Perks or Peanuts?
The Dollar Profits to Insider Trading

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Motivation

Common prior:

corporate insiders generate substantial abnormal returns

Study	Estimate of abnormal return
Cicero and Wintoki 2015	2.5% for purchases (1m)
Cohen, Malloy, and Pomorski JF 2012	9.8% annualized value-weighted
Wang, Shin, and Francis JFQA 2012	3.9% (2.1%) for CEO and CFO purchases (sales) (3m)
Jeng, Metrick, and Zeckhauser REStat 2003	6% for purchases (12m)
Lakonishok and Lee RFS 2001	4.8% for buy-sell long-short pf (12m)

Research questions

1. How large are dollar profits to insider trading?
   - Individual utility more closely linked to dollar value
   - Not trivial
     - Depends on trading volume and frequency
     - Some insiders trade frequently (e.g., Klein et al. 2017)

     → Look at joint distribution of trading volume and returns
2. Do insiders trade with the objective of turning a profit?
   - Use discontinuity around short-swing rule
3. Who makes large dollar profits?
   - Informed vs. uninformed traders?
   - Can reporting requirements and monitoring reduce profits?

Contribution

1. First to systematically analyze dollar profits
   a) Use inventory method to track actual profits
2. Insider trading as source of private benefits/executive compensation?
   a) ex ante – do insiders intend to make a profit?
   b) ex post – did profits turn out to be large?
   - Manne 1996, Hue and Noe 2001, Roulstone 2003, Henderson 2011, Denis and Xu 2013, Cziraki et al. 2014
3. Can governance/monitoring restrain insider trading?
   - Roulstone 2003, Ravina and Sapienza 2010, Cziraki et al. 2014

Preview of findings

- Typical insider trading profits are small ($464 per year)
  - Non-monotonic relation between abnormal returns and transaction sizes
- Insignificant source of private benefits for typical insider: 4% of total compensation at the 90th percentile
- Insiders who reveal to care about profits make 150% higher profits per year
- Frequent traders make low returns, but high profits
- Monitoring and governance
  - Reduce percentage returns, but not necessarily overall profits
  - Only decrease profits by infrequent traders

Insider trading universe

- Insider trading data from Thomson Reuters spanning 1986 to 2013

Transactions	644,608
Buys	148,342
Sells	496,266
Insider-years	263,407
Firm-years	52,602
Unique insiders	92,758
Unique firms	7,643

- Aggregate trades by insider-day

Calculating dollar profits – short term

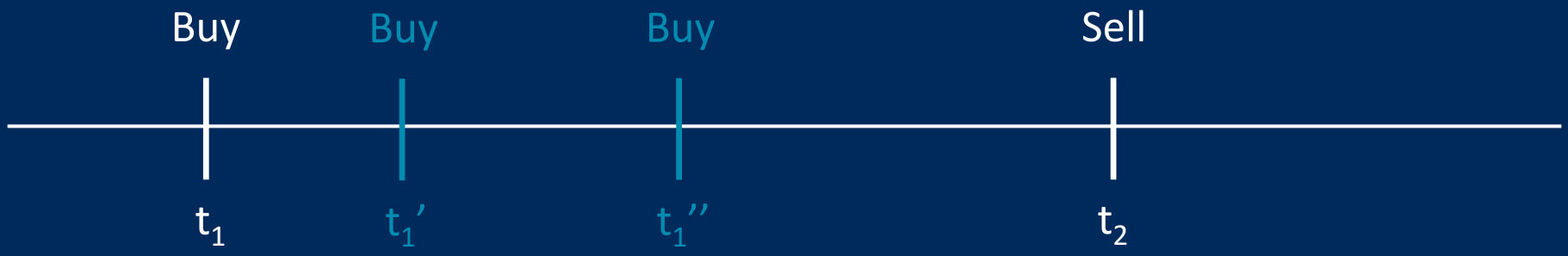
Dollar profit(t_1,t_2) = return(t_1,t_2) × value traded

- Subtract benchmark, e.g. FF3, to obtain abnormal profit

Abnormal dollar profit(t_1,t_2) = abnormal return(t_1,t_2) × value traded

- Use window of (0,20): common in literature
- *Potential* profit, insider does not necessarily pocket this
- Sample selection: (1) if potential profit is negative, wait for price to adjust, (2) some insiders do not close trades at all

