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# Attractive Investments: The Impact of CEO Facial Attractiveness on Risky Corporate Policies and Company Risk

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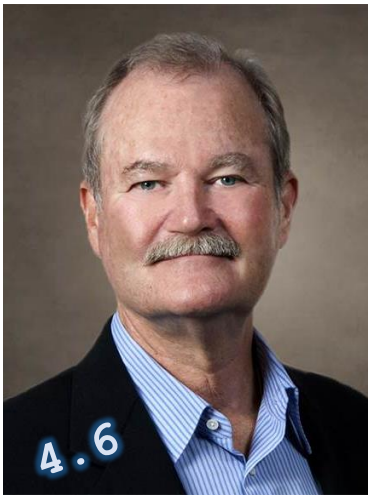


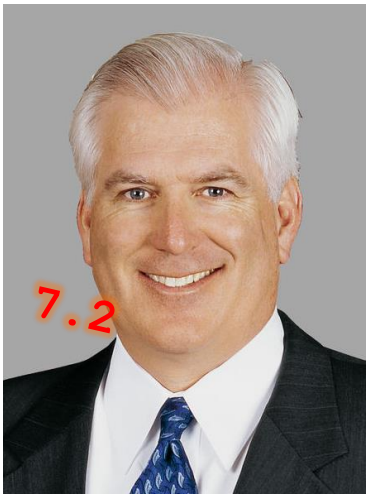


# ATTRACTIVE INVESTMENTS: THE IMPACT OF CEO FACIAL ATTRACTIVENESS ON RISKY CORPORATE POLICIES AND COMPANY RISK

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## ABSTRACT

My thesis seeks to explore the associations between CEO facial attractiveness and company financial characteristics including risk and performance. My work builds on prior research regarding attractiveness, overconfidence, CEO compensation, and company performance to contextualize these associations. Prior research suggests that attractive people are treated differently throughout their lives, which results in different behaviors—namely overconfidence. Overconfident CEOs have been found to significantly increase the riskiness of their companies. I hypothesize that attractive CEOs tend to be more overconfident than less-attractive CEOs, which correlates to risk-taking and weaker company performance. Using an online AI-based model, I measure the facial attractiveness of CEOs from half of the firms listed in the S&P 500 and create regression models to test the statistical significance of facial attractiveness against accounting performance, financial, compensation, and risk-taking variables. The data support my hypothesis to an extent, but further experimental research is needed to determine the causality of CEO facial attractiveness.

## LITERATURE REVIEW

Behavioral finance has broadened the scope of finance to include ideas from cognitive psychology and sociology to better understand how we think and—perhaps more importantly—how we invest. Prior research shows that physical attractiveness is a human attribute that we consistently make judgments on; physically attractive people are perceived as more intelligent, are treated more favorably in schools, are paid higher salaries, and marry more attractive and richer spouses. Not only are more attractive people favored by society; they behave differently. This fascination with beauty has seeped into finance and how we understand investing, prompting research on CEO attractiveness and its impacts. Studies have linked attractive CEOs to higher stock returns, but the underlying reason for attractive CEOs' successes is still unclear.

### Behavioral Finance

Modern finance assumes the market is driven by rational decision making; investors will favor securities with higher returns and lower risk, management will approve projects with positive net present values, etc. This assumption makes financial calculations and theories straightforward, but it is not realistic. Market activity is caused by human behavior, which can certainly be rational at times, but can also be irrational. The study of behavioral finance was born from this notion: sometimes the market acts irrationally and can be explained by human behavior. Behavioral finance incorporates aspects from cognitive psychology and finance to better understand why irrational financial decisions are made (Ritter, 2003).

Since human behavior is complex, behavioral finance has mapped out a plethora of attributes that impact human decision making and may cause irrationality. Behavioral finance researchers have studied the relationship between human attributes and financial outcomes, and some researchers have found statistical significance for even the most outlandish attributes. For

example, researchers in a 2015 study found a significant relationship between a CEO's astrological sign and their firm's capital structure and financial performance (Kuo & Wang, 2015). Astrology is widely disregarded as fiction, yet the research concluded that CEOs of different astrological signs tend to make different financial decisions; a greater proportion of Virgo CEOs are in low-leverage firms, a greater proportion of Leo CEOs are in high-leverage firms, and air-sign CEOs are more averse to financial leverage. This type of research can probably be disregarded as fluff, but it illuminates the relevance of human—and fictional—attributes that would otherwise be ignored by modern finance. Behavioral finance positively contributes to our understanding of finance, but it opens the door to an endless amount of research to understand how countless factors impact decision making. Since it would be unreasonable to compile a list of all relevant factors and statistically determine their impact in finance, my research will focus only on one: physical attractiveness.

## Beauty Bias

Beauty is often thought of as subjective, that different people have varying tastes on what they consider attractive, but society tends to evaluate beauty based on a set of features; men with broader chins and defined brow bones are considered more attractive, as are women with smooth skin and high cheekbones (Fink & Neave, 2005). Beauty bias, or "lookism", privileges the people deemed attractive and oppresses the unattractive. Even though many want to be that "it's what's on the inside that counts", our society promotes beauty. As evidence, the beauty industry exists to make people look more beautiful and attractive; if looks truly had no value, there would be no demand for cosmetics (Yonce, 2014). The existence of the beauty industry affirms the relevance of lookism, which has critical—and largely undiscussed—effects.

### *How attractiveness is determined*

While beauty is subjective to an extent, there are certain facial and body features that people consistently find attractive. Symmetrical faces and bodies, youthfulness, low body mass indices, exaggerated traits characteristic of one's gender, clear skin, and body scent all contribute to a person's attractiveness (Smith, 2018). Non-physical traits like personality also contribute to one's attractiveness; in terms of the Big Five personality traits, high conscientiousness, high agreeableness, low neuroticism, high openness, and high extraversion all bolster attractiveness. Generally, these attractiveness factors hold weight regardless of culture (Smith, 2018). In fact, even infants can distinguish attractive and unattractive faces; infants were shown attractive symmetrical faces and unattractive faces side by side, and they spent significantly longer looking at the attractive face (Slater, 2000). This implies that there are innate components to how attractiveness is determined, and it is not just based on cultural and societal preferences.

