

MEASUREMENT OF CEO CONFIDENCE: A LITERATURE REVIEW

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Abstract. Chief Executive Officer (CEO) confidence influences decision-making processes, including investment strategies, expansion plans, and organizational efforts, providing an indication of the overall sentiment and future outlook of business leaders. CEO confidence strongly influences strategic decision-making, pushing employees and stakeholders to pursue ambitious growth plans. When CEO confidence diminishes, it often leads to a more cautious approach to decision-making within the company. This caution can result in delayed or scaled-back investment initiatives, hindering the company's ability to seize growth opportunities and respond effectively to market fluctuations, thereby dampening both internal morale and external stakeholder confidence in the company's prospects. Tracking CEO confidence indicators offers vital insights for investors and organizations to make informed decisions and handle the ever-changing business climate efficiently. Discuss all CEO confidence measurement methods based on previous research in the paper. The CEO confidence measurement can be categorized into six groups: option, net buyer, photo, reward, finance behavior, and media press. Future research may explore additional measurement categories to enhance understanding of CEO confidence dynamics and its implications for strategic decision-making and organizational performance.

Keywords: managerial, CEO, confidence, corporate governance

Introduction

The notion of 'Confidence' has been extensively discussed in the fields of psychology, corporate management, sociology, and philosophy for centuries. It is commonly seen as a crucial quality for achieving success, whether in personal or professional endeavours. Confidence is crucial in influencing leaders' decisions, actions, and performance in their organizations. A CEO, or Chief Executive Officer, is the top executive in various organizations, including businesses, nonprofit institutions, and charity trusts, tasked with making significant organizational decisions. CEO confidence reflects the mental state of certainty, optimism, and conviction that chief executive officers have in their company's current and future performance. CEO confidence significantly impacts strategic decision-making processes in firms, ultimately affecting total company growth. Osei Bonsu et al. (2024) study emphasized the substantial influence of CEO confidence on organizational strategies and outcomes. CEOs with solid confidence in their decision-making skills tend to take prudent risks and pursue ambitious growth initiatives. This confidence impacts decision-making and spreads across the organization, motivating staff and stakeholders. A confident CEO is more

likely to make daring moves that can drive the company's progress, such as entering new markets, introducing innovative goods, or seeking strategic collaborations. CEO confidence has a crucial role in driving strategic decision-making processes that are essential for promoting corporate growth and success.

Diminished CEO confidence can greatly influence firm performance, impacting all facets of organizational operation. CEOs lacking confidence in their abilities or the company's direction may hesitate to make bold decisions or take required risks to promote growth and innovation (Cianci and Kaplan, 2010). This may result in a plateau in performance and impede the company's capacity to adjust to evolving market conditions. Low CEO confidence can negatively affect employee morale and stakeholder perceptions, which can, in turn, harm the whole organizational climate. It is crucial for organizations to focus on and enhance CEO confidence to guarantee favourable company performance and long-term success. It is essential to comprehend the indications or measurement of CEO confidence in previous studies for a multitude of reasons (Bharati et al., 2016). Monitoring CEO confidence provides investors with significant insights about the economy's general health and trajectory, enabling them to make better-informed investment choices. Businesses can utilize this knowledge to predict upcoming economic trends and modify their plans accordingly. Understanding CEO confidence indicators is crucial for stakeholders in different sectors, helping them manage the dynamic business environment with more insight and flexibility.

Literature review

There are several measurement proxies of CEO confidence used by researchers. The measurement of CEO confidence can be categorised based on several categories. They are based on financial behaviour, photo score and media press.

Financial behaviour

Under financial behaviour, stock options, and shares, researchers used ownership, investment behaviours, and remuneration proxies.

Stock option

Share ownership can be formed in terms of non-moneyness and moneyness.

