

SHOWING OFF IN INITIAL PUBLIC OFFERINGS

THE PROPORTION OF INSTITUTIONAL CORNERSTONE
INVESTORS IN IPOS AND THE STATE OF THE IPO MARKET

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Bachelor Thesis

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Showing Off in Initial Public Offerings: The Proportion of Institutional Cornerstone Investors in IPOs and the State of the IPO Market

Abstract:

The paper analyzes the participation of institutional cornerstone investors in initial public offerings (IPOs) using data from NASDAQ Main Market and First North Growth Market in Stockholm between 2015 and the first half of 2023. We identify positive relationships between both hot and cold IPO market periods and the proportion of institutional cornerstone investors in IPOs. The results support theories of institutional informational advantage, quid pro quo relationships between underwriters and institutions, and signaling effects. Meanwhile, we conclude that the definition of the different states of the IPO market plays a decisive role in determining the significance of the relationships.

Keywords:

Initial Public Offering (IPO), Institutional Cornerstone Investors, Hot IPO Markets, Cold IPO Markets, Institutional investors

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2021 was a year with a record number of initial public offerings (IPOs), resulting in a record amount of capital raised (Mackintosh (2022), Driebusch and Santilli (2021)). Since then, the number of listings has decreased drastically. There were 153 listings on NASDAQ Main List and First North Growth Market in Stockholm during 2021. From the beginning of 2022 to the middle of 2023, the number of listings were down to 62 (Nasdaq (n.d.)). Meanwhile, so-called “cornerstone investors” have been depicted as a potential tool to address challenges in raising equity capital in fragile markets. Some industry professionals predict cornerstone investors to have a growing role in IPOs, as they could potentially reduce uncertainty in terms of transaction risk and provide a signaling effect (for example, see Chen, Hughes, and Megaw (2023), Lipschultz (2023), Espinasse (2018), Cole, McNaughton and Gossen (2015)). There is no globally established definition of a cornerstone investor. However, cornerstone investors are commonly described as large investors who undertake to invest in an IPO before the bookbuilding process for a guaranteed allocation of shares, which is later disclosed in the prospectus (for instance, see Finansinspektionen (2016), Espinasse (2014), Cole, McNaughton and Gossen (2015)). The purpose of cornerstone investors is, meanwhile, a debated topic. One potential concern regarding cornerstones is that their superior information and influence might lead to the marginalization of retail investors in high-demand IPOs (Rock (1986), McGuinness (2014), Jakobsson (2015), Finansinspektionen (2016)). Other potential issues relate to liquidity and pressure on share prices. As cornerstone investors can be faced with lock-up periods, a large allocation to cornerstone investors could have a negative impact on the liquidity of the share in the after-market. Moreover, the undertaking of cornerstone investors could contribute to price pressure as markets anticipate cornerstone investors to sell their shares at the expiry of lock-up periods (Tan and Ong (2013), Espinasse (2018)).

While the role of cornerstone investors is a debated topic, the available empirical evidence regarding benefits and disadvantages of cornerstone investors is limited, much due to cornerstone investors being a comparatively new concept in many capital markets. That is, the primary obstacle to empirical research has so far been the availability of data. In the U.S. for example, the presence of cornerstone investors has started to increase after the U.S. Securities and Exchange Commission’s easing of regulation in 2019 (Chen, Hughes, and Megaw (2023)). In Sweden, the term “cornerstone investor” was first used in an IPO in 2014 as Lifco went public (Höiseth (2017), Lifco (2014)). Since then, cornerstone investors have frequently occurred in the prospectuses of Swedish companies offering shares in the public markets (Falkner and Roth (2015)).

McGuinness (2012) study the relationship between cornerstone investors and IPO underpricing and find that the percentage of cornerstone investors in IPOs positively and significantly correlates with “money left on the table”. Meanwhile, empirical data on the role of cornerstone investors and the motivations behind the allocation of shares to cornerstone investors remains uncharted territory in research. Cornerstone investors are often considered to be large, institutional investors (Finansinspektionen (2016), Bader, Friedman, Kim, Kengelbach, and Rice (2021)). Several studies cover institutional ownership, including Aggarwal, Prabhala, and Puri (2002), in which private information, size, demand, and underwriter reputation are significant in determining institutional allocation in IPOs. Moreover, Benveniste and Wilhelm (1990) discover that institutional investors gain a competitive advantage in participating in highly demanded issues by agreeing to partake in less attractive offerings as well, supporting the strategic role of underwriters in allocating ownership. Whereas private information, strategic underwriters, size, pre-market demand, and underwriter reputation have been shown to impact institutional allocation, the influence of the state of the IPO market on the proportion of institutional investors, and more specifically cornerstone investors, offers a relevant addition to the existing research. Helwege and Liang (2004) study the difference between firms carrying out their IPO in hot versus cold markets. They observe that IPOs conducted in hot IPO markets have a higher proportion of institutional ownership than IPOs in cold markets, measured at the end of the quarter of the public issuance. Meanwhile, the allocation of shares to institutions in earlier stages of the IPO process – in the case of cornerstone investors, before the book-building process – deserves additional attention, given argued trade-offs between signaling effects, reduced transaction risk, after-market liquidity concerns, price pressure, and satisfactory levels of allocation to retail investors.

Our paper aims to provide relevant contributions to existing research by examining the effect of the state of the IPO market on the participation of institutional cornerstone investors in IPOs and thereby further analyze the role of cornerstone investors in the IPO process. The recent years’ IPO market in Sweden, with record low and high periods, combined with a relatively long presence of cornerstone investors, provide us with sufficient data and allow for empirical analysis to be conducted. We thus contribute to the relevant research on the topic by using a unique data set of Swedish IPOs. We use information on the percentage of the issue subscribed to by institutional cornerstone investors to investigate the impact of the state of the IPO market.

The first part of our analysis consists of simple linear univariate regressions on the dependent variable of the normalized rank-transform of the percentage of institutional cornerstone investors in an IPO against each independent dummy variable representing the different states of the IPO market the month prior to the listing, considering the timing of the final decision to get cornerstone investors on board. The relationship between hot IPO markets and the proportion of institutional cornerstone investors in IPOs is insignificant in the univariate regressions. Moreover, classifying cold markets as the bottom third of months in terms of IPO activity provides a positive yet insignificant relationship between cold markets and cornerstone investor ownership. The explanatory value is low, with an *R*-squared value below 0.1% for the model. In addition, taking the characteristics of the sample into account and broadening the classification of cold markets leads to a positive but still insignificant relation between cold IPO markets and the degree of institutional cornerstone participation.

Next, controlling for underwriter reputation, pre-market demand, different proxies for the size of the IPO, and industry belonging, we find a positive yet insignificant relationship for both cold and hot IPO markets, at the ten percent level, using the narrower definition of cold markets. We suggest that strategic allocation practices by underwriters (Benveniste and Wilhelm (1990)) can help explain participation of cornerstone investors regardless of market conditions. Meanwhile, using a broader classification of cold IPO markets to take our sample into consideration, we obtain a positive and significant result, which applies to both cold and hot IPO markets. Broadening the classification of cold markets may illuminate the differences between hot, neutral, and cold markets, leading to a significant outcome. As for the positive and significant influence of the variable for hot markets, Rock (1986) claims that institutions can effectively identify “lemons” in the market, either through informational advantage or preferential treatment. As Choe, Masulis, and Nanda (1993) claim that higher costs of information asymmetry discourage high quality firms from going public in times of bad market conditions, the results in addition to theory suggest that hot markets foster greater institutional participation in IPOs. The result of an increased participation of institutional cornerstone investors in cold IPO markets aligns with argued benefits of reduced transaction risks and signaling effects to ensure listing success in market downturns (Chen, Hughes, and Megaw (2023), McGuinness (2012)). Moreover, in uncertain market conditions, institutional cornerstone investors can support underwriter in price setting activities (Lowry and Schwert (2010)). Finally, the suggested quid pro quo relationship

between underwriters and institutions may lead to institutional cornerstone investors obtaining a larger share of significantly underpriced stocks in hot markets (Lee, Taylor, and Walter (1999)) while committing to issues in colder markets.

