i,t} + b_2 DPS_{i,t-1} Debtiss_{i,t} + e_{i,t} \quad (3)$$

where SOA:  $1-(\alpha_1+b_1)$  for Equity issues and  $1-(\alpha_1+b_2)$  for Debt Issues

$$DPS_{i,t} = \alpha_0 + \alpha_1 DPS_{i,t-1} + \alpha_2 EPS_{i,t} + b_1 DPS_{i,t-1} Eqrep_{i,t} + b_2 DPS_{i,t-1} Debtrep_{i,t} + e_{i,t} \quad (4)$$

where SOA:  $1-(\alpha_1+b_1)$  for Equity repurchases and  $1-(\alpha_1+b_2)$  for Debt repurchases



$$\mathbf{Net\ Debt\ Issue}_{i,t} = \mathbf{a}_0 + \mathbf{b}_{PO}\mathbf{Deficit}_{i,t} + \mathbf{e}_{i,t} \quad (5)$$

$$\mathbf{Net\ Debt\ Issue}_{i,t} = \mathbf{a}_0 + \mathbf{b}_{PO}\mathbf{Deficit}_{i,t} + \mathbf{b}_1\mathbf{Deficit}_{i,t}\mathbf{DEF}_{i,t} + \mathbf{e}_{i,t} \quad (6)$$

where pecking order coefficient:  $b_{po} + b_1$  for Deficit

# Dividend Smoothing and Pecking Order: Deficit

## Panel A: Lintner model

Equations	(1)	(2)
$D_{t-1}$	0.667*** (230.29)	0.654*** (178.73)
$E_t$	0.0899*** (84.01)	0.0896*** (83.63)
$DEF_t * D_{t-1}$		0.0197*** (5.79)
Intercept	0.103*** (31.22)	0.103*** (31.29)
Obs.	56623	56623

## Panel B: Pecking order model

Equations	(5)	(6)
$Deficit_t$	0.703*** (171.51)	0.702*** (64.35)
$DEF_t$		0.0103*** (14.42)
$DEF_t * Deficit_t$		-0.0307** (-2.47)
Intercept	0.00307*** (12.49)	-0.00183** (-3.30)

# Dividend Smoothing and Pecking Order: Debt and Equity Issues

## Panel A: Dividend Smoothing

Equation	(4)
$D_{t-1}$	0.645*** (188.33)
$E_t$	0.0892*** (75.13)
equity_issue <sub>t</sub> * $D_{t-1}$	-0.0794*** (-8.00)
debt_issue <sub>t</sub> * $D_{t-1}$	0.0241*** (5.81)
Intercept	0.117*** (31.41)
Obs.	47704

## Panel B: Pecking Order Model

Equation (5)	Equity Issue	Debt Issue
Deficit <sub>t</sub>	0.0730*** (10.55)	0.901*** (246.85)
Intercept	-0.00385*** (-3.62)	0.00642*** (-38.06)
Obs.	1859	13677

