THE MARKET'S VERDICT

CEO CHANGES AND OMX-STOCK MARKET RESPONSES BEFORE AND DURING COVID-19

Gabriel Åström

Victor Bagley

Bachelor Thesis

Stockholm School of Economics

2023

The Market's Verdict: CEO Changes and OMX-Stock Market Responses Before and During Covid-19

Abstract:

This paper examines the impact of chief executive officer (CEO) changes on the Swedish stock market, comparing market responses during Covid-19 to a benchmarking period that comprises preceding years. We find significant positive average abnormal returns following announcements of CEO change across both examined periods, suggesting that CEO changes are consistently favored by the market and not heavily affected by Covid-19. No significant relationship is found between abnormal returns and CEO origin, CEO gender nor firm size when tested individually. This contrasts to previous literature, where significant differences have been observed as dependent on CEO origin and firm size respectively. We instead find a significant interaction effect between CEO origin and firm size during Covid-19, where external CEOs are associated with increased abnormal returns that diminish as firm size increases.

Authors:

Gabriel Åström (25293)

Victor Bagley (25317)

Tutor:

Paula Roth, Postdoc Fellow at the Swedish House of Finance

Examiner:

Adrien d'Avernas, Assistant Professor, Department of Finance

Bachelor Thesis

Bachelor Program in Business and Economics

Stockholm School of Economics

Gabriel Åström & Victor Bagley

I. Introduction

The appointment of a Chief Executive Officer (CEO), stands as one of the most important events in the life of any organization. CEOs obtain considerable influence over a firm's strategic direction, which ultimately affects the firm's financial performance and its ability to stay ahead of competition (Schiereck, Six, Stock and Zacharias, 2015; Mackey, 2008). Considering this, it is apparent that these transitions serve as a signal and thus capture the attention of investors and other stakeholders. The perceived signal to the announcement is mixed – while some investors interpret it as a positive sign that the company is taking proactive measures to adapt to changing circumstances and improve performance (Huson, Malatesta and Parrino, 2004), other investors might see it as a negative signal, expressing concerns about instability or internal issues within the organization (Chung, Lubatkin, Rogers and Owers, 1989).

Research on stock market reactions to management changes dates back as far as to the 1980s, with the pioneers Reinganum (1985), Furtado and Rozeff (1987) and Bonnier and Bruner (1989) laying the groundwork for an understanding of investor perceptions, through quantification of abnormalities in U.S. stock market returns during announcements of change in management. They found that the change of CEO was reported to elicit the strongest reactions. These observations have prompted recent researchers to solely examine the CEO, where increased shareholder value as measured by abnormal returns following the announcements (Adams and Mansi, 2009; Rose, 2018).

While extensive research has examined the impact of CEO changes on stock markets, there remains a notable gap in our understanding in relation to the Swedish stock market. Much of the existing literature has mainly focused on the U.S. market or other major global exchanges, as pointed out by Lausten (2002). The distinctive characteristics of the Swedish market, with ownership concentration structures that are uniquely high (Agnblad, Berglöf, Högfeldt and Svancar, 2002), regulatory environment of prohibiting CEO duality (Cieslak, Hamberg and Vural, 2021) and the moderate degree of managerial discretion (Crossland and Hambrick, 2011) may explain deviations in findings regarding the relationship between CEO changes and stock market reactions. Thus, we seek to address this gap by providing a comprehensive view on stock market reactions to CEO changes within the context of Sweden.

Moreover, it is important to consider the broader economic landscape and its impact on market reactions as we examine CEO changes. While Rose (2018) has reported

differences in market reactions to CEO changes during the 2008 financial crisis, there is a noticeable scarcity of research exploring CEO changes during times of systemic distress, particularly in the context of the Covid-19 pandemic which stands out due to its exogenous shock to the world economy leading to increased stock market volatility (Aharon, Demir, Kizys and Zaremba, 2020). CEO changes during crisis periods may have distinct implications for firms and investors, as the uncertainties and challenges posed by crises increase the importance of effective leadership (Bauer, Scheuerlein and Chládková, 2018). We aim to contribute to this area by investigating CEO changes within the context of the Covid-19 crisis and assessing whether market preferences and reactions differ during periods of heightened economic uncertainties.

While the event of a CEO change receives considerable attention, the event itself is not the only factor considered by investors. The characteristics of the CEO are important mediating factors influencing investor perceptions and market reaction. However, the understanding of how the stock market reacts to these different characteristics remains inconclusive due to mixed results and concerns regarding endogeneity, wherein CEO selection may be intertwined with the company's performance (Datta and Guthrie, 1994). To address the issue of endogeneity, Bonnier and Bruner (1989) propose a methodology which focuses on underperforming firms, that aim to effectively find the true effects of CEO change while also accounting for other potential confounding factors. Due to the potential issue of underperformance serving as the main driver of CEO change and abnormal returns, we control for past stock returns in an attempt to discern the true impact of the characteristics of scope in this paper. Considering this, we expect an inverse relationship between stock performance prior to CEO change and abnormal returns.

A core focus of this study is to examine how the investors' reaction to the CEO change differs, depending on the different characteristics of the CEO and the firm. The characteristics considered in this study include the origin and gender of the successor as well as the firm size. The origin of the new CEO has been studied extensively in relation to CEO changes, with external CEOs seen as beneficial during underperformance due to their ability of providing valuable insights and reshaping resource allocation (Parrino, 1997). Internal successions, on the other hand, are associated with continuity and become less preferred in challenging times (Ferris, Jayaraman and Lim, 2015). Furthermore, research on stock market responses to female CEOs has previously been left inconclusive (Lee and James, 2007; Rose, 2018), but the recent increase in female executives prompts further investigation. While female appointed successors are associated with reduced firm risk and stricter monitoring

practices (Martin, Nishikawa and Williams, 2009; Carter, D'Souza and Simpson, 2015), strong governance may hinder their innovation (Faleye, Hoitash and Hoitash, 2011). Moreover, firm specific characteristics have been found to influence the appointment of CEOs, as recruitment of external CEOs has been found to occur more frequently in smaller firms compared to larger ones (Parrino, 1997). Reinganum (1985) suggests that the impact of CEO change is likely to be more meaningful in smaller firms due to their less complex control structures compared to larger ones. The size of the firm has been documented to influence the market responses to changes of CEO (Bonnier and Bruner, 1989), however more recent results by Rose (2018) found no significant relationship between firm size and abnormal returns on sample data spanning from 2005 to 2013. These opposing findings from different times emphasize the need for further investigation in a more recent context, to improve the understanding of the current market perceptions on CEO changes.

