ChatGPT and Corporate Policies

Manish Jha[1] Jialin Qian[1]
Michael Weber[2] Baozhong Yang[1]

[1]Georgia State

[2]Purdue University, NBER

September 9 2025

Motivation

- Understanding corporate policies central to corporate finance
- Investment key to firm growth & aggregate fluctuations
- Neoclassical q-theory (Hayashi, 1982; Peters and Taylor, 2017): Tobin's q sufficient statistic for investment opportunities
- BUT: private information not fully incorporated into prices
- Managerial expectations can capture those

Motivation

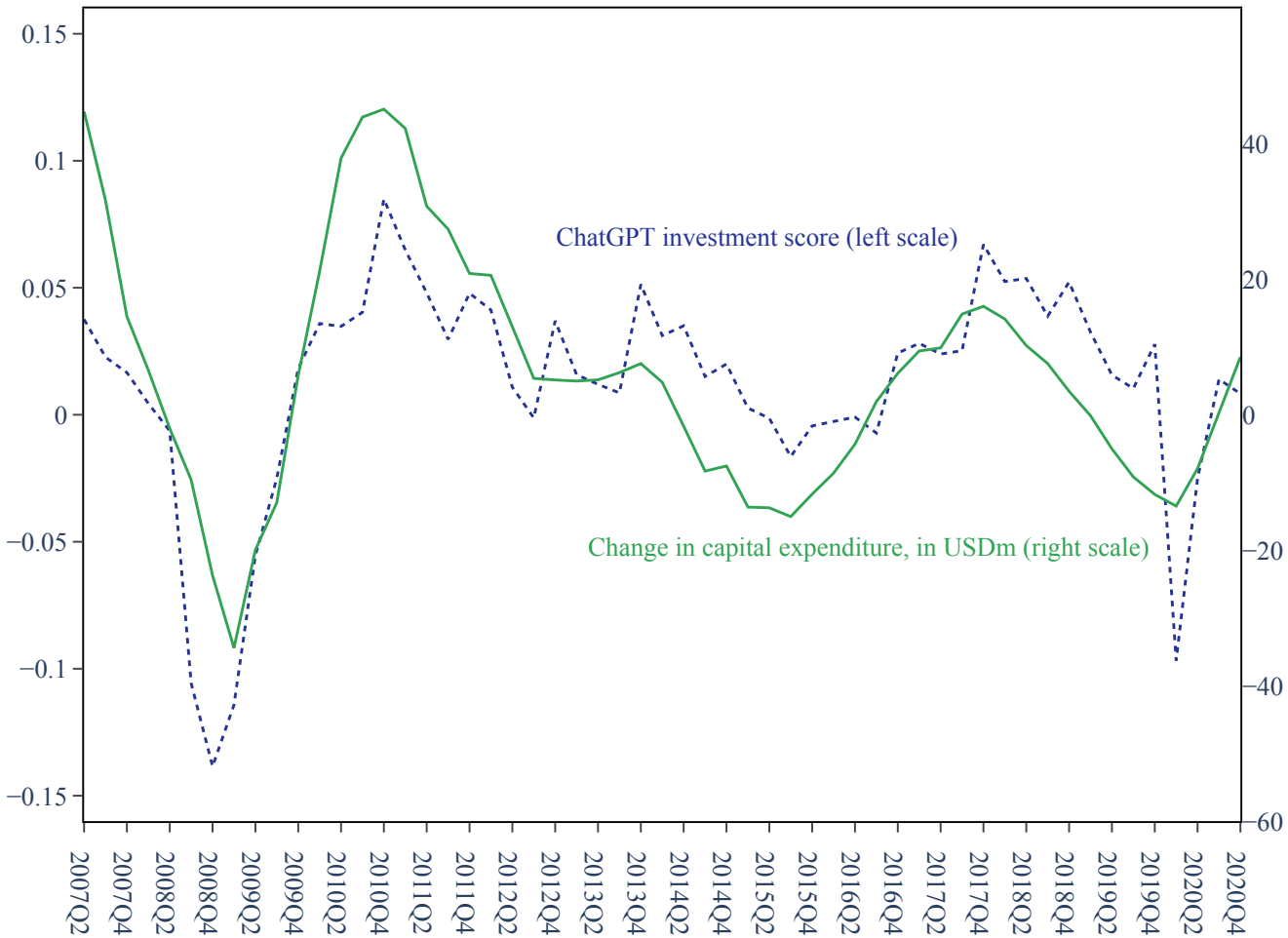
- Managers can convey info to market through earnings calls
- Despite progress in textual analysis, extracting complicated information such as expected corporate policies hasn't been possible at scale
- New Opportunity: advent of large language models (**ChatGPT**)
- Takes long, sophisticated texts and provide answers at human experts level

This Paper

- Use 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 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?

