# ChatGPT and Corporate Policies

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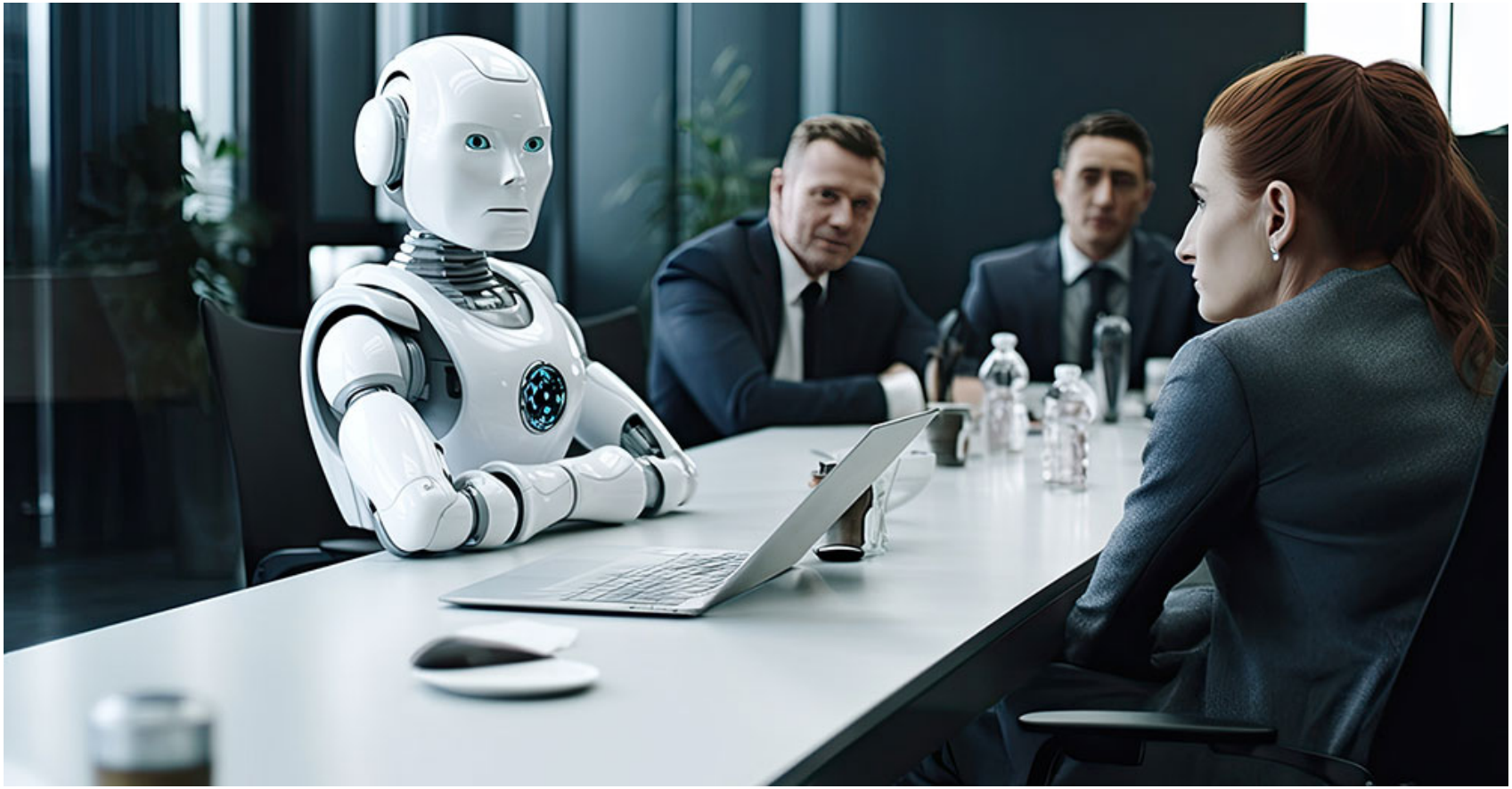
# Motivation



# Motivation

- Understanding corporate policies is central to corporate finance. Investment policies, in particular, are key to corporate growth and aggregate fluctuations.

- According to neoclassical q-theory (Hayashi, 1982; Peters and Taylor, 2017), Tobin's q should be a sufficient statistic for describing firms' investment opportunities and policies.