We divide the investigation into two parts. First, we will conduct an event study to estimate abnormal returns associated with the announcement of CEO changes. The event study methodology allows us to isolate the impact of CEO transitions from other market factors. Second, we conduct cross-sectional regressions to explore the relationships between abnormal returns and a range of CEO- and firm-specific characteristics. This approach enables us to identify which factors, if any, influence market preferences and reactions to CEO changes. Furthermore, we aim to compare market responses before and during Covid-19. This is done by examining two time periods, separated by the date of which the World Health Organization (WHO) declared a Public Health Emergency of International Concern (30 January 2020). On 5 May 2023, the WHO ended the declaration of global emergency, which marks the end of the examined Covid-period (World Health Organization, 2023). Correspondingly, the Pre-Covid period, starting from 29 October 2016, provides an equal time frame for comparison.

By examining how the Swedish stock market responds to CEO change announcements during the Pre-Covid and Covid period, we aim to identify the similarities and the differences shaped by the market sentiment, expressed in abnormal returns. Across the examined periods we find support for significant positive average abnormal returns following the announcement of a new CEO, indicating a persistent positive outlook towards managerial change in the Swedish market. While the average abnormal returns are similar in magnitude, differences in intra-event window returns suggest potential market shifts during Covid-19, when compared to the preceding years. The Pre-Covid period is found to have

higher fluctuation during the days after announcement, whereas the Covid period obtains more stable returns.

In contrast to prior findings such as Reinganum (1985) and Rose (2018) who found varying market reactions depending on the origin of the new CEO, we do not find significant relationships between abnormal returns and CEO origin, CEO gender, or firm size when tested individually. However, a notable interaction effect is observed during the period of Covid-19, revealing a preference for external CEOs as firm size decreases, while abnormal returns for internal CEOs increase slightly with firm size. This matches the findings of Furtado and Rozeff (1987) as well as Reinganum (1985), which suggest that the stock market favors external appointments less in larger firms in comparison to internal promotions. We also find support that the amount of CEO changes differs across different periods of time, as we, similar to Rose (2018) observe a significant increase of CEO changes during times of crisis. Moreover, while Rose (2018) found significant increases in abnormal returns to announcements of external CEOs *before* the 2008 crisis and not during the crisis itself, our results indicate increased positive responses for external CEOs in smaller firms *during* the crisis of Covid-19.

Our results give strong support to the hypothesized relationship of abnormal returns in response to CEO changes, implying perceived relevance and significance by the Swedish market. The evidence for differing market sentiments between the period of Pre-Covid and Covid is ambiguous, with varying intra-event window reactions converging to responses of similar levels at large. Our results bring new light to previous research on the influence of mediating factors on abnormal returns following CEO change, with a significant interaction between origin of the CEO and firm size during the period of Covid, despite the lack of significant relationships for the characteristics when tested separately.

II. Theoretical Background

This study aligns with the extensive body of literature on stock market reactions to changes of the CEO, where existing research has consistently demonstrated that excess returns are not exclusively determined by the CEO change event itself. Instead, these returns are shaped by various mediating factors considered by the stock market, revealing a nuanced landscape of effects observed across different instances of CEO change. The seminal papers on this area are those of Reinganum (1985), Furtado and Rozeff (1987) and Bonnier and Bruner (1989), reporting significant positive abnormal returns related to announcements of management changes using samples of firms on American stock exchanges. Similar findings were reported by Adams and Mansi (2009), with positive stockholder gains of 2.43% on a sample of over 670 events spanning from the years 1973 to 2000. Bonnier and Bruner (1989) explored changes of different senior management positions and their stock market responses, and found that changes of CEO elicit the strongest reactions, with the origin of the CEO and firm size significantly contributing to the magnitude of market responses. This suggests that market responses to the announcement of a new CEO are influenced by different characteristics of the CEO and the firm.

More recently, Rose (2018) further investigated this idea of characteristic-driven differences in abnormal returns from announcements of CEO appointments, comparing internal and external CEOs on the Danish, Finnish and Swedish stock markets in the period of 2005 to 2013 with a sample of 334 announcements. Rose (2018) found that the Swedish stock market "punishes" internally recruited CEOs, whereas the Danish stock market rewards external CEOs with cumulative average abnormal returns (CAAR) of 2.19%. With regards to gender of the new CEO, Rose (2018) found no significant difference in stock market responses, possibly explained in part by the low proportion of female CEOs (6%). Furthermore, Rose (2018) reports that stock markets reacted significantly more positively to external CEOs that were announced before the financial crisis of 2008, in comparison to the subsequent announcements. Due to the suspicion that firm size might have driven the results, Rose (2018) re-ran regressions with inclusion of firm size measured as the logarithm of assets. However, this did not significantly alter the findings. With the recent crisis of Covid-19, the question arose whether Rose's (2018) findings are consistent in later years and another crisis period of systemic distress.

Our study offers contributions to existing literature in multiple ways. We cover the Swedish stock market spanning over the more recent years 2016 to 2023 on an extensive

sample of 362 events. This implies a period prior to Covid-19 and one of equal length during the Covid-19 pandemic, allowing the possibility to identify any distinct changes in market responses to CEO change during the recent crisis.

