# Master Thesis U.S.E

*Entrepreneurial Orientation, Content Analysis, and S&P 500 Firm Performance*

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# Table of Contents

# 1 Introduction:

In the scholarly context of business and development, entrepreneurship is one of the most popular and exciting topics in this field over for the past century. Since entrepreneurship is such a popular topic it is often associated with something fundamentally good and something that all firms should be inspired by (Wiklund 1999). To show this entrepreneurial mindset at work in today's top firms, two leading CEO's quotes from shareholder letters are presented. For example, Apple's CEO, Tim Cook said in a recent shareholder letter that "Apple *innovates like no other company on earth, and we are not taking our foot off the gas*." Another example from Etsy's CEO, Josh Silverman when he said, "*At Etsy, we often say economic empowerment is our day job. Each day, our team acts with boldness and urgency to support the millions of creative entrepreneurs around the world who depend on us*." Using these two powerfully written examples we can see that CEOs are taking the concept of EO seriously. We can also see that these shareholder letters lean on the core dimensions of EO. These quotes then bring forth the question: "Does EO benefit a large firm in the long term or are large firms simply better equipped to handle EO in the long-term? Thus, this research focuses on a specific method of analysis for EO as it relates to business performance indicators over an extended period of time.

With those quotes in mind, literature has suggested a universally positive relationship with how a firm performs compared to those who do not actively seek to be entrepreneurial (Wales et al., 2013). This desire to be entrepreneurial can be attributed to a term from the entrepreneurship literature, specifically entrepreneurial orientation (EO). The term EO refers to how effectively a company is positioned in terms of entrepreneurship (Anderson et al., 2009). While this relationship has been proven repeatedly, little attention has been paid to research focusing on longitudinal implications of this relationship (Zahra et al., 1999). Some scholars even going as far as to say existing research focuses solely on EO's immediate and short-term impacts, while completely omitting its long-term repercussions (Javalgi & Todd 2011). Since implementing and embracing EO is a time-consuming and often strategic commitment, paying attention to the longitudinal performance implications of EO is also a necessity (Covin & Slevin, 1991). Even though these long-term effects are seen as significant and under researched, few longitudinal studies have actually been carried out, and the ones that have only examine the impact of EO for one or two years after the data were collected (Wiklund, 1999; Zahra et al. 1999). Since the outcomes of these studies are considered long-term, when they are actually short-term, it can produce misleading results and therefore hurt the overall literature. This lack of proper longitudinal research is one of gaps in the existing EO literature that will be filled by this study. Scholars had challenged and updated the concept of EO since Miller's (1983) initial publication till the mid-90s (Lumpkin & Dess, 1996). Lumpkin & Dess's (1996) seminal paper, in which the authors laid out the framework for measuring EO in businesses, which is still frequently utilized among entrepreneurship academics today. Their research describes how to quantify an "ideal" entrepreneurially oriented organization across five distinct aspects: innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996). The issue with this framework is that they frequently necessitate survey data, which is difficult to

obtain and is often biased due to the subjectivity of the data collection methods. Therefore, this research uses unique methods to analyze EO and performance, whilst also filling the existing literature gap on long-term research.

Since Lumpkin & Dess (1996) EO framework, there have been two non-survey-based approaches for measuring EO in the entrepreneurial field (Covin & Wales, 2019). One method, computer-aided text analysis, a subset of the content analysis family, will be considered of the two identified in this paper (Covin & Wales, 2019). This method has gained popularity because it allows users to analyze large data samples quickly and precisely (Short et al., 2009). Short and colleagues (2009) were the first to use this methodological approach within the literature of EO. For the purposes of this research, a content analysis of shareholder letters is used and subsequently analyzed using a cross-lagged panel model (CLPM) to try to prove causality between EO and firm performance. This is because causality is one of the most important phenomena that exist in scientific research. This is the reason for using CLPM is because causal inference can be made (Zyphur et al., 2020). Although the CLPM has many benefits it is also important to acknowledge that it also has some limitations. In a paper by Hamaker and colleagues (2015), they criticize CLPM for some of its limitations. The biggest limitation being that studies in the past often used only two waves a panel data (Hamaker et al., 2015). Luckily, this research has five years of data and will only be concerned with companies who have at least three years of letters (Hamaker et al., 2015). The main reason causality is so important in the context of EO, and firm performance is because no other researcher has in fact proven this relationship over this amount of time.

To explore the long-term relationship between EO and firm performance using the method of content analysis, this research uses shareholder letters from S&P 500 companies between 2016-2020. These types of letters have been used in prior research to analyze market and production orientation Noble et al. (2002), as well as assess innovation orientation (Yadav et al. 2007). In fact, the S&P 500 has been used in numerous studies searching for differences in EO and shareholder value (Short & Palmer, 2008; Short et al., 2010). Therefore, this research will consider measured EO from letters as the dependent variable. On the other hand, the independent variables will be different firm performance metrics. These metrics include earnings before income-tax, share price, return on assets, and net profit margin. The metrics were chosen considering that practitioners within the management and entrepreneurship field cannot decide on the ideal metric to observe performance. Therefore, multiple profitability metrics are chosen to gain a broader overall perspective. To better visualize how the research will be conducted a conceptual model of the CLPM is presented (see figure 1). In red are the two critical cross-lagged pathways that are the epicenter of this research, as well as the stability lags between EO year over year and performance year over year. From this visualization of the model, it is easy to formulate this papers' research question.

### 1.1 Research Question:

**What is the longitudinal relationship between the detected level of EO from shareholder letters of S&P 500 firms compared to their performances over three years?**

The present study contributes to practice and theory in a couple diverse ways. First, management teams and CEOs should be concerned with the results of this study because it is apparent that large firms are utilizing the concept of EO. Nevertheless, these large firms utilize the abundant short-term studies which potentially offer misleading results if extrapolated for use in the long-term. With the results of this study, management teams will be able to see the potential impact that EO has over a period of time. This knowledge will help decide what happens to resource allocations throughout the company. Depending on the results, the research can also influence management teams to continue to utilize the concept of EO in their firms' organizational structure. This research plans to contribute to theory by potentially adding the missing causal link between EO and firm performance. It also plans to add to the lack of longitudinal studies within the EO literature, while using unique methods to explore the EO-performance relationship.

