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**Examining the Relationship of Institutional Ownership and
Operating Performance: Evidence from Swedish IPOs**

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Abstract

This study investigates the relationship between institutional ownership and firm operating performance during the three-year period following an IPO in Sweden. It adds to the continuing discussion on whether institutional investors, with their capabilities and incentives to actively monitor, positively impact firm performance. Panel data techniques and fixed effects models are employed to investigate the relationship between institutional ownership and operating performance, while controlling for firm-specific and governance related factors. In contrast to theoretical suggestions and prior empirical findings, we do not find results supporting the notion that institutional ownership positively impacts firm performance following an IPO. Moreover, when separating between pressure-insensitive and pressure-sensitive investors, in line with recent research, no significant impact on firm performance is found. This study brings nuance to previous literature by focusing on Sweden, a country with a long-standing tradition of private blockholder control and highly concentrated ownership, where the ability of institutional investors to exert control is likely more limited.

Keywords: Institutional investors, Active monitoring view, Passive monitoring view, Corporate governance, Control, Operating performance, Pressure-insensitive, Pressure-sensitive, Initial Public Offering (IPO), Sweden.

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1. Introduction

A prominent subject in corporate governance literature in recent years has been whether institutional investors can serve as effective corporate monitors and positively influence firm performance. This study empirically investigates the relationship between institutional ownership and post-IPO operating performance in a relatively understudied setting where the typical ownership structure distinctly differs from previously studied contexts.

The ownership structure of Swedish firms has a long tradition of being characterized by concentrated ownership and private blockholder control (Henrekson and Jakobsson, 2012). It is unique in the sense that no other industrialized country has the same discrepancy between capital rights and voting rights (Henrekson and Jakobsson, 2005). However, in recent decades, Swedish public firms have experienced significant increases of institutional ownership at the expense of all other investor types as a result of deregulated and globalized markets (Ehne, 2018; Henrekson and Jakobsson, 2012). Institutional investors tend to favor the Anglo-American corporate governance model in which ownership dispersion is greater and the gap between capital rights and voting rights is smaller (Henrekson and Jakobsson, 2012). As a way to defend and maintain the control-rights for blockholders, Swedish public firms have a notorious history of dual-class share usage. Holmén and Nivorozhkin (2007), however, provide evidence that the use of dual-class shares is associated with lower market valuations. Given the rise of institutional investors, their preference for an Anglo-American model of governance, and their tendency to punish the valuation of firms who do not comply, it is likely that Swedish firms converge toward this model resulting in a shift of control away from private blockholders and granting more control to institutional investors.

With the increases of institutional ownership on the global markets during the last decade, extensive research has been conducted with a focus on understanding whether institutional investors effectively mitigate agency problems arising from the separation of ownership and control, as described by Jensen and Meckling (1976). More specifically, as typically large shareholders, institutional investors have the incentives to actively participate in monitoring of firms (Shleifer and Vishny, 1986). Indeed, evidence supporting an active role played by institutional investors has been presented, for example through mitigating earnings management (Lo et al, 2017) and positively influencing the risk management practices of firms (Hutchinson et al. 2015). Claiming that all institutional investors function as effective monitors

of firms, however, may be wrongful. Firstly, institutional investors may play a passive monitoring role, where the investor acts as a short-term trader and does not utilize their ownership stake for pressurizing managers (Elyasiani and Jia, 2010). Secondly, barriers to effective monitoring may hamper the ability to effectively monitor. For example, existing or potential business ties between the institutional investors and their portfolio firms pose a possible conflict of interest where the institutional investor must balance between maximizing the value of their investment and maintaining a healthy business relationship with the firm (David and Kochnar, 1996).

There are numerous types of institutional investors, and they may have varying capabilities and priorities when it comes to monitoring the firms in which they invest. Since Brickley et al. (1988) found evidence in support of the idea that institutional investors face different monitoring incentives, subsequent literature has distinguished between types of institutions. Institutional investors are typically classified as either pressure-insensitive or pressure-sensitive, depending on potential or existing business relationships with the firms. In terms of positively affecting firm performance, pressure-insensitive investors have generally been found to be superior, as they do not need to protect existing or potential business relationships which allows them to monitor firm management more actively (Cornett et al, 2007; Elyasiani and Jia, 2010; Lin and Fu, 2017).

The initial public offering (IPO) of a firm represents a point in time in which the ownership structure changes substantially and becomes more dispersed, illustrating the separation of ownership and control. This creates agency problems and with the arguments of Jensen and Meckling (1976), firm performance will suffer accordingly. Indeed, evidence that IPOs are followed by declines in operating performance has been provided by several researchers, although determinants as to why differ (Jain and Kini, 1994; Hsu et al., 2010). Institutional investors tend to participate in IPOs extensively, and the ownership share and concentration belonging to institutional investors has grown drastically over the last decades. Although operating performance tend to suffer post-IPO, there is evidence suggesting that institutional ownership is positively associated with post-IPO operating performance (Balatbat et al., 2004; Wang, 2005; Michel et al., 2020).

Prior research suggest that institutional investors possess the incentives to actively participate in the monitoring of firms, and that institutional investors face differing monitoring incentives

depending on potential or existing business ties with their portfolio firms. Hence, this study aims to investigate the relationship between institutional ownership and the post-IPO operating performance of Swedish firms, considering both the total level of institutional ownership and when differentiating between pressure-insensitive and pressure-sensitive investors. As far as we are concerned, this approach has not yet been examined.

There is a lack of literature examining the impact of institutional ownership on firm performance in a Swedish context. The relevancy of Swedish firms as research subject is strengthened given institutional investors' growing interest in the Swedish capital market. In 2017, institutional investors accounted for 89 percent of the total market value on the Swedish stock exchange – an increase of 77 percent from 2007 (Euroclear, 2018). As noted, Swedish firms has a long history of highly concentrated ownership and private blockholder control. Although a convergence towards an Anglo-American governance model may be under way, distinct differences remain. Amindav and Papaioannou (2020) shows that the ownership concentration of Swedish firms remains high and that public firms tend to have one or two controlling owners, which are often family owners. This highly concentrated ownership can give rise to agency problems between controlling and non-controlling owners. Cieslak et al. (2021) suggest that such issues are more likely to occur with disproportionate ownership structures, as is the case in dual class share systems. Although the use of dual class shares in Sweden has declined, it is still widely used by controlling owners to maintain excess control rights (Henreksson and Jakobsson, 2012). This can also be observed in the context of Swedish IPOs. A significant portion of Swedish IPOs firms are owned by families and individuals, rather than institutions, and these owners typically retain control post-IPO by retaining shares with special voting rights and only issuing shares with cash-flow rights (Agnblad, 2001). When examining a sample of public Swedish firms, one should expect powerful controlling owners through excess control rights and weaker non-controlling owners, which differs from a typical Anglo-Saxon setting (Cieslak et al., 2021). For institutional investors, as non-controlling owners, one would expect that private blockholder control, the significant ownership concentration levels, and the wide use of dual-class shares, pose challenges to their ability to monitor and influence the performance of firms. Therefore, we argue that the unique features of Swedish corporate governance bring further relevance to this study.

2. Literature Review and Hypothesis Development

2.1 Institutional Investors as Corporate Monitors

Berle and Means (1932) were early to draw attention to the control problems that arise with dispersed ownership and its implications for corporate governance. This has been further built upon by Jensen and Meckling (1976) through agency theory, which posits that dispersed ownership creates a separation of ownership and control that can lead to conflicting interests between managers and shareholders, resulting in agency problems. Chen et al. (2007) provides evidence that the dispersion of ownership has changed during the last decades as shares owned by individuals increasingly are being managed by institutional investors. With the drastic increase in institutional ownership on the equity markets, extensive research has been conducted on the effects of institutional ownership on corporate monitoring. The underlying idea of institutional investors as effective monitors is that costs of monitoring are high, and therefore, only large shareholders, such as institutional investors, are likely to have the resources and incentives to actively monitor (Cornett et al., 2007). This active monitoring view is supported by the findings of Shleifer and Vishny (1986) which suggests that large shareholders should be effective monitors of firms by utilizing their large pool of resources, superior managerial skills, and their voting rights to mitigate agency problems and, ultimately, improve firm performance. Contrary to an active monitoring view is the passive monitoring view (Elyasiani and Jia, 2010). This view is based on the notion that institutional investors have a short-term investment horizon and the choice to hold or sell stock based on the rebalancing needs of their portfolios, which is to be especially expected when the investor is a passive indexer. Under a passive monitoring view, institutional investors are not expected to enhance firm performance.

2.2 Monitoring Determinants

To exercise control in firms, institutional investors have two options: “use their voice” or “vote with their feet”. Using their voice refers to exercising the voting rights to influence decision-making while voting with their feet refers to selling shares if dissatisfied with the firm’s performance. Institutional investors frequently choose to use their voice when engaging with management. However, the extent to which institutional investors engage with firm management is related to the investment horizon as long-term investors have been found to use

their voice to a greater extent than short-term investors (McCahery, 2016). Further, the level to which institutional investors value their voting rights is associated with the size of the ownership stake (Aggarwal et al., 2015). In addition, large institutional shareholders are able to cope with the costly monitoring process and their typically large equity positions incentivize them to be active in undertaking monitoring activities (Gillian and Starks, 2000). Evidently, both the size and the horizon are of importance in determining the level of monitoring undertaken by the investor. Cornett (2007) argues that large ownership stakes lead to less marketable shares, which in turn induces a longer-term view on their investment. On the other hand, small ownership stakes are easily liquidated if needed. As such, large ownership stakes should incentivize institutional investors to monitor the firm closely as they are in it for the long run, while small ownership stakes give less incentives to monitor as the shares can be sold relatively easy if the firm underperforms. The evidence that highlights the significance of ownership stake size, investment horizon, and value placed on voting rights all support the active monitoring view proposed by Shleifer and Vishny (1986). On the other hand, when institutional investors hold smaller ownership stakes, they are less incentivized to actively monitor and tend to prioritize short-term gains over long-term performance. Moreover, institutional investors who adopt more short-term strategies, like momentum trading, have been observed to be more likely to vote with their feet when dissatisfied with firm performance (Parrino et al., 2003). This aligns more with a passive monitoring view.