# Dividend Smoothing and Pecking Order: Debt and Equity Repurchase

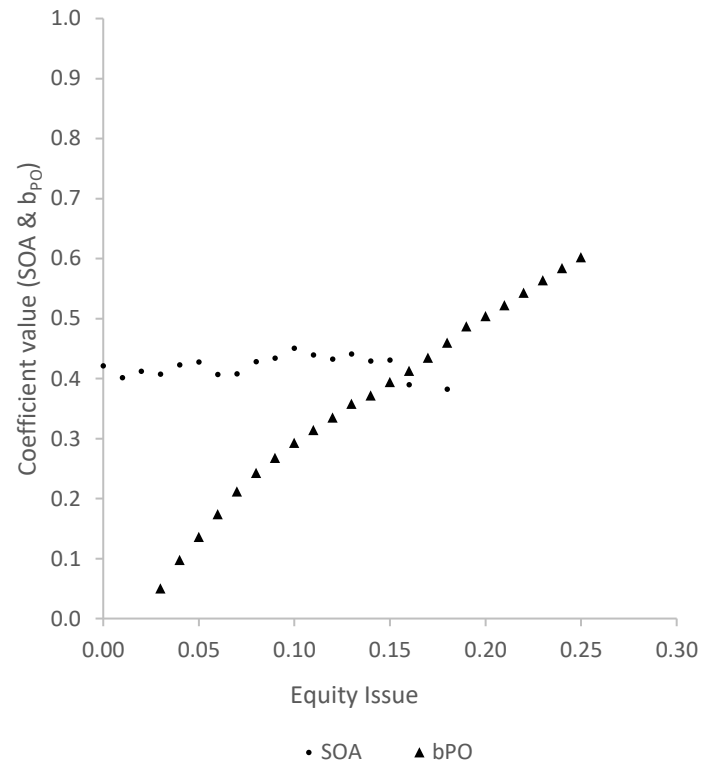
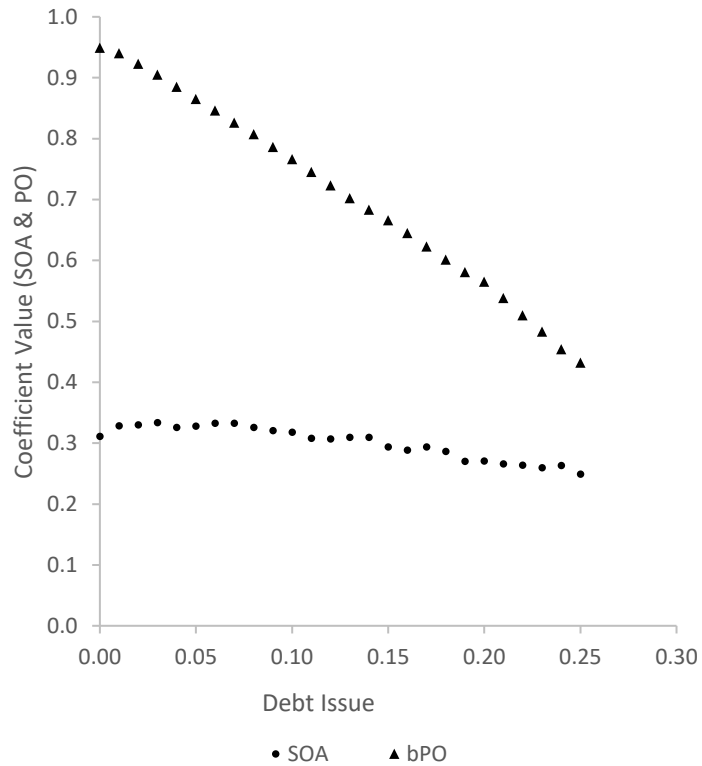
## Panel A: Dividend Smoothing

Equation	(4)
$D_{t-1}$	0.653*** (195.70)
$E_t$	0.0891*** (75.08)
equity_repurchase <sub>t</sub> * $D_{t-1}$	0.0317*** (2.75)
debt_repurchase <sub>t</sub> * $D_{t-1}$	-0.0734*** (-11.53)
Intercept	0.117*** (31.63)
Obs.	47704