The rest of the research will continue as follows. First, an in-depth literature review will be conducted. In the literature review this research explores the full extent of EO and its five dimensions as they relate to performance. Then, firm performance and its many ambiguous measures will be described. Next, the specific relationship between EO and performance will be discussed. After that, I will outline the specific methods and practices used with in this research. Finally, the findings of the analysis will be unveiled along with limitations and a discussion section.

# 2 Literature Review:

This study is concerned with the relationship between EO and firm performance, as mentioned above. Throughout this literature review, three subsections of relevant theory and concepts will be outlined within the realm of EO and firm performance. The first section is concerned with the overarching concept of EO and its specific dimensions from entrepreneurship literature. The second section is concerned with firm performance and how other research has treated firm performance in the past. Finally, the last section is combining the first two (EO as it relates to firm performance), to showcase how the relationship has been studied and the various results of these studies.

## 2.1 Entrepreneurial Orientation:

EO is a multidimensional concept developed by Miller (1983). Since that paper was published, scholars have debated on the universal conceptualization of EO. Covin & Lumpkin (2011) argue that the concept of EO does not have an objectively accurate or erroneous conceptualization since it is a latent construct. Therefore, the scientific community can only agree on certain conceptualizations of this construct, which makes pinning down the construct of EO somewhat ambiguous in a scholarly context. Regarding this ambiguity, there are two generally accepted conceptualizations of EO within the literature.

The first is a composite dimension approach, in which Miller (1983), introduced EO and emphasized the first three key aspects: a focus on the organization rather than the individual entrepreneur, entrepreneurial businesses' involvement in potentially risky initiatives, and how aggressive firms were in their approach to entrepreneurship.

The second accepted conceptualization of EO is commonly referred to as the multidimensional approach and is usually associated with Lumpkin & Dess (1996). In this ideation of EO they significantly expanded the construct by presenting a work that raised the three initial dimensions to five. In their ideation of EO Lumpkin & Dess (1996) added the dimensions of innovativeness and proactiveness. Over the years, scholars have analyzed and contrasted these two conceptualizations (Basso et al., 2009; George, 2011), with the aim of determining which approach is the most rational within the literature. Nevertheless, these two approaches are, however, fundamentally distinct from one another and neither are intrinsically better than the other (Covin & Lumpkin, 2011). Considering that both approaches are acceptable for research on EO, this research will employ Lumpkin and Dess's (1996) multidimensional approach. To effectively use this multidimensional approach each dimension will be considered

### *2.1.1 Autonomy*:

To begin, "autonomy refers to an individual's or a team's independent effort in bringing forth an idea or a vision and seeing it through to completion." (Lumpkin & Dess, p. 140, 1996). This dimension is important to the concept of EO because organizations who rely on an EO to add value must go beyond to encourage entrepreneurial activity (Burgelman & Sayles, 1986; Kanter, 1983). This frequently entails allowing organizational members, teams and/or individuals, to think and act more autonomously outside of the organization's current rules and tactics (Lumpkin et, al 2009). Within EO, autonomy is necessary because it helps firms discover and foster creation of new or enhanced business processes which the firm did not have before (Kanter, et al., 1990). Prior research into this dimension has yielded positive correlations with firm performance especially in corporate settings compared to independently owned firms (Lumpkin et, al 2009). However, none of the past research has showed these correlations overall and none have been able to prove causally that autonomy is related to firm performance.

### *2.1.2 Innovativeness:*

Second, "a firm's predisposition to engage in and encourage innovative ideas, originality, experimentation, and creative processes that may result in new products" is defined as "innovativeness" (Lumpkin & Dess 1996, p.142). In entrepreneurial organizations, innovation is frequently seen as a critical aspect in promoting growth, introducing new items with high profit potential, and increasing total market value (Kuratko 2009; Wiklund et al. 2009). Innovativeness also helps businesses respond to changing market conditions by introducing new and improved products (Ireland et al. 2009). Innovative companies, often like those listed on the S&P 500, are

constantly introducing new goods and services that are in line with current and developing market requirements. They are able to swiftly enter new sectors where their innovation-based skills can be a better strategic match (Morris et al. 2011). With that in mind, it is not unexpected that other prior studies have demonstrated positive relationships with new product introductions and organizational success (Terziovski 2010; Rosenbusch et al. 2011). The problem with these studies is that, again, they do not offer causal relationships over an extended period of time and have not tried to conduct this type of analysis using S&P 500 shareholder letters.

### *2.1.3 Risk-Taking:*

Third, "risk-taking behavior, such as incurring substantial debt or making large resource commitments, is generally typified by organizations with an entrepreneurial orientation in the interest of generating high returns by seizing chances in the marketplace" (Lumpkin & Dess 1996, p. 144). Risk-taking firms are more decisive and adapted to making quick strategic decisions (Eisenhardt, 1989), this improves the firms' overall level of performance and makes it an important aspect of EO (Covin and Slevin, 1989). As firms improve their strategies and practices of risk-taking behavior, firms learn from themselves. From the knowledge gained, it allows them to diminish the overall probability of risk and increase the odds of prosperity (Folta 2007; Shepherd et al. 2009). Therefore, it comes as no surprise, that Begley and Boyd (1987) found a nonlinear correlation between a firms' return on assets, and risk taking. This nonlinear correlation can be explained by some firms going too deep into risk-taking behavior and therefore overextending their reach. S&P 500 companies constantly have to deal with risk-taking behavior due to pressure by shareholders (Siegel & Schwartz, 2006). Thus, it is imperative that this dimension be an included measure in this research.