The inclination towards an active or passive monitoring view does not only depend on ownership stake held and the investment horizon of the institutional investors. Even though an investor holds a significant ownership stake with a long-term investment horizon, certain barriers may limit the effectiveness of monitoring. The most prominent barrier is the existence of a business relationship between an investor and a firm which they hold ownership in. When a relationship exists, the institutional investor must protect the value of their investment while simultaneously maintain the business relationship (David and Kochnar, 1996). Such a relationship may pose a conflict of interest leading to inefficient monitoring. The relation will be dependent on both the value of the investment and the value of the business relationship, and situations may occur where an intervention in corporate governance policies may increase the value of the investment but decrease the value of the business relationship resulting in a net loss for the investor. Another barrier to effective monitoring stems from a problem of limited information processing (David and Kochnar, 1996). Institutional investors typically hold large portfolios, and it may not be feasible to actively engage as monitors for all investments.

2.3 Differences Among Institutional Investors

As noted, business relationships between institutional investors and the portfolio firms can act as a barrier to effective monitoring (David and Kochnar, 1996). Therefore, contemporary research has typically differentiated between different types of institutional investors based on existing or potential business ties with firms. The investors are categorized as either pressure-insensitive or pressure-sensitive as per the classification of Brickley et al. (1988). It is hypothesized that institutional investors that are less likely to have potential or existing business relationship with the firm are less susceptible to pressure from firm management and should thus act as more effective monitors. Such institutions are considered pressure-insensitive. Conversely, institutional investors that tend to have potential or existing business relationships with the firm are hypothesized to be more susceptible to management pressure and are more likely to support managers. These institutions should therefore be less effective as monitors and are thus considered to be pressure-sensitive. Prior research has typically classified investment advisors, hedge funds, and foundations as pressure-insensitive investors and banks and trusts, insurance companies, pension funds, and sovereign wealth funds as pressure-sensitive investors (Brickley et al., 1988; Cornett et al., 2007; Ferreira and Matos, 2008). Prior findings suggest that the effect on firm operating performance is greater for pressure-insensitive investors compared to pressure-sensitive investors (Cornett et al., 2007; Elyasiani and Jia, 2010; Lin and Fu, 2017). Further, from a cost-benefit approach, pressure-sensitive institutions face higher costs of monitoring compared to pressure-insensitive investors because active monitoring and disciplining could harm the existing or potential business ties with firm management (Chen et al., 2007).

2.4 Institutional Ownership and Firm Performance

A significant body of literature has examined the effects of institutional ownership on specific corporate governance mechanisms and the general findings suggest that institutional investors serve as effective monitors. Hutchinson et al. (2015) found a positive association between the risk management practices of firms and institutional ownership. However, stressing that institutional investors are a heterogeneous group, and that they do not possess the same capacity to impact governance mechanisms, this finding only remained consistent for pressure-insensitive investors. In the context of earnings management in an IPO setting, Lo et al. (2017) found institutional investors to play a “dual role” in the facilitation of earnings management.

During the IPO issuance, the institutional investors have the incentives to, and were found to, engage in accrual-based earnings management to maximize the value of their investment. In the period following an IPO, however, they were found to be effective in mitigating earnings management. High institutional ownership was also found to be positively associated with superior post-IPO stock returns, indicating that the monitoring effect of institutional investors is valued by the capital market. Further, when examining only active institutional investors there is no alteration in the results, suggesting that the monitoring effect of institutional investors on earnings management is similar for different types of institutions. On the other hand, there is also evidence suggesting that active monitoring has negligible effects on corporate governance mechanisms. Karpoff et al. (1996) investigated the extent to which institutional shareholder activism affects corporate governance and performance. Proposals sponsored by institutions were found to have no effects on market values, and further, the results suggested that the proposals had insignificant effects on governance and performance.

With regards to the impact of institutional ownership on operating performance specifically, the literature remains fairly sparse. Again, the evidence generally suggests a positive association between the two. Cornett et al. (2007) found significant positive relationships between both the number of institutional investors and the percentage of institutional ownership and operating performance, measured as the operating cash flow returns. However, this relationship only held true for pressure-insensitive investors further indicating differences in monitoring capabilities between different institutions. In an IPO setting Michel et al. (2020) documented a positive association between the percentage of institutional ownership and operating performance, although with no differentiation between different types of institutional investors. Evidence from China, which is a market characterized by relatively small institutional ownership, provided a positive association between institutional ownership and return on assets, with a greater effect for pressure-insensitive institutions (Lin and Fu, 2017). Contrasting findings on the positive association between institutional ownership and operating performance exists, although to a lesser extent. Duggal and Millar (1999) found institutional ownership to be decided by factors such as size, insider ownership, and exchange listing, and the evidence failed to assert that institutional investors positively influence the operating performance of firms. Faccio and Lasfer (2000) found that even though occupational pension funds are incentivized to actively monitor firms in which they hold significant ownership stakes, the value added by these funds is insignificant and does not lead to any abnormal performance compared to peers.

2.5 Post-IPO Operating Performance

There is a vast body of literature focused on the operating performance of firms following an IPO. These studies have been conducted in several settings, such as in China and Australia, but with the majority focused on the U.S. market. Despite different markets, the findings are consequent where a decline in firms' operating performance in the years following the IPO is documented. The determinants of these results are, however, ambiguous. Jain and Kini (1994) claims that the significant decline is partially related to window-dressing of accounting numbers, resulting in overstated performance pre-IPO and understated performance after listing. Hsu et al. (2010) suggest that operating performance is strongly related with leverage, whether the firm has backing from a highly ranked investment bank, and level of R&D spendings and Mikkelson et al. (1997) find a relation between operating performance and sale of shares by current holders in the IPO. Most of the prior findings do however suggest that post-IPO operating performance is highly related to ownership structure (Jain and Kini, 1994; Kim et al., 2004; Wang, 2005). More specifically, earlier studies point toward a positive association between institutional ownership and post-IPO operating performance. Balatbat et al. (2004) shows similar results post-IPO for Australian listings, namely that operating performance declines during the first years. On the other hand, firms tend to exhibit superior operating performance with a higher level of institutional ownership. Lo et al. (2017) reports mixed findings in terms of operating performance after an IPO. However, the study does establish a positive association between institutional ownership and post-IPO operating performance, claiming that firms with significant institutional ownership tend to perform better. These documented findings indicate that institutional owners are successful in their role as monitors post-IPO, which supports an active monitoring view.

2.6 Corporate Control in Swedish Firms

Previous relevant literature has mainly concentrated on markets other than Sweden, with a primary focus on the U.S. market (Cornett et al., 2007; Elyasiani and Jia, 2010; Lo et al., 2017; Michel et al., 2020). As this study aims to examine Swedish firms, it is of high relevance to highlight corporate governance features that are distinctive for Swedish firms, and which differ from the Anglo-American markets. In Sweden, the dominating model of corporate control is highly concentrated ownership with private blockholder control, while the corporate control model of Anglo-American public firms is characterized by dispersed ownership and

management control. As a result of widespread use of dual class shares, which hold voting rights and cash flow rights separate, Swedish firms have a history of strong separation of ownership and control (Henreksson and Jakobsson, 2012). The intense use of dual class shares is also an outstanding feature of Swedish IPOs compared to Anglo-American IPOs. In Sweden, a substantial portion of IPO firms are controlled by families or individuals, and through the use of a dual class share system, these owners reserve the voting shares to themselves to maintain control post-IPO, while only issuing B-shares to raise new capital for investments (Agnblad, 2001).

Given the Swedish corporate governance model of strong private blockholder control, significant ownership concentration, and a system of dual class shares to effectively separate control from ownership, one would expect institutional investors to not be able to exert the same level of control as in Anglo-American countries. Although several researchers agree on the traditional view of Swedish corporate governance still being dominant (Högfeldt, 2005; Carlsson, 2007), signs of a convergence towards an Anglo-American model of corporate control exists. Henreksson and Jakobsson (2012) argues that from a theoretical standpoint, convergence towards dispersed ownership should be expected as blockholding ownership limits the ability for diversification and tends to tie up investments, leading to decreased liquidity. If minority shareholder protection is weak, blockholding ownership could be favorable due to possible exploitation of small shareholders. In Sweden, however, the protection of minority shareholders is strong and, as such, the incentives for blockholding ownership are reduced. There are also empirical findings suggesting a move away from the traditional Swedish model of corporate control as a result of globalization of financial markets and increasing ownership from institutional investors. The use of dual class shares has seen a decline, and several researchers have found that vote differentiation is associated with lower firm market valuations (Bjuggren et al, 2007; Holmén and Nivorozhkin, 2007). Henreksson and Jakobsson (2012) claims that institutional investors tend to favor the Anglo-American model of corporate control, and non-compliance with this model will lead to punishment through lower market valuations.