As it relates to the validity and accuracy of the results, using a narrower definition of cold IPO markets and following the classification of Helwege and Liang (2004) offers an insignificant relationship between the proportion of institutional cornerstone investors and hot and cold IPO markets. If increasing the percentile for the classification of cold markets accurately captures cold market periods, it could enhance the distinction between hot, neutral, and cold markets, explaining the increased significance for hot and cold periods. However, this may lead to ambiguities in the definition of the different states of the IPO market. The varying results between the two multivariate models suggest that while conservatively defined cold markets imply no significance for neither hot nor cold markets, a broader definition highlighting periods of below-median IPO activity as cold reveals a higher proportion of cornerstones in both hot and cold market conditions. Thus, it is important to exercise caution when interpreting the differing results depending on market classification.

The contribution of the paper is relevant for academics and practitioners in the field. Studying the influence of market conditions on the proportion of institutional cornerstone investors in IPOs through the lens of available theory offers a greater understanding of the role of cornerstone investors and the motivations behind their activity. The results are important for underwriters and issuers when seeking to go public in different states of the market. However, it is further critical for institutional and retail investors to have a thorough grasp of the mechanics behind pre-bookbuilding processes.

The paper proceeds as follows. Section I provides data definitions, sources, and descriptive statistics of our sample. Section II examines the relationship between the proportion of institutional cornerstone investors in IPOs and the state of the IPO market. Moreover, we analyze whether there is any difference depending on prevailing market conditions. Finally, section III provides a summary of the results and draws conclusions from our investigation.

I. Data Set

The data set consists of IPOs offered at NASDAQ Main List or First North Growth Market in Stockholm from 1 January 2015 to 30 June 2023. Whereas the number of listings on these two

markets is a total of 615 over the period, several exclusions have been made. In line with previous research, we have excluded IPOs by real estate investment trusts (REITs) using industry classification from S&P Capital IQ, IPOs where no proceeds are raised such as direct listings, spin-offs, and reverse takeovers, IPOs with unit offerings and four instances with insufficient information provided (see Aggarwal, Prabhala and Puri (2002)). After these exclusions, the sample consists of 235 IPOs for the period. The exclusions are detailed in Table I below.

Table I
Sample Size

The table reports the total number of listings on NASDAQ Main Market and First North Growth Market in Stockholm from 1 January 2015 to 30 June 2023 in row 2. In row 3, the number of listings consisting of listing transfers, direct listings, and similar non-issuance transactions are reported. Row 4 reports the number of REITs excluded beyond those already omitted in row 3, row 5 reports the number of unit offerings, and row 6 reports the number of observations subtracted from the sample due to lack of information available. Finally, row 7 reports the final sample used for the purposes of this paper.

Item	#
Total listings on NASDAQ Main List and First North Growth Market in Stockholm	615
Listing transfers, direct listings, and similar non-issuance listings	304
REITs	14
Unit offerings	58
Insufficient information	4
<i>Final sample</i>	235

Section I will proceed as follows. In subsection I.A the dependent variable of our analysis is defined and presented – the transformed percentage of institutional cornerstone investors in IPOs. The definition of hot and cold IPO markets, the independent variables of focus in this paper, are presented and defined in subsection I.B. Finally, the control variables used in our analysis are presented in subsection I.C, along with descriptive statistics of the IPOs in our sample.

A. Institutional Cornerstone Investors

The term “cornerstone investor” appeared for the first time in Sweden during the second half of 2014 as Lifco went public (Höiseth (2017)). On page 5 of Lifco’s prospectus (2014), the term was presented as follows:

Didner & Gerge Fonder AB and Fjärde AP-Fonden ("Cornerstone Investors") have individually undertaken to acquire 6,813,200 series B shares in the Offer. Cornerstone Investors will thus, after the implementation of the Offer, individually hold approximately 7.5 percent of the number of shares and approximately 4.7 percent of the number of votes in the Company. [translated from Swedish]

There has, however, not existed a globally established definition of cornerstone investors throughout the period of our sample (Finansinspektionen (2016)). Tan and Ong (2013) analyze cornerstone investors in Asian IPOs and define cornerstone investors as the “class of investors who commit in advance to invest a fixed amount of money, or for a fixed number of shares, in an IPO”. Furthermore, they state that the allotment of shares to these investors is guaranteed through formal agreements. Cornerstone investors should, according to Tan and Ong, also be distinguished from “anchor investors”, whose orders are not guaranteed and are placed during the bookbuilding process. Anchor investors are, in contrast to cornerstone investors, also typically not disclosed in the prospectus and not subject to lock-up periods according to Tan and Ong. This may be contrasted with the disclosure of the anchor investors in Cederghrenska’s prospectus (2021) for its public listing on First North in 2021, where the anchor investors in the IPO were described on page 31 in the prospectus as follows:

Enter Fonder, FE Fonder and Prior & Nilsson Fonder ("Anchor Investors") have undertaken to, under certain conditions, and at the same price as other investments, subscribe for a total of 1,600,000 shares corresponding to an amount of approximately SEK 80 million and approximately 61 percent [...]. [translated from Swedish]

In European IPOs, Cole, McNaughton and Gossen (2015) note that the definition of cornerstone investors is based on the definition established in Hong Kong, but subject to several deviations. For example, whereas lock-up periods are mandatory in Hong Kong, this is not the case in Europe (see also Espinasse (2014)). Given this discrepancy in the definition of cornerstone investors, we have decided to follow the definition of cornerstone investors used by the Swedish Financial Supervisory Authority (Finansinspektionen (2016)), as our data consist of Swedish IPOs:

A relatively new phenomenon on the stock market in Sweden is the presence of so-called anchor investors (cornerstone investors) in connection with IPOs. Anchor investors are the larger investors who, prior to an IPO, commit to subscribing to a certain number of shares in exchange for a guaranteed allocation. [translated from Swedish]

That is, in Sweden, several terms can be used to describe the group of investors in question. We have consequently defined cornerstone investors as investors who (i) publicly in the prospectus (ii) undertake to invest in a certain number of shares in exchange for (iii) a guaranteed allocation. This definition thus includes any term used for an investment undertaking disclosed publicly in the prospectus, such as investment undertakings and anchor investments, if the investors are guaranteed allocation in the offering. Our definition of *institutional* cornerstone investors is based on our definition of cornerstone investors in combination with a definition of institutional investors widely used in the literature (for instance, see Lewellen and Lewellen (2022), Ferreira and Matos (2008), McCahery, Sautner and Starks (2016)). Institutional cornerstone investors have consequently been defined as (i) banks, insurance companies, investment companies, investment advisors or similar professional money managers with discretionary control over assets who (ii) publicly in the prospectus (iii) undertake to invest in a certain number of shares in exchange for (iv) a guaranteed allocation.

For the 235 IPOs in our sample, we know the percentage of institutional cornerstone investors of the issue in each IPO. The percentages have been calculated based on the cornerstone investors' undertakings as a share of the primary and potentially secondary offering, excluding potential overallotment options provided in the published prospectus of each company, as the information on potential exercise of overallotment options is less available and reliable, and depending on later occurring events. The prospectuses have primarily been collected from the Swedish Financial Supervisory Authority's prospectus register, nyemissioner.se, and in some instances the investor relations webpage of certain companies in our sample. The classification into institutional and non-institutional cornerstone investors has been based on the respective investors' description of themselves as well as other publicly available information. For example, in Checkin.com Group's (2021) prospectus published in 2021, four parties described as cornerstone investors jointly represented 60% of the offer: TIN Fonder (38.9%), Knutsson Holdings (10.0%), Norron Select (5.6%) and ES Aktiehandel AB (5.6%). TIN Fonder and Norron

Select are both defined as institutional cornerstone investors as Norron Select is a Nordic investment manager and TIN Fonder is a fund manager (for instance, see TIN Fonder ([n.d.](#)), Norron ([n.d.](#))). ES Aktiehandel AB and Knutsson Holding are, however, not considered as institutional cornerstone investors. ES Aktiehandel AB is a company managed and owned by the private individual Erik Selin, and Knutsson Holding is a family-owned holding company (for example, see *Affärsvärlden* ([2023](#)), Knutsson Holdings ([n.d.](#))). Thus, institutional cornerstone investors represented 44.5% of the IPO in Checkin.com Group's IPO given our definition.

Finally, to deal with the bounded nature of the variable, having a value between 0 and 1, and to account for potential non-normal distribution, the variable is rank-transformed and normalized (to have zero mean and unit standard deviation) in line with Antón and Polk ([2014](#)).