### *2.1.4 Proactiveness:*

Fourth, "proactiveness... denotes a forward-thinking outlook complemented by innovative or new-venturing activities" (Lumpkin & Dess 1996, p. 146). For firms to be proactive in accordance with this definition, these companies have to have a proclivity for being the first to implement strategic approaches in existing markets, as well as enter and establish themselves in those markets (Venkatraman 1989). S&P 500 firms use these proactive behaviors to gain a competitive advantage over competitors by discovering and capitalizing on the changing market circumstances (Covin et al. 2000; Dess et al. 2003). Proactive firms may also generate new chances by redefining their own customer markets. This redefining of their market segment can have many positive benefits associated with firm performance, such as increased levels of demand, improved customer loyalty, and eventually higher overall profits (Covin & Miles 1999). Competing firms are forced to respond to proactive firms' successful activities. The advantages of proactive behaviors are typically maximized at higher levels due the higher levels of capital S&P 500 companies often have. However, like innovativeness, the costs of proactiveness in firms are frequently associated with up-front expenditures in creating the competencies required

to be proactive when entering new markets (Kreiser, et al., 2013) As a result, these firms are only likely to realize performance improvements until the real advantages of proactiveness begin to outweigh the upfront expenditures (Kreiser, et al., 2013).

### *2.1.5 Competitive aggressiveness:*

Finally, "competitive aggressiveness refers to a firm's proclivity to challenge its competitors directly and intensively in order to gain entrance or improve position" (Lumpkin & Dess 1996, p. 148). This dimension is defined not only by a firm's strong offensive stance aimed at crushing the competition. It also is characterized by how strongly it defends its own market share, as well as defend a new market a competitor might have found (Lumpkin & Dess, 2001). A few ways large firms satisfy this dimension is by setting ambitious market share goals and aggressively pursuing them. This can be done by cutting prices and forgetting profits to try and leverage your competition out of the market (VenKatraman 1989). Similarly, firms will try to outspend their competition on marketing, manufacturing, and customer service to get that slight advantage wherever they can (MacMillan & Day, 1987).

To conclude, EO and its five dimensions has been proven to be a key indicator of a firm's organizational structure and have short term impact to a firm's performance. This research recognizes each dimension of EO as critical factors based on the countless literature put fourth into this topic. Considering this is such an important topic and that all these dimensions lack the long-term causal relationships to firm performance it is necessary to try and tease out long term causality. To do that correctly, literature surrounding firm performance and its many ambiguous measures needs to be properly addressed.

## 2.2 Firm Performance:

Among business and entrepreneurship literature, scholars cannot seem to agree on the ideal measurements of business performance indicators. As a result, a vast array of performance indicators has been employed to study the effect that EO has on a firm's performance. Past scholars have utilized many types of objective and subjective financial metrics in order to measure financial performance. Objective measures, such as cash flows, return on assets, profit margins, debt/equity ratios, etc. have been used in analysis more often due to consistent reporting (Haber & Reichel 2005; Adams et al., 2009; Zhao et al. 2011). Subjective metrics, i.e., interviews and surveys, have also often been used by entrepreneurship scholars. The biggest challenge with studying performance through the lens of EO, according to Anderson and colleagues (2015), is that until recently the only means to do research on them was through surveys and interviews. That being said, when asking owners and managers subjective questions, they are more likely to give a biased assessment of their company's success, which can be unreliable (Wiklund and Shepherd, 2005). Although, most scholars have agreed that objective performance measurements are more suitable than subjective performance assessments. Objective data is sometimes difficult to obtain, since respondents are hesitant to

share personal information with strangers (Dess and Priem, 1995). Some researchers have in fact combined objective and subjective measures as financial performance indicators (Clark, 1999; Di Milia & Birdi 2010). Considering that there is not one defined path to realizing a firm's performance and that performance is multidimensional in nature. It is beneficial to combine several different measurements of performance for the most encompassing measurement of a firm's performance. Therefore, this research will be using the following objective measures; stock price, earnings before income-tax, return on assets, and net profit margin.

2.3 Entrepreneurial Orientation and Firm Performance:

As mentioned before, the relationship between firm performance and EO has gained significant traction in the literature of entrepreneurship and organizational management for over 3 decades. Academics in these fields have been theorizing that the prevalence of firm-level entrepreneurial behaviors, such as the EO dimensions are positively related to a firms' organizational profitability and growth (Lumpkin & Dess 1996; Ireland et al., 2009; and Soininen et al., 2011). Although these studies above outline the benefits of EO, it should be noted that the literature also discusses potential drawbacks of EO. For example, Naldi and colleagues (2007) documented how the dimension of 'risk-taking' had a detrimental effect on performance. This factor exhibited a detrimental impact on family business's financial success (Naldi et. al., 2007) There is even a published finding where they failed to find a relationship between EO and firm performance (Tang & Koveos, 2004). These studies demonstrate that EO as a concept is not always advantageous and feasible (Renko et al., 2009). There are a few reasons for the variety of results, such as differences in measurement of EO, unique methodologies, and researcher specific opinions about variables and indicators of performance. Despite these contradictory findings, the majority of the research maintains that there is a beneficial connection between EO and firm performance (Wong, 2014)

Other variables, alongside EO, may have a direct impact on performance (Vij & Bedi 2012). According to Rauch et al. (2006), country specific culture, size of business, and a company's technology intensity were the main influence between EO and performance. Another factor that is important was network centrality in the EO-performance link (Stam & Elfring, (2008). That being said, many scholars within EO literature see EO as an advantage for firms who actively utilize one of the accepted approaches of EO.

Despite EO appearing to be a simple and well-defined concept initially, various researchers disagree on the optimal procedures for measuring the EO-performance relationship (Covin & Wales, 2012; Anderson et al., 2015), and have presented their own models for measurement in contrast to Lumpkin & Dess (1996) paper. These newer studies describe many conceptualizations of EO, stating that a scholar can change the initial dimensions to behavioral dimensions or even add dimensions to the Lumpkin and Dess framework (1996). However, the most important requirement for adjusting specific dimensions was that the definitions and framing of the newly formed dimensions must align with the widely accepted definition of EO. Being that EO is a set of features that firms use to demonstrate how well they are positioned to be entrepreneurial (Anderson et al., 2015). This modification of the original dimensions allows

for many forms of analysis and gives context to how this research will be using EO and firm performance.

