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M&A TRANSACTIONS' PERFORMANCE OF COMPANIES CONDUCTED IPO

Master's Thesis by the 2nd year student
Concentration — Master in Corporate Finance
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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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31.05.2021

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I, Plokhov Stepan Andreevich, second year master student, Master in Corporate Finance program «Management», state that my master thesis on the topic «M&A Transactions' Performance of Companies Conducted IPO», which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

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31.05.2021

АННОТАЦИЯ

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Описание цели, задач и основных результатов	Исследовательская цель диссертации состоит в том, чтобы определить, влияет ли на эффективность новых публичных фирм их деятельность по поглощению других компаний в течение первого года после того, как они стали публичными. Для достижения этой цели были выполнены следующие задачи: Изучены ключевые понятия процессов IPO и M&A, проанализированы основные причины и мотивы, побуждающие компании участвовать в IPO и M&A, рассмотрено влияние участия компании в IPO и M&A на результативность компаний. Сформулированы гипотезы о том, что участие новой публичной компании в сделках по поглощению в течение первого года после IPO отрицательно влияет на результативность компании (измеряемой доходностью акций компании и показателем ROA) в краткосрочном (1 год) и долгосрочном (3 и 5 лет) периодах. В рамках анализа было проведено эконометрическое исследования на выборке из 530 новых публичных компаний на рынке США. В результате исследования гипотезы были отвергнуты и был сделан вывод о том, что участие компаний в сделках по поглощению в течение первого года после IPO не оказывает влияние на результативность компании на рассмотренных временных промежутках.
Ключевые слова	Первичное размещение акций, слияния и поглощения, результативность новых публичных компаний, доходность акций новых публичных компаний, рентабельность активов новых публичных компаний

ABSTRACT

Master Student's Name	Plokhov Stepan Andreevich
Master Thesis Title	M&A Transactions' Performance of Companies Conducted IPO
Faculty	Graduate School of Management
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Academic Advisor's Name	Berezinets Irina Vladimirovna
Description of the goal, tasks and main results	The research goal of the dissertation is to determine whether the performance of newly public firms is affected by their acquisition activities within the first year after IPO. To achieve this goal, the following tasks were done: the key concepts of the IPO and M&A processes were studied, the main reasons and motives that encourage companies to participate in IPO and M&A transactions were analyzed, the performance of IPO companies and performance of acquiring companies were considered. We formulated the hypothesis that the involvement of a newly public company in an acquisition activity negatively affects its performance (measured as stock price returns and ROA) in the short (1 year) and long term (3 and 5 years). The econometric study was conducted on a sample of 530 new public companies in the US market. As a result of the analysis, the hypotheses were rejected and it was concluded that the participation of companies in acquisition activity within the first year after the IPO does not affect the company's performance in the time periods considered.
Keywords	Initial public offering, mergers and acquisitions, performance of newly public firms, stock price returns of newly public firms, return on assets of newly public firms

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Introduction

An initial public offering (IPO) could be a desirable milestone for entrepreneurs, executives, board members and other stakeholders who see this process as a special achievement, which emphasizes their success and ability to manage the company. IPO allows the company to attract capital, increase liquidity, overcome borrowing constraints, cash-out insiders, and create acquisition currency among others. At the same time, IPO is a very costly process and the IPO companies are subject to greater regulation and coverage from research group and are obligated to report their performance to the investors so that competitors could capitalize on some disclosures. Thus, IPO is often a trade-off between all costs and benefits which must be considered before making such a decision.

Over the years 2000 – 2020 on the U.S. market the highest annual IPO numbers belong to the year 2020 and accounts for 480 deals. For the year 2021, there is a great opportunity to overcome this threshold as there are approximately 443 IPOs so far (Stock Analysis, 2021). The financial crisis of the 2008 year affected the desire of companies to become public badly as there were only 62 and 79 deals in the year 2008 and 2009 respectively. According to the EY article written by Go P. (2021), "Global IPO markets have benefited from the abundance of liquidity that was injected into the system by governments in the wake of the pandemic" (pp. 3) and the author also believes that the trend will continue in the year 2021. The same report states that "Q1 2021 has been the best-performing first quarter by deal numbers and proceeds in the last 20 years" (pp. 4).

At the same time, according to IMMA institute data (2021), M&A deals achieved their peak in terms of value and number of deals in the year 2007. After the drop in the year of 2008, the numbers were close to ones of the 2007 year in the year 2015. After that, the numbers of transactions and their value started to move in opposite directions over the years from 2016 to 2017: there is an increasing trend of M&A deals but with lower transaction values. Starting from the year 2018, both, number of transactions and their value decrease. M&A deals could be beneficial for some companies in the year 2021 thanks to decreasing in key rates of leading countries' central banks. In addition, prospective takeover targets have become even more attractive in challenging environments, especially in industries such as high technology, telecommunications, digital media, and pharmaceuticals, according to the report by Bain & Company (2021).

There are some newly IPO companies which start to acquire other companies straight after the placement has been made. Additionally, the survey (Brau & Fawcett, 2006) found that the reason "to create public shares for use in future acquisitions" (pp. 407) was ranked as the top 1 answer of

surveyed CFOs. After that, other researchers started to analyze this topic and tried to determine whether newly public firms participate in M&A deals and found approvals of that. Only one article was found which analyzed the influence of decision to acquire on the IPO company's underperformance. The aim of the thesis is to fill the gap and contribute to establishing the relationship between the decision of newly IPO companies to acquire and such companies' performance.

The **research goal** of the thesis is to determine whether the performance of newly public firms is affected by their acquisition activity within the first year of being public. To achieve the goal, the following objectives were introduced:

1. To study the concepts of both, IPO and M&A process;
2. To study the reasons and motives, which drive companies to conduct both, IPO and M&A transactions;
3. To consider the impact of both types of deals on companies' performance
4. To substantiate the research methodology and collect the data;
5. To formulate hypotheses and conduct the empirical study to test them;
6. To interpret and analyze the results of the research and provide theoretical and practical conclusions.

The main sources of information are academic articles and books, analytical reports of financial and consulting companies, specialised financial and statistical websites; Refinitiv Eikon datastream, Zephyr and Capital IQ databases, companies' reporting for Security Exchange Commission, a database of professor J. Ritter

The structure of the work is organized as follows: the first chapter is devoted to the IPO concepts, participants of the IPO process and their responsibilities, motives for companies to go public and performance of IPO companies; the second chapter is devoted to M&A concepts, value distribution in M&A deals, motives and impact of M&A deals on companies' performance. In the third chapter, we transfer theoretical considerations to the practice and describe the methodology, sampling and empirical results which we obtained.

CHAPTER 1. THEORETICAL BACKGROUND AND LITERATURE REVIEW OF IPO

1.1 IPO: key concepts

This chapter is devoted to key definitions, description of IPO procedure, its participants, pricing options and alternatives for IPOs. The motives for companies to go public are determined and after-IPO performance is considered.

Despite having a well-descriptive definition by itself, let us start with analyzing the definitions of IPO which are presented in the table below:

Table 1.1 Definitions of IPO

Definition	Source
The process of selling stock to the public for the first time	(Berk & DeMarzo, 2017)
The first time the shares in a company are sold to public investors and subsequently traded on the stock market	(Draho, 2004)
An initial public offering, or IPO, generally refers to when a company first sells its shares to the public.	(U.S. Securities and Exchange Commission, n.d.)

Source: made by the author with usage of mentioned in the table sources

From the aforementioned definitions, we can emphasize the idea that an IPO is the experience of the company which consists of attracting new public investors and, as the consequence, new capital raised.

IPO is a complex and time-consuming process that involves several key players. The description of the process is presented based on the American market's procedures and requirements. Participants in the IPO process could be divided by the degree of interrelations with companies. Thus, two main groups could be identified: internal participants who are more closely involved in the company's business processes, and external participants whom companies approach solely for the purposes of conducting IPO.

We consider two main groups of internal participants: management and owners of the company. In close cooperation with other IPO participants and with each other, they make strategic decisions on the implementation of the IPO, they monitor and control its implementation as well.

The main external participants include the following: underwriter, legal counsel and auditors. Let us describe each participant and its functions.

Underwriter. The underwriter in a new stock offering serves as the intermediary between the company seeking to issue shares in an initial public offering (IPO) and investors. Underwriter manages marketing and selling of shares for public investors (Allison et al., 2016). It is more common to see

the underwriting syndicate rather than a single underwriter. The syndicate allows sharing the risks among all underwriters. The typical hierarchical structure looks as follows:

1. **Lead manager** or **book-runner** which is responsible for the whole process in general. In the very large issues, several syndicates could be formed, in such situations lead manager serves as a global coordinator;
2. **Co-lead manager** which represents the next layer of the hierarchy has a lower level of risk tolerance and does not want to lead the entire process itself and thus underwrites only a portion of the issue;
3. **Co-manager** are situated below co-lead managers in the hierarchy has even lower risk-tolerance and is responsible only for a small portion of the underwriting;

Sometimes selling group is involved in the process of shares distribution. The group does not perform as an underwriter but serves as an agent. Usually, small amounts of securities are distributed to retail investors by such an agent.

The main objectives of the underwriter are: "helping to shape the IPO prospectus, running the road show, ''building the book'' of investor demand, agreeing with the company on the price per share for the IPO, determining the number of shares that co-managers may sell in the IPO and controlling the allocation of shares among purchasers in the IPO." Commonly, underwriter is an investment bank, however, some other parties could take this role as well. For instance, it could be investment companies or funds (In Russian the investment company ATON could serve as an example, who was considered as a leader in number of equity issuance in the Moscow exchange in the 2016 year). Allison et al. (2016). also emphasized the importance of the underwriter choice and mentioned factors which should be considered in the process. These factors were the reputation and experience of the underwriter, commitment to the company, after deal support and distribution strength – whether the underwriter has strong distribution opportunities with retail and institutional investors.

Different types of agreement with underwriters can be made (Berk & DeMarzo, 2017):

- *Firm Commitment.* The agreement implies the purchase by the underwriter of the entire issue of the shares for the purpose of its further resale. Such the agreement guarantees the company to raise a certain amount of funds.

- *Best Efforts Agreement.* Under such an agreement, the underwriter cannot guarantee that a certain amount will be raised as a result of the placement, but promises to put "best efforts" to sell the shares on behalf of the company.

- *All or Noone Agreement.* The agreement implies the following: if all offered shares cannot be sold, then the offer is canceled.

- *Syndicate of Underwriters*. With the complexity and volume of the offering, the lead underwriter can form a strategic alliance by attracting subsidiary underwriters, each of which then sells part of the share issue in the IPO. This type of agreement allows the lead underwriter to diversify risks by distribute them among the members of the alliance.

The underwriter is responsible for the execution of the following documents (Corporate Finance Institute, n.d.):

Engagement Letter, which usually includes:

- *Reimbursement clause* which contains conditions that the issuing company covers all expenses incurred by the underwriter, even if the IPO is withdrawn at the due diligence stage;

- *Gross spread/Underwriting discount* which is the difference between the price of the sale of shares to the underwriter and the price to the investors which the underwriter contacts with;

- *Letter of intent* which contains the information about the conditions under which the issuing company and the underwriter will conduct the IPO. It includes the remuneration structure as well as the obligations of the underwriter to the issuer. This document does not mention the issue price.

- *Underwriting Agreement*. Once the IPO share price is determined, an underwriting agreement is signed;

Registration Statement. It contains the information regarding the IPO, the financial statements of the company, the background of the management, any legal disputes of the company, the "ticker" that will be used on the exchange. According to the SEC requirements, the issuing company and its underwriter fill out a registration application after agreeing on the details of the issue. Typically, the registration statement includes:

(i) The prospectus which lists all the opportunities and risks of the issuing company, as well as its financial details. The prospectus is available to investors, regulators and other interested parties and

(ii) Private Filings which must be presented to the SEC by the company for the examination, however, these filings are not required to be presented to the public.

Registration Statement ensures that investors have the adequate and reliable information about the securities. The SEC then conducts due diligence to ensure that all required details have been disclosed correctly.

Red Herring Document – a preliminary prospectus, which is being processed in conjunction with the SEC solely for the informational purposes. It contains the key information about the company, but does not contain the information about the price and volume of issue. The document confirms that the registration application was filed with the SEC, but has not yet entered into force, therefore the information contained in it is not perfect and may be changed. This document is used by underwriters and issuers for marketing purposes (for example, in the Road Show).

Legal council is also a key participant in the IPO process. The Legal Council is responsible for three major areas: 1) prepares a registration application and advises the company on compliance with relevant disclosure requirements; 2) is responsible for communication with the SEC and compliance of the necessary documentation with the SEC requirements; 3) must have in-depth knowledge of laws and regulations related to the disclosure of the information by public companies and corporate governance requirements, since such expertise will enable the company to make the most relevant decisions before and during the IPO. Legal council also provides support to the company on corporate governance structure, policies and internal procedures. In this way, the company can operate effectively and comply with the relevant corporate governance laws, regulations and stock exchange regulations after the IPO.