Main Findings



- ChatGPT investment score: strong corr. w/ future investment

Main Findings

- Investment score separately forecasts future total, intangible, and R&D investments
- Investment score and Duke CFO answers strongly related
- High-investment-score firms experience significantly lower future abnormal returns
- New information larger predictive ability when firms operate in more dynamic environment subject to change

Data and Sample

- Extract firms' outlooks on corporate policies from companies' earnings call transcripts downloaded from SeekingAlpha
- Obtain quarterly Duke CFO survey firm-level data
- Corporate accounting variables and stock returns from Compustat and CRSP
- Final sample: 74,586 firm-quarter-level conference calls from 2006 to 2020, representing 3,878 unique firms

Constructing ChatGPT Investment Score

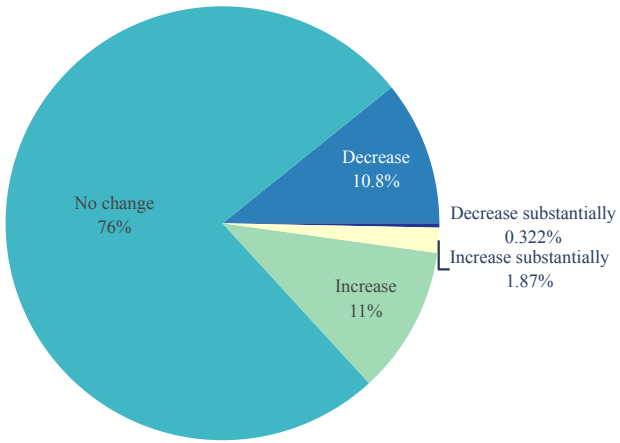
We provide the following prompt:

"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

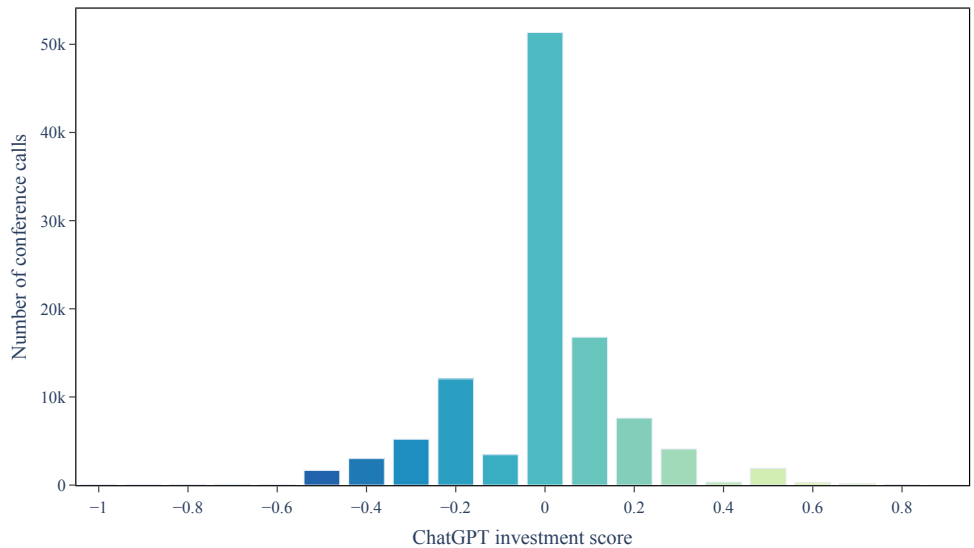
- Split conference call texts into 2,500-word chunks to adhere to OpenAI token limits
- Assign score of -1, -0.5, 0, 0.5, and 1 for each of given choices (Decrease substantially; Decrease; No change; Increase; Increase substantially), respectively
- Take average of scores across multiple chunks of one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