B. State of the IPO Market at the Time of Cornerstone Investor Commitment

In the financial press, the state of the IPO market is often described using the volume of offerings and degree of oversubscription. Hot IPO markets are characterized by a high volume of offerings and frequent oversubscription of offerings while cold IPO markets are defined by low volumes of issuance (for example, see Asgari ([2021](#)), Izzi ([2021](#)), Demos ([2016](#))). The commitment by cornerstone investors to invest in an IPO is undertaken before the prospectus is published and thus before the offer date. Unfortunately, we are unable to gather information on exactly when the potential commitments of cornerstone investors have taken place for each IPO in our sample as it is not information available in the prospectuses nor in other public documents. In the European market, however, cornerstone investors generally commit to invest in IPOs around one month before the offer date (Cole, McNaughton and Gossen ([2015](#))).

Considering the European IPO process, the issuer and underwriter typically desire some form of commitment from cornerstone investors at the end of the preparatory stage so that the potential commitments can be included when the intention to float announcement (ITF) is published. This is ideally in the form of a formal commitment. However, as cornerstone investors typically want to compare their view of the company valuation of the issuer to others' opinions on the matter, the formal commitment might occur later. After the ITF is published, a pre-deal investor education stage begins which typically lasts for two weeks. At the latest, the potential cornerstone commitment will occur at the end of the pre-deal investor education stage, just before the prospectus is published and the bookbuilding period commences. The bookbuilding period does

in turn generally start two weeks before the offer date (Cole, McNaughton and Gossen (2015)). We therefore approximate the commitments from cornerstone investors to occur during the month prior to the day of the IPO. That is, the independent variable is the state of the IPO market the month before the IPO.

In existing research and literature, the state of the IPO market tends to be defined based on volume. Helwege and Liang (2004) define hot and cold periods of IPO markets by using three-month centered moving averages of the number of IPOs scaled by the number of new business formations for each month. With this approach, Helwege and Liang reduce the risk of classifying seasonally low months as periods of cold IPO markets when they in fact were neutral. They use a larger sample of IPOs than their main sample, including unit offerings and firms with insufficient data. The top quarter of the data is classified as hot markets for IPOs and the bottom third of months as periods of cold IPO markets. Helwege and Liang classify the bottom third of the data rather than the bottom quarter as cold IPO market periods due to the risk of otherwise ending up with an excessively small sample as the bottom quartile includes a number of months with no IPOs.

We do, in line with Helwege and Liang (2004), use the three-month centered moving average scaled by business formations and classify the top quarter of the months throughout the sample period as hot IPO market periods. Moreover, we use a larger sample of 310 IPOs including unit offerings in the classification of the state of the market of each month. However, one adjustment to Helwege and Liang's classification is made. Whereas Helwege and Liang's sample consists of 6,419 observations over 312 months (approximately 21 IPOs per month on average), our sample consists of 310 observations over 102 months (approximately 3 IPOs per month on average). This suggests our sample should have proportionally more months with no IPOs, in turn suggesting an excessively small sample even when using the bottom third of the sample to classify cold markets. Taking this into consideration, we provide regressions using both the same threshold percentile as Helwege and Liang, and a slightly adjusted threshold taking the characteristics of our sample into consideration. In the adjusted classification, the cold IPO market is defined as the bottom 38th percentile rather than the bottom third. Data on business formations used in the definition have been gathered from the Swedish Companies Registration Office, and the offer dates have been collected from NASDAQ's website.

The classification of the months in the sample period into the different states as well as the resulting distribution of IPOs depending on the state of the market the month prior the IPOs is

presented in Table II for both classifications. Since the sample covers the period from 1 January 2015 to 30 June 2023, there are 102 months in total over the period. Out of these 102 months, 32 had no IPOs. Following the classification used by Helwege and Liang (2004), 35 months are classified as cold, 41 as neutral and 26 as hot. When instead using the 38th percentile of months, 40 months are classified as cold, 36 as neutral, and 26 as hot. With the classification used by Helwege and Liang, 17 IPOs out of 235 were conducted following a month classified as a cold IPO market period. Using the 38th percentile, the corresponding number of IPOs is 24.

Table II
Hot and Cold IPO Market Definition

The table reports information on the classification of the months throughout the sample period into different states of the IPO market as well as the resulting distribution of IPOs depending on the state of the IPO market the month prior to the IPOs. In row 2, the total number of months covered by our sample is presented. Row 3 reports the number of months in our sample which had no IPOs. In row 4 to 6, the table reports the distribution of the sample's months into the different states of the IPO market. Row 7 reports the total number of IPOs in our main sample used in the regressions while row 8 to 10 present the distribution of IPO depending on the state of the month prior to the month of each IPO. Bottom third denotes the distribution when classifying the months of the sample using the classification used by Helwege and Liang (2004). 38th Percentile represents the distribution when using the adjusted classification taking our sample into consideration, classifying cold IPO markets using the 38th percentile rather than the bottom third.

Item	Bottom third	38 th Percentile
<i>Total months</i>	102	102
Months with no IPO	32	32
Months classified as cold	35	40
Months classified as neutral	41	36
Months classified as hot	26	26
<i>Total number of IPOs in main sample</i>	235	235
IPOs following a month classified as cold	17	24
IPOs following a month classified as neutral	91	84
IPOs following a month classified as hot	127	127

C. Control Variables

Aggarwal, Prabhala and Puri (2002) consider several variables in their paper analyzing the percentage of institutional allocation in IPOs. These include the reputation of the underwriter in each IPO, three different proxies for size of the IPOs, industry belonging, days spent in the registration process, and the percentage difference between the midpoint of the filing range and

the final offer price. Following Aggarwal, Prabhala and Puri, the basis for assigning the reputation of the underwriter is based on the underwriters' respective market shares. The market share is in turn defined as the SEK proceeds among the IPOs issued between January 2015 and June 2023, and has been gathered from Dealogic. The variable is then constructed as a dummy variable, equaling one for IPOs with lead managers ranked among the top 10 in terms of market share, and zero otherwise. In our sample of 235 IPOs, 92 IPOs (that is, approximately 39%), were managed by at least one underwriter ranked among the top 10 during the period.

Control variables taking the size of the IPO into consideration are included in our regressions, following the findings of Aggarwal, Prabhala and Puri (2002). Aggarwal, Prabhala and Puri evaluate three different proxies for size: Total assets of the issuer prior to the offer, the number of shares offered in the IPO, and the issue proceeds excluding any green shoe amount (additional proceeds from exercising overallotment options). As the three give similar results, they decide to only report the size estimate based on the number of shares offered. As illustrated in Table IV, the three variables have a skewed distribution in our sample. We consequently use the natural logarithm of these three variables in our regressions, in line with the approach of Aggarwal, Prabhala and Puri.

The industry belonging of each IPO was included in Aggarwal, Prabhala and Puri's (2002) paper as control variables in the form of dummies based on the companies' one-digit U.S. Standard Industrial Classification (SIC) codes. As our sample consists of mostly Swedish companies, we have used industry definition provided by S&P Capital IQ. The dummy variables equal one when the industry represented by the dummy and the industry of a company match, and zero otherwise. The industry distribution of our sample is presented in Table III.

Aggarwal, Prabhala and Puri (2002) find a significant relationship between institutional allocation and pre-market demand. Their proxy for pre-market demand is the percentage difference between the midpoint of the filing range disclosed in the prospectus and the final offer price. In our sample, however, there are only a few instances where there is a published filing range in the prospectuses. The remaining IPOs only have a fixed offer price in their prospectuses. Consequently, we cannot use the variable used by Aggarwal, Prabhala and Puri as a proxy for pre-market demand. Pre-market demand tends to be stronger for IPOs where the offer price is at the upper end of the filing range. Moreover, the IPOs with high pre-market demand have predictably

higher underpricing in comparison with IPOs with an offer price at the lower end of the filing range with lower pre-market demand (Aggarwal, Prabhala and Puri (2002)). That is, according to

Table III
Industry Definition Distribution

The table reports the industry distribution of our sample of 235 IPOs offered at NASDAQ Main List or First North Growth Market in Stockholm between January 1, 2015, and June 30, 2023. The companies in the sample were classified using the industry definition provided by S&P Capital IQ.

