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Shareholders and Cherry-Picking IPOs

Studies on Shareholders, Initial Public
Offerings and Firm Ownership Structure

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Abstract

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This dissertation explores investor characteristics and shareholdings of publicly traded Swedish firms. The dissertation consists of an introductory chapter, three published papers, and one working paper. All four papers use Swedish data. Two of the studies examine initial public offerings (IPOs) and the ownership structure; one explores first-time shareholders, and one examines IPOs and first-time shareholders.

Paper I studies IPOs with the focus on initial return, the allocation of the shares and inside holdings. The paper presents evidence on allocation of shares to institutional and individual investors. The paper highlights the information asymmetry between institutional and individual investors and shows a wealth transfer from old to new shareholders. The results also show that money left on the table is received primarily by institutions rather than individual investors.

Paper II explores the characteristics of first-time shareholders (rookies). I portray the rookies of the stock market and present a model to explain portfolio characteristics. The results show that despite the trend of individuals leaving the stock market, there are new individuals investing in stocks. I also show that gender balance among individual shareholders is rather even, which contradicts approximations of previous studies in other countries. The paper also raises the concern of diversifying stock portfolios, as the average portfolio holds less than four shares for all individuals and less than two for rookies.

Paper III studies the relationship between IPOs and rookies. The paper highlights whether rookies invest in IPOs. The results show that besides bringing new firms to the stock market, IPOs contribute to that market, as they attract rookies to invest in the IPOs. The results also show that the return for rookies investing in IPOs is lower compared with rookies investing in non-IPOs.

Paper IV studies the relationship between offer price and post-IPO ownership structure. The paper uses price groups and two definitions of breadth of ownership in the analyses. The results show that firms can affect their post-IPO ownership structure through the offer price.

Keywords: business studies, corporate finance, behavioral finance, ownership structure, shareholders, IPO, first time, rookie

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To Josefina, Anna, and Flora

Acknowledgments

The thesis project started with my curiosity about and keen interest in the economy around me. Neither curiosity nor pure interest would probably suit any of my methods chapters in the scientific papers compiled in the thesis. However, spending years on studies presented in the thesis, I find it has been helpful that I was driven not only by a deadline but also by curiosity. After reading about theories, theorems, ideas and models as a student, the urge to find out more of what the world looked like was making itself felt. Even as an undergraduate I realized that it can be a quite overwhelming task to explain the economic questions of the entire world, and not even the most naïve Ph.D. student would try to explain the world in one thesis. Consequently, I chose to study something a bit closer to home, the shareholders of Swedish firms. Naturally there are only a few questions that I can touch upon, grasp and study in this thesis. All that considered, my study of ownership in Swedish firms helped me to understand a bit more than I did a couple of years ago, even about the broader economy. To quote Oscar Wilde, “I am not young enough to think I know everything.”

I am forever indebted to all the colleagues, friends and acquaintances that over the years have listened to me go on about Swedish shareholders and my challenges in composing this thesis. They have given me support, comments and advice on how to move on. There are so many of you deserving a special token of my appreciation, and I hope that you feel included in this comment. I still dare to name a few: Michael Grant, for our almost endless discussions on the topics of our dissertations and the journey to complete it, it has meant the world to me to share the experience with you. Anna-Carin, Mathias, Ola, Jenny, Birgit, Matilda, Lovisa, Bengt, Fredrik, Eva, Mikael, Håkan, Madeleine, Arne, Thomas, Jaan, Josefina, Daniel, Olle and all other colleagues on Campus Gotland and in Uppsala, thanks for all your support and encouragement. I also express my gratitude to my most recent colleagues at Kristianstad University for making me feel welcome.

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me join him as his co-author (not included in thesis), and also for granting me access to use the Visby Research in Stock Ownership (VIRSO) database. Furthermore, he introduced me to many inspiring colleagues around the globe through the conferences we went to together.

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June 2020, Visby
Martin Abrahamson

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.

- I Abrahamson, M., De Ridder, A. (2015) Allocation of Shares to Foreign and Domestic Investors: Evidence from Swedish IPOs. *Research in International Business and Finance*, 34:52–65.
- II Abrahamson, M. (2016) Rookies to the Stock Market: A Portrait of New Shareholders. *Research in International Business and Finance*, 38:565–576.
- III Abrahamson, M. (2018) Birds of a Feather Flock Together: A Study of New Shareholders and Swedish IPOs. *Journal of Behavioral and Experimental Finance*, 18:1–17.
- IV Abrahamson, M. (2020) Offer Price and Ownership Structure: A Study of Shareholders in Swedish IPOs 2006–2016. *Working paper*. Previous version presented at 12th Annual London Business Research Conference 2018 and the 58th Southwestern Finance Associations Annual Meeting in Houston 2019.

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Introduction

This thesis aims to increase our knowledge about individual shareholders, and their stock market holdings. Knowledge about individual shareholders is rather limited in finance literature, and although firms have used shareholders as sources of equity for hundreds of years, questions remain to be answered. First, there are only a few previous studies aimed at portraying shareholders, and these studies are mainly based on small samples. Consequently, the individual characteristics of the shareholder is unclear. Second, there are, to the best of my knowledge, no previous studies of new shareholders (henceforth *rookies*). Finally, although portfolio theory has been used and developed for decades, shareholders' portfolios have rarely been studied empirically. Previous studies of individual shareholders that do exist are generally small in scale, with few respondents or accounts from single brokerage houses. In this thesis, I contribute to our knowledge about shareholders and address these issues, in four empirical studies in which I study individual shareholder characteristics and the portfolio holdings of individual shareholders in Sweden.

Investing in the shares of a firm is in several respects different from investing in other financial products. Although the individual can compare and consider investments in a firm with any other investment alternative, holding a share affects the investor in one manner that stands out compared to other investment alternatives. Investing in a share instantly makes the investor a shareholder, which entitles the investor to privileges and responsibilities, as for example, cash flow from firm earnings and the right to vote at general meetings. These entitlements are unique and reserved for shareholders; this is why stock holdings are often studied separately.

In Sweden, it is common to invest in the stock market, with a relatively large proportion of the total population holding shares, compared with other countries. In addition to holding shares directly, the individual can invest in the stock market through institutions, for example, through a pension fund or mutual fund. Investing through a fund will enable the investor to benefit from cash flows from firms in the fund, based on the development of the fund and its holdings, however, without any direct connection between the firm and the individual investor. Thereby, one could argue that investors who own directly held shares, that is who are shareholders, have a stronger connection to the underlying asset and have the opportunity to rebalance their portfolios at any given point in time. This stands in contrast to the investor in a fund, where the

fund is responsible for rebalancing the assets of the fund; in this case the investor can change the fund but not the assets within the fund. The focus in this thesis is on directly held shares (i.e. the investor is a shareholder). Shareholders are regarded as being responsible for the content of their investments at any given point in time, and they are assumed to have the opportunity to manage their stock portfolio. In this thesis, I show that approximately one fifth of the population in Sweden holds one or more shares. Consequently, 20 percent out of the Swedish population are shareholders by choice. Thus, holding shares is more common in Sweden than in most other Western economies, for example, the UK and the US. According to Grout et al. (2009), only 5 countries in their sample (of 54 developed countries) had higher percentages of shareholders than Sweden. However, in this thesis, I show that the number of Swedes who own shares is gradually declining.

In Sweden, in contrast to the US, data on shareholders at the individual level are available to researchers. This availability, combined with the large proportion of shareholders in the population, makes Sweden and Swedish shareholders significant sources of new knowledge about individual investors in the stock market. The unique availability of data about shareholders in Sweden enables new questions to be asked and new areas to be studied. Therefore, in this thesis, I contribute to existing knowledge by asking new research questions, but there is also the possibility of shedding light on previously unanswered questions about shareholders. These new questions make these studies explorative in nature because of the limited previous knowledge about individual investors. The studies range from descriptive questions about who invests in the stock market, toward more detailed data on shareholders' characteristics. Moreover, I use aggregated data on stock ownership and ownership structure to explain the allocation of shares, as well as stock portfolio holdings of individuals.

In this thesis I introduce a new investor group, rookies. I define a rookie investor as a first-time stock investor, in other words rookies are individual investors entering the stock market. To understand them, I explore and analyze their first stock portfolios. To find the rookies from 2004, I exclude all shareholders ever registered between 1999, when ownership data first became available, and 2003. To find rookies from 2005, I exclude all shareholders ever registered between 1999 and 2004, and so forth. To my knowledge there is at least one subsequent study using a definition similar to mine of first-time stock investors. The concept of breadth of ownership is introduced and used as a measurement of ownership concentration. Breadth of ownership consists of holdings with long positions in the stock divided by all holdings with long positions in any stock on the same stock exchange. Hence, instead of the definition used previously using the breadth of ownership defined by the number of shareholders holding a stock, paper I and IV use this relative measure, which is easier to compare across markets regardless of size of market.

The definition of new publicly traded firms, or firms making their initial public offerings (IPOs) has been studied for decades. Nevertheless, since three of my papers are about different aspects of IPOs, I briefly present a generic description of the IPO process. In general terms, when the firm decides to go public; they contact the exchange/list where they want to have their shares listed. Together with advisors, the firm confirms that they fulfill the listing requirements of that particular exchange/list; for a thorough survey of the differences among markets I recommend Ritter, 2003). The advisors perform due diligence (the extent of the due diligence also varies across lists, depending on regulations), and together with the firms they formulate an offer to new shareholders through a prospectus or memorandum, that is, documents including the offer and a description of the firm. The offer contains the valuation of the firm and the price or price range (price interval) of the shares offered. If there is an interval, the price is set after an auction or book-building process, but before the first trading day on the exchange. The advisors and the board of the firm decide on how to allocate the shares; if the interest is greater than the offer, not all investors answering the offer can receive their desired number of shares. The guidelines for this allocation might be in the documents including the offer. Thereby, the investors are aware thereof and would expect the firm to allocate their shares accordingly.

In this thesis I study the allocation of the shares, specifically, which type of owners receive the shares and whether rookies are attracted to invest in IPOs. In my working paper, I focus on the offer price and the effects it might have on the ownership structure. Theoretically the valuation of the firm should be what is interesting, but as I noticed, most firms split their shares in the IPO process (more than 80% in one of my samples). The idea is that they try to achieve something with their split, or in a few cases reverse stock split. Whereas an assumption commonly used for publicly traded firms is that the value of the firm equals the price, through the split before the offer, the firm deliberately appears to change their offer price without changing the valuation. From previous research, we know that the nominal price level can affect the ownership structure. Hence, I believe that since the IPO firm can choose their offered price, they might also be able to affect their ownership structure through their choice of offer price. Ownership structure preferences could certainly differ from firm to firm. A term used in, for example, prospectuses is that firms pursue corporate actions, such as, stock splits in order to reach the optimal price range. Statements like these makes you wonder what that is, since there is a substantial spread in stock market prices. Therefore, I study the relationship between ownership structure and offer price.

When studying shareholders, it is common to study households instead of individuals. Stock-holding data on the individual level is simply not as accessible in, for example, the US as it is in Sweden. The US conducts national surveys on the household level. However, household accounts do not reveal decision-makers, nor do they show who the owner of a certain asset connected

to an account is. When studying individuals instead of households, researchers have access to data that are more detailed. Even though the shareholder might be affected in his or her investment decisions by another individual, for example, another individual within the household, the account and the actions connected to that account are linked to the legal owner of the share.

The study of household finance is challenging because household behavior is difficult to measure, and households face constraints not captured by textbook models. Campbell 2006, p. 1553.

The main objective of this thesis is to increase our knowledge about individual shareholders. Therefore, I study shareholders with regard to their individual characteristics and their stock portfolio holdings. In the above quotation, Campbell (2006) expresses the limited theory of the behavior of households in finance textbooks. Consequently, this is also the case at the more detailed individual-investor level, which is studied in this thesis. This thesis extends and augments our knowledge about shareholders and the behavior of shareholders.