Calculating dollar profits – long term



Dollar profit(t_1,t_2) = return(t_1,t_2) × value traded

- Return(t_1,t_2) = (p_2 – p_1) / p_1

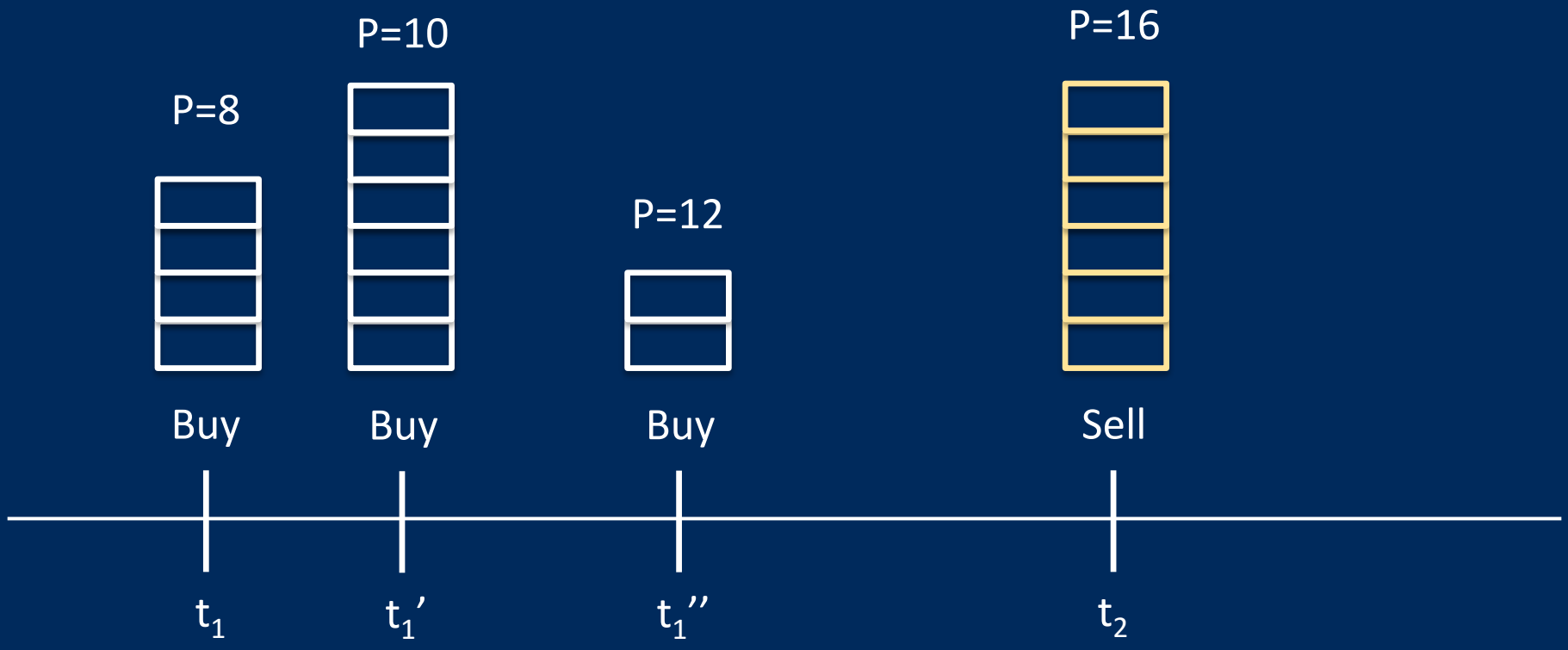
Properties

✓ *Actual* profit, insider does pocket this

✗ How to calculate p_1 if sale is preceded by multiple purchases?

✗ Can insiders profit from price declines?

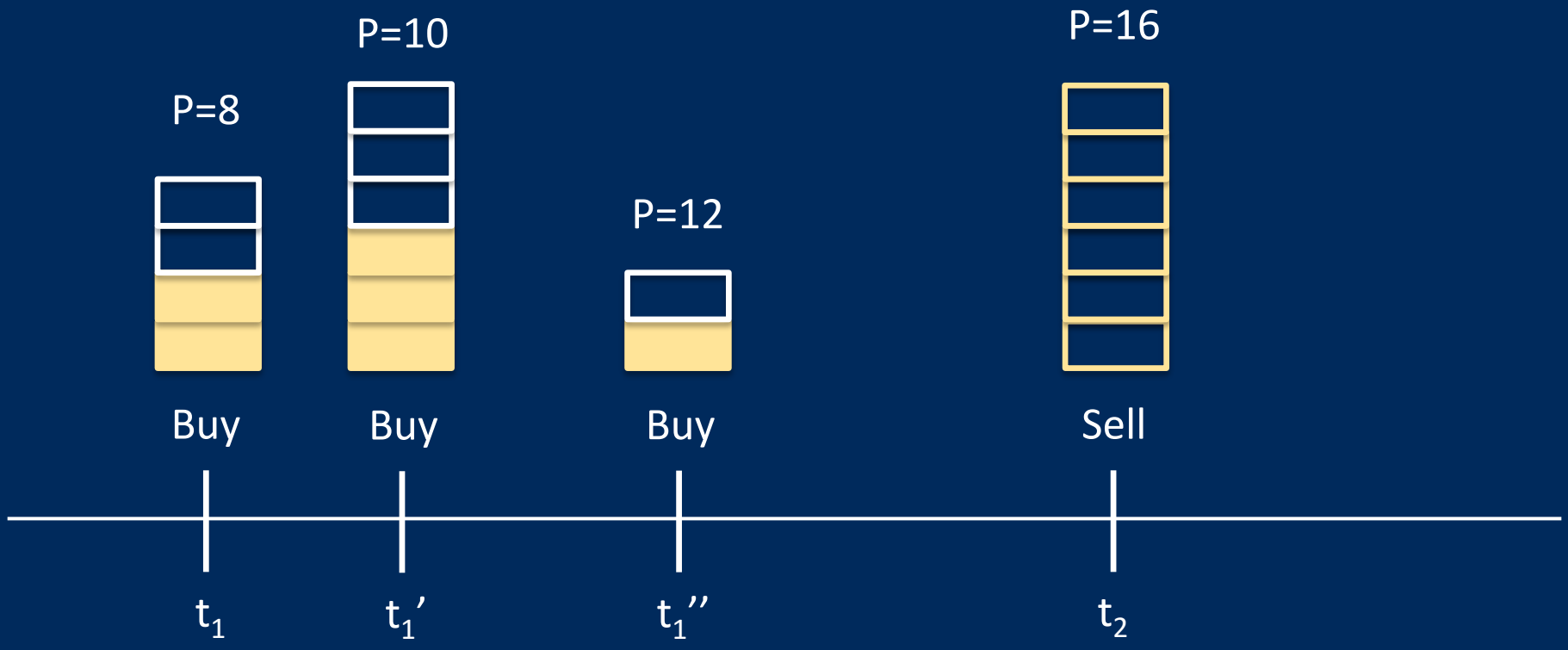
Calculating dollar profits – long term



What is the correct purchase price (~COGS) for the sale?

- "Which" of the 12 shares did the insider sell?
- 3 methods: Value-weighted (main), LIFO, FIFO (robustness)