Auditors are also involved in the IPO process. They help the company to meet its obligations to disclose financial and other information which is included in the registration statement. The SEC appoints its own auditors to review the company's financial statements and other financial aspects of the company (for example, regarding accounting methods and accounting policies). Therefore, the auditors can also act as a intermediary with the SEC auditors on accounting issues related to the IPO. The higher the level of competence of the auditors, the smoother the interaction with the SEC will be. The financial information is subject to verification before being sent to the SEC, so it is imperative for the company that the auditors, who performed such the verification, are available at the time of the IPO, so that all processes take place in a timely manner and do not negatively affect the timing of the placement.

Lukashov & Mogin (2008) also name the PR agency as one of the active participants in the IPO process. Such the agent is responsible for the increase of the company's prestige and creating interest around the placement by interacting with the media and PR services of the companies.

Having identified the main participants in the IPO and their main zones of responsibility, let us turn to the IPO process in its chronological order. Five main stages could be identified by A. Damodaran (2010).

Step 1: Choose an investment banker based on reputation and marketing skills

Step 2: Assess the value of the company and set issue details. The appraisal is carried out by a leading investment bank in close collaboration with the firm, which provides it with much of the information. The author also notes that "the lack of significant historical information, coupled with the fact that these are small companies with high growth prospects, makes the valuation uncertain at best, regardless of which valuation method is used". At this stage, the theoretical share price is established, although usually, banks set the issue price below the theoretical price. This is done in order to reduce risks (in the case when the bank bears the risks of non-sale of shares and will be forced to raise its own funds to buy the unrealized part of the issue). It also creates a favourable background: investors and investment banks view the rise in the share price immediately after the issue as a favourable signal. Investment bank's clients who purchase such shares also automatically benefit from the price increase after the placement.

Step 3: Gauge investor demand at the offering price. This step is also called building the book - it is characterized by meeting with institutional investors and determining the number of interested investors in purchasing shares of the issuing company. At the same stage, the issuer and the underwriter arrange a "road-show" - they conduct a series of presentations to potential investors, based on the results of which the "equilibrium" price is established. It could be also the case to completely abandon the IPO if the demand for the issue is too low.

Step 4: Meet SEC filing requirements and issue a prospectus. At this stage, the company provides all the necessary information and the prospectus to the SEC and is awaiting its decision. As soon as the registration is confirmed by the SEC, the issuing company can begin activities to promote the issue, while in the process of considering the company cannot issue any securities.

Step 5: Allocate stock to those who apply to buy it at the offering price. The equilibrium of the demand and the supply is crucial, otherwise, there are the following circumstances: (i) If the demand for the stock exceeds the supply (which will happen if the offering price is set too low), a company will have to ration the stock; (ii) If the supply exceeds the demand, the investment banker will have to follow the underwriting agreement and either fulfil the underwriting guarantee and buy the remaining stock at the offering price (Firm commitment) or cancel the issue (All or Noone Agreement) or do nothing (Best efforts agreement).

Let us describe how price for the IPO issuance can be identified. Generally, three methods are used:

1. **Tender offer (fixed price offer)** using which underwriters allow investors to subscribe for shares at a single price which was determined by the company in cooperation with its financial advisors. To reduce the risk of non-successful offering the price could be established on the level which guarantees oversubscription. However, oversubscription is not always beneficial for the issuing firm and can cause some negative consequences. In the case of oversubscription, the shares are scaled back by the amount of oversubscription. For instance, if a company received orders for 1.5 million shares instead of 1 million planned, the investors will receive 1/1.5 = 67% of shares. This leads to the issue of the "real" and "nominal" oversubscriptions which could arise. Sometimes, investors anticipate oversubscription and following scaling back of shares and therefore, on purpose, submit to the underwriter subscriptions in excess of their true demand to get the number of shares they want. However, the expected oversubscription might not occur, and an investor will get shares in excess of his or her demand. Subsequently, such an investor will sell excess shares and cause price fluctuations which are not good for the issuing company. Additionally, pricing the IPO at the level below of clearing price (to allow for oversubscription) could attract "wrong" investors, whose aim is to just gain the return (as underwriters set offering price at a discount). Such investors do not care about the long-term prospects of the company and could be classified as free-riders – they are aimed at "cheap" investment in an IPO company.

2. **Book-building process**, using which, underwriters provide investors with a price range and not a single fixed price as it happens with the tender offer. Investors indicate their demand by pointing out the number of shares which they would like to obtain within price ranges. Then underwriter (which serves as a book-runner) collects such responses, analyzes the demand for the issue and comes up with the issuance price. Although the book-building process allows studying the demand more precisely, the price is still set at a discount to obtain a well-receiving offering. In case of oversubscription, a book-runner has both options to scale shares back (as in the case of the tender offer) and to choose among investors. The latter option could potentially lead to a conflict of interest: book-runner could be prone to choose short-term investors with which he would like to establish or strengthen partnership relations (as IPO shares could be profitable short-term, as described above).

3. **Auction process** which makes pricing process clear and allows to eliminate problems associated with the book-building process. The underwriter has the role of auction manager and collects orders from the entire pools of investors, not only one determined by the underwriter itself. These bids are used to determine the price of the issue. In the case of oversubscription, investors receive scaled back shares. Generally, the auction process combines tender offer and book-building

process: distribution happens similarly to tender offer whilst price determination is similar to the book-building process.

In most cases, there is a lockup period, during which the preexisting shareholders cannot sell their shares for the 180 days after the IPO (U.S. Securities and Exchange Commission, n.d.). Quiet period refers to the time period which lasts "at a minimum, from the time an issuer files a registration statement with the SEC to the time that SEC staff declare the registration statement "effective." (U.S. Securities and Exchange Commission, n.d.). It means that issuers and other involved parties must carefully follow rules regarding offering-related communications.

Phenomes of underpricing is well-known among IPOs. According to the survey of 336 CFOs of performed by Brau and Fawcet (2006) the most common justifications for the underpricing of the IPO are: (i) the desire of companies to compensate investors for the risk of participation in the IPO (59% of respondents voted for this option); (ii) to incur the favour of institutional investors (iii) to ensure a wide base of owners; (iv) to increase the post-issue trading volume of the stock. The fact of underpricing in IPO is common as J. Ritter (2020) on his website reports that the means of first-day returns over the period of 1980-2020 years were 18.4 and 20.1 per cent (equal-weighted and proceeds-weighted, respectively). The fact of underpricing could be described by "Winner's curse". During the process of collecting bids (either in book-building process or auction process) the "winning" investor is one which priced the company on a level above than averages of other investors meaning that the investor potentially overestimated the true value of the firm (Berk & DeMarzo, 2017). Thus, investors could reduce their bid to reflect that optimism about the company in the case of their win.

Having discussed key concepts and processes of IPO, let us consider the typical IPO timeline which is presented in the table below:

Table 1.2 Typical IPO Timeline

6-12 Months Before	**0-2 Months Before**	**0-1 Months Before**	**Offering Day**	**1-30 Days after**	**5-7 Days after**
- IPO Decision. Company decides to do an IPO, decides preliminary proceeds and number of shares to be issued (although the final price and amount of	**-Marketing.** Roadshows during which companies' executives together with financial advisors make presentations for investors, provide them with "red	**-Underwriting syndicate formation.** A Group of investment banks and/or broker-dealers is formed to be responsible for selling the issue	**-IPO Execution.** The distribution of shares happens on this stage in accordance with the underwriting agreement and the final prospectus with actual price is	**Price stabilization.** Underwriters sometimes use overallotment options (greenshoe option) to stabilize the price. Sometimes "brownshoe"	**Closing.** A company receives proceeds whilst investors receives stocks (in electronic or paper form)

shares will be determined later) **-Working Group appointment.** Company determines a working group for the IPO process: it determines whom to approach for advisory services in low, accounting and investment banking. **-Company preparation.** Some companies need to adjust their corporate governance features, e.g. number of independent directors, create committees and so on **-Registration process.** Registration with local regulator (e.g. SEC in US)	herring" prospectus		published and registered with authorities.	option is used. Both surve the common purpose, the only difference is that greenshoe is a call option which allows an underwriter to buy additional securities from the issuing firm, whilst brownshoe is a put option which allows an underwriter to sell securities to the issuing firm. Greenshoe option	

Source: created by the authors with reference to Damodaran (2010) and Berk & DeMarzo (2017).

Going public is a complex process which involves many participants for a long period of time. This is reflected in the costs of the IPO, the major of which are as following:

1. The direct costs is the underwriter's commission (spread). On average, it is 7% (Lee et al., 1996),

2. Legal and administrative costs of the issue (including costs of preparing registration statements and registration fees);

3. Underpricing of the new stocks is another cost item because usually the issuing company sets the price in such a way as to provide investors with a positive return on the first day of trading (Berk & DeMarzo, 2017). The beneficiaries of such a decision are the underwriters which have entered into with Firm Commitment contract (which bear the risks of non-sale of the buyout), as well as the investors themselves, who receive a guaranteed positive return after the placement. On average, the return during the first day remains at the level of 10-15% (Ibbotson et al., 1994). The costs of such benefits are borne by the original owners of the issuing company and can be explained by the following argument: «The loss of wealth is a function of how much of the equity of the firm is offered in the initial offering» (Damodaran, 2010, pp. 485). The author also claims that If the issuer issues only 10% of its shares, "underestimation" during the placement plays a positive role for the company, since the news of the growth in the value of shares after the opening of trading creates a favourable background for subsequent issues.

4. Loss of control. During the listing process, a company offers a portion of its shares to the public. These shares are referred to as "free float" - shares which are not held by insiders or the government. It means that current shareholders dilute their stake in the company and thus the control as well.

5. Short-term focus. Managers of public companies could be focused on achieving short-term results (such as improvement short-term earnings) rather than long-term investments which could be much more beneficial for the company in general.

6. Strategical costs. Reporting and disclosures allow competitors to get information about the firm's strategy, current objectives and results.

It is needed to be mentioned, however, that IPO is not the only option for a company to become public. There are some other ways which we describe briefly:

- **Direct listing** – a process of going public which implies that companies offer their shares directly to the investors, without underwriters. Thus, a direct listing is much cheaper for the firms but much riskier at the same time. This method is more appropriate for well-known companies which will not experience difficulties with the marketing process (so the investors know the company well). For instance, Spotify and Slack used this strategy in the year 2018 and 2019 respectively.
- **Reverse takeover** (sometimes also referred as a reverse merger or reverse IPO) – a process during which a private company buys a controlling stake in a publicly traded company and then exchange its private shares for ones of a public company and the merged entity becomes a public company. In this case costs and required time are much lower, however, no additional capital is raised;

- **Private placement** (SEC Rule 144A) allows firms to sell their shares to sophisticated investors without full registration process and reporting requirements.

The choice for a company between staying private or going public implies a trade-off between the potential gain from such a decision and the cost of executing it. We discuss the reasons for the company's IPO in the next paragraph.

1.2 Motives of companies to go public

Some authors (e.g. Damodaran (2010) and Berk & DeMarzo (2017)) name increased liquidity and improved access to capital as the main reasons for the IPO. Public companies usually have access to much larger amounts of capital by the means of public markets (at the initial public offering and subsequent placements). Ritter & Welch (2002). also agree with this statement and argue that "Nonfinancial reasons, such as increased publicity, play only a minor role for most firms" (pp. 1796). They also add that "firms go public in response to favorable market conditions" (pp. 1802).

The other reasons of conducting IPO for the companies were analyzed be several researches.

1. Achieving optimal capital structure (minimizing cost of capital)

James and Brau (2010) refer to researches made by Litzenberger (1973), Kim (1978) and Williamson (1988) and claim that managers issue public equity (i.e., go public) when the influx of IPO proceeds will decrease the overall company cost of capital, thereby maximizing firm value.

2. To overcome borrowing constraints/Increase bargaining power with banks. Pagano et al. (1998) claim that "conventional wisdom" that conducting an IPO is just a stage of growth for the company cannot be the only explanation for the decision to go public. They also claim that it is not in the line with the pattern of listing because they found that there are some large companies in developed markets which are not public. At the same time, in Germany and Italy "publicly traded companies are the exceptions rather than the rule" and that "quite a few private companies are much larger than the average publicly traded company". Based on these facts the authors assumed that the decision to go public is a choice, not just a stage of the lifecycle. The results of their research confirmed a positive correlation between the size of the company and the probability of the company to conduct the IPO, however, at the same time, the following findings were obtained:

- The companies go public "to rebalance their accounts after a period of high investment and growth" (pp. 28);

- The decision to go public "enables companies to borrow more cheaply. Around the IPO date the interest rate on their short-term credit falls and the number of banks willing to lend to them rises" (pp. 28).

3. To establish a market price for subsequent sell-out. One of the reasons for the IPO may be the establishment of the market price for the purposes of subsequent sale of shares which are owned by the owners. This point of view is presented in a number of works. For instance Pagano et al. (1998) found that "IPOs are followed by an abnormally high turnover in control" (pp. 28) and that "this occurs even though the controlling group always retains a large controlling block after the IPO" (pp. 28). The authors found that "the median percentage stake of voting rights held by the controlling group falls by 30 points at the time of the IPO and by 5 more points in the three subsequent years" (pp. 24). However, the percentage of ownership still remains on the level above 60% (which allows such owners to have a significant influence on the company's decisions). They also found that owners of approximately 16% of newly public companies sell their controlling interest on the three following years after the IPO, meaning that sell-out by shareholders could be a motive for the IPO decision of the companies.

