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When Do Employees Choose to Invest in their Firms? An Empirical Examination of Factors Affecting Employees' Participation in Employee Stock Purchase Plans

In collaboration with ***Computershare***

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Background

- Employee stock ownership as a highly effective means to increase employee engagement and performance (Kruse et al., 2010)

- Many leading companies across various industries (e.g., Hilton, Cisco, Goldman Sachs, Delta Airlines) offer ESPPs.
  - Employees can purchase their company stocks usually at a discount price (Rosen, 2021).

- Not all employees participate in ESPPs!
  - A study conducted by Fidelity and Radford revealed that only about 28% of eligible workers in the U.S. participate in ESPPs in 2016 (Burg, Cervino, Kuhn, & Paleka, 2017).

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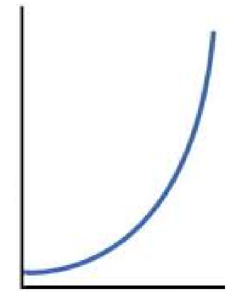
Increasing Employee Participation

- Research question
  - What factors influence employees' participation in ESPPs?

- Study focus & hypotheses
  - ESPP design features: discount rate
    - "Threshold" effect?



  - Company stock prices
    - **Trajectory**: how stock price increased or decreased (e.g., 5% increase)
    - **Volatility**: how much variability did it display to achieve a certain increase or decrease

  - Environmental factors
    - COVID-19: before and after the onset of the crisis

The Computershare Data

- ESPP data from 40 companies
  - Two companies using multiple plans (total # of plans = 42)
  - 20 different industry sectors
  - Finance/insurance 20%, healthcare 7.5%, real estate 7.5%, electric 7.5%
  - NYS: 75% (30 out of 40), NASDAQ: 22.5% (9 out of 40), NMS: 2.5% (1 out of 40)

- Employee contribution activities in **2018 through 2021**
  - Total # of purchases: **1,015** (both qualified and nonqualified plans)
  - The mean was 9.1 purchases per firm per year (min = 1, max = 122)

- Outcome variable
  - **Participation rate:** % of employees who participated in the purchases (over total eligible employees)

ESPP Features

- Plan types

	Freq.	%
423-qualified plans	**31**	**74%**
Non-qualified plans	11	26%
Total	42	100%

- Purchase frequency

	Freq.	%
Weekly	2	5%
Bi-Monthly	1	2%
Monthly	**9**	**21%**
Quarterly	**14**	**33%**
Semi-annual	**12**	**29%**
Annual	4	10%
Total	42	100%

- Discount

Discount %	Freq.	%
0	**10**	**24%**
5	10	24%
10	4	10%
15	**17**	**40%**
20	1	2%
Total	42	100%

- Employer match

	Freq.	%
Yes	**2**	**5%**
Note. these 2 plans offered no discount		
No	40	95%
Total	42	100%

  – The amount of match ranged from 11% to 15%

ESPP Features

- Value limit
  - The IRS rule: $25,000 per year

Value limit	Freq.	%
0	9	22%
12,500	1	2%
25,000	**32**	**76%**
Total	42	100%

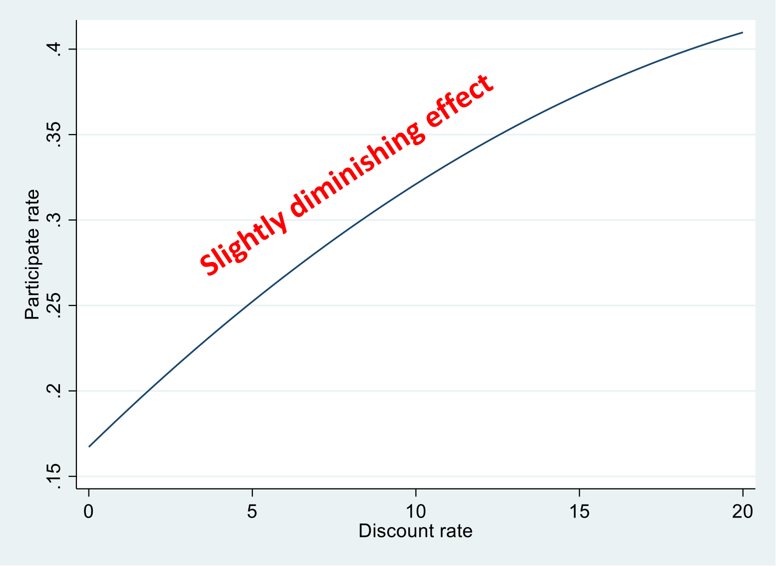
- Maximum # of shares
  - A limit to the # of shares allowed per year