III. Methodology and Data

The research model is divided into two parts, starting with an event study that estimates market responses to announcements of CEO change, as measured by abnormal returns. This is followed by a cross-sectional analysis, where abnormal returns are regressed against different characteristics of the CEO and the firm, also testing for interaction effects between the characteristics. The study spans from 2016 to 2023, comparing the period of the Covid-19 crisis with a period of equal time frame, defined as Pre-Covid. The aim is to identify how the market considers CEO changes, whether investors prefer certain CEO- and firm characteristics and if that changes in times of distress. We aim to test multiple hypotheses. Firstly, we suggest that CEO changes are considered by the stock market, as demonstrated by abnormal returns. Secondly, we hypothesize that abnormal returns following CEO change announcements differ between the periods Pre-Covid and Covid, as an indication of changed market sentiment. Lastly, we propose that the abnormal returns are influenced by various mediating factors, including origin and gender of the new CEO, firm size, and their interactions.

A. *The Event Study*

The efficient market hypothesis claims that all information related to firms are reflected in their respective stock prices (Fama, 1970). This enables the possibility to examine how unexpected corporate events, such as corporate acquisitions and managerial changes, affect valuation, through quantification of corporate press releases' impact on stock prices. A common methodology for this sort of analysis is the event study that was first introduced in corporate finance by Ball and Brown (1968) and later further presented in detail by MacKinlay (1997).

We conduct an event study to quantify the economic impact that a firm's announcement of CEO change has on its stock price, as measured by *abnormal returns*. The event study is specifically based around the announcement day of the change as it represents the day when new information is available to the market, in contrast to the entry date where no new information is disclosed. Abnormal returns are calculated by subtracting the *expected return* of a stock for the day of specified event from the *actual return* on the given event day (day 0). Within the area of event study, there are multiple models that can be used to estimate the abnormal returns. We employ the market model, a model where coefficients α and β are computed for each stock that estimate expected returns, building on a reference market's

returns and the individual stock's correlation with the market. Expected returns are thereby predicated on the firm's typical relationship with the index as well as the market return. One advantage is controlling for variation in index returns during the event. The market model coefficients, represented by α_i and β_i, are estimated through ordinary least square regressions (OLS) on an estimation window consisting of 120 trading days prior to the event window for each stock using daily returns (i.e., the 120 trading days used in the estimation correspond to the interval [-130, -10]). The market model equation (1) is described below, with $AR_{i,t}$ representing the abnormal return for stock i during time t. $R_{i,t}$ is the actual return for stock i during time t, α_i and β_i the parameters estimated over the estimation window for stock i, and $R_{m,t}$ the market's return during time t.

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \quad (1)$$

A total of 362 events are examined to estimate abnormal returns on the Swedish stock market to CEO changes, with OMXSPI used as reference index. With a sample event study consisting of multiple instances, average abnormal returns (AAR) are calculated as the average abnormal return of the sample. New information might not be reflected in the stock price immediately during the day of announcement, but rather within multiple days around the event. Therefore, the days around the event day are considered. We include the days before the event day, due to potential information leakage. The days after the event could show abnormal returns due to staggered market adjustments. The time period surrounding the event day is defined as the event window. In order to take multiple days of average abnormal returns into account, cumulative average abnormal returns (CAAR) are calculated as the sum of average abnormal returns for the days of the specified event window. Significance is tested for using t-tests under the assumption of normally distributed abnormal returns, supplemented by alternative significance tests that are commonly used in the event study literature. We initially examined the event window of [-5, 5], to capture several days surrounding the event of CEO change announcement.

We examine additional event windows placed before and after the event window in focus, as done by Flammer (2021), to ensure that the observed effects of an event are not influenced by pre-existing trends nor post-event developments. With a pre-event window [-9, -6], we can identify any existing trends or anomalies that might distort the results for the event of interest. A post-event window [6, 9] allows for the assessment of whether the

observed effects persist or disappear over time. This approach strengthens the reliability by providing a more accurate understanding of the event's impact.

To examine differences in market reactions between the period of Covid-19 and years prior, as is done by Rose (2018), we divide the sample period in two separate periods with the Pre-Covid period spanning from October 2016 to January 2020, followed by the Covid period ending May 2023. We subsequently conducted a detailed analysis within this time frame by narrowing our focus to specific subintervals, with CAARs for different event windows ([-2, 2] and [0, 2]), and average abnormal returns (AAR) for the single day of event (day 0), in order to reveal finer distinctions in immediate market responses between the Pre-Covid and Covid periods that might be missed in the broader window of [-5, 5].

B. Cross-sectional Regression

Subsequent to the event study, OLS regressions are conducted to estimate whether the variance of abnormal returns can be attributed to the characteristics of interest, as done by Bonnier and Bruner (1989) and Rose (2018). This is conducted since the event study itself only tests whether abnormal returns can be identified in association with corporate events (MacKinlay, 1997). The characteristics in focus include origin of the CEO, gender of the CEO and firm size, capturing both CEO- and firm specific features of the event.

Consistent with existing research (Bonnier and Bruner, 1989; Jalal and Prezas, 2012) CEO origin is included in the regression model, represented by a dummy variable (externally appointed CEOs taking the value 1, and 0 for internal CEOs). Similar to Rose (2018), a gender dummy variable is introduced identifying female appointed CEOs as one. Firm size is also frequently discussed as a factor of influence in the literature (Furtado and Rozeff, 1987; Bonnier and Bruner, 1989; Rose, 2018). Whereas Furtado and Rozeff (1987) measures firm size as market value of equity, and Rose (2018) tests the natural logarithm of assets, we use the natural logarithm of market capitalization. Furthermore, we control for the individual stock's past performance (PP) corresponding to the stock's return over the estimation period (i.e., the interval [-130, -10]), since poor performance is expected to yield an increased positive response to change of CEO. The regression models regress cumulative abnormal returns from the event study against the CEO- and firm characteristics of interest, separately for the Pre-Covid and Covid period followed by the whole sample, with equation 2 describing the model. Subsequent regressions include and test for potential interaction effects between the variables, as suggested by evidence of Furtado and Rozeff (1987) and Reinganum (1985).

$$CAR_i \ = \ \beta_0 \ + \ \beta_1 EXTERNAL \ + \ \beta_2 FEMALE \ + \ \beta_3 LN(MCAP) \ + \ \beta_4 PP \ + \ \epsilon_i \quad (2)$$

C. Data Description

We use the declarations of the World Health Organization (WHO) as a basis for delimiting the Covid-19 period (January 30th, 2020 to May 5th, 2023) to ensure that findings can be compared. To specifically benchmark the findings during a crisis against another period, as done by Rose (2018), we use a symmetrical approach by investigating the period before Covid through extending a timeframe of equal length backwards from the declaration of WHO, a period we refer to as Pre-Covid.