Industry	#
Information Technology	54
Industrials	46
Materials	7
Consumer Discretionary	35
Consumer Staples	5
Health Care	55
Energy	2
Financials	12
Communication Services	19

Aggarwal, Prabhala and Puri, a well-established “partial adjustment” phenomenon (see also Ritter and Zhang (2007), Hanley (1993)). Moreover, it is argued that there are issues with simultaneity bias in the relationship between cornerstone investments and underpricing. That is, not only might cornerstone investor participation affect the degree of underpricing, but the cornerstone investors might also be able to pick the IPOs with more underpricing (McGuinness (2012)). Given this, we use underpricing as a proxy for pre-market demand. There might, however, be several other factors contributing to the underpricing of IPOs. For example, Helwege and Liang (2004) find that IPOs with high underpricing tend to consist of companies that are younger, raise more funds, and have higher capital spending. To compute the underpricing for each IPO in our sample, the first day closing prices were gathered from S&P Capital IQ. The offer prices were found in the prospectuses for each IPO, and in some instances press releases. Following Aggarwal, Prabhala and Puri (2002), we calculate underpricing using the following widely accepted formula.

$$\text{Underpricing} = \frac{\text{First day closing price} - \text{Offer price}}{\text{Offer price}}$$

The days spent in the registration process is also a variable included in Aggarwal, Prabhala and Puri (2002). However, the variable does not show any significant effect in their regression. Moreover, it was complicated for us to collect as the information was limited for our sample, which is why we will not include it.

Table IV provide descriptive statistics for our sample. Our sample of IPOs has a mean (median) of 15.8 million (5.2 million) shares offered with a standard deviation of 38.2 million. The mean (median) total assets before the IPO of our sample are SEK 2,212.7 million (SEK 87.7 million) with a standard deviation of SEK 16,763.9 million. The mean (median) proceeds from the IPOs in our sample is SEK 472.4 million (SEK 100.0 million) with a standard deviation of SEK 1,659.5 million. That is, all three proxies of size of the IPOs have a skewed distribution. The mean (median) underpricing is 14.0% (6.6%) with a standard deviation of 33.7%. The average percentage of institutional cornerstone investors in an IPO in our sample is 23.4% (median of 17.6%), with a standard deviation of 23.2%. Considering all cornerstone investors, the mean (median) is 36.3% (41.4%) with a standard deviation of 27.7%. In terms of reputable underwriters, 39.1% of the IPOs in our sample have had at least one lead manager ranked among the top 10 in terms of proceeds over the period. Looking at institutional cornerstone investors in IPOs following a month classified as cold using Helwege and Liang (2004), their percentage of the IPOs is on average 27.6% (14.9%) with a standard deviation of 29.4%. When adjusting the classification, the average increases to 30.3% (while the median increases to 37.5%) and the standard deviation decreases to 27.3%. For IPOs following a month classified as neutral using Helwege and Liang's definition, the average percentage of institutional investors as cornerstone investors is 22.2% (17.9%) with a standard deviation of 21.9%. When adjusting the definition, the average decreases to 21.0% (while the median decreases to 16.2%) and the standard deviation decreases to 21.6%. In terms of IPOs following a month classified as hot, the average percentage of institutional cornerstone investors is 23.7% (17.6%) with a standard deviation of 23.4%.

II. Does the State of the IPO Market Affect the Proportion of Institutional Cornerstone Investors in IPOs?

In this section, we present and analyze our empirical results on whether the state of the IPO market has an impact on the proportion of institutional cornerstone investors in IPOs. The section will proceed as follows. In subsection II.A the empirical results of our univariate and multivariate

Table IV
Descriptive Statistics of Sample

The table reports the mean, median and standard deviation of characteristics in IPOs offered at NASDAQ Main List or First North Growth Market in Stockholm from January 1, 2015, to June 30, 2023, relevant to this paper. Shares offered represents the million number of shares from the primary and potentially secondary offering of each IPO; Total assets denotes the total assets of each issuer before the offer in SEK million; Proceeds denotes the amount raised in each IPO in SEK million; Underpricing denotes the underpricing of each IPO (that is, the percentage difference between the first day closing price and the offer price); Inst. cornerstone investors represents the percentage of institutional cornerstone investors in each IPO; Inst. cornerstone investors in cold represents the percentage of institutional cornerstone investors in IPOs taking place following a month classified as cold using Helwege and Liang's definition (2004); Inst. cornerstone investors in adj. cold represents the percentage of institutional cornerstone investors in IPOs taking place following a month classified as cold using the adjusted definition; Inst. cornerstone investors in neutral represents the percentage of institutional cornerstone investors in IPOs taking place following a month classified as neutral using Helwege and Liang's definition; Inst. cornerstone investors in adj. neutral represents the percentage of institutional cornerstone investors in IPOs taking place following a month classified as neutral using the adjusted definition; Inst. cornerstone investors in hot represents the percentage of institutional cornerstone investors in IPOs taking place following a month classified as hot; Cornerstone investors denotes the percentage of all types of cornerstone investors in each IPO; and Reputation represents the percentage of IPOs offered by one or more lead managers ranked among the top 10 depending on market share in terms of proceeds throughout the sample period.

Characteristic	Sample (N = 235)		
	Mean	Median	St. Dev.
Shares offered	15.8 m	5.2 m	38.2 m
Total assets	SEK 2,212.7 m	SEK 87.7 m	SEK 16,763.9 m
Proceeds	SEK 472.4 m	SEK 100.0 m	SEK 1,659.5 m
Underpricing	14.0%	6.6%	33.7%
Inst. cornerstone investors	23.4%	17.6%	23.2%
Inst. cornerstone investors in cold	27.6%	14.9%	29.4%
Inst. cornerstone investors in adj. cold	30.3%	37.5%	27.3%
Inst. cornerstone investors in neutral	22.2%	17.9%	21.9%
Inst. cornerstone investors in adj. neutral	21.0%	16.2%	21.6%
Inst. cornerstone investors in hot	23.7%	17.6%	23.4%
Cornerstone investors	36.3%	41.4%	27.7%
Reputation	39.1%	—	—

regressions are presented. A discussion of the results and the relation to existing literature and theory is presented in subsection II.B. Finally, subsection II.C offers suggestions on additional research to complement and expand on the findings of this paper.

A. Empirical Results

From previous research, several variables have been shown to influence institutional allocation in IPOs. When investigating the potential impact of the market state condition on institutional cornerstone investors participation in IPOs, these predictors are included to control the result. In total, nine regressions are run to examine a potential relationship, including univariate and multivariate ordinary least squared regression with different proxies for size and percentile-based classifications of the state of the IPO market.

Table V reports the result from our univariate regressions. LR1A regresses the dependent variable (normalized rank-transform of the percentage of institutional cornerstone investors in an IPO) on the independent dummy variable HOT. HOT is equal to one when an IPO is conducted in a month following a month classified as a hot IPO market period, and zero otherwise. LR1B regresses the dependent variable on the independent dummy variable COLD1. COLD1 equals one when an IPO takes place in a month following a month classified as a cold IPO market period strictly following Helwege and Liang's (2004) classification of cold IPO markets. Finally, LR2B regresses the dependent variable on the independent dummy variable COLD2. COLD2 follows the same structure as COLD1, however, deviating in terms of adjusting the classification by including the 38th percentile of months as cold rather than the bottom third used by Helwege and Liang to account for the characteristics of our sample.

In the univariate regressions LR1A and LR1B, both HOT and COLD1 are positive, yet insignificant at the ten percent level. The two univariate models' explanatory values are low, with an *R*-squared of circa 0.1% for both LR1A and LR2A. In the final univariate regression, LR2B, the predictor COLD2 is also insignificant and positive at the ten percent level. Consequently, disregarding control variables, the models show no significant relationships between the state of the IPO market the month before the IPO and institutional cornerstone investments.

The main multivariate regressions of our paper, MLR1A and MLR2A, are presented in Table VI. Both models regress the normalized rank-transform of the percentage of institutional

Table V
Univariate Regressions

The table reports the results from the univariate regressions for the sample spanning from January 1, 2015, to June 30, 2023. The dependent variable constitutes the normalized rank-transform of the percentage of institutional cornerstone investors in an IPO. In LR1A, the independent variable is HOT, a dummy variable equal to one when an IPO is offered in a month following a month classified as a hot IPO market period. In LR1B, COLD1 is a dummy variable equal to one when an IPO is offered in a month following a month classified as a cold IPO market period following Helwege and Liang's (2004) classification of cold IPO markets (that is, the bottom third of months in terms of the three-month centered moving average number of IPOs scaled by business formations). The independent variable in LR2B, COLD2, follows the same structure as COLD1, however, deviating in terms of classifying the 38th percentile rather than the bottom third as cold. In line with Aggarwal, Prabhala and Puri (2002), t-statistics based on the paper of White (1980) are used, with robust standard errors reported in the parentheses.

