

Discussion of Murphy and Vance

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Agenda

1. Motivation and innovation

2. Identification of liquidity needs

3. When are employees allowed to exercise ESOs?

4. Other comments

Motivation

- Understanding when and why employees exercise ESOs is important:
  - Impacts ESO present value
    - "Expense" in income statements
    - Debate about executive pay levels
  - Impacts managerial incentives
    - Coles, Daniel, Naveen 2006; Gopalan, Milbourn, Song 2014; Edmans, Fang, Lewellen 2017
  - Impacts employee retention
    - Jochem, Ladika, Sautner 2018
  - Might explain why some execs hold "too much" equity
    - Armstrong, Core, Guay 2015
  - Helps understanding individuals' trading behavior
    - Overconfidence (Malmendier and Tate 2005)
    - Trading for diversification, liquidity, behavioral reasons

Innovation

- Data on real estate prices for Zip code areas in which employees live
  - Proxy for outside wealth under assumption that employees are homeowners

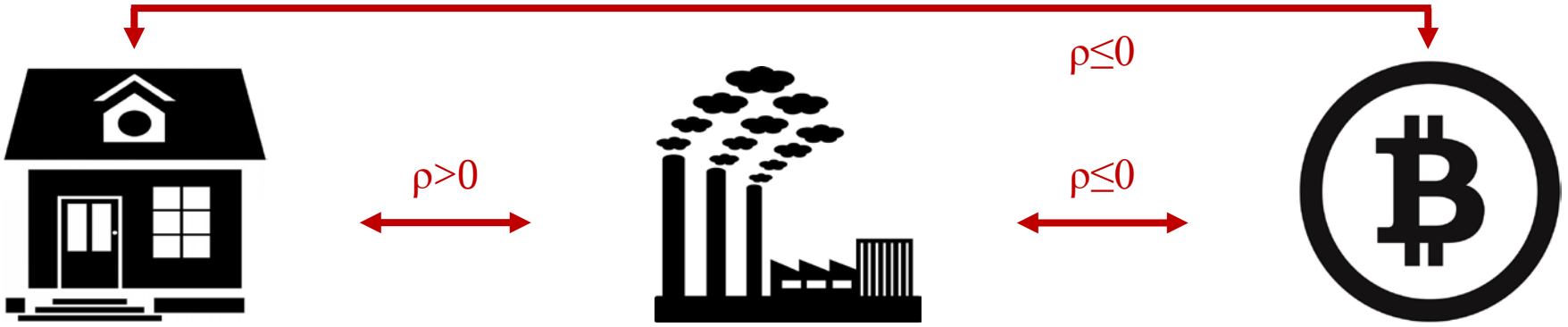
- Liquidity hypothesis:
  - Increase in employee outside wealth → More early ESO exercise
  - B/c increase in outside wealth increases consumption incentives

- Diversification hypothesis:
  - Increase in outside wealth → Less early ESO exercise
  - B/c increase in outside wealth *increases* employee diversification

- Behavioral hypothesis:
  - No relation predicted between outside wealth and ESO exercise

Are housing prices correlated with firm value?

- Quan & Titman (1999)
- If firm is large employer in the Zip code area, real estate prices might increase when firm performs well and attracts workers into the area



- Employees may wish to diversify if share prices increase concurrently with real estate prices → ESO exercises
- More difficult to distinguish between the hypotheses if real estate price changes and stock returns are positively correlated
- Authors control for prior-month share price performance
- Separate analysis with employees living further away from firm

What is the ideal counterfactual?

- Currently, all analyses are run within employee
  - Keeps employees' inherent risk aversion constant

- Alternative: 2 employees working for the same firm on the same day and with the same vested in-the-money ESO grant
  - One receives shock to her outside wealth, the other does not
  - Firm x award x time fixed effects
    - Requires that different employees receive similar awards
    - Otherwise firm x time FE + controls for ESO characteristics
  - Potential remaining confounds include:
    - The two employees differ along other characteristics and these characteristics are correlated with where they live

    ➢ Can still control for employee FE, age, portfolio value, etc.

Liquidity needs of top executives

- Strange that top executives have higher outside wealth than lower level executives
  - What are the descriptives for outside wealth changes?