Distribution of ChatGPT investment score



(a) Distribution of ChatGPT response for text-chunks

75% of chunks: no Δ in capex



(b) Distribution of ChatGPT Investment Score for conference calls

50% of firm-quarter scores non-zero

Word Cloud with High/Low ChatGPT Investment Score

(a) Bigrams associated with low ChatGPT investment scores

"cost reduction," "significantly reduce," "substantially reduce," "reduce cost"

(b) Bigrams associated with high ChatGPT investment scores

"revenue grow," "revenue growth," "termgrowth," "growth opportunity"

Examples of Texts with Predicted Investment Scores

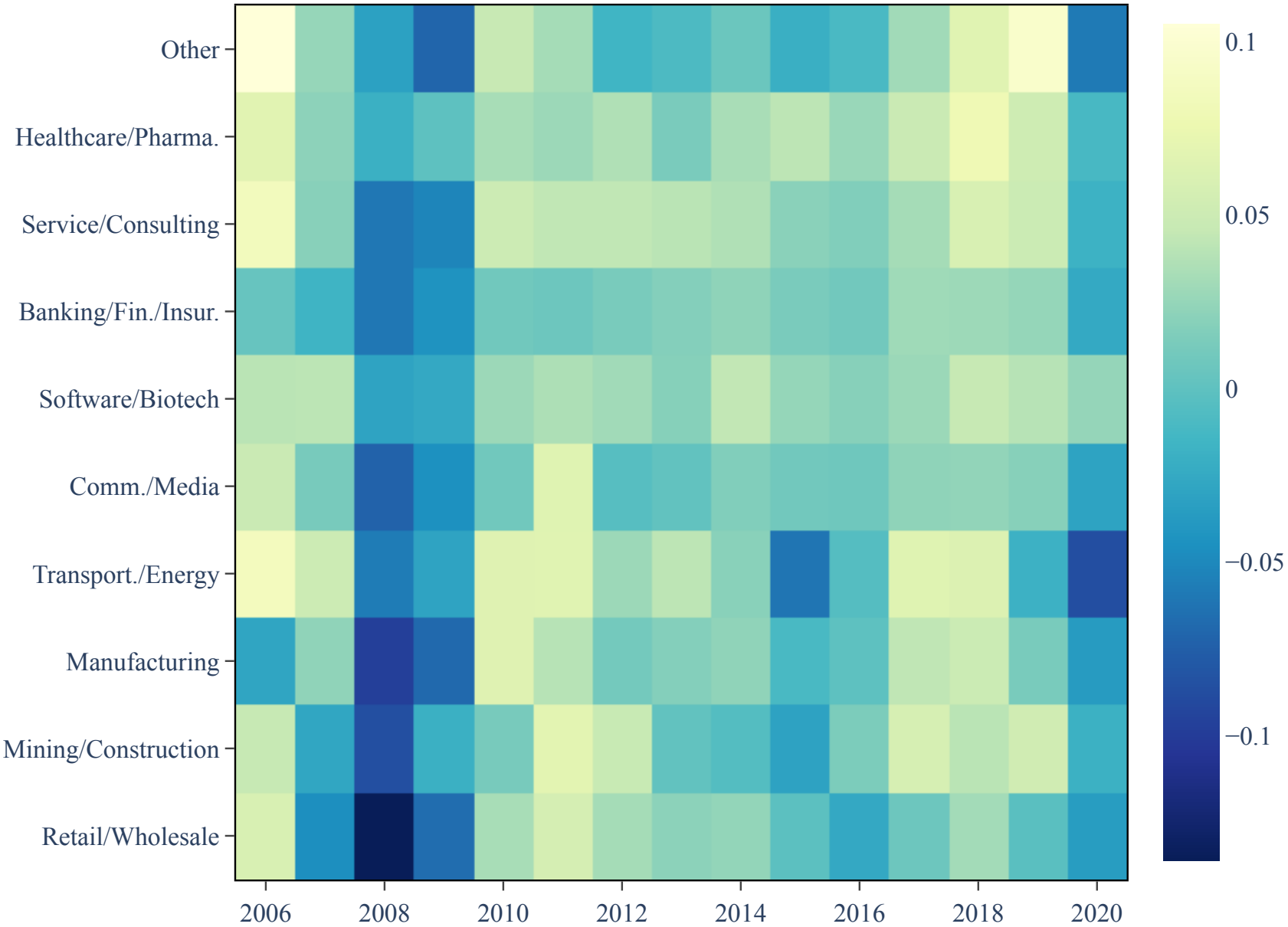
Increase Substantially (Score=1)