4. To increase liquidity or allow insiders to cash-out their initial investment. The issuing company can issue two different kind of shares during the IPO process: primary shares which are issues solely for the IPO purposes and secondary shares, which were previously sold to the firm's investors (for instance, VC or PE investors). The research of Jenkinson and Ljungqvist (2001) shows that 23% of IPOs in Germany from 1980 to 1990 issued only secondary shares, while in Portugal 2/3 of the IPOs consisted of secondary shares' issuance. The placement of such shares does not entail the attraction of capital to the company, since all funds after the sale are distributed among the investors selling their share in the issuing company. Thus, at least partially, the version that some companies go to IPO in order to give their investors an opportunity to withdraw funds invested in the company earlier could be confirmed.

5. Reputational reasons. Aggarwal et al. (2002) claim that conducting an IPO promotes a company in the market and therefore can be a strategic decision. The effect is especially strong if the issuing company is a "first mover" (the first in the industry to conduct the IPO) or if the issuer is exposed to significant stocks' underpricing. The authors found that the effect of underpricing has an impact on the website traffic of IPO companies, which is a direct measure of product market performance for internet firms.

6. Creating acquisition currency. Brau and Fawcett (2006) found that the possibility to create an acquisition currency was the most popular answer among respondents (CFOs of 336 companies). Thus, this option was more popular than minimizing the cost of capital, obtaining the observable value of a firm or reputational reasons.

7. Other reasons. Among other reasons we could name following ones: (i) to create shares for compensation and (ii) to increase monitoring/analyst coverage meaning a possible increase in liquidity and information about the company.

1.3 Performance of companies after the IPO

As already mentioned, in the short term after the IPO, the profitability of new owners increases due to the phenomenon of "underpricing". What about long-run performance of IPO companies?

Ritter (1996) found that newly public firms performed worse than a benchmark portfolio during 3 years after the IPO date.

Two alternatives are used in the research to capture the comparison of the firms' after-IPO performance:

1. Cumulative average adjusted returns (CARs). CARs are calculated with monthly portfolio rebalancing, where the adjusted returns are computed with usage of several benchmarks. As for the benchmark portfolios, four different types were constructed: (i) the CRSP (Center for research in security prices) value-weighted NASDAQ index, (ii) the CRSP value-weighted Amex-NYSE index, (iii) listed firms batched by industry and size and (iv) an index of the smallest size decile of the NYSE.

The benchmark-adjusted return for the stock was found as a difference between the raw monthly return of the stock and its benchmark. The average benchmark-adjusted return on a portfolio is the equally-weighted arithmetic average of the benchmark-adjusted returns. Finally, the cumulative benchmark-adjusted returns are the summation of the average benchmark-adjusted returns.

2. 3-year buy-and-hold returns are calculated as raw returns with monthly compounding. Then, for comparison purposes, the coefficient of Wealth Relatives (WR) is calculated by the following formula:

$$WR = \frac{1+average\ 3year\ total\ return\ on\ IPOs}{1+average\ 3year\ total\ return\ on\ matching\ firms} \quad (1)$$

WR is then just simply compared with the 1.00. If the amount is greater than 1, then IPOs outperformed a portfolio on matching firms; if less than 1, then IPOs underperformed.

The results of the research (Raw returns, Nasdaq-adjusted returns, Value-weighted-adjusted returns, Matching firm-adjusted returns and Small-firm-adjusted returns) are presented in the following picture:

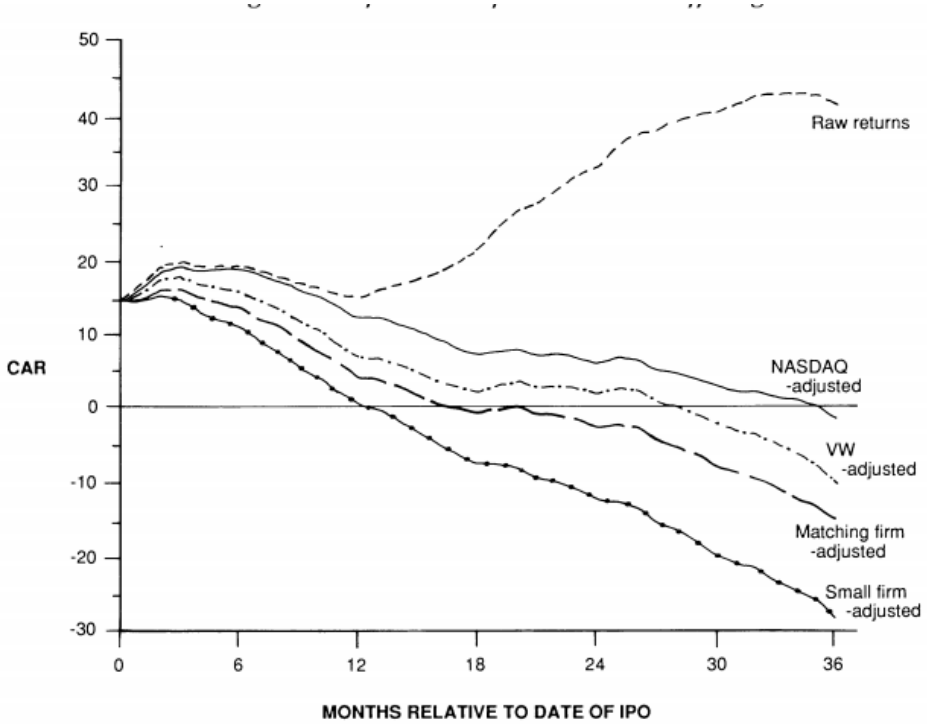

Figure 1.1 Cumulative average adjusted returns for an equally-weighted portfolio of 1 526 initial public offerings in 1975-84, with monthly rebalancing. Source: J. Ritter (1996)

It is clear from the graph that IPO companies start experiencing decline in adjusted returns shortly after the IPO date and reach zero starting approximately from 12 to 36 months based on different adjustments methods. However, the author questioned observable underperformance for the period beyond five years with reference to Ibbotson (1974) work**.** According to J. Ritter's statistics on his website, the average 3-year buy-and-hold abnormal return for IPO companies over the years 1980-2019 is 24.4% which is less than market-adjusted return by 15.8%. The author names possible explanation for long-run (measured as a 3year period) underperformance as follows: 1) erroneous risk measurement; 2) failure; 3) excessive optimism of investors during the issue (too high aftermarket price after the IPO).

The following researches confirm the evidence of long-run underperformance of IPO firms. For instance, Chinese companies on U.S. Market underperformed by approximately 60 per cent over the 3 years measured as measured as the return on the stock less the return on the CRSP value-weighted index over the 2000-2010 years IPOs (Jindra et al., 2014). The evidence seems to be the

same at least for some of the European markets. For instance, Levis (1993) found that IPO firms listed on London Stock Exchange during the period 1992-2005 underperformed compared to benchmark portfolios of FTA all share index in 10 out of 14 years of IPO companies. Abnormal return was measured as 3-moths BHAR with monthly rebalancing (the same approach as Ritter used).

Brav et al. (2000) also found that "On an equal-weighted basis, IPO firms underperform broad market benchmarks by a wide margin, underperforming the S&P by 44% and NASDAQ by 31%" (pp.17). They also mention that "Value weighting the IPO firm returns cuts this underperformance in half" (pp.17). However, the authors found that "IPO returns are similar to the returns on similar size and book-to-market nonissuing firms" (pp.1). At the same time, Ritter & Welch, (2002) still found that "the average IPO underperformed the CRSP value-weighted market index by 23.4 per cent and underperformed seasoned companies with the same market capitalization and book-to-market ratio by 5.1 per cent" (pp. 1795).

Goergen et al. (2007) obtained the following results: (i) a positive relationship between the size of a firm and its long-run performance (measured as BHAR with monthly rebalancing), (ii) no significant relationship between the age of the firm and its long-run performance, (iii) no significant relationship between underwriter reputation and long-run performance. The authors also tried to include an impact of the pre-IPO performance of companies on its long-run performance. A negative relationship was found between the profitability of a firm prior to going public and its long-run performance (profitability is measured as the average pre-tax profits (or losses) for the last three years before the listing). The authors also found a significant relationship between the degree of multinationality (which is measured by dummy-variable as presence in a particular continent) of a firm and its long-run performance.

Summary of Chapter 1

IPO is a complex process which requires significant direct and indirect costs, time resources and involvement of many participants from different spheres of competence. Typical IPO process takes from 6 to 12 months starting with preparation of the company and following by determination of working group, marketing, filling registration, execution and price stabilization stages. The decisions which firms make during each step are crucial for IPO process in general. Thus, based on its circumstances, companies need to find an appropriate underwriter (with suitable expertise and network connections) and decide on the type of an agreement with the underwriter (and thus the risk a company would like to bear during the issue). Choice of the underwriter does matter as the

underwriter becomes a responsible for the marketing and selling processes, which influence the success of the IPO. However, the choice of other advisors should not be underestimated. Their expertise and efforts contributes to the quality of the information, which a firm needs to provide the SEC with, and timing of the deal execution.

A company could become public for different reasons, although the common ones are to raise capital and to increase liquidity. At the same time, the desire to attain an optimal capital structure (James & Brau, 2010; Pagano et al., 1998), allow existing shareholders to exit their investments and increase liquidity (Pagano et al., 1998; Ljungqvist, 2001), achieve a reputation of a public firm could be drivers of the decision to go public (Aggarwal et al., 2002). Moreover, it was documented thanks to the survey conducted by Brau and Fawcett (2006) that companies consider IPO as "first step" to start acquisition activity.

Nevertheless, empirical evidence suggest that IPO firms underperform in the long-run compared to benchmark portfolios (depending on benchmark portfolio construction the result of the underperformance is different in terms of the size of underperformance but the fact is sustained across different approaches). Possible explanation for such underperformance in long run is that IPOs are overvalued and over the following years achieve their fair value. Companies could decide to go public at the moment when it achieved attractive operating results and investors could overweight such results. Once the results worsen the investors react accordingly and share price of companies decreases.

The fact that new IPO companies are prone to acquisition activity and that IPO companies underperform in the long-run turned out to be academically undiscovered. To analyze it more precisely we start with studying theoretical background of M&A deals and then consider M&A activity of the newly public companies in more details in the next chapter.

CHAPTER 2. THEORETICAL BACKGROUND AND LITERATURE REVIEW OF M&A DEALS

2.1 History of M&A deals and its types

The M&A market is characterized by high activity: over the past 20 years, on average, transactions in the amount of more than $ 2 trillion are made per year. Two parties participate in the M&A transaction: the buyer (acquirer, bidder) and the seller (target). There are two main mechanisms for changing ownership and control of a public company: (i) another corporation or group of people may acquire a target firm; (ii) a target firm may merge with another firm. In both cases, the acquiring entity must purchase the shares or existing assets of the target firm for cash or something of equivalent value (for example, for the shares of the buyer company or the newly merged corporation).

The M&A market is characterized by peaks of high activity, followed by a decline, which is called merger waves. Harford (2005) claims that M&A transactions are characterized by the greatest activity during economic growth, and their correlation with the growth of prices in the stock market (bull markets) is also traced. Many of the technological and economic conditions that drive market growth also motivate managers to "shuffle" assets through mergers and acquisitions. Most likely, the peaks of M&A transactions coincide with the peaks of economic cycles. The description and characteristics of historical merger waves are presented in the following table:

Table 2.1 Merger waves based on U.S. market

Wave	Premises	Deal types	Reasons for the decline in activity
First wave (1897 – 1904)	Striving for efficiency, weak enforcement of the Sherman antitrust act, migration to the west, technological changes	Horizontal deals. Large companies acquired small ones. Main industries – primary metals, transport, mining	Fraudulent financing and the 1904 stock market crash
Second wave (1916 – 1929)	U.S. involvement in World War I and the economic dawn in the postwar years	Horizontal, aimed at increasing the market share	The Clayton Antitrust Act and the Stock Market Crash of 1929 year
Third wave (1965 – 1969)	Stock market growth, (high P/E ratios)	"The era of conglomerates". In most cases, the buyers acquired companies that were not related to the main business, because under the existing antitrust laws, companies were prohibited from acquiring other companies from similar industries. Companies with high P/E ratios acquired companies with low P/E ratios and	Over time, the number of fast-growing companies with a relatively low P/E ratio has decreased. The increased level of prices for target companies and the level of debt burden of conglomerates led to the shortening of M&A transactions

		increased the EPS of the combined company, which, as a result, increased the share price – as long as P/E (combined company) ≥ P/E (acquiring company)	
Fourth wave (1981 – 1989)	Active involvement of foreign investors in the American market; Easing the antitrust policy	Hostile takeovers: The buyers acquired a poorly performing conglomerate and sold its businesses at a price higher than the purchase price. The transactions were mainly carried out with the involvement of a large share of borrowed funds (LBO)	Deterioration in the performance of LBO deals; LBO transactions fell on hard times: increased cases of LBO bankruptcies and a slowdown in the economy as a whole. An additional factor was also the withdrawal from the market of investment bank Drexel Brunham, a leading underwriter of high-yield bonds (junk bonds), which were used to finance the LBO
Fifth wave (1992 – 2000)	The longest-running economic expansion and the US stock market boom, boosted by the progress of the technological revolution, ongoing deregulation, the reduction of trade barriers, and the global trend towards privatization	Strategic, global (friendly) transactions between companies from related industries. The main reason is to create a strong company that can compete globally	"Internet bubble", the 2001-year US recession and slowing global growth
Sixth wave (2003 – 2007)	Low interest rates and rising stock market	The rebirth of Leverage. The stage is characterized by transactions with a high level of borrowed capital and private equity investments (Private equity investments – takeovers, financed by limited partnerships). Usage of mortgage-backed securities and syndicated debt	The 2008 financial crisis

Source: designed by the author with reference to Berk (2017) and DePamphilis (2010)

Despite the very negative consequences of the 2008 financial crisis, the activity of M&A transactions, in dollar terms, increased again in 2014-2015. According to Thomson Reuters (n.a.) transactions totaling about $ 5 trillion were announced in 2015, setting a new record.