	Dependent Variable: Normalized Rank-Transform of % of Institutional Cornerstone Investors in IPO		
	LR1A	LR1B	LR2B
Intercept	-0.04 (0.10)	-0.01 (0.07)	-0.03 (0.07)
HOT	0.07 (0.13)		
COLD1		0.10 (0.29)	
COLD2			0.26 (0.24)
R-squared	0.1%	0.1%	0.6%

** Significant at the five percent level using two-tailed test.

* Significant at the ten percent level using two-tailed test.

cornerstone investors in an IPO on the independent dummy variable for a hot IPO market in the month preceding the IPO (HOT), a dummy variable for underwriter reputation (Reputation), underpricing (Underpricing), industry dummy variables, and the natural logarithm of total assets before the IPO (Total_Assets). However, the two regressions use different dummy variables for cold IPO markets. While MLR1A uses COLD1, MLR2A uses COLD2. In addition to MLR1A and MLR2A, Appendix A reports the results when alternative variables for size are used. MLR1B and MLR1C use shares offered and total proceeds, respectively, instead of total assets. The same logic applies to MLR2B and MLR2C.

Table VI
Multivariate Regressions I

The table presents the results from multivariate regressions for the sample, spanning from January 1, 2015, to June 30, 2023. The dependent variable constitutes the normalized rank-transform of the percentage of institutional cornerstone investors in an IPO. Shared control variables for MLR1A and MLR2A are HOT, a dummy variable equal to one when an IPO is offered in a month following a month classified as a hot IPO market period; Reputation, a dummy variable equal to one if one or several lead managers of an IPO are ranked among the top 10; Underpricing representing the underpricing of an IPO (that is, the percentage difference between the first day closing price and the offer price); and Total_Assets denoting the natural logarithm of the total assets before the IPO in SEK million. MLR1A does in addition to these variables include COLD1 whereas MLR2A includes COLD2. COLD1 is a dummy variable equal to one when an IPO is offered in a month following a month classified as a cold IPO market period following Helwege and Liang's (2004) classification of cold IPO markets (that is, the bottom third of months in terms of the three-month centered moving average number of IPOs scaled by business formations). COLD2 follows the same structure as COLD1, however, deviating in terms of classifying the 38th percentile rather than the bottom third as cold. Industry dummy variables are used in both regressions as control variables but are, however, not included in the table. In line with Aggarwal, Prabhala and Puri (2002), t-statistics based on the paper of White (1980) are used, with robust standard errors reported in the parentheses.

	Dependent Variable: Normalized Rank-Transform of % of Institutional Cornerstone Investors in IPO	
	MLR1A	MLR2A
Intercept	-0.74** (0.27)	-0.81** (0.27)
HOT	0.18 (0.13)	0.25* (0.13)
COLD1	0.24 (0.27)	
COLD2		0.45** (0.23)
Reputation	0.82** (0.16)	0.84** (0.16)
Underpricing	0.40** (0.16)	0.42** (0.16)
Total_Assets	0.03 (0.09)	0.02 (0.09)
Adjusted R-squared	14.6%	16.0%

** Significant at the five percent level using two-tailed test.

* Significant at the ten percent level using two-tailed test.

Firstly, MLR1A has an improved adjusted *R*-squared value in comparison to previously presented univariate regressions, with the model explaining 14.6% of the variance in institutional cornerstone investor participation in IPOs. In the multivariate regression, HOT and COLD1 are positive but insignificant at the ten percent level. This result is supported by MLR1B and MLR1C as shown in Appendix A. This suggests that, given that the classification of the state of the IPO market is accurate, there is no significant relationship between the state of the IPO market during the month before the IPO and the proportion of institutional cornerstone investors in an IPO.

Moreover, lead manager reputation is positive and significant, contrary to the findings of Aggarwal, Prabhala and Puri (2002). Meanwhile, underpricing, used as a proxy for pre-market demand, is significant and positive at the five percent level, similar to the results of Aggarwal, Prabhala and Puri. Thus, the inclusion of reputable co-lead managers is positively related to higher institutional cornerstone ownership, which similarly applies to public issues with high pre-market interest. Finally, the size variable in MLR1A, Total_Assets, is positive but insignificant. This result is shared with MLR1B. However, in MLR1C, the variable for proceeds from the IPO, Proceeds, is significant and positive, implying that listings with large proceeds gather high institutional cornerstone ownership. Meanwhile, we note that Habib and Ljungqvist (1998) identify a mechanical relationship between underpricing and proceeds, which may lead to issues with the accuracy of the predictor coefficients. However, after checking for multicollinearity, we find no problems with the inclusion of both variables as independent predictors.

In MLR2A, HOT and COLD2 are both positive and significant at the ten percent and five percent level, respectively, suggesting both hot and cold IPO markets lead to a higher proportion of institutional cornerstone investors in IPOs. As in MLR1A, we find a positive and significant effect of underpricing as well as for lead manager reputation, contrary to Aggarwal, Prabhala and Puri (2002). Similar to MLR1A, the result thus suggests a positive relationship between pre-market demand and the proportion of institutional cornerstone investments in IPOs. The result is supported by regressions run on alternative size variables, as shown in MLR2B and MLR2C, presented in Appendix A. Like MLR2B, MLR2A has an insignificant proxy for size, which differs from the result of Aggarwal, Prabhala and Puri, where the size variables are positive and significant, meaning larger issues attracts a higher proportion of institutional investors. We find no such relationship for the size variables representing total assets pre-IPO or total shares offered. Meanwhile, the variable for proceeds in MLR2C is positive and significant. In terms of

explanatory value, MLR2A has an adjusted R -squared of 16.0%. Finally, outliers were identified using Cook's distance and the rule of $>4/n$. These influential data points were further analyzed to ensure no errors were made in the data gathering process. Alternative regressions were run without outliers and the key results remained unchanged.

B. Discussion on the Empirical Results

In our analysis of the results, we begin with the control variables. In the six multivariate OLS regressions, the dummy variable representing a reputable lead manager is significant and positive, which contradicts the findings of Aggarwal, Prabhala and Puri (2002). A possible explanation of the result is found in Booth and Smith (1986), where the underwriter's role as a signaling tool is highlighted. Hence, a prestigious manager of an IPO may attract a higher percentage of institutional owners. Moreover, in the correlation matrices to be found in [Appendix B](#), we identify a strong and positive relationship between the variable Reputation and our proxies for size of the IPO, arguably due to the placement of larger issues in the hands of reputable firms. The correlation matrices would also suggest a potential positive relationship between size and institutional cornerstone investor participation in an IPO. This is contrary to the initial theories of Aggarwal, Prabhala and Puri (2002), in which the authors argue that institutional investors may be unable to absorb a significant portion of shares in larger IPOs or that the demand from retail investors may be more significant due to the reduction of information asymmetry and moral hazard problems. Meanwhile, we find no significance in the effect of either total assets prior to the IPO or the primary and potentially secondary shares offered in the listing. However, the variable of proceeds from the IPO has a positive and significant influence on institutional cornerstone investor commitment as share of the IPOs, which aligns with the results of Aggarwal, Prabhala and Puri. This contradicts the original theories of Aggarwal, Prabhala and Puri and suggests that larger issues attract more institutional investors. Moving on to Underpricing, our proxy for pre-market demand is significant and positive, suggesting public issues with notable pre-market interest engage a larger share of institutional cornerstone investors. Meanwhile, we view the variable Underpricing with some cautiousness, as there are unavoidable issues with endogeneity stemming from simultaneity bias, considering that multiple studies research the effect of institutional owners on underpricing (see McGuinness (2012)). We are therefore hesitant to draw any definitive conclusions on the effect of underpricing on the share of institutional cornerstone investors.

