Institutional Investor Presence, Underpricing and Flipping Activity

- Empirical Findings from Western European Exchanges

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ABSTRACT

Title: Institutional Investor Presence, Underpricing and Flipping Activity - Empirical Study on EU Main List IPOs

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Purpose: This undergraduate thesis examines IPO pre-market demand as a predictor of total institutional investment (pre-IPO institutional owners maintaining their stake + institutional allocation). It also aims to investigate institutional owners' effect on underpricing and overall flipping.

Theoretical evidence: A number of studies have observed underwriters favouring institutional investors in initial share allocation of popular, 'hot' IPOs. This is especially controversial considering that pre-market demand is often followed by higher initial returns. A number of theories have sprung up, trying to explain what amount of favouring as well as underpricing that could be justified, and why. But because of restricted data access, empirical research in the field has been limited. Institutional investors are also expected to flip less as well as induce less flipping in retail investors, another assumption that could be highly misleading without proper empirical evidence. Furthermore, the literature on flipping suffers from similar data problems.

Methodology: Institutional ownership as reported in the first public filing, less percentage change, is used as an approximation for initial interest, labelled institutional presence. The percentage is also used to examine the effect it has on underpricing. Finally, institutional presence and other variables are regressed against a common flipping proxy, as well two novel variations of it. We analyse a sample of 110 Western European IPOs as well as an interview with a Swedish investment banking analyst.

Empirical findings: Pre-market demand significantly predicts underpricing (dependent on what variations of the variables that are observed) but not institutional presence (p=5.4%). Underpricing is not predicted by institutional presence nor does a larger model render significance in the relationship. Flipping activity is not predicted by institutional presence either, defying signalling theory and supply-&-demand theory.

Conclusions: Institutional favouring in the share allocation of hot IPOs does not seem to translate into total institutional presence. The efficacy of proxies based on public information is discussed as well as current theories about institutional ownership, underwriters' allocation decisions, and underpricing.

Elucidation

Closing Price	The price of a company's shares at the end of a day of trading on a stock market
DCF	Discounted Cash Flow valuation model
ECM	Equity Capital Market
Flipping	The short-term selling activity of some investors in initial public offerings
"Hot" IPO	A popular and coveted initial public offering
IPO	Initial Public Offering, the process of a stock exchange listing of a private company
Issuer	The company going public (issuing stocks)
Liquidity	Of an individual security, the ease with which it can be bought or sold without unduly affecting the price (Moles & Terry 1997)
Offer Price	The price at which someone offers a share or a bond for sale
Opening Price	The price for a share, bond, etc. at the beginning of a day of trading on a stock market
Syndicate	The group of financial intermediaries tasked with executing the IPO, led by the lead underwriter
Underwriter	The investment bank tasked with executing the IPO

1. Introduction

1.1 Background

IPO is short for Initial Public Offering and refers to the process of launching a private company's shares to become tradeable on a open market stock exchange. There are multiple ways of carrying out an IPO, however all with the objective of converting a private company into a public one. The different types of offerings can range from having both a primary and secondary offering before launching, to the more price- and capital demand centered strategies of "best-efforts", firm commitment and auctions (Berk & DeMarzo 2016, p. 872-874).

The European market for IPOs experienced substantial activity in the first three quarters of 2017, raising approximately €29 billion at a growth rate of roughly 49% compared to the performance during the same period the year before (PWC 2018). The Nordic region has for the past few years been the centre of a real IPO boom as well. During the same three-quarter period, the YTD-total for Nordic IPOs had already surpassed the previous year's. A total of 64 IPOs, worth an astonishing $3.6 billion, were executed - 61% of which were accounted for by Sweden (EY 2017). In the meantime, institutional investors have become increasingly important in many countries, including the western EU-countries examined in this thesis. Belgium, France, Germany and Sweden have all experienced a significant increase in the total assets of investment funds relative to GDP the last four years (OECD 2017).

The question of why companies decide to go public is a subject of much debate. A common reason for launching a company on the stock market is usually to raise additional capital. Capital that could be used funding research and development or capital expenditures. However, an IPO could potentially provide other benefits such as increased company public awareness, or just simply function as an exit opportunity for a founder or early investor who is seeking to cash in on his/her investment (Gerasmyenko & Arthurs 2014). Further gains from public listings can range from improved asset pricing to increased financial market liquidity, information spread, transparency and improved future capital access. Empirically, the likelihood of a company performing an IPO increases with the company's size and the

market- to- book ratio of its industry peers (Pagano et al. 2002). Companies appear to go public not to finance future investments and growth, but to rebalance their accounts after high investment and growth; IPOs are also followed by lower cost of credit and increased turnover in control (ibid). A considerable proportion of the IPO literature deals with the question of *why* firms go public in the first place, a by no means obvious decision even for a very large firm.

Even though most IPO prospectuses portray lucrative investment opportunities with the intention of pursuing economic growth for the company, studies show of a lower rate of profitability as well as an economic underperformance for post-IPO companies in relation to non-listed peers (Katti & Phani 2016). Yet at the same time, IPOs have been found to be underpriced, on average, as measured by offer- to first close price increase, with such returns practically being taken from the IPO firm and given to initial investors. Given the size of the IPO market and the payoffs for different parties, many topics in IPO literature remain controversial and relevant. Assuming there are societal benefits to a well-matched IPO market implies that e.g. IPO mispricing - beyond what can be argued to be a form of compensation to different parties - could potentially constitute a loss for both the entrepreneur and the economy.

1.2 Problem discussion

One of the largest and most crucial issues for the IPO-literature is the pricing of the stock. Although some examples exist of the contrary (Purnanandam 2004), IPOs tend to be underpriced (relative to aftermarket prices), and the evidence is persistent across time and geography (Chang 2016). According to a study by Loughran & Ritter (2002), the average first-day return of IPOs in the United States amounted to 7% during the 1980s, 15% between 1990-1998 and a surprisingly high 65% during 1999 through 2000, a period commonly referred to as the dot-com bubble.

This underpricing, measured as the first-day price increase multiplied by the number of shares issued, represents an additional cost barrier for issuing firms when deciding whether to go public. "Whether such underpricing is fair compensation for investors to compensate them for risk-bearing or providing information, or is excessive and is driven by agency problems between issuers and underwriters, is the most important debate in the IPO literature" (Chang

2016). Such literature has gone on to explain underpricing using e.g. agency-, signalling-, and behavioural theories, and empirical studies have identified various factors influencing IPO underpricing (Yong 2007, Katti & Phani 2016). E.g. reputable underwriters seem to underprice less (ibid.) and high pre-market demand seems to predict day one returns (Aggarwal 2002). Aggarwal's study also showed underwriters favouring institutional investors in initial share allocation of underpriced IPOs. "In principle, underwriters can favor preferred investors by allocating them more shares in 'hot' issues that are expected to trade up strongly in the aftermarket. Whether underwriters do so is the subject of an active and ongoing debate in the academic literature and the financial press[...]" (Aggarwal 2002). Aggarwal (2003) and Gounopoulos (2006) find that respectively 19% and 38% of volume accounts for flipping behaviour during the first two days of trading. Flipping is symptomatic of the underpricing issue and what this study will investigate is whether Che-Yahya's assumption of institutional investors being more 'loyal' can be supported.