From the overwhelmingly positive literature on the EO and performance link this research formulated a testable hypothesis:

### 2.4 Hypothesis:

*H1: EO has a positive long-term effect on firm performance and can be proven casually.*

# 3 Methodology:

This section will outline exactly how this research plans to measure the longitudinal relationship between the EO present in shareholder letters from companies in the S&P 500 and their financial performance from the years 2016-2020. This section walks through the methodological approach for the data used, as well as the different data types necessary for this analysis. Later the research discusses how it plans to interpret each of the two variables, firm performance and EO. Lastly, the methods of data analysis required are explained and justified for this model.

### 3.1 Empirical setting:

To properly analyze the research question for this research it is important to use quantitative methods, specifically content analysis followed by structural equation modeling. As mentioned above, content analysis is a method that uses a unique list of mechanisms used to organize and label textual documents (Weber, 1990). Content analysis has been adopted by entrepreneurial scholars across the literature (Huang et al., 2014; Jancenelle et al., 2017). This shows the validity of this type of analysis and due to the often readily available sources of data available for analysis this creates a demand for this style of analysis.

### 3.2 Data collection and sample:

#### *3.2.1 Letters:*

The first type of data needed in this analysis are secondary data which comes from shareholder letters of the New York Stock Exchange's S&P 500 companies. A shareholder letter is an initial communication from firms, in which shareholder activists' concerns are raised. Such communication may be effective in facilitating the social issue engagement process between shareholder activists and firms, and it may persist for several months (Logsdon & van Buren, 2008). Specifically, the S&P 500 provides a dense sample of publicly traded companies, most of which provide shareholder letters which attempt to explain the companies' current position and future strategic operations (Short et al., 2009). These prior, similar examples give viability of using these letters from which to extract scientific meaning and conclusions. In fact, many

investors use this as a benchmark for their own portfolio's performance. Since these letters are published yearly by companies that are judged based on the S&P's standards it makes them easy and valid to compare across the board. In order to accomplish a viable sample, all five hundred companies in the S&P 500 were initially considered.

The sample was collected for five years but due to the financial data available the analysis will only cover three of the five years (2018-2020). Of the five hundred companies listed on the S&P 500 170 (see table 1) were randomly selected due to time constraints of this research. In the random sample all eleven sectors are represented throughout: communication services, consumer discretionary, consumer staples, energy, financials, healthcare, industrials, information technology, materials, real estate, and utilities.

Considering not all CEOs publish a letter every year, or sometimes none at all, a minimum threshold of three letters within the period will be accepted within the initial three-year analysis period. This is consistent with Short et al. (2009) analysis of the differences in EO in family firms compared to publicly traded firms. After this limitation was employed a total of 137 companies were left to fully analyze for the three-year period (see table 2). It is important to mention that the sample of 137 firms is utilized for evaluating the relationships between EO and the stock price and EO and earnings before income tax. On the other hand, to evaluate the relationship between the other two firm performance indicators, net profit margin and return on assets, a slightly smaller sample was used. This was due to availability of the vital data needed for certain companies. The sample of letters needed to evaluate the relationship between EO, and net profit margin was 115 of the 137 firms (see table 3). The other sample needed to evaluate EO with return on asset was therefore 128 of the 137 firms (see table 4).

### *3.2.2 Financial data:*

The other data that needs to be collected and analyzed is annual financial reports and specific metrics for these companies over the three-year period. This is again secondary data, but it was scraped from Yahoo's finance department. These financial reports have been utilized in many different studies to acquire information on management's strategic stance, as those documents are the primary means of communication between a firm's upper management and its stakeholders (Noble et al. 2002). They are also readily available for anyone to view and offer a standardized way of looking at each firm's financial health. Unfortunately, some companies were omitted for analysis, as mentioned above, due to lack of published data.

## 3.3 Measures: EO from content analysis, firm performance, control variables

### *3.3.1 Content analysis:*

Content analysis is a research method that use an algorithm to extract certain terms from a textual source in order to derive meaning from the frequency of the words (Krippendorff, 2004). The challenge with this field of research is that there is not much longitudinal content analysis research correlating EO to business performance ratios. Utilizing this concept as a starting point for research, academics began to discover the value of using software to analyze text and extrapolate links to company performance. When examining corporate texts like shareholder letters and financial documents, content analysis is widely employed (Duriau et al., 2007). "We believe that illustrating how entrepreneurial orientation can be assessed through content analysis of shareholder letters is an especially attractive approach that offers value to entrepreneurship scholars as well as the broader management field," (Short et al., 2010, p 323). Since renowned scholars in the EO field are pushing for further content analysis studies on shareholder letters, this evidence immediately lends credibility to this study. Because these types of texts are frequently freely available and open to the public, they are attracting greater attention to this type of analysis. The third technique to do research using EO and firms is through CEO surveys or interviews using the aforementioned EO dimensions (Lumpkin & Dess 1996). Although interviews and surveys provide a broader context for research, scholars have previously encountered validity issues due to a lack of replies, particularly in the entrepreneurship field, where response rates are among the lowest in the entire management discipline (Bartholomew & Smith, 2006). Considering survey methods have low response rates, it is easy to see why content analysis studies are becoming more popular. The specific longitudinal comparison of EO to company performance has yet to be causally linked, but utilizing content analysis, this link could be solidified.