Non-moneyness stock option

First, CEO confidence variables are introduced by Malmendier and Tate (2005). Holder67, and long holder. Holder67 takes into account the status of each unique option package in the sample. The CEO ought to have exercised at least a portion of the package during or before the fifth year if an option is more than 67% in the money at any point in that year. The second is the long holder, who should pay more attention to the option packages' expiration date than the vesting period's conclusion. If the CEO keeps an option until the final year of its lifespan, he is considered overconfident (during all of his years in the sample). They label a CEO as being overconfident (for the entirety of his tenure in the sample). Banerjee et al. (2015) measures of overconfidence are similar to those used in Malmendier and Tate (2005); there are some differences: Initially, they use indicator variables set to one if their option-based metrics exceed a specific threshold. For instance, Holder67 stipulates that individuals must have retained

their options for at least five years, during which time the stock price must have increased by at least 67% by year 7. They use a continuous overconfidence measure to rank executives based on different levels of overconfidence. Secondly, these methods necessitate many years of data; for example, Holder67 necessitates five years of data. Non-CEO executives frequently need access to such a long duration of data. Therefore, they employ an annual measure of confidence to account for cases where the executive has been with the company for over five years. Their measure is slightly less stringent than the five-year threshold in Malmendier and Tate (2005) because it is based on the value of vested but unexercised options, which typically have multiple-year vesting periods.

Moneyiness option

Campbell et al. (2011) validate the design of Malmendier and Tate (2005) using stock option data in ExecuComp. Campbell et al. (2011) determine the average moneyiness of the options in the following manner:

$$\begin{aligned} & \text{Average moneyiness of the options} \\ & = \frac{\text{stock price at fiscal year end}}{\text{stock price at fiscal year end} - \left(\frac{\text{total reliazable value of unexercised exercisable options}}{\text{number of unexerize exercisable options}} \right)} - 1 \end{aligned} \quad \text{Eq. (1)}$$

The average realizable value per option is determined by dividing the total realizable value of in-the-money unexercised exercisable options by the number of unexercised exercisable options. The exercise price is determined by subtracting the average realizable value per option from the stock price at the end of the fiscal year. The average moneyiness of the options is determined by dividing the stock price at the end of the fiscal year by the projected exercise price minus one. The outcome is the percentage of the CEO's options that are now profitable. An overconfident CEO can be identified if the average moneyiness of the options is above 0.67. Campbell et al. (2011) also provide definitions for high and low overconfidence measures. Overconfident CEOs tend to cling to their stock options for too long, even allowing them to reach 100% or deeper in the money. The proxy for high overconfidence (HO) is computed in the same way as the Holder67 measure. If the average moneyiness of the options is greater than 1, the CEO can be classified as highly overconfident. The dummy variable equals one if the CEO is considered highly overconfident and zero if not.

Net buyer

Share ownership is quantified using the Net Buyer metric (Malmendier and Tate, 2005). CEOs were considered overconfident if they purchased business ownership during their initial five years in the study. Han et al. (2015) employed a dummy variable to determine the net buyer. Dummy equals 1 when the number of years with positive changes in shares owned is more than the number of years with negative changes, and zero otherwise.

Decision making

Decision-making can be formed in terms of investment and financing behaviour. Alqatamin et al. (2017) assessed CEO overconfidence by analyzing CEO investment choices. They claim that organizations with overconfident CEOs tend to overinvest in

capital projects. The researchers defined CEO overconfidence as a binary variable. It is assigned a value of 1 if a company's capital expenditure divided by lagged total assets in a specific year exceeds the median level of companies' expenditures divided by lagged total assets for the same industry type in that year and 0 otherwise. According to Alqatamin et al. (2017), CEO confidence measurement also relies on financial decisions and capital structure. Overconfidence can significantly impact decisions regarding debt and equity. Overconfident CEOs tend to issue more debt than their rational counterparts because they believe the firm is less likely to face financial distress. In the asymmetric information model, overconfidence results in the excessive use of debt. Similarly, they contend that overconfident managers utilize a greater amount of debt than sensible managers, leading them to underestimate the anticipated bankruptcy cost and acquire more debt to leverage its tax advantages. They utilized the leverage ratio as a third indicator of overconfidence.

Remuneration or compensation

Schrand and Zechman (2012) developed a proxy for overconfidence using the monetary rewards obtained by CEOs. The measurement is determined by comparing the CEO's cash and non-cash compensation to that of the second-highest-paid executive in the company. The comparable cash pay is calculated by dividing the CEO's salary plus bonus by the salary plus bonus of the second highest-paid executive. Relative non-cash compensation is calculated by subtracting cash compensation from total compensation. The CEO's overconfidence leads them to feel that they will have greater success in generating positive cash flow if they have a more lucrative incentive compensation plan (Humphery-Jenner et al., 2016).