- Managers can convey their private information through quarterly earnings conference calls, which may not be fully incorporated in prices. Extracting complicated information such as expected corporate policies is challenging.

- New Opportunity: the advent of **ChatGPT**, which can take long, sophisticated questions and provide answers at the level of human experts.

# Research Questions

- In this study, we utilize ChatGPT to extract firm-level corporate expectations of future investment policies and study the implications.

- We aim to answer the following questions:
  - Can an advanced AI model such as ChatGPT help understand corporate policies?
  - Does the ChatGPT-extracted expected investment policy provide information beyond existing measures of investment opportunities, such as Tobin's q or cash flows?
  - Does such information have further implications on asset prices and returns?

# Data and Sample

- We extract firms' outlooks on corporate policies from companies' earnings call transcripts downloaded from SeekingAlpha.
- We obtain the quarterly Duke CFO survey firm-level data.
- Corporate accounting variables and stock returns are retrieved from Compustat and CRSP.
- The final sample consists of 74,586 firm-quarter-level conference calls from 2006 to 2020, representing 3,878 unique US public firms.

# Constructing ChatGPT Investment Score

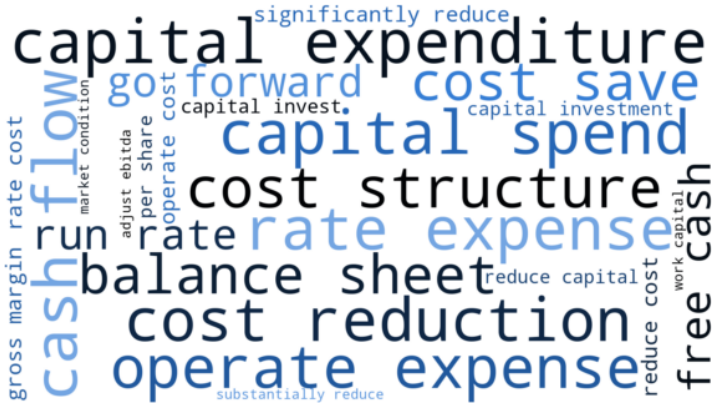
We provide the following prompt:

*"The following text is an excerpt from a company's earnings call transcripts. You are a finance expert. Based on this text only, please answer the following question. How does the firm plan to change its capital spending over the next year? There are five choices: Increase substantially, increase, no change, decrease, and decrease substantially. Please select one of the above five choices for each question and provide a one-sentence explanation of your choice for each question. The format for the answer to each question should be "choice - explanation." If no relevant information is provided related to the question, answer "no information is provided."*
*[Part of an earnings call transcript.]*

# Aggregating at the Conference Call Level

- We split conference call texts into 2,500-word chunks to adhere to OpenAI token limits.
- We assign a score of -1, -0.5, 0, 0.5, and 1 for each of the given choices (Decrease substantially; Decrease; No change; Increase; Increase substantially), respectively.
- We then take the average of the scores across multiple chunks of one earnings call to obtain a firm-quarter-level measure, **ChatGPT Investment Score**.

# Word Cloud with High/Low ChatGPT Investment Score




(a) Bigrams associated with low ChatGPT investment scores.


(b) Bigrams associated with high ChatGPT investment scores.