"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."*

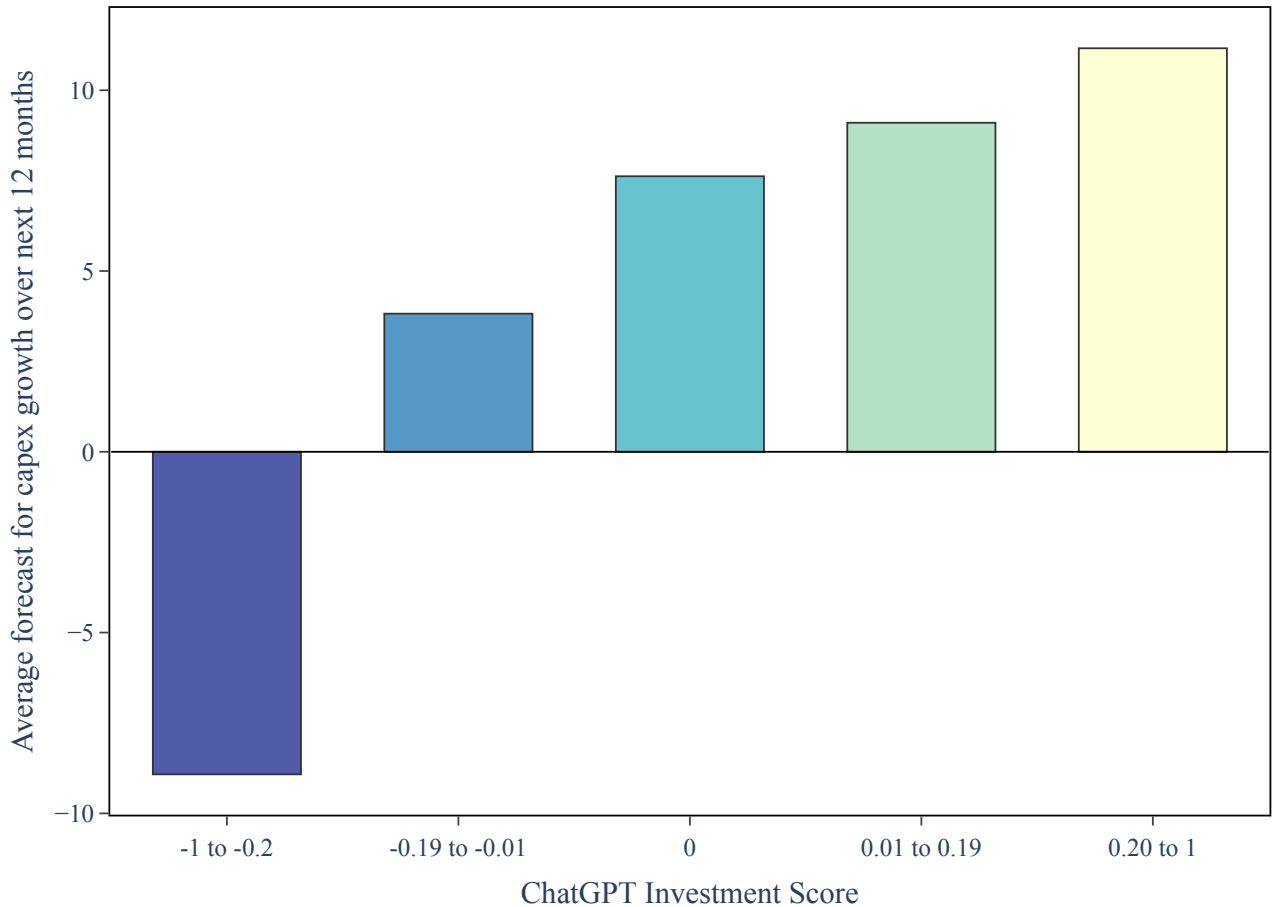
ChatGPT Investment Score across Industries