Mergers are divided into three main types: horizontal, vertical, and conglomerate. T**he horizontal type** is characterized by a transaction between competing companies that produce the same/similar product or provide the same/similar services. **The vertical type** implies a transaction between “buyers and sellers”: this is an association of companies that operate at different stages within

the same industry. **The Conglomerate** type is a union of companies which operate in unrelated industries: the parties are not competitors and are not bound by a buyer-seller relationship within the same industry.

Acquisitions are also characterized by three types: complementary, supplementary, and conglomerate**. In complementary transactions**, the buyer acquires a company that compensates for the certain disadvantage of the buyer. An example would be a situation where the purchasing company has strong production but weak marketing or sales. A target company may have competence in marketing or sales but have a weakness in production processes. **In supplementary transactions**, both companies are similar: the buyer reinforces the strengths of the firm he is acquiring. For example, a steel company acquires another steel company. **In conglomerate transactions**, the buyer company acquires a company that is not related to the buyer's current business operations. An example is the acquisition of Paramount Pictures by Gulf & Western.

2.2 Participants of M&A deals

In addition to the buyer and seller, a large number of intermediaries are involved in the M&A transactions. Let us consider the primary participants.

1. Financial advisors. The function of a financial adviser is performed by an investment bank: it gives an overall financial assessment of the transaction, evaluates and sets the offer price; develops and coordinates documentation; monitors other consultants and persons involved; deals with the strategic issue of the transaction; “lends” its reputation to the transaction. Financial advisors also often help with financing (underwriting equity issues, arranging bridge or long-term borrowing). Currently, there is also an increase in demand for “boutique” advisors: advisors who perform only the functions of transaction advisors. The role of a financial adviser differs depending on which party it represents. Representing the **interests of the buyer**, the advisor mainly focuses on the following tasks:

- search of the target company, evaluating it from a strategic perspective, as well as valuing and providing an honest recommendation;

- providing an advice regarding the appropriate structure for financing the transaction;

- taking responsibility for presentations and road shows, collecting information about potential competitors, receiving feedback from the stock market about the deal and its terms.

Representing **the interests of the seller**, the advisor focuses on the following tasks:

- determination the value of the company in order to determine the highest potential price and provide an honest recommendation;

- assistance to the seller with a forecast of financial results;

- collecting feedback on the offer and the likelihood of its approval;

- negotiations with the buyer;

- in the case of an undesirable transaction (hostile or unsolicited takeover), the advisor develops effective strategies to counteract the transaction and also searches for a “white knight” - a company which is ready to make a deal on the desired terms.

2. Due diligence accountants. Lawyers are involved in structuring the transaction, assessing risks, negotiating tax and financial specifics, and coordinating the negotiation process. Specific tasks also include creating and constantly reviewing purchase/sale agreements and other documentation, participating in discussions about loan agreements, and determining due diligence activity. **Accountants** provide financial structure services, perform financial due diligence, and help create the most appropriate tax structure for a transaction. Accountants also prepare financial statements and perform the audit.

3. Lenders/investors (banks, mutual, hedge, PE and VC firms). This group of participants provides a huge amount of money by investing in companies or lending to them.

4. Market participants. After the announcement of the upcoming transaction, the price of the seller’s shares moves to the price indicated in the announcement, but still does not reach it and is traded at a small discount. There is an investment strategy (Merger arbitrage) that aims to capitalize on this price mismatch. Hedge funds often resort to this strategy. Arbitrageurs can accumulate a significant percentage of shares, which, as a result, allows them to influence the outcome of the transaction. For example, when new buyers arise, arbitrageurs promote their positions directly to the manager and institutional investors: they intend to sell their positions at the best price. Arbitrageurs also monitor the market: they monitor rumours and price movements to determine the target company even before the official announcement. They also have a positive effect on the market liquidity during the transaction: when financing a transaction with cash, arbitrageurs look for the possibility of acquiring shares of the target firm and thereby increase the liquidity for target shareholders who would like to sell their shares on the day of the announcement or in the next period after it. On the other hand, the strategy of arbitrageurs can negatively affect the liquidity of the buyer’s shares when there is a stock financing transaction: arbitrageurs use short positions for the buyer’s shares and long positions for the seller’s shares (short acquirers – long targets), thereby increasing the demand for the buyer’s shares, lowering the share price. As a result, other investors have difficulty selling their shares to the buyer company without suffering a loss.

5. Regulators. Regulatory laws that affect M&A transactions exist at many levels of governments. Some of them affect all firms (laws of federal security service, antitrust, environment, trade unions), others have an impact for certain industries (telecommunications, banking, etc.). As a result, M&A activity, depending on its characteristics, requires certain approvals from the government. From this point of view, the most difficult are international transactions, in which the companies have to get approval from the regulatory authorities of several countries.

2.3 Motives for M&A activity

According to the theory, in the stock market, the NPV of investment should be zero. The fact that the buying company pays a premium for the target company indicates that as a result of such a transaction, the buyer is able to generate additional value that the individual investor cannot receive. Let us consider the main reasons why a buyer is willing to pay premiums to acquire other companies.

1. Large synergy effect – the most common justification of large premiums, which are made by the buyer (Berk & DeMarzo, 2017). Synergies fall into two categories: cost reduction and sales increase. Changes in sales volumes are more difficult to achieve and more difficult to predict, while cost savings are mainly achieved by reducing operating costs: eliminating duplicate objects and reducing the number of employees in "overhead" departments (marketing, sales, etc.). Since such costs are reduced by reducing the number of employees, some researchers Dessaint et al. (2017) have examined whether the degree of employee rights protection affects the activity of M&A transactions. The authors of the article concluded that the higher the degree of protection of rights (the Organization for Economic Cooperation and Development's Employee Protection Index (OECD EPL index) was used as an indicator), the lower the volume of M&A transactions. The synergy effect can also be divided into operational and financial. **Operational synergies** arise from economy of scale and economy of scope. **Financial synergies** are reflected in a decrease in the weighted average cost of capital.

2. Ensuring the growth of the company. A buying company may face the problem of organic growth – when it is unable to maintain or increase growth through its efforts. At the same time, the internal "development" of a company usually takes much longer than the acquisition of another company with the resources available for the buyer's growth. During periods of falling stock prices, this strategy looks most effective.

3. Obtaining the necessary expertise. Companies often need expertise in certain areas to compete more effectively. Faced with such a situation, a firm can enter the labour market and try to

hire staff with the necessary skills, but hiring experienced employees with the appropriate knowledge can be difficult when using unfamiliar new technology. A more effective solution may be to purchase already trained specialists by acquiring an existing firm.

4. Diversification. There are three advantages of diversification.

1) Reduction of idiosyncratic (unsystematic) risk – is equivalent to an increase in shares in the portfolio of investors. However, this advantage is a weak motive for M&A activity: first, the shareholders of the buyer company can independently diversify their portfolio by buying shares of other companies, without paying a premium (acquiring premium) and without incurring transaction costs. Secondly, we have already mentioned that the return on shares of conglomerates is less than the portfolio of individual companies in the same industries.

2) The possibility of raising debt and its cost. All other things being equal, companies that own more assets have a lower risk of bankruptcy, as well as a cheaper cost of debt. Thus, an increase in the benefits of the tax shield, as well as a reduction in the costs of bankruptcy due to the use of borrowed funds, are attributed to the potential benefits of transactions for the purpose of diversification.

3) Liquidity. Shareholders of private companies are often insufficiently diversified: a disproportionate part of their wealth is invested in a private company. Thus, when a buyer purchases a private target company, it allows the owner of the seller company to withdraw their funds from the company (by selling shares) and reinvest them in a more diversified portfolio. Such additional liquidity that the owners of a private company receive can have value and can serve as an incentive to vote in favor of an M&A transaction.

Sometimes hostile takeovers occur. An acquirer, which is called “rider” in such situations, does not meet the support from the board and top-management of the target company. There are some actions which companies could do to secure itself or make an acquisition process much tougher for a bidder in a hostile takeover, let us describe them. Two groups of protection could be identified: pre-offer defenses and post-offer defenses (Berk & DeMarzo, 2017).

Pre-offer defences could be divided into two groups, which are often called “poison pills” and “repellants” because they are a preliminary set of provisions which make a hostile acquisition less attractive. **Poison pills** (which have an official name of “shareholder rights plan”) give shareholders of a target company rights which are very beneficial for them in the event of a takeover. These provisions could be designed by discretionary of the company, however, two most common groups could be identified: flip-in pill and flip-over pill. **Flip-in pill** provides shareholders of the target

company with rights to acquire additional shares in the company at a discount in the event of an acquisition, which results in dilution of the target's shares and thus makes acquisition more expensive for a bidder. **Flip-over pill** gives the right to the target's shareholders to acquire shares of a bidder company at a discount in the event of a takeover. This causes a dilution in the stakes of the bidder shareholders after the acquisition is made. **Repellants** refer to other options which management could do in advance to make a hostile acquirer less interested in the transaction. Some of them are:

- Golden parachutes – remuneration provision which triggers large payments to the target's management in the event of acquisition;
- Possibility to change the location of the business without votes of shareholders – it allows to change jurisdiction to one which could make it more difficult to acquire a company;
- Establishing a supermajority of votes, i.e. a bidder will have to acquire much more shares to have control in the target;
- Having a staggered board which makes a process of a takeover more time-consuming as it prevents the election of the whole Board of Directors at once;

Post-offer defences are actions which are in hands of the management of the target firm at the moment after getting the offer of a hostile takeover. Some of them are:

- Recapitalization (either in form of dividend payments by usage cash balances or leveraged buyback of shares) – which either adds extra debt to the company and thus makes it less attractive for the acquirer or "eliminate" free cash balances, both of which are considered attractive for the bidder;
- White knight defence – a target company approaches another company which is friendlier from the management's perspective, and ask this friendly company to acquire the target;
- Pac-Man defence – considered as an extreme case and implies that the target make the acquisition offer to the bidder;
- Crown Jewel defence – if a bidder is particularly interested in buying specific assets of the company rather than the company itself, the target could sell these assets (or some other valuable assets) to make the acquisition less attractive to the bidder;

Generally, the deal payment could be structured as full-cash, full-stock or mixed payments and each option has its own consequences. For instance, cash payment allows to get the most liquid asset, however, sellers have to pay taxes immediately. In contrast, taxes on gains in stock-based payments

will be incurred at the moment of selling those shares, thus sellers could defer the payment of taxes. Additionally, the selling party shares a risk of created synergies as it now

2.4 Value distribution and performance of M&A transactions

In the situation where the current shareholders of the target company are forced to sell their shares, the transaction must be carried out at fair value. Such requirements, for example, are fixed by law in many American states. In such cases, the fair value is treated as a value that does not include the value arising from the transaction (Berk & DeMarzo, 2017). In other words: this is the value of the target company's shares before the transaction is completed. As a result, the buyer cannot purchase another company at a price lower than its current market value. In practice, most buyers pay an acquisition premium, which is the percentage difference between the purchase price and the market value of the target company. Studies have shown (Betton et al., 2008) that the average premium in the United States for the period from 1980 to 2005 was ~ 43%. The change in cumulative abnormal returns for public and private companies-sellers and companies-buyers in the short term is shown in the following graph:

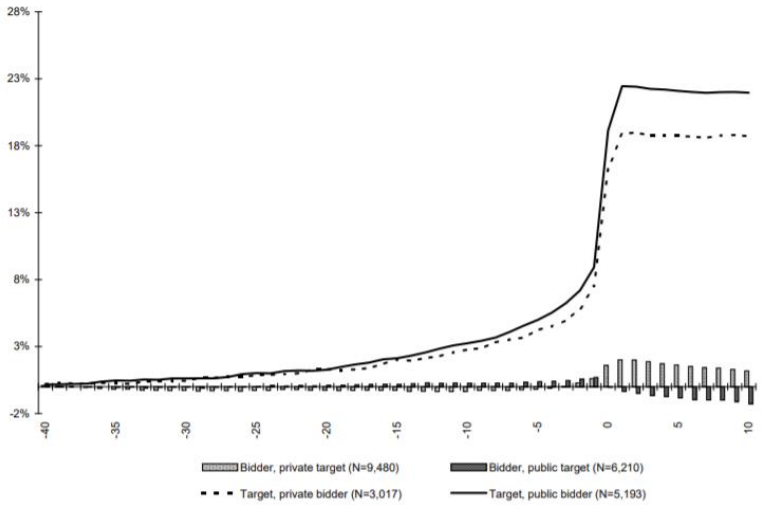

Figure 2.1 Per cent average cumulative abnormal stock returns to targets and initial bidders from day −40 through day 10 relative to the initial control bid. U.S. targets 1980–2005. Source: Betton et al. (2008)

The graph shows the change in profitability in the period for day -40 and day 10 relative to the official offer to buy the target company. The following conclusions follow from the work of the

authors: when a deal is announced, the value of the shares of the target company increases by an average of 15%, and the shares of the buying company by 1%. Moreover, in half of the cases, a decrease in the price of the buying company was recorded.