# Examples of Texts with Predicted Investment Scores

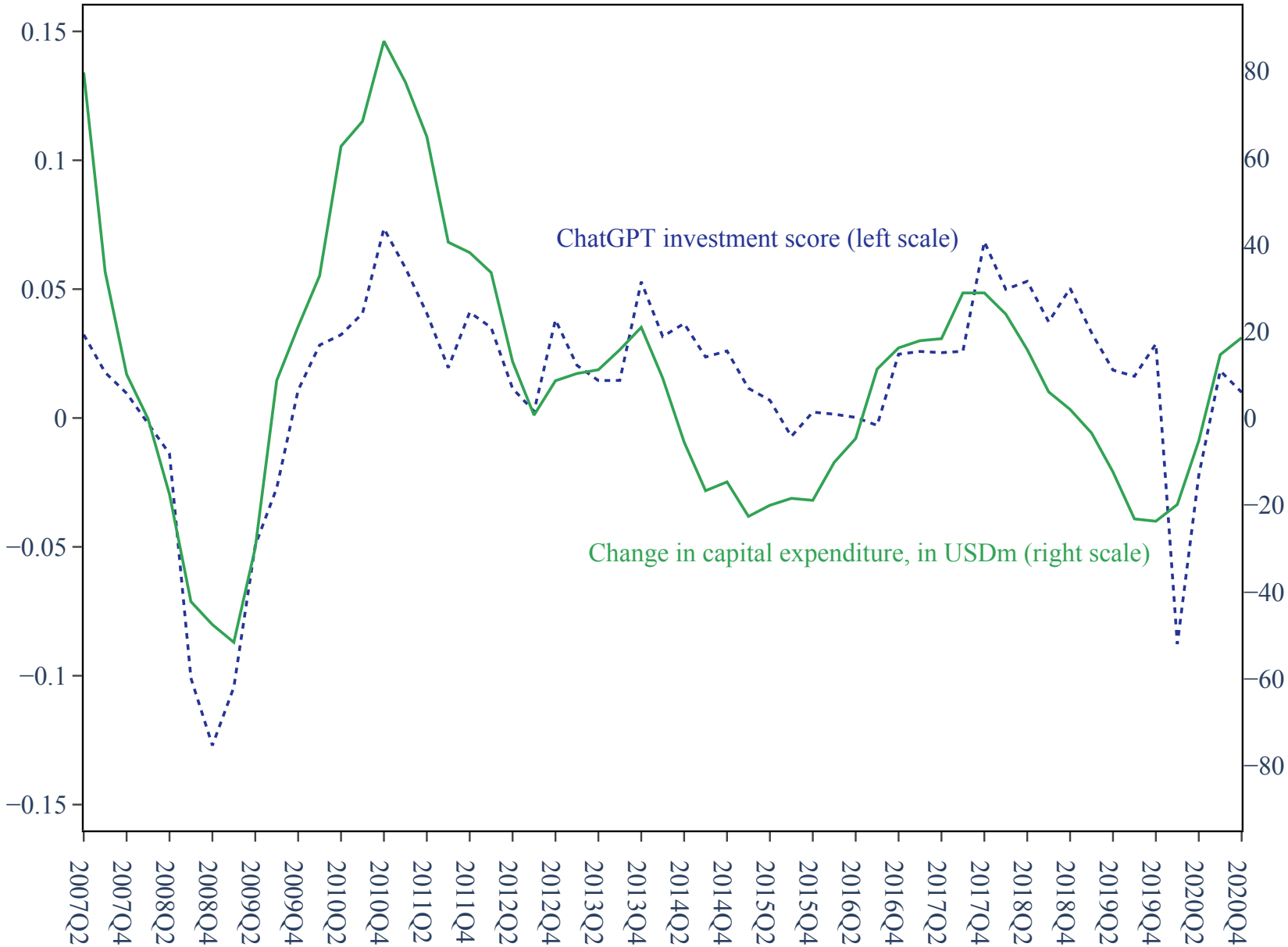
Increase Substantially (Score=1)

*"We have identified several key strategic initiatives for 2015 to* **sustain the growth** *rate of our business. We plan to make* **significant capital investments** *in our facilities and infrastructure, and we continue to strengthen our human capital in compliance, manufacturing and sales. We also have a solid slate of plan launches throughout the year."*

Decrease Substantially (Score=−1)

*"After next year we will not have that roughly $50 million to $60 million spend that we'll have this year and next year on El Dorado. So, our* **CapEx will be down substantially**, *which will affect - that's a boost of $50 million to $60 million."*

# ChatGPT Investment Score vs. Realized Investment



# Duke CFO Survey

- Initiated by Graham and Harvey (2001), the Duke CFO survey, is a comprehensive survey on managerial outlooks on the economy, firm performance, and corporate policies.

- We focus on the following survey question: *"Relative to the previous 12 months, what will be your company's PERCENTAGE CHANGE during the next 12 months? _____%[Corporate Policy]"*

- We gather firms' responses to this question on "Capital Spending" policies and create a variable CFO Survey Investment at the firm-quarter level.

- We are able to match **1,707** firm-quarters in the Duke CFO Survey data to the conference call data.