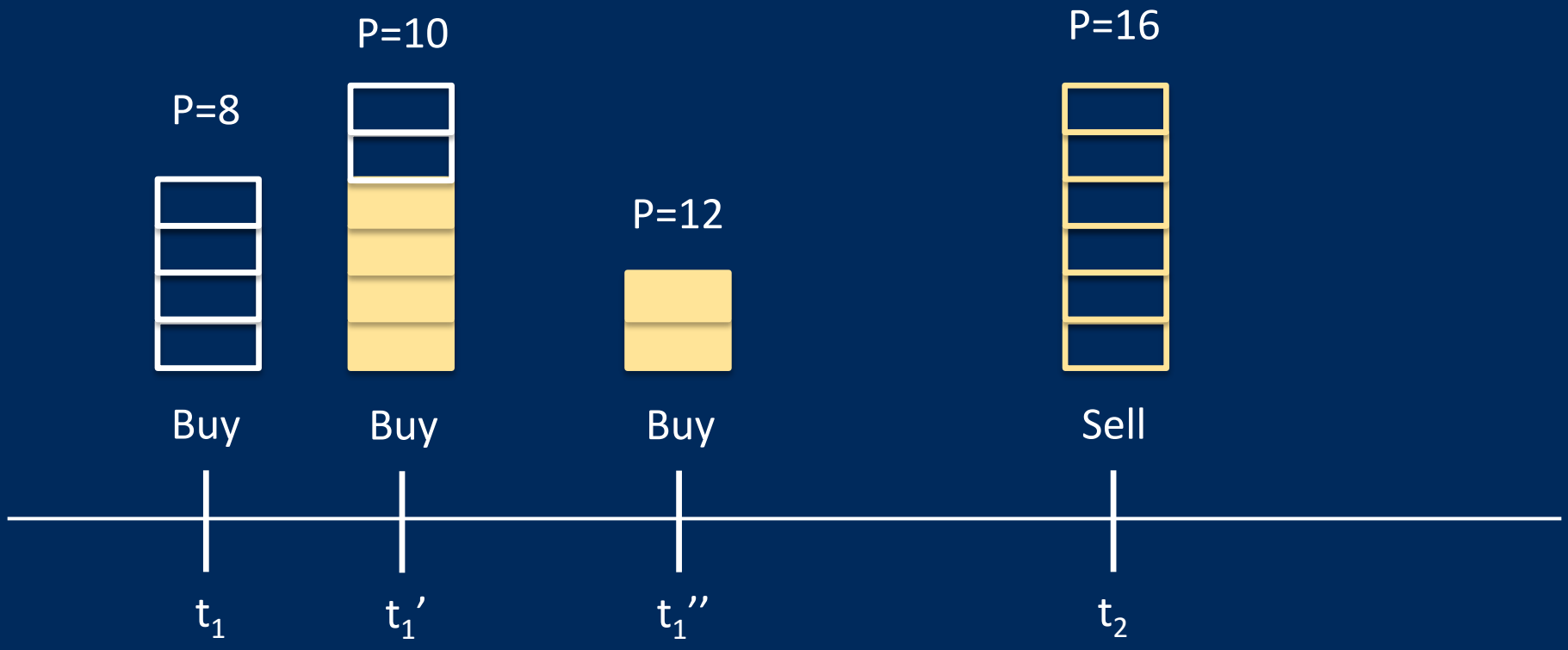
Volume-weighted price



Purchase price used to evaluate the sale is VW average of the purchase prices

- Purchase price = $(4 \times 8 + 6 \times 10 + 2 \times 12)/12$ = **9.67**
- Profit = $6 \times (16\text{-}9.67)$ = **37.98**

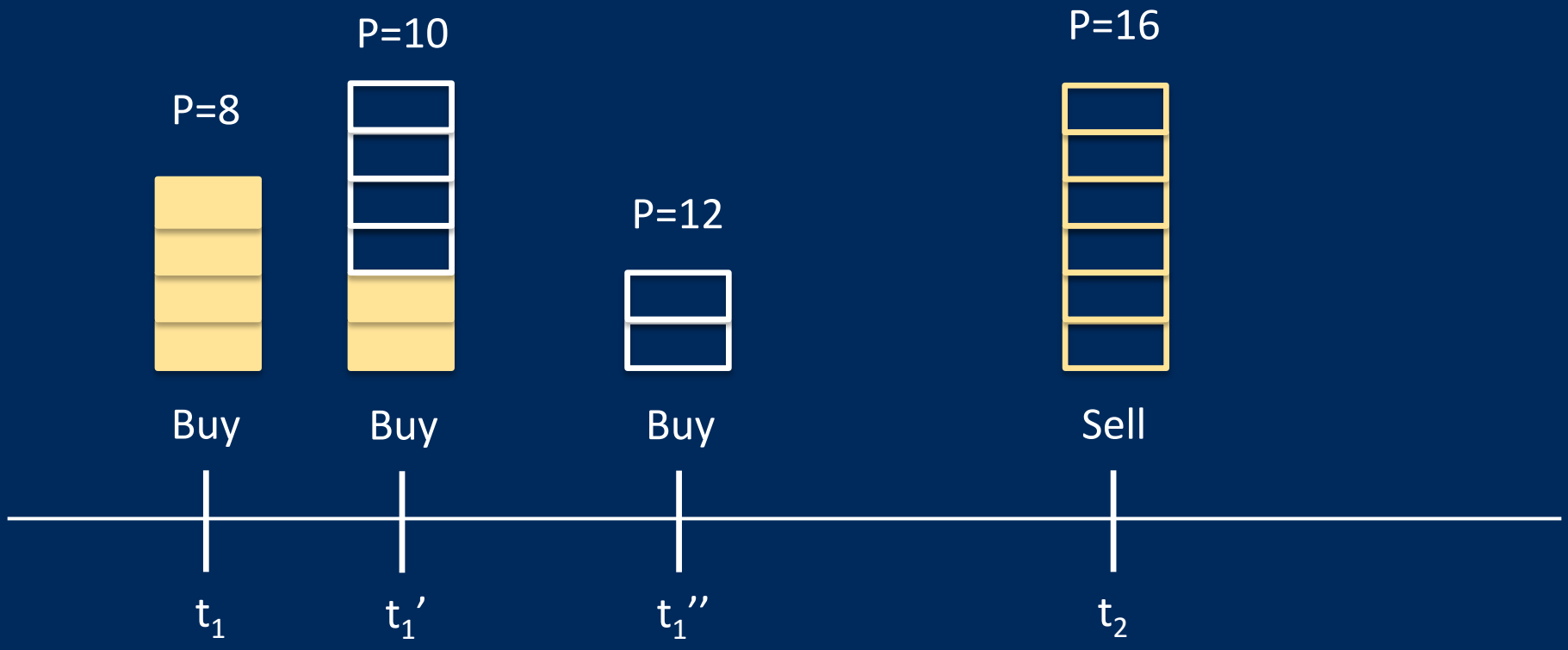
Last in, first out (LIFO)