These findings open up a range of controversial topics to be researched: are institutional investors favoured in *hot* IPOs, because they in turn are positively correlated with day one returns? Or are they actually better at predicting day one returns, regardless of demand? If they are assumed to be long-term holders, does it really matter if they identify initial returns? Should the issuing firm prefer institutional presence, i.e. do institutional investors provide the stability and after-market liquidity the firm hoped for? Or do they make huge profits selling their allocation the first day (flipping)?

Like many areas of financial research these topics are dependent on data availability and the laws and regulations controlling that availability. The aforementioned initial share allocation is not shared with the public which limits the amount of research that can be done on this area. Overall institutional ownership - not just allocation-based - can also be difficult to establish since more obscure owners may be difficult to classify as institutional or not. This creates a need to construct useful predictors or proxies that can be combined with much larger sample sizes. Ownership structure right before the IPO is commonly disclosed, however, and may serve as a starting point.

The same data issues limit the research on flipping behaviour. As with institutional allocation and ownership, there are of course numerous studies with access to the relevant data, and

these will be commented later on. But efficient proxies for these variables could enable a larger empirical literature in several financial research fields.

1.3 Purpose

The primary aim is to test several hypotheses on the subject of institutional investor presence, underpricing and flipping behaviour. The secondary aim is to give meaningful comments on the potential for public data-based proxies of institutional interest and flipping activity.

Research Question I: Has IPO pre-market demand predicted first day returns in Western Europe between 2010 and 2018? If so, have these 'hot' IPOs on average had larger institutional ownership percentages?

Research Question II: Do institutional investors mitigate the issuer's problems of underpricing and flipping?

Research Question III: Is there a potential for public data proxies in the field of IPO underpricing, flipping activity and institutional ownership?

1.4 Delimitation

Due to the restraint in both time and resources, we limit our thesis to equity listings made between 1 April 2010 and 1 January 2018 on a selection of Western European stock exchanges, excluding MTFs. Stock exchanges treated in this thesis emanates from countries such as Sweden, Germany, and France. Furthermore, any company split-ups into separate listings is not be considered as IPOs, and are therefore not taken into consideration in our research. These limitations is briefly commented under the method section.

1.5 Target audience

The target audience for this thesis are academics with a fundamental knowledge of business administration, economics, investments as well as individuals with a general interest in the stock market. This especially includes individuals who are particularly interested in investments in initial public offerings.

2 Theory

- ○ *Institutional & Retail Investors*
- ○ *Underpricing*
- ○ *Flipping Activity*
- ○ *Signalling*
- ○ *Agency Theory*

2.1 Institutional & Retail Investors

Investors usually get divided into two primary groups: retail and institutional investors. The term retail investors commonly refers to individuals, smaller institutions and corporate customers that partake in any sort of asset based exchange for their own gain, as opposed to a management of other people's funds. In general, institutional investors are assumed to be processing much larger volumes in comparison to individual investors (Moles & Terry 1997) and they are usually assumed to be better informed than individual investors (Katti & Phani 2016).

Institutional investors are also assumed to be treated preferentially in a number of ways and some of these treatments have been empirically observed (Che-Yahya et al. 2014). "Literature concludes that allocation process carried by the underwriters is biased towards institutional investors" (Katti & Phani 2016). Pihl & Stojanovski (2015) show this favouring is higher in popular IPOs, as defined by their final offer price deviation from book-building price range midpoint.

Research on institutional ownership in IPOs has often been focused on offering share allocation. This has two limitations: firstly, the data is not publicly available and investment banks may be unwilling to share it. Secondly, it does not take into account the total number of outstanding shares, only the publicly offered ones. The percentage of *total shares* owned by institutions after allocation, right before trading, may be much lower and highly varying. Although some theories specifically require allocation data (e.g. when investigating underwriters' institutional favouring), there is also a need to observe overall institutional ownership. The effects of such institutional interest (presence) at the time of IPO, and the

factors affecting it, could in some areas be more relevant than those pertaining to allocation. Nielsen (2007) mentions that institutional investors are the drivers of private equity funds but goes on to show that they also invest directly in private equity. Studies on the latter are scarce and we find no studies reporting their level of success in this sub-field.

2.2 Underpricing

Reilly and Hatfield's *Investor Experience with New Stock Issues* (1969) is one of the earliest studies observing what today is common knowledge in IPO literature: IPOs are consistently underpriced relative to after-market prices which benefits investors - and possibly underwriters - but usually harms issuing firms. Reilly and Hatfield's explanations include: IPOs being difficult for underwriters to assess, deliberate underpricing to ensure full subscription, and issuers preferring a lower price in hopes of securing future capital requirements. Since then a substantial literature has formed with ideas from agency theory, information asymmetry, signalling theory and more (Katti & Phani 2016).

2.3 Information Asymmetry

Information asymmetry is one of the most central explanations of IPO underpricing. The asymmetry lies between underwriter and issuer as the former usually has more detailed knowledge of the company's value right before trading. The value of this information can incentivize underwriters to seek payments or benefits from investors. Moreover, Abdullah and Taufil (2004) show a negative correlation between underwriter reputation and initial returns on a set of 70 Malaysian IPOs, possibly indicating that reputable underwriters have an ability to reduce information asymmetry.

2.3 Flipping Activity

"Money on the table" is the initial return of the IPO multiplied by the number of shares issued. It can be a significant opportunity cost for the issuing company and at the same time a large, low-risk profit for the investor. Selling the allocation during the first day or two is called flipping and institutions who flip can not only cause artificial downward pressure on

the stock price (Che-Yahya 2014) but can also betray the assumptions of both issuer and underwriter that institutional investors will provide after-market liquidity or other benefits.

Despite aforementioned problems of data availability, a number of useful empirical studies based on such data exist: Krigman et al. (1999), Aggarwal (2002, 2003), Gounopoulos (2006). These studies show institutions being favoured in 'hot' IPOs, pre-market demand predicting underpricing and flipping predicting future price performance. The research has been focused on developed markets, especially the US, but there are also increasing contributions from south-east Asia (Chong 2008, Yong 2010, Che-Yahya 2014), partly thanks to the world's only mandatory pre-IPO market in Taiwan. Large scale flipping studies, such as Krigman's 1999 analysis of 1232 US IPOs, have not been made on post-crisis Europe.

2.4 Signalling Theory

Underpricing, institutional share allocation as well as overall institutional investment have all been described in terms of signalling theory. E.g. underpricing, an issue that is often argued to be signalling high quality. Allen & Faulhaber (1989) and Welch (1989) argued early on that issuing firms themselves know their prospects best and only high-quality firms would be able to recoup their losses from costly underpricing, hence a credible signalling effect. As per the signalling theory, greater institutional investor participation could reduce the tendency to flip shares because such participation becomes a signal about the quality of the IPO issuer. Signalling is especially common in markets with high information asymmetry (Beatty and Ritter, 1986), as is the case in IPO companies. Little is known about such companies, since they are not required to disclose their corporate information to the public prior to the IPO (Yung and Zender 2010).

2.5 Agency Theory

The agency conflict between issuing firm and underwriter is fundamental to the question of IPO underpricing. Underwriters want to maximize pre-sales which causes a tension between them and issuing firms who want to maximize proceeds. For underwriters it is not only a question of minimising exposure; they have incentives to "use underpriced shares to curry favor with important existing and potential clients of their firms" (Sjostrom 2010).

Considering the sometimes enormous incentives for investors to obtain abnormal profits from underpricing, it is clear that any ability to influence the underwriter is likely to be utilised by investors.

"IPO firms have a number of early-stage investors that retain their ownership after the flotation, whose objectives and incentives may not align with public market investors" (Bruton et al. 2010).