# ChatGPT vs. CFO Survey Results

*CFO Survey Investment* and *ChatGPT Investment Score* are strongly **positively correlated**.

| | (1) | (2) |
|---|---|---|
| | *CFO Survey Investment* | |
| *ChatGPT Investment Score* | 30.83*** | 21.78*** |
| | (4.36) | (3.57) |
| Industry FE | N | Y |
| YearQtr FE | N | Y |
| R-squared | 0.014 | 0.070 |
| N | 1338 | 1325 |

# ChatGPT Investment Score and Future Investment

- A one standard deviation increase in *ChatGPT Investment Score* is associated with a 0.034 to 0.052 standard-deviation increase in capital expenditure in the calendar quarter following the earnings call.
- The magnitude is equivalent to 63.3% to 96.8% of the corresponding sensitivity of capital expenditure to the Total q.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | *Capital Expenditure*$_{t+2}$ | | |
| *ChatGPT Investment Score*$_t$ | **0.966*** ** | **0.795*** ** | **0.683*** ** | **0.638*** ** |
| | **(15.64)** | **(13.24)** | **(12.16)** | **(11.37)** |
| *Total* $q_t$ | | 0.379*** | | 0.177*** |
| | | (12.44) | | (6.53) |
| *Capital Expenditure*$_t$ | | | 0.115*** | 0.114*** |
| | | | (9.98) | (9.92) |
| *Total Cash Flow*$_t$ | | | 0.889** | 0.535 |
| | | | (3.00) | (1.83) |
| *Leverage*$_t$ | | | -2.795*** | -2.535*** |
| | | | (-16.94) | (-14.97) |
| *Size*$_t$ | | | -0.006 | -0.008 |
| | | | (-0.14) | (-0.19) |
| Firm FE | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y |
| R-squared | 0.694 | 0.697 | 0.707 | 0.708 |
| N | 74,586 | 74,586 | 74,586 | 74,586 |

# ChatGPT Score and Long-Term Investment

*ChatGPT Investment Score* is positively associated with future investment for up to 9 quarters after the conference call.

| | (1) (n=3) | (2) (n=4) | (3) (n=5) | (4) (n=6) | (5) (n=7) | (6) (n=8) | (7) (n=9) | (8) (n=10) |
|---|---|---|---|---|---|---|---|---|
| | *Capital Expenditure*$_{t+n}$ | | | | | | | |
| *ChatGPT Investment Score*$_t$ | **0.804*** ** | **1.044*** ** | **0.998*** ** | **0.788*** ** | **0.626*** ** | **0.663*** ** | **0.493*** ** | **0.315*** ** |
| | **(13.88)** | **(18.29)** | **(16.48)** | **(13.96)** | **(10.86)** | **(11.96)** | **(9.05)** | **(5.56)** |
| *Total* $q_t$ | 0.184*** | 0.159*** | 0.241*** | 0.293*** | 0.256*** | 0.174*** | 0.187*** | 0.194*** |
| | (7.12) | (6.71) | (8.41) | (9.22) | (8.24) | (6.28) | (6.29) | (6.04) |
| *Capital Expenditure*$_t$ | 0.151*** | 0.445*** | 0.044*** | -0.114*** | -0.032*** | 0.257*** | -0.051*** | -0.162*** |
| | (17.55) | (40.06) | (5.21) | (-12.28) | (-4.08) | (20.61) | (-6.08) | (-18.68) |
| *Total Cash Flow*$_t$ | 1.034*** | 2.108*** | 1.146*** | -0.037 | -0.286 | 1.136** | 1.004** | 0.249 |
| | (3.56) | (7.16) | (4.22) | (-0.13) | (-0.96) | (2.85) | (3.08) | (0.74) |
| *Leverage*$_t$ | -2.156*** | -1.274*** | -2.185*** | -2.420*** | -1.903*** | -0.911*** | -1.455*** | -1.472*** |
| | (-13.19) | (-9.10) | (-12.61) | (-12.50) | (-10.47) | (-5.34) | (-7.87) | (-7.22) |
| *Size*$_t$ | -0.033 | -0.059 | -0.121* | -0.172** | -0.195*** | -0.165*** | -0.195*** | -0.205*** |
| | (-0.83) | (-1.74) | (-2.56) | (-3.23) | (-3.78) | (-3.63) | (-3.70) | (-3.57) |
| Firm FE | Y | Y | Y | Y | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y | Y | Y | Y | Y |
| R-squared | 0.712 | 0.774 | 0.707 | 0.710 | 0.709 | 0.732 | 0.708 | 0.717 |
| N | 73,437 | 72,354 | 71,003 | 68,215 | 65,393 | 63,267 | 60,437 | 57,799 |