***Societal benefits to attractive people***

Lookism, the discrimination on the basis of physical attractiveness, provides benefits to the people on top (attractive people) and oppresses those on the bottom (unattractive people) (Yonce, 2014). Since attractiveness is not contingent on sexual attraction, but rather what humans innately and culturally find beautiful, people start to reap the benefits of being attractive as early as childhood. A meta-analysis performed by Jackson, Hunter, and Hodge found that attractive children have more favorable educational experiences than their less attractive peers; attractive children are given more support when they are struggling and more encouragement when they succeed. Given their privileged education, the attractive children become more intellectually competent than less attractive children (1995). The meta-analysis also found that educators and others perceive attractive children and adults as more intellectually competent than their peers, even if they are not. No actual difference in competence was found between

attractive and unattractive adults, but the more attractive adults were nevertheless perceived as more intellectually competent. Interestingly, the meta-analysis also discovered a disparity between males and females; being physically attractive had a stronger impact on males than on females (Jackson, Hunter, and Hodge, 1995).

### *Societal costs to unattractive people*

While attractive children and adults are systematically perceived as intellectually superior, the reverse holds true for unattractive children and adults. In early education, unattractive children are more likely to be punished for misbehavior, receive less encouragement when they are struggling with schoolwork, and get less praise when they succeed (Jackson, Hunter, and Hodge, 1995). In adulthood, despite there being no significant difference in intellectual competence, unattractive people tend to be perceived as intellectually inferior to attractive adults. The difference in treatment produces clear short-term impacts, such as disparate school grades and educational attainment, and long-term impacts on how attractive and unattractive people behave.

### *Overconfidence*

People are treated consistently treated differently based on their physical attractiveness, which alters their behavior. Most notably, attractive people are much more confident than their counterparts. A study by Judge, Hurst, and Simon (2009) identified associations between general mental ability, physical attractiveness, core self-evaluations, and educational attainment with income. The study found that being physically attractive increases one's educational attainment and core self-evaluations (confidence), thus increasing their income. The researchers reasoned that by receiving better treatment and embodying "beautiful" traits, physically attractive people think more highly of their worth and capabilities. However, the effects of general mental ability

on income are stronger than the effects of physical attractiveness. Being physically attractive has a significant impact on how people think of themselves and therefore how they act; this makes physical attractiveness relevant to behavioral finance and understanding why people make certain decisions.

## Physical attractiveness and business

Physical attractiveness is valued by society and is innately recognized by humans (Slater, 2000). It follows that physical attractiveness is relevant in the world of business; even though business ought to be driven by rationality, it is influenced by biases. In the workplace, attractive people are paid a higher salary, are more likely to be hired, are more likely to be funded by venture capital investors, are promoted more often than their peers, and are less likely to be fired.

### *Hiring and firing*

Regarding job attainment and retainment, attractive people tend to be better off. A field experiment in China used resumés attached with pictures of applicants of varying attractiveness and applied online to fifteen types of jobs; the experiment found attractive applicants are offered more interview opportunities in the labor market, and the effects manifest differently for men and women (Deng et al., 2019). Attractive men more likely to be offered an interview, and men can mitigate appearance discrimination by improving their educational credentials. Unattractive women, on the other hand, are more likely to experience discrimination, even if they have superior educational credentials. Not all research agrees that attractiveness is important for *all* jobs. A 1982 experiment concluded that attractive applicants are at an advantage for jobs in which looks are an asset, like customer-facing sales roles (Beehr and Gilmore). Nonetheless, applicant attractiveness appears to be a relevant factor in selection.

Just as attractive applicants are more likely to be hired, attractive employees are less likely to be fired. An experiment in which college students role-played as employers reviewing fiction employees' poor performance reviews found biased treatment of unattractive employees. The unattractive employees were somewhat more likely to be fired than average-looking and attractive employees (Commisso and Finkelstein, 2012). Beauty is clearly an asset as a worker; it expands job opportunities and reduces the threat of being fired.

***Beauty premium***

Lookism manifests as societal benefits to attractive people and disadvantages to unattractive people, but the effects are also tangible—and monetary: "even accounting for intelligence, one's income prospects are enhanced by being good-looking" (Judge et al., 2009). The beauty premium is present, even in environments in which talent and skill are measurable and objective: sports. A 2014 study of professional women's golf revealed that, on average, attractive female golfers recorded below average scores, yet they earn more prize money (Ahn and Lee, 2014). Therefore, it can be inferred that—regardless of skill—discrimination exists that results in higher pay for prettier people.

Even though beautiful people tend to be paid more regardless of skill, research suggests that beauty also positively relates to skill. Because beautiful people are treated more favorably throughout their lives, they are given more opportunities, and this impacts their behavior. For example, attractive people often have better social skills than less attractive people. In a 1977 experiment, college students had blind phone calls with other students, recorded the other's social skill, anxiety, liking, and desirability for future interactions, then each student was rated for physical attractiveness by three observers. The results found that physically attractive students were rated as more likeable and socially skillful than unattractive students (Goldman

and Lewis, 1997). This suggests that attractive people are not just perceived as better than their counterparts; in some instances, they *are*.

Physically attractive people enjoy higher incomes than average-looking and unattractive people, likely due to a combination of discrimination and how beautiful people behave. A 1993 study analyzed the physical attractiveness and income of 700 men and 409 women, finding that the premium for being good-looking existed for both genders (Biddle). Although the beauty premium is well-documented and—at this point—empirically valid, not much has been done to combat it, and it has been stable for a long time. A study using samples in Australia from 1984 to 2009 found that the beauty premium existed in the country, but over the 30 years of data, it did not change much (Borland and Leigh, 2014). The beauty premium reliably benefits beautiful men and women across the world, but it is a difficult issue to address. To implement laws that protect unattractive people from discrimination, there must be objective criteria for physical attractiveness. Also, people would need to assert their own unattractiveness to get protection under these laws—something few would want to do. The beauty premium thus seems likely to continue indefinitely unless societies consciously discuss lookism and its effects.

### *Investment decisions*

It is not intuitive that looks would impact investing decisions, but they do. Investors in entrepreneurial settings are swayed by attractiveness—particularly attractive men. A 2014 study of three entrepreneurial pitch competitions found that investors prefer pitches from men over pitches from women and physically attractive men were most favored overall (Brooks et al., 2014). People investing in entrepreneurs are taking large risks, so they should be making rational decisions to maximize their returns. If the investors truly are being rational, that means that the attractive men simply had better pitches, but that is not true; attractive men were still favored

when they and an unattractive person were giving an identical pitch. So, even in situations when investors are making risky investments, they are still perceiving attractive people as more worthy of receiving their investment. Attractiveness impacts investing, even on a much larger scale.