2.6 Valuation Methods

The vast majority of IPOs seem to find their price through book building or hybrid book building (Chang 2017), as opposed to auctions. Moreover, Deloof et al. point out that DCF is the most commonly used method in book building and also the main indicator of offer price, and that a discount is usually applied to the DCF price indication. If IPOs are consistently underpriced, and DCF largely determines that price, could there be something wrong with the valuation model instead of e.g. the agency situation? Kaplan & Ruback (1995) find DCF-valuation to be equal or better than valuations based on similar industry companies or similar transaction companies.

2.7 Certification Theory

Some argue that underwriters play a role of certification in IPOs (Booth & Smith 1986); they can actually reduce underpricing by persuasively soliciting information from investors. "The basic difficulty facing an underwriter wishing to collect information useful to pricing an issue is that investors have no incentive to reveal positive information before the stock is sold" (Benveniste 1989). The 'opposing' view is, as mentioned, that underwriters are the drivers of underpricing due to a number of incentives, sometimes from investors. Certification theory proposes a similar but alternative view which is that underwriters are drivers of IPO underpricing, but that such underpricing constitutes a fair compensation for investors and/or underwriters for revealing information. Indeed, Benveniste & Spindt's influential 1989 study describes underpricing as a way of acquiring information from these institutions about the market value of the offering. This, together with Booth & Smith (1986) formed the basis for the certification theory of underpricing.

2.8 Hypotheses

Despite an expansive IPO literature, we identify empirical gaps in a) whether institutional investors are more present in underpriced IPOs (and IPOs with higher pre-market demand), b) whether institutional investors are more loyal to issuers and c) the exploration of useful proxies to enable more research.

With that in mind, our first hypothesis examines institutional investor behaviour and favouring combined. Certification- , agency- , and signalling theory all predict a positive correlation between institutional presence and demand, either because of favouring or because of prior investor behaviour. Endogeneity is not a problem since demand is known days or even weeks before allocation is announced.

*Hypothesis 1***: Institutional investors prefer high-demand IPOs**

Similar to the previous issue, not least because of the inevitable correlation between MPD and underpricing, the next one is centred on institutional ownership in underpriced IPOs. Underpriced IPOs can be lucrative affairs for initial investors but our question is: does they themselves decrease underpricing by their presence? This study tries to contribute to the already substantial empirical evidence claiming that institutions are either able to predict underpricing because of MPD indications, able to predict underpricing despite a lack of such indications, or are simply favoured in the allocation of underpriced IPOs. The institutional ownership variable is an approximation of total institutional percentage after allocation, before trading. Thus, reverse causality with the underpricing, measured between offer price and first close price, is not a problem.

*Hypothesis 2***: Institutional investors mitigate underpricing in IPOs**

Institutional investors are preferred by underwriters as they can guarantee large investments, monitoring effects and good IPO liquidity through larger trading volume, as well as reward underwriters in dealings outside the IPO. They can also be preferred by issuing firms; supply-and-demand theory suggests they would favour long-term dividend growth shares (i.e. less flipping) and would therefore be safer investors (Che-Yahya et al. 2014). It is highly unclear

whether that is empirically the case, however (Aggarwal 2003, Gounopoulos 2006), which is why institutional backing ought to be investigated.

The presence of institutional investors serves as a remedy to the information asymmetry because they are seen as informationally more transparent (Che-Yahya 2014). As such, institutional investors' presence in an IPO is expected to convey a certain signal concerning the prospects of the issuing company. Confidence in the quality and future prospects of the company is likely to reduce the tendency of new shareholders, particularly retail shareholders, to flip (Chong et al. 2009). Thus, this thesis also aims to examine whether institutional investors' participation has potential as one of the explanatory factors of flipping activity.

Hypothesis 3: **Institutional investor presence decreases overall flipping activity**

3. Method

3.1 Choice of Approach

The thesis follows an abductive approach, which is one of three reasoning approaches for connecting theory and empiricism. The abductive method is a combination of the other two reasoning methods; deductive and inductive reasoning. With an abductive manner, the initial step is creating either one single or multiple hypotheses on the subject's outcome, based on previous theory and assumptions. Subsequently, the hypothesis is tried on new primary data, whereas the outcome acts as a foundation for any conclusions later made, as well as the treatment of the questions at issue in the thesis (Patel & Davidson, 2011).

3.2 Choice of Method

In our thesis, we practice a combination of both qualitative and quantitative method, but with a greater focus on the latter.

3.3 Quantitative Method

The testing of our hypotheses require adequate amounts of quantitative data in order for us to be able to draw any proper conclusions. In line with our purpose of investigating the impact of pre-IPO information on investor market transaction behaviour, we cannot make a case based on a smaller amount of observations. As for our chosen approach, our orientation within the quantitative method is in statistical hypothesis testing. Our selection of data is made on the basis of a systematic choosing. By delimiting ourselves to the IPOs of specific stock exchanges, in a specific region, during a predetermined time period, we narrow our selection down in a way most synonymous with the systematic selection type. As for the type of levels of scale or measurement, we believe that a continuous variable interval and/or ratio scaling is most preferable.

The percentage of institutional ownership was identified as a key variable early on. Disclosing IPO allocation data and/or personal ownership information is rarely required on a frequent basis and we were not granted any by investment banks. Thus, several hypotheses and variables had to be re-evaluated or reformulated and an approximation of institutional ownership at trading start is used throughout the study.

Investigating flipping level requires data on investor categories and transaction data to observe the proportion of institutional vs. retail investors selling their entire allocation of positive abnormal profit shares. In lack of transaction data, we construct a proxy for flipping amount based on trading volume on the first day. Data coming from stock exchanges based in several different countries are included to counter the potential decrease of empirical value by using a proxy to measure flipping.

This thesis also attempts to reinforce the empirical evidence on institutions and pre-market demand on more recent IPOs and a larger area. It functions as a starting point for subsequent investigations. A significant positive correlation between level of demand and institutional ownership is interpreted as a combination of institutional investors being favoured in the share allocation stage of 'hot' IPOs, and institutions choosing 'hot' IPOs for investment purposes.

3.4 Collection of Data

Both primary and secondary data is utilised in this thesis. Public stock information from Thomson Reuters (Datastream), Euronext and Morningstar provides first day closing prices and daily volumes for each company, but the bulk of the secondary data is collected through the Bloomberg Terminal which includes the following variables: exchange type, IPO date, offering price range, number of shares offered and percentage of institutional ownership. Bloomberg also provides the percentage change between issue (offer) price and first open price, which is used to calculate first day open prices for the companies.

An equity screening is done based on a) availability of price range data b) geographical focus on western Europe, and c) post-crisis time frame of 2010-2018. Multilateral Trade Facilities and other non-standard exchange types, as per Bloomberg definitions, are excluded for issues in consistency amongst the sample. Companies headquartered in the UK are also excluded. The final sample size is 110, with most firms being found in France, Germany and Sweden. Other secondary data originates from sources such as prior scientific studies and articles, financial statements, and IPO-prospectuses.