Purchase price used to evaluate the sale is based on the LIFO method

- Purchase price = $(2 \times 12 + 4 \times 10)/6 =$ **10.67**
- Profit = $6 \times (16\text{-}10.67) =$ **31.98**

First in, first out (FIFO)



Purchase price used to evaluate the sale is based on the FIFO method

- Purchase price = $(4 \times 8 + 2 \times 10)/6 =$ **8.67**
- Profit = $6 \times (16\text{-}8.67) =$ **43.98**

Summary statistics

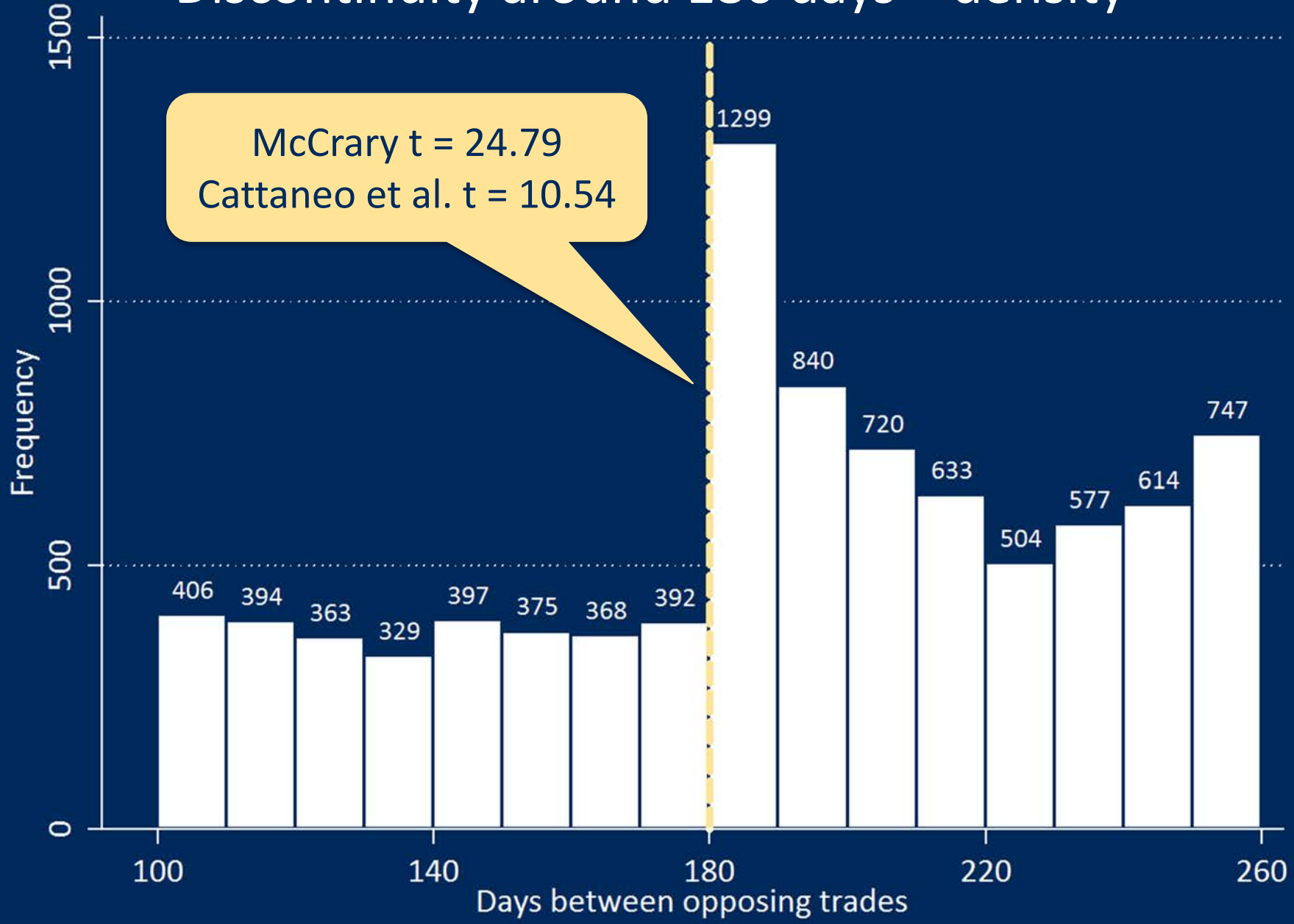
Variable	Mean	Sd	p10	p50	p90
Value traded	798	5,505	8	129	1,445
Frequency	2.6	4.7	1	1	5
Yr value traded	1,680	7,722	13	223	3,324
Abnormal return (%)	0.9	10.8	-10.9	0.6	12.9
Abnormal profit	4	85	-31	0.141	41
Yr abnormal profit	12	182	-46	0.464	76
Abnormal round-trip profit	61	477	-74	1	238
Yr abnormal round-trip profit	125	981	-106	5	354
Abnormal round-trip profit - all	5	135	0	0	0
Yr abnormal round-trip profit - all	15	366	0	0	0
Profits/compensation (%)	0.7	5.8	-2.2	0.1	4.1

- For comparison: average (median) profit on illegal insider trade is $1 million ($90,000) (Kacperczyk and Pagnotta 2017)

Revealed preferences using the short-swing rule

- How to isolate profit-seeking insiders?
- **Short-swing rule:** Round-trip profits within less than 6 months have to be returned to issuer
- Null hypothesis: If insiders do not care about keeping profits, distribution around 180 days between opposite trades will be continuous
- Exploit potential discontinuity for revealed preferences
- Close trade just after expiration → likely driven by profit-seeking