Yearly share limit	Freq.	%
0	**39**	**94%**
1,500	1	2%
50,000	2	4%
Total	42	100%

Results

- Predicting the % of Contributing Employees for Each Purchase
  - Discount rate
    - On average, every 1% point increase in the discount rate (e.g., 10% → 11%) is associated with **7.5% increase** in the participation rate
    - An expected increase in the participation rate was slightly greater when the current discount rate was low (vs. high)
      - e.g., When a firm currently offers 1% (vs. 20%), it may observe a 7.8% (vs. 7.1%) increase in the participation rate if the firm provides additional 1% discount.

Current discount rate	Expected increase in the participation rate for 1% increase in the discount rate
1%	**7.8%**
5%	7.6%
10%	7.4%
15%	7.3%
20%	**7.1%**



Results

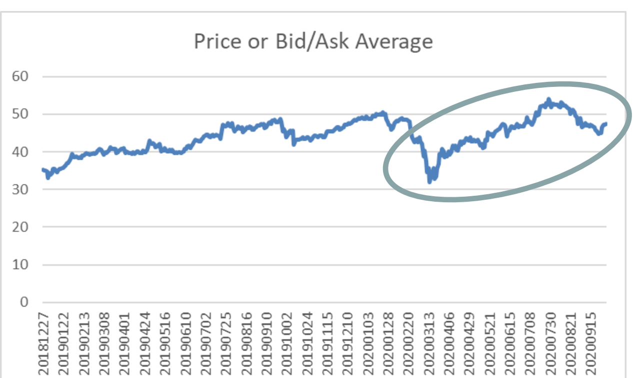
- Predicting the % of Contributing Employees for Each Purchase
  - Stock market performance
    - Measures
      - Trajectory (overall increase/decrease): the slope coefficient from a model regressing each firm's daily stock prices on time
      - Variability: the standard deviation of daily stock prices
    - Time frame
      - Qualified plans: stock price during the enrollment period (assumption: 6 months)
      - Open market plans: stock price for the past 6 months preceding each transaction
  - High volatility
    - Every 1% increase in the (average) daily price ($) was associated with **2.7%** increase in the participation rate
  - Low volatility
    - Every 1% increase in the (average) daily price ($) was associated with **4.8%** increase in the participation rate