Duke CFO Survey

- Initiated by Graham and Harvey (2001)
- Survey on managerial outlooks on economy, firm performance, and corporate policies
- Focus on following survey question: *"Relative to the previous 12 months, what will be your company's PERCENTAGE CHANGE during the next 12 months? _____%[Corporate Policy]"*
- Responses on "Capital Spending" policies and create a variable CFO Survey Investment at the firm-quarter level
- Match **1,707** firm-quarters to conference call data

ChatGPT vs. CFO Survey Results



CFO Survey and *ChatGPT Score* **monotonically related**

ChatGPT Score, Tobin's q, and Future Investments

- Neoclassical theory of investment: Tobin's q sufficient statistic of firms' future investment opportunities (Hayashi, 1982)
- Early empirical challenges in testing theory
- Various improvements in the measurement of q (e.g., Erickson and Whited, 2000, 2006, 2012; Peters and Taylor, 2017)
- Total q depends on market cap, it might not incorporate all managerial private information about growth opportunities
- Potential ChatGPT-predicted investment measures contains incremental value

ChatGPT Score, Tobin's q, and Future Investments

Estimate following regressions to study incremental predictive power of our measure for future investments:

$$\begin{aligned} \textit{Capital Expenditure}_{i,t+2} = {} & \beta_1 \textbf{ChatGPT Investment Score}_{i,t} \\ & + (\beta_2 \textit{Total } q_{i,t}) \\ & + (\beta_3 \textit{Capital Expenditure}_{i,t} + \gamma \textit{Controls}_{i,t}) \\ & + \alpha_i + \alpha_t + \epsilon_{i,t}, \end{aligned}$$

where firm and time-fixed effects are included and controls include *Firm Size, Leverage, and Cash flow*

ChatGPT Investment Score and Future Investment

	(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

- 1 std increase in *ChatGPT Investment Score* $\rightarrow$ 0.034 to 0.052 std increase in capex in quarter following earnings call
- Corresponds to 63.3% to 96.8% of corresponding sensitivity to Total q.

ChatGPT Score and Long-Term Investment

	(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

Investment Score positively associated with Capex for up to 9 quarters

ChatGPT Score and Various types of Investment

	(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

Investment Score separately predicts Physical, Intangible, Total Investment, and R&D

ChatGPT Predicted Investment and Returns

- Leading factor models, the Fama-French 5-factor model (Fama and French, 2015) and the q-factor model (Hou, Xue, and Zhang, 2015; Hou et al., 2021), all contain investment factor

- Investment factor: high-investment stocks generate lower expected returns than low-investment stocks (Li, Whited, and Zhang, 2009).

- ChatGPT Investment Score captures new information regarding firms' future investment opportunities, we expect ChatGPT Investment Score to be negatively related to future returns

ChatGPT Predicted Investment and Future 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

- 1 std higher investment score $\rightarrow$ **1.80%, 1.47%, and 1.40%** lower raw, FF5-adjusted, and q5-adjusted annualized returns in quarter subsequent to earnings call
- Abnormal returns continue for up to **9 quarters**.