Stock market investors favor attractiveness and are willing to pay more for a company's stock if they have an attractive CEO. In a study involving 667 CEOs in the S&P 500, there was a positive correlation between a new CEO's facial attractiveness and stock returns around their job announcement; a "Facial Attractiveness Index" increase of 10% results in a 1.27% increase in stock returns from five days before the CEO announcement to five days after (Halford and Hsu, 2020). Since this was not conducted in a controlled experimental setting, it is unclear whether the higher stock returns are attributable to pro-pretty discrimination or the capability of attractive CEOs. However, prior research strongly suggests that—controlling for capability, skill, or intelligence—attractive people are granted preferential treatment.

***Gender disparities –the "femme fatale" effect***

Despite prior empirical support in the literature for the beauty premium and lookism, there are different effects on men and women. While men can enjoy the perks of the beauty premium, women sometimes suffer from a beauty *penalty*. In a study of 198 male and female leaders, attractiveness was negatively correlated with perceived truthfulness when delivering negative news for females, but not for males (Sheppard and Johnson, 2019). The authors found that this 'femme fatale' effect was derived from sexual insecurity; subordinates feel that the female leader may use her feminine wiles and beauty to manipulate others and serve her own self-interests.

Another possible reason for women having different experiences with beauty are the perceptions of other women. In a 2018 experiment, researchers observed how women perceive

other women who enhance their appearances (DelPriore, Bradshaw, and Hill, 2018). The experiment found that women perceived women who use cosmetics to enhance their appearance more negatively. Both men and women seem to have some prejudice against attractive or cosmetically enhanced women, which shrinks the beauty premium for women.

### *Relevance for CEOs*

When using physical attractiveness as a lens to compare firms, it is intuitive to compare the physical attractiveness of CEOs. The beauty premium is widely acknowledged, and it has been found to be applicable to CEOs as well. Halford and Hsu's study, mentioned earlier, found in their study of 667 CEOs that physically attractive CEOs receive higher compensations than average-looking and unattractive CEOs (2020). Another recent—but more expansive—study focused solely on the connection between CEO facial attractiveness and compensation collected data on 861 CEOs over ten years. It found an economically significant effect of facial attractiveness on compensation, further bolstering the documentation of the beauty premium (Li, Carmen Triana, Byun, and Chapa, 2020). While the study backed up the existence of the beauty premium, it challenged the effect gender has on physical attractiveness and compensation; men and women alike experienced increased compensation with attractiveness.

While research has found relationships between CEOs and how they are perceived (investors boosting stock prices when an attractive CEO is announced, CEOs paid more favorably when they are attractive, etc.), there is little prior research on how attractive CEOs behave differently than their less attractive counterparts and, in turn, affect the corporate policies and risk-return profiles of their firms.

## Physical attractiveness and CEO risk taking

Attractive people tend to think more highly of themselves (Judge et al., 2009), which intuitively leads to attractive people behaving differently. While there is not yet research connecting CEO physical attractiveness to behaviors impacting the business, assumptions can be made based on previous research. Gorlin's 2015 study discovered the impact of self-perceived attractiveness and decision making and consumer choices: when consumers' perception of their own attractiveness is boosted, they more confidently make decisions that are more extreme; in situations when consumers feel less confident and less attractive, they make safe and default choices. The study further found that when consumers feel more physically attractive and make confident extreme choices, they are worse at planning. Their overconfidence outweighs rationality, and they believe they can finish a task with much less time and planning than it would reasonably require. Overall, when a person is physically attractive and confident, they are highly optimistic about their future and do not always consider the effort necessary to achieve that future. If physically attractive CEOs act similarly, this would lead to riskier extreme decision making for the company and the expectation of riskier projects to have higher net present values to justify their decisions. While physical attractiveness has not been tied to CEO behaviors, overconfidence *has*. Since physical attractiveness is positively related to confidence, there is an implied connection between beauty and behavior.

***Overconfidence and riskier investments***

Prior research demonstrates that CEOs who are overconfident indeed overestimate the returns of their investments and make riskier decisions, but their behavioral is conditional. A 2005 study on CEO overconfidence and investment decisions discovered that investment decisions are linked to the CEO's physical attractiveness as well as the company's cash flows (Malmendier and Tate). If a company has sufficient cash flows and can comfortably fund

projects with internal financing, the overconfident CEO will opt for riskier investments. However, if internal financing is impossible and capital would need to be raised, the overconfident CEO opts to fund no projects at all. Raising capital—especially via equity—is a problem for overconfident CEOs, because they believe the market consistently undervalues their company, and that selling shares at a low price to fund projects would be a poor decision. In general, companies tend to prioritize internal financing anyway, but this behavior is exaggerated with overconfidence.

## HYPOTHESIS

Based on previous literature, there is evidence of CEO physical attractiveness indirectly impacting corporate risk policy and company riskiness. In particular, prior research identifies significant associations between physical attractiveness and confidence (Judge, et al., 2009), and between CEO overconfidence and investment risk (Malmendier and Tate, 2005). However, no study has directly linked the physical attractiveness of a CEO to their company's risk policy and the riskiness of investments. The purpose of my thesis is to fill this gap.

**Hypothesis: Attractive CEOs inherently behave differently than less attractive CEOs, and they implement risky corporate policies, largely due to overconfidence.**

## METHODS

### Sample and data

Facial attractiveness measures were gathered from CEOs from S&P 500 firms. From those 500 firms, every other firm's CEO was selected to be part of the sample; data were gathered on

250 CEOs. Data for the accounting, financial, performance, compensation, and risk variables were gathered with t=0 of 2018, so the companies' CEOs as of 2018 were selected.

To find images for the CEOs in the sample, I searched Google Images and saved three pictures of each selected CEO. In a few instances, only one or two satisfactory pictures were found. For each CEO, I searched "2018 CEO headshot *first and last name of CEO*" and saved three unique headshots. To be included, the pictures needed to be good quality, show the CEO facing the camera straight-on, and clearly show the CEO's entire face.

The research paper written by Halford and Hsu (2020), which my research is built on, used a free software named "Anaface" to score the facial attractiveness of CEOs in their sample, but that software was unavailable for use. To mimic their method of scoring facial attractiveness, I sought out other computer-based scoring methods and found attractivenesstest.com. This website uses "a customized deep learning model, based on a pre-trained ResNet-50 architecture which is finetuned with a dataset of hand-labeled photos. A second Neural Network locates the faces, crops it, and transforms a bit, to make the input images consistent with [their] training dataset" (attractivenesstest.com, 2022). The average score of the three headshots was used as each CEO's facial attractiveness score.

