Stock Market Reaction to External CEO Appointments: Evidence from the Nordic Countries

Chapter 2

Stock market reaction to external CEO appointments: Evidence from the Nordic countries*

Shaker Ahmed[1] Timothy King[2] and Juha Mäki[3]

2.1 INTRODUCTION

The Chief Executive Officer (CEO), as the principal decision-maker in a firm, has the most direct and significant impact on its policies and outcomes. A turnover in this key position implies possible upcoming changes in the firm's strategic direction (Hambrick & Quigley, 2014; Parrino, 1997). A CEO chosen from within the ranks of current executives indicates continuation of the firm's current strategic orientation, while the appointment of an external executive signifies the firm's willingness to shift towards a new course of action (Datta & Rajagopalan, 1998; Herrmann & Datta, 2002, Kesner & Sebora, 1994; Schepker et al., 2017). Observing such a visible signal based on CEO origin, investors are expected to reassess the firm's prospects with the stock price reacting

* We wish to thank Gonul Colak, Denis Davydov, Mikko Lepämäki, Seppo Pynnönen, Jorge Soria Ruiz-Ogarrio, Timo Rothovius, Sami Vähämaa and the participants at the Graduate School of Finance (GSF) Summer Workshop in Finance, 2019 for their helpful comments and suggestions.

[1] Discipline of Finance and Accounting, Surrey Business School, University of Surrey, Surrey, UK.

e-mail: shaker.ahmed@surrey.ac.uk

[2] School of Accounting and Finance, University of Vaasa, Vaasa, Finland.

e-*mail:* timothy.king@uwasa.fi

[3] School of Accounting and Finance, University of Vaasa, Vaasa, Finland.

e-mail: juha.maki@uwasa.fi

to revised assessments. We investigate if the short-term market reaction to executive appointment announcements varies based on CEO origin in Nordic countries.

The difference between internal and external CEOs centres around their perceived competence and expected impact on firm outcomes. Internal CEOs have specialized firm-specific knowledge and skills. However, their long history of working in the firm makes them more committed to the organizational status quo and less likely to initiate substantial strategic changes. If the market views that the strategic direction the internal appointees adopt is not expected to change firm outcomes, we can find no market reaction following such appointments (Friedman & Singh, 1989).

In contrast, external CEOs bring relatively novel knowledge and skills to the firm and possess a lesser degree of emotional commitment to the organizational status quo (Zhang & Rajagopalan, 2010). As a result, outside CEOs with fresh perspectives and diverse experience are likely to initiate more strategic changes and consequently affect firm outcomes. The expectation about future performance change can lead to a significant market reaction around the appointment announcement days of external CEOs. A positive market reaction would indicate investors view the external appointment favourably, whereas a negative response implies investors consider the adverse effects of the new hiring to outweigh its positive impacts.

Prior literature shows top management turnover announcements are associated with significantly positive abnormal stock returns (Bonnier & Bruner, 1989; Weisbach, 1988). Huson et al. (2004) find these positive abnormal returns are related to subsequent improvements in firms' operating performance. Furthermore, the degree of improvement is positively related to external rather than internal hiring. Thus, we can expect the CEO appointment announcement, especially the external CEO hiring, to have a positive market reaction as the firm performance is expected to improve after the event.

We start our empirical analysis by testing if CEO appointment is associated with higher abnormal return in the Nordic markets. Then, we focus on the firm's performance around the event year. A common finding in the literature is that CEO appointment is normally preceded by poor firm performance even though the bad performance is caused by factors beyond incumbent executives' control (Eisfeldt & Kuhnen, 2013; Fiordelisi & Ricci, 2014; Jenter & Kanaan, 2015, Peters & Wagner, 2014). In addition, firms with a

high demand for changing their direction, especially after a period of poor performance, are likely to appoint an outside CEO for their fresh perspectives and willingness to initiate strategic changes (Parrino, 1997). Thus, firms appointing outside CEOs are likely to have worse performance prior to the appointment than firms promoting internal executives.

Finally, we investigate if the market reaction aligns with the post-turnover firm operating performance. To better understand how the firm's performance changes following the turnover, we study the firm's assets and operating efficiency changes. A poorly performing firm can improve its operating performance by restructuring its assets by reducing capital intensity, eliminating underperforming businesses, or writing down certain assets (Huson et al. 2004). Alternatively, higher performance can derive from increased revenue or operating returns. By analyzing the changes in assets and operating efficiencies around the CEO turnover years, we can find if there is any difference in strategic orientation between internal and external CEOs.

Our chapter contributes to the CEO succession literature by investigating the market reaction to CEO appointments in the Nordic markets. Earlier studies report that between 15% and 19% of CEOs from large publicly traded US firms have an outside origin (see e.g., Huson et al., 2001; Parrino, 1997). The proportion of external CEOs has increased to over 24% over the period 2011–2017 for S&P 500 firms (Schloetzer et al., 2018). Conventionally, the rate of outside CEOs is even higher for Nordic firms. Rose (2019) reports more than half of the newly appointed executives are external CEOs.

Oxelheim et al. (2013) argue that because of smaller domestic product and financial markets, large Nordic firms depend heavily on foreign products and capital markets. Consequently, these firms inherit a heightened demand for outside orientation, flexibility, and adaption (Menon & Pfeffer, 2003). Given the characteristics of external CEOs offer the best match for these characteristics, the large Nordic firms offer an expedient setting to test the effect of internal vs. external CEO appointments. It is also interesting to study whether the natural expectation of having outside CEOs leads to a significantly negative market reaction in the events of internal appointments. Overall, our paper contributes to the small body of literature looking into the effect of corporate policies in the Nordic countries (see, e.g., Berglund & Mäkinen, 2019; Enqvist et al., 2014; Lending & Vähämaa, 2017).

Another important contribution is that we focus only on large and most-traded stocks from the thinly traded Nordic markets. Chung and Luo (2013) argue that investors' reactions to succession announcements in thinly traded markets may be muddier than in mature markets in the presence of information asymmetry. To mitigate this problem, we choose to study the large Nordic firms as they offer the most visibility in these markets. This setup, thus, increases the relevance of our results regarding the impact of CEO succession on shareholder wealth. Besides, because of the rich information availability of these stocks, special situation investors can attempt to design trading strategies by observing how the stock market reacts to information about new CEO appointments.

Using CEO appointment announcements of large non-financial firms from the four Nordic countries, we observe the large firms' unusually higher percentage of external CEOs. Over 56% of the newly appointed Nordic top executives are outsiders compared to less than a quarter in the US. We also find that external CEO announcements lead to a significantly positive market reaction and have no significant effect on the internal promotion of executives. Further, we find that the positive market reaction sustains for several days leading up to the announcement day. Interestingly, we do not find any persistent improvement in operating profit following CEO turnover. However, external CEO appointments lead to higher efficiency gain, but that does not result in higher operating returns, perhaps due to higher expenditure on capital assets.