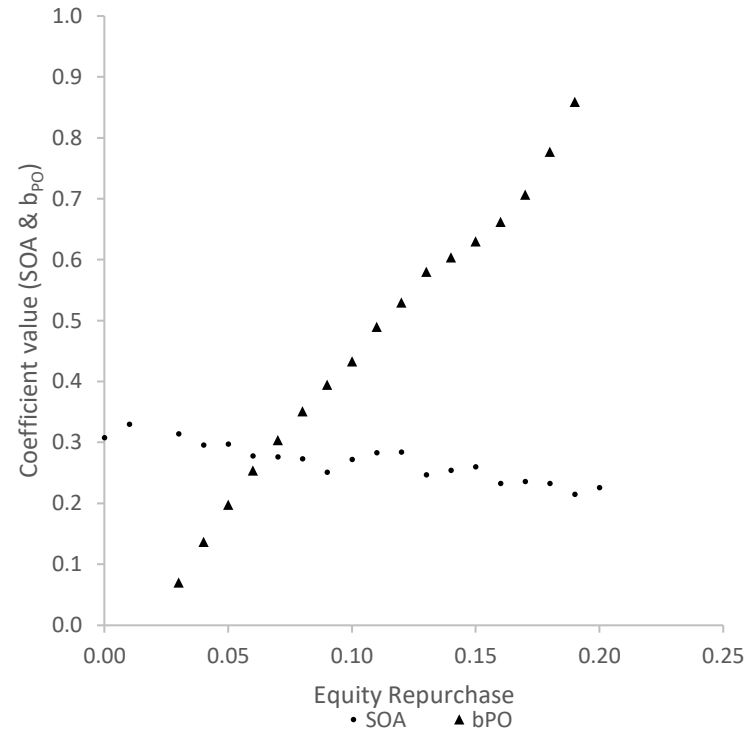
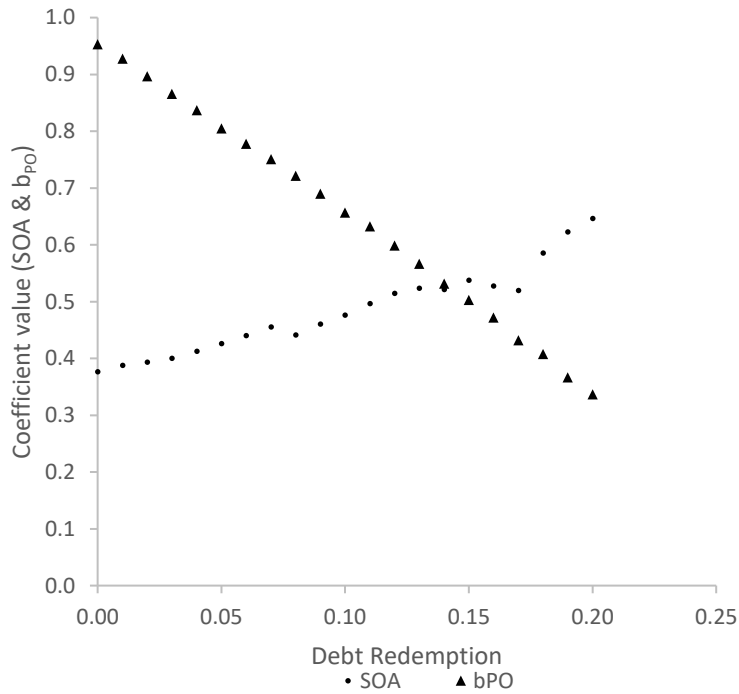
## Panel B: Pecking Order Model

Equation (5)	Equity Repurchase	Debt Repurchase
Deficit <sub>t</sub>	0.168*** (13.01)	0.851*** (204.25)
Intercept	0.0211*** (17.01)	-0.0167*** (-38.06)
Obs.	1188	4689

# Dividend Smoothing and Pecking Order: Size of debt and equity issues



# Dividend Smoothing and Pecking Order: Size of debt and equity repurchases



- This study provides new insights into how dividend smoothing policy is affected when firms make financing decisions.
- We show that firms smooth dividends more when they issue debt or repurchase equity and they smooth dividends less when they issue equity.
- Firms follow the pecking order behavior when they issue or reduce debt and do not exhibit pecking order behavior when they issue or repurchase equity.
- We find that firms continue to smooth their dividends if they issue large amounts of debt and equity. However, firms with large debt repurchases smooth dividends less.
- Finally, the pecking order coefficient decreases when firms issue or repurchase large amounts of debt.