A group of other researchers analyzed the long-term performance of M&A strategies. For instance, Duchin and Schmidt (2013) looked at cumulative buy and hold abnormal return over a three-year horizon. The research graph is presented below:

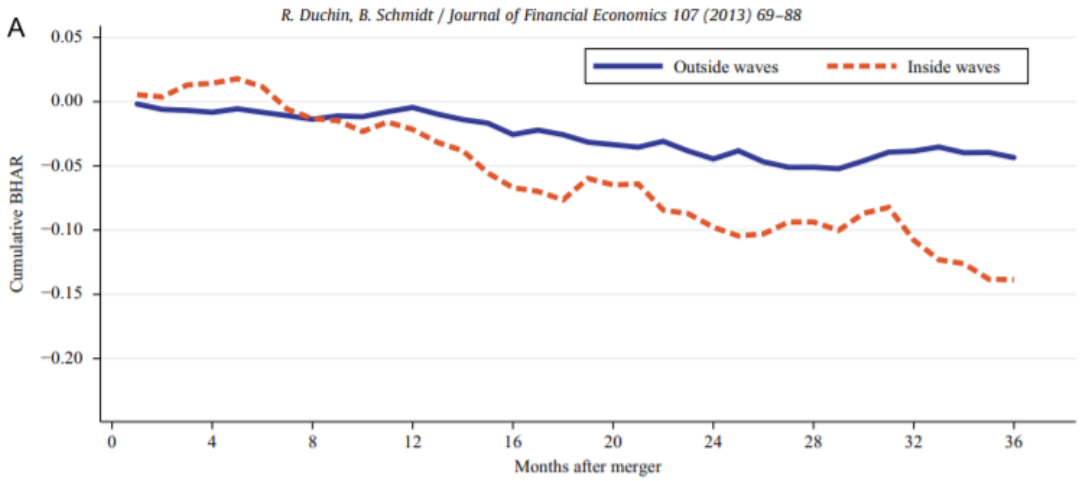

Figure 2.2 Long-term performance of the buyers compared to benchmark. Source: Duchin and Schmidt (2013)

As a benchmark, the authors used the weighted average of two industry portfolios: the buyer's industry portfolio and the target company's industry portfolio. Each of the two portfolios was rated as a value-weighted portfolio of all firms in the same industry not involved in M&A transactions.

The results of the two aforementioned studies indicate that the buying company, on average, does not create additional value for its shareholders, while the target company benefits significantly from M&A transactions.

Loughran and Vijh (1997) also documented the underperformance of acquiring companies in long run. They analyzed the sample of 947 acquisitions made over the years 1970-1989 by U.S. operating firms and found that the difference between return of acquiring firms and matching firms (in terms of size and market-to-book value) is -6.5% (88.2% compared to 94.7%) over the five-year period. Additionally, they found that the type of acquisition and form of payment matter. The authors documented that, on average, the smallest return belongs to the acquiring firms with stock-based payment and with a “friendly” tone (which was identified by considering such factors as targets managers were favourable, the board and shareholders voted and approved the deal). The difference between such acquisitions and benchmark portfolio is -25%. At the same time, on average, the

acquirer stock returns are greater than matching firms' stock returns in cases where cash is used and a tender offer is made (the difference between such acquisitions and benchmark portfolio is +61.7%). Possible reasons for such results are managers' motivation and information asymmetry of stock prices. Managers could use stocks in acquisitions when they feel that stocks are overvalued (after that stocks reach their "fair price" and thus the firm "underperforms"). Managerial motivation could be explained by the fact that in tender offer deals current management of the firm could be fully or partially exchanged. This possibility could give managers additional motivation to work harder so that to not lose its position after the acquisition is made.

Poor bidder performance among glamour firms was documented by Raghavendra and Vermaelen (1998), studying a sample of bidding firms over the years 1980-1991. The authors sorted all acquirers into subsamples of 'glamour', 'neutral', and 'value' firms by sorting on book-to-market ratio measured in the month of the acquisition announcement. Then they analyzed abnormal returns of the companies which were calculated for each firm relative to its size and book-to-market benchmark (i.e. measured as the difference between its monthly return and that of its control portfolio) every month for 36 months after the merger completion date. They found that abnormal returns of glamour acquiring firms are -3.05% compared to the abnormal returns of value acquiring firms -1.37%. The authors assumed that managers of glamour firms appeared to be overconfident about their acquisition abilities, and investors seemed to believe in management's inflated perception of their acquisition skill.

Titman et al. (2004) found that increases in capital investments are associated with negative benchmark-adjusted returns. They analyzed the U.S. market over the 1969-1995 years and introduced the abnormal capital investments variable, which was calculated per the following formula:

$$CI_{t-1} = \frac{CI_{t-1}}{(CI_{t-2}+CI_{t-3}+CI_{t-4})/3} - 1 \quad (2)$$

where CI – is the Capital Expenditure of the firm.

Titman et al. (2004) tested whether returns on portfolios with low abnormal capital investments are significantly higher than those with high abnormal capital investments. The authors justified their findings by suggesting that investors do not fully recognize the empire-building risks associated with an increasing investment. An acquisition could be considered as an investment as well.

Khorana et al., (2011) claim that conglomerates are traded at a discount relative to a portfolio that includes companies from the same industries. On average, the global discount of the conglomerate's shares is 5.5%. Its size is affected by the degree of relativeness of companies in a

conglomerate: the closer the companies are, the smaller the discount. As a result, it can be concluded that decisions on conglomerate-type transactions harm the shareholders of the buyer company. The conclusion is confirmed empirically: in the same work, the authors calculated that the number of conglomerates for the period from 2000 to 2009 inclusive decreased from 1415 to 883 in Western Europe (~38.5%) and from 1393 to 694 (~ 50%) in North America. The evidence about conglomerate underperformance is also supported by study of Asian market by Bain (2021) company, which found that conglomerated underperform other companies by 4% over 2010-2019 years, 7.5% over 2015-2019 years and 9.4% over the 2017-2019 years.

Some researchers found that different in size companies perform differently. For instance, it was found that acquisitions made by smaller firms had announcement returns 2.24 per cent points higher than an acquisition made by a larger firm regardless of the payment's method (cash or stocks) (Moeller et al., 2004). At the same time, not only the size of the company matters but the size of the transactions does as well. The larger transaction entails greater risk and thus higher returns (Hackbarth & Morellec, 2008). However, large transactions are also able to generate significant positive abnormal income (Gell et al., 2010). For example, acquirers' returns on buying product lines and subsidiaries of other companies tend to be higher when the asset size is large relative to the buyer and small relative to the seller. The author mentions that the return could be even 3 times higher compared to approximately the same in terms of value size companies. These results could be justified by the fact that large companies could sell part of their non-operating assets on a discount to get resources quicker which means more favourable prices for the buyer and, as a consequence, better returns.

Method of payment also affects the post-deal performance of the buyer (DePamphilis, 2010). The author claims that investors are learned to consider the stock payment as a signal that the buyer's stocks are overvalued (otherwise managers of the firms would not use stocks to pay for the target). Thus, they adjust their expectations about the company, which drives the market price of the buyer's share to decline.

Operating results were considered by researchers as well. For instance, Rao-Nicholson et al. (2016) analyzed the post-M&A performance of the companies in ASEAN countries over 2001-2012 years. They found that the industry-adjusted operating performance tends to decline in the 3 years following an M&A. They documented that raw performance measured as ROA worsens after M&A deal by approximately 0.55% whilst industry adjusted ROA worsens by 2.25%

Bertrand et al. (2012) studied the sample of acquiring and nonacquiring medium and large-sized Russian firms including both, public and private firms over the 1999-2008 years. They compared

the profitability of companies before and after the M&A deal, measured as a ratio of EBIT to Total Assets. They found that completing one acquisition will decrease firm profitability by 0.005, a domestic deal by 0.003 and the international deal by 0.006

Mayank (2017) analyzed companies from IT/ITeS industries across the globe over the years 2009-2011 and found that operating performance of the companies measured as ROA worsened, on average, by 0.017 for the acquiring firm.

McKinsey's article (2004) discusses the negative performance of mergers as well. The company used its own database of post-merger integration efforts and shared six practical pieces of advice which could be used by managers to overcome the difficulty of synergy effect estimation. These are: (i) to make sure that estimates of top-line synergies are not inflated as it often happens; (ii) acknowledge revenue dis-synergies; (iii) increase estimates of one-time costs; (iv) compare projections with realities; (v) apply outside-in benchmark to cost synergies and (vi) be realistic about the timing. Their advice confirms the hypothesis of management overconfidence (in perspectives of overestimating potential revenue and cost synergies).

Additionally, Aswath Damodaran commented on companies' involvement in M&A activity negatively during his participation at CFA Institute Equity Research and Valuation Conference 2018 (McCaffrey, 2019). A. Damodaran compared acquisitions with an addiction of the companies. “Once companies start to grow through acquisitions, they cannot stop”, he said. A. Damodaran claimed that there were more other ways to create value other than acquisitions. Some of them are: creating a new product, the discovery of a new market or new customers within the current market; to increase share or maintain a share in an expanding market. With reference to the aforementioned McKinsey report, A. Damodaran claims that acquisition is the worst option for companies’ growth, mentioning that the only company which wins in such activity is the target company. A. Damodaran agrees that the company overestimate synergies.

Besides overestimation of synergies, other explanation could be found for the underperformance of M&A deals (Berk & DeMarzo, 2017):

1) Conflict of interest. Managers may have their own motivations to manage a larger company (i.e., to increase the company through M&A transactions): additional compensation for managing a large number of assets, as well as reputation. Research has shown that the board of directors usually increases the rewards of chief executive officers with an increase in the size of the company, even though this increase is due to inefficient acquisitions (Harford & Li, 2007).

2) Self-confidence of managers. Managers may be overly confident in their ability to effectively increase the value of companies, thus blindly following their beliefs, managers make unprofitable M&A transactions.

At the same time, there are some researches which claim that M&A activity is beneficial for the firms. For instance, a recent report of EY (2021) claims that there is a positive correlation between M&A activity and benefits for the company in terms of shareholder return and enterprise. The authors analyzed a sample of 2015-2019 global M&A activity of the companies and used only public companies across major geographies and industries. The authors also found a correlation between the number of acquisitions and the companies CAGR (compound annual growth rate of return). The pattern of high correlation and better performance indicators was observed among all sizes of companies and geographic regions. The highest CAGR of acquiring companies was related to the informational technology industry. These findings are also supported by Bain's report (2021) which states that more frequent acquirers outperform those who acquire less frequently (average total shareholder s return 10.9% vs 7.6%). However, only "top 250 strategic deals" were analyzed by the company in each year.

2.5 M&A activity of IPO companies

There are studies that look at the activity of companies in M&A transactions immediately after the IPO procedure. At the same time, the activity of newly public companies in M&A transactions is observed both on the part of buyers and sellers. Let us consider each activity separately.

1. M&A activity (buy-side) of companies which has recently become public.

Some researchers (Celikyurt et al., 2010) started to analyze this question after the CFOs survey which was published by Brau and Fawcett in 2006 year. The survey resulted in the option "a desire to create an acquisition currency" be the most popular among surveyed CFOs. The authors also point out that «the importance of an acquisition currency is ranked higher than other considerations such as cost of capital and need for VCs and founders to exit or diversify their holdings» (pp. 2). However, it needs to be mentioned, the survey took place in 2000-2002 period, which is characterized by many internet firms went public. Celikyurt et al. (2010) also questioned the survey: «The preponderance of such high-growth company IPOs, combined with intense M&A activity in the overall economy during this period raises the question of whether the results can be generalized to other periods» (pp. 2).

To reach more generalized results the authors have conducted research themselves by creating a 20-years sample of companies' post-IPO activities during 1985-2004 years. Relevant results of the research are following (pp. 3):

1. «Only 19% of IPO firms acquire a private firm in the five years before they go public. After an IPO, 74% complete an acquisition in their first five years as a public company. The typical IPO firm completes only 0.43 acquisitions in the five years before IPO, compared to 4 acquisitions in the five years after its IPO, highlighting the importance of acquisitions for newly public companies».

2. «The average expenditure on acquisitions is substantially greater than either investment (CAPEX) or research and development (R&D). In fact, the average acquisition volume is at least as large as R&D and CAPEX combined, indicating that acquisitions play an important role in the growth of newly public companies».

