



# **Inferring corporate insiders' beliefs about firm value from tax withholding elections**

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# Motivation

Academics, regulators, and investors care about the information content of insider **trades**

“Our analysis **focuses on open market purchases and sales** by insiders, and hence we **exclude option exercises...**” – *Cohen, Malloy, & Pomorski (2012)*

“The sample is **limited to open market purchases and sales** of common stocks by company insiders.” – *Akbas, Jiang, & Koch (2020)*

“Our sample of insider trades is **limited to open market purchases and sales** of common stocks.” – *Goldie, Jiang, Koch, & Wintoki (2023)*

# Motivation

Insiders who receive equity compensation must pay income taxes on the comp in the year:

- When a stock award vests
- When a nonqualified stock option is exercised

Insiders have a **decision** to make regarding how to pay the tax liability

1. Receive all shares and pay taxes in cash
2. Have the company withhold some shares from award



## Our Hypothesis:

- Withholding firm equity for taxes predicts lower future stock returns

## Mechanism:

- If you believe the share price will decline in the future, you benefit from using the inflated share price to pay the liability

## Form 4 Transaction Codes

**Code A:** “Grant, award, or other acquisition of securities from the company (such as an option)”

**Code M:** “Exercise or conversion of derivative security received from the company (such as an option)”

**Code F:** “Payment of exercise price or tax liability using portion of securities received from the company”

**Code P:** “Purchase of securities on an exchange or from another person”

**Code S:** “Sale of securities on an exchange or to another person”

# Form 4 Example

1. Name and Address of Reporting Person*			2. Issuer Name <b>and</b> Ticker or Trading Symbol		5. Relationship of Reporting Person(s) to Issuer (Check all applicable)	
XXXXX XXXXXXXX X			XXXX XXXXXX XXXXXX [XXXXX]		Director 10% Owner	
(Last)	(First)	(Middle)	3. Date of Earliest Transaction (Month/Day/Year)		Officer (give title below) Other (specify below)	
XXXXX XXXXXX XXX			XX/XX/XXXX		XXXX XXXXXX	
(Street)			4. If Amendment, Date of Original Filed (Month/Day/Year)		6. Individual or Joint/Group Filing (Check Applicable Line)	
XXXXXX	XX	XXXXXX			<input checked="" type="checkbox"/> Form filed by One Reporting Person	
(City)	(State)	(Zip)			Form filed by More than One Reporting Person	

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	XX/XX/XX		M		2,800	A	\$25.28	XXXX	D	
Common Stock	XX/XX/XX		F		1,469	D	\$48.17	XXXX	D	
Common Stock								XXXX	I	ESOP