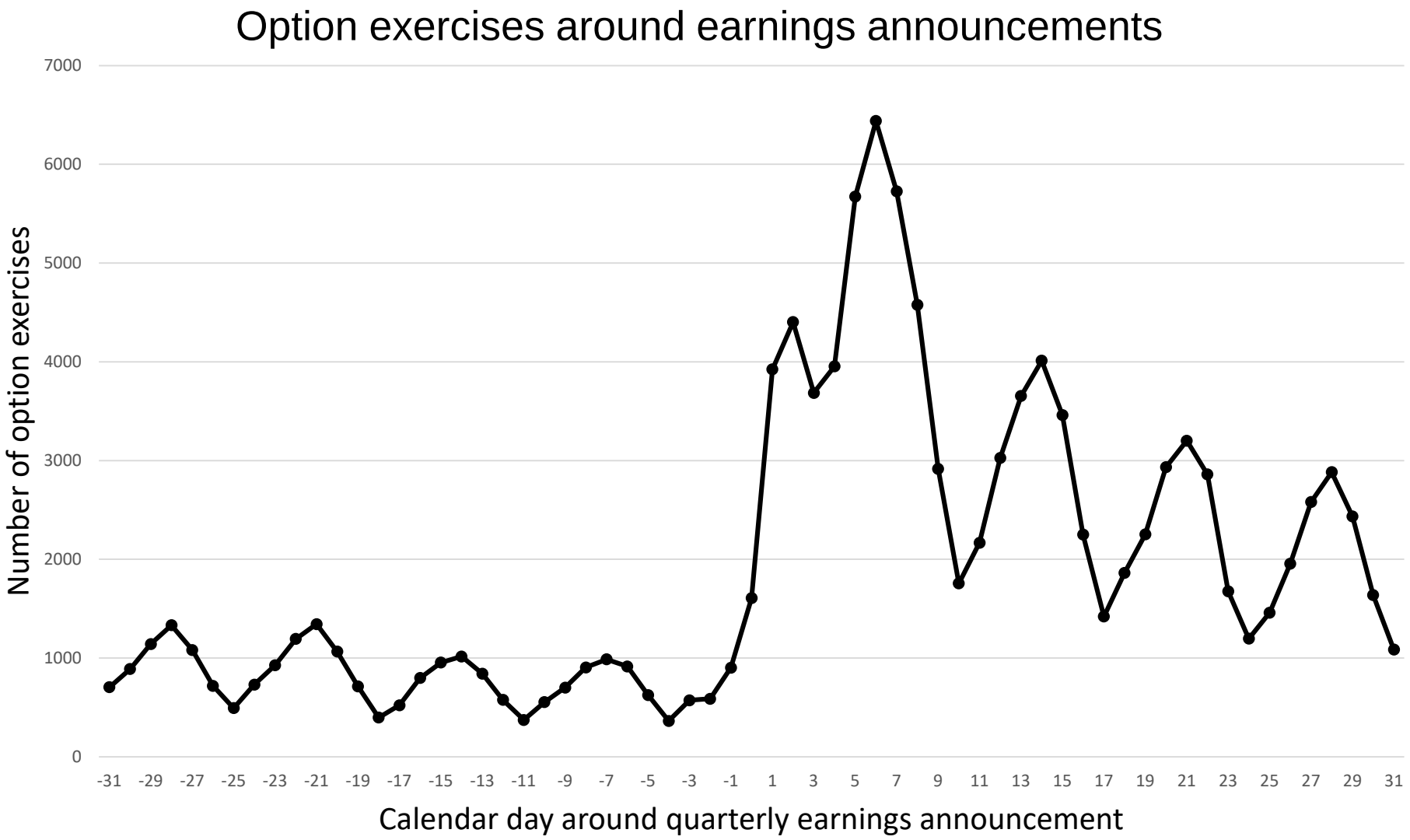
- How important are liquidity concerns for top executives of S&P500 companies?

- Do house price shocks have a stronger impact on early ESO exercise for lower-level employees than for top executives?

Additional identification of liquidity needs?