Announcements of CEO changes on the Swedish stock market were retrieved from Capital IQ. If the event solely regarded the resignation of a previous CEO, it was excluded from the sample. M&A-related events were also excluded due to the potential introduction of confounding factors. Exclusion was further applied to event duplicates, cases of interim/acting CEOs and events with insufficient data. After final adjustments, the total sample amounts to 362 events which corresponds to 55% of all events retrieved from Capital IQ. Closing price data on stocks and index returns were obtained through Refinitiv Eikon, used to calculate abnormal returns. Firm size data were retrieved from Capital IQ. Table I shows descriptive statistics for periods Pre-Covid and Covid separately, followed by the whole sample of CEO change events.

Table I: Descriptive Statistics

	Pre-Covid					Covid					Whole Sample				
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
External	143	0.54	0.5	0	1	219	0.51	0.5	0	1	362	0.52	0.5	0	1
Female	143	0.18	0.4	0	1	219	0.18	0.39	0	1	362	0.18	0.39	0	1
LN(Marketcap)	143	7.46	2.49	1.89	13.19	219	6.55	2.29	1.16	12.49	362	6.89	2.43	1.16	13.19
PP - Past Performance	143	-0.05	0.23	-0.78	0.83	219	-0.04	0.45	-0.97	2.94	362	-0.04	0.37	-0.97	2.94

Note: External is a dummy variable for CEO origin, which takes the value 1 for external appointed CEOs. Female is a dummy variable for CEO gender, which takes the value 1 for female appointed CEOs. LN(Marketcap) is the firm size variable, measured as the natural logarithm of the firm's market capitalization. Past Performance (PP) corresponds to the firm's stock return over the estimation period [-130, -10], using closing prices.

IV. Empirical Results and Analysis

A. *Primary Findings*

To ensure that it is the CEO change announcement that impacts the stock's return, we first investigate the periods before and after the announcement to identify if there are any sudden drifts or confounding trends that may distort the accuracy of our estimations of abnormal returns related to the event in focus. No trends are found in average abnormal returns before nor after the specified event window with regards to magnitude and statistical significance (Table II). This absence of pre-existing trends and post-event developments reinforces the reliability and underscores the CEO change's independent impact.

Table II
Abnormal Returns Before, During and After Announcement of CEO Change

Stock market reaction to the announcement of CEO change. This table reports the cumulative average abnormal returns (CAAR) for different time windows around the announcement of CEO change. P-values in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Event window	Pre-Covid	Covid
CAAR[-9, -6]	0.18% (0.753)	0.68% (0.213)
CAAR[-5, 5]	2.96%*** (0.003)	3.15%*** (0.001)
CAAR[6, 9]	0.63% (0.273)	0.24% (0.660)

The results presented in Table III illustrate the differences in stock market reactions surrounding CEO changes in both Pre-Covid and Covid-19 periods, spanning the years 2016 to 2023. We begin by looking at the different event windows within each period. Notably, the CAARs throughout all event windows are higher during Covid. The extended event window of [-5, 5] reveals a distinct pattern compared to the abnormal returns on the event day (AAR[0]), as the magnitude of the stock market return is twice as high when accounting for the surrounding days. This discrepancy suggests that information leakage as well as delayed market adjustments might have occurred during both examined periods. However a closer comparison of CAAR[0, 2] to CAAR[-2, 2] indicates differences between the event windows. While there is a significant adjustment of 0.51% occurring in the Pre-Covid period, the differences in abnormal returns during Covid are insignificant.

Subsequently, we compare the periods Pre-Covid and Covid for the same event windows, finding that reactions differ between these periods. While the CAAR[-2, 2] is statistically significant for both Pre-Covid (1.80%, p<0.01) and Covid (2.13%, p<0.01) periods, the former exhibits a slightly diminished response. This decrease may be indicative of heightened market volatility and uncertainty during the pandemic, whereas immediate positive reactions to CEO changes are reduced in periods of higher stability. Furthermore, CEO changes during the Pre-Covid period exhibit significantly lower returns (1.29%, p<0.01) for CAAR[0, 2] when compared to the Covid period (2.15%, p<0.00). The abnormal returns of Pre-Covid even indicate negative adjustment on day 2 when compared to its returns on the day of the announcement. This finding suggests a less consistent market adjustment during Pre-Covid, with distinct fluctuation in abnormal returns following the announcement which is not observed in the Covid period.
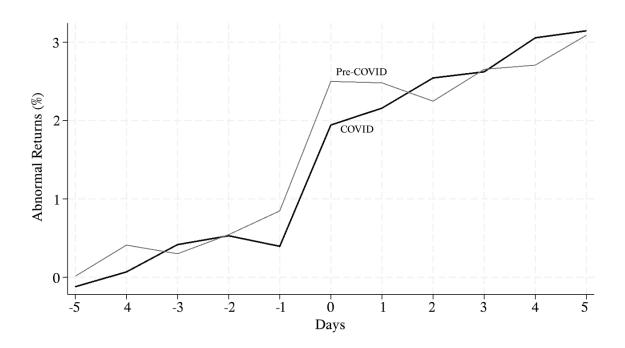

Figure 1. Cumulative Abnormal Returns over the Event Window [-5, 5].
This figure reports the cumulative average abnormal returns (CAAR) in percentage around the announcement of CEO change during Pre-Covid and Covid, extending from 5 days before the announcement to 5 days after.