We proceed as follows. Section 2.2 describes the data and event study methodology. Section 2.3 shows results for abnormal returns around CEO announcements and robustness tests. Section 2.4 focuses on the change in operating outcomes around the event years. Finally, section 2.5 provides concluding remarks.

2.2 DATA AND METHODOLOGY

2.2.1 Data and summary statistics

We start our data collection by compiling the list of constituent non-financial firms of OMX Copenhagen 20, OMX Helsinki 25, Oslo SE OBX and OMX Stockholm 30 indices

for Denmark, Finland, Norway, and Sweden.[4] These four indices contain the 20, 25, 25, and 30 largest and most-traded firms from the Nordic countries. We use these firms to mitigate the illiquidity problem that affects the returns of thinly traded stocks.

We collect the announcement dates of CEO appointments from stock market press releases and company websites for the period 2006 to 2017 and check the biographies of new appointees from company websites and Bloomberg to determine whether the newly appointed CEO was recruited from within the firm or externally. Following Huson, Parrino and Starks (2001), we define a newly appointed CEO as an external executive if they have less than one year of working experience in the firm as an executive or board of members preceding the announcement of their appointment.

Our final sample includes 99 CEO appointment announcements[5] from 61 Nordic firms[6] with 55 outside CEO appointments. Table 2.1 shows about 56% of the appointed CEOs in our sample are outsiders. Notably, 2011 and 2015 had the highest proportion of external CEO appointments, while the lowest percentage of 29% came from 2017.

[Insert Table 2.1 about here]

For our sample firms and four indices, we collect the daily stock prices from Thomson Reuters DataStream over the period 2006 – 2017. Following Huson, Malatesta and Parrino (2004), we use *Operating Return on Assets (OROA)* to proxy firm performance that we define as *operating earnings before interest expenses and income taxes (EBIT)-to-total assets*. We collect the two financial variables from Thomson Reuters's WorldScope database. As we study the growth in the firm's performance from three years before the CEO succession to three years after the event, our sample period for financial variables ranges from 2002 to 2020.

Table 2.2 tabulates summary statistics for our two main variables. The daily stock return is, on average, four basis points that corresponds to about 10% annualized percentage return (APR) and annualized standard deviation or realized volatility is about

[4] The list of constituent firms was compiled in May 2018.
[5] The total number of CEO announcements for Denmark, Finland, Norway and Sweden are 17, 26, 25 and 31. The proportion of outside CEOs for these four countries are approximately 59%, 65%, 52% and 48%, respectively.
[6] Of these 61 firms, 11, 18, 14 and 18 firms are from Denmark, Finland, Norway, and Sweden. Names of the sample firms are presented in Appendix Table A1.

39%. The average firm *OROA* is 10.28%, with a standard deviation of 12.65%. The maximum and minimum values of 74.64% and -48.32%, beyond three standard deviations of the mean indicate our sample includes some extreme outliers.

[Insert Table 2.2 about here]

Apart from *total assets* and *EBIT*, we collect data on four more firm-level variables from WorldScope for the years 2002 to 2020 in local currencies to conduct our additional tests. These four variables are: (i) *Capital expenditure (CAPEX)* is the amount used to acquire fixed assets other than those associated with acquisitions; (ii) *Property, Plant and Equipment (PPE)* is the gross tangible assets used to produce goods or distribute services; (iii) *Employees* represents the number of both full and part-time employees of the firm excluding seasonal and emergency workers; and (iv) *Sales* is the gross operating revenue earned by the firm and operating return is the earnings of a firm before interest expense and income taxes.

Since the variables we use are ratios, we use local currency-denominated variables to avoid incorporating currency-related gains or losses in the results. However, we present summary statistics for all financial variables denominated in USD in Appendix A2.

2.2.2 Event-study methodology

Our measure of market-model-adjusted daily abnormal return around the CEO appointment announcement days is

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \tag{2.1}$$

where, $AR_{i,t}$ is the daily abnormal return for the event *i* at day *t,* $R_{m,t}$ is the proxy for the market return, $R_{i,t}$ is the daily stock return for the event *i* at day *t*. The parameters of the market model α_i and β_i are estimated through OLS regression using a 180-day estimation window from 205 to 26 days preceding to the event day. From the estimated $AR_{i,t}$ we calculate cumulative abnormal return (CAR_i) by summing the daily abnormal of event *i* over the period [$\tau 1, \tau 2$].

$$CAR_i = \sum_{t=\tau 1}^{\tau 2} AR_{i,t} \quad (2.2)$$

Further, we standardize the CAR_i using the estimation window standard deviation of residuals corrected for sampling error following Campbell et al. (1997, pp-159).

$$SCAR_i = \frac{CAR_i}{\sigma_i} \quad (2.3)$$

To test the null hypothesis of no event effect, we employ the standardized cross-sectional test of Boehmer, Musumeci, and Poulsen (1991) (henceforth the BMP test). Under this BMP test, a *t*-test is performed on the cross-sectional SCARs.

Event study methodology usually assumes cross-sectional independence of the abnormal returns leading to underestimation of standard errors and severe over-rejection of null hypotheses (Kolari & Pynnönen, 2010). To address this problem, we use the Kolari and Pynnönen (2010) cross-sectional correlation adjustment for the BMP test statistics using forecasted abnormal returns over the period [-25, 25].

2.3 EMPIRICAL ANALYSIS

We start our empirical analysis by showing the daily abnormal return from five days prior to the announcement day to five days following it. From Figure 2.1, we find the cross-sectional average abnormal return is positive from three days before the event to the event day for all CEO appointments. After the event day, the abnormal return remains mostly negative. Abnormal returns rise sharply on the day before the announcement for both internal and external appointees. On other days, the abnormal returns pattern differs for inside and outside CEOs.

Daily abnormal returns show an instantly recognizable pattern for external CEO appointments. All the days leading up to the event have positive abnormal returns. From three days before the event, the abnormal return increases each day progressively. The mean daily abnormal return reaches its peak on the event day to about 0.94%, which is

substantially higher than the daily return of 0.04% for our sample firms, as reported in Table 2.1.

Following the event, the stock price declined severely and becomes negative from the second day. Further, we find the abnormal return rebounds on the fourth day and continues to grow the next day. Overall, we pick up an upward trend on the [-3, 0] window and an uninterrupted downward trend over the [1, 4] window. Because of the concentration of positive cumulative returns during the pre-event window, it is unlikely to find any significant positive cumulative return beyond the second days after the event.

For internal appointments, we do not find any instantly noticeable pattern in daily abnormal returns. There is a positive reaction on the event day. However, the average abnormal return of about 0.06% is relatively meagre compared to the event day abnormal return for external CEO appointments. For the rest of the days, abnormal return appears to fluctuate randomly. Overall, Figure 2.1 indicates that the stock market reaction to new CEO appointments is likely limited to the appointment of outside CEOs.