All in all, researchers seem to agree on that private blockholder control is still the prominent model of corporate control in Sweden. Nevertheless, both theoretical arguments and empirical evidence suggests a movement towards an Anglo-American model, with less concentrated private blockholding ownership and a less frequent use of dual class shares for control

purposes. Consequently, institutional investors are expected to exert greater influence as monitors and potentially have a larger impact on firm performance. This study will not further investigate the nature of the Swedish model of corporate governance. We do, however, recognize its divergence from the Anglo-American model which is important as a background to be able to contextualize the results of this study.

2.7 Hypothesis Development

Building on the literature review presented above, we aim to establish a direct link between institutional ownership and firm performance. Our hypothesis is grounded in the theoretical background of corporate governance and agency theory together with the empirical evidence from previous studies. In accordance with an active monitoring view, our overall assessment is that we anticipate a positive association to exist. This is consistent with theoretical suggestions, namely that institutional investors possess substantial resources and incentives to actively engage in monitoring activities to mitigate agency problems arising from the separation of ownership and control, ultimately leading to enhanced firm performance.

The literature further supports our hypothesis by consistently demonstrating that institutional investors possess the necessary resources and incentives to actively monitor firms in their portfolios. A vast amount of empirical research has found a positive association between institutional ownership and firm performance, indicating that institutional investors' monitoring efforts positively influence the financial and operational outcomes of the firms they invest in. These findings provide further support for the active monitoring view and suggest that institutional investors' involvement goes beyond passive ownership, extending to active engagement in corporate governance monitoring.

In the context of newly listed firms, where ownership structures often undergo significant changes, agency problems are likely to arise. The separation of ownership and control in these firms creates a problematic environment for potential conflicts of interest. Therefore, we anticipate institutional investors to be highly incentivized to closely monitor these firms and actively participate in their governance. Based on the above, we construct the following hypothesis:

H₁: Institutional ownership is positively associated with post-IPO operating performance

Building on the first hypothesis, we further explore the dynamics of institutional investor characteristics. Recognizing possible heterogeneity among institutional investors, as presented in the literature review, we extend our hypothesis development to include the distinction between pressure-insensitive and pressure-sensitive institutional investors. The literature highlights that institutional investors vary not only in their ownership stakes but also in their relationships with the firms in their portfolios. Pressure-insensitive institutional investors, who are less likely to have existing or potential business relationships with the firm, are commonly perceived to possess a greater inclination to challenge management decisions. On the other hand, pressure-sensitive institutional investors are believed to have business ties that could potentially negatively influence their monitoring behaviors.

Drawing on prior results from related studies, we anticipate that pressure-insensitive institutional investors will exhibit a greater tendency for active monitoring and engaging in governance practices. Their reduced conflicts of interest provide them with the motivation to actively monitor the firm's activities, mitigating self-serving behaviors and, ultimately, improve firm performance. Therefore, we construct the following hypothesis:

H₂: Pressure-insensitive institutional ownership has a stronger association with post-IPO operating performance than pressure-sensitive institutional ownership

3. Method

3.1 Data

In this study we investigate institutional investors' impact on operating performance post IPO. The IPO sample is obtained from nyemissioner.se by identifying all firms that went public and issued shares on the largest Swedish stock exchange, Nasdaq Stockholm, from 2011 to 2019. 2011 is used as the starting year for the firm sample since we want to examine the contemporary period. The concluding year for the firm sample is set to 2019 as we need three years of firm data to be available after each firm's IPO to generate measures of operating performance. While the screening process also identifies firms that have switched listing from alternative markets to Nasdaq Stockholm, we chose to exclude these firms as we are only interested in the effect of institutional ownership on operating performance following an IPO. Furthermore, we exclude (1) secondary listings, as there may not be a significant change in the ownership structure, and (2) dual listings since we want to examine the specific setting of IPOs in Sweden. This resulted in a sample of 65 IPO firms on which we will base our analysis. Although this study is limited in sample size, we include all IPOs on Nasdaq Stockholm for the relevant years. Additionally, our data is collected manually, which adds originality to this study. Refinitiv Eikon is used to retrieve all accounting data for operating performance measures as well as for control variables. Further, ownership data for the sample firms is also collected from Refinitiv Eikon. The database provides quarterly data on institutional ownership from the quarter immediately following the IPO and onwards.

3.2 Dependent Variables

To determine operating performance of the firms included in the sample, we estimate the operating return on assets (ROA) as the dependent variable which has commonly been used as performance indicator in prior research (Cornett et al., 2007; Elyasiani and Jia, 2010; Lin and Fu, 2017; Michel et al., 2020). To exclude the effect of leverage, ROA is based on operating income and calculated as earnings before interest, taxes, depreciation, and amortization (EBITDA), divided by end-of-year assets. According to Cornett et al. (2007), ROA is advantageous to other metrics, like Tobin's Q, as a measure of performance as ROA focuses on current performance rather than future expectations. Operating ROA is also argued to be a

highly relevant measurement for operating performance as it indicates how effectively assets are being utilized (Jain and Kini, 1994).

To generate ROA, quarterly balance sheet and income statement data is collected. As we examine the operating performance three years post-IPO, data for twelve quarters is retrieved and transformed into yearly data for years 1, 2, and 3. Since the firms used in our sample issue their shares to the public market at varying times throughout the year, it would be unreasonable to use end-of-year data. Instead, we consolidate quarterly income statement data to generate yearly data that considers the timing of the IPO. Year 1 refers to the four quarters following the IPO, year 2 to quarters five to eight following the IPO, and year 3 to quarters nine to twelve following the IPO. Due to missing and inadequate accounting data, seven firms had to be excluded from the study, resulting in a total sample size of 65 firms.

Cornett et al. (2007) emphasize the importance of industry adjusting firm performance to exclude industry effects that may impact firm-specific operating measures. Accordingly, we choose to industry-adjust operating performance measures in each year, which we define as abnormal ROA. This measure is calculated as the firm's individual ROA minus the ROA of the firms within the same industry classification for the relevant period. We approximate abnormal operating measures using both industry median ROA and industry asset weighted ROA to observe for potentially different effects using different methods. For compactness, we choose not to include the industry median adjusted ROA in the regression analysis. However, this did not have a significant impact on the results as they were almost identical to those obtained from using asset-weighted ROA. The industry classification group contains all firms listed on Nasdaq Stockholm with the same two-digit NAICS codes as the sample firms. We include all delisted firms for the period, no matter the underlying reason, to mitigate the survivorship bias problem. After this refinement, we end up with a range from a minimum of 3 to a maximum of 56 firms in each industry group.

3.3 Independent Variables

As the scope of this study is limited to the three years following the IPO, institutional ownership data for the twelve quarters following the IPO is retrieved. To construct yearly institutional ownership fractions for each firm we aggregate and average the quarterly data corresponding to each year. Hence, year 1 refers to the ownership share for the first four quarters following

the IPO, year 2 to quarters five to eight following the IPO, and year 3 to quarters nine to twelve following the IPO. Since we make use of lagged ownership variables, which is motivated further in the research design-section, we use the first quarter immediately after the IPO as year 0.

As we aim to test whether the impact on operating performance differs depending on whether the institutional investors are pressure-insensitive or pressure-sensitive, we categorize each owner accordingly. Refinitiv Eikon classifies institutional investors into six different sub-investor types (bank and trusts, foundations, insurance companies, pension funds, sovereign wealth funds, investment advisors, and hedge funds). We classify institutional investors according to their existing or potential business relationship and by following the classifications used in Ferreira and Matos (2008). We group investment advisors, hedge funds, and foundations into the pressure-insensitive institutional investor classification. We expect these institutions to be more active in monitoring the management as they are less likely to have existing or potential business ties with their portfolio firms. Banks and trusts, insurance companies, pension funds, and sovereign wealth funds are grouped into the pressure-sensitive institutional investor classification. These institutions are expected to be less likely to challenge or vote against management decisions as they are more likely to have existing or potential business relationships with their portfolio firms (Ferreira and Matos, 2008).

3.4 Control Variables

We use firm size, leverage, market-to-book ratio, PE/VC-ownership, founding family ownership, board size and firm age as independent control variables to capture their effects on our sample firms' operating performance.

Firm size is included as a control variable due to its documented association with firm performance (Wang, 2005; Lin and Fu, 2017; Michel et al., 2020). More specifically, large firms tend to perform better than small firms both prior to and following an IPO (Mikkelsen et al., 1997). Firm size is defined as the natural logarithm of total assets in the last quarter of the relevant year.

Leverage has been reported to have a significant relationship with operating performance (Wang, 2005; Lo et al., 2017; Lin and Fu, 2017). Jensen and Meckling (1976) claims that

leverage affects the corporate governance since creditors have the incentive to monitor firms with higher debt level and thus enhance the performance. Leverage is calculated as total interest-bearing debt divided by total assets in the last quarter of the relevant year.

Market-to-Book ratio (MTB) is a commonly used control variable when examining operating performance as it has been found to have a significant relationship with operating performance measures (Hsu et al., 2010; Lo et al., 2017). The MTB ratio is calculated as the market value of equity (market capitalization) divided by the book value of equity.

PE/VC-ownership has been found to have a positive association with post-IPO operating performance (Hsu et al., 2010; Michel et al., 2020). Moreover, VC-backed IPOs have been found to exhibit superior operating performance (Jain and Kini, 1995; Meles et al., 2014) and Bergström et al. (2006) as well as Levis (2011) discovered that IPOs backed with capital from private equity outperform other IPOs. The PE/VC-dummy is a binary variable that assumes a value of 1 when PE or VC firms have ownership stakes in the sample firm, and 0 otherwise.