3.5 Variables

3.5.1 Dependent Variables

Institutional Presence

One of our main measures is the percentage of IPO shares owned by institutional investors at the start of day 1. An approximation is created by taking institutional ownership from the first filing and retracting the corresponding percentage change of the same filing.

$$Total\ shares\ (\%) =$$
$$Institutional\ investor\ ownership\ (\%)\ +\ Retail\ investor\ ownership\ (\%)$$

$$Institutional\ Presence\ (\%) =$$
$$Institutional\ investor\ ownership\ (\%)\ -\ Change$$

Midpoint Deviation

Previously used by Pihl & Stojanovski, who called it MEPUAV, as well as Aggarwal and others, the midpoint deviation (MPD) is an indicator of initial investor demand for the IPO. It offers some advantages over subscription ratio, discussed later.

$$Offer\ range\ midpoint\ =$$
$$(Offering\ min\ +\ Offering\ max)/2$$

$$Midpoint\ deviation\ =$$
$$(Offer\ price\ -\ Midpoint)/Midpoint$$

Underpricing

"The usual version of initial return of IPO is measured as the percentage difference between offer price and the closing price of IPO on the first trading day" (Yong 2007).

$$Absolute\ underpricing\ \text{€}\ =$$
$$Closing\ price, day\ 1 - Offering\ price$$

$$Relative\ underpricing\ \%\ =$$
$$Closing\ price, day\ 1/Offering\ price\ -\ 1$$

Flipping Activity

In lack of transaction data, a proxy is used based on first day trading volume and number of shares issued (Aggarwal 2003, Chong 2009, Chong et al. 2009, 2011, Krigman et al. 1999, Islam & Munira 2004, Miller & Reilly 1987, Sapian et al. 2012, Yong 2010). This study, however, suggests an improvement by putting it in relation to the average volume the following two days. It is proposed to be a less naïve proxy of flipping as it takes into account each separate company's approximate average daily volume. A combination of the two is also examined in hopes of finding an even more powerful measurement.

$$Flipping\ Level =$$
$$1st\ Day\ Trading\ Volume/Mean\ of\ 2nd\ and\ 3rd\ Day\ Trading\ Volume$$

$$Traditional\ Flipping\ Proxy =$$
$$1st\ Day\ Trading\ Volume/Shares\ Offered$$

$$Relative\ Flipping\ Level =$$
$$Flipping\ Level/Shares\ Offered$$

3.5.2 Control Variables

Offer Size

As a control variable, the offer size converted into euros is used (€). ECB reference rates are used for each individual IPO date.

$$Offer\ Size\ (€) = Offer\ Price * Shares\ Offered * Exchange\ Rate$$

Technology-Sector Dummy

Due to the enormous increase in underpricing during the years of the internet bubble in 1999-2000, a dummy variable is used, recording the company observed as either being in IT or not. A company within the GICS-defined IT-sector was given the value 1 and a company outside of the sector was given the value 0.

Implied Market Risk Premium

Another control variable used by the authors is the *implied market risk premium.* It is the excess return of the market in the corresponding country and time period (monthly basis) of the observed public offering. IMRP and related measures such as risk-free rate are useful for sorting out the confounding effects of a booming, busting or otherwise idiosyncratic market.

$$IMRP = Market\ Return - Risk\ Free\ Rate$$

Number of Shares Issued

Another control variable, used in several studies on underpricing and such (Aggarwal et al. 2002, Jia 2017), is the number of shares issued. The natural logarithm is also common and will be included here as well.

3.6 Regression Models

Linear regression models is used for standard hypothesis testing, and a 95% level of confidence is applied. The absence of consistent results of the determination coefficient measure in previous studies on underpricing (e.g. Loughran & Ritter 2004), together with the complexity of the subject, leads us towards the expectancy of an R^2 of minimum 5% for the second hypothesis.

Hypothesis 1: Institutional investors prefer high-demand IPOs.

Regression formula: $Institutional\ Presence = \alpha + \beta MPD + \varepsilon$

Regression hypothesis: $H_0: \beta = 0$

$H_1: \beta > 0$

Control variables: Implied Market Risk Premium, # of Shares Issued

Hypothesis 2: Institutional investor presence mitigates the level of underpricing in an IPO.

Regression formula: $Relative\ Underpricing = \alpha + \beta Instit.Ownership + \varepsilon$

$Absolute\ Underpricing = \alpha + \beta Instit.Ownership + \varepsilon$

Regression hypothesis: $H_0: \beta = 0$

$H_1: \beta > 0$

Control variables: MPD, Implied Market Risk Premium, # of Shares Issued, Tech Dummy

Hypothesis 3: Institutional investor presence decreases flipping activity.

Regression formula: $Flip\ Level = \alpha + \beta Institutional\ Presence + \varepsilon$

Regression hypothesis: $H_0: \beta = 0$

$H_1: \beta < 0$

Control variables: MPD, Implied Market Risk Premium, # of Shares Issued, Offer Size, IPO Date, Underpricing

3.7 Statistical Testing Methodology

Ordinary Least Square

In order to produce a reliable a regression, OLS sets a number of requirements on the data, coefficient estimates as well as its associated standard errors (Brooks 2008):

○ **The expected average value of the associated errors is zero.**

$$E(ut) = 0$$

The residual describing the variation of the dependent variable that cannot be explained by the used independent variables is called standard error (E). As our model contains a Y-intercept, the expected average value of the errors is 0 and is neither positively nor negatively skewed, meaning the requirement is fulfilled and no further testing is needed (Brooks 2008).

○ **The variance for the associated errors is constant and determined for all independent variables.**

$$var(ut) = \sigma 2 < \infty$$

If the variance between the errors is not constant, then there is probably a heteroscedasticity. To examine whether or not there is heteroscedasticity within the errors, a simple *Breusch-Pagan* test is performed. If the test should recognize heteroscedasticity, robustified standard errors are to be implemented in the regression and consequently the errors.

○ **Covariance between the errors of the independent variables is equal to zero.**

$$cov(ui, u\ j) = 0$$

Our thesis is focuses primarily on cross sectional data, meaning there is no need to take caution to this requirement. This, as the thesis does not examine the covariance of the errors over time. Additionally, in studies of this sort there is reasonably an acceptance for lower levels of determination (R^2) in the regressions due to the complexity in relationship between the observed outcome and its potential variables.

○ **Covariance between the dependent variable and its associated error is equal to zero.**

$$cov(ut, xt) = 0$$

This means that the dependent variable cannot affect itself. If this requirement is violated it would lead to skewness and inconsequent parameters, "endogeneity". This could stem from for example reversed causality.

- ○ **The standard errors are to be normally distributed.**

$$ut \sim N(0, \sigma 2)$$

Extreme outliers may cause the standard errors to not be considered normally distributed. We test this through a Shapiro-Wilk test to see if this is the case, and followingly use the method of winsorizing on each relevant variable.

Data & Model Control

Shapiro-Wilk Test

The Shapiro-Wilk test is used to determine whether or not the data used is normally distributed. By simply testing the null-hypothesis that the data is normally distributed in a regular regression, the results from the test decided if further data management is needed in order to fulfil the fifth OLS criterion.

Winsorizing

Extreme values in the data is dealt with individually through the STATA built-in method of Winsorizing, meaning they are limited to the 99th percentile. This, in order to minimize the risk of any potentially 'false' outliers, shape the data towards normal distribution and thus fulfil the fifth criterion of the OLS. This method is to prefer over trimming/ clipping as it does not affect the initial sample size.

Breusch-Pagan Test

To investigate the level of heteroscedasticity our linear regressions, a Breusch-Pagan test is used in STATA. If a higher level of heteroscedasticity is noticed, further adjustments to the data is required.