[Insert Figure 2.1 about here]

2.3.1 Cumulative abnormal returns

We present the significance of cumulative abnormal returns for various event windows around the event day. Consistent with our expectation from Figure 2.1, Table 2.3 shows that stock markets react significantly only to the appointments of external CEOs. For internal appointments, the cumulative abnormal returns are positive but statistically insignificant for all event windows. Moreover, *CAR*s for all appointment announcements mimic the pattern of *CAR*s for external appointments with lower economic and statistical significance.

The event day abnormal return for external appointments is 0.94%, which is significant at 5% level. The *CAR* increases to 1.65% for the window [-1, 1] but starts to decline as the event window becomes wider around the event day. The declining cumulative abnormal return indicates that the post-event negative returns reduce the gain from the pre-event period. Interestingly, we find the significant cumulative return for the window

[-5, 2] of about 2.5% is significant at 1% level. This finding is also in line with our intuition that the positive CAR concentrates mainly on the pre-event period.

[Insert Table 2.3 about here]

The lack of significant market reaction when CEOs are promoted within the firm, suggests that the market expects internal CEOs to continue to maintain the current strategic orientation of the firm and, thus, less likely to have any change in firm performance (Friedman & Singh, 1989). On the other hand, external CEOs are viewed as initiating changes that are likely to improve firm performance. In general, our result is consistent with that of Borokhovich et al. (1996), who identify shareholder benefit from external CEO appointments.

The insights from our study are novel for the Nordic markets. Specifically, our results substantially differ from Rose (2019), who finds significantly negative CAR for internal CEO appointments and positive but insignificant for external CEO hiring using a sample of Nordic firms. In contrast, we find a significant positive reaction to external CEO appointments, but shareholders do not penalize the internal CEO appointment by discounting the share price for the large Nordic firms. Thus, our results suggest that larger Nordic firms behave differently from smaller firms. Furthermore, Chung and Luo (2013) argue that the lack of information availability around the corporate event can lead to a muddier market response. Therefore, the difference in results can also be caused by the availability of better information for large firms compared to their smaller counterparts.

2.3.2 Robustness check

The section reports three robustness tests based on our preliminary results in Table 2.3. The first test involves using an alternative definition of external CEO. In our primary analysis, we define a newly appointed CEO with less than one year of working experience as an executive or board member as an outsider. Given independence from the organizational status quo is the central attribute of external CEOs, we use this restrictive classification to limit the oncoming CEOs' exposure to the firm.

Having known the firm, a long-serving board member is likely to have more attachment to the firm's policies than an executive hired from outside but less involved

in the firm's status quo than an existing executive actively managing the day-to-day operation. In the alternative definitions, we relax the requirement about external CEOs' experience as board members and redefine such appointees as outsiders. This new approach leads to previously identified three insider CEOs being re-classified as external CEOs.

The results for the new classification of external CEO are presented in Table 2.4. The change of definition does not change our baseline results in Table 2.3. We find significant market reaction only for the external CEO appointments. Panel B in Table 2.4 shows that the event day reaction to external hiring is about 0.73%. Compared to Table 2.3, the magnitude of CARs for the external CEO sub-sample reduced for all event windows. This result suggests investors do not view the board members as independent outsiders because of their involvement with the firm. Thus, their inclusion in the external CEO category resulted in a less accurate definition of outsiders and a more diluted market reaction.

[Insert Table 2.4 about here]

In our second robustness test, we only include firms primarily listed in the Nordic market. Because of higher investors' attention, local firms can have a heightened market reaction than cross-listed firms. Therefore, we drop four events from our initial sample to construct a subset of firms primarily listed in the Nordic countries. Out of these four events, three are categorized as external appointments. From Table 2.5, we find similar results as in Table 2.3. However, Panel B demonstrates that the market reaction to outside CEO appointments is higher when we exclude the cross-listed firms. Our finding supports the view that local investors pay more attention to local firms.

[Insert Table 2.5 about here]

For the third robustness test, we use USD-denominated stock returns to take into account the return of international investors. An appreciating (depreciating) local currency can increase (reduce) the total return of international investors. Considering the movement in currencies is beyond the direct control of individual firms, we use local currency-denominated stock returns in our primary analysis to measure investors' reaction to CEO announcements. Moreover, due to the stable economic condition of the

Nordic countries, it is unlikely that short-term stock returns from these markets would vary substantially due to currency conversion.

The results with the USD-denominated stock returns are presented in Table 2.6. The levels of statistical significance remain virtually the same as in Table 2.3. The marginal differences in the magnitude of CARs arising from currency conversion do not affect the economic significance of the external CEO appointment in any meaningful way. Thus, there are no significant differences between local or USD denominated abnormal stock returns.

[Insert Table 2.6 about here]

2.4 FIRM PERFORMANCE

The positive stock market reaction we documented in the previous section at the appointment of new CEOs, especially at external CEOs' hiring, suggests the market expects the firm performance to improve following the CEO succession. Also, prior studies find that poor firm performance is the main reason for CEO turnover. In this section, we study the change in the firm's operating performance around the CEO appointment. Specifically, holding the financial year at which the announcement is made as the event year, we test the growth in firms' operating performance in three preceding and succeeding years.

2.4.1. Change in operating return around turnover

Figure 2.2 presents the cross-sectional mean and median of yearly growth in OROA around the event years. The median *OROA* declines before the event year for all appointments, with the highest single year drop for firms promoting executives internally than firms hiring external CEOs. Following the internal CEO appointment, *OROA* growth becomes positive in the next year. In contrast, firms appointing an external CEO experience a sharp decline in operating performance in the event year that worsens in the succeeding year. Firm performance improves dramatically in the second year before starting to decline again in the next year. For mean *OROA*, we observe similar patterns,

but the rate of change is even higher. Overall, both figures show poor firm performance before the event year but no systematic performance improvement after that.

[Insert Figure 2.2 about here]

After looking into the year-to-year growth in *OROA*, we now examine if the percentage change in OROA over different event windows is statistically significant. We use the *t*-test and Wilcoxon signed-rank test for the mean and median values. Table 2.8 shows the median firm experiences lower growth over the [-2, 0] and [-3, 0] pre-event windows. Further, firms appointing external CEOs suffer more drops in *OROA* than firms promoting internal CEOs. This results in line with the expectation that firms with a higher degree of loss need more radical change and consequently appoint outsiders.

The appointment of an external CEO, however, does not improve firm performance instantly. There is significant negative growth in the first year following the appointment. Moreover, the decline in performance is higher for the median firm than the average firm, indicating that the average growth is subject to severe outlier problems.