Proceeding to the impact of the state of the IPO market the month prior to an IPO, MLR1A suggests that there is no significant relationship. There are papers suggesting buy-side clients are given preferential treatment in the allocation of underpriced issues (Ritter and Welch (2002)) while others use strong underpricing as a way of defining hot IPO markets (for instance, see Helwege and Liang (2004) and Ritter (1984)). This would suggest a positive relationship between institutional cornerstone commitments and hot IPO market periods, which contradicts our findings in MLR1A. One possible explanation to the insignificant result in MLR1A could be counteracting forces, as some theories suggest lower institutional ownership in hot IPO markets as companies seek to “reduce excess monitoring” and “acquire a higher retail investor base” (see Helwege and Liang (2004)). Moreover, Lee, Taylor, and Walter (1999) claim that while institutional investors tend to subscribe more to underpriced issues than overpriced ones, they receive the same allocation in either issue. Consequently, a quid pro quo relationship seems to exist, where institutional investors participate in unattractive issues with an expectation of favorable allocations in IPOs with strong demand. In this way, underwriters act strategically in the allocation of shares (see Benveniste and Wilhelm (1990)). One potential consequence of this behavior could be the participation of institutional investors across varying states of the market, as underwriters utilize their relationships with institutional clients to ensure IPO success.

Alternatively, due to the characteristics of our sample, the definition of cold IPO markets is excessively narrow when using the definition by Helwege and Liang (2004). In case cold IPO market conditions contribute to higher institutional cornerstone investments in IPOs, classifying too few months as cold due to several months with no IPOs may lead to an increase in the level of institutional cornerstone investments in neutral markets, reducing the differences between hot, cold, and neutral IPO markets. Table IV presents the averages of institutional cornerstone investors depending on classification used. We note that the percentage of institutional cornerstones is higher in the broader definition of cold markets (30.3% compared to 27.6%), while the mean value of institutional cornerstone commitment in the adjusted neutral is lower than the neutral classification following Helwege and Liang. Moreover, the proposition is supported by the second multivariate regression (MLR2A), where the definition of cold IPO market periods is five percentage points broader relative to MLR1A. The variable for hot IPO markets is still positive but now also significant. Moreover, MLR2A also suggests a positive relationship between cold IPO markets and participation of institutional cornerstone investors in IPOs.

There are several theoretical frameworks on institutional ownership that can assist us in explaining higher institutional cornerstone investor participation in hot IPO markets. According to Rock (1986), institutional investors possess an informational advantage over retail investors in that they can identify the “lemons” in the market, resulting in retail investors receiving a proportion of good IPOs but the entirety or majority of bad IPOs, which in turn explains the existence of underpricing. The argued reason behind this “winner’s curse” phenomenon is either superior information possessed by institutional investors or underwriter’s tendency to engage in favorable allocation in relation to buy-side clients (Aggarwal, Prabhala, and Puri (2002)). According to Choe, Masulis, and Nanda (1993), the cost of information asymmetry is greater in cold markets, discouraging high quality firms from going public. This supports the findings of Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989). Consequently, institutional investors with superior information or preferential status may receive a higher proportion of shares in hot IPO markets. Additionally, the demand for secured pre-allocation is argued to be higher for hotter issues, potentially increasing the share of cornerstone investors in hot markets (Espinasse (2018)). Meanwhile, Loughran and Ritter (1995), Lerner (1994), and Field (1997) argue that bull markets are characterized by irrational investors, providing managers with a unique exit or fundraising opportunity, leading to lower quality firms conducting IPOs in hot markets. If Loughran and Ritter, Lerner, and Field’s claims about the lower quality of firms entering the market during periods of high IPO frequency are true and institutional investors with superior information can differentiate between good and bad offerings, we would instead expect a lower proportion of institutional cornerstone investors in IPOs taking place after a month classified as hot. Meanwhile, note that this argument contradicts the theories of high institutional ownership in hot markets as a result of higher quality firms going public.

Moreover, the possible desire of companies seeking to decrease excess monitoring and obtain a higher share of retail investors would rather imply a negative or insignificant relationship between institutional cornerstone investor participation in IPOs and hot IPO market periods (see Helwege and Liang (2002)). However, MLR2A, like Helwege and Liang, find results that contradicts this hypothesis, with higher institutional equity shareholding in hot markets. Instead, Helwege and Liang argue that Benveniste, Busaba, and Wilhelm’s (2002) theory on IPO bundling could explain the result, where strong institutional demand is utilized by investment banks to

ensure a successful market listing by increasing the proportion of committed subscriptions at an earlier stage of the IPO process and thus reduce risk.

Additionally, the role of institutional cornerstone investors as signals of high quality, acting as certifiers of IPOs, is highly relevant to the discussion. According to Bader, Friedman, Kim, Kengelbach and Rice (2021), cornerstone investors can be used in bull markets to gather a competitive edge in fundraising. Thus, we would expect higher institutional ownership in hot markets, which is suggested by the result of our regressions using the broader definition of cold IPO markets. Moreover, these forces could potentially also explain the result of MLR2A suggesting a higher proportion of institutional cornerstone investors in IPOs taking place in a month following a month classified as cold. Although Helwege and Liang (2004) observe no significant differences between firms going public in hot versus cold markets, investors may still perceive “lemon” offerings as more prevalent during bad market conditions. This perception may arise from the notion that stable and sustainable firms have the flexibility to delay their IPOs until more favorable market conditions emerge. In this case, institutional cornerstone investors could potentially be used as a signal of quality and reduce transaction risk in line with the arguments of Chen, Hughes, and Megaw (2023) and McGuinness (2012), playing a similar role to that shown of venture capital firms (Megginson and Weiss (1991)).

Moreover, Ritter and Welch (2002) discuss the dynamic created by the allocation of shares to institutional investors — for the purposes of this paper institutional cornerstone investors — and the remaining shares for retail investors. Depending on the extent of pre-allocation and institutional and retail demand, underwriter decisions can significantly impact the demand in the secondary market. For instance, Aggarwal (2000) and Zhang (2004) describe a common underwriting practice of over-allocation of cold IPOs to boost demand in the aftermarket. Hence, investment banks may strategically utilize cornerstone investors to create “crowding out effects” (McGuinness (2012)), potentially in cases of bad market conditions as prices are naturally suppressed in cold markets (Derrien and Womack (2003)).

Meanwhile, cold IPO markets often occur simultaneously with economic downturns with unattractive capital markets. One of the key characteristics of cold IPO markets is the lack of liquidity (Duguid, Platt, and Rennison (2022)). Booth and Chua (1996) claim that allocation of shares to a larger base of investors increases liquidity. Thus, in the case of illiquid markets, underwriters may be inclined to spread ownership among a larger number of investors, rather than

a few key institutional cornerstone investors, implying lower institutional cornerstone investor ownership in cold markets. However, another argument would be along the lines of Ritter and Welch (2002), where pre-market allocations are high to ensure significant trading in the aftermarkets, resulting in increased liquidity. Furthermore, as lock-up periods are not a mandatory part of cornerstone investments in Europe (Cole, McNaughton and Gossen (2015)), the claims of Booth and Chua are less relevant to this set of institutional investors. Nevertheless, one should consider the potential incentive of cornerstone investors in complying with underwriter desires arising from potential underwriter-investor relationships in the IPO process (for example, see Binay, Gatchev, and Pirinsky (2007), Benveniste and Wilhelm (1990)). That is, cornerstone investors might have an incentive to hold onto the shares in an IPO despite no mandatory lock-up periods to increase probabilities of receiving desired allocations in other attractive IPOs managed by the underwriter.

Furthermore, according to previous studies, institutional investors serve a monitoring role, reducing agency problems between ownership and management, improving performance and increasing shareholder value. Hartzell and Starks (2003) observe a positive relationship between institutional ownership and the degree to which management compensation is tied to company performance. Moreover, evidence suggests institutions play a role in monitoring R&D and capital expenditure (Bushee (1998), Wahal and McConnell (2000)). Finally, Parrino, Sias, and Starks (2002) touch on the monitoring role of institutions related to CEO turnover. Consequently, institutional investors can potentially ensure alignment of objectives, increase performance levels, and boost shareholder value. This could be especially beneficial for companies looking to go public during tough market conditions, as the cost of asymmetric information is higher (Helwege and Liang (2004)). If these forces are in play, we would expect a higher proportion of institutional cornerstone investors during uncertain market environments. This could, however, at least partly depend on the degree of engagement from the institutional investors as argued by Denes, Karpoff and McWilliams (2017). Moreover, Bebchuk, Cohen, and Hirst (2017) acknowledge the passive nature of institutional ownership, potentially reducing the impact of the monitoring role of institutional investors (see also Lewellen and Lewellen (2022)).