The remaining parts of the introduction proceed as follows. I present the theories that I regard as being most essential to my understanding of the topic and the studies in the thesis. Thereafter I provide a summary of research questions, aims, methods, data, and results from the four empirical studies. Finally, I present a discussion and conclusions of the thesis.

Theoretical Framework and Previous Studies

Studying the owners of firms, and more specifically shareholders, requires a theoretical framework that can contain quite a diverse collection of theories. However, in a thesis, decisions must be made about where to position the thesis, as well as the manner in which the researcher chooses to study the empirical field.

The scientific field of finance has several central paradigms, whereas my thesis is related to only a few, in which the focus on firm ownership is conspicuous. I turn mainly to the theory of portfolio selection and agency theory. However, neither of these existing theories can fully explain why individual investors behave as they do on the stock market. Therefore, in the following sections of the introduction, prospect theory and also the growing field of behavioral finance are addressed. I also present further theories and concepts connected to IPO research together with results of related previous studies on IPOs. The same applies to investment behavior, further below.

The framework used in this thesis mainly originates from within the classic corporate finance literature. However, I accentuate a few alternatives and critical texts among each of the chosen corporate finance theories. Coleman (2014) expresses a skeptical view of applying finance theory to empirical evidence. This thesis should not be seen as expressing a critique of the theories within my field of research. Rather, I do recognize the need for empirical studies and the further development of corporate finance theory—specifically, the need for empirical studies with detailed shareholder data, to contribute a view of the complex shareholder environment to complement theories based on pre-defined rational behavior and assumptions on shareholder participation. Therefore, I also believe that the studies presented in this thesis can contribute to and advance our knowledge about shareholders, their stock market holdings and their investment behaviors on the stock market.

In the studies in this thesis, I link commonly used corporate finance theories to actual investment decisions (i.e., the behaviors of individual shareholders). Through the empirical studies presented in the papers, I explore the manners in which individuals actually behave, rather than rational ways of behaving according to some of the existing theoretical models. In this thesis, the focus is on shareholders; thus, the theoretical framework contains theories with a focus on shareholders.

Although some of the theories and studies discussed in this chapter are not explicitly used in the individual papers in the thesis, they have been important for my understanding of the field and for the development of ideas and research questions considered in the papers. Furthermore, in the individual papers the reader will find a more extensive description of the previous studies connected to the specific paper.

With an interest in the stock portfolios of individual investors, I start with portfolio theory to try to understand how investors form their stock holdings.

The theory gives me a starting point for the concept of portfolio selection and transformation but it is also valuable that the theory is recognized outside academia, which should be reflected in the empirical studies I conduct.

Early in the research process I realized that holding shares is not necessarily only about investing in a firm but also in the firm's management and its board of directors. Agency theory addresses this issue. It is somewhat of a joint and contrarian dependence, since the firm needs the investors and investors need investment opportunities. Agency theory pinpoints this special relationship of investors being dependent of and paying the agents to work in their place, or act in their best interest. Being interested in ownership structure, I lean on agency theory for insights on the firm-owner relationship. Furthermore, Ritter and Welch (2002) state that future progress within the academic field (of IPO literature) will come from non-rational and agency conflict explanations.

Portfolio Theory

Markowitz (1952a-b, 1956) is probably the first researcher that comes to mind when we think about portfolio theory. With articles on portfolio choices, he set the scene for the way we think about investments—not as several individual investment projects but as part of an investment portfolio. Even though Roy (1952) presented ideas about diversification at the same time as Markowitz, the latter has garnered most of the attention. Markowitz showed that investors, through diversification, can minimize their portfolio risk close to systematic risk and maximize returns. This is the notion of differences between efficient portfolios and non-efficient portfolios, where the efficient portfolio minimizes risk with the desired expected return or maximizes return with desired level of risk.

Comparing the normative model, in which every investor ought to choose a portfolio that is efficient, to empirical data, I find the same results as several previous studies; that investors are more irrational than the efficient model would stipulate. Not all investors appear to seek mean-variance efficiency. However, Markowitz's research on portfolio selection, as well as that of other researchers who followed him, and its importance for academic financial research has been truly substantial and laid the groundwork for the manner in which investors think about their investments. Rubinstein (2002) goes even further in his praise of the work of Markowitz, making a comparison with the Roman emperor Augustus:

Near the end of his reign in 14 AD, the Roman emperor Augustus could boast that he had found Rome a city of brick and left it a city of marble. Markowitz can boast that he found the field of finance awash in the imprecision of English and left it with the scientific precision and insight made possible only by mathematics. Rubinstein, 2002, p.1044.

Markowitz noted that he was far from the first person to address risk diversification; nevertheless, he is considered to have built the foundations of portfolio theory.

Elton and Gruber (1997) address modern portfolio theory as mostly a concern for academics and portfolio managers of institutional investors. However, they identify the key issues for institutions when they serve individual investors. According to Rubinstein (2002), institutional investors have used portfolio theory for decades, but currently even individual investors use it for their portfolio choices. Papers II and III study the portfolios of individual investors, and I present empirical evidence of the composition of the investor portfolios of new shareholders in Sweden.

Through empirical studies of individual investors' portfolios, I extend our knowledge about portfolio theory and contribute to it with a portrait of rookies. Furthermore, I extend the previous literature with empirical evidence from a truly large sample of shareholders, consisting of all of the shareholders in a country, rather than being based on shareholders of a chosen a brokerage firm.

Agency Theory and the Firm–Shareholder Relationship

In 1973, Steven Ross was the first within the economic disciplines to introduce the theory of agency, although similar ideas had been expressed much earlier, and related disciplines also used the concept of agency theory and undertook alternative development of the theory, for example, Mitnick (1975). Ross (1973) advocates that examples of agency are universal.

...an agency relationship has risen between two (or more) parties when one, designated as the agent, acts for, on behalf of, or as representative for the other, designated the principal, in a particular domain of decision problems. Ross, 1973, p.143.

He also shows the connection to the firm and the agency relationship between shareholders and managers.

When Jensen and Meckling published *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure* in 1976, it was not the first paper with a comparable title. Nor were these authors first to use agency to describe the relationship between the firm and its owners. However, the influence of their paper on researchers still remains substantial today, especially in the way we think of and describe the relationship between the owners and management of a firm. Jensen and Meckling (1976) combined previous theories of agency, property rights and finance to develop a theory of ownership of firms. Agency theory, further developed after Jensen and Meckling (1976), still influences today's researchers and the manner in which we consider principals and agents. Although critical voices that have been raised, (e.g., Eisenhardt, 1989 and Shapiro, 2005) agency theory is used and remains useful for

our understanding of the relationship between firm managers and shareholders. Where we generally might see the firm, or rather firm management, as the agent and shareholders as principals. However, Baron (1982) showed that principal-agent contracts can also be useful in our understanding of the information advantage and contracts between the investment banker (agent) and IPO firm (principal).

In related academic fields the focus and attention have turned from shareholders to stakeholders, developing other theories on the possible relationships that are important for firms to address. Recently, management researchers have contributed to behavioral agency theory. Pepper and Gore (2015), express their critique of agency theory, considering agency theory too simplistic in regard to what motivates an agent. Pepper and Gore (2015) suggest behavioral agency theory, which is more closely related to prospect theory than classic agency theory, based on Jensen and Meckling (1976). Although agency theory is almost 40 years older than the critique expressed by Pepper and Gore, it continues to be used and developed. However, the empirical link to prospect theory seems reasonable, and in this thesis, both Agency theory and prospect theory are considered. During the studies performed in this thesis, the link between the two theories was recognized, and both were useful in my understanding of the firm-shareholder relationship.

From textbooks, we learn that agents are assumed to act in the best interest of the shareholders at all times. However, this assumption can be questioned and empirically tested. Therefore, academics have addressed this issue of whether agents actually act in the best interests of shareholders or not. It also raises the question of which shareholders the firm is acting for, is it individuals, institutions, present, and/or presumptive investors?

In their paper on the share price puzzle Dyl and Elliott (2006) introduce their paper by stating that;

In frictionless markets, share prices per se do not affect the value of the firm. Dyl and Elliott, 2006, p. 2045.

However, they conclude that share price levels are managed in order to increase firm value. Baker et al. (2009) present the catering theory, arguing that in efficient and frictionless stock markets, there is no optimal stock price. Nevertheless, they state that firms manage their stock price to cater to investor demands for stocks of certain price levels during certain time periods. Hence, firms believe to have detected that investors pay a premium for stocks at a certain price level and act in order to take advantage of that premium. I contribute to the knowledge of price effects mainly in papers I and IV where the ownership structure is analyzed with regards to underpricing and the offer price in IPOs. In paper I, I analyze the relationship of underpricing and allocation of the share to different investor groups to study differences in holdings

shortly after the IPO. In paper IV, I study the relationship between the offer price and ownership structure in the IPO firm.

Initial Public Offerings

Previous research on IPOs is extensive, with several aspects having been analyzed for decades. Valuing IPOs on the primary market before they reach the stock market have been one aspect, (e.g., Kim and Ritter, 1999, Paleari and Vismara, 2007, and Cogliati et al., 2011). Value and price are well connected in finance, and generally we expect the value of the firm to be reflected in the price of the share. Furthermore, according to the efficient market hypothesis (EMH), stock prices in an efficient market fully reflect all information, as argued in, for example, Fama (1970). Hence, we would expect the market to react only to new information. However, Fama (1991) relaxes this definition, due to costs connected to information gathering, and argues that a more economically sensible way of defining efficiency is that prices reflect information until the marginal cost exceeds the benefit of acting on the information. For an IPO, the valuation of the firm can, in that sense, differ overnight, where the firm valuation on the primary market sets the share price, but on the first day of trade on the stock exchange the share generally yields a positive return on the first day, initial return. The signaling model of Allen and Faulhaber (1989) argues that not all firms can bear the cost of underpricing and that investors know that only the best firms can signal with underpricing. Welch (1989) and Welch (1996) showed in his signaling model that underpricing can signal firm quality.

Underpricing or initial return (IR) have puzzled researchers for a long time, providing us with insights into underpricing and various explanations of that phenomenon, (e.g., Ibbotson, 1975, Ibbotson and Jaffe, 1975, Ritter, 1984, Ritter, 1987, Lee et al., 1996, Brennan and Franks, 1997, Ljungqvist, 1997, Loughran and Ritter, 2004, Ljungqvist et al., 2006, He, 2007, Chambers and Dimson, 2009, and Butler et al., 2014). Loughran and Ritter (2002) asked: “Why don’t issuers get upset about leaving money left on the table in IPOs?” This has been questioned and studied, but it still puzzles researchers. Where we might expect the market to adjust to this kind of arbitrary investment opportunity, the IPOs generally still on average yield a positive IR as shown in, for example, Chong and Liu (2020), Boulton et al. (2020).

If there is an arbitrary investment opportunity which the market investors know of, it is reasonable that IPOs are oversubscribed on average. When an IPO is oversubscribed, there is a need for rationing of some sort in order to allocate the shares to the new shareholders (the shareholders subscribing to the offer). The rules for allocation of the oversubscribed shares are often presented in the prospectuses. If investors could determine which IPOs will yield a higher IR than others, they would probably subscribe for more shares. Un-

fortunately, the information on which investors who subscribed and the number of shares they asked for is generally not public information. However, Khurshed et al. (2014) use the transparent book-building process in India, in which they show that large institutional bids attract individual investor bids. In Sweden, on the other hand, ownership has to be registered after the IPO. Hence, after the shares have been allocated, we can determine who holds the shares, for example, with the highest IR.