There are now a number of studies utilizing text analysis to extract financial performance indicators from literature such as New York Times stories (Raman et al., 2022), company goal statements (Kitsios et al., 2019), and annual report filings (Hájek, 2018). Similar analyses utilizing text analysis to relate EO in letters to other factors such as family business (Short et al., 2009), shareholder value (McKenny et al., 2018), and Tobin's Q, a unique financial statistic, have been done in the past in the EO sector (Short et al., 2010). Although Short and colleagues (2010) looked into the relationship between EO and performance, they only compared it to one financial measure and only used Tobin's Q for two years of their longitudinal data. The research for this proposal aims to improve on prior research by attempting to create a new longitudinal link using the unique financial measures utilized in the regressions.

### *3.3.2 EO:*

This research will measure total EO using a content analysis of shareholder letters as mentioned before, which is suitable for quantitative analysis of the EO firm performance letters. To best analyze these shareholder letters for EO I will using a computer algorithm that

measures the specific words. This program has outlined a dictionary like the one in Short and colleges paper (2009), see figure 2. From that dictionary, the algorithm finds matching words within each S&P 500 shareholder letter according to each dimension of EO i.e., autonomy, innovative, competitive aggressive, proactiveness, and risk-taking. That being said, this research does recognize that content analysis of shareholder letters does have some faults. The first is that it relies solely on the dictionary of words used when doing the analysis, since the EO is directly tied to how many words are associated. To control for this, this research follows Short and colleagues (2010) method of choosing a dictionary of words, using a deductively derived word list. Another short coming of this specific analysis is that the letters in this sample range from 16,127 words at the largest and 179 words at the smallest. To control for the vast differences between these letters this research will use EO as a percentage of the entire letter. This means that all five unique dimensions of EO will be combined together and then divided by overall words in that shareholder letter for that year.

Then the algorithm and each letter were sorted between each category of EO. From that point I then averaged the five outputs for each of the 137 companies. The average was used because it is consistent with a similar study using similar methods to find the aggregated EO per company (Gupta & Gupta, 2015). Using the average EO found in each company for each year, I then needed to use structural equation modeling (SEM) to compare them to the firms' performance ratios mentioned above. To properly analyze these results, I will be using the statistical software SSPS AMOS Graphic (AMOS). To provide the most accurate analysis with AMOS this research will use the cross-lagged panel model (CLPM) within SEM. This is a specific model in SEM used by scholars to attempt to draw out causal effects from specific panel data. CLPM is a popular approach for various researchers who are using longitudinal panel data to prove causality (Banjo, 2014; Arshi et al., 2020; Behl et al., 2021). These are relevant examples within entrepreneurship literature giving validity to the mode of analysis.

### 3.4 Firm Performance Measures:

The averaged EO data mentioned above is regressed on four distinct indicators and subsequent tables and models are laid out for each financial metric in the following results section. To avoid issues of biased financial indicators, this study uses a multitude of performance indicators; net profit margin, return on asset, earnings before income tax (EBIT), and stock share price as dependent variables. Performance scholars have outlined that being profitable is the dominant performance indicator (Stavropoulos & Skuras, 2016; Beck et al., 2020; Jensen et al., 2020) This is also consistent with current literature detailing financial performance indicators (Agle et al., 2006; Reina et al., 2014; Neffe et al., 2021). Stock price is also proven to be a unique indicator of performance (Avdalovic & Milenković, 2017; Puspitaningtyas, 2017), although highly debated due to firm inflated share prices (Ben-David et al., 2013).

Table 5, in the appendix, is a visual overview of all the variables needed within this research as well as how they are measured. To remain constant in reporting of the share price data of all companies the stock price will be represented by the closing price as of December 1st for each of the five years recorded. The net profit margin is simply taking the companies' net income listed in their SEC filing and dividing it by the companies' total revenues. This provides a view

into how management is using revenues generated as it compares to their costs. The next metric is return on assets which is taking the net income and dividing it by the companies' assets. This helps investors see how good a company is at turning investments into profits. Finally, EBIT or also commonly referred to as operational income. It is calculated by subtracting all operating costs from the sales revenue. EBIT is a great metric because it analyzes a firm's fundamental activities without considering capital structure costs or tax charges.

# 4 Results:

Table 6, in the appendix, displays all four models' goodness of fit statistics used to test the hypothesis of this research. For each model four different goodness of fit measures were included to showcase how well the model fit the data. Featured in these measures are the root mean square error of approximation (RMSEA), the chi-squared ($X^2$), and the comparative fit index (CFI). For the RMSEA, values that are less or equal to .08 are acceptable and .9 and above for the CFI (Hair & Anderson, 2015)

## 4.1 Model 1 (Stock Price):

Table (7), in the appendix, represents the cross-lagged model output between measured EO and the performance metric of stock price. The fit statistics for this model, $X^2$ (7) = 43.717, p = 0.000, RMSEA = .196, CFI = 0.957 demonstrated that this model might not be the best to predict firm performance. This is because the p-value and the RMSEA are both out of the range of confidence. These model fit statistics of 'Stock Price' can be seen in table (6).

The stability and cross-lagged relationship between EO and stock price was then investigated. This cross-lagged effect is explained by the effect that one variable has on another by controlling its stability over the three-year period. Results from table (7) showed highly significant stability effects for both EO and Stock price. This suggests that EO and Stock Price on their own are temporally stable. However, results indicated insignificant results for both cross-lagged pathways from EO to the future year's stock price. Since the important cross-lagged results came back insignificant it means the critical ratio is not significantly different from zero at a p-value of 5%. This could be because stock price is an all-encompassing number and as mentioned before can be manipulated by management. It is also means that there are other factors that are not accounted for within the model. It is observed from table(stock) that the reverse cross-lagged paths from performance to EO are also not significant, indicating that performance did not predict the future EO. However, if the critical p-value range is raised to the 10% level the lag between EO 2019 and Stock price 2020 becomes significant at 7.4%. This result is worth noting considering that EO in 2019 did predict performance in 2020 at the confidence level of 10%.