# ChatGPT Score and Various types of Investment

*ChatGPT Investment Score* significantly and positively predicts future investment measured in different ways, including Physical Investment, Intangible Investment, Total Investment, and R&D.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | *Physical Investment*$_{t+2}$ | | *Intangible Investment*$_{t+2}$ | | *Total Investment*$_{t+2}$ | | *R&D*$_{t+2}$ | |
| *ChatGPT Investment Score*$_t$ | 1.362*** | 0.810*** | 0.261*** | 0.091*** | 1.659*** | 0.918*** | 0.288*** | 0.130*** |
| | (17.71) | (12.16) | (12.31) | (5.72) | (20.19) | (13.22) | (8.84) | (5.42) |
| *Total* $q_t$ | | 0.490*** | | 0.219*** | | 0.850*** | | 0.201*** |
| | | (13.40) | | (16.10) | | (20.82) | | (12.49) |
| *Physical Investment*$_t$ | | 0.115*** | | | | | | |
| | | (9.10) | | | | | | |
| *Intangible Investment*$_t$ | | | | 0.446*** | | | | |
| | | | | (24.48) | | | | |
| *Total Investment*$_t$ | | | | | | 0.151*** | | |
| | | | | | | (13.16) | | |
| *R&D*$_t$ | | | | | | | | 0.488*** |
| | | | | | | | | (25.07) |
| Control Variables | Y | Y | Y | Y | Y | Y | Y | Y |
| Firm FE | Y | Y | Y | Y | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y | Y | Y | Y | Y |
| R-squared | 0.693 | 0.712 | 0.859 | 0.899 | 0.658 | 0.692 | 0.855 | 0.906 |
| N | 74,586 | 74,586 | 74,586 | 74,586 | 74,586 | 74,586 | 39,029 | 36,631 |

# ChatGPT Predicted Investment and Future Returns

- A one-standard-deviation increase in the ChatGPT investment score leads to a **decrease** of **1.80%, 1.47%, and 1.40%** in annualized return, FF5-adjusted return, and q5-adjusted return in the quarter subsequent to the earnings call, respectively.
- Abnormal returns continue for up to **9 quarters**.

Long-Term Returns

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | $Return_{t+2}$ | | $FF5\text{-}Adjusted\ Return_{t+2}$ | | $q5\text{-}Adjusted\ Return_{t+2}$ | |
| $ChatGPT\ Investment\ Score_t$ | -17.74*** | -9.795*** | -16.10*** | -8.002*** | -14.78*** | -7.634*** |
| | (-8.33) | (-4.51) | (-7.15) | (-3.50) | (-6.65) | (-3.38) |
| $Total\ q_t$ | | -15.64*** | | -13.10*** | | -12.72*** |
| | | (-19.51) | | (-15.78) | | (-14.99) |
| $Return_t$ | | -0.0156*** | | -0.0395*** | | -0.0252*** |
| | | (-3.09) | | (-7.31) | | (-4.63) |
| Firm FE | Y | Y | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y | Y | Y |
| R-squared | 0.232 | 0.239 | 0.0864 | 0.0935 | 0.0824 | 0.0880 |
| N | 74,586 | 74,586 | 74,586 | 74,586 | 74,586 | 74,586 |

# ChatGPT Investment Score and Information Environment

- **Managerial expectations and forecasts** for more opaque firms and firms operating in a dynamic, changing environment could be more informative, given that these firms are subject to higher uncertainty and unexpected changes.

- ChatGPT-based investment scores are expected to exhibit greater power in predicting firms' future investment plans for firms in a more dynamic, changing information environment.

- We consider industry competition, firm size, and product life cycle stages of firms as proxies of the environment in which a firm operates and conduct cross-sectional tests to explore the heterogeneity in the predictive power of ChatGPT.