Rock (1986) argues that the informed investors will subscribe when there is a good investment opportunity and choose not to subscribe if the IPO is not a good investment. Thereby, the less- (or un-) informed investors will hold a larger portion of the shares when the IPO is a relatively bad investment compared with the IPOs where informed investors invest in the IPO, the so-called “winner’s curse,” where the uninformed investors are rewarded or rather stuck with the worst of the IPO shares. The winner’s curse hypothesis was empirically extended, for example, Vong and Trigueiros (2009), and tested by, for example, Koh and Walter (1989), on data from Singapore and Keloharju (1993) on a Finnish dataset of IPOs. Stoughton and Zechner (1998) show the agency problem connected to the allocation of the shares, when large institutions are the only investors who have the capability to monitor the firm. Benveniste and Spindt (1989) suggest that underwriters allocate IPO shares strategically. Hanley and Wilhelm (1995) show that institutional investors are favored in underpriced IPOs. Ritter and Welch (2002) argue that IPO allocation and subsequent ownership is one of the most interesting issues to address in IPO research.

The underpricing of the IPOs has been connected to ownership structure in several previous studies, for example, Grullon et al. (2004) and Bouzouita et al. (2015), who show the relationship between investor information, liquidity, and ownership structure. However, Hill (2006) argues that underpricing is not used to determine post-IPO ownership structure. Hill also suggests that research should focus on other variables than underpricing to understand what factors affect the post-IPO ownership structure.

Pricing the share might also have other effects, since we know that investors have different preferences. Generally, institutions prefer shares with higher stock prices, while individuals are overrepresented among low-priced stocks (e.g., Kumar, 2009, and Barber and Odean, 2013). I use this knowledge and perform tests on offer prices and their relationship with ownership structure of IPO firms. Hence, I contribute empirically to the concept of price as not only a mirror of the value of the firm but also something that is managed by the firm and has effects on the ownership structure.

The post-IPO returns of IPO firms have been studied, for example, Michel et al. (2014) regarding the relationship between the amount of stocks offered and the post-IPO performance and ownership structure, Hahl et al. (2014) who show the long- and short-run performance of value and growth IPOs in Finland, and in the short run (IR), for example, Eraker and Ready (2015) tested a

model from Barberis and Huang (2008) based on small IPOs (OTC stocks). They show empirical support for the prospect theory, where investors are ready to accept negative expected returns for positively skewed assets. Loughran and Ritter (2002) argue that the use of prospect theory can help explain IR. They argue that even when issuers leave large amounts on the table, they simultaneously gain wealth they had not expected, as their remaining shares are valued higher than anticipated. Ljungqvist and Wilhelm (2005) tested the proposed theory on their sample of IPOs and show that there is support for this argument. I also use empirical data to analyze participation among IPO investors. Specifically, I explore whether new individual investors participate in IPOs. Furthermore, I analyze their outcome of the decision to participate.

Prospect Theory

Kahneman and Tversky (1979) show how individuals make decisions under risk. They framed their theory in contrast to the expected utility theory, which was commonly used at the time. In expected utility theory the prospect, where “the overall utility of a prospect, is the expected utility of its outcomes.” Furthermore,

a prospect is acceptable if the utility resulting from integrating the prospect with ones assets exceeds the utility of those assets alone. Kahneman and Tversky (1979, p 264).

Through several experiments with students, Kahneman and Tversky (1979) discovered how individuals overweight outcomes that are certain compared to probable outcomes (i.e., the certainty effect). They also show how individuals address the risk of losing. In an experiment with negative and positive prospects, Kahneman and Tversky found the so-called reflection effect. They claim that certainty increases aversiveness to losses and the desirability of gains. Kahneman and Tversky also discuss reference points that I believe are highly relevant to the behavior of individuals and their investment choices. On the one hand, they have expectations toward their respective investments in comparison to the risk, but, on the other hand, there is also an expectation on the basis of the performance of their previous investments and the stock market. This could be linked to Loughran and Ritter (2002), as this is in line with the argument of accepting money left on the table if a higher valuation of the remaining stocks is simultaneously received.

Shefrin and Statman (2000) further developed the ideas of Kahneman and Tversky, as well as of Lopes (1987), along with the foundation of portfolio theory laid down by Markowitz (1952a-b,1959), when they introduced the behavioral portfolio theory (BPT). They present the theory in two models (BPT-SA, BPT-MA) with single or multiple mental accounts. Shefrin and Statman

(2000) claim that BPT investors are both risk averse and risk seeking simultaneously.

I study the portfolio holdings of shareholders and contribute to prospect theory through the empirical evidence of individuals' portfolio choices. All new shareholders decide to accept unique firm risk simultaneously with their first investments on the stock market. Through my focus on new shareholders and the composition of their first stock portfolios, I contribute to theory with a portrait of rookie investors and their first stock portfolios. I study rookie investors during a rise and a fall of the stock market, when the expectations should be different during these different stock market conditions. However, I show that rookies enter the market over the whole sample period. Thus, there is reason to believe that rookies have expectations that the stock market will deliver positive returns, or at least be a better investment opportunity than other alternatives, even when stock market prices are falling.

The Behavior of Individual Investors

Behavioral finance has grown as a reaction to the rational choices assumed in more traditional finance models and theories. Shiller (2003) entitled his article "From Efficient Markets Theory to Behavioral Finance" and stated that academic finance has evolved since the efficient market theory was considered to be valid. Schiller, alongside with other researchers, for example, Barberis and Thaler (2003), sought answers from empirical research on behavior, rather than from rational models. Previously, most of the focus had been on institutional investors and rational models. Around the turn of the millennium, the behavior of individual investors was attracting interest, and more attention has been paid to individual investors and their economic behaviors.

The availability of data on the portfolio choices of individuals has long been a limitation for researchers. Nevertheless, there have been several contributions by distinguished researchers in the area of individual investors, mainly using US data: for example, Barber and Odean (2001) study differences in trading behavior based on gender, Barber and Odean (2000) on the overtrading and overconfidence of households, Kumar (2009) on investors of low-priced stocks; Goetzmann and Kumar (2008), who show the portfolio composition of households; Sodini and Guiso (2013) present a review of the development of the field of household finance, Sodini et al. (2015) on life-cycle rebalancing between growth and value stocks, Zhou (2020) on stock market participation during crisis. Barber and Odean (2013) offer a review of the behavior of individual investors, in which they state that individual investors generally lose money due to a lack of timing in transaction decisions and overtrading, even when transaction costs are omitted from the equation. Kim and Nofsinger (2007) study a large sample of 22 000 Japanese investors during 1984–1999. They show differences in trading behavior under different market conditions, studying trading behavior and risk preferences during bear

and bull markets. Although I study investors during a time period including both bear and bull market conditions, I do not focus on changes in risk preference or on day-to-day trading behavior but rather on the entry behavior among rookies under different stock market conditions.

The lack of data for performing research on individual investors is probably the main reason why research on individuals lags far behind studies on institutional investors, for which the availability of data to researchers is greater. However, outside the US, Grinblatt and Keloharju have made several considerable contributions using Finnish data, for example, Grinblatt and Keloharju (2000), Grinblatt and Keloharju (2001a), which present an explanation for why investors trade, and Grinblatt and Keloharju (2001b) on the topic of investors and their home bias. Finland appears to have similar availability of ownership data for research as Sweden does.

During my literature search of individual investors, I found a few claimed portraits of individual investors, none of which focus on first-time stock market investors. Using Australian survey data, Durand et al. (2008) present an “intimate portrait of the individual investor” based on 18 individual stock market investors. De Bondt (1998) presents a study entitled “A Portrait of the Individual Investor,” based on 45 selected respondents recruited from a shareholder investments club. Previous attempts to generalize a portrait of the individual investor, were challenged by lack of data. The number of observations in these studies shows the difficulties that previous research encountered in searching for detailed data on shareholders. To me, both of these studies show the need for a larger, more generalizable study of individual investors. I contribute to the studies of individual investors by studying all shareholders in a country, with data from approximately two million unique shareholders. Thereby, a more generalizable portrait of the individual investors can be sketched. In addition, the previously overlooked rookies are portrayed. Apart from the number of observations in the data, I also contribute to our knowledge about shareholders through the questions asked and answered in the empirical studies in this thesis. I study all individual investors as well as rookies and their stock portfolio holdings, and for Swedish individuals I analyze the data together with personal characteristics such as age and gender, but also in relation to their income.

To contribute to the literature portraying the individual investor I focus on the attraction of rookies. Merton (1987) shows the importance for a publicly traded firm to have a large shareholder base. With most of the shareholders being individual investors, the need for a firm to attract attention from individual investors seems immense. By investigating rookies, we can learn about what attracts them to the stock market. What triggers the individual to enter the stock market? Considering prospect theory, it would be reasonable to believe that the expectations of potential investors would differ depending on the overall stock market conditions. Are there certain market conditions under

which the rookies decide to enter the market? Do stock market conditions affect the decision to enter the market, or is it more connected to the individual? Are rookies young investors buying shares with their first salaries, or are they retired people seeking the excitement of stock market trading? The list of interesting questions could continue, although to the best of my knowledge none of them have previously been empirically tested on a large scale. However, my contribution must be limited to research on a few research questions.

Research Questions

To contribute to our knowledge about shareholders and our understanding of their actions and conditions on the stock market, I divided the overall aim into several empirical research questions, all focusing on shareholders. The previous empirical literature shows the results of studies of firm ownership in terms of institutional investors to a great extent, but less is known regarding individual investors.

Shareholders are investors who, for some reason, have pursued an investment in a certain firm. Instead of investing in some anonymous financial product, they choose to become shareholders of a firm. Even though their share of the firm might be small, they have chosen this investment over alternative investments with less direct connection to the firm, for example through a fund.

Once, a great man told me that on average everyone is average. However true this statement is, my first questions to explore in the thesis regard a broad generalization: Who becomes a shareholder? I divided the thesis into four studies and several research questions.

Allocation of Shares to Shareholders

On the stock market, most investors are eligible to purchase any share at any point in time, as long as the stock market is open for trade. Naturally, there are exceptions, such as inside trading, lock-up periods or certain firm constraints. However, in general, the stock market is open for trade to any investor. This availability is not the case with an IPO, in which the firm can allocate its shares to presumptive shareholders before entering the stock market for the first time. Therefore, IPOs are of particular interest considering ownership structure, because they perhaps constitute the time when firms can choose their ownership structure with the greatest certainty. After the IPO, the firm has more passive control or even no impact on the decisions made by investors regarding the holding of shares in the firm. The general shareholders are free to trade the shares as they please, without the interference from the firm, on the stock market.

Depending on the demand for shares, assuming the demand for shares is greater than the supply, the shares will be allocated to new shareholders by the firm before the share is available for trade on the open stock market. Thus, there is a possibility for the firm to prioritize certain shareholders at the expense of others, although the book-building process and regulations differ across stock markets and between countries. Even though the shares offered in IPOs are generally over-subscribed in Sweden, at least for firms that complete the IPO process, firms have the opportunity to affect the ownership structure during the IPO process. In paper I, the focus is on return and allocation, more specifically whether the allocation of shares is different depending on

the initial return (IR) of the IPO. In an IPO, the board of directors commonly holds shares before the IPO, and they are normally restricted from selling their shares over a time period (lock-up period) after the IPO. Therefore, it is interesting to study the shareholdings of boards and their changes in ownership after the lock-up period (the compulsory holding period). We study inside shareholders (CEOs and boards of directors), and outside shareholders, institutions as well as individuals with regards to changes in ownership structure following the IPO. Previous literature has shown that underpricing of the shares of IPO firms is common. This leads to IR and a wealth transfer from old shareholders to the IPO investors, if they sell the shares once they are publicly traded. Based on previous research on investor sophistication and information asymmetry, there is reason to believe that the ability to identify high IR IPO firms is disparate among potential investors. Furthermore, institutional investors are generally believed to monitor firms better than individual investors. The research questions addressed in paper I are:

- Are institutional investors able to identify underpriced firms to a greater extent than individual investors?
- Where have the IPO-related wealth transfers gone, to institutions or individuals?