## 4.2 Model 2 (Net profit margin):

Table (8) represents the cross-lagged model between measured EO and the performance metric of NPM. The goodness of fit statistics for NPM showed a much better fit (Table X): $X^2$ =

3.810, p = 0.801, RMSEA = 0.000, CFI = 1.000. Results from table (8) showed significant stability effects, meaning that EO and firm performance via NPM are both temporally stable. The cross-lagged pathways between EO and performance were found to be, again, insignificant. This means that in the NPM model EO does not predict performance. However, one of the reverse cross-lagged paths did come back as significant at 4.1%, indicating that in 2019 NPM did predict a decrease in EO in 2020.

### 4.3 Model 3 (ROA):

Table (9) represents the cross-lagged model between measured EO and the performance metric of ROA. The goodness of fit statistics for this model also showed great fit (Table 5): $X^2$ = 11.811, p = .107, RMSEA = .074, CFI = .972. These results again show significant stability effects for EO and ROA, signifying that both are temporally stable in the model. The cross-lagged pathways between EO and performance metric ROA were found to be insignificant. This means that in this model, EO cannot predict performance via ROA, in the future. However, the reverse cross-lagged pathway from ROA 2019 to EO 2020 came back significant, indicating that the return on assets predicted a decrease in EO the following year.

### 4.4 Model 4 (EBIT):

Table (10) represents the cross-lagged model between measured EO and the performance metric of EBIT. The fit statistics for this model, $X^2$ = 30.344, p = 0.000, RMSEA = .156, and CFI = .932 demonstrated that this model might not be perfect but does have a CFI score within range of the critical values. Results from table (EBIT) showed highly significant stability effects for both EO and EBIT. This suggests that EO and EBIT on their own are temporally stable over time. The cross lagged paths are again highly insignificant for both lags. This indicates that EO cannot predict performance via EBIT over time. Looking at the results of the reverse cross-lag show a statistically significant relationship from EBIT in 2019 to EO in 2020. This indicates that EBIT predicted a change in the future EO.

## 5 Discussion:

Managers of all firms in the S&P 500 are constantly on the lookout for new business to exploit and generate positive returns for their firms (Dess & Lumpkin, 2005). As mentioned throughout this research, EO has been and is currently the one of the most important concepts to explain how certain firms stay on top and are able to continually dominate their markets. Prior research has only focused on the short-term effects (Javalgi & Todd 2011), rather than the long-term effects (Covin & Slevin, 1991; Javalgi & Todd 2011), which were identified in the results. Prior research did not track changes in entrepreneurial orientation over time or how those changes would affect firm performance over time.

The primary contribution of this paper was to investigate the EO-performance relationship to see if over time the measured EO could predict a firm's future performance. However, in all four models used in this research, none of them came back with significant cross-lagged coefficients between EO and performance. Therefore, this research finds no evidence that EO has an impact on firm performance in the long-term. Therefore, the hypothesis (H1) of this research cannot be proven. Thus, these findings suggest that EO does not pay off for firms in the long run and that firms who do not embrace EO are neither more nor less successful over time. These results support the findings of Covin & Slevin (1989), Madison et al. (2014), and Tang & Koveos, 2004. All of these studies yield an inconsistent relationship between EO and firm performance. On the other hand, these results are inconsistent with the majority of research on the EO to firm performance relationship contradicting the studies of Engelen et al. (2015), McGee & Peterson (2019), Wales et al. (2013), Wiklund (1999). In fact, this research directly contradicts McGee & Peterson (2019) when they suggest that EO's role becomes more influential specifically over time. Whereas these results state that there is no effect from EO on performance. These contradictory results could be due to a few different things. Firstly, the findings show that because non-longitudinal studies did not account for the effects of EO over time, they may have overestimated the strength of the EO-performance association (Rauch et al. 2009). Another reason for the contradictory results could be the sample used to generate the measured EO. Due to time constraints only a sample of 170 firms were selected. Therefore, future research should try to expand the sample to include more. Lastly, the use of the specific firm performance measures within this research might cause these results to contradict. Firm performance is one of the most difficult and ambiguous terms to measure within all of entrepreneurship and management literature. There are many different ways which researchers measure performance and this inconsistency in measurement can cause vastly different results.

### 5.1 Managerial, Academic, & Policy Implications:

This research offers some recommendations for management executives, academics, and policy makers. Since EO is often considered to be a resource-intensive strategy, it is crucial for managers to understand if EO can eventually contribute to value-adding activities (Covin & Slevin, 1999). Therefore, it is crucial to understand if long-term emphasis on 'investing' in EO may be advantageous. Considering that there was no relationship between EO and performance this signifies that the concept of EO cannot predict performance. Since this was the case, management teams might be wasting billions of dollars' worth of valuable resources. In the end all these potentially wasted resources are what end up being the consumer surplus. When thinking about the academic implications and how this research can affect them, the results indicate no specific relationship between EO and performance. This evidence adds to the sparse literature on the longitudinal relationship between EO and performance. It also adds knowledge to the small EO literature which uses longitudinal content analysis. As for the policy implications of this research. The results of this study would help policy makers advise against using EO as a prescribed method of organizational structure when trying to maximize performance. Which means they would advise entrepreneurs in their jurisdiction to utilize other potential organizational structures when trying to guide these entrepreneurs.

### 5.2 Limitations & Future Research**:**

This study contains limits, just like any other research, and these limitations must be addressed since they show where the findings are limited and provide ideas for future research directions. Primarily, the sample of 137 companies on the S&P 500 is limited only to the United States market, which means that the results are not transferable across all boarders. This is because other countries and markets have different rules and regulations than the USA. It could also be that the 137 firms who make up the sample do not fully represent the S&P 500 and thus bias the results one way or another. One way to deal with this is by including even more of the firms in the S&P 500 or using a different index of companies. The next limitation is the financial measures used to conduct this analysis. Considering that ROA, EBIT, stock price, and net profit margin were used as profitability measures, this research ignores all subjective measures and also other potential measures. But, as mentioned before firm performance is a very ambiguous measure and using many measures provides the clearest path towards truly measuring firm performance. Another limitation to this study was the method of analysis. First, content analysis is viewed as a novel way of collecting and obtaining quantitative EO data from shareholder letters. That being said, it is hard to extrapolate the full effect of EO from letters to shareholders simply by counting words on a page. One avenue of future research would be to include more factors contributing to EO. Another limitation from this research is the specific model used during empirical analysis especially when looking at the fit statistics table, table (6). Some of the values are out of the range of goodness of fit. Using different models or adding more moderators might increase the viability of future research.