The CEO facial attractiveness scores and 2018 firm data were input into SAS, where the firms were matched with CEO based on CUSIP. The regression models were created in Stata.

## Variables and measures

### *Independent variables*

To test my hypothesis, I ran regressions across a few categories of variables: accounting variables, financial variables, compensation variables, and risk variables. The independent variables are listed below.

- Accounting
  - Net income/sales
  - OIBDPAT
  - EBIT/total assets
- Financial
  - ROA
  - Debt ratio
  - HHI
  - SGA ratio
- Compensation (all variables logged)
  - CEO cash compensation
  - Vega
  - CEO total compensation
  - Delta
  - CEO equity-related compensation
- Corporate risk policies
  - Interest coverage
  - Debt ratio
  - SGA ratio
- Company risk
  - Monthly idiosyncratic risk
  - Monthly variance
  - Monthly beta
  - Debt beta
  - Asset beta
  - Standard deviation of ROA
  - Standard deviation of net income/sales
  - Market-adjusted stock return (prior 3 years)
  - Market-adjusted stock return (prior 2 years)

***Dependent variable***

CEO facial attractiveness is the dependent variable in the statistical regressions (Tables 3-11).

***Control variables***

Each regression model compared the given independent variable to the CEOs' facial attractiveness measures and selected variables relevant to risk, which were firm size, HHI, debt ratio, and log of delta. However, these models were incomplete without the inclusion of other CEO characteristic variables: age and tenure. CEO age and tenure have often been used in previous

research as control variables related to CEO characteristics and company risk, so they are included in the models as well (Al Shammari, 2018).

## ANALYSIS AND RESULTS

### Overview

The statistical regression models (Table 1-11) demonstrate that attractive CEOs are more likely to be associated with weaker company performance, riskier corporate policy, and less company risk. There are no significant associations between CEO facial attractiveness and compensation.

### Accounting

Accounting variables included in the regression models reflect the firms' income (net income per sales and OIBDPAT) and the income as a function of total assets (EBIT/total assets). In relation to risk, measuring these accounting performance variables against facial attractiveness are helpful in determining the effect of changing risk. If an attractive CEO is indeed riskier and the firm's income performance increases, then perhaps the CEO is not overconfident and is truly a more competent leader than less attractive CEOs. On the other hand, if attractive CEOs have higher risk and produce weaker firm perform, it can be inferred that they are more overconfident and less competent.

The regression model Table 2 shows the three accounting performance variables against facial attractiveness and the other risk-related variables. Interestingly, there is a significant relationship between facial attractiveness and firm income and income/total assets. However, the relationship is negative; more attractive CEOs tend to be associated with lower operating income and lower income as functions of sales and assets.

When CEO tenure and age are added to this regression model, the significance of facial attractiveness persists and cause greater shifts in firm income and EBIT/total assets. Furthermore, neither CEO tenure nor age have significant effects on accounting performance. In all, the more attractive CEOs are associated with weaker company performance.

**Financial**

Financial variables in the regression models include return on assets, debt ratio, HHI and SGA ratio. In both regression models, attractiveness is negatively related to HHI and return on assets. These findings imply attractive CEOs tend to be in more competitive industries and earn lower returns than competitors.

Of the financial variables, only debt ratio had an insignificant relationship with facial attractiveness; the others show attractive CEOs associated with riskier investments and weaker returns. First, there is a significant negative relationship between facial attractiveness and return on assets, with more attractive CEOs reaping lower returns. Second, the negative relationship between facial attractiveness and HHI shows attractive CEOs being more common in more competitive—and likely riskier—industries. Finally, the positive relationship between facial attractiveness and SGA ratio shows attractive CEOs spending more capital on sales and advertising; a decision that does not tend to pay off, considering weaker returns on assets. Drawing on the negative relationship with HHI, all these relationships make sense. If a company is competing in an intense competitive landscape, it is viable for the CEO to push for more advertising spending to stand out in a crowded industry. The same company would likely need to accept lower return on assets. At the same time, HHI does not have significant relationships with neither return on assets nor SGA ratio, so shifts in those variables might be more attributable to facial attractiveness.

Controlling for CEO tenure and age, the negative relationships of facial attractiveness with return on assets and HHI remain, but SGA ratio has a stronger relationship with CEO age. This is seen in Table 6, which supports the hypothesis; attractive CEOs seem to prefer more competitive industries, which suggests more risk.

**Compensation**

Although prior research has found significant relationships between CEO attractiveness and compensation, that is not found in the regression models represented in Tables 7 and 8.

**Risk-taking**

Observing risk variables related to equity, debt, and cash flows, significant relationships are found between CEO facial attractiveness and interest coverage and standard deviation of net income per sales. Somewhat contradictory to my hypothesis, attractive CEOs are correlated with less variance in net income per sales, even when controlling for firm size. This implies that attractive CEOs' leadership, risky or not, stabilize their firms' profits. However, the significant negative relationship between facial attractiveness and interest coverage tells another story. Attractive CEOs tend to have less ability to fulfill debt obligations, which certainly increases company risk.

**Stock performance**

Market-adjusted stock return over the prior two and three years are significantly and negatively related to CEO facial attractiveness. This bolsters the argument that attractive CEOs have less ability than their less attractive peers to aid company performance, but it contradicts the study done by Halford and Hsu, which found that around the announcement of a new CEO, attractive CEOs garnered higher abnormal stock return for their firm. My research does not account

for when a new CEO was announced; it compares previous stock performance to current CEO facial attractiveness.

## DISCUSSION, LIMITATIONS, AND CONCLUSIONS

The goal of my research was to find a relationship between CEO facial attractiveness and risk. Through the analysis of 250 CEOs, I found attractive CEOs associated with weaker company performance, riskier corporate policies, and less company risk.

### Company performance

I hypothesized attractive CEOs would be overconfident and make riskier decisions, leading to weaker company performance, and I found attractive CEOs consistently associated with weaker company performance. Attractiveness is negatively related to market-adjusted stock performance, income, and income per sales and assets. At first, I thought these relationships may be caused by attractive CEOs being more common at smaller firms (see Firm size in Table 2). However, firm size is a control variable in all regression models; when compared to companies with similar revenue, attractive CEOs lead underperforming companies.