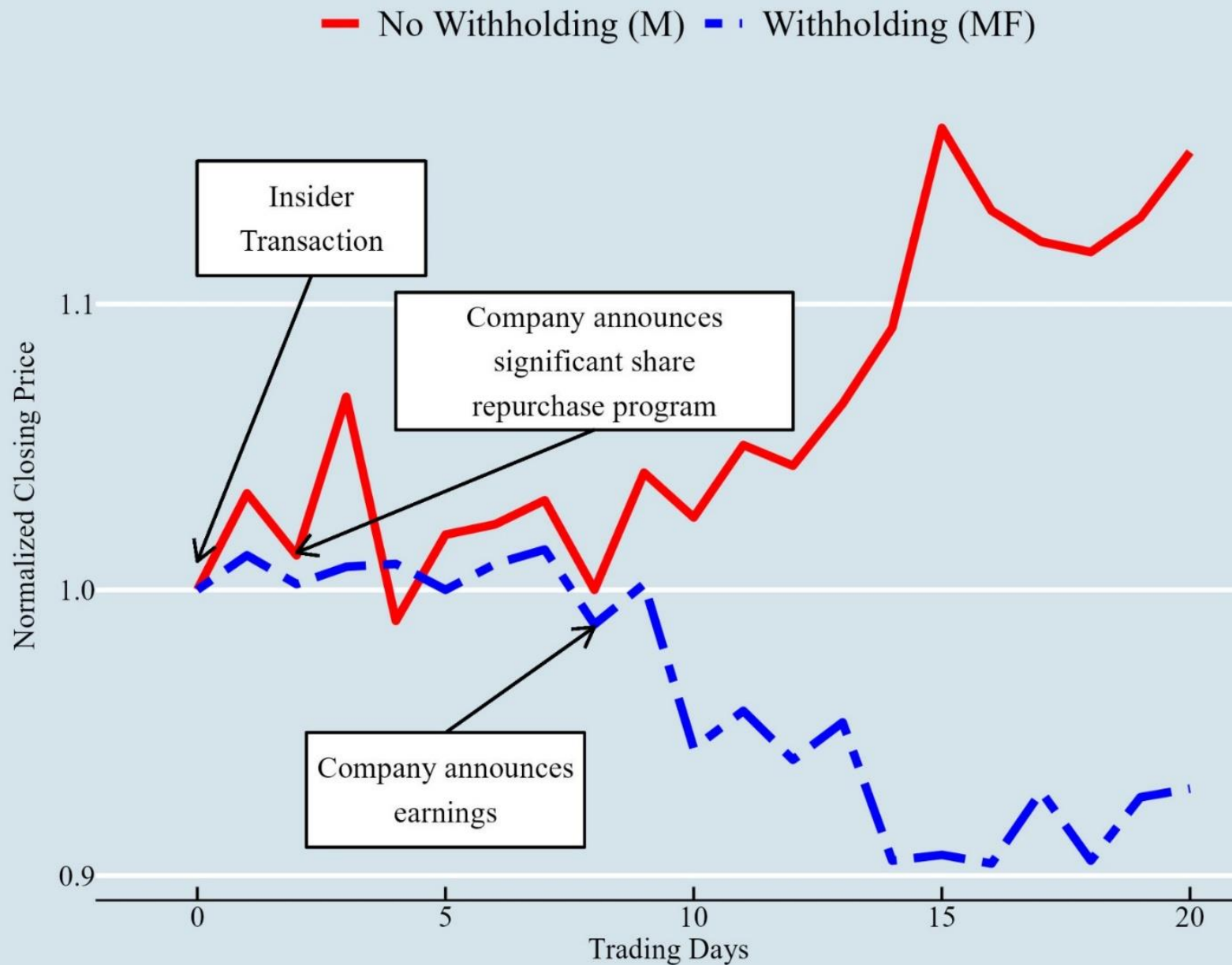
# Form 4 Example

1. Name and Address of Reporting Person* XXXXX XXXXXXXX X <hr/> (Last)                      (First)                      (Middle) XXXX XXXXX XXX <hr/> (Street) XXXXX                      XX                      XXXXX <hr/> (City)                      (State)                      (Zip)	2. Issuer Name <b>and</b> Ticker or Trading Symbol XXXX XXXXX XXXXX [XXXX]	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director                      10% Owner Officer (give title below)                      Other (specify below) XXXX XXXXX
	3. Date of Earliest Transaction (Month/Day/Year) XX/XX/XXXX	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person

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			Code	V	Amount	(A) or (D)	Price			
Common Stock	xx/xx/xx		M		960	A	\$30.44	5,490	D	
Common Stock								843 <sup>(1)</sup>	I	ESOP