Thus, the authors have proven that there are some motives for companies to go public before starting their M&A activity.

The authors tried to reveal some justification of IPO before the deals themselves and listed three possible reasons why the IPO decision may be linked to M&A considerations:

1. «Capital infusion motive»: make cash funds more available thanks to increased liquidity
2. Public stocks could serve as an acquisition currency that can be used to pay for future M&A
3. Management's ability to observe the firm's valuation as a public company

The following stage is to set criteria for testing the aforementioned considerations. The authors suggest the following:

1. The number of primary proceeds raised in the IPO should be positively linked to the amount of cash financed M&A activity

2. It is expected to see a higher amount of stock financed acquisitions for IPO firms with an overvalued stock

3. The valuation uncertainty resolution motive suggests that private firms with high levels of ex-ante valuation uncertainty should undertake more cash and stock financed acquisitions after their IPO and thus attract more debt. So, the idea of uncertainty resolution also offers the prediction that the amount of debt capital raised after the IPO should be positively correlated with the amount of cash financed acquisitions.

All of the suggested motives were evaluated and concluded that IPO facilitates M&A by providing an infusion of capital as well as providing ongoing access to capital markets.

Hsieh et al. (2011) state that « A private bidder does not know a firm's true valuation, which affects its gain from a potential takeover» (p. 1). They also point that IPOs facilitate companies with the elimination of uncertainty, resulting in the possibility to develop a more efficient acquisition strategy and increase firm value. The authors also refer to the survey made by Brau and Fawcett (2006) and refer to Celikyurt et al. (2010) stating that newly public firms grow predominantly through M&As in the first 5 post-IPO years. They also refer to Maksimovic et al. (2013) who stated that public firms are more prone to engagement in mergers than private firms. The authors also mentioned that decision regarding participation in acquiring activity of IPO companies is related to "valuation surprise" (i.e. firm's post-IPO value is much higher than expected post-IPO value) around their IPOs. Based on that, they stated that elimination of valuation uncertainty by making an IPO allowed firms to design a more efficient acquisition strategy.

Hsieh et al. (2011) designed a model which:

1. Generates some unique empirical predictions that relate the likelihood and timing of post-IPO M&As to various firm and industry characteristics, such as the degree of valuation uncertainty surrounding a firm, the cost of going public, and the valuation surprise realized at the time of an IPO

2. Assumes rational investors and efficient markets in which securities are fairly priced (whilst some other models suggested by other authors suggest that managers have some private information about firms going public). «Although some information about firm going public is surely asymmetric, it is useful to know which empirical regularities about IPOs can be explained in a more parsimonious world of symmetric information»

3. The authors also claim that their model describes the benefits of an IPO for both, bidders and target companies.

The basic assumption of the model is that firms learn their valuation from the capital market.

Outcomes of the model:

1. The likelihood of observing a post-IPO merger is increasing in the valuation surprise realized at the time of IPO, and the time between IPO and subsequent merger is decreasing in the valuation surprise;

2. The time between an IPO and a subsequent merger is increasing in the degree of pre-IPO valuation uncertainty and is decreasing in the cost of going public, while the likelihood of observing a merger within 5 years of an IPO is decreasing in the degree of valuation uncertainty and is increasing in the IPO cost;

2. M&A activity (sell side) of companies which has recently become public.

Reuer and Ragozzino (2006) disagree with considering IPO as a purely financial choice of the company and desirable end-stage for entrepreneurial companies and emphasize the strategic decision of going public for companies. They tried to justify companies' decision to become public by considering an IPO transaction from the strategic point of view, focusing on potential benefits of the IPO process for further engagement in M&A deals.

The authors use the example of the «Lemon car» market to M&A deals and show their similarities. They notice two reasons. First, an IPO can directly reduce the information asymmetries between the company and prospective bidders. Second, by going public, a company sends signals to potential acquirers, and these signals reduce the effects of information asymmetries that are bound to remain.

Thus, there are some researches that sought to answer the question of whether the decision to go public related to the following M&A activity. However, only one research (Brau et al., 2012) was found which authors try to evaluate the impact of acquisition activity on the long-run IPO underperformance. The authors analyzed the IPO companies of the 1985 – 2003 years and calculated Abnormal Returns for such companies (from 1 to 5 years). Then, the regression was constructed with the dummy variable which reflected whether a company was an acquirer in the 1st year after an IPO. They found that M&A activity could contribute to long-run IPO underperformance (if a company is an acquirer their returns decreases over the considerable years).

To sum up, there is evidence that some newly public companies are interested in the following involvement in M&A deals. Having discussed IPO underperformance in Chapter 1 and long-run underperformance of acquiring companies in this Chapter, we assume that the acquisition activity of newly public companies can contribute to the underperformance of IPO firms, i.e. negatively affect their performance. Thus, the main research question is: *"Does the involvement of a newly public company in acquisition activity negatively affects its performance?"* We will investigate both, market performance measured as a buy-and-hold price return (relative change in price for the period) and operating performance measured from ROA perspective. Previous researches contributed to the long-run underperformance of IPO companies and Acquirers. In line with these researches, we capture the horizon of three and five years the event date (in our case it is an IPO closed date. Additionally, we use a one-year horizon to capture the effect of the acquirer's acquisition activity within a short period of time. Thus, the following hypotheses were developed for the empirical research:

H1a: The involvement of newly public company in an acquisition activity negatively affects its market performance in short-run

H1b: The involvement of newly public company in an acquisition activity negatively affects its market performance in long-run

H2a: The involvement of newly public company in an acquisition activity negatively affects its operating performance in short-run

H2b: The involvement of newly public company in an acquisition activity negatively affects its operating performance in long-run

The research is expected to contribute to the current research gap and there is a lack of publications which are devoted to measuring the impact of acquisition engagement of newly public companies. The results could be used for further investigation of the topic for comparison purposes among countries, markets or types of companies.

Summary of Chapter 2

M&A activity is characterized by several intense periods which are also named waves. Thy types of M&A deals vary with respect to the issues which they are supposed to solve. Similar to IPO transactions, involvement in M&A activity requires plenty of efforts and attraction of different advisors. Typical participants of M&A deal are financial advisors, lawyers, accountants, market participants and regulators.

M&A deals could be friendly or hostile, financed by full in cash, full in stocks or mixed. The researchers documented that these characteristics of the deal could affect its performance. On average, the target company captures all the value created, whilst the acquirer earns nothing from -40 to +10 days (where 0 is the bid announcement date). Long-term underperformance of acquiring firms is also documented with the overconfidence of managers and overestimation of synergies being named as the most common reasons for such outcome.

The little evidence of the impact of acquisition activity of newly public companies on their performance guided as to develop the four hypotheses which will be tested in the empirical analysis.

CHAPTER 3. EMPIRICAL STUDY

This chapter is devoted to testing the hypotheses which were stated in the previous chapter. The chapter consists of four parts: (i) description of methodology; (ii) structure of the sample; (iii) descriptive statistics; (iv) regression analysis and results. To obtain necessary data the following sources were used: Zephyr, Refinitiv Eiknon datastream and Capital IQ databases, website of professor J. Ritter and SEC-fillings of companies.

3.1 Methodology

Two methods are applied in the research: descriptive statistics and regression analysis. This section is devoted to providing the rationale beyond the usage of each method, designing variables of the regression analysis and models to be used in the analysis.

Descriptive statistics

Descriptive statistics is used to reflect features of the data we use in the work so that we could have an overview of the data and compare features of acquiring companies (companies which do an acquisition within the first year after they become public) and nonacquiring companies (which are defined here as companies which are not involved in acquisition activity within the first year after they become public).

Regression analysis

Regression models are to be used for the purposes of testing stated hypotheses. Two types of dependent variable are used: (i) buy-and-hold price return (relative change of the price of a share) for short-term and long-term horizons – to reflect market sentiment and to check the hypotheses with regard to the main principle of corporate finance (maximizing value of the shareholders) and (ii) operating performance metric – ROA (which is defined as net income divided by total assets) – to reflect how the company is affected by the decision to acquire on an operating level.

Accordingly, the empirical analysis is based on the regression models which take into account market-based performance (Price Return being dependent variable) and operating-based performance (ROA being dependent variable) of the companies.

"Market-based" regression models are the following:

Model 1.1:

$$Price\_Return_{0,1}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,1}^{i} + \beta_3 ACQUIRER_1^{i} + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (3)$$

Model 1.2:

$$Price\_Return_{0,3}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,3}^{i} + \beta_3 ACQUIRER_1^i + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (4)$$

Model 1.3:

$$Price\_Return_{0,3}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,3}^{i} + \beta_3 ACQUIRER_1^i + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (5)$$

Table 3.1 Description of variables in "Market-based" regression models

Variable	Definition
Dependent variables	
$Price\_Return_{0,t}^{i}$	Buy-and-hold return, measured as a relative change in the price of a company's share over the period from 0 to t years after the IPO close date, where 0 refers to the closing price after the first trading day of newly public firm
Independent variables	
SIZE	Size of the company calculated as the logarithm of sales at the time when a company conducts an IPO. Chosen as a control variable. Many researches documented the positive relationship between the long-run performance of IPO and size of the issuing firms, e.g. M. Goergen et al. (2007); Levis (1993); Brau et al. (2012); thus the positive sign of a coefficient is expected
MARKET	The market return is measured as S&P 1500 index return for the same period as the dependent variable. The index comprises other S&P indices (such as general S&P 500, Mid Cap 400 and Small Cap 600) and covers almost 90 per cent of American market capitalization (S&P Global, n.d.). Thus, the index is considered to be suitable for approximation for the market return. Chosen as a control variable, a positive sign of a coefficient is expected in line with previous findings of researchers, e.g. Ritter (1991); Brau et al. (2012)
ACQUIRER	Dummy-variable, which is equal to «1» if a company conducted at least 1 acquisition deal within the first year after the IPO. The key independent variable of the research
INDUSTRY DUMMIES	Industry variables. Informational Technology sector is chosen as a base variable (and thus is not included in the regression). The choice of Informational Technology sector being a base variable is justified by evidence of previous reteaches (EY, 2021) and data provided by J. Ritter which found that stocks of this sector outperform stocks from other sectors

"Operating-based" regression models are the following:

Model 2.1:

$$ROA_1^i = \alpha + \beta_1 ROA_0^i + \beta_2 SIZE_1^i + \beta_3 LEVERAGE_1^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (6)$$

Model 2.2:

$$ROA_3^i = \alpha + \beta_1 ROA_2^i + \beta_2 SIZE_3^i + \beta_3 LEVERAGE_3^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (7)$$

Model 2.3:

$$ROA_5^i = \alpha + \beta_1 ROA_4^i + \beta_2 SIZE_5^i + \beta_3 LEVERAGE_5^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i \quad (8)$$

Table 3.2 Description of variables in "Operating-based" regression models

Variables	Definition
Dependent variables	
ROA_t	ROA of a company, calculated by the following formula: $$ROA_t = \frac{Net\ Income_t}{Total\ Assets_t} \quad (9)$$
Independent variables	
$SIZE_t$	Size of the company calculated as the logarithm of sales at the time when a company conducts an IPO. Chosen as a control variable, a positive sign before a coefficient is expected
$LEVERAGE_t$	Leverage of a company, calculated with accordance to the following formula: $$Leverage = \frac{Total\ Liabilities}{Total\ Assets} \quad (10)$$ Chosen as a control variable, we expect to see a negative sign before a coefficient with accordance to the previous researches, e.g. Buchner et al. (2019)
ROA_{t-1}	Lagged ROA of a company, calculated by the following formula: $$ROA_{t-1} = \frac{Net\ Income_{t-1}}{Total\ Assets_{t-1}}$$ Chosen as a control variable, the positive sign before a coefficient is expected
$ACQUIRER_1$	Dummy-variable which is equal to «1» if a company conducted at least 1 acquisition deal within the first year after the IPO. The key independent variable of the research.

The sample is comprised of 530 initial public offerings in 2000-2015 (to allow for the calculation of 5-year performance items) meeting the following criteria: (i) offering in the US market as the market is the most developed one; (ii) offering price of no less than $5 to exclude penny stocks; (iii) no OTC-listed companies (stocks that trade via OTC are typically smaller companies that cannot meet exchange listing requirements of formal exchanges, thus the decision to exclude such companies was made to catch the effect on, let us say, 'convention' public company) and non-US exchange-listed

companies; (iv) no financial sector and REITs and (v) still operating companies. First-year acquirer is classified so if the acquisition closing date occurs before one year passes from the closing IPO date.

3.2 Structure of the sample

Tables 3.3 and 3.4 represent the frequency distribution of 530 IPO firms which is considered to be our sample after meeting the aforementioned criteria.