Individual Stock Market Investors

Previous research has shown that, in the US, the number of individual investors investing in the stock market is declining, for example, Rydqvist et al. (2014), and Davis (2009). Davis (2009) even states at the very beginning of the paper that “the American Retail investor is dying.” The consequences of such a state has not yet been studied or even forecasted. Nor is the trend of declining individual shareholding being studied in other parts of the world. The question of whether the declining number of individual shareholders is a condition exclusive to the US or is a broader development needs to be addressed. If individual investors are indeed facing a declining stock market future, one of few factors to prevent or at least mitigate the decrease is obviously whether there are new investors (rookies) entering the stock market. In two of the studies of this thesis, attention is paid to these rookies.

If the number of shareholders is in fact steadily declining over time, it would be reasonable to believe that the investors are the same, but over time, they are exiting the market due to, for example, age, better investment alternatives or budget constraints. Based on these considerations the first question is:

- What is the current situation of new investors entering the stock market?

Given that I find new investors entering the market, the next step is to tap into these new investors, their stock portfolios and the effect they might have on the declining trend. Therefore, the next question is:

- Who are the rookies, and how could they contribute to rejuvenating the shareholders on the stock market?

These two questions are addressed in paper II. The study establishes that, despite my corroboration of previous studies in regard to the declining number of shareholders, there are rookies entering the stock market. This means that rookies are attracted to the stock market even though individual investors as a group are diminishing as shareholders. However, the reasons for entering the market remain unclear. Consequently, the question of stock market attraction draws my attention.

Although the rookies as a group could not be called to account for the reasons of their stock market entry, it would be interesting to study potential events that attracted the investors to the stock market. One event that caught my attention was IPOs, where firms are entering the stock market. The saying “birds of a feather flock together” is used as the title of paper III. Studying IPOs provides specific times when shares are open for purchase to shareholders. Thus, the date can be used also as starting point in a study of rookies to determine whether rookies might enter the stock market close to the times of IPOs or not. Studies of IPOs have shown that individual investors are seldom the investors who earn the highest IR. Furthermore, previous studies have also shown that IPOs perform worse than firms with a longer stock market history during the first years following the IPO of the firm. Although these previous academic results might be known to most shareholders, it might not be known to rookies and even if they do know, they might feel tempted by the IR. The first research question for paper III is:

- How do IPOs contribute to attract rookie shareholders to the stock market?

Finding rookies and their entries into the stock market, I am curious about the attraction of the stock market. Because of the constraints of the ownership data I am restrained from any direct contact with the shareholders, based on my knowledge of each individual, regarding their stock market investments. However, it is legitimate to test hypotheses based on events which evince an overrepresentation amongst the rookies. Therefore, I use the IPO event to study one possible reason for rookies to invest in the stock market. In order to increase the number of events I use IPO data from three Swedish marketplaces, rather than the main market, Stockholm Stock Exchange (SSE), alone.

If all rookies are assumed to have the same stock market experience, then I can study how other characteristics than experience, such as age, gender, and

wealth, affect holdings and thereby returns. The second research question for paper III is:

- How do investor characteristics affect rookie returns?

Offer Price and Ownership Structure

After the study of IPO allocation presented in paper I, where the IR or underpricing is in focus, there was still a question of whether and how IPO firms can affect the demand from individuals vis-à-vis institutions. Fernando et al. (2004) show that IPOs with an offer price below the median offer price are aiming for individual investors. They also state that higher-priced IPOs are better firms, which is shown in the post-IPO performance. Hence, there is value connected to the offer price level. Dyl and Elliott (2006) state that the nominal share price should not affect the value of the firm in a frictionless market, but they also state that frictions do exist and that firms manage their share price to increase the value of their firm. Baker et al. (2009) present the catering theory, where they argue that firms manage their share price to cater to investor demands. Furthermore, Birru and Wang (2016) show that the nominal price affects the return expectations of individual investors. They show that individuals overestimate their return expectations when the nominal stock price is low.

Previous research, (e.g., Fernando et al., 2004, Goetzmann and Kumar, 2008, and Kumar, 2009) have shown that low nominal price shares are associated with a large fraction of the firm held by individuals compared to shares with high prices where a larger fraction of the shares are held by institutions. Together, there is reason to believe that IPOs set the offer price to certain nominal price levels in order to spark a desired investor demand and thereby the possibility of achieving a desired ownership structure.

- How does the offer price affect the ownership structure?

Research Design

This thesis emphasizes individual shareholders and their stock market investment decisions. Therefore, the characteristics, behavior and actions of the investor are central, reflecting the character of the thesis, which is primarily based on empirical research. Although the affiliation of this thesis to the academic field of finance is perhaps axiomatic, individual decision-making, behavior and characteristics can be studied within various alternative fields, see for example, Eriksson-Zetterqvist et al. (2020) for a review of theories and perspectives used in business administration. First, this thesis focuses on individuals as shareholders, rather than just any individuals, rendering the connection to firms and business studies obvious. Second, the shareholders are studied in their capacity to hold shares and not in general decisions or everyday life. This focus, together with my interest in corporate finance and stock market decisions, framed the thesis within the academic field of business studies, and finance in particular.

Previously, little was known about the characteristics of individual shareholders due to data limitations. In cases in which data were available, access has been limited to small samples of shareholders. Although researchers and practitioners have shown interest in the investment decisions of individuals, there has been very limited academic research on individual shareholders, because of the lack of data available to researchers. Therefore, a previously unexplored area will receive greater attention through this thesis. Thus, the design of the empirical studies was in several senses exploratory in nature because of the lack of previous research on individual shareholders and the non-existent academic knowledge about rookies and their characteristics.

The thesis focuses on increasing our knowledge about shareholders and on exploring the characteristics of individual shareholders. The thesis explores and portrays the shareholders of Swedish firms in four empirical studies. Taking advantage of the ultimate ownership data containing all of the shareholders of publicly traded Swedish firms, the studies in this thesis are based on all shareholders in Sweden, although the population is divided into samples depending on the research questions of the four empirical studies.

With the aim to contribute to the existing literature on shareholders, my priority has been to ensure that the results shown in the studies can be used to generalize a better understanding of individual shareholders. The research questions asked in this thesis focus on generalizability and on extending our knowledge about all individual shareholders, rather than shareholders of a specific firm. Consequently, I turn to quantitative research methods, and use methods designed to draw generalizable inferences based on large samples. I thus search for empirical data that can be used for this purpose, even though the data is unique and has not been conclusively studied previously. With the data at hand I utilize this extensive and unique dataset through quantitative methods to be able to generalize the results. The methods used in this thesis

are previously well established and standardized within the field of finance. I use descriptive statistics, univariate analysis and multivariate regression models for all of the studies in the thesis. Thereby, I employ a causal research design, where I seek to explain the dependent variable of the study with several independent variables. I use standard methods of managing extreme values when appropriate, and several robustness tests are used, mainly to strengthen the results of the OLS regression models used in the studies. For further reference on the methods used for the different research questions, see the respective papers.

The thesis is compiled from four studies of shareholders. They are partly separated in time and use both similar and different datasets. However, all of the studies use the ownership dataset, which contains all shareholders in Sweden from the year 2000 to 2016. Joining the studies together is obviously my driving force for achieving a better understanding the shareholders and the investment decisions that the shareholders make. Although the studies also use samples, depending on the research questions in each study, the advantage of a dataset with all shareholders of a country is uncontested and opens opportunities to generalize the results even more than studies based on chosen small-scale samples. Therefore, the choice of quantitative methods was, to me, rather clear, even though in future studies I would be interested also in more qualitative studies on individual investor behavior when the opportunity arises.

Data Sources and Methods

Here I briefly address the questions of reliability and validity in addition to the description of the data used and the idea of how I want to analyze the data. With a quantitative research design, I need data that is representative for the population and reliable data on variables I seek to analyze. Working with secondary data sources, such as registry data, has its challenges: first of all, identifying the data source but also, more importantly, gaining access to the data; secondly, assessing the suitability of the data for your project and determining the reliability of the data; and, thirdly, structuring the data for your needs as a researcher, since the original structure of the data might not be appropriate. In my case I use several different data sources, but I seek to use the best accessible source for the data used; for example, when searching for information on boards of directors, I hand-collect data from annual reports rather than relying on compiled databases. I have the intention of being transparent and clear with my methods and results, so that the studies can be replicated. I have shared my collected and compiled data with several distinguished colleagues and the data have stood the test of their scrutiny, and I have published three of my four papers in advance of my thesis defense. Even though my data set is unique, in my papers I refer to several studies using similar methods with similar data to

compare my results. I have used well-recognized methods to analyze my empirical data to ensure the use of valid and transparent techniques throughout the thesis.

Data

Under what conditions are the individual investors shareholders, and in what manner can corporate finance theory, mainly based on US market conditions, be applied to the shareholders of Sweden? It is necessary to bear in mind that most of the research within the finance area is based on data from the US, with US stock market conditions. Therefore, previous studies ought to be adapted with caution, and the contributions of research based on non-US data might not always be directly referable to US stock market conditions. However, the fine-grained details Swedish data provides a depth of analysis not possible with US data in the current situation.

The data in this thesis are based on unique data, either manually gathered or compiled through publicly and non-publicly available databases. All of the papers presented in the thesis focus on the ownership of publicly traded Swedish firms. The detailed data on stock ownership are unique because they are non-publicly available in the form used in this thesis. However, information about larger shareholders is generally publicly available in Sweden, but not necessarily identified with the personal identification number (*personnummer*) which enables researchers to connect data from different sources to contain a more complete picture of the individual investor throughout all authorities and most of society. In this thesis, the key to being able to create a portrait of the individual stock market investor is the shareholder database retrieved from Euroclear Sweden. However, the thesis also contains manually gathered data from several other sources.

Income

Data on the income of all shareholders are retrieved from the Swedish Tax Agency (Skatteverket). In Sweden the data on income for all Swedish citizens are publicly available, upon request. The Swedish Tax Agency is a governmental organization; hence, the information in their data is based on unique personal identification numbers. Because the data on shareholders contain the personal identification number of every shareholder, the request to the Swedish Tax Agency was based on all shareholders. Thanks to the personal identification numbers, the income information can be merged with the ownership data of the investor.

The data compiled from the Swedish Tax Agency contain information about taxable income, capital income and income from employment for all shareholders, approximately 2 million shareholders. Therefore, the data used in this thesis include shareholder information based not only on their stock

portfolios but also on their income. Income statements of foreign individuals trading on the Stockholm Stock Exchange are unfeasible for me to obtain, due to the regulations in all countries represented through the foreign investors (in total 180 country codes are included in the database, with at least 1 shareholder from each country). Thus, this study of individual investors is limited to all Swedish stock market investors.

Initial Public Offerings

I hand-collected the data on Swedish IPOs from press releases, annual reports, year-end reports, and prospectuses. The recent data are mainly from the Webpages of IPO firms. In some cases, for example, if the firm no longer existed, the documents were collected from Swedish Tax Agency or the Swedish Financial Supervisory Authority (Finansinspektionen). For the earlier IPOs in the study, data were collected from the printed prospectuses and annual reports from the archives at the Swedish Corporate Library (Svenska Företagsbiblioteket) at Uppsala University/Campus Gotland. I consider the data to contain all IPOs on the chosen stock exchanges for the chosen time periods. When collecting information on IPOs, the search first included all list changes during the year for each stock exchange. Thereafter, I collected the information about the reason for the change, in which I was looking for firms new to the stock market. In some cases, this is because of an IPO. In several cases, it is because of some other event, for example, name change, merger, spin-off, hive-off, list changes. Therefore, I collected information, firstly, in order to determine whether the new firm is an IPO and, secondly, to extract information regarding the IPO. Hence, the data collection is rather time consuming, especially for firms that no longer exist, and the sample decreases substantially compared to considering all new firms.

I manually gathered the inside ownership by board members and management for all of the IPO firms on the Stockholm Stock Exchange (SSE). I collected inside ownership and firm information before, during and three years after the IPOs, from prospectuses and annual reports.