Long-Term Returns

ChatGPT Investment Score and Short-Term Returns

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR[0,1]		*CAR[0,3]*		*CAR[0,5]*	
ChatGPT Investment Score$_t$	3.176***	3.139***	3.162***	3.119***	3.236***	3.181***
	(12.72)	(10.43)	(11.46)	(9.19)	(11.06)	(8.97)
Total q_t	-1.066***	-1.061***	-1.183***	-1.190***	-1.282***	-1.300***
	(-10.88)	(-8.84)	(-10.83)	(-8.98)	(-10.74)	(-9.10)
Return$_t$	-0.266***	-0.262***	-0.321***	-0.249***	-0.287***	-0.225***
	(-4.76)	(-3.66)	(-4.99)	(-3.20)	(-4.23)	(-2.69)
Total Cash Flow$_t$	9.351***	7.297***	10.37***	8.425***	9.780***	8.373***
	(7.04)	(4.81)	(7.24)	(4.84)	(6.38)	(4.36)
Leverage$_t$	4.199***	3.597***	5.340***	4.445***	6.068***	5.154***
	(6.76)	(4.68)	(7.77)	(5.40)	(8.41)	(5.83)
Size$_t$	-1.202***	-1.188***	-1.389***	-1.415***	-1.483***	-1.487***
	(-9.00)	(-7.29)	(-9.34)	(-7.90)	(-9.30)	(-7.80)
Sentiment$_t$	9.307***	9.457***	9.520***	9.631***	9.479***	9.526***
	(31.19)	(25.33)	(29.12)	(23.21)	(26.98)	(21.60)
Earnings Surprise$_t$		0.281*		0.355**		0.173
		(1.71)		(2.13)		(0.88)
Firm FE	Y	Y	Y	Y	Y	Y
YearQtr FE	Y	Y	Y	Y	Y	Y
R-sq	0.109	0.112	0.106	0.109	0.102	0.105
N	73,542	43,103	73,542	43,103	73,542	43,103

ChatGPT Investment Score positively associated with cumulative abnormal returns in event window around call

ChatGPT Investment Score and Short-Term Returns

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR[0,1]		*CAR[0,3]*		*CAR[0,5]*	
ChatGPT Investment Score$_t$	3.176***	3.139***	3.162***	3.119***	3.236***	3.181***
	(12.72)	(10.43)	(11.46)	(9.19)	(11.06)	(8.97)
Total q_t	-1.066***	-1.061***	-1.183***	-1.190***	-1.282***	-1.300***
	(-10.88)	(-8.84)	(-10.83)	(-8.98)	(-10.74)	(-9.10)
Return$_t$	-0.266***	-0.262***	-0.321***	-0.249***	-0.287***	-0.225***
	(-4.76)	(-3.66)	(-4.99)	(-3.20)	(-4.23)	(-2.69)
Total Cash Flow$_t$	9.351***	7.297***	10.37***	8.425***	9.780***	8.373***
	(7.04)	(4.81)	(7.24)	(4.84)	(6.38)	(4.36)
Leverage$_t$	4.199***	3.597***	5.340***	4.445***	6.068***	5.154***
	(6.76)	(4.68)	(7.77)	(5.40)	(8.41)	(5.83)
Size$_t$	-1.202***	-1.188***	-1.389***	-1.415***	-1.483***	-1.487***
	(-9.00)	(-7.29)	(-9.34)	(-7.90)	(-9.30)	(-7.80)
Sentiment$_t$	9.307***	9.457***	9.520***	9.631***	9.479***	9.526***
	(31.19)	(25.33)	(29.12)	(23.21)	(26.98)	(21.60)
Earnings Surprise$_t$		0.281*		0.355**		0.173
		(1.71)		(2.13)		(0.88)
Firm FE	Y	Y	Y	Y	Y	Y
YearQtr FE	Y	Y	Y	Y	Y	Y
R-sq	0.109	0.112	0.106	0.109	0.102	0.105
N	73,542	43,103	73,542	43,103	73,542	43,103

ChatGPT Investment Score positively associated with cumulative abnormal returns in event window around call

ChatGPT Investment Score and Information Environment

- **Managerial expectations and forecasts** more informative for more opaque firms and firms operating in changing environment?
- ChatGPT-based investment scores are expected to exhibit greater power in predicting future investment for firms in a more dynamic, changing information environment
- Industry competition, firm size, and product life cycle stages of firms as proxies of environment in which a firm operates

ChatGPT Score and Information Environment

	(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 Investment Score: higher predictive power among small firms and firms in more competitive industries.

ChatGPT Score and Information Environment

	(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 Investment Score: higher predictive power among firm in earlier stages of the lifecycle, (product innovation, Life1, and process innovation stage, Life2) but not in mature or declining stages.