Comparing the abnormal returns during the day of the announcement, there are no significant differences in market responses between the periods Pre-Covid and Covid (see

figure 1). The wider event window of [-5, 5] further reinforces similar responses at large. The significant positive abnormal returns are consistent with previous findings (Furtado and Rozeff, 1987; Bonnier and Bruner, 1989; Adams and Mansi, 2009). However, while the overall returns are similar between the periods, specific variation across the different time windows suggest altered market dynamics which requires a closer examination of the underlying factors influencing investor sentiment. These findings underscore the nuanced relationship between CEO changes and stock market reactions, emphasizing the moderating influence of external factors such as the Covid-19 pandemic on investor behavior, as pointed out by Hoffmann, Post and Pennings (2013) with regards to the financial crisis of 2008.

Table III: Average Abnormal Returns for Different Event Windows

Differences in stock market reaction to the announcement of CEO change between periods Pre-Covid and Covid. This table reports cumulative average abnormal returns for different event windows during announcement of CEO change, as well as average abnormal return on the day of announcement. P-values in parentheses. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Event window	Pre-Covid	Covid
CAAR[-5, 5]	2.96%*** (0.003)	3.15%*** (0.001)
CAAR[-2, 2]	1.80%*** (0.006)	2.13%*** (0.001)
CAAR[0, 2]	1.29%** (0.010)	2.15%*** (0.000)
AAR[0]	1.53%*** (0.000)	1.55%*** (0.000)

B. Regression Analysis

Panel A regresses the different CEO- and firm specific characteristics of interest against cumulative abnormal returns for the periods of Pre-Covid, Covid as well as the whole sample. In regressions (1) through (9) each variable is regressed separately, whereas regressions (10) through (12) regress all variables together. The External dummy is examined in regressions (1) through (3), showing insignificant results across all periods. However, the coefficients differ notably between the periods, possibly indicating slight negative market perceptions towards external recruitments before Covid, yet the lack of significance implies inconclusive results. This contrasts to the findings of Rose (2018), who found varying market reactions depending on the origin of the new CEO. The firm size variable as measured by the logarithm of market capitalization is regressed against abnormal returns in regressions (4) through (6), with small coefficients that differ in direction between the periods and are

insignificant. Regressions (7) through (9) provide similar results with regards to the gender variable, with insignificance for both periods separately as well as the whole sample. This aligns with the findings of Rose (2018) despite our sample having a much higher proportion of female-appointed CEOs of 18%, compared to Rose (2018) where the proportion was only 6%. The coefficients differ between the periods, where a positive coefficient is observed for the period Pre-Covid in contrast to a negative coefficient during Covid. Regardless, the insignificance prevents us from rejecting the null-hypothesis that gender has no effect on abnormal returns. The results remain inconclusive when all variables are regressed together in regressions (10) through (12), revealing no differences in terms of magnitude or statistical significance from the regressions on the variables isolated.

In response to the apparent lack of significant relationships between the variables of interest and abnormal returns, further explorations of potential interaction effects are conducted. Consequently, Panel B regresses abnormal returns against the external dummy, firm size and the interaction variable between the two, first without and second with controlling for past performance. Regressions (1) and (2) cover the period Pre-Covid, (3) and (4) the period Covid, and lastly the whole sample in regressions (5) and (6). Interaction effects between the three variables of all combinations were also tested for, but showed no significance and were thus omitted from the panel. While insignificance remains for the Pre-Covid period as well as the whole sample, the results show significance for all variables during Covid, with and without controlling for past performance. As shown in regression (4), the external dummy shows a large significant positive coefficient of 0.127. The Size variable has a significant positive coefficient of 0.012, suggesting that abnormal returns increase with the firm size. However, the coefficient of interaction between these variables is negative, suggesting that market responses from external CEOs are greatest in smaller firms, with diminishing returns as the firm size increases. This implies that the relationship between internal CEOs and abnormal returns differ in shape, with abnormal returns simply increasing with the firm size. This aligns with the findings of Friedman and Singh (1989) who reported a general market preference of externally appointed CEOs in small firms. The results are also consistent with the findings of Furtado and Rozeff (1987) as well as Reinganum (1985) which suggest that the stock market favors external appointments less in larger firms in comparison to internal promotions. The positive reaction to external CEOs in small firms during the Covid period could therefore partly be explained by the idea that managerial discretion decreases as firm size increases (Carmeli, Friedman and Tishler, 2016). The impact of new leadership on larger firms might be perceived as less immediate or effective in

addressing the challenges posed by the pandemic. The inertia inherent in larger firms poses a challenge for new CEOs to promptly influence organizational outcomes compared to their counterparts in smaller firms.

When comparing our results with the findings of Rose (2018), we find multiple discrepancies, the most significant being with regards to externally recruited CEOs before and after economic crises. Whereas Rose (2018) found significantly increased positive returns in the period *before* the crisis of 2008, our results suggest that abnormal returns, for smaller firms, were relatively large and significant *during* Covid-19. Furthermore, while Rose (2018) reported no impact of firm size on the abnormal returns of external CEOs, our findings suggest that the positive reaction diminishes as firm size increases. Another notable difference is that of the past performance measure, share return, where Rose (2018) found no significant relationship with abnormal returns. This stands in contrast to our results, where past performance (PP) is controlled for and shows statistical significance in all but one regression.

Panel A: Abnormal Returns, CEO- and Firm Specific Characteristics

This panel reports cross-sectional regressions, where cumulative abnormal returns are regressed against different CEO- and firm characteristics. In regressions (1) through (9), the characteristics are regressed individually, whereas all are included together in regressions (10) through (12), each in the order Pre-Covid, Covid, whole sample.