I manually compiled the first day trading data and historical stock prices from the Nasdaq Stockholm Webpage. The sample contains information about the 147 firms, introduced on the SSE from 1996 to 2016.

The IPO data used in the thesis also contain information about two alternative stock exchanges. The first alternative chosen is the First North exchange, which also belongs to the Nasdaq group and is the exchange for smaller firms with more lenient regulations than the main market, SSE. The second alternative Aktietorget is a marketplace (Multilateral Trading Facility, MTF, which changed its name to Spotlight two years after the sample period i.e. in 2018) with a focus on entrepreneurial businesses. I manually gathered the data from First North and Aktietorget in manners similar to those employed for SSE. The sample from First North contains 107 IPOs during the time period of

2004–2016. For Aktietorget the sample contains of 162 IPOs from 2006 to 2016.

Shareholders

Sweden and the opportunities afforded regarding data availability are particularly favorable for stock market research, especially if a researcher is interested in shareholders and the ownership of publicly traded shares. Euroclear Sweden holds information about all shareholders and the shares held in publicly traded Swedish firms. This arrangement is quite unique to Sweden, all the more so considering the fact that the shareholder data are available for use in this thesis. As a researcher, it is a common task to clean and explore the dataset available to the researcher; however, in this case there were no manuals or internet tips on how to best sort out the data. It was challenging, interesting and useful to start with a blank canvas and to explore the raw data. Exploring completely new data somehow makes all observations interesting, but in this thesis, the focus is on exploring a few questions mainly connected to individual shareholders.

All of the papers presented in this thesis use the ownership database collected from Euroclear Sweden. The data currently comprise the ultimate holdings of all publicly traded firms in Sweden from 1999 to 2016. The firms report the ultimate ownership twice per year; hence, the data are semi-annual. However, since 2006 they report at the end of every quarter; consequently, the database contains quarterly records from 2006. The data contain information on every publicly traded share in Sweden at those given points in time. For every share, the owner is identified either by the personal identification number if it is an individual or the organization number if it is a non-individual holding the share.

As mentioned, the personal identification number is a number assigned either at birth or with residency, and it is permanently linked to the individual. The personal identification number is used all throughout society and is therefore useful for research on individuals. In this thesis, the personal identification number is used to identify the income of every shareholder through the Swedish Tax Agency. The numbers in themselves reveal individuals' gender and when and where the individual was born, although the whereabouts are provided only for individuals born between 1946 and 1990.

An organization number is registered to a firm much like the personal identification number for an individual, but it can change over time, for example, through mergers and acquisitions. The ownership database is accessible to researchers connected to Uppsala University, Campus Gotland. A similar database is available to researchers at the University of Gothenburg School of Business, Economics and Law (Handelshögskolan i Göteborg). In Finland there is also a similar database with shareholders on the Helsinki stock exchange, used by researchers in Finland.

Stock Prices

In order to calculate the portfolio value of the investors on all recorded dates in the ownership database, the closing prices of the stock exchange are used. For the studies of individual investors, these stock prices are used for this purpose, to calculate the portfolio value of each investor on these recorded dates. The price information for stocks traded on Aktietorget was collected manually. The price information for SSE and First North was obtained from Nasdaq Stockholm. However, it does not apply to the prices used in the IPO studies. For the IPOs, the stock prices and trading information were manually gathered from the Web pages of each stock exchange, from annual reports, and from prospectuses, as well as from press releases surrounding the IPOs.

Summary of the Empirical Studies

Although all four studies in this thesis focus on shareholders, there are four somewhat separate studies. Paper I rolls out the topic by investigating share allocation among different investor groups. Paper II defines and focuses on one investor group, rookies. Paper III combines the two previous papers and further explores rookies and IPOs. Finally, Paper IV shows how firms can manipulate their offer price to arrive at a preferred ownership structure.

In line with previous research, I find that owners and ownership structure has effects on firms. Moreover, firms affect the investors and their behaviors through corporate actions. The most obvious interaction between owners and the management of the firm would probably be through monitoring and annual meetings. Nevertheless, the firms also compete for the attention of shareholders to finance their activities. Thus, the firms seek individuals not only as customers of their manufactured products but also with the share as a product to sell, especially in IPOs in which the IPO firm must attract shareholders.

Paper I, Allocation of Shares to Foreign and Domestic Investors

In paper I, the study aims at explaining the allocation of shares to different shareholders. At the Initial Public Offering (IPO) the firms will allocate shares to new shareholders either from existing shareholders and/or through issuing new shares. Paper I shows the breadth of ownership in IPOs for three investor groups: individual investors, domestic institutional investors and foreign institutional investors. Empirical evidence is presented that institutional investors and foreign institutional investors in particular are superior in selecting the IPOs with the highest initial return. This supports previous research on information asymmetry between investor groups, where institutional investors possess superior information in contrast with information possessed by individual investors. Thereby, we reinforce previous research showing information advantages for institutions as opposed to individuals, but also showing allocation patterns that benefit the institutions. Additionally, we show differences in price preferences between foreign and domestic institutions, where foreign institutions seem to prefer shares with a high nominal price. Furthermore, we report the holdings by boards of directors and the development of their holdings during the IPO process and until three years after the IPO.

Paper II, Rookies to the Stock Market

In paper II, the study aims at exploring new individual shareholders, investing in the stock market for the first time, “rookies”. There is, to my knowledge, no previous study conducted on rookies in the stock market. With that in mind, I got the idea early on and was convinced that it was viable to undertake such a study. The study is of all Swedish rookie stock investors in Sweden, during

a time span of seven years where data were available in accordance with my definition of rookies. The ownership data, from Euroclear Sweden, are used together with income data, obtained from Swedish Tax Agency. I define and create a dataset consisting of stock holdings of first-time stock market investors (rookies). Univariate and multivariate tests are used in the analysis. I use Ordinary Least Square regressions (OLS) to show investor characteristics and explain variation in investor portfolio characteristics. The population of rookies consists of 241 893 investors during the sample years. This was reduced to 228 694, due to data limitations on annual income and characteristics of foreign investors. However, the data contains all Swedish stock market rookies with holdings in any publicly traded firm, on any Swedish public marketplace for shares, recorded by Euroclear Sweden.

Paper II shows that despite the declining trend of individual shareholders, there are rookies entering the stock market. I give ample evidence of rookies investing in Swedish firms and thereby mitigating the falling trend. Moreover, I portray the individual investor by showing individual investor characteristics and present a regression model to explain the variation in portfolio holdings. The study shows signs of rejuvenation, with 12% rookies during the 7 years studied. I provide evidence of new younger shareholders entering the stock market, but also a decline in the total number of shareholders. The results also present evidence of a far more balanced gender composition of shareholders than previously shown (and used as proxies) in US studies. In addition, I show gender differences among rookies, where female investors are older, invest a larger portion of their income and hold more firms than their male counterparts.

Paper III, Birds of a Feather Flock Together

In paper III, the study aims at exploring the role of IPOs in connection with new shareholders. I use hand-collected IPO data from the main market Stockholm Stock Exchange (Nasdaq Stockholm), but also from alternative market places: from their growth market First North and from Aktietorget (a Multilateral Trading Facility). The IPO data are manually gleaned from press releases, webpages of the IPO firms, annual reports and prospectuses. I also collected information on historical prices from the respective stock exchanges. Data on ownership are from Euroclear Sweden, based on the population of individual shareholders. The identification from the ownership data were used to obtain income data from the Swedish Tax Agency. The sample of rookies was reduced as all shareholders with non-positive income (29 671 investors) were excluded. Furthermore, investors younger than 18 and older than 99 are excluded, which reduced the sample by 16 690 and 4, respectively. Hence, the final sample for paper III consists of 182 429 rookie investors. The sample for all investors with the same restrictions on sample consists of more than 11

million investor record date observations based on approximately 1.9 million individual investors.

Paper III shows the fraction of rookie investors that hold shares in IPO firms is twice as high as the fraction of non-rookie shareholders. Hence, I state that not only do IPOs bring new firms to the stock market, but they also attract new investors to the same. The portfolio model first developed in paper II is tested on the sample used in paper III, and the results from the smaller sample supports the findings from paper II. The model, based on individual characteristics of the shareholders, explains approximately a fifth of the variation in portfolio value.

Paper IV, Offer Price and Ownership Structure

In paper IV, the study aims at examining the effect of Offer Price on the ownership structure of the firm after the IPO. As in paper III, the study contains data from Stockholm Stock Exchange, First North, and Aktietorget, but for 2006–2016. I hand-collected the IPO data from press releases, webpages of the IPO firms, annual reports and prospectuses. I also collected information on historical prices from the respective stock exchanges. Data on ownership are from Euroclear Sweden, based on the population of individual shareholders. This comprises a sample of 325 IPOs.

Paper IV shows that firms can affect their ownership structure through their choice of offer price. I show that the offer price affects the breadth of ownership, even when controlling for the size of the firm. Where the smallest firms with the lowest price are held by individuals, to a higher extent, compared with similar size firms with higher offer prices. Surprisingly, among the lowest-priced IPOs, this also held for Swedish institutions. However, I also show that for larger firms the opposite is the case, where large firms with high offer prices are held by more investors than comparable firms with lower offer price. I also show that the fraction of the IPOs held by individuals is higher when the offer price is low compared with higher price IPOs. Corroborating previous studies, I show that the price level has an effect on the ownership structure, where individuals are more prone to owning shares with nominally lower prices.

Table 1. *Summary of Studies Conducted in Paper I–IV*

Paper/Title/Data	Sample Period	Main Results
<p>I/ Allocation of Shares to Foreign and Domestic Investors/ 1. IPO data for SSE 2. Board and management characteristics, inside ownership 3. Ownership data</p>	1996–2010	We show signs of information asymmetry, in which institutions, rather than individuals, hold firms with high IR. We support previous studies and show that IPOs are generally underpriced.
<p>II/ Rookies to the Stock Market/ 1. Ownership data 2. Income data 3. Stock prices</p>	2004–2010	<p>Despite the trend of individuals leaving the stock market, I show evidence of new shareholders. A model that explains variation in portfolio value is introduced. A portrait of the rookie shareholder is presented; it shows an even gender balance. Female shareholders enter later in life but with larger portions of their income invested in their stock portfolios, compared to their male counterparts.</p>
<p>III/ Birds of a Feather Flock Together/ 1. IPO data for SSE, FN, AT 2. Ownership data 3. Income data 4. Stock prices</p>	2004–2010	IPOs attract twice the proportion of rookies, compared to the proportion of non-rookies. Thus, IPOs are shown to play a previously unknown role of attracting rookies to the stock market.
<p>IV/ Offer Price and Ownership Structure/ 1. IPO data for SSE, FN, and AT 2. Stock prices 3. Ownership data</p>	2006–2016	Firms can affect their post-IPO ownership structure through their nominal offer price.

Discussion of Swedish Individual Shareholders

The importance of ownership structure and even ownership management for publicly traded firms is debated not only academically but also as an issue for society. For decades, science has shown differences in monitoring and, accordingly, in actions among different owner types. Institutions such as investment funds, pension funds, hedge funds, etc., have been studied in terms of their actions toward their investments/holdings. Sometimes, as large block holders, institutions play active roles on the boards; on other occasions, they follow their investment more passively. Individual investors have been less thoroughly studied academically, as individuals more seldom take on large positions in firms (unless as founders, etc.). Moreover, opportunities for researchers to obtain data on individual stockholdings have been limited. In this thesis, I study inside holdings by boards of directors and holdings by outside shareholders. Although the studies involve the complete ownership structure, the focus of the papers has shifted between investor groups, with the most emphasis on individual investors.