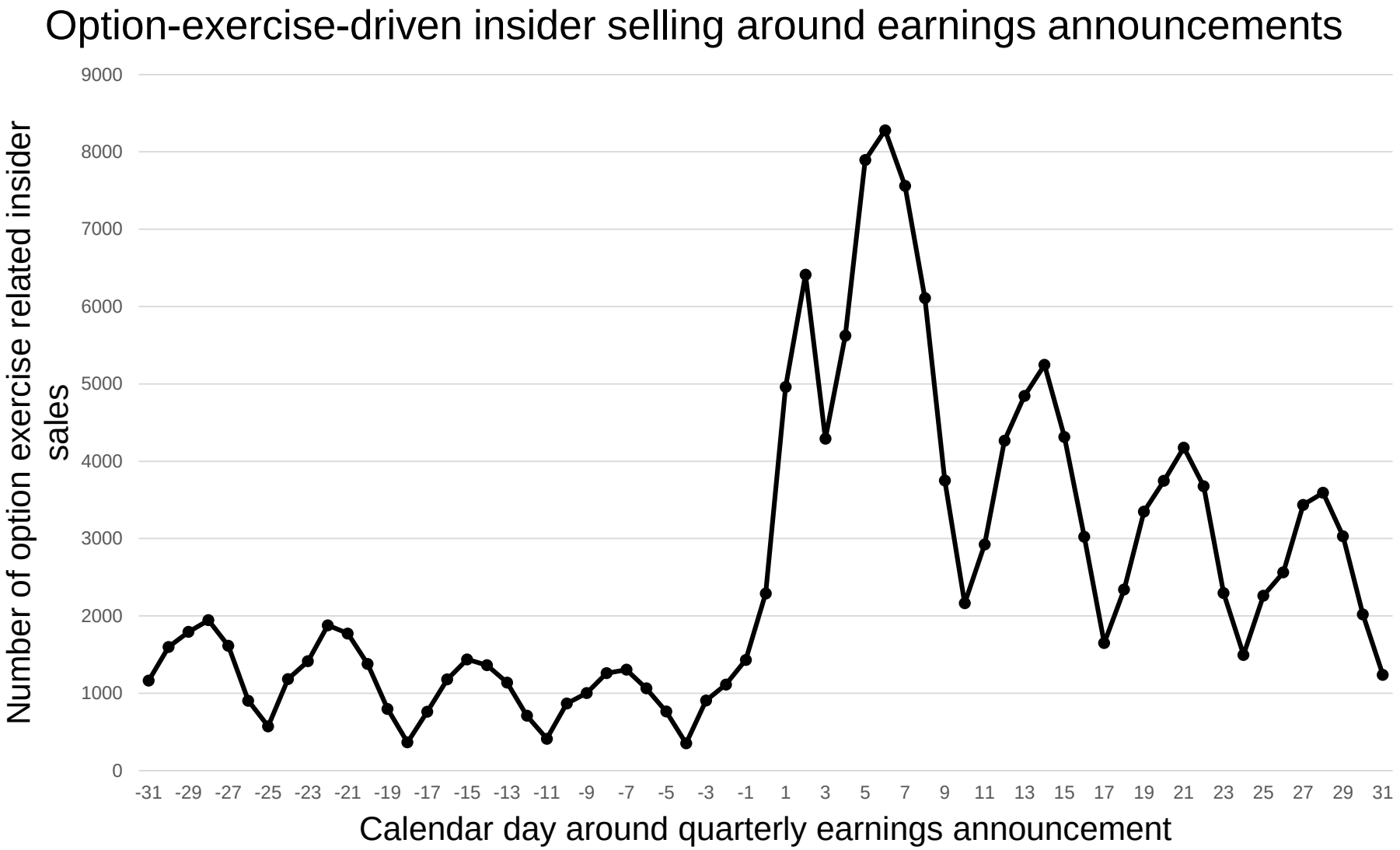
- Do you find more option exercises when periodical costs arise?
  - Are tuition fees paid at predictable points in time?
  - Insurance premiums?
  - Christmas shopping?
  - Valentine's day?
  - Black-Friday shopping?