The quid pro quo relationship argued to exist between underwriters and institutional investors could potentially explain a higher proportion of institutional cornerstone investors in IPOs offered in months following a cold market period (see Lee, Taylor, and Walter (1999)). As

the transaction risk is arguably greater in cold IPO markets, investment banks may utilize their relationship with institutional investors to increase the degree of subscription before the bookbuilding process commences, thus suggesting higher proportion of institutional cornerstone commitment in IPOs following cold market periods. This would also suggest a higher proportion of institutional cornerstone investors in hot IPO market periods, as the investment banks return favors and allow institutional cornerstone investors to achieve greater guaranteed allocations in significantly underpriced issues during hot IPO market periods in line with findings of retail investors being crowded out in significantly underpriced issues (Lee, Taylor, and Walter (1999)) and analysis on hot IPO market definitions by Helwege and Liang (2004). In addition, as per Lowry and Schwert (2010), institutional investors can assist in the price setting activities of companies going public. This is particularly important during uncertain market conditions. Thus, institutional cornerstone investors can play an important role in supporting underwriters ahead of the bookbuilding process, which could be particularly useful in cold IPO markets. We would thus expect higher institutional cornerstone investments in IPOs occurring in months after periods of cold IPO markets, as supported by the results of the second multivariate regression.

Finally, we touch upon the design of the models. Using the lower third of months to define the cold variable strictly follows the methodology of Helwege and Liang (2004). In doing this, we get an insignificant result for HOT and COLD1 in the multivariate regression, MLR1A. However, this approach may be too narrow considering the sample size, and increasing the percentile could offer a more accurate description of the different states of the IPO market, and thus improve the accuracy of both hot and cold market variables. Meanwhile, adjusting the percentile to include more months as a base for the cold IPO market variable could potentially lead to problems with clarity in terms of market definitions. In expanding the classification criteria for cold markets, there may arise ambiguities about what cold markets entail. Moreover, the interpretation changes. Hence, the difference in result between MLR1 and MLR2 could imply that although a conservative definition of cold markets shows no significant relationship to institutional cornerstone participation in IPOs, a broader definition of cold markets as periods with below median IPO activity exhibits a higher proportion of institutional cornerstone investors. This distinction becomes important when interpreting the outcome of the models, as the definition of cold markets becomes increasingly wide.

C. Encouragement of Further Research

Although the models provide an interesting set of results, there are further additions to the research to consider. We identify four main considerations. Firstly, as the model is linear, it seeks to optimize the fit to the underlying sample and estimate the normalized values of the percentage of institutional cornerstone investors. Another research paper can address the probability of the existence of institutional ownership, for instance through a logit model. This would offer an interesting expansion of the current knowledge of institutional allocation.

Secondly, due to limits in the access to data, the model omits some important factors present primarily in the bookbuilding process, including private information according to Aggarwal, Prabhala and Puri (2002). Moreover, one should also consider the existing relationship between underwriters and institutions, as for instance Cornelli and Goldreich (2001) argue that underwriters favor frequent investors. Thus, there are omitted variables that deserve additional attention. Thirdly, due to limited information, we estimated that the cornerstone investment commitments occurred in the month prior to the IPO. With additional information on when the actual decisions were made, the precision of the regression could be further improved.

Finally, this paper focuses on institutional cornerstone investors, utilizing theories on institutional allocation. Meanwhile, studying the broader phenomenon of cornerstone investors offers an interesting addition. Cornerstones covers a range of investor classes, including institutions like pension funds, strategic investors (Bader et al. (2021)), family offices, and high net worth individuals (McGuinness (2012)). Thus, it would be apt to further consider studying cornerstones as a set of investors in addition to examining each type of cornerstone investor individually. For instance, do certain high net worth individuals act as certifiers and do financial phenomena like “skin in the game” matter when insiders publicly commit to being early investors?

III. Summary and Conclusion

Cornerstone investors participate in IPOs by undertaking to invest in an issue before the bookbuilding process. Their commitment is disclosed in the company’s prospectus, and in return the investor receives a guaranteed allocation. This class of investors constitutes a new phenomenon, with cornerstone investors’ first appearance in Swedish IPOs in 2014. Thus, research covering their role in IPOs is scarce. Studies have previously discussed the relationship between cornerstone investor participation and underpricing, finding a positive relationship. However,

there is an evident research gap on further analysis of the motivation of cornerstone investors and their express role in IPOs. Moreover, several papers have examined institutional investors, however, a particular focus on the role of market conditions is noticeably absent. Hence, in this paper, we study the relationship between the state of the IPO market and the allocation of shares to institutional cornerstone investors, using theories on institutional ownership. More specifically, we consider the prevailing market conditions when the agreement of participation is made.

Initially, we define cold markets as the bottom third of months based on IPO activity in line with previous research on the state of the IPO market. Controlling for several factors shown to influence institutional allocation, we document a positive but insignificant relationship between flourishing IPO markets and institutional cornerstone investments. The same applies for the cold market dummy variable. We argue that the strategic role of underwriters can help explain the result, as institutional investors participate in IPOs irrespective of prevailing market conditions. To guarantee issuance success, underwriters utilize their relationships with institutional clients.

However, using a broader classification of cold markets, taking the characteristics of our sample into consideration, suggests a positive and significant relationship between cold markets prior to an IPO and institutional cornerstone investor participation. Moreover, the previously stated positive but insignificant relation between hot markets and institutional cornerstone commitments is now also significant. The result lends support to predictions of high-quality firms entering markets with good conditions and theories of institutional information advantage and preferential treatment. Moreover, the result also supports the suggestion of investment banks acting strategically, utilizing a quid pro quo relationship with institutional investors to secure IPO success in cold IPO market periods in exchange for granting institutional cornerstone investors a larger share of desired IPOs in hot IPO market periods. For example, involving investors early on could assist in reducing uncertainties concerning price setting, arguably being particularly present in uncertain, cold IPO markets. Furthermore, the findings support the argued role of cornerstone investors as means of reducing transaction risk and as signaling devices, gaining a competitive advantage in times of markets associated with investor enthusiasm, or ensuring IPO success during fragile market conditions.

Meanwhile, it is important to carefully interpret the findings, as the narrow definition of cold markets offers an insignificant result for hot and cold IPO markets. Although the broadening of the classification can contribute to clearer differences between the market conditions due to the

relative size of the sample, the result of the first multivariate regression indicates the need for caution in interpreting the outcome and suggests that the results seem to depend on how the different states of the market are classified.

This paper's contribution to existing research is two-fold. Firstly, we study the impact of market conditions on institutional cornerstone commitment and discover signs suggesting that, depending on the definition of IPO market states, hot and cold markets have a higher institutional engagement. Secondly, we analyze the motivations and role of institutions in IPOs, specifically focusing on institutional cornerstone investors. Using a broader definition of cold markets, we find support for theories relating to underwriter-institutional relationships, informational advantage, and signaling. These findings are relevant for issuers and investors alike. Finally, we encourage further research on the topic, particularly including additional key determinants of allocation, like private information and issuer-institutional relationship, improving the accuracy of the model with detailed information on timing of decision-making, and investigating the role different sets of cornerstone investors play in the IPO process.

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APPENDIX A

Table A.1
Multivariate Regressions II

The table presents the results from multivariate regressions for the sample, spanning from January 1, 2015, to June 30, 2023. The dependent variable is the normalized rank-transform of the percentage of institutional cornerstone investors in an IPO. Shared control variables for MLR1B and MLR2B are HOT, a dummy variable equal to one when an IPO is offered in a month after a month classified as a hot IPO market; Reputation, a dummy variable equal to one if one or several lead managers of an IPO are ranked among the top 10; Underpricing representing the underpricing of an IPO; and Shares_Offered representing the natural logarithm of the million number of shares from the primary and secondary offering. MLR1B does in addition to these variables include COLD1 whereas MLR2B includes COLD2. COLD1 is a dummy variable equal to one when an IPO is offered in a month after a month classified as a cold IPO market period following Helwege and Liang's (2004) classification of cold IPO markets. COLD2 follows the same structure as COLD1, however, deviating in terms of classifying the 38th percentile rather than the bottom third as cold. Industry dummy variables are used in both regressions as control variables, however, not included in the table. In line with Aggarwal, Prabhala and Puri (2002), t-statistics based on the paper of White (1980) are used, with robust standard errors reported in the parentheses.