# ChatGPT Score and Information Environment

*ChatGPT Investment Score* has more incremental predictive power for future investment plans among firms subject to more changes and uncertainty.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | *Total Investment*$_{t+2}$ | | |
| *ChatGPT Investment Score*$_t$ | 1.244*** | 1.789*** | 1.287*** | 2.301*** | | |
| | (10.99) | (8.18) | (4.78) | (6.67) | | |
| *ChatGPT Investment Score*$_t$ × *HHI*$_t$ | **-1.147*** ** | | | **-0.942*** ** | -0.716*** | **-0.511** ** |
| | **(-4.85)** | | | **(-4.03)** | (-3.08) | (-2.25) |
| *ChatGPT Investment Score*$_t$ × *Top4Shares*$_t$ | | **-1.456*** ** | | **-1.107*** ** | **-1.398*** ** | **-1.184*** ** |
| | | **(-4.50)** | | **(-3.41)** | **(-4.21)** | **(-3.61)** |
| *ChatGPT Investment Score*$_t$ × *Size*$_t$ | | | -0.0517 | **-0.0635*** | **-0.113*** ** | **-0.0797** ** |
| | | | (-1.42) | **(-1.72)** | **(-2.86)** | **(-2.07)** |
| *ChatGPT Investment Score*$_t$ × *Life1*$_t$ | | | | | **1.876*** ** | **1.559*** ** |
| | | | | | **(3.32)** | **(2.86)** |
| *ChatGPT Investment Score*$_t$ × *Life2*$_t$ | | | | | **5.002*** ** | **4.037*** ** |
| | | | | | **(8.22)** | **(6.73)** |
| *ChatGPT Investment Score*$_t$ × *Life3*$_t$ | | | | | 0.271 | 0.603 |
| | | | | | (0.38) | (0.84) |
| *ChatGPT Investment Score*$_t$ × *Life4*$_t$ | | | | | 0.0930 | -0.132 |
| | | | | | (0.12) | (-0.17) |
| Interactions with *Total* $q_t$ | No | No | No | No | No | Yes |
| Control Variables | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| YearQtr FE | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.698 | 0.698 | 0.698 | 0.698 | 0.699 | 0.701 |
| N | 69,007 | 69,007 | 69,007 | 69,007 | 69,007 | 69,007 |

# ChatGPT Score and Information Environment

*ChatGPT Investment Score* has more incremental predictive power for future investment plans among firms subject to more changes and uncertainty.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | | $Total\ Investment_{t+2}$ | | |
| $ChatGPT\ Investment\ Score_t$ | 1.244*** | 1.789*** | 1.287*** | 2.301*** | | |
| | (10.99) | (8.18) | (4.78) | (6.67) | | |
| $ChatGPT\ Investment\ Score_t \times HHI_t$ | **-1.147*** ** | | | **-0.942*** ** | -0.716*** | **-0.511** ** |
| | **(-4.85)** | | | **(-4.03)** | (-3.08) | (-2.25) |
| $ChatGPT\ Investment\ Score_t \times Top4Shares_t$ | | **-1.456*** ** | | **-1.107*** ** | **-1.398*** ** | **-1.184*** ** |
| | | **(-4.50)** | | **(-3.41)** | **(-4.21)** | **(-3.61)** |
| $ChatGPT\ Investment\ Score_t \times Size_t$ | | | -0.0517 | **-0.0635*** | **-0.113*** ** | **-0.0797** ** |
| | | | (-1.42) | **(-1.72)** | **(-2.86)** | **(-2.07)** |
| $ChatGPT\ Investment\ Score_t \times Life1_t$ | | | | | **1.876*** ** | **1.559*** ** |
| | | | | | **(3.32)** | **(2.86)** |
| $ChatGPT\ Investment\ Score_t \times Life2_t$ | | | | | **5.002*** ** | **4.037*** ** |
| | | | | | **(8.22)** | **(6.73)** |
| $ChatGPT\ Investment\ Score_t \times Life3_t$ | | | | | 0.271 | 0.603 |
| | | | | | (0.38) | (0.84) |
| $ChatGPT\ Investment\ Score_t \times Life4_t$ | | | | | 0.0930 | -0.132 |
| | | | | | (0.12) | (-0.17) |
| Interactions with $Total\ q_t$ | No | No | No | No | No | Yes |
| Control Variables | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes | Yes | Yes | Yes |
| YearQtr FE | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.698 | 0.698 | 0.698 | 0.698 | 0.699 | 0.701 |
| N | 69,007 | 69,007 | 69,007 | 69,007 | 69,007 | 69,007 |

# Additional Results

- Validation with **Analyst Forecast Changes**: Relate to changes in analyst forecasts of capital expenditure around earnings calls. Analyst Forecast

- **Alternative ChatGPT Measure**: Use chunk score with the maximum absolute value, rather than the average chunk score. Alternative Measure

- **Out-of-sample Tests for ChatGPT**: Tests using conference calls in 2022, outside the training sample of ChatGPT. Out-of-sample Tests

- **Other Corporate Policies**: Dividends and Employment. Other Policies

# Conclusion

- We use the cutting-edge large language model, ChatGPT, to extract managerial expectations of **corporate policies** from corporate disclosure.
- The investment score bears a strong, positive correlation with future investment both in the short term and long term.
- Firms with high investment scores experience significant negative future abnormal returns.
- We demonstrate that ChatGPT can be used to extract valuable information about corporate policies that are not otherwise available to investors and provide a new application of AI that produces interpretable outputs for humans.