Table 3.3 Frequency distribution of IPOs by IPO year

IPO year	Frequency	% of total sample	No. of 1st-year Acquirers	% of 1st-year Acquirers
2000	24	4.5%	14	58.3%
2001	12	2.3%	6	50.0%
2002	14	2.6%	3	21.4%
2003	11	2.1%	4	36.4%
2004	33	6.2%	8	24.2%
2005	21	4.0%	13	61.9%
2006	33	6.2%	8	24.2%
2007	31	5.8%	7	22.6%
2008	6	1.1%	0	0.0%
2009	15	2.8%	6	40.0%
2010	29	5.5%	12	41.4%
2011	29	5.5%	13	44.8%
2012	43	8.1%	17	39.5%
2013	76	14.3%	27	35.5%
2014	91	17.2%	27	29.7%
2015	62	11.7%	14	22.6%
Total	**530**	**100.0%**	**179**	**33.8%**

Table 3.4 Frequency distribution of IPOs by sector

Sector	All (n=530)	%	1st year Acquirers (n=179)	%	Nonacquirers (n=351)	%
Energy	41	7.7%	22	12.3%	19	5.4%
Real Estate	33	6.2%	27	15.1%	6	1.7%
Materials	18	3.4%	6	3.4%	12	3.4%
Industrials	58	10.9%	21	11.7%	37	10.5%
Consumer Discretionary	79	14.9%	26	14.5%	53	15.1%
Consumer Staples	8	1.5%	3	1.7%	5	1.4%
Health Care	176	33.2%	35	19.6%	141	40.2%
Information Technology	91	17.2%	25	14.0%	66	18.8%
Communication Services	22	4.2%	12	6.7%	10	2.8%
Utilities	4	0.8%	2	1.1%	2	0.6%

The 1st year Acquirers represent approximately 33.8% of total observations in the sample, which is close to findings of previous research (Brau et al., 2012) whose result was 33.3%. The most

"IPO-committed" sector during the considerable period is Health Care (33.2% of total IPO companies) which is followed by Informational Technology (17.2%) and Consumer Discretionary (14.9%). The least amount of newly public firms was registered in the Utilities (0.8%), Consumer Staples (1.5%), Materials (3.4%) and Communication Services (4.2%) sectors.

Two following table represents frequency distribution of IPOs by age.

Table 3.5 Frequency distribution by age

Age in years	All (n=530)	%	1st year Acquirers (n=179)	%	Nonacquirers (n=351)	%
0-1	22	4.2%	12	6.7%	10	2.8%
2-4	45	8.5%	20	11.2%	25	7.1%
5-9	118	22.3%	30	16.8%	88	25.1%
10-19	138	26.0%	30	16.8%	108	30.8%
20-up	207	39.1%	87	48.6%	120	34.2%

The majority of newly public companies in the sample have the age of more than 20 years, this pattern holds for the first year acquirers as well. In the previous research (Ritter, 1991) the distribution of companies in terms of age were more smooth with the greatest amount belonging to 2-9 years. In our sample, generally, the frequency of IPO firms and first-year acquirers among them increases with the age of firms. It can be explained by a different sampling process which was described before as we consider companies which were neither delisted nor merged nor liquidated in the sample.

The following table combines the age distribution and sector distribution of the sample.

Table 3.6 Frequency distribution by age and sector

	Age					
Sector	0-1	2-4	5-9	10-19	20-up	Total
Energy	7	3	8	6	17	41
Real Estate	11	2	2	3	15	33
Materials	1	1	3	2	11	18
Industrials	2	5	7	6	38	58
Consumer Discretionary	0	2	10	22	45	79
Consumer Staples	0	0	0	3	5	8
Health Care	1	25	52	56	42	176
Information Technology	0	4	31	32	24	91
Communication Services	0	3	5	6	8	22
Utilities	0	0	0	2	2	4
Total	22	45	118	138	207	**530**

It is observable that for sectors such as Energy, Real Estate, Materials, Industrials, Consumer Discretionary, Consumer Staples, Communication Services and Utilities the decision to go public is made in the most mature stage of the sample (up to 20 years). It could be explained by the capital

intensity of such companies and the mature stage of the industries. On the other hand, companies from Health Care and Informational Technology become public at a younger age as they represent so-called "growth" companies, having the potential to perform well in the future. Thus, such companies can attract investors at an earlier stage.

The next table represents the distribution of the sample by companies' sales. Intervals are set the way to capture different size-types companies.

Table 3.7 Frequency distribution by sales

Sales, '000 usd	All (n=530)	%	1st year Acquirers (n=179)	%	Nonacquirers (n=351)	%
0-5 000	88	16.6%	13	7.3%	75	21.4%
5 000-10 000	15.00	2.8%	6	3.4%	9	2.6%
10 000-1 000 000	332.00	62.6%	109	60.9%	223	63.5%
1 000 000-up	95	17.9%	51	28.5%	44	12.5%

The majority of newly public companies in the sample belong to the mid-size companies per the classification of Ohio State University's National Center for the Middle Market. The next table combines sales distribution and sector distribution of the sample. These findings are also consistent with statistics provided by J. Ritter (2020).

Table 3.8 Frequency distribution by sales and sector

	Sales, '000 $				
Sector	**0-5 000**	**5 000-10 000**	**10 000-100 0000**	**100 0000-up**	**Total**
Energy	1	0	29	11	41
Real Estate	6	2	23	2	33
Materials	0	0	6	12	18
Industrials	3	0	35	20	58
Consumer Discretionary	1	0	56	22	79
Consumer Staples	0	1	2	5	8
Health Care	75	11	82	8	176
Information Technology	1	1	79	10	91
Communication Services	1	0	17	4	22
Utilities	0	0	3	1	4
Total	88	15	332	95	**530**

It is clear from the table that the majority of low revenue companies belongs to the Health Care sector (~85% of all companies in the first interval). Usually, such companies have patents and/or license to produce drugs or other medical products and they want to fund their further research and production by attracting funds from public investors. At the same time, companies of capital intense sectors have the greatest amount of sales in the sample, which could be explained by the size of their production at the moment of their IPO. If companies of such industries cannot show investors that

they stable sales, they will not attract investors' attention because such industries are mature and there is a limited growth potential for such companies. Thus, only companies with proven positive operating results could attract the attention of the public investors. Firms from Informational Technology and Communication Services sectors mostly have sales between 10 and 100 mln. dollars.

The following table represents averages of Sales and Age of the whole sample and first year acquirers and nonacquirers separately as well.

Table 3.9 Averages of Sales and Ages of the sample and sub-samples

Averages	**All (n=530)**	**1st year Acquirers (n=179)**	**Nonacquirers (n=351)**
Sales	1 144 304	2 025 377	649 982
AGE	24.1	29	21.6

The table shows that companies in the sample, on average, are more prone to acquisitions (within first year of being public) when they have more sales and when they are older. It could be explained by larger amount of first-year acquirers which belong to more mature industries with bigger amount of sales (see *Table 3.4*).

There is only one company in the sample which simultaneously has zero sales and which made the IPO within the first year after its founding - *Pebblebrook Hotel Trust (NYSE:PEB)*. In its 424B1 SEC form, which is a form that a company must submit to provide additional information that was not included in its initial prospectus application when registering, the company mentions its key risk factors, and says that it "does not have operating history and may not be able to successfully operate the business or generate sufficient operating cash flows to make or sustain distributions to the shareholders". Thus, although such a young company without streams of sales have a great number of risks, it still approached public equity investors in order to achieve their objectives.

A company with the maximum sales at IPO date in the sample is a well-known *General Motors Company (NYSE:GM)* which became public in the 2010 year. Being a 102 years old company at the IPO year, the firm amounted 135 592 000 thousand dollars. At the same time, General Motors is not the oldest company in the sample. There is *Mueller Water Products, Inc. (NYSE:MWA)*, which became public in 2006 year with sales amounted 1 933 400 thousand dollars.

Histograms of distribution by age, the logarithm of age and logarithm of sales for both, general sample and sub-samples, are presented in **Appendices 1 and 2**. Taken into account histograms and data provided in the tables above, we could conclude that newly public companies with greater sales and age are more prone to involvement in acquisition activity in the sample.

The following table represents average price returns for one, three and five years after the IPO date for the companies in the sample

Table 3.10 Average price returns

Horizon	All (n=530)	1st year Acquirers (n=179)	Nonacquirers (n=351)
1 year	11.2%	10.9%	11.3%
3 years	31.1%	27.8%	32.7%
5 years	61.6%	57.8%	63.5%

The table shows that nonacquiring firms experienced slightly greater returns over the considerable periods. The impact of engagement in acquisition activity within the first year after the IPO on price returns for 1, 3 and 5 years after the IPO will be tested further in the regression model analysis.

Table 3.11 Average price return with respect to sectors

Sector	1 year	3 year	5 year
Energy	23.0%	24.1%	39.9%
Real Estate	5.31%	15.4%	24.6%
Materials	19.3%	73.2%	58.3%
Industrials	18.1%	20.0%	31.3%
Consumer Discretionary	18.1%	35.4%	95.9%
Consumer Staples	-2.2%	34.1%	63.7%
Health Care	4.7%	15.4%	31.6%
Information Technology	14.0%	73.4%	148.7%
Communication Services	-5.4%	-15.3%	-5.3%
Utilities	5.0%	93.5%	69.0%

The greatest average price return in the sample belongs to the Energy sector (23%), whilst for 3-year and 5-year time horizons the greatest return belongs to the Informational Technology sector being 73.4% in the 3rd year and reaching 148.7% in the 5th year.

Table 3.12 Average market returns

Horizon	All (n=530)	1st year Acquirers (n=179)	Nonacquirers (n=351)
1 year	5.7%	6.1%	5.5%
3 years	21.1%	20.1%	21.2%
5 years	40.2%	40.6%	40.0%

We can see that market return for the first year of sub-sample of acquiring firms is greater than the market returns for nonacquirers sub-sample. Possibly, market conditions contributed to the decision of newly public companies in the sample to make an acquisition.

Histograms of price returns and market returns are presented in the **Appendices 4 and 5**, respectively.

Table 3.13 Average ROA with respect to sectors

Sector	1 year	3 year	5 year
Energy	6.4%	1.4%	4.3%
Real Estate	0.1%	0.4%	0.8%
Materials	-1.4%	-5.3%	-9.9%
Industrials	2.4%	-7.7%	-4.6%
Consumer Discretionary	5.9%	0.5%	2.6%
Consumer Staples	-1.0%	-2.2%	2.4%
Health Care	-35.6%	-41.2%	-34.7%
Information Technology	-6.3%	-2.9%	-3.2%
Communication Services	-3.3%	-4.8%	-5.4%
Utilities	0.7%	2.7%	1.4%

The operating performance measured in terms of ROA is the worst for the Health Care industry. It could be explained by their negative operating results due to the specific of the industry. Other things equal, a product of such companies require much more time to generate income. It is related to lots of regulatory steps (e.g. approvals of drugs, their subsequent testing etc.) and difficulties with the commercialization of the products. Overall, comparing the outcomes of this table with **Table 3.11** we observe much more negative results. Similarly, it could be explained by the fact that market participants expect these companies to have good results in the future and thus "believe" in the company, whilst on the operating level new public companies do not have any results yet.

Table 3.14 Average ROA of the sample

Horizon	All (n=550)	1st year Acquirers (n=187)	Nonacquirers (n=363)
1 year	-10.37%	-4.05%	-13.63%
3 years	-13.71%	-3.37%	-19.04%
5 years	-10.26%	-1.59%	-14.73%

It is observable that ROA for the first-year of sub-sample of acquiring firms is greater than the ROA for nonacquirers sub-sample. The impact of engagement in acquisition activity within the first year after the IPO on ROA for 1, 3 and 5 years after the IPO will be tested further in the regression model analysis.

The analysis of the sample shows that the least amount of newly public firms belongs to the Utilities (0.8%), Consumer Staples (1.5%), Materials (3.4%) and Communication Services (4.2%) sectors. Each of these sectors represents less than 5% of the total sample. We decided to exclude companies which belong to these sectors and believe it will not affect the result of the analysis. We describe all the variables based on the censored sample in the following paragraph.

3.3 Descriptive statistics

The following table shows the descriptive statistics of variables which are used in the "market-based" models:

Table 3.15 Descriptive statistics for "market-based" models' variables

Variable	Observations	Mean	Std. Dev.	Min	Max
Price Return (1 year)	477	0.112	0.654	-0.949	6.624
Price Return (3 year)	477	0.311	1.190	-0.997	8.497
Price Return (5 year)	477	0.616	1.895	0.999	14.565
MARKET (1 year)	477	0.057	0.135	-0.452	0.371
MARKET (3 year)	477	0.211	0.249	-0.426	0.644
MARKET (5 year)	477	0.402	0.343	-0.301	1.282
SIZE	477	10.92	3.974	0	18.725

From the table it follows that the average price returns for one, three and five years are 11.2, 31.1 and 61.6 per cent, respectively. At the same time the market returns for one, three and five years has means which are lower than ones of IPO firms: 5.7, 21.1 and 40.2 per cent respectively. Correlation matrix of three market-based models are presented in the **Appendix 5**.