On the contrary to our assumption that external CEO appointments should lead to higher performance in subsequent years, we find some evidence that firms with internal CEOs record positive growth in the first year following the new CEO appointment. The median firm's *OROA* improves by 13.4%, and the result is significant at the 1% level. Interestingly, we do not find any evidence that firm performance improves following internal and external executives when a longer window is considered.

[Insert Table 7 about here]

2.4.2 Other operating changes around turnover

To better understand how firm performance changes around the CEO succession, following Huson et al. (2004), we study the change in six variables: *total assets*, *CAPEX*, *PPE*, *employees*, *sales per employee*, and *operating profit per employee*. To avoid the outliner problem, in this section, we only provide the median values of the growth in these variables over different event windows and their associated significance based on the Wilcoxon signed-rank test.

Panel A of Table 2.8 shows the change in *total assets* leading to and moving from the event year. We find firms' asset growth decreases before CEO succession. The median firm grows only 1% on the event year compared to 10% over the three years before the succession. However, the trend rebounds after the event year. After the announcement, the median firm experiences a growth of 3.7% in the first year, which progressively increases each following year, leading to a 12.3% growth in the third year.

There is a striking difference in the trend of asset growth for firms appointing internal and external CEOs. Firms appointing internal CEOs do not have any significant asset growth in the pre-announcement years, whereas firms appointing external CEOs have higher asset growth. Following the appointment, the asset growth in both internal and external CEO firms increases sharply. In three years, internal CEOs increase the firm size by 11.4%, whereas firms with external CEOs have marginally higher asset growth of 12.3%.

[Insert Table 2.8 about here]

Like the asset growth, the results show that CEO origin is also associated with changes in *CAPEX* and *PPE*. After the succession, the median firm experiences faster growth in capital expenditure under the external CEO, reaching 17.1% in the second year. Under internal CEOs, capital expenditure reduces in the first year following the turnover but reaches the peak in the second year and continues to grow at a slower rate in the third year. At the end of the third year, the external CEO increases *CAPEX* by 7.5% compared to internal CEOs.

For *PPE*, the growth declines as the event year approaches and again starts to increase afterwards. Internal CEOs increase the *PPE* more than external CEOs. There is a 17.2% increase in *PPE* for firms with inside CEOs in three years compared to 12.4% for firms having external CEOs. The newly appointed internal CEOs are more inclined to increase the *PPE,* while external CEOs increase the *CAPEX*.

Panel D shows that firms appointing external CEOs experience significant growth in the number of employees leading to the event year. However, following the appointment, there is no significant increase in *employees* for both internal and external successions. From Panel E, we observe a modest growth in *sales per employee* in all prior years to the

announcement for both outside and inside CEO appointments. However, firms appointing inside CEOs have higher revenue growth than those hiring outside. Following the appointment, only outside CEO firms have significant growth in *sales per employee*. While there is only 2.7% revenue growth three years before the event, following CEO turnover, *sales per employee* reaches 12.7%. Thus, we observe a substantial change in firm performance following external CEO appointments.

Interestingly, the growth in sales does not help external CEOs' firms realize a higher operating profit in any significant way. Instead, similar to our finding in Table 2.7, we observe that the operating profit per employee reduces significantly in the year after the turnover and that there is no improvement in the subsequent years. Internal CEO firms only show weak evidence of improved operating profit in the first year following the event and no significant changes afterwards.

The results in Table 2.8 indicate firms hiring external CEOs have higher asset growth and new employees but worse efficiency in the pre-succession years than firms appointing internal CEOs. The efficiency improves following the external appointment, but the asset growth continues to grow at a higher rate. A likely explanation is that the diluted operating income from increasing asset base offsets the gains from increased efficiency.

2.5 CONCLUSIONS

Nordic firms exhibit a tendency to hire outside CEOs. Over half of CEO appointments in our sample are external appointees; in comparison, less than a quarter of large US firms' CEOs are outsiders. This overdependence on external CEOs leads to the question of how these appointments benefit shareholders. We address this question by studying the short-term abnormal return of large Nordic firms around CEO appointment announcements.

Our results show that the significant positive abnormal return in the appointment of new CEOs is driven by outside CEO appointment events. Moreover, the positive returns mainly concentrate during the pre-event period. The result is consistent with the organizational-adaptation view suggesting that the benefit of an outsider CEO's knowledge, network, and willingness to initiate operating changes outweighs any

associated costs, such as lack of firm-specific knowledge (Georgakakis & Ruigrok, 2017; Zhang & Rajagopalan, 2010).

To better understand why the market favourably reacts to the external CEO appointment, we further study the circumstances around which new CEOs are appointed and the outcomes that follow. We find firms perform poorly years before the turnover. Moreover, firms appointing external CEOs experience worse operating returns and higher asset growth than firms promoting internal executives. We don't find any persistent improvement in the operating returns in the following three years after the turnover occurs. However, *sales per employee* increase after the external CEO takes over, suggesting some efficiency gain. Nevertheless, the simultaneous increase in capital expenditure that these firms undertake may have an adverse effect on their operating profit.

Our analysis provides two interesting sets of findings for the Nordic market. First, the positive stock market reaction is not directly associated with the improvement of firm operating performance. Instead, it reflects on the anticipated efficiency gain. Therefore, it would be interesting to study if this efficiency gain improves the firm performance in the long run. Second, the concentration of positive abnormal return leading up to the event day indicates that CEO turnovers are highly anticipated events. Therefore, further studies need to scrutinize how informed traders, such as institutional investors and firm executives, react to the CEO appointment announcement compared to individual investors.

REFERENCES

Berglund, T., & Mäkinen, M. (2019). Do banks learn from financial crisis? The experience of Nordic banks. *Research in International Business and Finance*, *47*, 428-440.

Boehmer, E., Masumeci, J., & Poulsen, A.B. (1991). Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics*, *30*(2), 253-272.

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

Borokhovich, K.A., Parrino, R., & Trapani, T. (1996). Outside directors and CEO selection. *Journal of Financial and Quantitative Analysis*, *31*(3), 337-355.

Campbell, J.Y., Lo, A.W.C., & MacKinlay, A.C. (1997). *The Econometrics of Financial Markets*. Princeton University Press.

Chung, C.N., & Luo, X.R. (2013). Leadership succession and firm performance in an emerging economy: Successor origin, relational embeddedness, and legitimacy. *Strategic Management Journal*, *34*(3), 338-357.

Datta, D.K., & Rajagopalan, N. (1998). Industry structure and CEO characteristics: An empirical study of succession events. *Strategic Management Journal*, *19*(9), 833-852.

Eisfeldt, A.L., & Kuhnen, C.M. (2013). CEO turnover in a competitive assignment framework. *Journal of Financial Economics*, *109*(2), 351-372.

Enqvist, J., Graham, M., & Nikkinen, J. (2014). The impact of working capital management on firm profitability in different business cycles: Evidence from Finland. *Research in International Business and Finance*, *32*, 36-49.