Approximately 20% of all Swedes own one or more shares (between 13.2% and 22.6% during the years 2000–2015, according to Statistics Sweden, although they exclude all shareholder holdings with fewer than 501 shares in each firm). Compared to the information from Statistic Sweden, which holds only the largest shareholders, the dataset used in this thesis covers approximately 2 million stock market investors, which can be compared to 9.8 million inhabitants in Sweden (Statistic Sweden end of September 2015), regardless of the number of stocks per firm. According to Grout et al. (2009), the proportion of the population holding shares in the UK, Germany, France, and the US is approximately 15, 4, 11 and 13%, respectively. In comparison to these countries, a large proportion of Sweden's population owns shares.

To the best of my knowledge, there are no previous studies on rookie shareholders. I developed the idea of studying rookies early and was convinced that it could be accomplished. However, at this point I am delighted to have inspired colleagues to undertake studies with first-time investors. To me, this is a sign that my results have affected the curiosity of colleagues which in turn will lead to enhancing our knowledge of the subject. I was genuinely interested in who the people were who were entering the stock market for the first time. This is especially interesting because several research colleagues (e.g., Rydqvist et al., 2014, and Davis, 2009) have indicated that, at least in the US, individuals are generally leaving the stock market in favor of institutions. Although I study a limited time period, the results support the declining trend of individual investors. To extend the time period, to best describe the declining trend in Sweden, the complete database was used to capture the development of all shareholders foreign and domestic during all available years. Hence, Figure 1 shows the number of all individual investors in Sweden.

As shown in Figure 1, the number of individual investors decreased in Sweden. Thereby, the falling Swedish trend of individual investors in the stock market is similar to the trend reported in the US studies (e.g., Rydqvist et al., 2014, and Davis, 2009). The reasons for the downward trend of shareholders are not studied in this thesis. However, one possible explanation for Sweden could be the increase in prices in the Swedish housing market, offering investment opportunities as an alternative to holding shares or rising market prices limiting the amount available for investments in the stock market. However, clearly finding reasons for the weakening trend is suggested for future research.

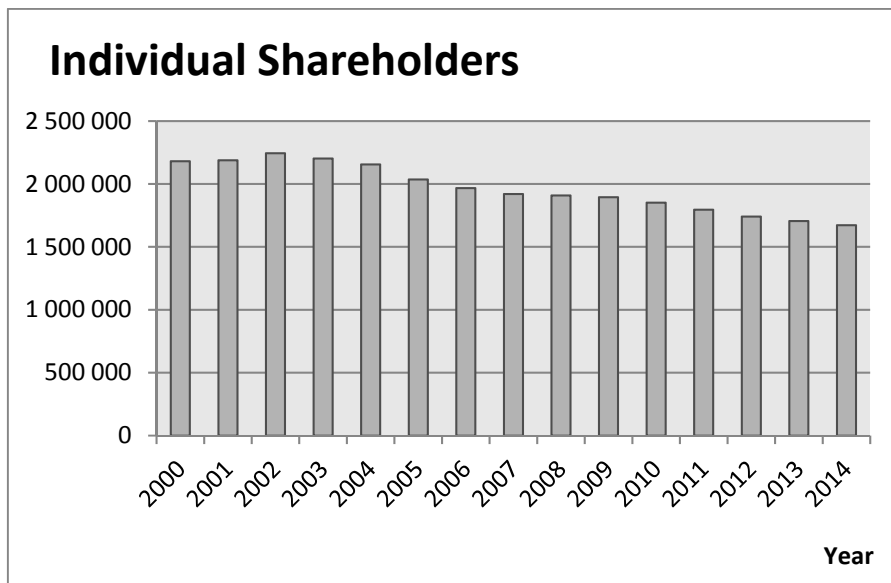


Figure 1. Total Number of Individual Shareholders in Sweden

My studies of the Swedish stock market show no different trend than what has previously been reported from the US. Nevertheless, I show ample evidence of rookies entering the stock market. During the 7-year sample period, approximately 12% of the investors are rookies. These rookies mitigate the decrease, meaning that the drop among shareholders is actually even larger than previously reported. The focus on rookies opened up the opportunity to consider the entry into the stock market as an event and thereby relax the difference in the time of entry for the investors. Two of the single-authored papers, II and III, are based on the interest in determining who the rookies of the stock market are. Although I control for their rookie year, I treat the rookies similarly regardless of the year when they entered the stock market. In a different manner, papers I and IV also study stock market rookies, but with a focus on the firms entering the stock market rather than investors.

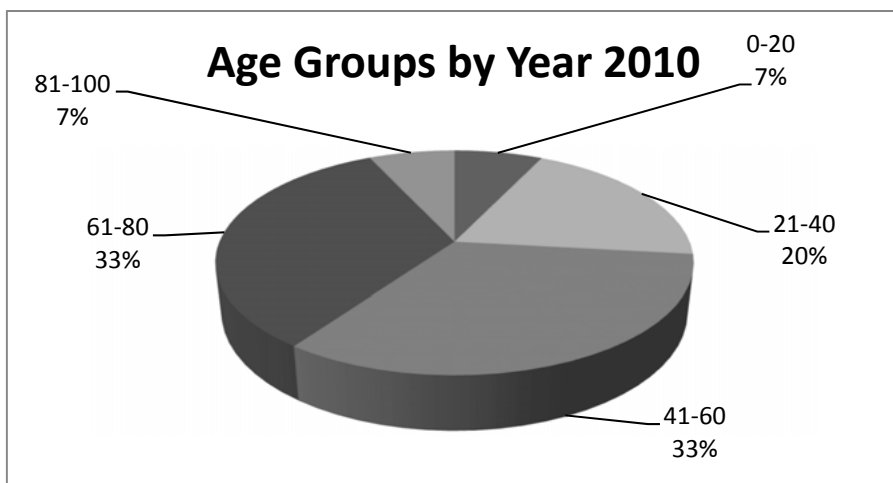
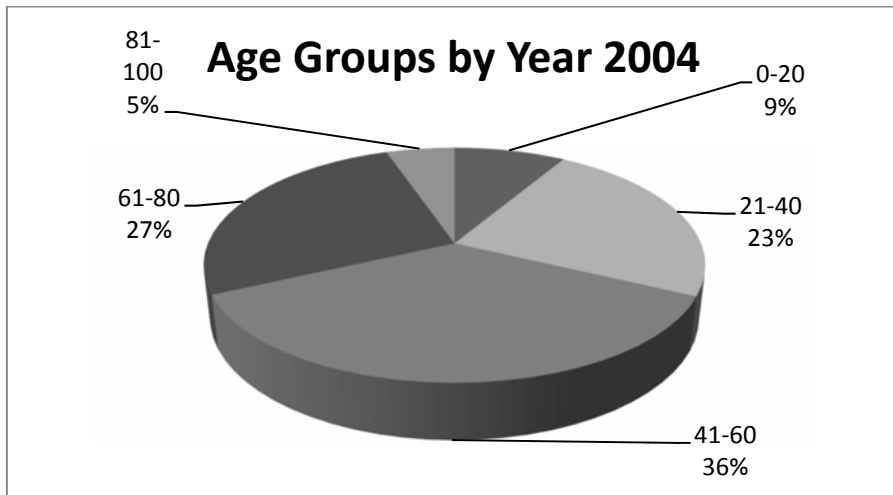


Figure 2. Age Distribution among Shareholders in Sweden

Figure 2 shows the age distribution of all shareholders in Sweden in 2004 and 2010. Figure 2 corroborates Davis (2009) and shows that Swedish individual shareholders are aging similar to descriptions of US shareholders. Although the results presented in paper I show that the stock market attracts rookies, and that most of them stay in the stock market as shareholders, the aging trend among shareholders is apparent. In addition, the average age for all shareholders increased during the sample period 2004–2010.

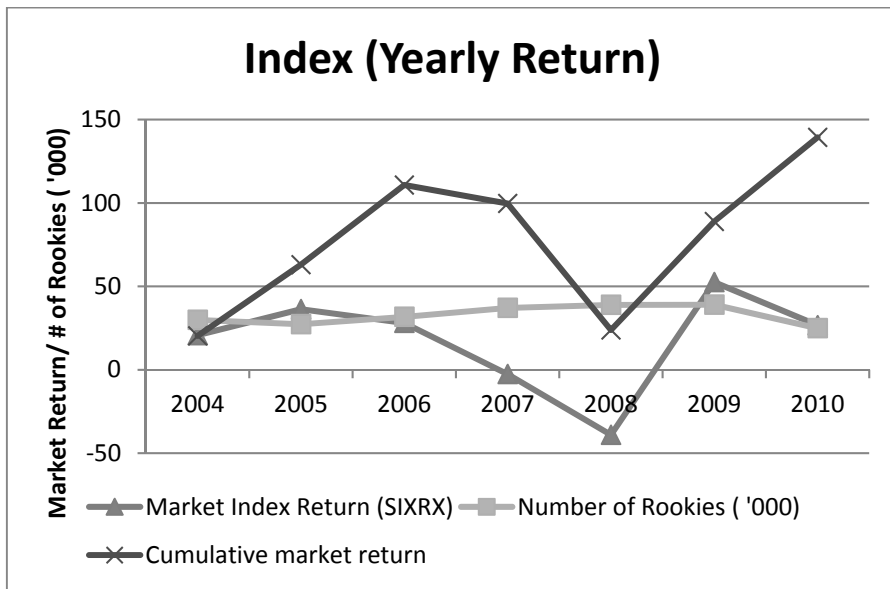


Figure 3. Yearly Returns and Number of Rookies

Figure 3 shows the number of rookies entering the stock market each year, and the annual stock market return. Figure 3 is similar to a figure shown in Kaustia and Knüpfer (2012), although the pattern for rookies is different from the pattern for new investors shown in the previous Finnish study, where they show that the number of new investors increased fivefold, from approximately 1,000 to 5,000 new investors, during the market return peak of the IT bubble in 2000. They also show that the trend in the number of investors entering the stock market in Finland follows the same pattern as the return on the cumulative market index during their sample period. Figure 3 shows that in Sweden the number of rookies varies across the sample years, but the minimum is more than 24,000, and maximum is below 39,000. In addition, it shows that the largest number of rookies entering the stock market was during the beginning of the financial crisis. Hence, the results for my sample of rookies in Sweden are in contrast with the results in Finland during the IT bubble by Kaustia and Knüpfer (2012) and the results in Zhou (2020) concerning the financial crisis and household participation in the US. This shows that the overall market return is not sufficient to explain the number of rookies entering the stock market. In paper III, an event that could occur more (less) frequently during a rise (fall) of the overall stock market is studied as an alternative explanation to what attracts rookies to the stock market.

To assess the contribution of this thesis, one would have to predict the future. However, there are several original contributions presented throughout the thesis. I would like to emphasize the difference between studying a population of individual investors, compared to studying a selected sample, when portraying the individual investor. Previous studies often use small samples

and/or survey data, rendering the researcher unable to make clear generalizations. Obviously, a small survey can ask more personal questions and questions about the moods or emotions involved in investments decisions, whereas I cannot answer these kinds of questions. Instead, I detect all the stock market investment actions undertaken by all individual investors, recorded as shareholdings by year end. Depending on a person's interests, these differences and the answers they can provide attracts different readers, but I do believe that the knowledge I can offer about shareholders and ownership of shares will create a more complete portrait of individual shareholders than previously reported (e.g., De Bondt, 1998, and Durand et al., 2008). In addition, the previously overlooked rookies are afforded a definition and recognition through this thesis. When portraying the average individual shareholder, it seems reasonable to believe that a study based on all shareholders of a country would serve as a better sample to study rather than extrapolating an average from a few investors.

A study using data about all shareholders in a country, rather than smaller sample data, results in both opportunities and problems. On the one hand, the researcher does not have to bother too much about sample selection and whether the data are representative or not. On the other hand, the question of outliers becomes more troublesome. In paper II, the study explores all Swedish rookies, which includes a few extreme values; hence, in the analyses the data were winsorized at the 1% level due to extreme values on income and portfolio value.