Robust Standard Errors

In case of a higher level of heteroscedasticity within any of the linear regressions, we use the STATA built-in method of robust standard error estimates. By simply adding ", r" to the regular STATA line of code for linear regressions, the procedure is applied and generates unbiased standard errors for the test.

3.8 Qualitative Method

The qualitative research works as a complement to our quantitative data, and its intent is rooted in the assumption of qualitative information being less fragmented and possibly being able to provide deeper knowledge and insights. The qualitative data used in this thesis originates from an interview with a finance professional whose input is expected to be of great relevance to both the analytical process, discussion as well as the research in general.

3.9 Interview

The interview takes on a semi-structured approach, is executed in Swedish and later on translated into English before being incorporated into the study. To avoid any misinterpretations or incorrect assumptions, the translated draft and the conclusions later made were sent to the interviewee for approval.

The semi-structured interview method has its core in a predetermined list of questions (App. I) based on the topics treated in the research. The interview method is considered flexible due to its liberty and freedom in how any given question is to be answered, which we found suitable to our purpose. Our research relies on one interview, consisting of the thoughts and observations of an investment banking analyst that is currently employed by one of the largest investment banks in the Nordics. The analyst has throughout the years has served as an underwriter for a number of main list IPOs which further legitimizes the use of this method, given the choice of subject for this thesis. Due to the fact that our respondent is stationed in Stockholm, and our research budget does not cover for any travelling, the interview was held through a voice & video chatting software.

3.10 Reliability

"Reliability refers to the consistency of a measure of a concept." – Bryman & Bell 2011

In order to consider a study reliable, it has to be repeatable. Meaning that by applying the methods presented earlier, to the same exact data, one should achieve identical results to what we are presenting. Any other assumptions made, models or techniques used is deemed well in line with either previous theory or similar studies and reports. The exploratory use of

alternative measurements challenges the reliability of some of the issues but is a conscious move

Our data and statistical testing are managed in STATA as well as Microsoft Excel, which both are considered reliable and reputable data-management software, further contributing to a higher reliability of this thesis.

3.11 Validity

"Validity refers to the issue of whether or not an indicator (or set of indicators) that is devised to gauge a concept really measures that concept." – Bryman & Bell 2011

The validity of this thesis is insured through the use of a set of control tests (presented in section 4.6) that show whether or not any of the indicators, variables used or the study in general, actually measure and show what it is presumed to. A precaution to avoid systematic errors and breaches of any of the conditions set by the OLS (Brooks, 2008).

3.12 Ethical Reasoning

"Discussions about the ethics of business and management research brings us into a realm in which the role of values in the research process becomes a topic of concern." – Bryman & Bell 2011

Bryman & Bell refer to four ethical principles that should be taken into consideration while gathering and finalizing a business or management research paper. The principles covers the risk of any harm to participants, lack of informed consent, invasion of privacy or that any deception is involved. In our thesis we make sure that these principles is not crossed in any fashion, mainly through the establishment of an agreement between the authors and the interviewee on how we were allowed to make use of the information collected, in combination with us prematurely presenting our intentions for the interview material (Bryman & Bell 2011).

3.13 Discussion of Method

Considering the findings of transaction data studies such as Aggarwal's (2002) and Gounopoulos' (2006), that flipping constitutes a highly varying proportion of first-day volume, often at more moderate levels than expected by the volume based proxy, there may be a need for better flipping proxies.

It should also be noted that Germany is one of the few countries in the world where institutional investors are allowed to be controlling shareholders of private equity companies, or partake in a controlling coalition. This could slightly diminish the applicability of the findings from those IPOs.

As we during the data collection process use multiple sources as for example the Bloomberg Terminal and Thomson Reuters, it is of immense importance that the different sources also provide identical measurements. This problem is managed through manual controlling of the data categories and its values provided from each individual source.

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4. Data

4.1 Descriptive Statistics

The sample size is 110 and the total amount of IPOs in the western Europe region* during the same timespan was 1531. The mean underpricing is 1.65% in relative terms or €0.52 in absolute figures. The average MPD was -5.14% but t-testing the value's deviation from 0 gave no significant difference, meaning there was no relevant skewness in demand in the sample. Average flipping by traditional proxy was 18.37%, lower than the 38.33% found by Che-Yahya on Malaysian IPOs. The sample IPOs are quite evenly distributed across time, as Graph 1 shows, with a slight shortage between 2012 and 2014 which can be partly explained by the relatively lower IPO activity in the EU during those years (PWC 2015).

Table 1: IPO Date Distribution

An ocular inspection of the extreme values was the only basis used to justify trimming data. The p99-max difference of flipping level and offer size were notably large and these variables were therefore winsorized at p=1%. The same was done with institutional ownership since one IPO reported 100.4%. The normality test (App. III) and the correlation table below were, however, created before these adjustments. 14 companies out of 110 were classified as information technology firms as defined by GICS sectors. These were indicated in the binary variable 'Tech Dummy'. Multicollinearity was addressed by observing correlations between the different variables and variable components.

	IMRP	1st Open	MPD	1st Vol.	Tech	Inst. Own.	LOG-SHARES	Abs. UP	Rel. UP	Trad. Flip	Flip Level
Implied Mkt. Risk Pr.	1.00										
1st Open Px	0.18	1.00									
MPD	-0.20	0.12	1.00								
1st Volume	-0.24	-0.04	0.05	1.00							
Tech Dummy	0.02	-0.11	0.06	0.10	1.00						
Institutional Ownership %	-0.25	-0.06	0.13	-0.05	0.09	1.00					

LOGSHARES	-0.28	-0.02	0.00	0.44	-0.14	0.03	1.00				
Abs. Underpricing	-0.14	0.40	0.09	0.02	-0.07	0.03	0.07	1.00			
Rel. Underpricing	-0.15	0.19	-0.01	0.08	-0.05	-0.03	0.14	**0.80**	1.00		
Trad. Flip Proxy	-0.27	-0.07	0.01	**0.68**	-0.01	0.01	0.19	0.15	0.19	1.00	
Flipping Level	-0.08	-0.03	-0.02	0.20	-0.06	0.03	0.09	-0.02	0.00	0.43	1.00

Table 2: Correlation coefficients

The only noteworthy correlations exist between relative and absolute underpricing, as well as first day volume and the common flipping proxy. Of course, neither of these pairs would ever be included in the same regression.

4.2 Regression Results

4.2.1 Premarket Demand Indications and Institutional Presence

The first regression on this issue is the one mentioned under Regression Models. Any regressions on the issue must, however, take into account the sample's correlation between MPD and underpricing because otherwise, underwriters' supposed favouring in 'hot' IPOs would have little benefit, and institutions gauging future underpricing through MPD would make no sense. A lack of correlation would go against most empirical observations (e.g. Hanley 1993) and could have significant ramifications on the application of information asymmetry theories etc. to the first two hypotheses.

Regressing a binary version of the MPD-variable (MPD>0 = 1) against absolute underpricing renders a correlation of 0.67, significant at the 95% level (App. IV). Interactive variables for MPD (MPDx) and relative underpricing (Rel. Underpricing Interact.) were created by substituting any values less than or equal to zero with zero, and keeping positive values. Linear regression between these two sorts out overpriced as well as 'cold' issues, and results indicated a correlation of 36.58 with a p-value of 5.7%. Before such treatment, the sample shows an almost non-existent (and negative) correlation of -1% between relative underpricing

and percentage MPD. Furthermore, there is an 8.02 correlation between absolute underpricing and MPDx, statistically significant at 95%. In conclusion, there seems to be some potential for the institutions in the sample to use MPD to predict underpricing.