Fiordelisi, F., & Ricci, O. (2014). Corporate culture and CEO turnover. *Journal of Corporate Finance*, *28*, 66-82.

Friedman, S.D., & Singh, H. (1989). CEO succession and stockholder reaction: The influence of organizational context and event content. *Academy of Management Journal*, *32*(4), 718-744.

Georgakakis, D., & Ruigrok, W. (2017). CEO succession origin and firm performance: A multilevel study. *Journal of Management Studies*, *54*(1), 58-87.

Hambrick, D.C., & Quigley, T.J. (2014). Toward more accurate contextualization of the CEO effect on firm performance. *Strategic Management Journal*, *35*(4), 473-491.

Herrmann, P., & Datta, D.K. (2002). CEO successor characteristics and the choice of foreign market entry mode: An empirical study. *Journal of International Business Studies*, *33*(3), 551-569.

Huson, M.R., Malatesta, P.H., & Parrino, R. (2004). Managerial succession and firm performance. *Journal of Financial Economics*, *74*(2), 237-275.

Huson, M.R., Parrino, R., & Starks, L.T. (2001). Internal monitoring mechanisms and CEO turnover: A long-term perspective. *The Journal of Finance*, *56*(6), 2265-2297.

Jenter, D., & Kanaan, F. (2015). CEO turnover and relative performance evaluation. *The Journal of Finance*, *70*(5), 2155-2184.

Kesner, I.F., & Sebora, T.C. (1994). Executive succession: Past, present & future. *Journal of Management*, *20*(2), 327-372.

Kolari, J.W., & Pynnönen, S. (2010). Event study testing with cross-sectional correlation of abnormal returns. *The Review of Financial Studies*, *23*(11), 3996-4025.

Lending, C.C., & Vähämaa, E. (2017). European board structure and director expertise: The impact of quotas. *Research in International Business and Finance*, *39*, 486-501.

Menon, T., & Pfeffer, J. (2003). Valuing internal vs. external knowledge: Explaining the preference for outsiders. *Management Science*, *49*(4), 497-513.

Oxelheim, L., Gregorič, A., Randøy, T., & Thomsen, S. (2013). On the internationalization of corporate boards: The case of Nordic firms. *Journal of International Business Studies*, *44*(3), 173-194.

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

Peters, F.S., & Wagner, A.F. (2014). The executive turnover risk premium. *The Journal of Finance*, *69*(4), 1529-1563.

Rose, C. (2019). Stock market reactions to CEO succession announcements: inside versus outside recruitment?. *Journal of Management and Governance*, 1-33.

Schepker, D.J., Kim, Y., Patel, P.C., Thatcher, S.M., & Campion, M.C. (2017). CEO succession, strategic change, and post-succession performance: A meta-analysis. *The Leadership Quarterly*, *28*(6), 701-720.

Schloetzer, J.D., Tonello, M. & Larkin, G. (2018). *CEO Succession Practices: 2018 Edition*. The conference board, Inc.

Weisbach, M.S. (1988). Outside directors and CEO turnover. *Journal of Financial Economics*, *20*, 431-460.

Zhang, Y., & Rajagopalan, N. (2010). Once an outsider, always an outsider? CEO origin, strategic change, and firm performance. *Strategic Management Journal*, *31*(3), 334-346.

Table 2.1 Number of CEO appointment announcements by years

Year	All appointments		External appointments		Internal appointments	
	Obs. (a)	% of total appointments	Obs. (b)	% of appointments (b/a)	Obs. (c)	% of appointments (c/a)
2006	1	1 %	1	100 %	0	0 %
2007	3	3 %	2	67 %	1	33 %
2008	14	14 %	9	64 %	5	36 %
2009	12	12 %	5	42 %	7	58 %
2010	10	10 %	5	50 %	5	50 %
2011	6	6 %	5	83 %	1	17 %
2012	3	3 %	1	33 %	2	67 %
2013	8	8 %	4	50 %	4	50 %
2014	12	12 %	6	50 %	6	50 %
2015	13	13 %	10	77 %	3	23 %
2016	10	10 %	5	50 %	5	50 %
2017	7	7 %	2	29 %	5	71 %
Total	99	100 %	55	56 %	44	44 %

Note. The table presents the number of CEO appointment announcements by year.

Table 2.2 Summary statistics

	Mean	Median	Std. dev.	Minimum	Maximum	Observations
Entire sample: 2006 - 2017						
Return	0.0004	0.0000	0.0244	-1.0600	0.4308	187085
Firm-level variable: 2002–2020						
OROA	0.1009	0.0887	0.1299	-0.6813	0.7464	1080

Note. The table presents the stock return and operating return for our sample firms. *OROA* is the proxy for the firm performance and is defined as the operating earnings before interest expenses and income taxes divided by total assets. The sample period for *OROA* is from 2002 – 2020.

Table 2.3 Cumulative abnormal return around CEO appointment announcements

Panel A: All CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0055	1.722*	1.782*	99
[-1 , 1]	0.0104	1.789*	1.852*	99
[-2 , 2]	0.0112	1.584	1.639	99
[-3 , 3]	0.0150	1.501	1.553	99
[-3 , 2]	0.0149	1.934*	2.002**	99
[-5 , 2]	0.0192	2.227**	2.305**	99

Panel B: External CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0094	2.032**	1.938*	55
[-1 , 1]	0.0165	2.326**	2.218**	55
[-2 , 2]	0.0144	1.835*	1.749*	55
[-3 , 3]	0.0111	1.325	1.264	55
[-3 , 2]	0.0159	1.965*	1.873*	55
[-5 , 2]	0.0249	2.792***	2.662**	55

Panel C: Internal CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0006	-0.030	-0.031	44
[-1 , 1]	0.0027	-0.103	-0.108	44
[-2 , 2]	0.0072	0.247	0.258	44
[-3 , 3]	0.0198	0.835	0.871	44
[-3 , 2]	0.0137	0.786	0.821	44
[-5 , 2]	0.0120	0.523	0.546	44

Note. This table presents Cumulative Abnormal Returns (CAR) around CEO appointment announcement days, where external CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. CARs are the cross-sectional average of the market-model-adjusted cumulative daily abnormal return calculated for each event using equations (2.1) and (2.2). The coefficients of the market model are estimated using a 180-day estimation window from 205 to 26 days preceding the event day. BMP reports the *t*-statistics from the standardized cross-sectional test of Boehmer, Masumeci, and Poulsen (1991), and Adj-BMP presents the BMP *t*-statistics adjusted for cross-sectional correlation following Kolari and Pynnönen (2010).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2.4 CAR around CEO appointments for alternative External CEO Definition