This performance difference is backed by prior research. Attractive people are perceived as more competent than their unattractive peers (Jackson, Hunter, and Hodge, 1995). If two CEO candidates of identical competence and experience are considered for the position, the more physically attractive one may be seen as more competent, upping the candidate's chances of getting the job. In the pool of S&P 500 CEOs, some may have leveraged their good looks to reach their current position, but the less attractive CEOs likely relied more heavily on their skills and experiences. The negative relationship between facial attractiveness and company performance implies attractive CEOs are less competent than their peers. Good looks may have aided some in getting their jobs, but have hampered the ability of CEOs to fulfill their responsibilities.

## Risk

Attractive CEOs were found to be less competent leaders than their peers, but there is not a clear association with increased risk. For riskiness, there were two variables that had significant relationships with facial attractiveness (standard deviation of net income per sales and interest coverage), but they tell different stories. On one hand, attractive CEOs are linked to lower standard deviation of net income per sales, meaning they might be better at stabilizing their company's income. On the other hand, attractive CEOs with companies that have less interest coverage. Further research is needed to identify the effect of CEO facial attractiveness.

### *Risky corporate policies*

Interest coverage is the only variable pertaining to risky corporate policy and significantly related to CEO facial attractiveness. The more attractive CEOs tend to be associated with less interest coverage (Table 9), so their companies have less ability to pay back their debt. By inference, this could mean that the more attractive CEOs are more confident in their ability to earn higher returns on debt and pay it back with less coverage. I could also infer that attractive CEOs are simply more comfortable with less interest coverage and assume their company will be fine. Either way, this significant relationship backs up the notion that attractive people are more confident than others and are more comfortable with risk. However, this was the only metric that had a significant relationship with facial attractiveness; while it supports my hypothesis, it does not provide a strong argument.

### *Company risk*

Although attractive CEOs are associated with worse performance and potentially riskier decisions, they do not significantly affect the risk outcomes of their companies. Rather, attractive CEOs might bring stability to cash flows. CEO facial attractiveness is significantly and negatively

associated with the standard deviation of net income per sales (Table 11). In other words, the more attractive CEOs—even with weaker performance and possibly riskier decision-making—tend to earn net income per sales more reliably.

**Overconfidence**

Overconfidence cannot serve as a suitable explanation to the murky relationship between CEO facial attractiveness and risk, but it can help explain the weaker company performance. From a young age, attractive people are treated superiorly to their peers, which alters their perceptions of themselves and allows them to be overconfident (Judge et al., 2009). Even if attractive CEOs' decisions are not necessarily riskier than their peers', they are worse. Given the research indicating society's preference for good looks, it is unlikely that a company's suppliers, buyers, and investors would punish a CEO for good looks and cause weaker performance. Therefore, the link between facial attractiveness and performance is likelier the fault of the CEO and their decisions. Overconfidence serves as a viable explanation for attractive CEOs making worse decisions.

**Limitations**

My research found interesting relationships between CEO facial attractiveness and company performance, but it is limited in scope and accuracy. First, additional CEO characteristics could have been added as control variables. CEO tenure and age are commonly used to define risky behavior, but sex is also relevant. Prior research finds men and women are affected by attractiveness differently, with men consistently enjoying a beauty premium and women sometimes suffering a beauty penalty. It would be interesting to see if attractive men and attractive women CEOs significantly affect their companies' performance and risk. Even if sex was included as a control variable in the regression models, the results would be inconclusive, because only about ten of the CEOs from the sample are women. Second, the nature of this research cannot

determine facial attractiveness as the cause of company risk or performance. Experimental research is needed to get a better idea of the effects of CEO facial attractiveness. Finally, the methods for determining CEO attractiveness are imperfect. Attractiveness is not just based on a computer program's score of the face, but rather body shape, height, scent, and nonphysical characteristics than cannot be measured through an image, such as likeability, charisma, and the Big Five personality traits. A more robust attractiveness scoring model would take these into account, maybe by having human participants interact directly with CEOs and then rate their attractiveness. However, given the obligations of CEOs and the coordination this would require, it is not feasible to measure attractiveness in this way.

**Conclusion**

In the end, the research I conducted does not support all parts of my hypothesis. The statistical regressions failed to show a consistent and significant relationship between CEO facial attractiveness and risk. Instead, I found a negative relationship between CEO facial attractiveness and company performance. This may be caused by attractive and unattractive CEOs behaving differently, which aligns with prior research. However, this relationship may be caused by something other than the CEO themselves and experimental research is needed to find the behavioral effects of CEO facial attractiveness. Through inference, however, it seems that attractive CEOs are less competent than their peers and overconfident in their abilities.

## APPENDIX

**Table 1 – Summarization of variables of interest**

| VARIABLES | Observations | Mean | Standard deviation | Min | Max |
|---|---|---|---|---|---|
| Facial attractiveness | 250 | 6.125233 | 0.4235868 | 5.16 | 7.01 |
| Net income | 249 | .0739529 | .07405 | -.1060777 | .3266603 |
| OIBDPAT | 235 | .1428566 | .086364 | .0154212 | .4260942 |
| EBIT/total assets | 249 | .1069905 | .0810723 | -.0116466 | .4008307 |
| Return on assets | 249 | .0728317 | .0751433 | -.1163808 | .3989178 |
| HHI | 249 | .1470943 | .1424745 | .0228613 | .6837702 |
| Vega | 227 | 224.7489 | 334.6971 | 0.00 | 1573.692 |
| Standard deviation of net income | 247 | .0375014 | .0374035 | .0017685 | .2031019 |
| Market-adjusted stock return (prior 2 years) | 247 | -.0370151 | .3578911 | -.7931571 | 1.282753 |
| Market-adjusted stock return (prior 3 years) | 247 | -.0308753 | .3521248 | -.7786448 | 1.282753 |
| Interest coverage | 215 | 18.25383 | 29.07563 | 1.619072 | 196.2184 |