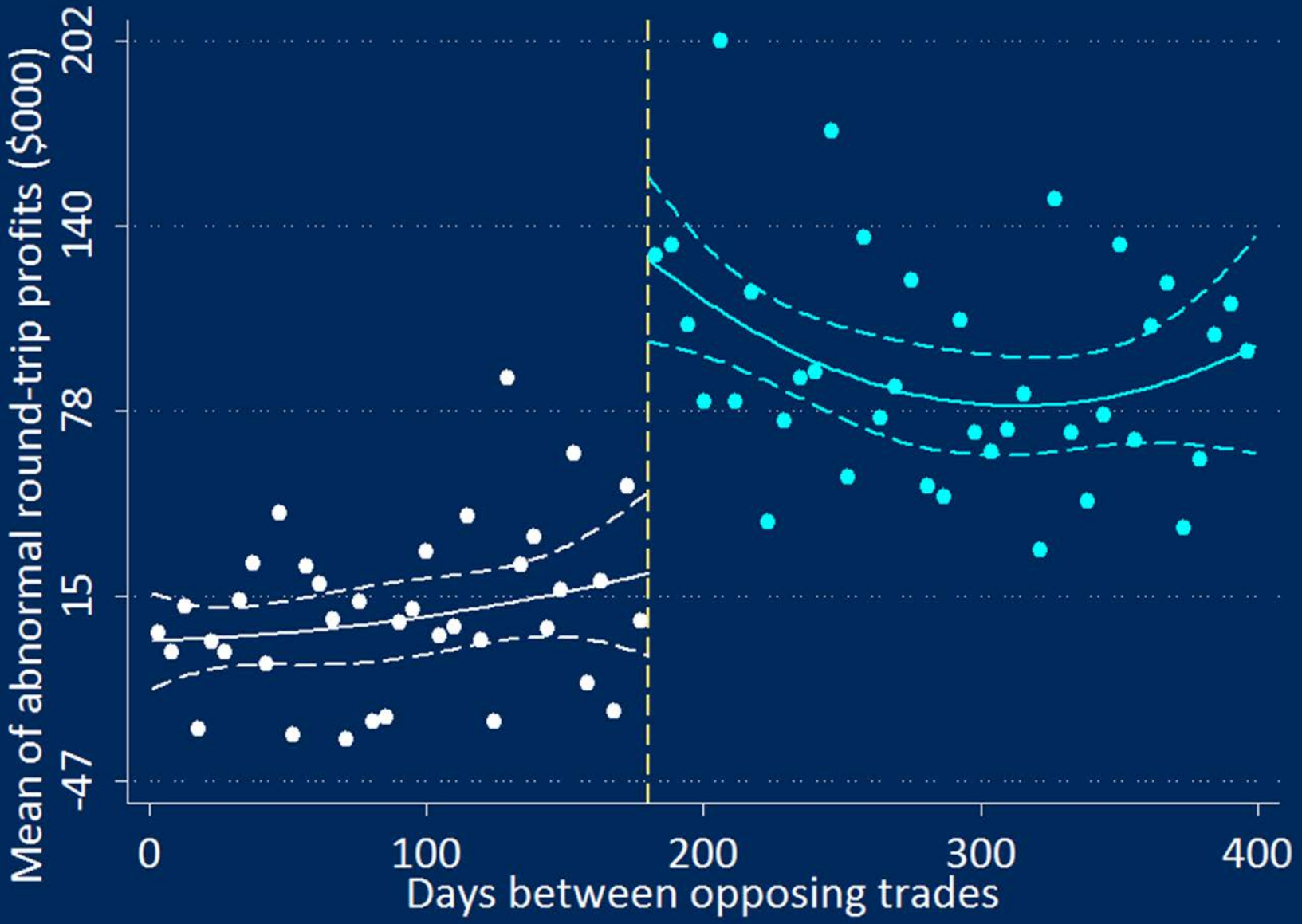
Discontinuity around 180 days – density



Discontinuity around 180 days – subsamples

	McCrary (2008)			Cattaneo et al. (2017)
Subsample	**Log density**	**s.e.**	**t**	**t**
CEO	1.310	0.138	9.486	7.647
CFO	0.699	0.157	4.445	4.630
Blockholders	0.994	0.163	6.113	2.838
Executives	1.075	0.057	18.774	13.557
Independent directors	0.964	0.074	12.993	8.449
Buys	1.039	0.066	15.836	8.366
Sales	1.044	0.055	18.930	9.308
Post SOX	1.156	0.066	17.551	9.394
Pre SOX	0.958	0.055	17.395	8.386
Low SEC budget	0.962	0.054	17.759	8.141
High SEC budget	1.134	0.070	16.281	9.108