In paper III, a sample is used that includes only investors with positive income and between the ages of 18 and 99. Using this restricted sample and the same regression as in Paper II, of portfolio value dependent on investor characteristics (not reported), the adjusted R-square value approximately doubled compared to the analysis of all rookies in paper II. Thus, my regression model based on individual investor characteristics explains approximately one fifth of the variation in portfolio value. The results are obtained despite having rookies entering the stock market during different market conditions and without restrictions on the level of the amount invested. Nevertheless, I pursued paper II as a full sample study and thus contribute a portrait of rookies based on all stock market investors in a country and not only on small samples.

When I apply the OLS regression model used in papers II and III to the whole population of more than 11 million investor-record observations, the model explains even more of the variation in portfolio value. Table 2 shows a combined OLS regression model, used in papers II and III to explain the portfolio value of rookies, applied to all of the shareholders. The focus is not on the constant but rather on the effect that the independent variables have on portfolio value, both size and sign. All underage investors are excluded (i.e. exclude the observation if the owner is under the age of 18). Furthermore, portfolio value and income are winsorized at the 1% level, to mitigate extreme values. Overall, the results for the population show patterns similar to those in

papers II and III. The independent variables affect portfolio value in similar manners (i.e., they are positively correlated for the population compared to the samples used in the papers). However, the gender effect is smaller, with limited contribution to the R-square and the effect size for the whole population, compared with the studies on rookies. For the all shareholders, the largest effects come from investor income and the number of shares in the portfolio. Intuitively, the positive effect from income is easily accepted and seems to follow logical reasoning in which investors with more economic input can hold larger valued portfolios. The number of shares or in fact the number of firms in the investor portfolio is also reasonable, although a larger portfolio need not indicate that the investor holds shares in more firms. However, the finding that having the eggs in more than one basket can be profitable is consistent with previous research, for example, because it reduces risk without simultaneously reducing returns. Hence, it explains a larger portfolio value over time. An even simpler explanation can be transaction costs where a low portfolio value consists of only one share due to the cost of each transaction.

As alternative to OLS, a Generalized Least Squares (GLS) regression with random effects and two fixed effects regressions are used. Using year-fixed effects makes age become negative, most likely because of the development of the stock market during the sample period. Using individual-fixed effects omits the gender dummy variable, because the gender of each individual is assumed to be the same for the whole sample period. For the other variables all regression models return similar results, in which all control variables are highly significant, although the large sample size contributes to the significance level. However, for the control variable in focus in paper II, number of shares, and paper III, IPO, their impact on the regression models is substantial and supports the results in the respective papers.

Table 2. *Regression Results*

The table reports results from regressions, where the natural logarithm of portfolio value is dependent on income, age, gender, diversification and the average price of the shares for all individual shareholders in Sweden during 2004–2010. Portfolio value is defined as the total value of the portfolio for each investor, calculated at the end of December for each calendar year. Data on stock ownership is obtained from Euroclear Sweden. Income is the annual income, in thousand SEK, for each investor; the income data are obtained from the Swedish Tax Agency (*Skatteverket*). To mitigate the impact of outliers income is winsorized at the 1% level. Age is the age of the investor in years, where minor investors (age under 18) are excluded. Gender is a dummy variable with 1 for male investor and 0 for female. Number of Shares in Portfolio reflects the number of firms held in the portfolio. High Price is a dummy variable where 1 refers to the investor average share price in the portfolio being higher than the average share price for the sample period and 0 otherwise. Avg. Price is the average price calculated as portfolio value divided by total number of shares across all firms in the portfolio. IPO is a dummy variable where 1 refers to the investor holding at least one IPO firm and 0 otherwise. *** denotes significance at the 1% level. N shows number of observations. The *t*-value (*z*-value in model 2) for the coefficient estimates are reported in parentheses in models 1, 3, and 4. Model (1) is an OLS regression with White robust standard errors. Model (2) is an GLS regression with random effects. Model (3) and (4) are fixed effects regressions, in which the individual and year are fixed.

Regression Model	Portfolio Value (ln)			
	(1)	(2)	(3)	(4)
Variable				
Constant	8.2132*** (2642.52)	9.27052*** (1987.59)	9.72792*** (1685.20)	9.72099*** (1663.81)
Income	0.00062*** (61.56)	0.00008*** (17.92)	0.00005*** (37.22)	0.00005*** (36.33)
Age	0.01327*** (410.14)	-0.00399*** (-61.72)	-0.00447*** (-41.81)	-0.00505*** (-46.63)
Gender	0.05465*** (40.79)	0.10322*** (43.61)		
Number of Shares	0.23954*** (273.47)	0.17877*** (147.29)	0.15685*** (1306.32)	0.15558*** (1269.22)
High Price	0.56542*** (499.47)		0.32940*** (583.16)	
Avg. Price		0.00406*** (528.15)		0.00207*** (497.13)
IPO	0.40397*** (83.32)	0.05657*** (15.78)		0.16589*** (124.49)
Investor, fe			Yes	Yes
Year, fe			Yes	Yes
N	11 685 274	11 685 274	11 685 274	11 685 274
Adj. R^2	0.337			
R^2 within			0.328	0.323
R^2 overall		0.297		

As much as the data in my thesis are unique and based on all shareholders in Sweden, rather than based on a small survey, the study nevertheless has limitations with regard to the data. Even though the thesis is based on ownership data that contain more than 13 million observations, there are concerns regarding how to generalize the results, especially in comparison to US studies. I struggle with similar limitation as to those of, for example, Grinblatt and Keloharju, in that my data are from one single country, not the US, and the results have to be in contrast to previous research based on information from the US. Thus, arguments for why the results are interesting for anyone outside Sweden and how the results might be applicable in a US setting are undertaken with questions previously unanswered and with data that are more detailed than data available in the US. This is seldom the case for US-based finance research. In this case the interest in shareholders and their stock market portfolios makes it necessary to study investors outside the US, since there are no data available on individual stock market holdings. Consequently, I turned to Europe and Sweden, where the data on stock holdings are available. I think that the data used and the questions that I ask, study and answer are a significant contribution to the scientific community, even though it is of Swedish origin, especially since the data used cover a whole country rather than a selected group of investors.

Even though previous studies of single brokerage houses and surveys had presented ideas of individuals being under-diversified, it took me by surprise that almost 50% of the individual investors only hold shares in one firm. Figure 4 shows the population of individual shareholders and the number of shares they hold in their portfolio.

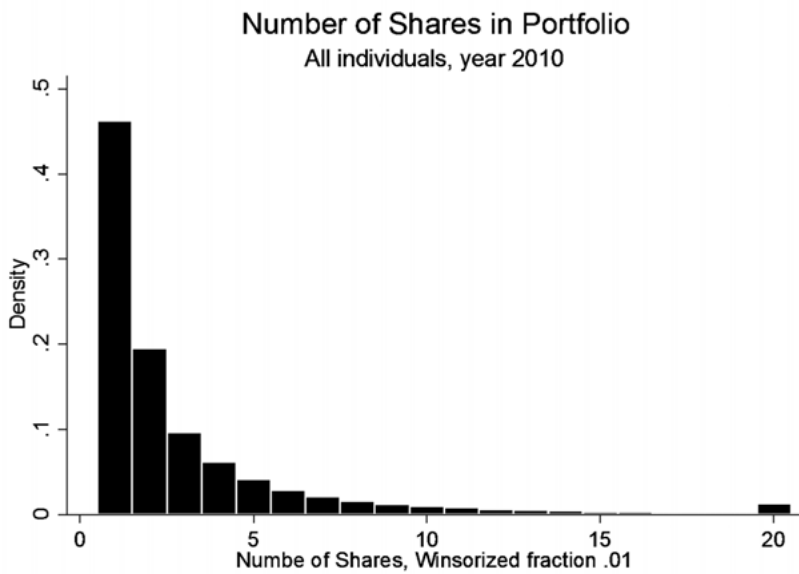
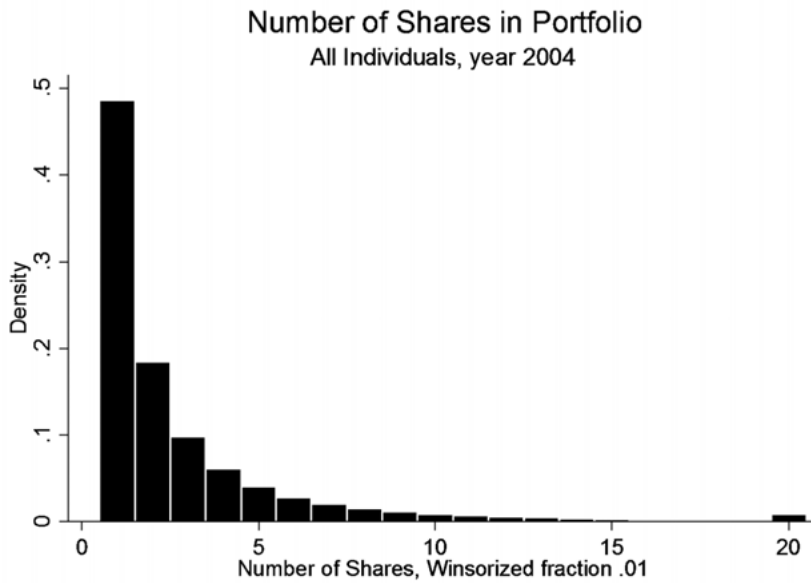


Figure 4. Number of Shares in the Investor Portfolio

Figure 4 shows the number of shares per investor portfolio for the population. To mitigate for outliers, and improve the presentation of the figure, the number of portfolios was winsorized at the 1% level. Hence, Figure 4 presents 20 as the highest value of the number of shares in the investors' portfolios. Therefore, the observations at 20 shares, in Figure 4, also contain all portfolios with

more than 20 shares. Although the portfolio with the greatest number of shares holds 355 Swedish shares, the mean (median) value is only 3.06 (2) shares per portfolio over all of the sample years and individuals.

According to Campbell (2006), a central issue to study is connected to his assumption that poorer and less educated households are more likely to make investment mistakes than wealthier and better educated households. Although the data used in this thesis contain no information on education or wealth of households, the level of detail is even higher regarding income because it is constructed on the individual level.

Table 3. *Shareholder Characteristics Based on Income*

The table reports descriptive statistics of all Swedish investors above the age of 18 with positive income during 2004–2010. The investors are divided into deciles based on level of income. To mitigate the impact of outliers, portfolio value and income are winsorized at the 1% level. Income is the annual income for each investor, where data are obtained from the Swedish Tax Agency (*Skatteverket*). For each investor group the mean Portfolio value and mean number of shares in the shareholder portfolio is reported, both variables are expressed in fixed prices, year 2010, to adjust for inflation. Data on ownership are obtained from Euroclear Sweden. Number of Shares in Portfolio is the mean number of different firms held by the individual investors. Number of investor year observations = 11 685 274.

Income (decile)	Number of Observations	Income min	Income max	Portfolio Value mean	Number of Shares in Portfolio Mean
1	1 168 521	0	86 009	80 915	2.99
2	1 168 531	86 009	145 339	81 435	2.59
3	1 168 529	145 339	188 869	83 995	2.68
4	1 168 527	188 869	226 110	91 335	2.84
5	1 168 520	226 111	261 716	98 385	2.91
6	1 168 520	261 717	298 669	109 650	2.96
7	1 168 539	298 669	339 191	128 588	3.11
8	1 168 532	339 191	397 673	167 579	3.34
9	1 168 527	397 673	515 678	241 565	3.68
10	1 168 532	515 678	1100980	1 556 083	4.46

I contribute to the research area addressed by Campbell (2006) through the individual shareholders and the income levels of the individuals. In Table 3, the observations are ranked according to their total annual income. Thereafter, they are divided into ten evenly distributed groups. I find empirical support for the assumption in Campbell (2006) that investors with larger income are more diversified in the sense that their portfolios hold a larger number of stocks, in the sample used in this thesis. Considering the number of stocks in each portfolio as a proxy for sophistication, Campbell's assumption of US

shareholders appears to apply also in Sweden, where those with larger incomes hold more diversified portfolios, measured in number of stocks/firms invested, than those with smaller incomes.