VARIABLES	Instit. Ownership	Instit. Ownership	Instit. Ownership
MPD	20.22*	12.82	
	(0.054)	(0.227)	
MPD Interact.			60.16
			(0.246)
LOGSHARES		-0.594	-0.426
		(0.688)	(0.761)
IMRP %		-6.394***	-6.500**
		(0.000)	(0.012)
Constant	14.11***	64.15**	60.27*
	(0.000)	(0.019)	(0.054)
Observations	110	110	110
R-squared	0.018	0.073	0.078

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 3

For the third model, the alternative measurement MPDx was used. The natural logarithm of the number of shares was also included, similar to Aggarwal et al. (2002).

4.2.2 Institutional Presence Mitigating Underpricing

Underpricing shows no significant correlation to institutional presence, regardless of underpricing measurement. Some potential for correlation is found in 'Rel. Underpricing Interact.' which implies a doubling of institutional presence adds another 5% to underpricing (Table 4).

VARIABLES	Rel. Underpricing	Abs. Underpricing	Rel. UP Interact.
Instit. Ownership	-0.0184	0.00230	0.0517
	(0.720)	(0.723)	(0.145)
Constant	1.887	0.270*	3.520***
	(0.136)	(0.090)	(0.000)
Observations	110	110	110
R-squared	0.001	0.001	0.020

p-values in parentheses
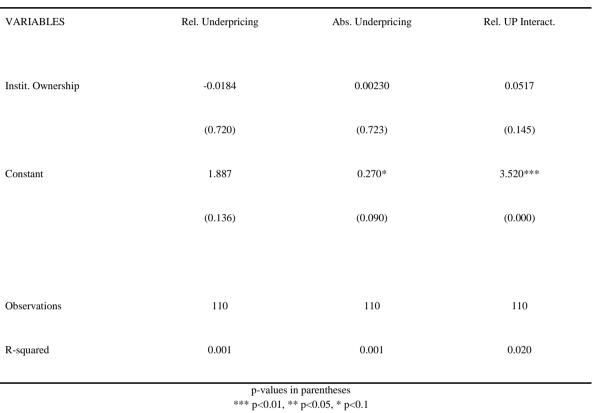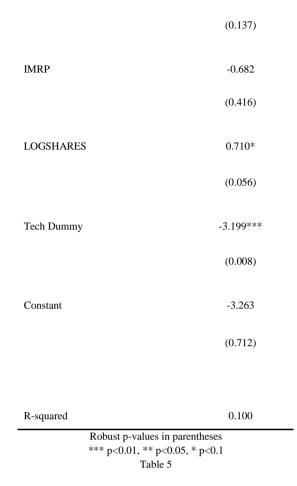*** p<0.01, ** p<0.05, * p<0.1
Table 4

A larger regression model renders an R^2 of 10.0% which is stronger than the 7% hoped for but the only significant relationship is a slightly positive one with the binary technology variable.

VARIABLES	Rel. Underpricing Interact.
Instit. Ownership.	0.0389
	(0.569)
MPD Interact.	36.80

	(0.137)
IMRP	-0.682
	(0.416)
LOGSHARES	0.710*
	(0.056)
Tech Dummy	-3.199***
	(0.008)
Constant	-3.263
	(0.712)
R-squared	0.100

<div align="center">
Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 5
</div>

4.2.3 Institutional Presence Mitigating Flipping

The traditional flipping proxy used by Che-Yahya and many others, as mentioned before, is called 'Trad. Flip' in the data and its reported mean of 18.54% is comparable to the 45.4% found in Krigman et al. (1999), 22% in Bailey et al. (2006), and 24.3% in Gounopoulos (2006). The new proxy - first-day volume over 2nd- and 3rd-day average volume - is simply called 'Flipping Level' and has a mean value and standard deviation of 14.89 and 3.36, respectively. This means that on average, the sample IPOs' first day volume exceeded the following days' average by a factor of almost 15. A combination of the two measurements was also analysed: Rel. Flip Level, defined as 'Flipping Level' divided by number of shares offered.

None of the three dependent variables seemed to be influenced by institutional presence, with several p-values exceeding 50%. Going through the different measurements again with control variables, we find a statistically significant correlation between absolute underpricing and our first flipping proxy when controlling for market risk premium, 'interactive' MPD, offer size and IPO date. This correlation is, however, negative, implying more flipping at less underpricing. Regressing a binary version of the relative underpricing variable, we get a strong positive correlation, albeit exceeding the significance limit.

VARIABLES	Flipping Level	Trad. Flip Proxy
Inst. Ownership	0.00671	-0.00142
	(0.941)	(0.148)
IMRP	-2.704	-0.0824***
	(0.491)	(0.002)
MPD Interact.	-103.6	0.860
	(0.126)	(0.316)
LOGSHARES		0.0236
		(0.259)
IPO Stata-Date		2.35e-05
		(0.441)
Rel. UP Interact.		0.00588
		(0.333)
Offer Size	-0.000521	
	(0.917)	
Abs. Underpricing	-0.414	

	(0.570)	
Constant	34.74	-0.146
	(0.230)	(0.867)
Observations	109	110
R-squared	0.016	0.133

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 6

In the end, the most significant univariate relationships with flipping found were between the new, non-combined proxy and interactive relative underpricing, as well as between the traditional proxy and the same independent.

VARIABLES	Rel. Flip Level	Trad. Flip Proxy
Rel. UP Interact.	-1.18e-07**	0.00854**
	(0.011)	(0.024)
Constant	4.67e-06***	0.148***
	(0.000)	(0.000)
Observations	109	110
R-squared	0.006	0.046

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Table 7

4.3 Interview

To widen our research we performed an interview of an investment banking analyst, currently employed by one of the most reputable investment banking firms in the Nordics, with daily tasks and responsibilities including both M&A origination and execution as well as ECM origination and execution. Our interest were particularly with the ECM part as it primarily concerns the equity based transactions of companies that is either already publicly listed (e.g. rights issues) or is interested in launching on the stock market (IPOs), which in line with the subject of our report.

4.3.1 The IPO Process in Steps

1. Either a private equity company, one single or multiple entrepreneurs contact a desired number of banks (underwriters), invites them to a 'bake-off'. The 'bake-off' is most commonly scheduled in 5-12 days post-invitation. This is where the banks "originate" the deal, meaning they will try to convince the company why they are better off handling their initial public offering.
2. Some of banks get mandated to make the transaction.
3. Marketing material is created (e.g. prospectus, teasers, investor presentations etc.).
4. Initiation of due diligence (finance, tax, law).
5. Cornerstone investors is contacted.
6. Other investors are contacted (mostly institutional and some premium retail investors).
7. The public may subscribe for shares.
8. The stock is launched and available for trading at a free stock market.

4.3.2 IPO valuation methods: Book-building, DCF or LBO

To obtain a quick overview on a company's potential market value, most banks use different varieties and combinations of EV-multiples from peers and apply them to the company. To set a definite market price for the IPO, the ECM department of the underwriter (or underwriters) start to build the books. A common method that is briefly explained in the theory section of this report. According to our respondent, a DCF-method is not usually preferred in the IPO valuation process. However, the DCF-valuation is industry standard

when it comes to M&A-transactions, strategic acquisitions. When it comes to financial buyers, like investment companies, the LBO (Leveraged buyout) -valuation is used. These valuation methods are according to the analyst "extremely standardized" within the industry, meaning that most underwriters probably would come up with the same offer price for an IPO. What makes a company choose one firm over another is summarized by the analyst as follows:

1. Placing Power - How well the underwriter is connected with its larger accounts who invest in a IPO.
2. Balance Sheet - How much funds an underwriter can lend to the company in connection with the IPO. (Most companies often need to refinance loans, especially if the company has been previously owned by a 'Private Equity'-company.
3. Earlier transactions within the sector.