Discontinuity around 180 days – profits

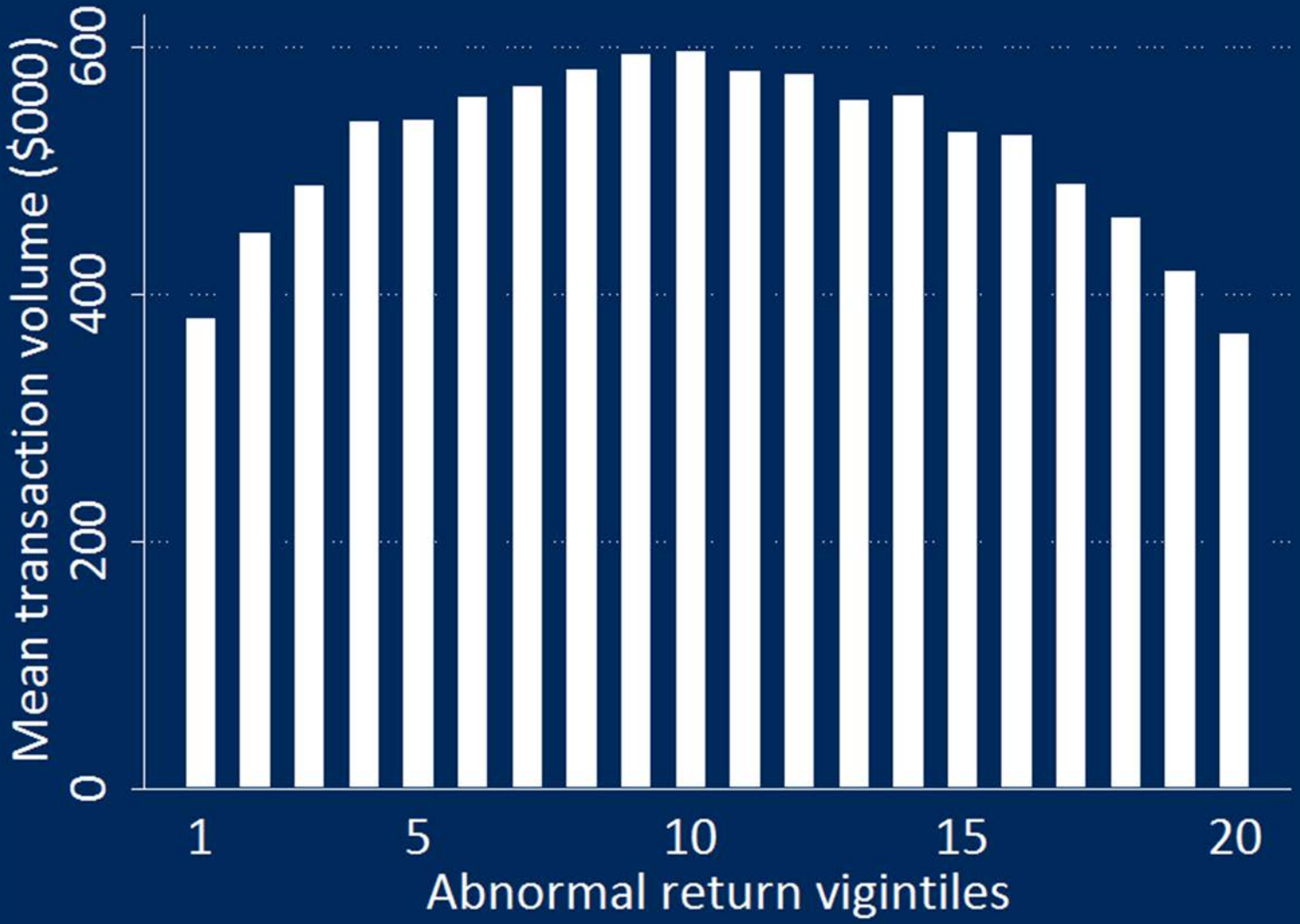


“Short-swing closers” make larger profits

	Abnormal return	Trade frequency	Trade value	Abnormal profit	Yr abnormal profit	Yr abnormal round-trip profit	Profit to total comp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Profit-seeking (d)	1.147***	1.319***	68.661	6.329*	33.917***	187.320***	-0.359
	(0.44)	(0.30)	(54.12)	(3.42)	(10.26)	(57.04)	(0.56)
Log market cap.	-0.620***	-0.297**	313.248***	4.371***	2.245	-50.330***	0.447
	(0.22)	(0.12)	(21.51)	(1.60)	(3.52)	(16.88)	(0.27)
Book-to-market	0.442*	-0.209*	11.383	2.398**	1.505	-2.530	0.067
	(0.26)	(0.12)	(20.69)	(1.21)	(2.89)	(17.77)	(0.35)
Nr. of analysts	0.143***	-0.025	-9.792	0.121	1.150	8.938***	0.004
	(0.04)	(0.02)	(6.19)	(0.37)	(0.82)	(3.33)	(0.04)
Idios. volatility	0.169	0.131	-5.791	1.388	4.489	10.087	0.052
	(0.16)	(0.13)	(19.27)	(1.03)	(3.09)	(17.28)	(0.25)
Firm FE and Yr FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	63,918	24,948	63,918	63,918	24,948	22,584	4,065
Adj. R-squared	11.7%	32.2%	26.8%	7.2%	8.7%	10.7%	12.6%

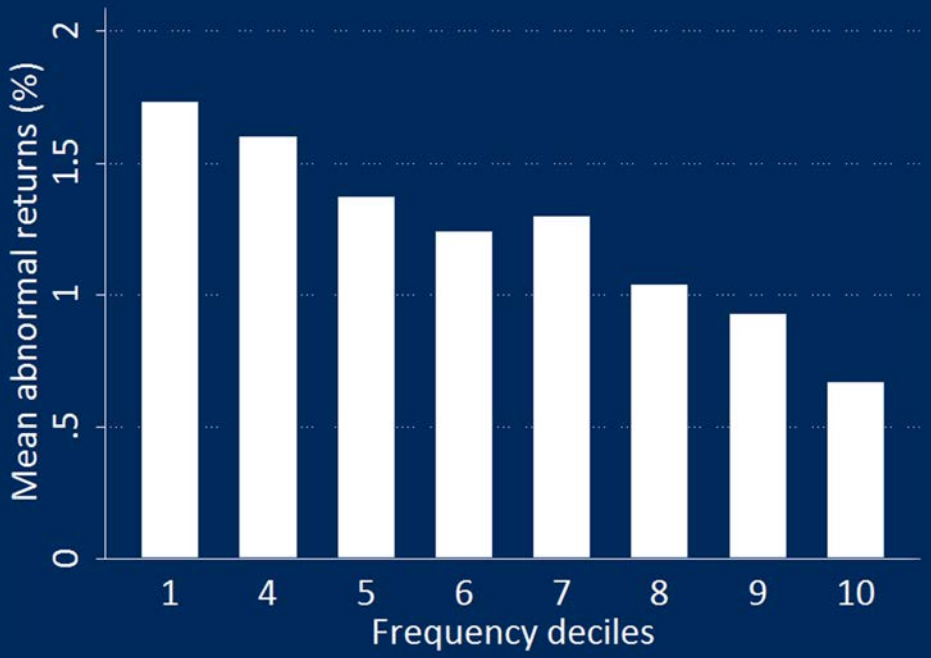
6.6% of trades by short-swing closers. They make 75% higher abnormal returns and 150% more in yearly profits.