Founding family ownership has been found to be associated with superior firm performance. Anderson and Reeb (2003) found that firms with family founding ownership outperform non-family founder owned firms in terms of firm performance (ROA) and suggests that the founders understand the business better and tend to have a longer investment horizon compared to other owners. We therefore include a binary variable, founder dummy, to control for this effect that takes the value of 1 when the founding family are remaining owners in the sample firm, and 0 otherwise. This dummy variable is also used to formulate an interaction term between itself and institutional ownership ratios which is used in regression (8) to (11) in Table 5.

Board size has been documented to have an impact on the effectiveness of the board as firm monitors. According to Jensen (1993), large boards are easier for the CEO to control as they tend to prioritize being polite and show consideration toward the CEO, making small boards better equipped to be effective monitors. Similar arguments that larger boards are ineffective monitors are also suggested by Yermack (1996), which further concludes that there is a negative relationship between board size and financial performance measures like ROA, ROS, and Tobin's Q, and we thus expect similar results. Accordingly, we control for board size effects using the natural logarithm of the number of board members.

Firm age, measured as the length of a firms' operating history, has been found to be significantly related to operating performance in several studies (Balatbat et al., 2004; Lin and Fu, 2017; Michel et al., 2020). Since we aim to investigate effects following an IPO, the control variable, firm age, is defined as the natural logarithm of the number of operative years up until the firm's public offering.

All dependent-, independent-, and control variables discussed above are summarized and defined in Table 1.

Table 1 – Definitions of variables

| Dependent variables | Symbol | Definitions |
|--|-------------------------|---|
| Operating return on assets | ROA | EBITDA / Total assets |
| Abnormal operating return on assets | AbnROA | Operating return on assets - Industry asset weighted return on assets |
| Institutional ownership variables | | |
| Total institutional ownership | IO | Fraction of shares outstanding owned by institutional investors |
| Pressure-insensitive institutional ownweship | Pressure-insensitive IO | Fraction of shares outstanding owned by pressure-insensitive institutional investors |
| Pressure-sensitive institutional ownweship | Pressure-sensitive IO | Fraction of shares outstanding owned by pressure-sensitive institutional investors |
| Control variables | | |
| Founding family ownership | Founder dummy | 1 if the founder/founding family has an owanship stake in the relevant year post-IPO, 0 otherwise |
| Private equity/venture capital ownership | PE/VC dummy | 1 if the firm is PE/VC backed in the relevant year post-IPO, 0 otherwise |
| Leverage | Leverage | Total interest bearing debt / Book value of equity |
| Market-to-book ratio | MTB | Market capitalization / Book value of equity |
| Total assets | Size(ln) | Natural logarithm of total assets |
| Board size | Board size(ln) | Natural logarithm of the board size |
| Firm age | Firm age(ln) | Natural logarithm of the number of years since the founding of the firm |

This table summarizes and defines the dependent variables (ROA, AbnROA), institutional ownership variables (IO, Pressure-insensitive IO, Pressure-sensitive IO), and control variables (Founder dummy, PE/VC dummy, Leverage, MTB, Size(ln), Firm age(ln), Board size(ln)) used in our fixed effect regression models.

3.5 Research Design

In this study, both cross-sectional (data on a group of companies at a single point in time) and time series data (data on the same group of companies over a time-series) are analyzed. As such, panel data techniques are used to explore the potential influence of institutional ownership on firm operating performance. Pooled OLS-models, random effects models, and fixed effects models are employed to test the study's hypotheses. To choose the best-fit regression model for our data, we follow three steps. Firstly, we base our decision on which is the better model between an OLS and a fixed effects model based on the results of an F-test. Secondly, we run a Breusch Pagan LM test to determine whether the OLS model or the random effects model is preferable. Lastly, we employ a Hausman test to differentiate between a random effects model and a fixed effects model. The Hausman test also gives insight as to whether endogeneity in our data may be a concern. Significantly different coefficients between a random effects model and a fixed effects model indicate endogeneity in the model for which a fixed effects model is preferred.

We follow Ferreira and Matos (2008) and estimate all regressions with clustered standard errors at firm level and include year dummies. Clustered standard errors are used to control for cross-sectional dependence between observations, i.e., to adjust for correlation across different clusters. Year dummies are used to account for time-series dependence, i.e., correlation for a given firm across time. It should be noted that our sample is relatively small and only includes 65 clusters. A sample size too small may result in less precise estimates when employing clustered standard errors. However, given the nature of our data we still argue that the use of clustered standard errors is appropriate. A larger number of firms and more firm observations per cluster could provide more precise estimates. Hence, the scope of this study could be expanded by including alternative stock exchanges in Sweden, such as First North, but due to inadequate accounting- and ownership data, this option is deemed unfeasible. Moreover, expanding the duration of the study beyond three years after the IPO would allow us to obtain a larger sample. However, considering that our aim is to investigate the impact of institutional ownership on newly public firms, it is reasonable to limit the study to three years as we anticipate that the significant increases in institutional ownership that follows an IPO diminishes over time. Therefore, extending the time frame beyond three years would not be consistent with the nature of the study, which is to explore the effects in an IPO context.

Cornett et al. (2007) highlights that without lagging the ownership variables, the model would not be able to distinguish between whether increases in institutional ownership positively affects the operating performance of firms or if institutional owners are attracted to firms with better recent operating performance. Lagging the ownership variables acts as a tool to reduce possible endogeneity concerns of our sample through minimizing simultaneity bias. Ownership changes are likely to take time to impact the governance and performance of firms, which further supports that lagged ownership variables are preferred. In essence, through lagging the ownership variables, we utilize past ownership structure as a predictor of the current level of operating performance to ensure that the current ownership structure is not affected by the current level of operating performance. To further mitigate endogeneity concerns, we could employ instrumental variable regression similarly to Cornett et al (2007) and Ferreira and Matos (2008). However, we do not employ such regression given the difficulties of finding a reliable instrumental variable. Further, Cornett et al. (2007) found that the use of instrumental variables had insignificant effects on the results, suggesting that that endogeneity problems were not severe. As such, even if we employ instrumental variables, it is plausible that the result would be similar.

Presented below are the equations which are the basis of our results and further analysis. The equations presented are the basic form and are all subject to modifications, for example through the inclusion of interaction terms. Equations (1) and (2) are used to test H_1 where we investigate the impact of the total fraction of institutional ownership and the control variables on operating performance of the sample firms.

$$(1) ROA_{it} = \alpha + \beta_1 IO_{it-1} + \beta_2 Founder\ dummy_{it-1} + \beta_3 PE/VC\ dummy_{it-1} + \beta_4 Leverage_{it} + \beta_5 MTB_{it} + \beta_6 Size(ln)_{it} + \beta_7 Firm\ age(ln)_{it} + \beta_8 Board\ size(ln)_{it} + \epsilon_{it}$$

$$(2) AbnROA_{it} = \alpha + \beta_1 IO_{it-1} + \beta_2 Founder\ dummy_{it-1} + \beta_3 PE/VC\ dummy_{it-1} + \beta_4 Leverage_{it} + \beta_5 MTB_{it} + \beta_6 Size(ln)_{it} + \beta_7 Firm\ age(ln)_{it} + \beta_8 Board\ size(ln)_{it} + \epsilon_{it}$$

Equations (3) and (4) are employed to test H_2 where we separate between pressure-insensitive and pressure-sensitive institutional investors.

$$(3) ROA_{it} = \alpha + \beta_1 \text{Pressure-insensitive } IO_{it-1} + \beta_2 \text{Pressure-sensitive } IO_{it-1} + \beta_3 \text{Founder dummy}_{it-1} + \beta_4 \text{PE/VC dummy}_{it-1} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{MTB}_{it} + \beta_7 \text{Size}(\ln)_{it} + \beta_8 \text{Firm age}(\ln)_{it} + \beta_9 \text{Board size}(\ln)_{it} + \varepsilon_{it}$$

$$(4) AbnROA_{it} = \alpha + \beta_1 \text{Pressure-insensitive } IO_{it-1} + \beta_2 \text{Pressure-sensitive } IO_{it-1} + \beta_3 \text{Founder dummy}_{it-1} + \beta_4 \text{PE/VC dummy}_{it-1} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{MTB}_{it} + \beta_7 \text{Size}(\ln)_{it} + \beta_8 \text{Firm age}(\ln)_{it} + \beta_9 \text{Board size}(\ln)_{it} + \varepsilon_{it}$$

4. Results

4.1 Descriptive Statistics

Table 2 reports a summary statistic of all dependent variables, institutional ownership variables, and control variables used in the regression analysis with the exception for the interaction terms. The mean ROA is 7.8 percent and mean abnormal ROA equals -1.9 percent, indicating that the operating performance of our sample firms is, on average, inferior to their industry peers. In our sample, the average percentage of total institutional ownership equals 37.5 percent, indicating that institutional investors, on average, hold significant ownership stakes post-IPO. Moreover, 28.6 percent is held by pressure-insensitive institutional investors and 8.9 percent by pressure-sensitive institutional investors. The data indicate that the major institutional investors on the Swedish IPO market are primarily pressure-insensitive institutions, such as investment advisors and hedge funds. The mean values of the dummy variables Founder dummy and PE/VC dummy is 0.373 and 0.508, respectively, showing that about one third of our sample firms have founder family ownership and just above half of our sample firms have PE or VC ownership in the post-IPO period. Further, although not displayed in the descriptive statistics, our data shows that for 89 percent of all firms where founding family ownership is observed, the ownership stake held is larger than 5 percent. This indicates that founding families tend to keep large blocks of ownership post-IPO rather than only small fractions. The ownership variables (IO, Pressure-insensitive IO, Pressure-sensitive IO, Founder dummy, and PE/VC-dummy) are lagged for one year in our regression analyses. Hence, the number of observations for these particular variables is extended to 260, as opposed to 195 observations for all the remaining variables.