Panel A: All CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0055	1.722*	1.782*	99
[-1 , 1]	0.0104	1.789*	1.852*	99
[-2 , 2]	0.0112	1.584	1.639	99
[-3 , 3]	0.0150	1.501	1.553	99
[-3 , 2]	0.0149	1.934*	2.002**	99
[-5 , 2]	0.0192	2.227**	2.305**	99

Panel B: External CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0073	1.696*	1.683*	58
[-1 , 1]	0.0144	2.032**	2.017**	58
[-2 , 2]	0.0120	1.522	1.511	58
[-3 , 3]	0.0085	0.924	0.918	58
[-3 , 2]	0.0136	1.633	1.621	58
[-5 , 2]	0.0232	2.566**	2.547**	58

Panel C: Internal CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0029	0.484	0.495	41
[-1 , 1]	0.0047	0.215	0.219	41
[-2 , 2]	0.0100	0.603	0.616	41
[-3 , 3]	0.0241	1.179	1.204	41
[-3 , 2]	0.0168	1.082	1.105	41
[-5 , 2]	0.0135	0.664	0.678	41

Note. This table presents the Cumulative Abnormal Returns (CAR) around the CEO appointment announcement days, where external CEOs are defined as having less than one year of working experience in the firm as an executive. CARs are the cross-sectional average of the market-model-adjusted cumulative daily abnormal return calculated for each event using equations (2.1) and (2.2). The coefficients of the market model are estimated using a 180-day estimation window from 205 to 26 days preceding the event day. BMP reports the *t*-statistics from the standardized cross-sectional test of Boehmer, Masumeci, and Poulsen (1991), and Adj-BMP presents the BMP *t*-statistics adjusted for cross-sectional correlation following Kolari and Pynnönen (2010).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2.5 CAR for Local firms

Panel A: All CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 .0]	0.0060	1.745*	1.810*	95
[-1 .1]	0.0109	1.815*	1.883*	95
[-2 .2]	0.0120	1.592	1.652	95
[-3 .3]	0.0153	1.412	1.464	95
[-3 .2]	0.0159	1.927*	1.999**	95
[-5 .2]	0.0199	2.189**	2.270**	95

Panel B: External CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 .0]	0.0107	2.148**	2.079**	52
[-1 .1]	0.0179	2.427**	2.350**	52
[-2 .2]	0.0164	1.991*	1.928*	52
[-3 .3]	0.0118	1.335	1.293	52
[-3 .2]	0.0180	2.093**	2.026**	52
[-5 .2]	0.0267	2.859***	2.768***	52

Panel C: Internal CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 .0]	0.0003	-0.167	-0.176	43
[-1 .1]	0.0025	-0.177	-0.187	43
[-2 .2]	0.0066	0.073	0.077	43
[-3 .3]	0.0195	0.709	0.747	43
[-3 .2]	0.0133	0.661	0.696	43
[-5 .2]	0.0117	0.427	0.449	43

Note. This table presents the Cumulative Abnormal Returns (CAR) around the CEO appointment announcement days for firms with headquarters in the four Nordic countries. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. CARs are the cross-sectional average of the market-model-adjusted cumulative daily abnormal return calculated for each event using equations (2.1) and (2.2). The coefficients of the market model are estimated using a 180-day estimation window from 205 to 26 days preceding the event day. BMP reports the *t*-statistics from the standardized cross-sectional test of Boehmer, Masumeci, and Poulsen (1991), and Adj-BMP presents the BMP *t*-statistics adjusted for cross-sectional correlation following Kolari and Pynnönen (2010).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2.6 CAR using USD denominated returns

Panel A: All CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0056	1.702*	1.776*	99
[-1 , 1]	0.0105	1.797*	1.875*	99
[-2 , 2]	0.0106	1.451	1.514	99
[-3 , 3]	0.0149	1.428	1.490	99
[-3 , 2]	0.0144	1.792*	1.869*	99
[-5 , 2]	0.0191	2.192**	2.287**	99

Panel B: External CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0094	2.011**	1.932*	55
[-1 , 1]	0.0167	2.377**	2.284**	55
[-2 , 2]	0.0143	1.852*	1.780*	55
[-3 , 3]	0.0112	1.328	1.276	55
[-3 , 2]	0.0158	1.976*	1.899*	55
[-5 , 2]	0.0257	2.922***	2.808***	55

Panel C: Internal CEO appointments

Period	CAR	BMP	ADJ. BMP	Obs.
[0 , 0]	0.0007	-0.029	-0.031	44
[-1 , 1]	0.0028	-0.135	-0.142	44
[-2 , 2]	0.0060	0.032	0.033	44
[-3 , 3]	0.0195	0.741	0.777	44
[-3 , 2]	0.0125	0.588	0.617	44
[-5 , 2]	0.0109	0.382	0.401	44

Note. This table presents the Cumulative Abnormal Returns (CAR) around the CEO appointment announcement days using USD-denominated stock returns. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. CARs are the cross-sectional average of the market-model-adjusted cumulative daily abnormal return calculated for each event using equations (2.1) and (2.2). The coefficients of the market model are estimated using a 180-day estimation window from 205 to 26 days preceding the event day. BMP reports the *t*-statistics from the standardized cross-sectional test of Boehmer, Masumeci, and Poulsen (1991), and Adj-BMP presents the BMP *t*-statistics adjusted for cross-sectional correlation following Kolari and Pynnönen (2010).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2.7 Change in Operating Return on Assets (OROA)

	All appointments			External Appointments			Internal Appointments		
Period	Mean	Median	Obs	Mean	Median	Obs	Mean	Median	Obs
[-3 , 0]	-0.193	-0.272***	93	-0.253	-0.286**	52	-0.118	-0.267*	41
	(-0.67)	(-2.9)		(-0.86)	(-2.22)		(-0.22)	(-1.87)	
[-2 , 0]	-0.361**	-0.223***	92	-0.430**	-0.224**	51	-0.275	-0.179**	41
	(-2.46)	(-3.28)		(-2.07)	(-2.18)		(-1.34)	(-2.53)	
[-1 , 0]	-0.084	-0.041	91	-0.163	-0.130	49	0.008	-0.015	42
	(-0.53)	(-1.25)		(-0.78)	(-1.32)		(0.03)	(-0.41)	
[0 , 1]	0.236	-0.070	91	-0.021	-0.164***	50	0.548*	0.134*	41
	(1.23)	(-0.72)		(-0.08)	(-2.59)		(1.95)	(1.78)	
[0 , 2]	-0.082	-0.108	92	-0.160	-0.021	50	0.010	-0.149	42
	(-0.64)	(-1.4)		(-0.96)	(-1.21)		(0.05)	(-0.69)	
[0 , 3]	0.007	-0.053	94	0.169	-0.031	52	-0.193	-0.094	42
	(0.05)	(-1.12)		(0.69)	(-0.59)		(-1.44)	(-1.14)	