4.3.3 Underpricing & Conflict of Interest

The phenomenon of an IPO stock finding itself underpriced on first day trading is described as a common occurrence. The investment banking analyst continues and argues for the necessity of underpricing as being a way of rewarding initial investors with a 'discount' for taking on the risks of buying shares in a company that has not been in a listed open market environment before, unlike some of its peers.

Regarding the risk of a conflict of interest between an underwriter and a company that is performing an IPO, the analyst explains that even though there might have been investment banks in the past that have used their position for unfair gains (e.g. selling own/other clients allocation in the IPO on first day), he would describe the 'move' as a "great way of burning your relationship with the client" and potentially ruining its reputation as an investment bank. He further claims it being "extremely rare" for any of the selected underwriters to themselves guarantee any share allocation in the very same IPO that they are responsible in administering.

4.3.4 Ownership structure

When asked the question of what type of institutional ownership could affect the potential performance of a specific main-list stock the most, the investment banking analyst answered

that the market, as well as the underwriters, most often would like to fulfil two ownership conditions:

1. They want a corner investor, i.e. an institutional investor who takes a larger stake of the offered shares.
2. They want an investor of "flesh and blood" (e.g. Mellbygård or Latour, rather than Swedbank Robur.)

Their fulfilment would according to the analyst be considered as a positive signal to the market, potentially affecting the IPO's first day- and/ or future performance.

4.3.5 Oversubscription

When asked the question if oversubscription was a good measurement for the demand of an IPO, the analyst answered yes. The analyst did however continue to further explain that the demand itself was attributable solely to the given price per share that was set in the offer. Meaning that the measurement therefore *is not* sufficient in accurately determining the demand for shares in a company that is listed in an environment where price fluctuates.

5. Analysis

- ○ *Institutional Presence*
- ○ *Underpricing*
- ○ *Flipping Activity*

5.1 Institutional Presence

Our measurement of institutional ownership does not lend itself to the same conclusions that share allocation percentage does; even with a statistically significant correlation between MPD and institutional presence we cannot make strong conclusions about favouring. Instead, such a correlation could indicate a) that any institutions already present before the offering induce higher overall demand, b) that institutions prefer 'hot' IPOs, perhaps expecting initial returns, or c) that institutions are favoured in allocation (or a combination of them).

The response from the performed interview strengthens our belief in a potential favouring of institutional investors in the distribution process of the shares offered in popular IPOs. According to the analyst, one of three central elements by which underwriters distinguish themselves from one another is the 'Placing Power', i.e. the ability to raise capital from institutions and other larger investors who continuously invest in IPOs. He further explains that both the underwriters themselves, and the issuers often want the so called 'cornerstone investors' to take part in the IPO. One might also speculate that the 'hot' IPOs often get managed by reputable underwriters, and that the more affluent and reputable institutional investors receive more 'bake-off'-invitations as a result.

The strong positive correlation coefficient of 20.22 and the p-value just above the 5% significance limit does warrant some interest but is not enough to reject the null hypothesis, that MPD does not predict institutional ownership. An R^2 of 1.8% is of course not comparable to Pihl & Stojanovski's (2015) 33% and even higher figures from Ritter & Welch (2002) which implies that there is a large difference between institutional allocation percentage and total pre-trading institutional percentage.

5.2 Underpricing

As previously mentioned in the theory section, investors can be divided into two primary groups; retail and institutional investors, where the retail investors generally are the assumed 'amateurs' and the institutional investors, as Katti & Phani calls them, the assumed "professionals". This information asymmetry perspective or general conviction of institutions having a greater accessibility and processing skills of information leads us to the assumption that they consequently should make better investments, and with the signalling theory in mind, one could assume that a higher level of institutional presence should act as a signal of quality. Something which the market should intercept and therefore lead the launching company towards a higher level of first day return, and hence a higher level of underpricing.

Previous theory suggests that underpricing might also be explained by agency theory, where the institutional investors, as our interviewee mentions, are commonly yearned for by most underwriters in the allocation process of an IPO. A higher demand for institutional ownership rather than retail could presumably lead to institutions having better negotiating power in a potential offer price bargaining, as well as getting a larger allocation, unlike most retail investors. This altogether should in some cases skew the distribution of the free float share allocation of 'good' IPOs towards higher levels of institutional ownership, which as previously declared should result in higher levels of underpricing.

Regarding the previous theory on principal-agent mistrust, the interviewee disproves the assumption that an underwriter would act in any other direction than what is best for its client. Some level of underpricing is a necessity for the institutions and investors, for them taking on the risk of investing in a non-public company that has not ever before been valued in a listed environment. The fact that the both the valuation and general process for any company listing is described as 'extremely standardized' and the analyst furthermore describes any shady management as "a great way of burning your relationship with the client" makes it even less likely for any underwriter to break its principal-to-agent trust.

In our sample of 110 western European companies during the period of 2010-2018, we saw an average level of underpricing of 1.65%, which is quite a lot lower than what previous studies on U.S. companies had measured. IT-IPOs seemed to be less underpriced than IPOs in other sectors. Despite the success in observing a level of underpricing in our tests, we

could not however from our results extract any evidence that would show of any correlation between institutional ownership and underpricing. The p-value of 'Instit. Ownership' rose to a level of 72% in the first test, and 49% in the second, meaning our predetermined max limit of 5% was exceeded in both tests. One reason for the lack of correlation could be that, in our sample, MPD did not predict underpricing to quite the same degree as in other studies. This, combined with a positive relationship between MPD and institutional presence, could imply that institutions can identify underpricing regardless of pre-market demand. But because of the insignificant relationship between the two, such conclusions are best left to future research.

5.3 Flipping activity

When applying the signalling theory to the subject of first day flipping behaviour, it's possible to assume that a higher level of institutional ownership could both increase and decrease flipping behaviour for the exact same reasons. A higher level of institutional presence should provide a signal of stability and therefore mitigate the flipping activity of a share, as people tend to stay invested in stable stocks and have less incentive to flip themselves. However, this might at the same time attract other investors towards the stock, which could potentially increase share prices and consequently tempt IPO subscribers into flipping their allocation for a quick profit. It all breaks down to the characteristics and agenda of the already existing shareholders as the more speculative and short-term oriented investors might be wanting to "risk-off" their portfolio fast if given the chance (more flipping activity), meanwhile a more long-term oriented investor would probably tend to hold his or her allocation during a longer period of time (less flipping activity).

Despite these possible hypothetical connections between institutional presence and flipping activity, our regressions show that none of the different flipping measures used could be explained by institutional presence. Flipping-related theory will therefore be commented upon less. When instead using a larger model, the only independent variable that seemed to have a significant (negative) correlation was the market risk premium. This is interesting as it could indicate that

6. Conclusion and Discussion

6.1 Conclusion

Research Question I: Has IPO pre-market demand predicted first day returns in Western Europe between 2010 and 2018? If so, have these 'hot' IPOs on average had larger institutional ownership percentages?