Table 2 – Descriptive statistics

| Variables | Observations | Min | Mean | Median | Max | SD |
|-------------------------|--------------|--------|----------|--------|--------|----------|
| ROA | 195 | -0.875 | 0.078 | 0.091 | 0.461 | 0.147 |
| AbnROA | 195 | -0.98 | -0.019 | -0.001 | 0.368 | 0.149 |
| IO | 260 | 0.075 | 0.375 | 0.36 | 0.884 | 0.178 |
| Pressure-insensitive IO | 260 | 0.042 | 0.286 | 0.254 | 0.711 | 0.143 |
| Pressure-sensitive IO | 260 | 0 | 0.089 | 0.079 | 0.351 | 0.067 |
| Founder dummy | 260 | 0 | 0.373 | 0 | 1 | 0.485 |
| PE/VC dummy | 260 | 0 | 0.508 | 1 | 1 | 0.501 |
| Leverage | 195 | 0 | 0.297 | 0.288 | 0.823 | 0.202 |
| MTB | 195 | 0.415 | 3.551 | 2.258 | 52.286 | 5.291 |
| Total assets | 195 | 125.5 | 7072.224 | 4193 | 53442 | 8778.556 |
| Board size | 195 | 4 | 7.328 | 7 | 12 | 1.694 |
| Firm age | 195 | 2 | 26.831 | 21 | 155 | 24.756 |

This table shows the descriptive statistics of our dependent (ROA and AbnROA) and independent variables (IO, Pressure-insensitive IO, Pressure-sensitive IO, Founder dummy, PE/VC dummy, Leverage, MTB, Total Assets, Board size, and Firm age). Table 1 present definitions of the variables.

Table 3 displays the Pearson correlation matrix, which examines the relationship between all of the explanatory variables used in our regressions. This table is included to identify potential multicollinearity issues. If two independent variables show high correlation, it suggests the presence of multicollinearity. Unsurprisingly, we do observe a strong correlation between pressure-insensitive ownership and pressure-sensitive ownership with total institutional ownership. However, since these variables are not included in the same regression this is not a problem. Overall, we find the correlation coefficients among the explanatory variables to be rather weak, suggesting their relative independence of each other.

Table 3 – Pearson correlation matrix

| | IO | Pressure-insensitive IO | Pressure-sensitive IO | Founder dummy | PE/VC dummy | Leverage | MTB | Size(ln) | Firm age(ln) | Board size(ln) |
|-------------------------|--------|-------------------------|-----------------------|---------------|-------------|----------|--------|----------|--------------|----------------|
| IO | 1.000 | | | | | | | | | |
| Pressure-insensitive IO | 0.921 | 1.000 | | | | | | | | |
| Pressure-sensitive IO | 0.652 | 0.315 | 1.000 | | | | | | | |
| Founder dummy | -0.213 | -0.247 | -0.054 | 1.000 | | | | | | |
| PE/VC dummy | -0.081 | -0.096 | 0.000 | -0.304 | 1.000 | | | | | |
| Leverage | 0.218 | 0.238 | 0.036 | -0.176 | -0.052 | 1.000 | | | | |
| MTB | -0.050 | -0.018 | -0.091 | 0.195 | 0.068 | -0.121 | 1.000 | | | |
| Size(ln) | 0.228 | 0.195 | 0.160 | -0.221 | -0.003 | 0.573 | -0.335 | 1.000 | | |
| Firm age(ln) | -0.105 | -0.063 | -0.149 | 0.001 | 0.081 | -0.027 | 0.133 | 0.010 | 1.000 | |
| Board size(ln) | -0.091 | -0.107 | -0.016 | -0.274 | 0.286 | 0.010 | -0.178 | 0.376 | 0.162 | 1.000 |

This table shows the correlation coefficients between all institutional ownership variables (IO, Pressure-insensitive IO, Pressure-sensitive IO) and control variables (Founder dummy, PE/VC dummy, Leverage, MTB, Size(ln), Firm age(ln), Board size(ln)) included in our fixed effects regression models. All ownership variables (IO, Pressure-insensitive IO, Pressure-sensitive IO, Founder dummy, and PE/VC dummy are lagged one year).

4.2 Best-fit Regression

Appendix A, B and C presents the results of the F-tests, Breusch-Pagan LM tests, and Hausman tests, respectively, which are utilized to determine the best fit regression model. With regards to the F-test, we find that all of the f-values obtained are significant given a 1 percent significance level, indicating the superiority of a fixed effect model over a pooled OLS model (see Appendix A). A Breusch-Pagan LM test is thereafter conducted and given that all the Chi2 values are significant given a 1 percent significance level, we conclude that a random effect model is preferred over a pooled OLS model (see Appendix B). Lastly, the determination of a fixed effect model or a random effect model is decided by the outcome of the Hausman test. We find that the fixed effect model is a better fit given that all Chi2 values are significant at a 1 percent significance level. Significantly different coefficients between the random effect- and fixed effect model also indicate that endogeneity might be present (see Appendix C). To account for time-varying factors that may affect the dependent variables, ROA and Abnormal ROA, we include time fixed effects. We find that all of the individual year effects are significant given at least a 5 percent significance level, and as such, we choose to present all of the model including time fixed effects.

4.3 Regression Results

Table 4 displays the results of regressions (1) to (5), which are presented to validate the use of clustered standard errors and to examine the effect of total institutional ownership (IO) and the control variables on ROA and abnormal ROA. We estimate regression (1) and (3) without clustered standard errors and regression (2) and (4) with clustered standard errors. The results show that when the effect of the institutional ownership variable on operating performance is estimated without any control variables, statistical significance is achieved, although slightly weaker when standard errors are clustered. However, the significance of the institutional ownership variable is lost when control variables are added in regression (3) and (4). The outcomes of regression (3) and (4) show similar levels of statistical significance for the control variables, indicating that the loss of significance is not due to the use of clustered standard errors but rather the inclusion of control variables. Although the statistical significance of the regressions with clustered standard errors is slightly lower than those without, they are still significant at a level of at least 10 percent. Based on the similar results obtained with and without clustered standard errors, all subsequent models will be estimated with clustered standard errors to account for cross-sectional dependence.

For the testing of H_1 we refer to regression (4) and (5), which investigates the impact of the institutional ownership- and control variables included in the model. For H_1 , the main variable of interest is the one year lagged total level of institutional ownership. The ownership variables are lagged to account for the fact that changes in ownership structure are unlikely to have an instantaneous effect on operating performance and to mitigate simultaneity bias. As displayed, we find no statistical significance for the effect of total institutional ownership on ROA and abnormal ROA, and we therefore fail to establish a relationship between institutional ownership and operating performance during the three years following an IPO.

Furthermore, we find that the presence of PE/VC firms as owners post-IPO does not have a statistically significant effect on the operating performance of firms. Our results do however indicate that founding family ownership remaining post-IPO is positively associated with operating performance, at a 5 percent significance level for ROA and a 10 percent significance level for abnormal ROA.

Table 4 – Post-IPO operating performance as a function of lagged total institutional ownership

| VARIABLES | (1) ROA | (2) ROA | (3) ROA | (4) ROA | (5) AbnROA |
|---------------------------------|---------------------|---------------------|--------------------------|-----------------------|----------------------|
| IO (lagged one year) | 0.168** (0.0846) | 0.168* (0.0894) | 0.0818 (0.0776) | 0.0818 (0.0726) | 0.104 (0.0704) |
| Founder dummy (lagged one year) | | | 0.0906** (0.0455) | 0.0906** (0.0424) | 0.0865* (0.0434) |
| PE/VC dummy (lagged one year) | | | -0.0151 (0.0330) | -0.0151 (0.0221) | -0.0157 (0.0226) |
| Leverage | | | -0.388*** (0.106) | -0.388** (0.147) | -0.369** (0.148) |
| MTB | | | -0.00691*** (0.00264) | -0.00691 (0.00560) | -0.0086 (0.00519) |
| Size(ln) | | | 0.211*** (0.0333) | 0.211*** (0.0693) | 0.202*** (0.0685) |
| Firm age(ln) | | | 0.00599 (0.0685) | 0.00599 (0.0336) | 0.0076 (0.0326) |
| Board size(ln) | | | -0.083 (0.0678) | -0.083 (0.0590) | -0.0641 (0.0586) |
| Constant | 0.0447* (0.024) | 0.0447** (0.018) | -1.356*** (0.328) | -1.356** (0.543) | -1.427*** (0.527) |
| Observations | 195 | 195 | 195 | 195 | 195 |
| R-squared | 0.059 | 0.059 | 0.373 | 0.373 | 0.378 |
| Year FE | Yes | Yes | Yes | Yes | Yes |

This table reports the dependent variables ROA and asset weighted industry-adjusted ROA as a function of previous year ownership variables. Regressions are estimated using fixed effects models including year dummies with clustered standard errors at firm level for regression (2), (4), and (5). The sample consist of 65 Swedish IPO firms on Nasdaq Stockholm between 2011 and 2019.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In Table 5 we test H_2 with regression (6) and (7) by investigating the impact of institutional ownership on ROA and abnormal ROA, similar to regression (4) and (5) in Table 4, with the exception for the fraction of institutional ownership being divided into pressure-insensitive institutions (hedge funds, foundations, and investments advisors) and pressure-sensitive institutions (bank and trusts, insurance companies, pension funds, and sovereign wealth funds). We continue to find that the effect of both pressure-insensitive institutional ownership and pressure-insensitive institutional ownership on ROA and abnormal ROA is statistically insignificant. Hence, we fail to establish a relationship between the level of pressure-insensitive ownership, pressure-sensitive ownership and operating performance during the three years following an IPO. We do note a positive significant relationship for the Founder dummy. The

coefficients implies that when founder ownership is present, ROA and abnormal ROA are expected to increase with 8.66 and 8.33 percentage units the following year, respectively. Although only weak significance is obtained, at a level of 10 percent, the results show tendencies that the operating performance of firms is positively associated with founding family ownership post-IPO.