Note. This table reports the cross-sectional mean and median percentage change in OROA around the CEO appointment announcement year. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. For mean values, *t*-statistics are reported in the parenthesis. For median values, we report the *z*-statistics from the Wilcoxon signed-rank test in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 2.8 Change in firm policies around the CEO appointments

Panel A: Change in total assets

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	0.101***	93	0.072***	52	0.158	41
	(3.71)		(3.36)		(1.59)	
[-2, 0]	0.07***	93	0.079***	52	0.065	41
	(3.01)		(3.00)		(1.08)	
[-1, 0]	0.011*	93	0.009	53	0.024	40
	(1.77)		(1.18)		(1.37)	
[0, 1]	0.037***	94	0.026**	52	0.047*	42
	(2.8)		(2.08)		(1.89)	
[0, 2]	0.070***	94	0.07***	52	0.063**	42
	(3.61)		(2.63)		(2.46)	
[0, 3]	0.123***	93	0.123***	51	0.114***	42
	(4.62)		(3.36)		(3.12)	

Panel B: Change in capital expenditure

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	-0.033	94	-0.004**	52	-0.062	42
	(1.54)		(2.17)		(-0.24)	
[-2, 0]	-0.059	93	-0.045	52	-0.079	41
	(0.09)		(0.95)		(-1.00)	
[-1, 0]	0.005	92	0.041	52	-0.051	40
	(0.02)		(0.92)		(-0.94)	
[0, 1]	0.019	94	0.035	52	-0.004	42
	(1.53)		(1.27)		(0.89)	
[0, 2]	0.168***	94	0.171***	52	0.118*	42
	(3.44)		(2.99)		(1.92)	
[0, 3]	0.146***	94	0.185***	52	0.110*	42
	(3.72)		(3.26)		(1.89)	

Panel C: Change in gross property, plant and equipment

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	0.201***	91	0.221***	50	0.191**	41
	(5.42)		(5.50)		(2.17)	
[-2, 0]	0.095***	91	0.110***	51	0.089*	40
	(4.67)		(4.47)		(1.95)	
[-1, 0]	0.047***	92	0.051***	52	0.035**	40
	(4.05)		(3.45)		(2.18)	
[0, 1]	0.028***	94	0.043***	52	0.017*	42
	(3.25)		(2.62)		(1.96)	
[0, 2]	0.081***	94	0.075***	52	0.090***	42
	(4.06)		(2.84)		(2.89)	
[0, 3]	0.141***	94	0.124***	52	0.172***	42
	(5.15)		(3.71)		(3.53)	

Panel D: Change in number of employees

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	0.043**	92	0.055***	51	-0.002	41
	(2.22)		(3.05)		(0.01)	
[-2, 0]	0.029**	89	0.040***	50	0.010	39
	(2.01)		(2.69)		(-0.01)	
[-1, 0]	0.010	90	0.009	50	0.011	40
	(1.49)		(1.31)		(0.73)	
[0, 1]	0.006	91	0.008	51	0.004	40
	(0.83)		(1.06)		(-0.06)	
[0, 2]	0.021	92	0.031	52	0.019	40
	(1.37)		(1.03)		(0.99)	
[0, 3]	0.023*	93	0.041	51	0.013	42
	(1.67)		(1.64)		(0.77)	

Panel E: Change in sales per employee

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	0.062***	92	0.027**	51	0.073**	41
	(3.34)		(2.19)		(2.46)	
[-2, 0]	0.038***	90	0.025*	50	0.045**	40
	(3.12)		(1.94)		(2.57)	
[-1, 0]	0.013***	93	0.026**	52	0.010*	41
	(2.63)		(1.97)		(1.68)	
[0, 1]	0.014*	92	0.016	51	0.005	41
	(1.65)		(0.91)		(1.41)	
[0, 2]	0.069**	94	0.073*	52	0.044	42
	(2.21)		(1.78)		(1.29)	
[0, 3]	0.100***	91	0.127***	50	0.063	41
	(3.4)		(2.85)		(1.61)	

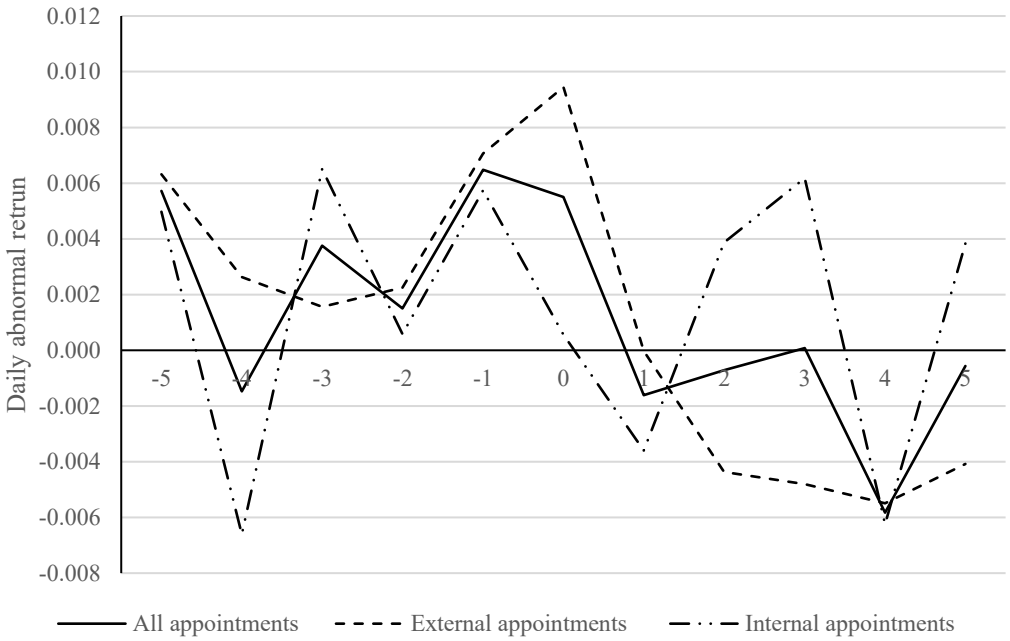
Panel F: Change in operating profit per employee

	All appointments		External appointments		Internal appointments	
Period	Median	Obs	Median	Obs	Median	Obs
[-3, 0]	-0.229**	92	-0.278**	51	-0.150	41
	(-2.18)		(-2.32)		(-0.63)	
[-2, 0]	-0.164*	87	-0.229*	48	-0.086	39
	(-1.93)		(-1.76)		(-0.82)	
[-1, 0]	-0.025	92	-0.168	50	0.045	42
	(-0.47)		(-1.05)		(0.54)	
[0, 1]	-0.035	93	-0.183**	51	0.150*	42
	(-0.66)		(-2.57)		(1.89)	
[0, 2]	-0.036	93	0.000	51	-0.039	42
	(-0.35)		(-0.42)		(-0.09)	
[0, 3]	0.009	92	-0.027	50	0.070	42
	(-0.3)		(-0.32)		(-0.13)	