**Table 2 – Determinants of facial attractiveness**

| VARIABLES | (1)<br>Facial attractiveness |
|---|---|
| Net income/sales | 0.121 |
| | (3.401) |
| OIBDPAT | -2.098 |
| | (1.472) |
| EBIT/total assets | 2.118 |
| | (1.828) |
| Return on assets | -0.615 |
| | (3.407) |
| HHI | -0.162 |
| | (0.220) |
| Vega | 0.000250*** |
| | (8.61e-05) |
| Standard deviation of net income/sales | -0.731 |
| | (0.912) |
| Market-adjusted stock return (prior 2 years) | -0.345 |
| | (0.428) |
| Market-adjusted stock return (prior 3 years) | 0.243 |
| | (0.447) |
| Interest coverage | -0.00144 |
| | (0.00115) |
| High tech | 0.192** |
| | (0.0818) |
| CEO tenure | 0.00581 |
| | (0.00545) |
| CEO age | -0.0192*** |
| | (0.00568) |
| Firm size | -0.0743** |
| | (0.0334) |
| Constant | 8.050*** |
| | (0.446) |
| Observations | 180 |
| R-squared | 0.209 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 3 – Accounting performance**

| VARIABLES | (1) Net income/sales | (2) OIBDPAT | (3) EBIT/total assets |
|---|---|---|---|
| Facial attractiveness | -0.0279** | -0.0384*** | -0.0319** |
| | (0.0117) | (0.0141) | (0.0127) |
| Firm size | -0.00255 | -0.0102* | -0.00671 |
| | (0.00491) | (0.00575) | (0.00532) |
| HHI | -0.00389 | 0.0100 | 0.0439 |
| | (0.0339) | (0.0400) | (0.0368) |
| Debt ratio | 0.0178 | 0.0952*** | 0.0660** |
| | (0.0259) | (0.0309) | (0.0281) |
| log Delta | 0.0121*** | 0.0101** | 0.0104*** |
| | (0.00323) | (0.00388) | (0.00350) |
| Constant | 0.189** | 0.390*** | 0.280*** |
| | (0.0907) | (0.108) | (0.0984) |
| Observations | 223 | 211 | 223 |
| R-squared | 0.081 | 0.104 | 0.092 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 4 – Accounting performance with CEO tenure and age**

| VARIABLES | (1) Net income/sales | (2) OIBDPAT | (3) EBIT/total assets |
|---|---|---|---|
| Facial attractiveness | -0.0276** | -0.0395** | -0.0316** |
| | (0.0132) | (0.0157) | (0.0145) |
| Firm size | -0.00240 | -0.0110* | -0.00604 |
| | (0.00536) | (0.00636) | (0.00586) |
| HHI | -0.00417 | 0.00626 | 0.0402 |
| | (0.0355) | (0.0421) | (0.0389) |
| Debt ratio | 0.0128 | 0.0859** | 0.0597* |
| | (0.0279) | (0.0334) | (0.0305) |
| log Delta | 0.0148*** | 0.0145*** | 0.0130*** |
| | (0.00422) | (0.00517) | (0.00461) |
| CEO tenure | -0.00113 | -0.00169 | -0.000864 |
| | (0.00112) | (0.00135) | (0.00122) |
| CEO age | 3.94e-05 | 0.000650 | -9.98e-05 |
| | (0.000976) | (0.00121) | (0.00107) |
| Constant | 0.177 | 0.356** | 0.270** |
| | (0.124) | (0.147) | (0.136) |
| Observations | 207 | 197 | 207 |
| R-squared | 0.083 | 0.108 | 0.087 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 5 – Financial performance**

| VARIABLES | (1) Return on assets | (2) Debt ratio | (3) HHI | (4) SGA ratio |
|---|---|---|---|---|
| Facial attractiveness | -0.0272** | 0.00459 | -0.0547** | 0.0519* |
| | (0.0119) | (0.0305) | (0.0230) | (0.0282) |
| Firm size | -0.00306 | 0.0106 | -0.00836 | -0.000764 |
| | (0.00498) | (0.0128) | (0.00979) | (0.0119) |
| HHI | -0.0115 | -0.0393 | | -0.154* |
| | (0.0344) | (0.0887) | | (0.0812) |
| Debt ratio | 0.0319 | | -0.0229 | -0.174*** |
| | (0.0263) | | (0.0517) | (0.0618) |
| log Delta | 0.0118*** | -0.00300 | 0.00220 | 0.0138* |
| | (0.00328) | (0.00845) | (0.00645) | (0.00775) |
| Constant | 0.188** | 0.195 | 0.562*** | -0.0749 |
| | (0.0921) | (0.237) | (0.177) | (0.215) |
| Observations | 223 | 223 | 223 | 186 |
| R-squared | 0.078 | 0.005 | 0.029 | 0.099 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 6 – Financial performance with CEO tenure and age**

| VARIABLES | (1) Return on assets | (2) Debt ratio | (3) HHI | (4) SGA ratio |
|---|---|---|---|---|
| Facial attractiveness | -0.0265* | -0.0118 | -0.0503* | 0.0361 |
| | (0.0135) | (0.0336) | (0.0261) | (0.0319) |
| Firm size | -0.00315 | 0.00257 | -0.00544 | -0.00224 |
| | (0.00546) | (0.0136) | (0.0107) | (0.0129) |
| HHI | -0.0103 | -0.0977 | | -0.156* |
| | (0.0362) | (0.0900) | | (0.0847) |
| Debt ratio | 0.0289 | | -0.0600 | -0.167** |
| | (0.0284) | | (0.0553) | (0.0662) |
| log Delta | 0.0147*** | 0.00722 | 0.00472 | 0.0194* |
| | (0.00430) | (0.0107) | (0.00839) | (0.0100) |
| CEO tenure | -0.00121 | -0.00505* | -0.000390 | 0.000832 |
| | (0.00114) | (0.00282) | (0.00223) | (0.00262) |
| CEO age | 8.65e-05 | -2.95e-05 | 0.000624 | -0.00511** |
| | (0.000993) | (0.00248) | (0.00194) | (0.00226) |
| Constant | 0.172 | 0.348 | 0.464* | 0.293 |
| | (0.127) | (0.315) | (0.246) | (0.291) |
| Observations | 207 | 207 | 207 | 171 |
| R-squared | 0.080 | 0.029 | 0.031 | 0.137 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 7 – CEO compensation**