Table 5 - Post-IPO operating performance as a function of lagged pressure-insensitive and pressure-sensitive institutional ownership

| VARIABLES | (6) ROA | (7) AbnROA |
|---|-----------------------|------------------------|
| Pressure-insensitive IO (lagged one year) | 0.0347 (0.0896) | 0.0673 (0.0894) |
| Pressure-sensitive IO (lagged one year) | 0.1950 (0.1890) | 0.1930 (0.2070) |
| Founder dummy (lagged one year) | 0.0866* (0.0439) | 0.0833* (0.0449) |
| PE/VC dummy (lagged one year) | -0.0178 (0.0220) | -0.0181 (0.0226) |
| Leverage | -0.401*** (0.144) | -0.380** (0.147) |
| MTB | -0.00707 (0.00554) | -0.00870* (0.00512) |
| Size(ln) | 0.218*** (0.0692) | 0.207*** (0.0687) |
| Firm age(ln) | 0.00434 (0.0339) | 0.00635 (0.0329) |
| Board size(ln) | -0.0793 (0.0576) | -0.0611 (0.0573) |
| Constant | -1.405** (0.541) | -1.466*** (0.525) |
| Observations | 195 | 195 |
| R-squared | 0.376 | 0.379 |
| Year FE | Yes | Yes |

This table reports the dependent variables ROA and asset weighted industry-adjusted ROA as a function of previous year ownership variables. Regressions are estimated using fixed effects models including year dummies with clustered standard errors at firm level. The sample consist of 65 Swedish IPO firms on Nasdaq Stockholm between 2011 and 2019.

Robust standard errors in parantheses

*** p<0.01, ** p<0.05, * p<0.1

In Table 6 we investigate the potential interaction between the institutional ownership variables with the dummy variable indicating the presence of founding family ownership. Once again, all the ownership variables are lagged by one year to mitigate simultaneity bias and to capture the effect that changes in ownership structure is unlikely to have an instantaneous impact on operating performance. From regression (8) and (9) we continue to find no statistical significance, indicating that the total fraction of institutional ownership has no impact on either operating performance or abnormal operating performance post-IPO. We do find, however, that founders retaining ownership during the years following an IPO is positively associated with operating performance with regards to both ROA and abnormal ROA, given a 5 percent significance level. Moreover, from regression (8) and (9) we find evidence that the interaction between total institutional ownership and the founder dummy is significant at a level of 10 percent with negative coefficients of -0.29 and -0.297. This association indicates that when founders have remaining ownership stakes during the post-IPO period, the effect of increasing total institutional ownership has a negative effect on the operating performance of firms.

From regressions (10) and (11) we find no statistical significance supporting the impact of lagged institutional ownership from either pressure-insensitive or pressure-sensitive investors on operating performance. In regression (10) and (11) we have included two interaction terms, one investigating the interaction between pressure-insensitive institutional ownership and founder ownership, and the other investigating pressure-sensitive institutional ownership and founder ownership. For the latter, we find no significant results. The interaction term between pressure-insensitive investors and founder ownership, however, is weakly significant at a 10 percent level for ROA but not for abnormal ROA. The negative coefficient indicates that when pressure-insensitive investors, specifically, increase their ownership in a setting where the founders have retained ownership, the effect on operating performance is negative.

Table 6 - Post-IPO operating performance as a function of lagged total and grouped institutional ownership with the inclusion of interaction terms

| VARIABLES | (8) | (9) | (10) | (11) |
|---|-----------------------|------------------------|-----------------------|------------------------|
| | ROA | AbnROA | ROA | AbnROA |
| IO (lagged one year) | 0.0888 (0.0713) | 0.111 (0.0682) | | |
| Pressure-insensitive IO (lagged one year) | | | 0.0467 (0.095) | 0.06 (0.092) |
| Pressure-sensitive IO (lagged one year) | | | 0.196 (0.213) | 0.237 (0.220) |
| Founder dummy (lagged one year) | 0.203** (0.0881) | 0.202** (0.0932) | 0.201** (0.090) | 0.203** (0.0974) |
| IO x Founder dummy | -0.290* (0.157) | -0.297* (0.167) | | |
| Pressure-insensitive IO x Founder dummy | | | -0.363* (0.194) | -0.318 (0.203) |
| Pressure-sensitive IO x Founder dummy | | | -0.127 (0.533) | -0.289 (0.589) |
| PE/VC dummy (lagged one year) | -0.00973 (0.0210) | -0.0102 (0.0204) | -0.0122 (0.0206) | -0.013 (0.0203) |
| Leverage | -0.400*** (0.1480) | -0.383** (0.1490) | -0.422*** (0.14) | -0.399*** (0.147) |
| MTB | -0.00752 (0.0056) | -0.00920* (0.00518) | -0.00774 (0.00554) | -0.00941* (0.00518) |
| Size(ln) | 0.230*** (0.0713) | 0.222*** (0.0702) | 0.239*** (0.0706) | 0.231*** (0.070) |
| Firm age(ln) | -0.00985 (0.0370) | -0.00861 (0.0365) | -0.0143 (0.0356) | -0.0114 (0.0358) |
| Board size(ln) | -0.107* (0.0602) | -0.0881 (0.0600) | -0.0976 (0.0589) | -0.0842 (0.0596) |
| Constant | -1.435** (0.545) | -1.509*** (0.529) | -1.499*** (0.539) | -1.569*** (0.527) |
| Observations | 195 | 195 | 195 | 195 |
| R-squared | 0.395 | 0.401 | 0.402 | 0.404 |
| Year FE | Yes | Yes | Yes | Yes |

This table reports the dependent variables ROA and asset weighted industry-adjusted ROA as a function of previous year ownership variables. Regressions are estimated using fixed effects models including year dummies with clustered standard errors at firm level. The sample consist of 65 Swedish IPO firms on Nasdaq Stockholm between 2011 and 2019.

Robust standard errors in parantheses

*** p<0.01, ** p<0.05, * p<0.1

The R-squared values obtained from our models in Table 4, 5, and 6 range from a minimum of 0.373 to a maximum of 0.404. This is a level of explanatory power which is consistent with prior literature with similar methodologies (Cornett et al, 2007). Further, as expected with regards to the control variables included, we find that leverage and firm size are significantly associated with our measures of operating performance. We do not find evidence that the board size and firm age has a relationship with operating performance.

5. Discussion

5.1 Interpretation of Findings

From the above regressions we present the following findings: The results from Table 4, where we investigate the impact of lagged institutional ownership on operating performance, provides no evidence that institutional ownership is positively associated to the operating return on assets and the abnormal operating return on assets. Given the lack of significance, we fail to establish this relationship. Therefore, with regards to H_1 , we fail to find evidence supporting that the total level of institutional ownership is positively associated to post-IPO operating performance. In Table 5, we differentiate between institutional investors and classify them as either pressure-insensitive or pressure-sensitive, depending on their potential or existing business ties with the portfolio firms, which is hypothesized to affect the monitoring ability and incentives for these institutions. To find support for H_2 , we would need to find a statistically significant association between the level of pressure-insensitive ownership and operating performance, and the effect would need to be greater than for pressure-sensitive institutions. We find no such evidence and we therefore cannot claim that pressure-insensitive investors are a superior investor group in terms of positively influencing the operating performance of firms.

Our results indicate that the presence of founding family ownership post-IPO is positively associated with operating performance. On the other hand, we do not find evidence supporting a significant impact of institutional ownership on operating performance. We therefore decide to investigate the interaction between institutional ownership and founding family ownership to provide insights into how these two types of ownership may interact to influence operating performance. In Table 6, we observe that increases in institutional ownership, and more specifically pressure-insensitive ownership, when founding family ownership is present, negatively affects the operating performance of firms.

We have investigated the impact of contemporary institutional ownership on the contemporary operating performance of firms (i.e., without the use of lagged ownership variables). The results are presented in Appendix D. These regressions provide evidence that there is a positive association between contemporary institutional ownership to both ROA and abnormal ROA. This relationship is found for the total level of institutional ownership as well as for both pressure-insensitive and pressure-sensitive ownership, with the latter having the greater effect. We do, however, interpret the relationship between contemporary ownership and contemporary performance with care and choose not to include these findings as a main result. The conservative interpretation derives from the fact that we want to avoid simultaneity bias where we cannot establish whether the positive association is due to institutional investors positively impacting the operating performance of firms or if institutional investors are drawn to firms with better performance. Further, in accordance with other studies (Cornett et al, 2007) we argue for the unlikelihood of institutional investors having an instantaneous impact on the performance of firms, which is the reason why most prior studies focus on the operating performance as a function of lagged institutional holdings.