# Thank You!

# ChatGPT Investment Score and Long-Term FF-5 Alpha

The predictive power for FF-5 Adjusted abnormal Returns persists for up to **9 quarters** in the future.

| | (1) n=3 | (2) n=4 | (3) n=5 | (4) n=6 | (5) n=7 | (6) n=8 | (7) n=9 | (8) n=10 |
|---|---|---|---|---|---|---|---|---|
| | *FF-5 factor Adjusted Alpha*$_{t+n}$ | | | | | | | |
| *ChatGPT Investment Score*$_t$ | -5.528** | -3.889* | -5.946*** | -6.648*** | -2.218 | -1.025 | -5.970** | -4.863** |
| | (-2.50) | (-1.73) | (-2.71) | (-2.92) | (-0.99) | (-0.45) | (-2.53) | (-2.09) |
| *Total* $q_t$ | -11.59*** | -10.51*** | -8.728*** | -7.089*** | -6.911*** | -7.679*** | -7.273*** | -6.323*** |
| | (-14.55) | (-13.45) | (-10.67) | (-8.85) | (-8.52) | (-9.07) | (-8.72) | (-7.17) |
| *Return*$_t$ | -0.0235*** | -0.0376*** | -0.0132** | -0.0294*** | -0.00203 | 0.0148** | 0.00189 | 0.00134 |
| | (-4.31) | (-6.85) | (-2.37) | (-5.18) | (-0.36) | (2.41) | (0.31) | (0.21) |
| Firm FE | Y | Y | Y | Y | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y | Y | Y | Y | Y |
| R-squared | 0.0867 | 0.0917 | 0.0896 | 0.0906 | 0.0892 | 0.0928 | 0.0967 | 0.0911 |
| N | 73,437 | 72,354 | 71,003 | 68,215 | 65,393 | 63,267 | 60,437 | 57,799 |

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# ChatGPT Investment Score and Long-Term q-5 Alpha

The predictive power for q-5 adjusted abnormal returns persists for up to **9 quarters** in the future.

| | (1) n=3 | (2) n=4 | (3) n=5 | (4) n=6 | (5) n=7 | (6) n=8 | (7) n=9 | (8) n=10 |
|---|---|---|---|---|---|---|---|---|
| | | | | *q5-Adjusted Alpha*$_{t+n}$ | | | | |
| *ChatGPT Investment Score*$_t$ | -8.329*** | -9.343*** | -8.413*** | -9.722*** | -8.764*** | -8.316*** | -9.012*** | -5.977** |
| | (-3.74) | (-4.22) | (-3.84) | (-4.20) | (-3.98) | (-3.62) | (-3.78) | (-2.47) |
| *Total* $q_t$ | -9.640*** | -8.606*** | -8.819*** | -7.923*** | -8.648*** | -9.215*** | -8.237*** | -6.830*** |
| | (-11.72) | (-10.43) | (-10.43) | (-9.53) | (-10.22) | (-10.60) | (-9.08) | (-7.31) |
| *Return*$_t$ | -0.0460*** | -0.0282*** | 0.00228 | -0.00958* | -0.00314 | -0.00683 | -0.0167*** | 0.0119* |
| | (-8.31) | (-5.07) | (0.41) | (-1.68) | (-0.55) | (-1.11) | (-2.72) | (1.89) |
| Firm FE | Y | Y | Y | Y | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y | Y | Y | Y | Y |
| R-squared | 0.0838 | 0.0846 | 0.0829 | 0.0836 | 0.0871 | 0.0875 | 0.0903 | 0.0863 |
| N | 73,437 | 72,354 | 71,003 | 68,215 | 65,393 | 63,267 | 60,437 | 57,799 |

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# ChatGPT Score and Analyst Forecasts