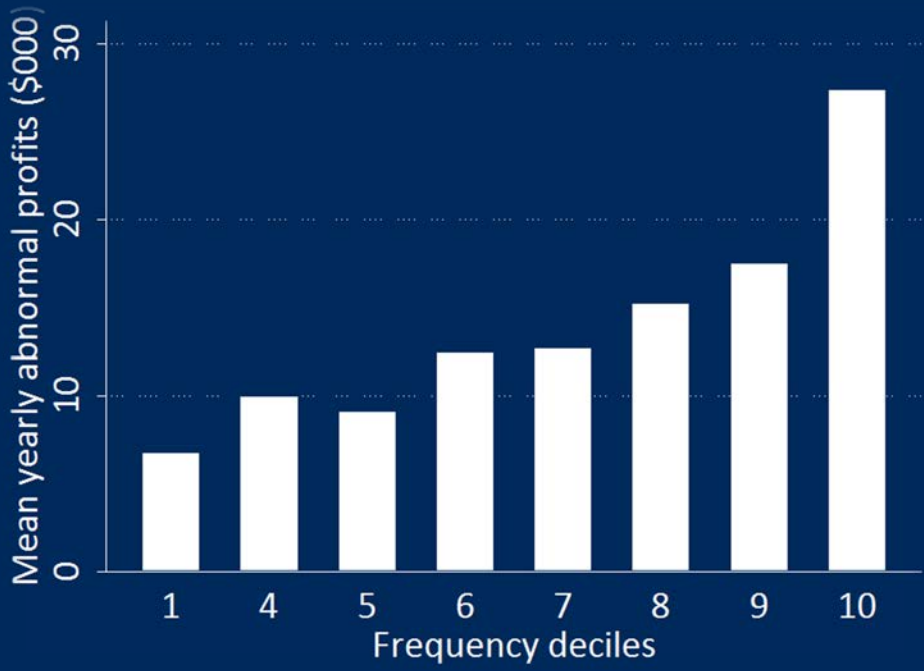
Are the most profitable trades the largest ones?



Infrequent traders: high returns, but low profits

Returns and yearly profits by frequency deciles





Infrequent vs. frequent traders

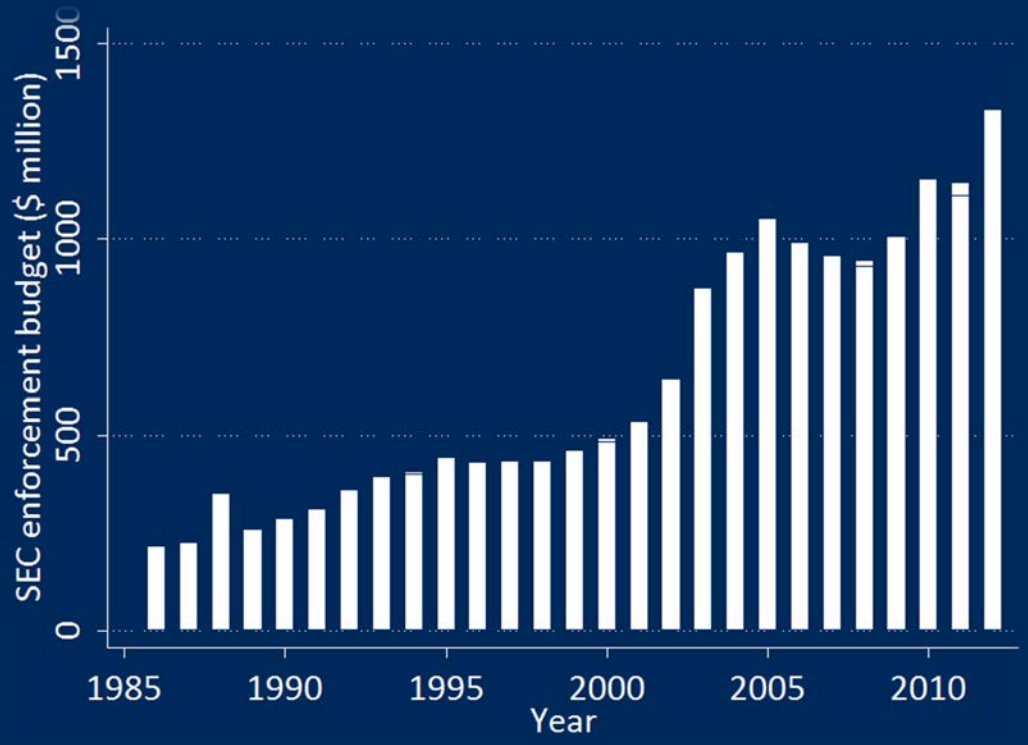
Returns of infrequent traders 50% higher, but profits more than 100% lower.

	Abnormal return	Trade frequency	Trade value	Abnormal profit	Yr abnormal profit	Yr abnormal round-trip profits	Profit to total comp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Buy (d)	1.371***	-0.173***	-118.963***	0.773	1.773	322.516***	-0.518***
	(0.10)	(0.04)	(16.53)	(0.57)	(1.28)	(20.31)	(0.09)
Opportunistic (d)	0.506***	-5.202***	28.876	2.049***	-2.413	-74.411	0.184
	(0.10)	(0.30)	(42.49)	(0.74)	(3.80)	(86.68)	(0.16)
Infrequent (d)	0.551***	-2.933***	-191.925***	0.821**	-12.976***	-126.403***	-0.086
	(0.05)	(0.04)	(11.11)	(0.35)	(1.02)	(15.57)	(0.06)
CFO (d)	0.353***	-0.559***	-153.126***	0.221	-3.819***	-73.541***	0.019
	(0.08)	(0.04)	(17.62)	(0.49)	(1.15)	(19.19)	(0.08)
Executive (d)	0.197***	-0.496***	-47.298***	0.640	-2.599***	22.899	-0.140
	(0.05)	(0.04)	(17.41)	(0.41)	(0.99)	(16.88)	(0.13)

(Each row is a separate regression, with controls and FE)

SEC enforcement budget as litigation risk proxy

How do abnormal returns and profits respond to variation in litigation risk?



- Resource-based measure of enforcement (see Del-Guercio, Odders-White, and Ready 2015)
- Determined through political process, not by amount of insider trading
- Produces variation in attention by regulator/litigation risk

SEC enforcement budget

	Abnormal return	Trade frequency	Trade value	Abnormal profit	Yr abnormal profit	Yr abnormal round-trip profit	Profit to total comp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SEC budget	-0.430**	-0.180*	-191.795***	-5.599***	-2.339	25.120	-1.309***
	(0.21)	(0.10)	(50.64)	(1.83)	(3.80)	(47.71)	(0.24)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Returns, volume and per-trade profits decrease with litigation risk, but yearly profits do not