5.2 Analysis of Results

The existing body of literature that has examined the impact of institutional ownership on firm performance have generally found that this investor group, through their superior monitoring ability, positively affects the operating performance of their portfolio firms (Cornett et al., 2007; Hutchinson et al., 2015; Lin and Fu, 2017; Lo et al., 2017; Panda and Leepsa, 2018; Michel et al., 2020). Our results contradict prior findings and do not support the active monitoring view, indicating that in Swedish IPOs, institutional investor does not seem to play an active role in mitigating agency problems and improving firm operating performance. As most prior studies have been conducted in either the U.S. or other Anglo-Saxon countries, the relationship between institutional ownership and firm performance likely depends on the institutional context of the country investigated. Our sample of firms reveals that more than half of all Swedish IPO firms between 2011 and 2019 had founding families (as individual investors) retaining ownership post-IPO. Additionally, in 89 percent of the cases, these owners maintained blockholding ownership exceeding five percent. This is consistent with the findings of Agnblad et al. (2001) who highlighted the uniqueness of Swedish IPOs characterized by significant family or individual control and the retention of ownership post-IPO to ensure

continued control. Although signs of a conversion towards a governance model with increasingly dispersed ownership and less use of dual class shares to maintain private blockholder control (Henrekson and Jakobsson, 2012), our findings indicate a prevailing trend of private blockholder control among newly listed Swedish firms. Therefore, we argue that the nature of the Swedish corporate governance model limits the ability for institutional investors to exert control and influence firm operating performance, which is a plausible explanation for the inconclusive relationship observed in this study. Given that private blockholders retain substantial ownership stakes post-IPO, institutional investors in Sweden possibly hold smaller ownership stakes compared to previously studied settings. Smaller ownership stakes give less incentives to actively monitor (Gillian and Starks, 2000; Cornett et al., 2007) and aligns with a passive monitoring view where institutional ownership is expected to have an insignificant relationship with firm performance.

In contrast to previous studies that examine the largest firms in different countries, e.g., Cornett et al. (2007) who focused on S&P 100 firms, our study concentrates on the post-IPO period for newly listed firms. Hence, we examine smaller firms compared to other studies and, as we investigate the post-IPO period, the ownership structure for these firms typically experience drastic changes during these years. For example, the mean level of institutional ownership in our sample firms increases from 26.1 percent immediately following the IPO to 46.7 percent three years after the IPO. Mikkelson et al. (1997) documented that total assets typically increase considerably following an IPO. In our sample, the average increase in total assets from the last quarter prior to the IPO to the three years following the IPO is 106 percent. As a result of the significant growth in total assets, measures of operating income scaled by total assets (ROA) may be downwardly biased if the sample firms do not manage to increase their operating income to the same extent. Declining levels of operating performance is also what typically has been observed following IPOs (Jain and Kini, 1994; Kim et al., 2004; Wang, 2005). Therefore, a possible explanation to why our results differ from other studies could be that as institutional ownership naturally increases post-IPO, the ROA decreases due to the inherent growth of total assets.

With regards to the differentiation between pressure-insensitive and pressure-sensitive investors and their influence on firm operating performance, our findings diverge from the studies conducted by Brickley et al. (1988), Cornett et al. (2007), Elyasiani and Jia (2010), and Lin and Fu (2017), all of which found that pressure-insensitive investors have greater effects

on the operating performance of firms as a result of more effective monitoring. Theoretically, differentiating between the two groups of investors is logical as pressure-insensitive investors should be able to apply more pressure on firm management without needing to safeguard any business relationship, and they should thus be able to have a greater influence on operating performance. The implications of our findings suggest that the level and the nature of monitoring activity does not necessarily translate into significant improvements in operating performance. Our findings align more with Karpoff (1996), who demonstrated that the activity of institutional investors has minimal impact on the operating performance of firms. As established in existing literature, the size of the ownership stake and the investment horizon are important factors in determining the effectiveness of institutional investors as monitors (Shleifer and Vishny, 1986; Gillian and Starks, 2000; Cornett et al., 2007). As such, one would assume longer investment horizons and larger ownership stakes for pressure-insensitive investors. A possible explanation to our contrasting finding is that pressure-insensitive investors in Sweden hold smaller ownership stakes and invest with a shorter horizon compared to previously investigated contexts.

We find no prior literature discussing the potential interaction between institutional ownership and founding family ownership. Therefore, the finding that increasing institutional ownership (especially pressure-insensitive ownership) negatively affects the operating performance of firms when the founder remains as owner post-IPO is noteworthy. A possible explanation for this relationship is that when the founder still holds a significant stake, they may have other monitoring incentives compared to institutional investors, leading to diverging interests. For instance, with respect to investment horizon, Anderson and Reeb (2003) found a positive relationship between founding family ownership and operating performance and that such owners tend to have a longer investment horizon compared to other shareholders. A longer investment horizon may act to reduce myopic investments and ultimately enhance firm performance. On the other hand, under a passive monitoring hypothesis in line with Elyasiani and Jia (2010), institutional investors can play the role of a short-term investor, which is to be expected especially if the institutional owners are indexers and only buy or sell depending on the rebalancing needs of their portfolio. It has also been found that institutional investors often prioritize short-term profits as they outweigh the costs needed to be incurred to monitor long-term performance (Cornett et al., 2007). Another plausible explanation for the observed negative relationship between institutional ownership and operating performance in the presence of founding family ownership could be due to diverging risk preferences between the

two groups. Firms with founding family control tend to demonstrate a risk-averse attitude towards the use of debt, and thus prefer lower levels of leverage (Mishra and McConaughy, 1999). On the contrary, institutional ownership has been found to be positively associated with higher levels of firm-specific risk, as they usually have well-diversified portfolios (Hutchinson et al., 2015). The inclination of founding family firms to be more risk-averse and institutional investors to prefer higher levels of risk is also present in our sample as the firms with founding family ownership have a leverage level with a mean of 25.8 percent while firms with no founding family ownership display a mean of 35.2 percent. All in all, diverging risk preferences and investment horizons between institutional investors and founding families offers a possible explanation for the negative effects of increasing institutional ownership on performance in the presence of founding family ownership.

6. Conclusions

Against the background of our presented results, we conclude that the level of ownership held by institutional investors during the three years following an IPO does not have a positive effect on firm operating performance. This finding is consistent when considering both the total level of institutional ownership as well as when differentiating between types that are facing varying incentives to actively monitor based on potential or existing business ties with the portfolio firms. This is in contrast with prior research which has generally concluded a positive relationship between institutional ownership and firm performance. We contribute to existing literature on corporate governance and the implications of institutional ownership on the performance of firms. More specifically, we shed light on the role of institutional investors in a Swedish context where the corporate governance model has a long tradition of family and individual blockholder control, although the role of institutional investors as corporate monitors is increasing. We argue the differing institutional context as a plausible factor to why our results deviate from prior findings. We find our sample of IPOs to be characterized by substantial blockholding ownership retention from founding families, thus limiting the incentives for institutional investors to engage in active monitoring post-IPO, aligning with a passive monitoring view.

We conclude that the presence of founding families as owners post-IPO is positively associated with operating performance, and that increasing institutional ownership negatively affects performance when the founders remain as owners. Considering that founding family owners and institutional investors have been documented to have diverging risk preferences and investment horizons, we argue that future research examining the relationship between institutional ownership and firm performance should take into account the presence of founding family ownership. Moreover, as Swedish firms has a history of being characterized by strong private blockholder control, it would be appropriate for future research to examine whether private blockholder ownership is associated with effective monitoring and its implications on firm performance. Lastly, prior literature suggests that the effectiveness of institutional investors as monitors heavily depends on their investment horizon. As such, future research should consider differentiating between long- and short-term investors to identify whether the investment horizon plays a role in influencing firm performance.

References

- Aggarwal, E., Saffi, P., & Sturgess, J. (2015). The Role of Institutional Investors in Voting: Evidence from the Securities Lending Market. *The Journal of Finance*, 70(5), 2309-2346.
- Agnblad, J., Berglöf, E., Högfeltdt., & Svancar, H. (2001). Ownership and Control in Sweden: Strong Owners, Weak Minorities, and Social Control. In F. Barca & M. Becht (Eds.), *The Control of Corporate Europe* (p. 228-258). Oxford Academic.
- Amindav, G., & Papaioannou, E. (2020). Corporate Control around the World. *The Journal of the American Finance Association*, 75(3), 1191-1246.
- Anderson, R. & Reeb, D. (2003). Founding Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance*, 58(3), 1301-1328.
- Balatbat, M. C. A., Taylor, S. L., & Walter, T. S. (2004). Corporate governance, insider ownership and operating performance of Australian initial public offerings. *Accounting and Finance*, 44(3), 299–328.
- Bergström, C., Nilsson, D., & Wahlberg, M. (2006). Underpricing and Long-Run Performance Patterns of European Private-Equity-Backed and Non-Private-Equity-Backed IPOs. *The Journal of Private Equity*, 9(4) 16-47.
- Berle, A., & Means, G. (1932). *The Modern Corporation and Private Property*. New York, Mac-Millan Company.
- Bjuggren, P., Eklund, J., & Wiberg, D. (2007). Ownership structure, control and firm performance: The effects of vote-differentiated shares. *Applied Financial Economics*, 17.
- Brickley, J., Lease, R., & Smith, Jr, C. (1988). Ownership Structure and Voting on Antitakeover Amendments. *Journal of Financial Economics*, 20, 267-291.
- Carlsson, R. H. (2007). Swedish Corporate Governance and Value Creation: owners still in the driver's seat 1. *Corporate Governance: An International Review*, 15(6), 1038-1055.
- Cieslak, K., Hamberg, M., & Vural, D. (2021). Executive compensation disclosure, ownership concentration and dual-class firms: An analysis of Swedish data. *Journal of International Accounting, Auditing and Taxation*, 25(3).
- Chen, X., Harford, J., & Li, K. (2007). Monitoring: Which institutions matter?. *Journal of Financial Economics* 86, 279-305.
- Cornett, M., Marcus, A., Saunders, A., & Tehranian, H. (2007). The Impact of Institutional Ownership on Corporate Operating Performance. *Journal of Banking & Finance*, 31(6), 1771-1794.
- David, P., & Kochnar, R. (1996). Barriers to Effective Corporate Governance by Institutional Investors: Implications for Theory and Practice. *European Management Journal*, 14(5), 457-466.