Photo score

Schrand and Zechman (2012) provide a proxy for overconfidence using the CEO's prominence in images in the company's annual report. The photoscore is defined as follows: The CEO's photo in the annual report earns four points if it is the only photo and occupies at least half a page, three points if it is the only photo and occupies less than half a page, two points if there are other individuals in the photo with the CEO, and one point if there is no photo of the CEO. CEO has significant influence over his portrayal in the annual report based on discussions with three communications specialists. If an external party heavily influences the design of a company's annual report, it could lead to the CEO becoming overconfident due to the importance of their participation in the report's creation.

Media press

Media press measurement proxies can be categorised in the form of psychological indicators in press and video ratings.

Psychological indicators in press

Malmendier et al. (2011) quantify CEO overconfidence as determined by how outsiders perceive the CEO based on characterizations in the business press rather than by the CEO's actual decisions. The press data details the annual count of publications mentioning each sample CEO. They produce an indicator of CEO confidence that

compares the number of past articles using the terms: (a) "confident" or "confidence" or (b) "optimistic" or "optimism" to the number of past articles that portray the CEO as (c) not "confident", (d) not "optimistic", or (e) "reliable", "cautious", "conservative", "practical", "frugal", or "steady".

$$TOTALconfident_{it} = \begin{cases} i & \text{if } \sum_{s=1}^{t-1} a_{is} + b_{is} > \sum_{s=1}^{t-1} c_{is} + d_{is} + e_{is}. \\ 0 & \text{otherwise.} \end{cases} \quad \text{Eq. (2)}$$

They rely solely on previous media depictions to prevent finance policies from directly impacting the indicator. We also consider potential bias resulting from varying coverage. Indeed, a press bias favouring good news articles might lead to CEOs frequently featured in the press having a total confidence level of one. To account for this scenario, they adjust for the overall quantity of articles in the chosen periodicals, compiled at the same timeframe as the total confidence. Tang et al. (2015) chose a media-based measure of CEO hubris that was first suggested by Malmendier and Tate (2005) and later adopted by other studies (Chen et al., 2015; Hirshleifer et al., 2012). Initially, the researchers gathered news articles about the selected organisations' chief executive officers (CEOs) from prominent news outlets like The Wall Street Journal, The New York Times, Business Week, The Economist, and The Financial Times. First, they collected news articles that mentioned the CEOs in our sampled firms from major news sources such as The Wall Street Journal, The New York Times, Business Week, The Economist, and The Financial Times. For each CEO, they counted the number of terms that suggested confidence (e.g., "confident", "confidence", "optimistic", or "optimism") as well as the number of terms that implied conservatism (e.g., "reliable", "cautious", "conservative", "practical", "frugal", "steady", "not confident", or "not optimistic"). They incorporated the frequencies of these keywords if they were present within a 10-word interval preceding or following the mention of the CEO's name. Ultimately, the CEO hubris measure was calculated by subtracting the count of "conservatism" phrases from the count of "confidence" terms and then scaling the difference by the total of the two counts for each CEO in every period.

Al-Shammari (2017) employed the metric of CEO prominence in press releases, which involved calculating the ratio of the CEO's name mentions in the firm's press releases to the number of mentions of other senior executives inside the company. Capalbo et al. (2018) calculate CEO narcissism scores using Bloomberg transcripts of earnings reports. The narcissism score of each CEO is determined by calculating the proportion of first-person singular pronouns (I, me, my, mine, myself) in relation to the total number of first-person pronouns (I, me, my, mine, myself, we, us, our, ours, ourselves) used in the CEO's responses to analysts' inquiries.

$$Narcissism\ Score = \frac{\sum n(I, me, my, mine, myself)}{\sum n(I, me, my, mine, myself, we, us, our, ours, ourselves)} \quad \text{Eq. (3)}$$

The earnings release transcripts undergo parsing by a natural language processing (NLP) algorithm. This algorithm then generates counts detailing the occurrences of

first-person singular pronouns and first-person plural pronouns for each CEO during every meeting.

Video rating

Petrenko et al. (2015) utilized the Narcissistic Personality Inventory (NPI) to assess narcissism in CEOs by analyzing third-party judgements of video samples. Third-party ratings have been demonstrated through meta-analysis to offer greater operational validities for personality traits compared to self-reports. This is because observers have a clearer perspective for identifying individuals' personality traits, avoiding the bias that can occur with self-reports. Using external evaluations of video clips offers a reliable way to assess CEO traits directly and subtly (*Figure 1* and *Figure 2*).