| VARIABLES | (1)<br>log CEO<br>cash compensation | (2)<br>log Vega | (3)<br>log CEO<br>total compensation | (4)<br>log Delta | (5)<br>log CEO equity-<br>related<br>compensation |
|---|---|---|---|---|---|
| Facial attractiveness | -0.0557 | 0.347 | -0.136 | 0.280 | -0.0134 |
| | (0.0916) | (0.396) | (0.100) | (0.244) | (0.0457) |
| Firm size | 0.233*** | -0.101 | 0.280*** | 0.326*** | -0.0306 |
| | (0.0385) | (0.166) | (0.0421) | (0.101) | (0.0192) |
| HHI | 0.226 | 0.975 | -0.109 | 0.243 | -0.0979 |
| | (0.266) | (1.150) | (0.291) | (0.711) | (0.133) |
| Debt ratio | -0.0498 | 2.067** | -0.318 | -0.193 | -0.175* |
| | (0.203) | (0.877) | (0.222) | (0.542) | (0.101) |
| log Delta | -0.0895*** | 0.716*** | -0.0284 | | 1.000*** |
| | (0.0254) | (0.110) | (0.0277) | | (0.0126) |
| Constant | 5.511*** | -2.766 | 7.490*** | 1.045 | 4.807*** |
| | (0.712) | (3.076) | (0.778) | (1.901) | (0.355) |
| Observations | 223 | 223 | 223 | 223 | 223 |
| R-squared | 0.167 | 0.190 | 0.185 | 0.050 | 0.968 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 8 – CEO compensation with CEO tenure and age**

| VARIABLES | (1) log CEO cash compensation | (2) log Vega | (3) log CEO total compensation | (4) log Delta | (5) log CEO equity-related compensation |
|---|---|---|---|---|---|
| Facial attractiveness | 0.0780 | 0.433 | -0.0572 | 0.193 | 0.0156 |
| | (0.0959) | (0.437) | (0.100) | (0.221) | (0.0488) |
| Firm size | 0.214*** | -0.120 | 0.288*** | 0.378*** | -0.0221 |
| | (0.0389) | (0.177) | (0.0407) | (0.0858) | (0.0198) |
| HHI | 0.196 | 0.492 | -0.177 | 0.335 | -0.0963 |
| | (0.258) | (1.173) | (0.270) | (0.595) | (0.131) |
| Debt ratio | 0.0264 | 1.638* | -0.223 | 0.315 | -0.114 |
| | (0.202) | (0.920) | (0.212) | (0.466) | (0.103) |
| log Delta | -0.0861*** | 1.009*** | -0.0432 | | 0.960*** |
| | (0.0306) | (0.139) | (0.0320) | | (0.0156) |
| CEO tenure | -0.00114 | -0.113*** | 0.0133 | 0.149*** | 0.0139*** |
| | (0.00811) | (0.0369) | (0.00849) | (0.0155) | (0.00412) |
| CEO age | 0.0207*** | 0.0272 | 0.0106 | -0.0321** | 0.000301 |
| | (0.00707) | (0.0322) | (0.00741) | (0.0162) | (0.00360) |
| Constant | 3.686*** | -5.541 | 6.329*** | 1.785 | 4.664*** |
| | (0.903) | (4.111) | (0.945) | (2.082) | (0.459) |
| Observations | 207 | 207 | 207 | 207 | 207 |
| R-squared | 0.197 | 0.239 | 0.240 | 0.363 | 0.970 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 9 – Risky corporate policies**

| VARIABLES | (1) Interest coverage | (2) Debt ratio | (3) SGA ratio |
|---|---|---|---|
| Facial attractiveness | -9.671* | -0.0118 | 0.0361 |
| | (4.954) | (0.0336) | (0.0319) |
| Firm size | -1.728 | 0.00257 | -0.00224 |
| | (2.067) | (0.0136) | (0.0129) |
| HHI | -1.310 | -0.0977 | -0.156* |
| | (13.11) | (0.0900) | (0.0847) |
| Debt ratio | -69.73*** | | -0.167** |
| | (10.98) | | (0.0662) |
| log Delta | 1.672 | 0.00722 | 0.0194* |
| | (1.629) | (0.0107) | (0.0100) |
| CEO tenure | -0.444 | -0.00505* | 0.000832 |
| | (0.429) | (0.00282) | (0.00262) |
| CEO age | -0.00672 | -2.95e-05 | -0.00511** |
| | (0.376) | (0.00248) | (0.00226) |
| Constant | 110.7** | 0.348 | 0.293 |
| | (46.32) | (0.315) | (0.291) |
| Observations | 182 | 207 | 171 |
| R-squared | 0.206 | 0.029 | 0.137 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 10 – Company Risk**

| VARIABLES | (1) Monthly idiosyncratic risk | (2) Monthly variance | (3) Monthly beta | (4) Debt beta | (5) Asset beta |
|---|---|---|---|---|---|
| Facial attractiveness | -0.00139 | -0.000171 | 0.0255 | 0.0168 | -0.0639 |
| | (0.00392) | (0.000833) | (0.129) | (0.0174) | (0.0589) |
| Firm size | -0.00498*** | -0.000727** | 0.00895 | 0.0228*** | -0.0148 |
| | (0.00160) | (0.000341) | (0.0528) | (0.00707) | (0.0239) |
| HHI | 0.000619 | -0.000331 | 0.221 | -0.0624 | -0.0776 |
| | (0.0105) | (0.00224) | (0.346) | (0.0467) | (0.158) |
| Debt ratio | 0.00657 | 0.000399 | | | |
| | (0.00832) | (0.00177) | | | |
| log Delta | 0.000215 | 0.000523* | 0.0815* | -0.0253*** | 0.0705*** |
| | (0.00126) | (0.000268) | (0.0414) | (0.00555) | (0.0188) |
| CEO tenure | 0.000455 | 7.86e-05 | 0.00686 | 0.000210 | 0.0107** |
| | (0.000333) | (7.08e-05) | (0.0109) | (0.00146) | (0.00494) |
| CEO age | -0.00132*** | -0.000228*** | -0.000162 | 0.00112 | -0.0113*** |
| | (0.000291) | (6.20e-05) | (0.00960) | (0.00129) | (0.00435) |
| Constant | 0.189*** | 0.0232*** | 0.101 | -0.190 | 1.494*** |
| | (0.0370) | (0.00788) | (1.215) | (0.164) | (0.553) |
| Observations | 205 | 205 | 205 | 207 | 207 |
| R-squared | 0.158 | 0.119 | 0.048 | 0.158 | 0.173 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Table 11 – Company Risk (continued)**