Table 3 contains all individual investors with an income in Sweden, where the investors are older than 18 years of age. However, the results still hold when based on all Swedish shareholders. Table 3 also shows the need for dealing with extreme income values, shown in the maximum value of group 10. When studying the population, which consequently does not contain outliers per se because all values are within the population, there is still need for exploring the data and considering extreme values and how they affect the mean values of the population. However, in studies, when the population is divided into samples, there is also a need to consider outliers.

Table 4 presents a univariate test of the individuals' characteristics and the portfolio holdings of non-rookies and rookies. In Table 4, all investors younger than 18 years of age are excluded. Consequently, the mean age is higher compared to the study of rookies, in which all investors regardless of age are included. The other variables also show changed mean values but only small effects after the exclusion of minors, compared to the results in the papers. Apart from the results, I show the effects on income and portfolio value when winsorizing the sample at the 1% level. Without winsorizing the mean value income for non-rookies (rookies) is 328 298 (302 426), and the portfolio value for non-rookies (rookies) is 273 884 (81 160). This shows the effects of positive outliers in the sample, in which all investors are included. Moreover, without winsorizing the sample, the *t*-statistics are 10.62 for income and 2.80 for portfolio value. The results show the statistically significant difference between the two investor groups in all of the chosen investor characteristics variables.

The results of the univariate test, presented in Table 4, show that the rookies as a group on average are younger and have a more even gender balance than the non-rookies. Rookies on average earn less, which possibly could be explained by their younger ages. As expected, rookies hold smaller portfolios, measured in nominal value and in the number of shares. Furthermore, rookies on average hold shares with slightly lower nominal prices, which might be explained by the price of IPO stocks, since I show that rookies participate to a greater extent than non-rookies in investing in IPO firms. Considering the median for each variable in Table 4, all variables are significant and age, gender, portfolio value and number of shares in portfolio all show the same pattern as the mean values. However, for income and average price the difference is still significant but reversed for the median. Although we can learn a lot from rookies, the results in this thesis show that it is clear that the rookies stand out as a group from the non-rookies. Taking previous studies, (e.g., Campbell, 2006, Goetzmann and Kumar, 2008, and Kumar, 2009) under consideration, these results show that rookies on average are less sophisticated stock market

investors than non-rookies, which seems reasonable also from a pragmatic and intuitive standpoint.

Table 4. *Characteristics of Non-Rookies vs Rookies*

The table reports results from univariate analysis on characteristics based on rookie or non-rookie investor. Age is the mean age of the investors. Gender is based on a dummy variable where 1 is male and 0 is female. Income is the annual income for each investor where data is obtained from the Swedish Tax Agency (*Skatteverket*). Portfolio value is defined as the total value of the portfolio for each investor. Portfolio value is calculated at the end of December for each calendar year. Data on ownership is obtained from Euroclear Sweden. All minor/under aged investors (age under 18) are excluded. To reduce the impact of outliers, portfolio value and income have been winsorized at the 1% level. Number of shares in portfolio is the number of firms in the portfolio. Average price/share is calculated as portfolio value over total number of shares across all firms. Difference in mean test is a *t*-test allowing unequal variance. The median values are presented within parenthesis. As an alternative to the *t*-test a non-parametric test, Wilcoxon (Mann-Whitney) rank sum test is used. The value is presented in local currency, *Swedish Krona*, (the average daily exchange rate over the sample period 2004–2010, SEK 7.20 corresponds to \$1).

Variable	Non-Rookies		Rookies		Diff. Mean	Wilcoxon
	Mean	Median	Mean	Median	<i>t</i> -stat [<i>p</i> value]	(Mann-Whitney) <i>z</i> -stat [<i>p</i> value]
Age	55	56	45	44	384.37 [<0.001]	243.77 [<0.001]
Gender	0.58	1	0.55	1	53.81 [<0.001]	53.80 [<0.001]
Income	289 976	261 327	279 553	268 675	40.78 [<0.001]	13.37 [<0.001]
Portfolio Value	151 202	23 241	68 072	13 355	159.19 [<0.001]	243.79 [<0.001]
Number of Shares in Portfolio	3.2	2	2.4	1	136.79 [<0.001]	184.99 [<0.001]
Average Price/Share	80.4	59.23	77.5	60.75	32.15 [<0.001]	51.66 [<0.001]
Number of Observations	11 083 196		602 078			

Conclusions

Individuals obviously have various reasons for placing their money in whatever source of investment they find suitable. Some of them decide to invest in the stock market. Furthermore, some of them invest in shares of one or several firms. In this thesis, I show that, in Sweden, approximately one in five people choose to invest in publicly traded shares and thereby are shareholders. Some of the shareholders are experienced traders, but some of them are stock market rookies (i.e., investing in the stock market for the first time). Some of them are given the shares because they come with a job, or must invest in the firm after being appointed to a job in the firm, but some of them have waited for years to invest in a certain firm to finally become a shareholder. In this study, I have attempted to describe these shareholders, especially those entering the stock market for the first time and their stock market holdings.

I contribute to research and our knowledge about individual shareholders in several ways. I show that institutions are superior, compared with individuals, in cherry-picking IPOs. Through my empirical studies, I define the stock market rookies and show the inflow of rookies to the stock market. I explore and portray the rookies and their stock holdings, adding to previous portraits by De Bondt (1998) and Durand et al. (2008). In addition, I describe shareholder characteristics based on all shareholders in Sweden and compare these to the characteristics of rookies. The warning signs projected by previous research, for example, Davis (2009) and Rydqvist et al. (2014) of individuals leaving the stock market are addressed and compared to the situation in the US. I show that although investors are leaving the market new investors are also entering, which might mitigate the decline, at least in Sweden. According to prospect theory the expectations of the investor are influenced by past performance, but rookies have no previous experience. Hence, their expectations might rather be influenced by the overall market condition. However, I show that rookies enter the stock market during both rises and falls in the market. Thus, market conditions do not seem to fully explain whether rookies enter the stock market. Additionally, I show that IPOs attract investors who are new not only to the IPO firms but also to the stock market. Thereby, we can conclude that IPOs might have a role in attracting new investors to the stock market. I also analyze the portfolio returns of rookies and show that rookies with more than one IPO perform worse than the index and other rookies. My results also show that individuals are not well diversified and thereby not pursuing their stock investments according to portfolio theory.

Ritter and Welch (2002) argue that IPO allocation and post-IPO ownership structure are the most interesting future research topics in IPO research. I contribute to this and show the relationship between underpricing and the allocation of shares among different investor groups, using individuals, domestic institutions and foreign institutions. Additionally, I show that offer price might affect the post-IPO ownership structure, where individuals hold more of the

low offer-price IPOs. Thereby, speaking in agency-theory terms, it is possible that agents can affect the ownership structure and thereby might affect the governance of the firm.

The data contribution of the thesis includes a hand-collected dataset on initial public offerings in Sweden, on the main market and on alternative markets. I have already shared the data that I have collected with both students and research colleagues in order to assist others and contribute to further development of our knowledge of IPOs.

I present an empirical model that explains the variation in portfolio value among rookie shareholders. I also test the model on all individual shareholders, and the model explains approximately a third of the portfolio value variation. In addition, I present gender differences in stock holdings, as well as strong reasons for not using unbalanced gender proxies in future research regarding financial investments in households. In contrast to portfolio theory, I show that the individuals are less diversified than what would be rational, meaning that individuals might be more affected by non-systematic risk than necessary if they held a more diversified stock portfolio.

For the broader public, Figure 4 shows the under-diversification of the stock portfolios of individual shareholders, where approximately 50 % the individual investors own shares in only one firm. I also show that the stock portfolios of rookies on average underperform relative to the market. I show that rookies participate in IPOs to a larger extent than non-rookies, which could be a way for sophisticated investors to invest in underpriced stocks and receive high initial returns. However, in this thesis I show that institutions to a larger extent invested in firms with high initial return. In addition, I show that rookies with multiple IPOs in their stock portfolios on average underperform the market but also rookies with no IPO holdings.

Future research could follow up on individual investors and track their behavior over time, both for rookies and for more experienced investors. While I show a portrait of rookie investors and the portfolio choices made by them, it would be interesting to study the development of their portfolios over time.

Limitations and Directions for Future Research

When investing in funds, through an institution, the investor trusts the institution to allocate the invested capital into underlying financial products. In return the institution will charge the investor for the service of investing the capital. The investors have little or no possibility of affecting the underlying financial products or the transactions made within the fund. However, the investors have several institutions and funds to select from, and in most cases, the capital invested can be transferred to other institutions or funds simply by request. Thereby, the investors put their faith in the hands of the institutions by trusting the funds and fund managers to provide the best possible returns given the risk agreed upon through the descriptions of the invested funds. This thesis focuses on shareholders and their investment decisions on the stock market. Thus, investments through institutions are excluded from this thesis. Rather, the focus is on investments controlled by the shareholder, and where the investment decision can be referred to the individuals (i.e., they are responsible for their own decisions).

Despite the efforts undertaken in this thesis to extend our knowledge of shareholders, there are infinite demands for more knowledge on the subject. For instance, portfolio rebalancing and the investments made over long time horizons, including the investor's youth, work life and retirement would give a sharper and more detailed portrait of the shareholder. Furthermore, it could show the individual as an investor over a lifetime and not only as a shareholder over a limited time period. However, the data collection and endurance of the researcher would be thoroughly tested in such a study. In order to direct the research in smaller steps, I still believe it is worth tracking the shareholder over time, especially considering large impacts or even life-changing events, for example, large income shifts, changes in civil status, retirement or changes in accommodation. Property investments and the development of the last 30 years or so in the property market, compared to the stock market, would also be interesting to investigate. Using data on shareholders, compared to data on property holders, could be an interesting way to study the investments made during the life cycle of an individual.

The ownership data available to me begin at the turn of the millennium. Therefore, no historical overview or larger patterns extended over generations are included in the thesis. Moreover, the Euroclear data on shareholders are recorded on specific dates (semi-annually or quarterly), so I am unable to trace and study any day-to-day trades. However, on the recorded dates, the records hold all shareholders in all publicly traded firms in Sweden.

When studying IPOs, especially in the final paper, the results indicate seasonality in initial returns, where IPOs in the first quarter of a year seem to be associated with higher IR compared to the IPOs of the other quarters. Seasonality is not the focus of the papers written, so I recognize the results but the question of seasonality is not further examined in any of the papers in the

thesis. Hence, this would be interesting to pursue in future studies on IPOs. With a larger sample over longer time period and more firm-specific information, it would be interesting to examine any seasonal, intra year, variation in initial return. Also, from the last paper, where I show that firms through their offer price might affect their post-IPO ownership structure, it would be interesting to further pursue this path and with a more qualitative study design to explore why certain firms opt for a specific ownership structure.

Although I contribute to the literature portraying the individual investor, I focus on the attraction of new investors, “rookies”. Through the rookies, we can learn about what attracts them to the stock market. Questions can be asked such as what triggers an individual to enter the stock market, which could also be asked under different market conditions. In paper II, differences in the inflow of rookies are detected during different stock market conditions, which could be explored further. Furthermore, a study seeking reasons for entering the stock market could benefit from a more qualitative approach, with interviews or surveys conducted with rookies. Given the constraints on data usage, I had to withhold any contact with the rookies in the studies performed. However, in other studies with cooperation within, for example, banks, this would be interesting to pursue.

Although my thesis shows a substantial number of rookies entering the stock market in Sweden, it would be interesting if it could also be empirically tested in other countries. Based on the similarities in the overall trends regarding number of stock market investors, there seems to be reason to believe that it could also be the case in other countries.

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