	Dependent Variable: Normalized Rank-Transform of % of Institutional Cornerstone Investors in IPO	
	MLR1B	MLR2B
Intercept	-0.74** (0.25)	-0.81** (0.23)
HOT	0.17 (0.13)	0.24* (0.13)
COLD1	0.21 (0.27)	
COLD2		0.44* (0.23)
Reputation	0.77** (0.16)	0.79** (0.16)
Underpricing	0.40** (0.16)	0.42** (0.16)
Shares_Offered	0.10 (0.14)	0.09 (0.14)
Adjusted R-squared	14.8%	16.1%

** Significant at the five percent level using two-tailed test.

* Significant at the ten percent level using two-tailed test.

Table A.2
Multivariate Regressions III

The table presents the results from multivariate regressions for the sample, spanning from January 1, 2015, to June 30, 2023. The dependent variable constitutes the normalized rank-transform of the percentage of institutional cornerstone investors in an IPO. Shared control variables for MLR1C and MLR2C are HOT, a dummy variable equal to one when an IPO is offered in a month following a month classified as a hot IPO market period; Reputation, a dummy variable equal to one if one or several lead managers of an IPO are ranked among the top 10; Underpricing representing the underpricing of an IPO; and Proceeds representing the natural logarithm of the amount raised in an IPO in SEK million. MLR1C does in addition to these variables include COLD1 whereas MLR2C includes COLD2. COLD1 is a dummy variable equal to one when an IPO is offered in a month following a month classified as a cold IPO market period following Helwege and Liang's (2004) classification of cold IPO markets. COLD2 follows the same structure as COLD1, however, deviating in terms of classifying the 38th percentile rather than the bottom third as cold. Industry dummy variables are used in both regressions as control variables, however, not included in the table. In line with Aggarwal, Prabhala and Puri (2002), t-statistics based on the paper of White (1980) are used, with robust standard errors reported in the parentheses.

	Dependent Variable: Normalized Rank-Transform of % of Institutional Cornerstone Investors in IPO	
	MLR1C	MLR2C
Intercept	-1.33** (0.35)	-1.39** (0.34)
HOT	0.16 (0.12)	0.23* (0.13)
COLD1	0.17 (0.26)	
COLD2		0.41* (0.23)
Reputation	0.45** (0.21)	0.47** (0.21)
Underpricing	0.41** (0.16)	0.43** (0.16)
Proceeds	0.39** (0.17)	0.38** (0.17)
Adjusted R-squared	17.3%	18.5%

** Significant at the five percent level using two-tailed test.

* Significant at the ten percent level using two-tailed test.

APPENDIX B

Figure B.1
Correlation Matrix I

The figure reports the correlation between the variables relevant to our multivariate regressions using the same definition of cold markets as by Helwege and Liang (2004) over the sample period of 1 January 2015 to 30 June 2023. HOT is a dummy variable, being equal to one when an IPO is offered in a month after a month classified as a hot IPO market period; COLD1 is a dummy variable, being equal to one when an IPO is offered in a month following a month classified as a cold IPO market period following Helwege and Liang's classification; NEU1 is a dummy variable, being equal to one when an IPO is neither offered in a month following a month classified as a cold not hot IPO market period following Helwege and Liang's definition; Reputation is a dummy variable equal to one if one or several lead managers of an IPO are ranked among the top 10 depending on market share in terms of proceeds over the sample period; Underpricing represents the underpricing of each IPO (that is, the percentage difference between the first day closing price and the offer price); Total_Assets represents the natural logarithm of the total assets of each issuer before the IPO in SEK million; Shares_Offered represents the natural logarithm of the million number of shares from the primary and potentially secondary offering of each IPO; Proceeds represents the natural logarithm of the amount raised in each IPO in SEK million; and Inst_Corner represents the normalized rank-transform of the percentage of institutional cornerstone investors in each IPO.

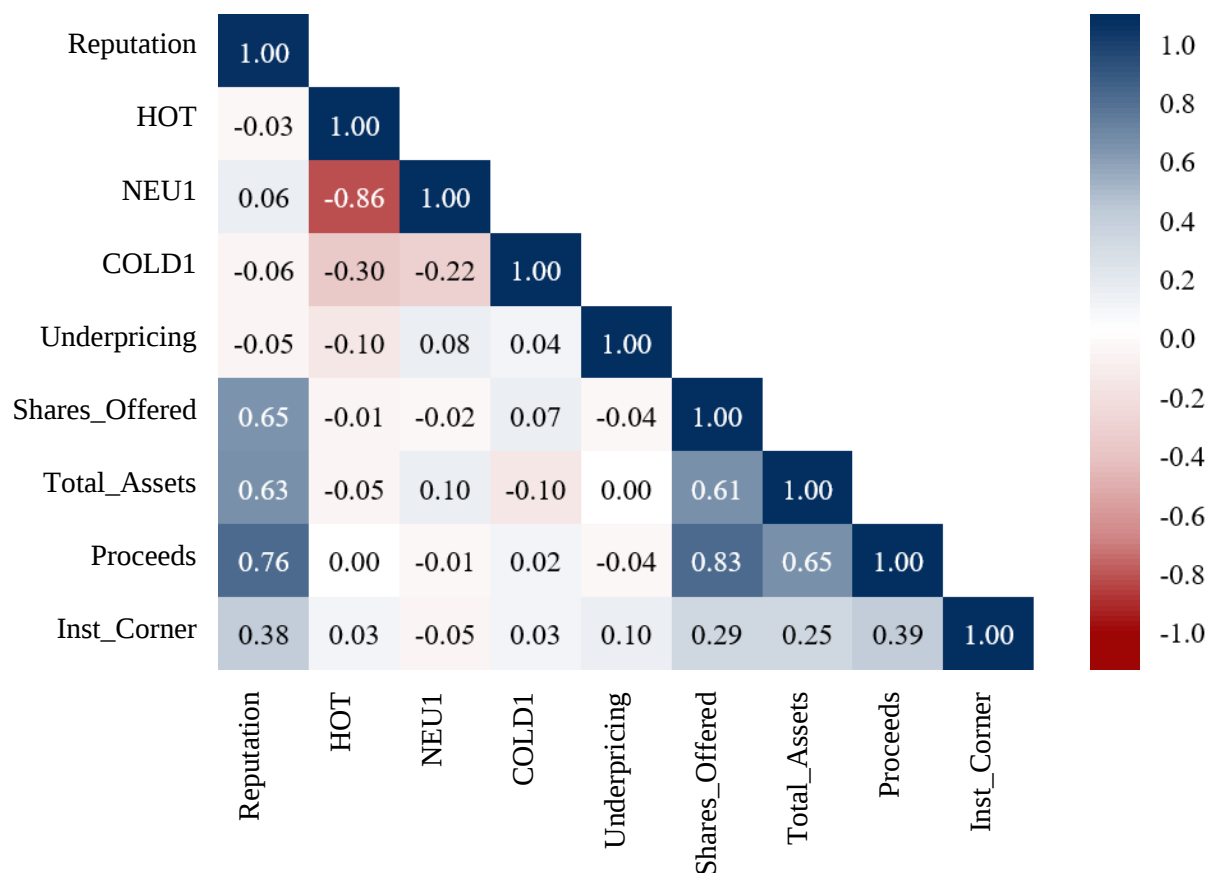


Figure B.2
Correlation Matrix II

The figure reports the correlation between the variables relevant to our multivariate regressions using the adjusted definition of cold markets as by Helwege and Liang (2004) over the sample period of 1 January 2015 to 30 June 2023. HOT is a dummy variable, being equal to one when an IPO is offered in a month after a month classified as a hot IPO market period; COLD2 is a dummy variable, being equal to one when an IPO is offered in a month following a month classified as a cold IPO market period following the adjusted version of Helwege and Liang's classification; NEU2 is a dummy variable, being equal to one when an IPO is neither offered in a month following a month classified as a cold not hot IPO market period using the adjusted definition of Helwege and Liang's definition; Reputation is a dummy variable equal to one if one or several lead managers of an IPO are ranked among the top 10 depending on market share in terms of proceeds over the sample period; Underpricing represents the underpricing of each IPO (that is, the percentage difference between the first day closing price and the offer price); Total_Assets represents the natural logarithm of the total assets of each issuer before the IPO in SEK million; Shares_Offered represents the natural logarithm of the million number of shares from the primary and potentially secondary offering of each IPO; Proceeds represents the natural logarithm of the amount raised in each IPO in SEK million; and Inst_Corner represents the normalized rank-transform of the percentage of institutional cornerstone investors in each IPO.