| VARIABLES | (1) Standard deviation of return on assets | (2) Standard deviation of net income/sales | (3) Market-adjusted stock return (prior 3 years) | (4) Market-adjusted stock return (prior 2 years) |
|---|---|---|---|---|
| Facial attractiveness | -0.00580 | -0.0117* | -0.141** | -0.161** |
| | (0.00486) | (0.00642) | (0.0622) | (0.0634) |
| Firm size | -0.00380* | -0.00727*** | -0.0531** | -0.0510* |
| | (0.00197) | (0.00263) | (0.0255) | (0.0260) |
| HHI | -0.0106 | -0.0147 | 0.119 | 0.0618 |
| | (0.0131) | (0.0173) | (0.167) | (0.170) |
| Debt ratio | 0.0191* | 0.0139 | 0.166 | 0.153 |
| | (0.0102) | (0.0136) | (0.132) | (0.135) |
| log Delta | 0.00286* | 0.00307 | 0.0598*** | 0.0647*** |
| | (0.00155) | (0.00208) | (0.0200) | (0.0204) |
| CEO tenure | -0.000242 | -0.000294 | 0.00344 | 0.00169 |
| | (0.000411) | (0.000544) | (0.00529) | (0.00539) |
| CEO age | -0.00100*** | -0.00147*** | -0.0116** | -0.0101** |
| | (0.000359) | (0.000480) | (0.00463) | (0.00472) |
| Constant | 0.141*** | 0.249*** | 1.591*** | 1.589*** |
| | (0.0458) | (0.0608) | (0.588) | (0.600) |
| Observations | 207 | 205 | 205 | 205 |
| R-squared | 0.098 | 0.108 | 0.118 | 0.113 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Figure 1 – Facial attractiveness score distribution**

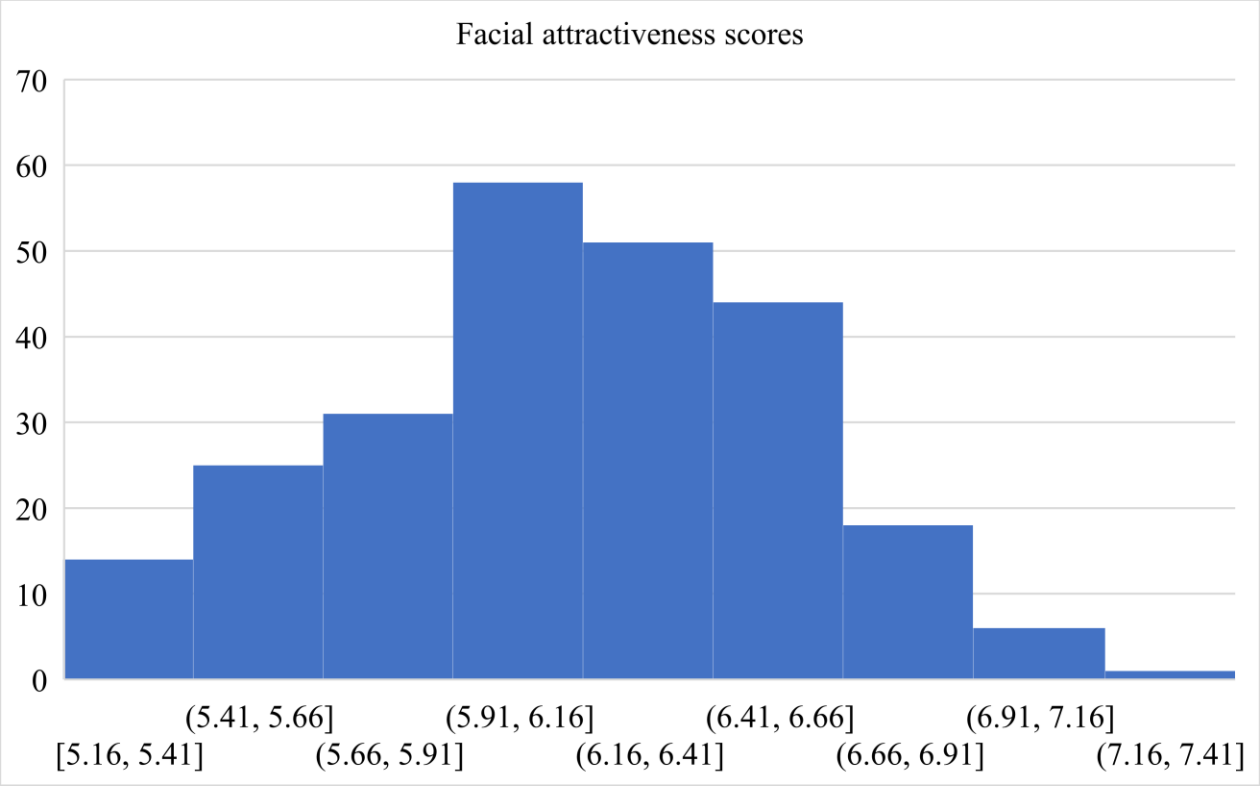
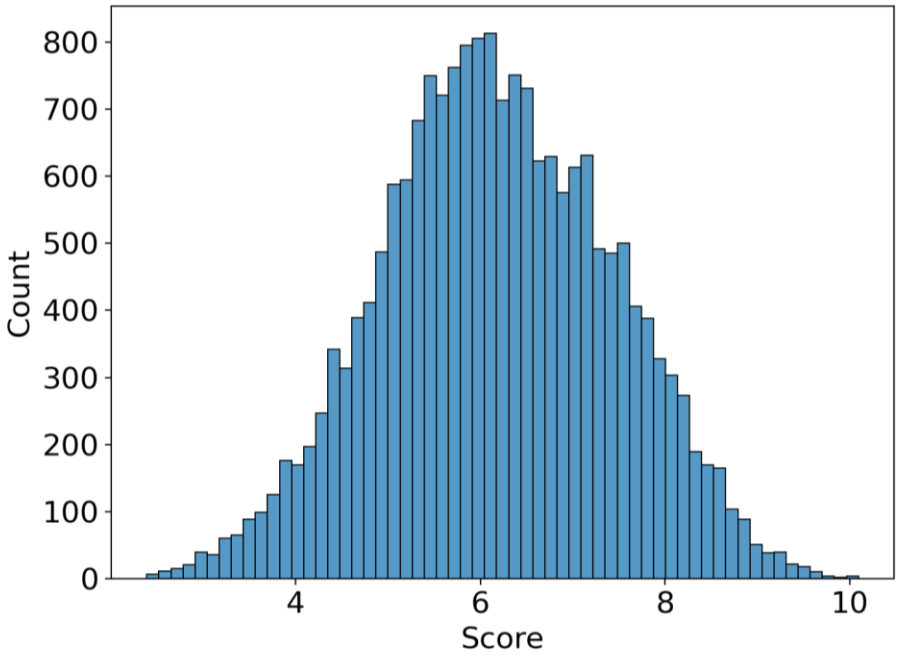



**Figure 2 – Facial attractiveness score distribution (attractivenesstest.com)**



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