Note. This table reports the cross-sectional mean and median percentage change in OROA around the CEO appointment announcement year. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. For median values, we report the *z*-statistics from the Wilcoxon signed-rank test in parenthesis.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

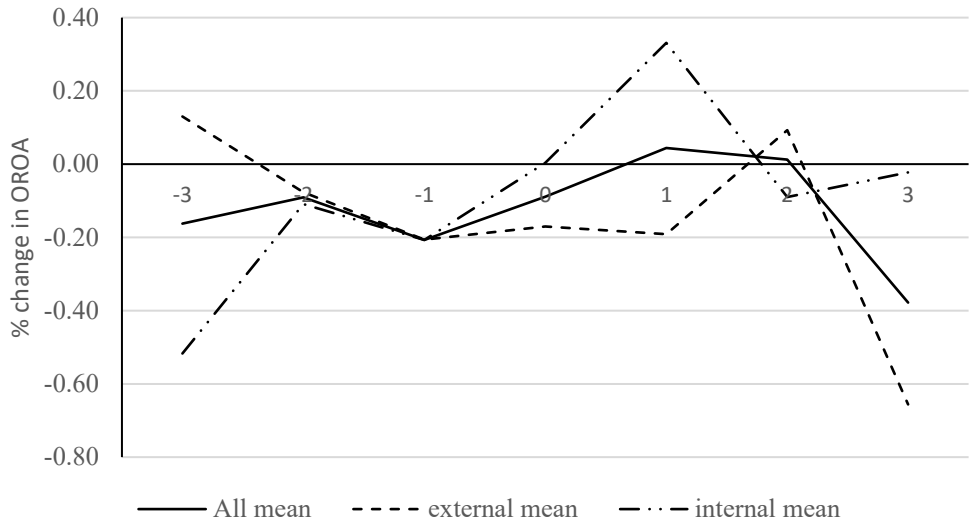
Figure 2.1 Daily abnormal return around the CEO appointment announcements



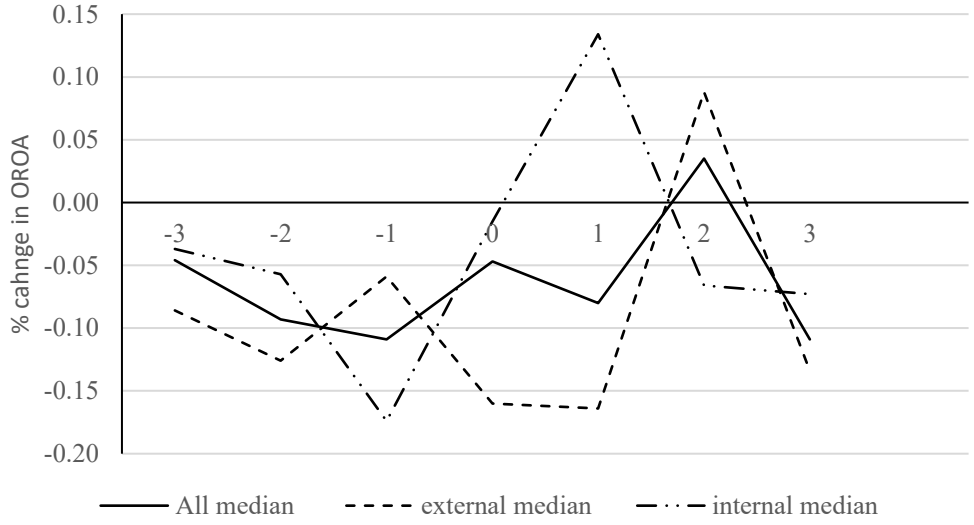
Note. This figure shows the cross-sectional average of daily Abnormal Return (AR) around the CEO appointment announcements. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member. The market-model-adjusted daily AR is calculated for each event using a 180-day estimation window from 205 to 26 days preceding the event day.

Figure 2.2 Yearly change in Operating return on assets (OROA)

Panel A: Yearly average change in OROA



Panel B: Median yearly change in OROA



Note. This figure shows the yearly mean and median percentage changes in OROA from three years before the CEO appointment announcements to three years after the event. External CEOs are defined as having less than one year of working experience in the firm as an executive or a board member.

Appendix

Table A1: List of sample firms

Company Name	Country	Company Name	Country
Amer Sports	Finland	Skanska	Sweden
Cargotec	Finland	SKF	Sweden
Huhtamaki	Finland	SSAB	Sweden
Kesko	Finland	Swedish Match	Sweden
Kone	Finland	Volvo	Sweden
Konecranes	Finland	Carlsberg	Denmark
Metsa Board	Finland	Chr. Hansen	Denmark
Metso	Finland	Coloplast	Denmark
Neste	Finland	Genmab	Denmark
Nokia	Finland	GN Store Nord	Denmark
Nokian Renkaat	Finland	H. Lundbeck	Denmark
Orion	Finland	Novo Nordisk	Denmark
Outokumpu	Finland	Novozymes	Denmark
Outotec	Finland	Pandora	Denmark
Stora Enso	Finland	Vestas Windsystems	Denmark
Tieto	Finland	William Demant Holding	Denmark
Wartsila	Finland	Aker BP	Norway
YIT	Finland	DNO	Norway
ABB	Sweden	Grieg Seafood	Norway
Alfa Laval	Sweden	Leroy Seafood	Norway
AstraZeneca	Sweden	Marine Harvest/Mowi	Norway
Atlas Copco	Sweden	Norsk Hydro	Norway
Boliden	Sweden	Orkla	Norway
Electrolux	Sweden	Petroleum Geo-Services	Norway
Ericsson	Sweden	Salmar	Norway
Fingerprint Cards	Sweden	Schibsted	Norway
Getinge	Sweden	Statoil/Equinor	Norway
Hennes & Mauritz	Sweden	Subsea 7 SA.	Norway
Sandvik	Sweden	TGS-Nopec	Norway
SCA	Sweden	Yara International	Norway
Securitas	Sweden		

Table A2: USD-denominated summary statistics

Variables	Mean	Median	Std. dev.	Minimum	Maximum	Obs.
Total assets	10 167 054	4 400 447	17 140 989	7 253	164 550 267	1082
Gross PPE	6 776 291	1 961 856	20 549 210	216	220 245 504	1075
Capital expenditure	515 979	163 121	1 580 886	12	20 723 023	1079
Employees	27 378	12 041	41 999	11	302 055	1070
Sales	9 012 731	3 865 943	13 586 983	366	127 975 617	1081
Operating profit	1 091 713	351 977	3 020 852	-4 297 766	39 545 172	1080

Note. Variables other than employees are in thousand USD.