MPD, i.e. the independent variable for pre-market IPO demand manages to somewhat predict the level of underpricing depending on what regression is deemed most relevant, but with a lesser amount of clarity than in similar studies. MPD does not in turn predict institutional presence which is surprising despite institutional presence not being the same as allocation. This defies Che-Yahyas (2014) findings and sheds new light on the established empirical evidence of allocation favouring as original institutional owners seem to dilute this effect.

Research Question II: Do institutional investors mitigate the issuer's problems of underpricing and flipping?

During the period of 2010 and 2018, the average level of underpricing in the observed 110 Western European IPOs amounted to 1.65%, which is less than what has previously been measured in studies of U.S. companies. Since the linear regressions for testing the hypotheses of a potential mitigating effect by institutional investor presence on underpricing and flipping activity did not show a high enough significance, we cannot make the further conclusion that previous theory is consistent with this observation. The assumptions made through the theoretical scope of signalling-, agency- and certification theory cannot therefore either be confirmed. IT-IPOs are underpriced slightly less than others, in our sample.

Research Question III: Is there a potential for public data proxies in the field of IPO underpricing, flipping activity and institutional ownership?

The traditional proxy has limitations in that it takes neither the firm's 'regular', or average, volume nor the level of re-traded shares, into account. Our 'Flipping Level' proxy proposes a solution to the first problem and we can combine the two measures in our 'Relative Flipping Level' proxy. The fact that 'Flipping Level' and the traditional proxy both had significant correlations with the same underpricing variable could be a positive sign but as of yet, not much can be said about the new proxies' usefulness.

6.2 Potential Weaknesses of the Thesis

- The lack of allocation data, original ownership data, and a subsequent reliance on an approximation of initial institutional ownership plus allocation caused some problems. It became difficult to extract what was causing what and although total percentage has its own explanatory potential, it is best coupled with either allocation data or pre-IPO ownership data.
- The institutional ownership variable has flaws; for some IPOs, it is unclear to what point in time the first filing actually refers and defining institutional owners can be difficult.
- Despite using three different proxies, we didn't have an accurate measurement of flipping activity as none of them take into account the same shares being traded multiple times etc.
- Part of analysis and conclusions is made based on the contribution of solely one interview; views and thoughts might vary amongst different employees or firms.

6.3 Proposals for Future Research

- Group investor types differently (e.g. corner investors, pension funds, private equity funds etc.) and examine the potential effects of these different kinds of institutional ownership groups on post-IPO performance.
- Utilize studies with access to e.g. transaction data and investigate what proxies for detailed ownership variables and flipping activity that are actually accurate. Compare proxy data from *the same IPOs* to the actual transaction data findings to find the most predictive ones. Then start using those proxies where such data is not available.

- Apply the alternative approximation for institutional allocation called institutional participation, previously used by Che-Yahya, to study the research question two and three presented in this thesis.

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Appendix

App. I
Interview Guide

Initiate interview by presenting our intentions with the interview (1), declaring his or her rights as an interviewee (2), as well as mutually establishing an agreement on how the information provided by the interview is to be used and managed (3).

Background questions:
- Previous working experience within the banking sector
- Current working position
- Current work tasks

Subject specific questions:
- How does the work process of a typical IPO look like? - From start till finish
- What valuation methods are most commonly used to determine the price of an IPO? Book building, DCF, or other?
  - Do you consider the valuation methods used today as sufficient for its task?
  - Are there any ongoing evaluations or adjustments done to these methods within the firm?
  - Are there any other parameters that the methods does not cover today, that you believe could be of importance in determining the pre-IPO valuation of a company?
- Does the general work process and/ or valuation procedure differ between different Investment Banking firms or different IPOs?
  - What do you consider to be the main reasons that distinguish a 'good' investment bank from a 'bad'?
- Underpricing - the phenomenon of either consciously or unconsciously offering a low IPO offer price, resulting in a swift upward correction in the first day's closing price.
  - Is this something that you consider to be often recurring?
  - Is a conscious underpricing something that is commonly being requested by either investors, clients/issuers or the contracted investment bank(s)? If yes, why?
- Our focus for the report is with institutional presence in a IPO, and the potential effects it might have on its first day performance.
  - Do you believe the market goes on to value an IPO higher if it has a greater level of institutional presence?
  - Does it depend on the institution? What types are more coveted?
  - Do you believe that pre-IPO institutional presence should be accrued in the offering price, in advance of the listing?
- Theory sometime speculate that underwriters historically in some cases have been acting in their own interest instead of their client's, and consciously have used underpricing in IPOs to realize 'own' allocation for a quick profit, or as an alternate payment. Have you any heard rumours that this has occurred in recent years?
- For our thesis, we are measuring the demand of specific IPOs, do you believe oversubscription to be a sufficient measurement? Why / Why not?

App. II

Summary Statistics

	Min	p1	Med.	Mean	p99	Max	SD/N
Eur Offer/Issue Px	2.964993	2.975021	10.0442	11.77873	45	54	7.829118 110
Offer to 1st Open %	-14.86486	-11.76	1.765	4.630904	38.93	40.63	9.156555 110
Eur 1st Open Px	3.043938	3.1592	10.29493	12.30253	45	53.75	8.14741 110
MPD	-.6064171	-.5836735	-.025641	-.0514364	.1480447	.1489362	.137764 110
MPD Dummy	0	0	0	.3454545	1	1	.4776925 110
Eur 1st Close Px	1.329135	2.884086	9.98	12.07905	45.26269	58.95	8.370125 110
1st Volume	1250	2361	192487.5	2867246	4.75e+07	5.12e+07	7279401 110
2nd 3rd Avg	0	141.5	43967.5	262975.4	2260979	3345409	504326.4 110
Flipping Level	.1030979	.5268166	6.124355	16.68343	246.018	442.4052	49.22797 109
Mil. Shares Offered	.34626	.44	4.16	13.86211	100.99	126.26	22.33908 110
Offer Size (Mil. Euro)	2.814997	4.13071	47.07343	388.3104	3399.107	4709.447	728.9512 110

App. III
Shapiro-Wilk W test for normality

Variable	Obs	W	V	z	Prob>z
IMRP	110	0.95628	3.910	3.040	0.00118
OfferPxEuro	110	0.78409	19.308	6.602	0.00000
OfferToFirstOpenPx	110	0.77570	20.058	6.687	0.00000
First Open Px	110	0.79971	17.911	6.434	0.00000
MPD	110	0.83202	15.022	6.042	0.00000
First Close Px	110	0.77836	19.820	6.660	0.00000
1st Day Vol.	110	0.41581	52.241	8.821	0.00000

2nd/3rd Day Avg. Vol.	110	0.56717	38.706	8.153	0.00000
Inst. Ownership	110	0.72643	24.464	7.129	0.00000
Shares Offered (Mil.)	110	0.62564	33.477	7.829	0.00000
Abs. Underpricing	110	0.74626	22.691	6.962	0.00000
Rel. Underpricing	110	0.86722	11.874	5.518	0.00000
Traditional Flipping	110	0.60881	34.982	7.927	0.00000
Flipping Level	109	0.27739	64.125	9.274	0.00000
Relative Flipping	109	0.31497	60.790	9.155	0.00000

App. IV

MPD Predicting Underpricing

VARIABLES	Abs. Underpricing	Abs. Underpricing
MPD Dummy	0.674**	
	(0.015)	
MPD Interact.		8.017**
		(0.022)
Constant	0.0675	0.125
	(0.675)	(0.407)
Observations	110	110
R-squared	0.053	0.048

p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1