Timing of option exercises



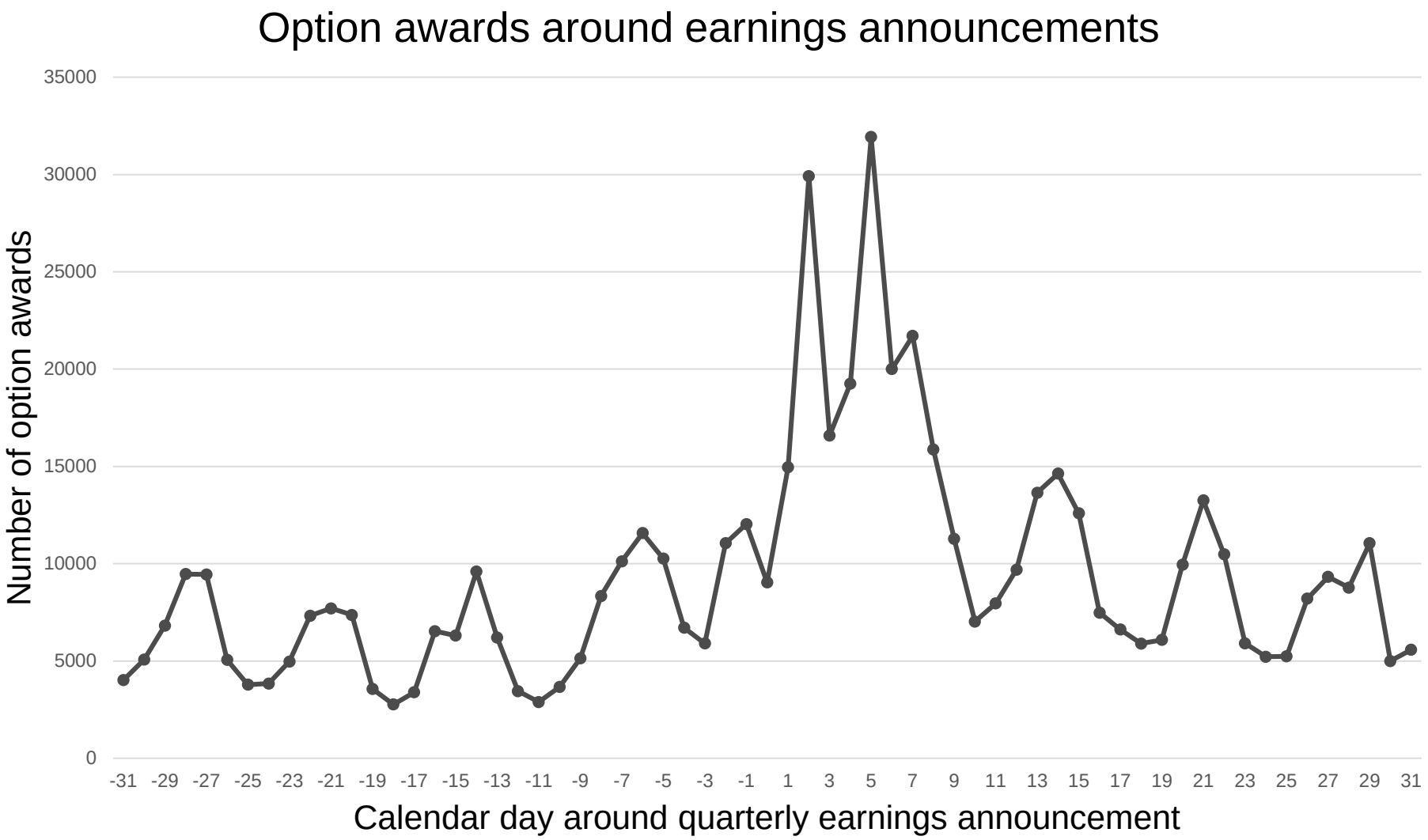
Sample: ‘Insider’ sales by executives between 2010-2017

Insider sales related to option exercises



Sample: ‘Insider’ sales by executives between 2010-2017

Timing of ESOs



Timing of option exercises

- Do trading window restrictions also apply to lower-level managers?
  - If not, lower-level managers can more freely satisfy their liquidity needs than top executives
- Controlling for trading windows will increase precision
- Do trading window restrictions explain why option exercises cluster in time?
- Similarly, short-swing rule might impose restrictions on selling shares received following option exercises

Miscellaneous

- Do liquidity-concern-induced option exercises predict future returns?
  - They should not if insiders exercise b/c they need cash quickly
  - Is there more flexibility to time the market or trade on private information when insiders exercise early to diversify?
- What do the results imply for how ESOs should be valued?
- Can you track based on the timing of option exercises how information travels through hierarchies?
- Can you predict which employees will leave their companies voluntarily?