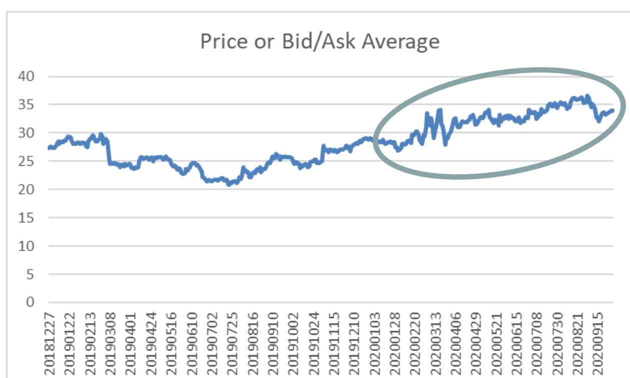
Results

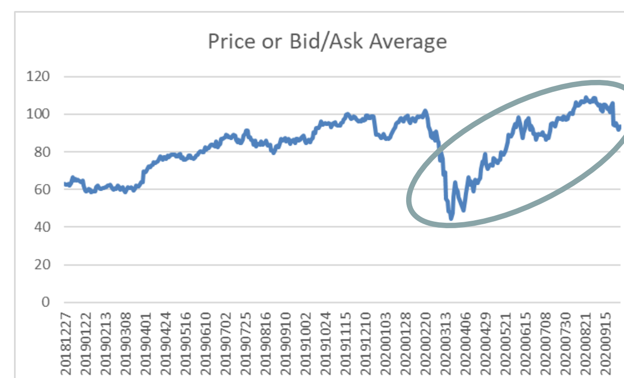
- Predicting the % of Contributing Employees for Each Purchase
  - The Effects of COVID-19
    - The average participation rate increased from **23%** to **28%** before and after the onset of COVID-19
    - Possible explanation 1
      - Because of the decrease in eligible workers (e.g., layoff)?
      - No. Except for a few cases, there was basically no difference in the # of eligible workers before and after the onset of COVID-19.
    - Possible explanation 2
      - Because of changes in stock prices?
      - Probably not, because when I examined the effects of COVID-19 after controlling for stock prices (i.e., mean level, trajectory, and volatility), the participation rate displayed **even greater increase** during the pandemic (i.e., 2020 to present) relative to the rate during 2018-2019.

Results

- Predicting the % of Contributing Employees for Each Purchase
  - The Effects of COVID-19
    - Possible explanation 2 (continued)
      - May be related to “lowered stock prices + the **quality of management**”
        - » These firms experienced lowered stock prices due to COVID-19, but showed steady increases—at least no further decline—over time (except for a few firms; see below for examples).
      - Workers thus gained **stronger confidence** in the future of their firms while observing **lower stock prices**, thus participating more.



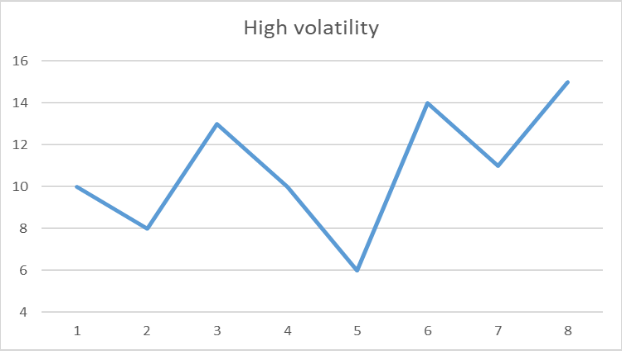




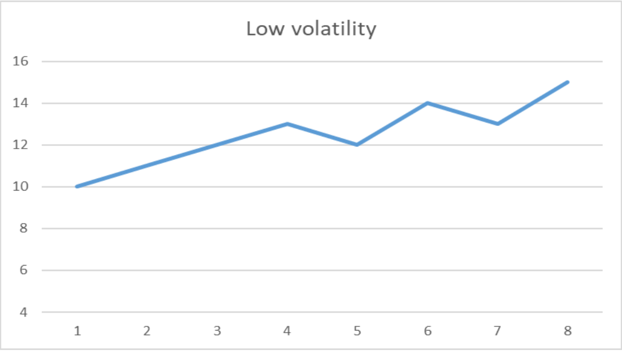
Implications and Future Research

- No threshold effect observed: No “10% or none”
  - Even a small discount rate can be appreciated!
  - Future research should replicate the findings + examine employee perceptions of the discount feature.

- The role of stock price volatility
  - Workers tend to be risk averse.
  - Workers may view ESPPs as a saving plan (vs. short-term investment).
  - Future research should directly assess workers’ attitudes toward risk and ESPPs



The same increase but..
vs.



Implications and Future Research

- The role of trust in management
  - May explain the effects of COVID-19
  - Future research should directly assess workers’ trust/confidence in management and its role in their participation in ESPPs.

Thank you very much!

Questions or comments

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