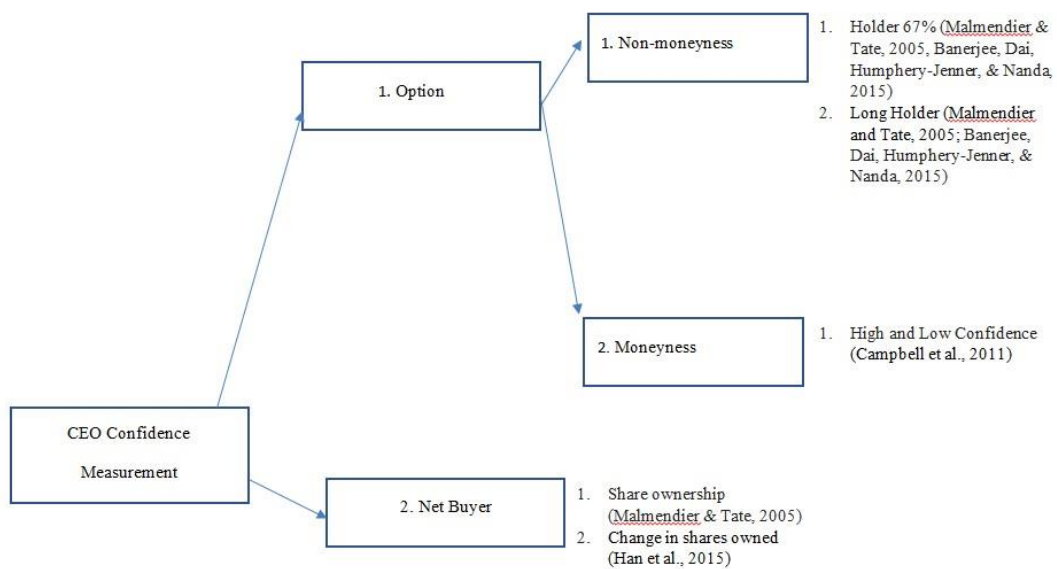


Figure 1. CEO Confidence Measurement 1 based on prior researches.

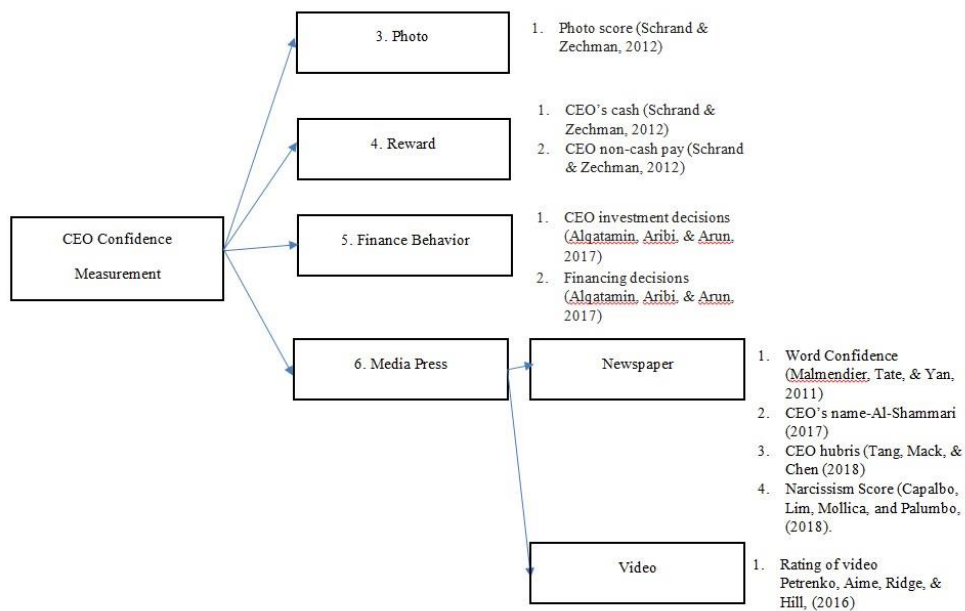


Figure 2. CEO Confidence Measurement 2 based on prior researches.

Conclusion

The paper discusses all the CEO confidence measurement measurements based on prior research. The CEO confidence measurement can be divided into six categories, which are based on the option, net buyer, photo, reward, finance behavior and media press. Future research can suggest categories other than the six mentioned in this paper.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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