	\(Dependent Variable:\)											
	CAR [-5, 5]											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Origin of CEO, External = 1	-0.028	0.000	-0.012							-0.023	0.002	-0.012
	(0.022)	(0.021)	(0.015)							(0.021)	(0.021)	(0.015)
Firm Size, LN(Market Cap)				-0.001	0.003	0.001				-0.001	0.003	0.001
				(0.004)	(0.004)	(0.003)				(0.004)	(0.004)	(0.003)
Gender of CEO, Female = 1							0.037	-0.019	0.003	0.032	-0.020	0.002
							(0.030)	(0.021)	(0.018)	(0.029)	(0.021)	(0.018)
Past Performance (PP)	-0.138*	-0.076**	-0.084***	-0.142*	-0.079**	-0.087***	-0.149*	-0.075**	-0.086***	-0.138	-0.079**	-0.086***
	(0.083)	(0.034)	(0.032)	(0.084)	(0.036)	(0.033)	(0.084)	(0.034)	(0.032)	(0.084)	(0.035)	(0.032)
Intercept	0.028	0.009	0.017	0.022	-0.013	0.004	0.005	0.012	0.01	0.027	-0.012	0.010
	(0.017)	(0.016)	(0.012)	(0.039)	(0.031)	(0.024)	(0.010)	(0.012)	(0.008)	(0.038)	(0.033)	(0.025)
Observations	143	219	362	143	219	362	143	219	362	143	219	362
R²	0.074	0.042	0.046	0.063	0.044	0.045	0.074	0.044	0.045	0.082	0.047	0.047
F Statistic	2.24	2.72*	3.55**	1.58	2.45*	3.54**	3.40**	2.45*	3.90**	1.72	1.51	1.94

*Note: Robust Standard Errors in parenthesis. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.*

Gabriel Åström & Victor Bagley

Panel B: Abnormal Returns, CEO Origin, Firm Size & Interaction

This panel reports cross-sectional regressions, where cumulative abnormal returns are regressed against the CEO origin dummy, firm size, and the interaction effect. The regressions first excludes and second includes control for past performance, each in the order Pre-Covid, Covid, whole sample.

	Dependent Variable:					
	CAR [-5, 5]					
	(1)	(2)	(3)	(4)	(5)	(6)
Origin of CEO, External = 1	-0.108	-0.082	0.105*	0.127**	0.023	0.045
	(0.085)	(0.084)	(0.063)	(0.062)	(0.050)	(0.049)
Firm Size, LN(Market Cap)	-0.010	-0.004	0.008*	0.012**	0.001	0.005
	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)
Interaction: External * LN (MarketCap)	0.010	0.007	-0.017**	-0.019**	-0.006	-0.008
	(0.009)	(0.009)	(0.008)	(0.008)	(0.006)	(0.006)
Past Performance (PP)		-0.130		-0.083**		-0.088***
		(0.085)		(0.035)		(0.032)
Intercept	0.106*	0.060	-0.038	-0.074*	0.017	-0.018
	(0.061)	(0.056)	(0.041)	(0.040)	(0.035)	(0.033)
Observations	143	143	219	219	362	362
R²	0.034	0.078	0.014	0.062	0.006	0.051
F Statistic	1.04	1.11	2.36*	2.79**	2.09*	2.72**

*Note: Robust Standard Errors in parenthesis. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.*

V. Robustness Checks

Abnormal returns are robust to different estimation window lengths, with significant abnormal returns using both 120 and 200 trading days (see appendix Table IV). Different event window lengths reinforce this further, stretching from only the day of announcement to 11 days ([-5, 5]). Consistency through the application of alternative event study models, both the market-adjusted and historical means models, strengthen the results further (see appendix Table IV). The market-adjusted model takes a constraint on the market model parameters α and β to be set equal to 0 and 1, respectively, while the historical mean model is solely based on the stock's own past performance, independent of market movements.

To check the statistical significance of abnormal returns with alternative tests, we use one parametric test, the Patell (1976) test, as well as two nonparametric tests, the Wilcoxon (1945) test and the Generalized Rank test by Kolari and Pynnönen (2011). The Patell (1976) test prevents stocks with larger variance in abnormal returns to disproportionately affect the results. The Wilcoxon (1945) test provides a distribution-free alternative, considering both the signs and magnitudes of abnormal returns. Additionally, we use the Generalized Rank test by Kolari and Pynnönen (2011) that is robust to event-induced volatility. One benefit of nonparametric tests is that they do not rely on assumptions of normally distributed abnormal returns, as was previously assumed. As shown in appendix Table V, the Patell test reports abnormal returns robust with significance at the 10% level for the period Pre-Covid, and significance at the 1% level during Covid. Significance is obtained at the 1% level for both the Wilcoxon and the Generalized Rank tests during Pre-Covid, while significance at the 5% level is obtained for the Covid period.

The cross-sectional regression with interaction effects for period Covid is robust for the inclusion and non-inclusion of the control for past performance PP (see Panel B), albeit at a slightly lower significance level. Similar results are achieved from regressions on abnormal returns from the single day of announcement, as reported in appendix Panel C.

VI. Discussion

The decision to delimit the Covid-19 period based on the declaration of WHO needs careful consideration. We acknowledge that the experienced intensity of systemic distress did not remain constant throughout the entire period. The pandemic's perceived impact varied over time. Hence, while the WHO declaration provides a reference point that facilitates comparison, it may not fully represent the pandemic's effects on stock market dynamics and CEO changes. Future research could examine the potential temporal heterogeneity within the Covid-19 period, and explore how developments could have altered the dynamics of CEO transitions and their impact on financial markets.

CEO changes can take various forms, potentially eliciting different market responses. The appointment of a new CEO could signal a significant change in operational performance which in turn alters the expectations of the market. On the contrary, CEO resignations without a successor might be interpreted as a signal of internal turmoil or adverse financial conditions, which could evoke negative market reactions. Interim CEOs, temporarily stepping in until a permanent replacement is found may also induce distinct market responses due to the uncertainty surrounding their tenure and firm stability. By delimiting the scope to CEO changes involving new appointments, we aim to examine a specific subset of events that are more likely to be associated with pronounced market reactions in one direction. Nonetheless, we recognize that these exclusions omit insights into market reactions to other CEO transition subsets. Future research could explore the nuances of different scenarios of CEO change, with their respective stock market reactions.