*ChatGPT Investment Score* is positively associated with changes in analyst forecasts of capital expenditure around earnings calls.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | *Change in Analyst Forecast*$_{t+1}$ | | | |
| *ChatGPT Investment Score*$_t$ | 8.278*** | 7.825*** | 7.582*** | 7.332*** |
| | (15.70) | (14.78) | (14.16) | (13.70) |
| *Total* $q_t$ | | 0.612*** | | 0.525*** |
| | | (5.41) | | (4.40) |
| *Capital Expenditure*$_t$ | | | -0.100** | -0.105** |
| | | | (-2.36) | (-2.46) |
| *Total Cash Flow*$_t$ | | | 0.552 | -0.732 |
| | | | (0.38) | (-0.49) |
| *Leverage*$_t$ | | | -7.006*** | -6.152*** |
| | | | (-6.25) | (-5.45) |
| *Size*$_t$ | | | 0.372 | 0.477 |
| | | | (1.25) | (1.63) |
| YearQtr FE | Y | Y | Y | Y |
| Firm FE | Y | Y | Y | Y |
| R-squared | 0.120 | 0.121 | 0.121 | 0.122 |
| N | 37435 | 37435 | 37435 | 37435 |

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# Out-of-sample Test

*ChatGPT Investment Score* is positively associated with capital expenditure in the calendar quarter following the earnings call in a sample consisting of earnings calls occurring after ChatGPT's trading periods (2021Q4-2022Q4).

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | *Capital Expenditure*$_{t+2}$ | | |
| *ChatGPT Investment Score*$_t$ | 2.278*** | 2.160*** | 1.268*** | 1.236*** |
| | (5.19) | (4.92) | (4.45) | (4.34) |
| *Total* $q_t$ | | 0.0687*** | | 0.0363*** |
| | | (4.31) | | (4.08) |
| *Capital Expenditure*$_t$ | | | 0.678*** | 0.677*** |
| | | | (47.67) | (47.49) |
| *Total Cash Flow*$_t$ | | | -0.465*** | -0.500*** |
| | | | (-3.04) | (-3.26) |
| *Leverage*$_t$ | | | -0.399*** | -0.245** |
| | | | (-3.99) | (-2.30) |
| *Size*$_t$ | | | -0.00736 | -0.0106 |
| | | | (-0.63) | (-0.90) |
| Industry FE | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y |
| R-squared | 0.248 | 0.251 | 0.545 | 0.545 |
| N | 10609 | 10609 | 10609 | 10609 |

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# Alternative Measure of ChatGPT Investment Score

Construct an alternative definition of the *ChatGPT investment score*, *ChatGPT Investment Alt. Score* , in which we take the *largest value of ChatGPT answers* among all chunks of an earnings call.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | | $Capital\ Expenditure_{t+2}$ | |
| $ChatGPT\ Investment\ Alt.\ Score_t$ | 0.372*** | 0.329*** | 0.286*** | 0.275*** |
| | (12.71) | (11.57) | (10.67) | (10.30) |
| $Total\ q_t$ | | 0.404*** | | 0.190*** |
| | | (13.22) | | (6.98) |
| $Capital\ Expenditure_t$ | | | 0.112*** | 0.112*** |
| | | | (9.80) | (9.74) |
| $Total\ Cash\ Flow_t$ | | | 1.063*** | 0.669** |
| | | | (3.57) | (2.29) |
| $Leverage_t$ | | | -2.898*** | -2.610*** |
| | | | (-17.58) | (-15.42) |
| $Size_t$ | | | -0.0126 | -0.0148 |
| | | | (-0.29) | (-0.34) |
| Firm FE | Y | Y | Y | Y |
| YearQtr FE | Y | Y | Y | Y |
| R-squared | 0.693 | 0.697 | 0.707 | 0.707 |
| N | 74,586 | 74,586 | 74,586 | 74,586 |

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# ChatGPT and Other Corporate Policies

*ChatGPT Dividend Score* and *ChatGPT Employment Score* are significantly and positively associated with the answers to the Duke CFO Surveys.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | *CFO Survey Dividend* | | *CFO Survey Employment* | |
| *ChatGPT Dividend Score* | 45.62*** | 30.46*** | | |
| | (3.99) | (3.93) | | |
| *ChatGPT Employment Score* | | | 22.64*** | 18.01*** |
| | | | (3.00) | (5.20) |
| Industry FE | N | Y | N | Y |
| YearQtr FE | N | Y | N | Y |
| R-squared | 0.023 | 0.117 | 0.007 | 0.044 |
| N | 666 | 661 | 1322 | 1311 |

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