## 6 Conclusion:

As CEO’s spend billions of dollars every year on making their business as profitable and successful as possible it is important to know the best practices needed to maximize their resources. This research set out to try and find a missing causal link between EO and firm performance over an extended period of time. With the main goal of deepening the literatures understand of this relationship. By testing the measured EO from S&P 500 shareholder letters against various firm performance metrics this study established that there is no long-term causal link between EO and performance. Although much of the literature suggests that the EO to performance relationship is often positive, this research contradicts that. Therefore, it is important to conduct further research using these techniques within this research to gain a better understanding as to why that is. Considering this, future research should focus more on the longitudinal studies of this relationship to shine more light on how EO does impact performance over time. Other researchers could break down EO into its specific dimensions to indicate which dimensions are most important for performance in the long run.

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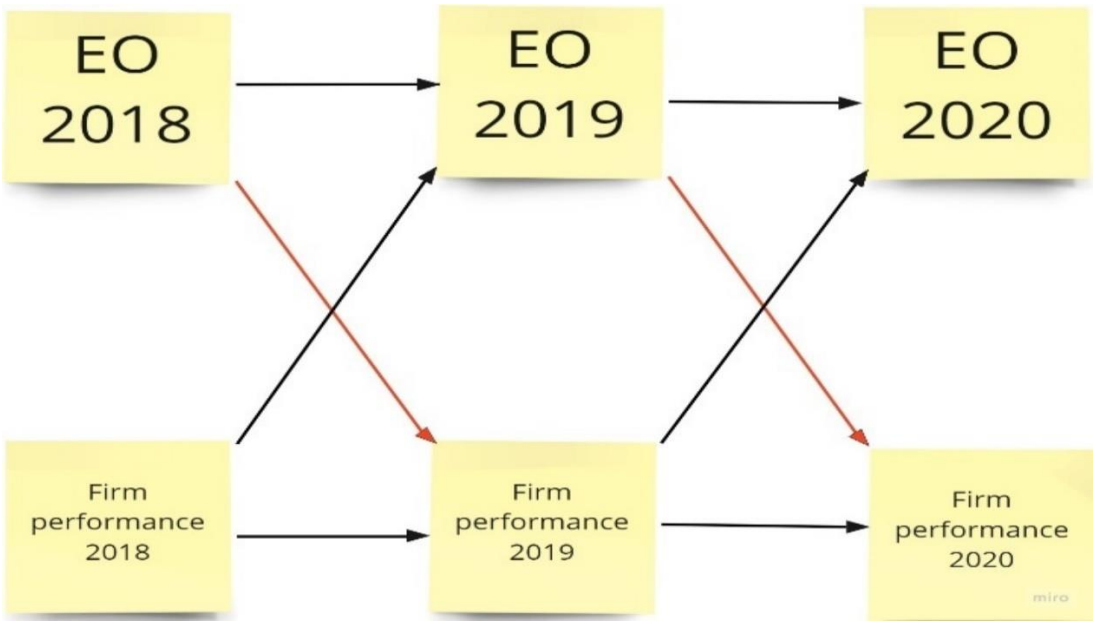
# 8 Appendix:

## 8.1 Figure 1: (conceptual model)



8.2 Figure 2 (Short and associated word list for EO (2010)

**Table 1**

**Word Lists for Entrepreneurial Orientation Dimensions**

| Dimension | Content Analysis Words With Expert Validation |
|---|---|
| Autonomy | at-liberty, authority, authorization, autonomic, autonomous, autonomy, decontrol, deregulation, distinct, do-it-yourself, emancipation, free, freedom, free-thinking, independence, independent, liberty, license, on-one's-own, prerogative, self-directed, self-directing, self-direction, self-rule, self-ruling, separate, sovereign, sovereignty, unaffiliated, unattached, unconfined, unconnected, unfettered, unforced, ungoverned, unregulated |
| Competitive aggressiveness | achievement, aggressive, ambitious, antagonist, antagonistic, aspirant, battle, battler, capitalize, challenge, challenger, combat, combative, compete, competer, competing, competition, competitive, competitor, competitory, conflicting, contend, contender, contentious, contest, contestant, cutthroat, defend, dog-eat-dog, enemy, engage, entrant, exploit, fierce, fight, fighter, foe, intense, intensified, intensive, jockey-for-position, joust, jouster, lock-horns, opponent, oppose, opposing, opposition, play-against, ready-to-fight, rival, spar, strive, striving, struggle, tussle, vying, wrestle |
| Innovativeness | ad-lib, adroit, adroitness, bright-idea, change, clever, cleverness, conceive, concoct, concoction, concoctive, conjure-up, create, creation, creative, creativity, creator, discover, discoverer, discovery, dream, dream-up, envisage, envision, expert, form, formulation, frame, framer, freethinker, genesis, genius, gifted, hit-upon, imagination, imaginative, imagine, improvise, ingenious, ingenuity, initiative, initiator, innovate, innovation, inspiration, inspired, invent, invented, invention, inventive, inventiveness, inventor, make-up, mastermind, master-stroke, metamorphose, metamorphosis, neoteric, neoterism, neoterize, new, new-wrinkle, novation, novel, novelty, original, originality, originate, origination, originative, originator, patent, radical, recast, recasting, resourceful, resourcefulness, restyle, restyling, revolutionize, see-things, think-up, trademark, vision, visionary, visualize |
| Proactiveness | anticipate, envision, expect, exploration, exploratory, explore, forecast, foreglimpse, foreknow, foresee, foretell, forward-looking, inquire, inquiry, investigate, investigation, look-into, opportunity-seeking, proactive, probe, prospect, research, scrutinization, scrutiny, search, study, survey |
| Risk taking | adventuresome, adventurous, audacious, bet, bold, bold-spirited, brash, brave, chance, chancy, courageous, danger, dangerous, dare, daredevil, daring, dauntless, dicey, enterprising, fearless, gamble, gutsy, headlong, incautious, intrepid, plunge, precarious, rash, reckless, risk, risky, stake, temerity, uncertain, venture, venturesome, wager |