SEC budget: frequent vs. infrequent traders

	Abnormal return	Trade frequency	Trade value	Abnormal profit	Yr abnormal profit	Yr abnormal round-trip profit	Profit to total comp
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Infrequent	0.63***	-2.34***	-19.08	3.32***	-2.25	-57.95	0.07
	(0.12)	(0.07)	(23.15)	(0.84)	(2.39)	(39.13)	(0.21)
SEC budget × infrequent	-0.49**	-0.33***	-336.33***	-7.72***	-8.14**	-13.45	-1.39***
	(0.22)	(0.07)	(52.87)	(1.67)	(3.30)	(42.11)	(0.25)
SEC budget × frequent	-0.39*	0.45***	-111.17**	-4.53**	6.41	76.20	-1.20***
	(0.22)	(0.11)	(48.51)	(2.00)	(4.99)	(61.71)	(0.27)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Difference (frequent - infrequent)	0.1	0.78**	225.2**	3.19***	14.55***	89.65*	0.19
F-value	(0.43)	(70.06)	(41.27)	(8.33)	(21.71)	(3.38)	(0.72)

When SEC enforcement intensity is high:

- Infrequent traders trade less, their trades are less profitable
- Frequent traders trade (even) more, realize higher profits

Summary – on the one hand

- Typical insider trading profits are small ($464 per year)
  - Non-monotonic relation between abnormal returns and transaction sizes
- Insignificant source of private benefits for typical insider:
  - 4% of total compensation at the 90th percentile
- Adverse selection costs outsiders have to fear are typically small

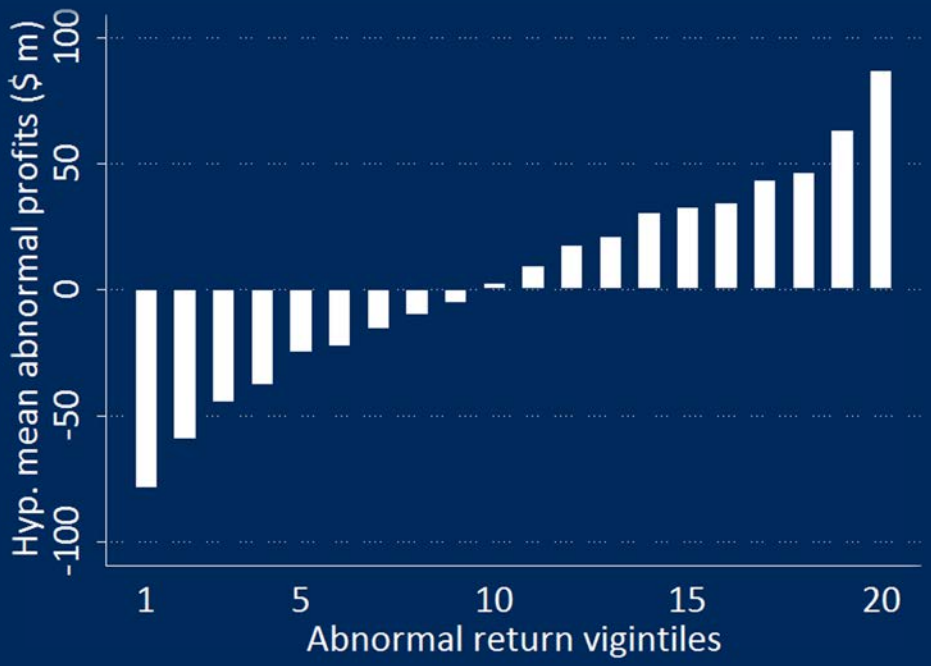
Summary – on the other hand

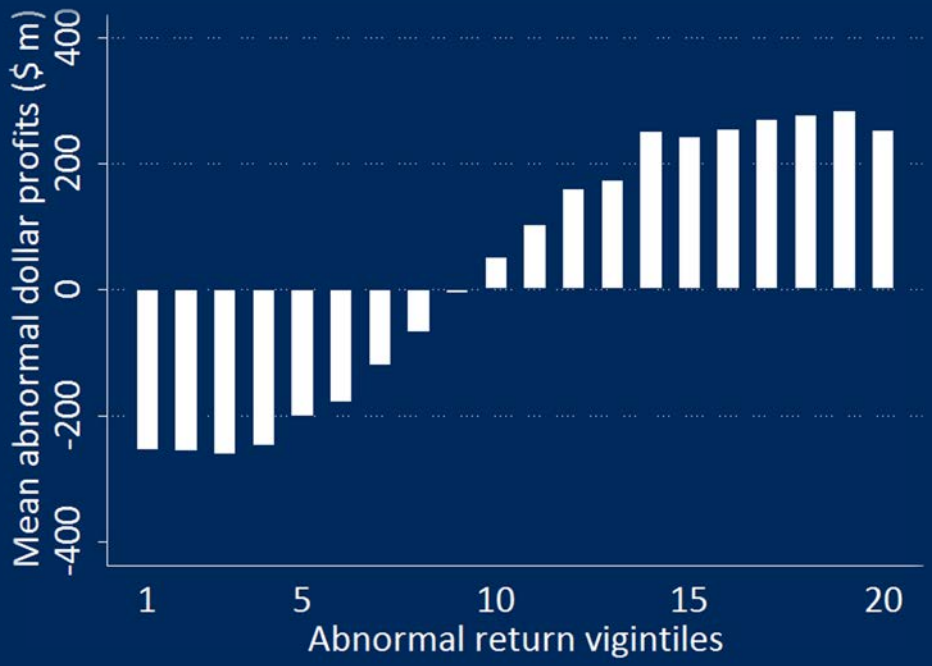
- Empirically show that insiders care about trading profits
  - Density spike to the right of the short-swing threshold (+104%)
- Insiders who reveal to care about profits
  - generate 75% larger returns
  - make approx. 150% more in yearly profits
- Frequent traders make low returns, but high profits
- Monitoring and governance
  - Reduce percentage returns, but not necessarily overall profits
  - Only decrease profits by infrequent traders

Thank you for your attention!

Do high returns mean high profits?

Hypothetical and actual profits over return vigintiles





Summary Stats: Purchases vs. Sales

While purchases have higher abnormal returns, sales volumes and sales profits to sales are substantially larger.

Buys	Mean	Median	Sd	p5	p95
Abnormal return (%)	1.9	0.8	12.4	-16.7	25.1
Trade value	254	25	1,033	1	959
Abnormal profit	4	0.038	61	-21	39

Sells	Mean	Median	Sd	p5	p95
Abnormal return (%)	0.6	0.6	10.2	-15.9	17
Trade value	727	189	1,600	9	3,312
Abnormal profit	4	0.291	91	-95	114