- Duggal, R., & Millar, J. (1999). Institutional Ownership and Firm Performance: The Case of Bidder Returns. *Journal of Corporate Finance*, 5(2), 103-117.
- Ehne, M. (2018). Institutional Investors in Swedish Corporate Governance. *Stockholm School of Economics Institute for Research. Centre for Governance and Management Studies*.
- Elyasiani, E., & Jia, J. (2010). Distribution of Institutional Ownership and Corporate Firm Performance. *Journal of Banking & Finance*, 34(3), 606-620.
- Euroclear. (2018). *The Shareholding in Sweden 2017*.
https://www.euroclear.com/dam/ESw/Brochures/Documents_in_English/The-Shareholding-in-Sweden_2017.pdf
- Faccio, M. & Lasfer, M. A. (2000). Do occupational pension funds monitor companies in which they hold large stakes? *Journal of Corporate Finance*, 6, 71-110.
- Ferreira, M. A., & Matos, P. (2008). The colors of investors' money: The role of institutional investors around the world. *Journal of financial economics*, 88(3), 499-533.
- Gillan, S., & Starks, T. (2000). Corporate Governance Proposals and Shareholder Activism: The role of Institutional Investors. *Journal of Financial Economics*, 57(2), 275-305.
- Holmén, M. & Nivorozhkin, E. (2007). The impact of family ownership and dual class shares on takeover risk. *Applied Financial Economics*, 17(10), 785-804.
- Henrekson, M., & Jakobsson, U. (2005). The Swedish Model of Ownership and Corporate Control in Transition. In H. Huizinga & L. Jonung (Eds.), *Who will own Europe? The internationalization of asset ownership in Europe*. (p. 207-246). Cambridge: Cambridge University Press.
- Henrekson, M., & Jakobsson, U. (2012). The Swedish Corporate Control Model: Convergence, Persistence or Decline?. *Corporate Governance: An International Review*, 20(2), 212-227.
- Hsu, H-C., Reed, A. V., & Rocholl, J. (2010). The new game in town: Competitive effects of IPOs. *Journal of Finance*, 65(2), 495-528.
- Hutchinson, M., Seamer, M., & Chapple, L. (2015). Institutional Investors, Risk/Performance and Corporate Governance. *The International Journal of Accounting*, 50(1), 31-52.
- Högfeldt, P. (2005). The history and politics of corporate ownership in Sweden. In R. K. Morck (Ed.), *A history of corporate governance around the world: Family business groups to professional managers*. (p. 517-580). Chicago and London: University of Chicago Press.
- Jain, B. A., & Kini, O. (1994). The Post-Issue Operating Performance of IPO Firms. *The Journal of Finance*, 49(5), 1699-1726.
- Jain, B. A., & Kini, O. (1995). Venture capitalist participation and the post-issue operating performance of IPO firms. *Managerial and Decision Economics*, 16(6), 593-606.
- Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance*. 48(3), 831-880.

- Jensen, M. C., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Karpoff, J., Malatesta, P., & Walking, R. (1996). Corporate Governance and Shareholder Initiatives: Empirical Evidence. *Journal of Financial Economics*, 42(3), 365-395.
- Kim, K. A., Kitsabunnarat, P., & Nofsinger, J. R. (2004). Ownership and operating performance in an emerging market: Evidence from Thai IPO firms. *Journal of Corporate Finance*, 10(3), 355-381.
- Levis M. (2011). The performance of private equity-backed IPOs. *Financial Management*, 40(1), 253–277.
- Lin, Y., & Fu, X. (2017). Does institutional ownership influence firm performance? Evidence from China. *International Review of Economics and Finance*, 49, 17-57.
- Lo, H. C., Wu, R. S., & Kweh, Q. L. (2017). Do institutional investors reinforce or reduce agency problems? Earnings management and the post-IPO performance. *International Review of Financial Analysis*, 52, 62–76.
- McCahery, J., Sautner, Z., & Starks, L. (2016). Behind the Scenes: The Corporate Governance Preferences of Institutional Investors. *The Journal of Finance*, 71(6), 2905-2932.
- Meles, A., Monferrà, S., & Verdoliva, V. (2014). Do the effects of private equity investments on firm performance persist over time? *Applied Financial Economics*, 24(3), 203-218.
- Michel, A., Oded, J., & Shaked, I. (2020). Institutional investors and firm performance: Evidence from IPOs. *North American Journal of Economics and Finance*, 51, 101099.
- Mikkelson, W. H., Partch, M. M., & Shah, K. (1997). Ownership and operating performance of companies that go public. *Journal of Financial Economics*, 44(3), 281–307.
- Mishra, C., & McConaughy, D. (1999). Founding Family Control and Capital Structure: The Risk of Loss of Control and the Aversion to Debt. *Entrepreneurship Theory and Practice*, 23(4), 53-64.
- Panda, B., & Leepsa, N. M. (2019). Does institutional ownership engagement matter for greater financial performance?: Evidence from a developing market. *International Journal of Law and Management*, 61(2), 359–383.
- Parrino, R., Sias, R., & Starks, L. (2003). Voting with their feet: institutional ownership changes around forced CEO turnover. *Journal of Financial Economics*, 68, 3-46.
- Shleifer, A., & Vishny, R. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*, 93(3), 461-488.
- Wang, C. (2005). Ownership and Operating Performance of Chinese IPOs. *Journal of Banking and Finance*, 29(7), 1835-1856.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185-211.

Appendix

Appendix A - F-test

| | Reg (4) | Reg (5) | Reg (6) | Reg (7) | Reg (8) | Reg (9) | Reg (10) | Reg (11) |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| F-value | 14.11 | 13.92 | 13.64 | 13.36 | 14.54 | 14.29 | 14.04 | 13.65 |
| P-value | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Appendix B - Breusch Pagan LM test

| | Reg (4) | Reg (5) | Reg (6) | Reg (7) | Reg (8) | Reg (9) | Reg (10) | Reg (11) |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| Chi2 | 108.86 | 108.47 | 108.16 | 107.99 | 108.42 | 107.97 | 107.49 | 107.42 |
| P-value | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Appendix C – Hausman test

| | Reg (4) | Reg (5) | Reg (6) | Reg (7) | Reg (8) | Reg (9) | Reg (10) | Reg (11) |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| Chi2 | 40.53 | 38.63 | 39.17 | 36.10 | 46.24 | 44.05 | 43.92 | 41.31 |
| P-value | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |

Appendix D - Post-IPO operating performance as a function of contemporary total and grouped institutional ownership

| VARIABLES | (1) ROA | (2) AbnROA | (3) ROA | (4) AbnROA |
|-------------------------|-----------------------|------------------------|----------------------|------------------------|
| IO | 0.233*** (0.0818) | 0.232*** (0.0816) | | |
| Pressure-insensitive IO | | | 0.156* (0.083) | 0.171** (0.0849) |
| Pressure-sensitive IO | | | 0.577*** (0.170) | 0.506*** (0.178) |
| Founder dummy | 0.0305 (0.0508) | 0.0371 (0.0522) | 0.0283 (0.0487) | 0.0353 (0.0493) |
| PE/VC dummy | 0.0327 (0.0237) | 0.0174 (0.0235) | 0.0328 (0.0226) | 0.0174 (0.0228) |
| Leverage | -0.377*** (0.141) | -0.358** (0.141) | -0.357*** (0.133) | -0.343** (0.135) |
| MTB | -0.00765 (0.00524) | -0.00931* (0.00490) | -0.0076 (0.00518) | -0.00922* (0.00485) |
| Size(ln) | 0.221*** (0.0695) | 0.215*** (0.0699) | 0.235*** (0.0683) | 0.226*** (0.0693) |
| Firm age(ln) | 0.011 (0.0346) | 0.0134 (0.0329) | 0.0089 (0.0397) | 0.0117 (0.0361) |
| Board size(ln) | -0.0846 (0.0590) | -0.0654 (0.0575) | -0.0762 (0.0605) | -0.0587 (0.0593) |
| Constant | -1.515*** (0.546) | -1.602*** (0.539) | -1.651*** (0.546) | -1.710*** (0.540) |
| Observations | 195 | 195 | 195 | 195 |
| R-squared | 0.384 | 0.389 | 0.407 | 0.404 |
| Year FE | Yes | Yes | Yes | Yes |

This table reports the dependent variables ROA and asset weighted industry-adjusted ROA as a function of contemporary year ownership variables. Regressions are estimated using fixed effects models including year dummies with clustered standard errors at firm level. The sample consist of 65 Swedish IPO firms on Nasdaq Stockholm between 2011 and 2019.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1