# Figure 1: Anecdotal Evidence



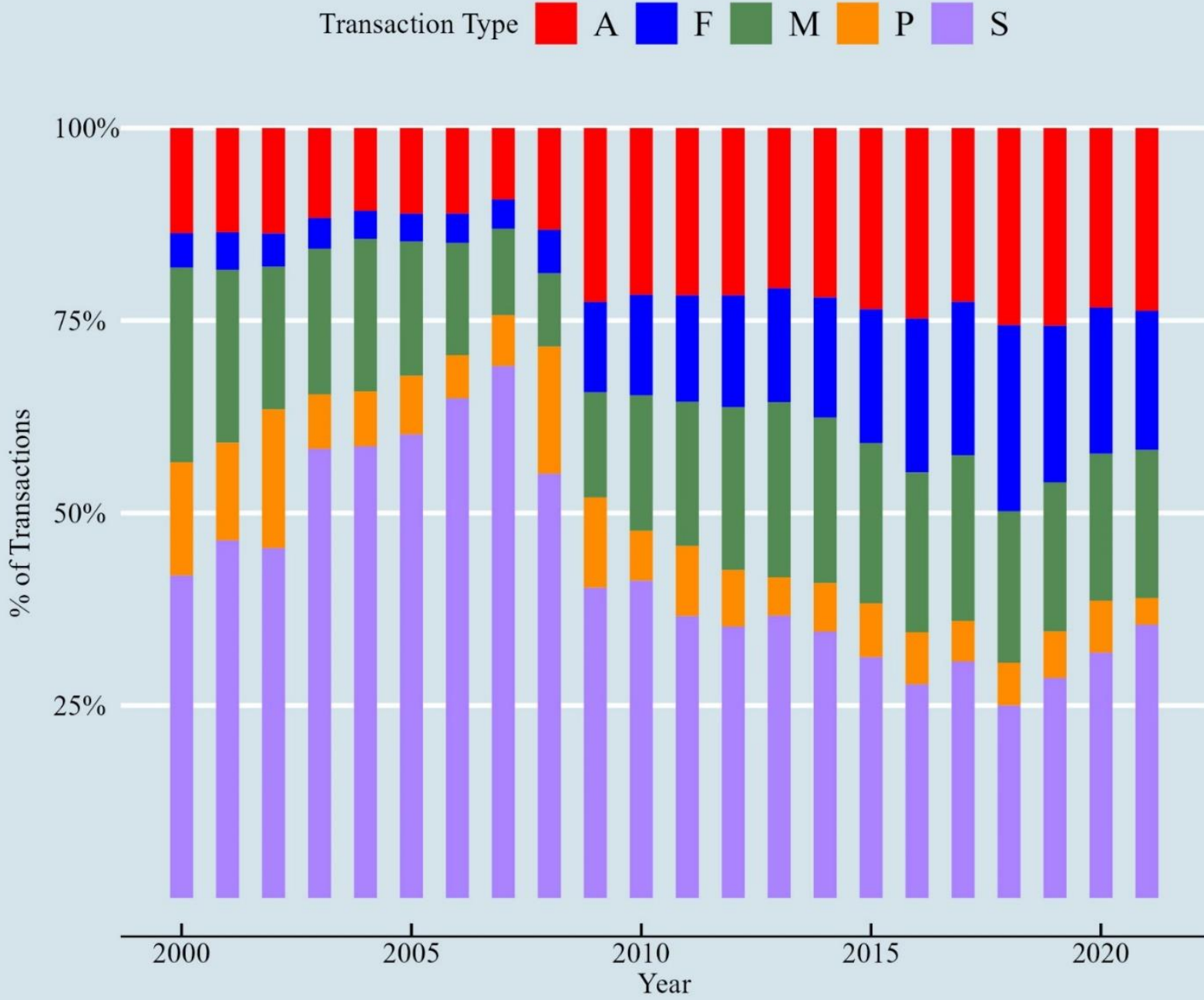
This figure shows the stock price changes following two different option exercise dates for an anonymous company's CEO in our sample.

# Relevance

Median Purchase: **\$20,400**

Median Withholding: **\$52,000**

### Figure 2: Transaction Types by Year



## Data & Sample

Start with all Form 4 transactions with codes A, F, M, P, or S (1986 – November 2021)

Aggregate observations to the insider-firm-day level

Restrict observations to insider-firm-days with an A, F, M, or some combination

Merge outcome and control variables from Compustat and CRSP

Main sample of 1,733,989 insider-firm-day observations

**Code F:** indicator equal to one if the insider-firm-day observations contains a withholding

# Return Predictability

$$Ret_{j,[t,t+20]} = \alpha_t + \beta_1 Code F_{ijt} + \gamma X_{ijt} + \varepsilon_{ijt}$$

**Prediction:**  $\beta_1 < 0$

	(1)	(2)	(3)	(4)	(5)
<i>Code F</i>	<b>-48.321***</b> (-9.445)	<b>-56.102***</b> (-10.753)	<b>-64.225***</b> (-11.776)	<b>-41.153***</b> (-7.626)	<b>-33.506***</b> (-6.011)
<i>Sale</i>		<b>-38.885***</b> (-5.577)	<b>-44.900***</b> (-6.412)	<b>-27.675***</b> (-4.269)	<b>-42.417***</b> (-6.735)
<i>Purchase</i>		<b>217.457***</b> (5.312)	<b>216.713***</b> (5.297)	<b>157.237***</b> (3.857)	<b>188.100***</b> (4.673)
Controls	No	Trade	Trade/Insider	All	All
N	1,733,989	1,733,989	1,733,989	1,676,592	1,676,592
Date FE	X	X	X	X	X
Insider FE					X

## Exogenous Changes to Trade Size

**Hypothesis:** Insider withholding will be more (less) predictive of future stock returns following a state income tax rate increase (decrease)

$$Ret_{j,[t,t+20]} = \alpha_t + \delta_{ij} + \beta_1 Code F_{ijt} \times Tax Change_{it} + \gamma X_{ijt} + \varepsilon_{ijt}$$

$$Tax Change_{it} = \begin{cases} 1 & \text{if tax rate increase from prior year} \\ 0 & \text{if no tax rate change from prior year} \\ -1 & \text{if tax rate decrease from prior year} \end{cases}$$