It is important to acknowledge the observation bias, as a result of more CEO change events during 2020 to 2023 compared to 2016 to 2020. The number of events during Covid were nearly 50% higher than the Pre-Covid benchmarking period, which in itself is an interesting finding, possibly indicative of altered market sentiment as a consequence of the systemic distress. Furthermore, the use of 2016 to 2020 as a benchmarking period comes with a potential of time period bias, since the period does not necessarily give a generalized representation of normal market conditions. Therefore, the Pre-Covid period should not be considered as such, but merely an observation of a time period of equal length, adjacent to the pandemic outbreak.

On the note of generalization, our findings are to be considered for the specified country of scope. Sweden is characterized by a moderate level of managerial discretion, which significantly impacts the extent of influence the CEO has on firm performance

(Crossland and Hambrick, 2011). If the CEO lacks influential power on firm performance, the signal that CEO changes send could be interpreted differently by the market. Hence, differences in managerial discretion across countries can explain deviating results. Moreover, we specifically examine immediate stock market reactions to the announcement of CEO change. While long-term performance assessment helps guide the board of directors in appointing a suitable CEO (Choi, Haque, Lee and Wright, 2022), investors' preferences and reactions at the announcement of a new CEO may differ from long term considerations.

VII. Conclusion

Our paper studies the Swedish stock market reactions to announcements of CEO change, comparing abnormal returns during the period of Covid-19 to those of a period before the pandemic. Across both examined periods, we find significant positive average abnormal returns following the announcement of a new CEO, which suggests that it is consistently favored by the Swedish market throughout the period of scope. The abnormal returns are equal in magnitude between the periods, however differences in intra-event window returns between the periods are found, possibly indicative of altered market dynamics in times of systemic distress. Contrasting previous findings, we find no significant relationships between abnormal returns and CEO origin, CEO gender nor size of the firm when each is tested separately. A significant interaction effect between CEO origin and firm size is found during the period of Covid-19, suggesting that external CEOs were increasingly favored as firm size decreased, whereas for internal CEOs, the market responded with abnormal returns slightly increasing with the firm size.

References

ADAMS, J.C. and MANSI, S.A. (2009). CEO turnover and bondholder wealth. *Journal of Banking & Finance*, 33(3), pp.522–533.

AGNBLAD, J., BERGLÖF, E., HÖGFELDT, P. and SVANCAR, H. (2002). Ownership and Control in Sweden: Strong Owners, Weak Minorities, and Social Control. *The Control of Corporate Europe*, pp.228–258.

BALL, R. and BROWN, P. (1968). An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research*, 6(2), pp.159–178.

BONNIER, K.-A. and BRUNER, R.F. (1989). An analysis of stock price reaction to management change in distressed firms. *Journal of Accounting and Economics*, 11(1), pp.95–106.

CIESLAK, K., HAMBERG, M. and VURAL, D. (2021). Executive compensation disclosure, ownership concentration and dual-class firms: An analysis of Swedish data. *Journal of International Accounting, Auditing and Taxation*, 45.

CROSSLAND, C. and HAMBRICK, D.C. (2011). DIFFERENCES IN MANAGERIAL DISCRETION ACROSS COUNTRIES: HOW NATION-LEVEL INSTITUTIONS AFFECT THE DEGREE TO WHICH CEOS MATTER. *Strategic Management Journal*, 32(8), pp.797–819.

DATTA, D.K. and GUTHRIE, J.P. (1994). Executive Succession: Organizational Antecedents of CEO Characteristics. *Strategic Management Journal*, 15(7), pp.569–577.

FALEYE, O., HOITASH, R. and HOITASH, U. (2011). The costs of intense board monitoring. *Journal of Financial Economics*, 101(1), pp.160–181.

FAMA, E.F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(2), pp.383–417.

FERRIS, S., JAYARAMAN, N. and LIM, J. (2015). Six Decades of CEO Successions: The Importance of Being an Insider. *Journal of Accounting and Finance*, 15(4), pp.11–39.

FLAMMER, C. (2021). Corporate Green Bonds. *Journal of Financial Economics*, 142(2), pp.499–516.

FRIEDMAN, S.D. and SINGH, H. (1989). CEO SUCCESSION AND STOCKHOLDER REACTION: THE INFLUENCE OF ORGANIZATIONAL CONTEXT AND EVENT CONTENT. *Academy of Management Journal*, 32(4), pp.718–744.

FRIEDMAN, Y., CARMELI, A. and TISHLER, A. (2016). How CEOs and TMTs Build Adaptive Capacity in Small Entrepreneurial Firms. *Journal of Management Studies*, 53(6), pp.996–1018.

FURTADO, EUGENE P.H., and MICHAEL S. ROZEFF. (1987) The Wealth Effects of Company Initiated Management Changes. *Journal of Financial Economics*, 18(1), pp. 147–160.

HAQUE, M.R., CHOI, B., LEE, D. and WRIGHT, S. (2021). Insider vs. Outsider CEO and Firm Performance: Evidence from the Covid-19 Pandemic. *Finance Research Letters*, 47(Part A).

HOFFMANN, A.O.I., POST, T. and PENNINGS, J.M.E. (2013). Individual investor perceptions and behavior during the financial crisis. *Journal of Banking & Finance*, 37(1), pp.60–74.

HUSON, M.R., MALATESTA, P.H. and PARRINO, R. (2004). Managerial succession and firm performance. *Journal of Financial Economics*, 74(2), pp.237–275.

JALAL, A.M. and PREZAS, A.P. (2012). Outsider CEO succession and firm performance. *Journal of Economics and Business*, 64(6), pp.399–426.

BAUER, K., SCHEUERLEIN, J. and CHLÁDKOVÁ, H. (2018) TRANSFORMATIONAL LEADERSHIP QUALITIES during the FINANCIAL CRISIS -A CONTENT ANALYSIS of CEOS LETTER to SHAREHOLDERS. *International Journal for Quality Research*, 12 (3), pp. 551–572.