8.3 Table 1 (Random sample S&P 500)

TABLE 1.xlsx

8.4 Table 2 (Filtered sample: EBIT, Stock Price)

TABLE 2 (filtered).xlsx

8.5 Table 3 (Filtered sample: NPM)

TABLE 3 (NPM).xlsx

8.6 Table 4 (Filtered sample: ROA)

TABLE 4 (ROA).xlsx

## 8.7 Table 5: (Variables)

| | Variables | How it is measured? |
|---|---|---|
| Independent Variable | Entrepreneurial Orientation (EO) | % of words associated with EO from shareholder letters |
| Dependent variables | EBIT | Taken from Yahoo finance directly |
| | ROA | Net income / total assets in measured year |
| | Stock Price | As of December 1st in the year of measurement |
| | NPM | Net income / total revenues |

## 8.8 Table 6 (Goodness of Fit)

| Performance Model | X^2 (CHI squared) | Degree of freedom (DF) | P-Value of Fit | Root Mean Square error of approximation (RMSEA) | Comparative fit index (CFI) |
|---|---|---|---|---|---|
| Stock Price | 43.717 | 7 | .000 | .196 | .957 |
| Net Profit Margin (NPM) | 3.810 | 7 | .801 | 0.000 | 1.000 |
| Return on Assets (ROA) | 11.811 | 7 | .107 | .074 | .972 |
| Earnings Before Income-tax (EBIT) | 30.344 | 7 | 0.000 | .156 | .932 |
| Cut off values for goodness of fit (Hair & Anderson, 2015) | | | P-value > 0.05 | RMSEA < 0.08 | CFI > 0.90 |

## 8.9 Table 7 (Stock Price)

| Impacted Variable | Explanatory variable | Estimate | Standard Error | Critical Ratio | P-Value |
|---|---|---|---|---|---|
| Stock Price 2019 | EO 2018 | -34.204 | 331.949 | -0.103 | .918 |
| EO 2019 | Stock Price 2018 | .000 | .000 | -0.485 | .628 |
| EO 2019 | EO 2018 | .425 | .089 | 4.770 | **0.00** |
| Stock Price 2019 | Stock Price 2018 | 1.094 | .020 | 56.045 | **0.00** |
| Stock Price 2020 | EO 2019 | 1132.403 | 634.175 | 1.786 | .074 |
| EO 2020 | Stock Price 2019 | .000 | .000 | -0.339 | .735 |
| EO 2020 | EO 2019 | .389 | .068 | 5.766 | **0.00** |
| Stock Price 2020 | Stock Price 2019 | 1.490 | .037 | 39.752 | **0.00** |

## 8.10 Table 8 (NPM)

| Impacted Variable | Explanatory variable | Estimate | Standard Error | Critical Ratio | P-Value |
|---|---|---|---|---|---|
| NPM 2019 | EO 2018 | -0.104 | .876 | -0.119 | .905 |
| EO 2019 | NPM 2018 | .018 | .010 | 1.865 | .062 |
| EO 2019 | EO 2018 | .386 | .093 | 4.148 | **0.00** |
| NPM 2019 | NPM 2018 | .792 | .090 | 8.824 | **0.00** |
| NPM 2020 | EO 2019 | -0.011 | 1.350 | -0.008 | .994 |
| EO 2020 | NPM 2019 | -0.014 | .007 | -2.044 | **.041** |
| EO 2020 | EO 2019 | .433 | .076 | 5.686 | **0.00** |
| NPM 2020 | NPM 2019 | 1.115 | .120 | 9.277 | **0.00** |



## 8.11 Table 9 (ROA)

| Impacted Variable | Explanatory variable | Estimate | Standard Error | Critical Ratio | P-Value |
|---|---|---|---|---|---|
| ROA 2019 | EO 2018 | .201 | .444 | .453 | .651 |
| EO 2019 | ROA 2018 | .020 | .014 | 1.407 | .159 |
| EO 2019 | EO 2018 | .367 | .090 | 4.086 | **.00** |
| ROA 2019 | ROA 2018 | .663 | .070 | 9.498 | **0.00** |
| ROA 2020 | EO 2019 | -0.157 | .539 | -0.292 | .770 |
| EO 2020 | ROA 2019 | -0.030 | .012 | -2.559 | **.011** |
| EO 2020 | EO 2019 | .432 | .072 | 6.040 | **0.00** |
| ROA 2020 | ROA 2019 | .705 | .089 | 7.900 | **0.00** |



## 8.12 Table 10 (EBIT)

| Impacted Variable | Explanatory variable | Estimate | Standard Error | Critical Ratio | P-Value |
|---|---|---|---|---|---|
| EBIT 2019 | EO 2018 | -1,762754.434 | 25,029,129.931 | -0.070 | .944 |
| EO 2019 | EBIT 2018 | .000 | .000 | -0.010 | .992 |
| EO 2019 | EO 2018 | .426 | .089 | 4.782 | **0.00** |
| EBIT 2019 | EBIT 2018 | .869 | .040 | 21.867 | **0.00** |
| EBIT 2020 | EO 2019 | 44,146,320.720 | 44,120,517.905 | 1.001 | .317 |
| EO 2020 | EBIT 2019 | .000 | .000 | 2.012 | **.044** |
| EO 2020 | EO 2019 | .388 | .066 | 5.839 | **0.00** |
| EBIT 2020 | EBIT 2019 | .796 | .080 | 9.942 | **0.00** |