**Predict:**  $\beta_1 < 0$

# Tax Changes and Return Predictability

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Code F × Tax Change</i>	-15.020 (-1.549)					
<i>Code F × Tax Increase</i>		-39.555** (-2.179)				
<i>Code F × Tax Decrease</i>			-4.329 (-0.338)			
<i>Code F × Big Tax Change</i>				-73.742*** (-2.943)		
<i>Code F × Big Tax Increase</i>					-81.573*** (-2.752)	
<i>Code F × Big Tax Decrease</i>						61.690 (1.436)
N	1,234,297	1,039,315	1,117,476	1,234,297	950,584	930,892
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Date FE	X	X	X	X	X	X
Insider-Firm FE	X	X	X	X	X	X

# Withholding Around Earnings Annc.

## **2024 survey by National Association of Stock Plan Professionals:**

- Almost 100% of firms have some sort of restriction on selling stock prior to an earnings announcement
- Only about 35% restrict withholding of stock in the same timeframe

**Hypothesis:** Insiders can classify sales as withholdings as a mechanism for front-running negative earnings announcements

## **Expectations:**

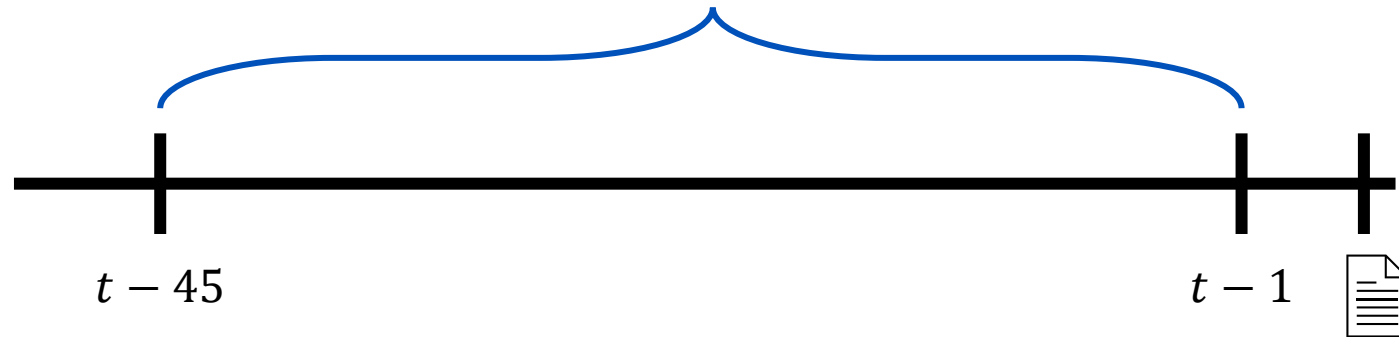
1. More likely to withhold prior to an earnings announcement than sell
2. Withholdings will be better predictors of negative earnings surprises than sales

# Withholding Around Earnings Annc.

**Sample:** Restrict to withholdings and open market sales

**Blackout Window Transaction:** Indicator equal to one if transaction occurs within 45 days of an earnings announcement

$$\text{Blackout Window Transaction}_{ijt} = \alpha_t + \beta_1 \text{Code } F_{ijt} + \gamma X_{ijt} + \varepsilon_{ijt}$$



$$UE: \frac{EPS - \text{Med Fcst } EPS}{\text{Max}(\text{Med Fcst } EPS, 0.25)}$$

**Near QEA:** Indicator equal to one if the transaction occurs within three weeks of the QEA

$$UE_{jq} = \alpha_t + \beta_1 \text{Code } F_{ijt} + \gamma X_{ijt} + \varepsilon_{ijt}$$

# Withholding Around Earnings Annc.

	<i>Blackout Window Transaction</i>		<i>UE</i>			
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Code F</i>	0.046*** (23.340)	0.045*** (21.646)	-0.004** (-2.171)	-0.006*** (-3.471)	-0.001 (-0.209)	-0.001 (-0.465)
<i>Code F</i> × <i>Near QEA</i>					-0.010** (-2.563)	-0.013*** (-3.388)
N	1,020,729	989,323	274,551	266,344	274,551	266,344
Controls		X		X		X
Date FE	X	X	X	X	X	X
R <sup>2</sup>	0.28	0.29	0.12	0.16	0.12	0.16

# Conclusion

Open market purchases and sales are not the only decision insiders make affecting stock exposure

The withholding decision for *Code F* transactions contains information about future stock performance and earnings announcements

Stock based compensation becoming more common opens the door for more withholding decisions

## **Potential Policy Implications:**

Firms may require insiders to commit to withholding elections at award inception

Thank you for your attention

A photograph of a large, multi-story building, likely a university building, with a blue sky in the background. Two flags are flying on tall poles: the United States flag and a flag with a large 'KU' logo. The building has several windows and a prominent tower-like structure. The image is partially obscured by a large red diagonal bar on the right side.

**KU** THE UNIVERSITY OF  
KANSAS