KOLARI, J.W. and PYNNONEN, S. (2011). Nonparametric rank tests for event studies. *Journal of Empirical Finance*, 18(5), pp.953–971.

LAUSTEN, M. (2002). CEO turnover, firm performance and corporate governance: empirical evidence on Danish firms. *International Journal of Industrial Organization*, 20(3), pp.391–414.

LEE, P.M. and JAMES, E.H. (2007). She'-E-OS: Gender Effects and Investor Reactions to the Announcements of Top Executive Appointments. *Strategic Management Journal*, 28(3), pp.227–241.

LUBATKIN, M.H., CHUNG, K.H., ROGERS, R.C. and OWERS, J.E. (1989). STOCKHOLDER REACTION TO CEO CHANGES IN LARGE CORPORATIONS. *Academy of Management Journal*, 32(1), pp.47–68.

MACKEY, A. (2008). The effect of CEOs on firm performance. *Strategic Management Journal*, 29(12), pp.1357–1367.

MACKINLAY, A.C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, 35(1), pp.13–39.

MARTIN, A.D., NISHIKAWA, T. and WILLIAMS, M.A. (2009). CEO Gender: Effects on Valuation and Risk. *Quarterly Journal of Finance and Accounting*, 48(3), pp.23–40.

PARRINO, R. (1997). CEO turnover and outside succession A cross-sectional analysis. *Journal of Financial Economics*, 46(2), pp.165–197.

PATELL, J.M. (1976). Corporate Forecasts of Earnings Per Share and Stock Price Behavior: Empirical Test. *Journal of Accounting Research*, 14(2), pp.246–276.

REINGANUM, M.R. (1985). The Effect of Executive Succession on Stockholder Wealth. *Administrative Science Quarterly*, 30(1), p.46-60.

ROSE, C. (2018). Stock market reactions to CEO succession announcements: inside versus outside recruitment? *Journal of Management and Governance*, 23(1), pp.33–65.

SIMPSON, W.G., CARTER, D. and D'SOUZA, F.P. (2015). What Do We Know About Women on Boards? *Journal of Applied Finance, 20(2), 27-39.*

WILCOXON, F. (1945). Individual Comparisons by Ranking Methods. *Biometrics Bulletin*, 1(6), pp.80–83.

WORLD HEALTH ORGANISATION. (2023). Coronavirus Disease (COVID-19) Pandemic. Retrieved from World Health Organisation: https://www.who.int/europe/emergencies/situations/covid-19

ZACHARIAS, N.A., SIX, B., SCHIERECK, D. and STOCK, R.M. (2015). CEO influences on firms' strategic actions: A comparison of CEO-, firm-, and industry-level effects. *Journal of Business Research*, 68(11), pp.2338–2346.

ZAREMBA, A., KIZYS, R., AHARON, D.Y. and DEMIR, E. (2020). Infected Markets: Novel Coronavirus, Government Interventions, and Stock Return Volatility around the Globe. *Finance Research Letters*, 35.

Appendix

Table IV: Alternative Event Study Models & Estimation Windows

This table reports average abnormal returns around the announcement of a new CEO, using the Market-adjusted model, the Historical Means model, and the originally used Market model with an extended estimation window of 200 trading days. P-values in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Event window	Market-adjusted model		Historical Means model		Market model 200 day Estimation Window	
	Pre-COVID	COVID	Pre-COVID	COVID	Pre-COVID	COVID
CAAR[-5, 5]	2.19%**	2.59%***	3.01%***	2.75%***	2.85%***	2.79%***
	(0.022)	(0.005)	(0.003)	(0.006)	(0.003)	(0.003)
CAAR[-2, 2]	1.42%**	1.91%***	1.77%***	2.08%***	1.73%***	1.96%***
	(0.027)	(0.002)	(0.008)	(0.002)	(0.007)	(0.002)
CAAR[0, 2]	1.08%**	2.11%***	1.35%***	2.04%***	1.26%**	2.07%***
	(0.029)	(0.000)	(0.008)	(0.000)	(0.010)	(0.000)
AAR[0]	1.44%***	1.55%***	1.49%***	1.47%***	1.49%***	1.53%***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Table V: Alternative Significance Tests for Abnormal Returns

This table reports average abnormal returns around the announcement of a new CEO, with significance tested for using the Wilcoxon test, the Generalized Rank test and the Patell test. P-values in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Event window	Significance test	Pre-COVID	COVID
CAAR[0, 1]	Patell	1.51%* (0.061)	1.76%*** (0.002)
AAR[0]	Wilcoxon	1.53% *** (0.001)	1.55%** (0.015)
CAAR[0, 1]	Generalized Rank	1.51% *** (0.008)	2.13%** (0.023)

Panel C: Abnormal Returns, CEO Origin, Firm Size & Interaction

This panel reports cross-sectional regressions, where abnormal returns from the single day of announcement are regressed against the CEO origin dummy, firm size, and the interaction effect. First excluding and second including control for past performance, each in the order Pre-COVID, COVID, whole sample.

	Dependent Variable:					
	AR[0]					
	(1)	(2)	(3)	(4)	(5)	(6)
Origin of CEO, External = 1	0.008	0.010	0.047**	0.053**	0.030*	0.035*
	(0.033)	(0.034)	(0.022)	(0.023)	(0.018)	(0.018)
Firm Size, LN(Market Cap)	-0.003	-0.003	0.002	0.003	0.000	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Interaction: External * LN (MarketCap)	-0.002	-0.002	-0.007**	-0.008***	-0.005**	-0.005**
	(0.035)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)
Past Performance, PP		-0.011		-0.021*		-0.020*
		(0.021)		(0.012)		(0.011)
Intercept	0.039	0.035	0.003	-0.006	0.017	0.010
	(0.020)	(0.024)	(0.015)	(0.016)	(0.012)	(0.012)
Observations	143	143	219	219	362	362
R²	0.040	0.042	0.026	0.054	0.025	0.042
F Statistic	2.18*	1.86	2.58*	2.41*	4.50***	3.71*

*Note: Robust Standard Errors in parenthesis. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.*