ChatGPT Score and Analyst Forecasts

	(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	37,435	37,435	37,435	37,435

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

Out-of-Sample Tests

	(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	10,609	10,609	10,609	10,609

ChatGPT Investment Score maintains predictive power in sample occurring **after ChatGPT's training periods** (2021Q4-2022Q4)

Masked-Identity Test

	(1)	(2)	(3)	(4)
		Capital Expenditure$_{t+2}$		
ChatGPT Investment Score$_t$	1.278***	1.132***	0.677*	0.667*
	(3.27)	(2.96)	(1.91)	(1.88)
Total q_t		0.241***		0.0660
		(3.63)		(1.15)
Capital Expenditure$_t$			0.116***	0.117***
			(3.39)	(3.41)
Leverage$_t$			-2.880***	-2.767***
			(-6.00)	(-5.55)
Size$_t$			0.120	0.116
			(0.92)	(0.89)
Total Cash Flow$_t$			-0.0901	-0.259
			(-0.12)	(-0.36)
Firm FE	Y	Y	Y	Y
YearQtr FE	Y	Y	Y	Y
R-sq	0.668	0.670	0.683	0.683
N	7,277	7,277	7,277	7,277

ChatGPT Investment Score maintains predictive power after **removing firm names, person names, and product information** from the earnings call transcripts

Additional Results

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

  Other Policies

- **Controlling for more covariates**: Controlling for additional firm covariates and *Total q* right after earnings call dates

  More Covariates

- **Other Large-Language Models**: Use RoBERTa model to obtain the **RoBERTa Investment Score** Other LLM Models

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

Conclusion

- Use cutting-edge large language model, ChatGPT, to extract managerial expectations of **corporate policies** from corporate disclosure
- Investment score bears 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
- ChatGPT can be used to extract valuable information about corporate policies not otherwise available to investors at scale and provide new application of AI that produces interpretable outputs for humans

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

Back

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

Back

Other Large-Language Model

RoBERTa Investment Score is positively associated with capital expenditure in the calendar quarter following the earnings call, with lower statistical significance than the *ChatGPT Investment Score*.

	(1)	(2)	(3)
	Capital Expenditure$_{t+2}$		
ChatGPT Investment Score$_t$	0.638***		0.601***
	(11.37)		(10.73)
RoBERTa Investment Score$_t$		1.525***	1.060***
		(5.65)	(3.95)
Total q_t	0.177***	0.192***	0.175***
	(6.53)	(7.05)	(6.46)
Capital Expenditure$_t$	0.114***	0.111***	0.113***
	(9.92)	(9.72)	(9.89)
Leverage$_t$	-2.535***	-2.622***	-2.519***
	(-14.97)	(-15.40)	(-14.89)
Size$_t$	-0.00841	-0.0195	-0.0139
	(-0.19)	(-0.44)	(-0.32)
Total Cash Flow$_t$	0.535*	0.660**	0.507*
	(1.83)	(2.25)	(1.74)
Firm FE	Y	Y	Y
YearQtr FE	Y	Y	Y
R-sq	0.708	0.707	0.708
N	74,586	74,586	74,586

Back

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

Back

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

Back

Controlling for More Covariates

- q_{t_c+s}: the total q calculated with updated market values at s days after the earnings call.

	(1)	(2)	(3)	(4)
		Capital Expenditure$_{t+2}$		
ChatGPT Investment Score$_t$	0.676***	0.676***	0.676***	0.678***
	(12.15)	(12.13)	(12.11)	(12.15)
Total q_t	0.128***			
	(5.24)			
Total q_{t_c}		0.0903***		
		(3.99)		
Total q_{t_c+1}			0.0856***	
			(3.79)	
Total q_{t_c+5}				0.0802***
				(3.58)
Profitibility$_t$	3.774***	3.807***	3.799***	3.807***
	(5.98)	(6.02)	(6.00)	(6.01)
Sales Growth$_t$	0.710	0.354	0.141	0.0881
	(0.14)	(0.07)	(0.03)	(0.02)
Zscore$_t$	-0.0324	-0.0291	-0.0285	-0.0279
	(-1.52)	(-1.36)	(-1.34)	(-1.31)
# of CapEx Lags	8	8	8	8
Other Controls	Yes	Yes	Yes	Yes
YearQtrFE	Yes	Yes	Yes	Yes
FirmFE	Yes	Yes	Yes	Yes
R-sq	0.770	0.770	0.770	0.770
N	63988	63988	63988	63988

Back