The following table shows the descriptive statistics of variables which are used in the "operating-based" models:

Table 3.16 Descriptive statistics for "operating-based" models' variables

Variable	Observations	Mean	Std. Dev.	Min	Max
ROA (IPO year)	447	-0.120	0.294	-2.408	0.986
ROA (1 year)	447	-0.123	0.343	-2.827	0.582
ROA (2 year)	447	-0.155	0.412	-3.230	0.537
ROA (3 year)	447	-0.163	0.459	-3.243	0.877
ROA (4 year)	447	-0.163	0.489	-4.861	1.195
ROA (5 year)	447	-0.129	0.493	-6.643	4.193
SIZE (1 year)	447	11.098	3.859	0	18.828
SIZE (2 year)	447	11.318	3.779	0	18.841
SIZE (3 year)	447	11.576	3.651	0	18.862
SIZE (4 year)	447	11.814	3.494	0	18.865
SIZE (5 year)	447	11.965	3.487	0	18.842
LEVERAGE (1 year)	447	0.427	0.297	0	2.210
LEVERAGE (2 year)	447	0.474	0.335	0	3.365
LEVERAGE (3 year)	447	0.519	0.407	0	4.393
LEVERAGE (4 year)	447	0.549	0.535	0	8.086
LEVERAGE (5 year)	447	0.547	0.496	0	6.925

From the table it is observable that the average ROA of IPO firms decreases over the first four years. At the same time, on average, the companies in the sample grow in terms of Sales over the five-year horizon. As for Leverage, its pattern is not clear: the maximum average leverage belongs to the 4^{th} year in the sample and decreases slightly in the year 5. Correlation matrix of three "operating-based" models are presented in the **Appendix 6**.

3.4 Regression analyses results and discussion

Each model has been tested on multicollinearity by VIF-method. Homoscedasticity is taken into account by the usage of robust function in regression models, which allows to build a better model and meet the requirement of homoskedasticity.

"Market-based" regression models

Model 1.1:

$$Price\_Return_{0,1}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,1}^{i} + \beta_3 ACQUIRER_1^{i} + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.17 Regression of Price Returns for 1 year

	I	II	III
SIZE	0.017**	0.018**	0.015*
MARKET	1.413***	1.415***	1.440***
ACQUIRER		-0.036	-0.017
ENERGY			0.033
REAL ESTATE			-0.160
INDUSTRIALS			0.012
CONS. DISCR.			-0.033
HEALTH CARE			-0.042
Constant	-0.143	-0.142	-0.129
Observations	477	477	477
R^2	0.0891	0.0897	0.0936
Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. Control variables MARKET and SIZE are statistically significant and have positive sings before the coefficients. At the same time, ACQUIRER variable is not statistically significant which means there is no difference in the share price return over the 1-year period of companies which made at least one acquisition within the first year after the IPO and nonacquiring companies. Industry variables are not statistically significant as well. It means there is no difference in the share price return over the 1-year period of companies from the sectors included in the model relatively Informational Technology sector.

Model 1.2:

$$Price\_Return_{0,3}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,3}^{i} + \beta_3 ACQUIRER_1^{i} + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.18 Regression of Price Returns for 3 years

	I	II	III
SIZE	0.046***	0.048***	0.044***
MARKET	1.136***	1.133***	1.238***
ACQUIRER		-0.116	-0.035
ENERGY			-0.610***
REAL ESTATE			-0.693***
INDUSTRIALS			-0.573***
CONS. DISCR.			-0.535***
HEALTH CARE			-0.465***
Constant	-0.405	-0.402	-0.021
Observations	477	477	477
R^2	0.0741	0.0760	0.1081
Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. Control variables MARKET and SIZE are statistically significant and have positive sings before the coefficients. The ACQUIRER variable is not significant, meaning there no difference in the share price return over the 3-year period of companies which made at least one acquisition within the first year after the IPO and nonacquiring companies. For the 3-year price return model, all industry dummy variables are statistically significant and have negative signs. It means that, on average, the price return of companies from these sectors is lower than price return of companies from informational technology sector. The largest spread in price returns of 3-year period relatively to Informational Technology sector companies belongs to companies form Real Estate sector (69.3%). The smallest spread relatively to Informational Technology sector companies belongs to Health Care sector companies (46.5%). The evidence of higher price returns in Informational Technology sector companies is in line with statistics by professor J. Ritter on his website (2020).

Model 1.3:

$$Price\_Return_{0,5}^{i} = \alpha + \beta_1 SIZE_i + \beta_2 MARKET_{0,5}^{i} + \beta_3 ACQUIRER_1^{i} + \beta_{4-8} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.19 Regression of Price Returns for 5 years

	I	II	III
SIZE	0.071***	0.076***	0.054**
MARKET	1.122***	1.220***	1.300***

ACQUIRER		-0.176	0.013
ENERGY			-1.204***
REAL ESTATE			-1.471***
INDUSTRIALS			-1.150***
CONS. DISCR.			-0.669*
HEALTH CARE			-0.976***
Constant	-0.614	-0.611	0.344
Observations	477	477	477
R^2	0.0642	0.0659	0.1141
Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. Control variables MARKET and SIZE are statistically significant and have positive sings before the coefficients. The ACQUIRER variable is not significant, meaning there no difference in the share price return over the 5-year period of companies which made at least one acquisition within the first year after the IPO and nonacquiring companies. For the 5-year price return model, all industry dummy variables are statistically significant and have negative signs. Thus, the pattern of 3-year model results saves in the 5-year model with the greater price returns of companies from Informational Technology sector. The largest spread in price returns relatively Informational Technology sector companies still belongs to Real Estate sector companies (147%). However, the lowest spread relatively companies from Informational Technology sector in the model belongs to companies from Consumer Discretionary sector (66.9%).

"Operating-based" regression models

Model 2.1:

$$ROA_1^i = \alpha + \beta_1 ROA_0^i + \beta_2 SIZE_1^i + \beta_3 LEVERAGE_1^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.20 Regression of ROA for 1 year after the IPO date

	I	**II**	**III**
ROA_0	0.696***	0.697***	0.635***
$SIZE_1$	0.022***	0.022***	0.017***
$LEVERAGE_1$	-0.049*	-0.048	-0.077
$ACQUIRER_1$		-0.013	-0.027
ENERGY			0.060***
REAL ESTATE			0.051**
INDUSTRIALS			0.033*

CONS. DISCR.			0.050***
HEALTH CARE			0.102**
Constant	-0.265***	-0.265***	-0.175***
Observations	477	477	477
R^2	0.5607	0.5610	0.5859
Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. ROA (lagged), SIZE and LEVERAGE variables are statistically significant and save the signs before coefficients for all three models. ACQUIRER variable is not statistically significant, which means there is no difference in the ROA in 1-year after the IPO of companies which at least one acquisition within the first year after the IPO and nonacquiring companies. Industry dummy variables are statistically significant and have positive signs of their coefficients. It means that ROA of companies of Informational Technology sector is lower in 1 year after the IPO than ROA of companies of sectors which are presented in the model. The largest difference in companies' ROA relatively to ROA of Informational Technology sector belongs to Health Care sector companies (10.2%). The lowest difference belongs to Industrial sector companies (3.3%).

Model 2.2:

$$ROA_3^i = \alpha + \beta_1 ROA_2^i + \beta_2 SIZE_3^i + \beta_3 LEVERAGE_3^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.21 Regression of ROA for 3 years after the IPO date

	I	**II**	**III**
ROA_2	0.620***	0.620***	0.624***
$SIZE_3$	0.033***	0.033**	0.034***
$LEVERAGE_3$	-0.249***	-0.249***	-0.247***
$ACQUIRER_1$		0.007	0.002
ENERGY			-0.011
REAL ESTATE			0.025
INDUSTRIALS			-0.061
CONS. DISCR.			-0.015
HEALTH CARE			-0.002
Constant	-0.326***	-0.324***	-0.327***
Observations	477	477	477
R^2	0.6002	0.6003	0.6023

Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. ROA (lagged), SIZE and LEVERAGE variables are statistically significant and save the signs before coefficients for all three models. ACQUIRER variable is not statistically significant, which means there is no difference in the ROA in 3 years after the IPO of companies which at least one acquisition within the first year after the IPO and nonacquiring companies. In contrast to the Model 2.1, Industry dummy variables are not statistically significant, meaning there is no difference in ROA of companies from sectors presented in the model and companies from Informational Technology sector.

Model 2.3:

$$ROA_5^i = \alpha + \beta_1 ROA_4^i + \beta_2 SIZE_5^i + \beta_3 LEVERAGE_5^i + \beta_4 ACQUIRER_1^i + \beta_{5-9} INDUSTRY\ DUMMIES_i + \varepsilon_i$$

Table 3.22 Regression of ROA for 5 years after the IPO date

	I	**II**	**III**
ROA_4	0.368***	0.366***	0.346***
$SIZE_5$	0.036***	0.035***	0.031**
$LEVERAGE_5$	-0.298*	-0.299*	-0.305*
$ACQUIRER_1$		0.267	0.016
ENERGY			0.071*
REAL ESTATE			0.044*
INDUSTRIALS			0.018
CONS. DISCR.			0.069*
HEALTH CARE			-0.045
Constant	-0.338***	-0.308**	-0.290*
Observations	477	477	477
R^2	0.4100	0.4106	0.4170
Prob > F	0.0000	0.0000	0.0000

Note: characters "", "**" and "***" denote variables significant at the 10%, 5% and 1% level respectively*

Table suggests that models I, II and III are statistically significant. ROA (lagged), SIZE and LEVERAGE variables are statistically significant and save the signs before coefficients for all three models. ACQUIRER variable is not statistically significant, which means there is no difference in the ROA in 5 years after the IPO of companies which at least one acquisition within the first year after the IPO and nonacquiring companies. Industry dummy variables demonstrate different results. For instance, companies from sectors Energy, Real Estate and Consumer Discretionary statistically

significant and have greater ROA in 5 years after the IPO than companies from Informational Technology sector. The largest difference belongs to companies from Energy sector (7.1%), the lowest difference belongs to companies from Real Estate sector (4.4%). At the same time, we cannot conclude any differences in ROA in 5 years after the IPO of companies from other sectors (Industrials and Health Care) compared to companies from Information Technology sector.

The following table describes result of the empirical study with respect to the designed hypotheses.

Table 3.23 Hypotheses and results

Hypothesis	Result
H1a	Rejected
H1b	Rejected
H2a	Rejected
H2b	Rejected

As it follows from the analysis, the dummy-variable ACQUIRER remains statistically insignificant in each of six built models. It means that there is no difference in first-year acquiring companies compared to nonacquiring companies in short-term and long-term periods, and share price return and ROA over the considerable periods. This result is somewhat between the results which were obtained from previous researches discussed in the literature review part because it states that Acquisition activity within the first year after the IPO neither creates value (EY, 2021; Bain, 2021) nor destroys it, e.g. Duchin and Schmidt (2013), Loughran and Vijh (1997), Mayank (2017). However, these researched considered acquiring firms regardless their participation in IPO activity, whilst our research investigates acquisition activity of newly public firms.

Comparison is complicated by the lack of similar researches. Brau et al. (2012) documented the contribution of acquisition activity in underperformance of newly public firms, however, the sample of 1985-2003 years was used. Our research is based on the most recent sample (for 5-year return calculation) and could be used as a benchmark for further researches.

Introduction of industry dummy variables in all six models does not have influence on coefficients' signs and significance of other variables, which could characterize the models as sustain. The interesting finding regarding industry variables is that they behave oppositely in "Market-based" models and "Operating-based" models. The difference between companies from Informational Sector becomes observable over the 3- and 5-year "Market-based" models, whilst in "Operating-based" models the difference is observable in the model for 1-year model and for some sectors in 5-year model. Additionally, there are opposite signs of dummy-variable coefficients. The results show that

investors “price” companies form Informational Sectors higher than companies from other sectors in the sample. At the same time, operating performance (measured as ROA) for companies in Informational Technology sector is worse compared to the companies from other sectors in the sample.

Summary of Chapter 3

In this chapter, we described the sample and found that newly public companies actively participate in acquisitions as approximately 34 per cent of companies acquired at least one company within the first year after the IPO.

Based on the empirical analysis we concluded that acquisition activity within the first year after IPO of newly public companies does not affect such companies’ performance. We ran several regression models to capture the short-term and long-term performance of newly public companies. It was proved that engagement of newly public companies in acquisition activity within the first year after the IPO does not affect such companies’ performance compared to companies which do not acquire within the first year after the IPO.

We also considered two types of measures of companies’ performance. We introduced buy-and-hold return measured as a relative price change for 1, 3 and 5 years after the IPO and ROA in 1, 3 and 5 years after the IPO. It was proved that there is no difference in the market and operating metrics between first-year acquiring and nonacquiring IPO firms.

Conclusion

The research is devoted to the analysis of acquisition activity contribution to the performance of newly public companies. The goal was to determine whether the performance of newly public firms is affected by their acquisition activity within the first year of being public. To achieve the goal, the theoretical concepts of both, IPO and M&A transactions, were analyzed; reasons of involvement in both types of transactions were discussed and performance of companies which participate in these deals was analyzed.

On the next step we conducted the empirical study which was aimed at achieving the stated goal. We confirmed that newly public companies actively participate in acquisition activity as approximately 34% of the companies in the sample made at least one acquisition within one year after the IPO. We found that even very young companies or/and companies with no operating history or low revenues become public and acquire other companies within the first year after the IPO.

In accordance with obtained regression results, we rejected all four stated hypotheses and concluded that the performance of newly public companies is not affected in the short and long terms by the involvement of the companies in acquisition activity within the first year of being public.

Compared to our results, Brau et al. (2012) documented that acquisition activity within the first year of IPO companies contributes to its long-run underperformance. However, their results were based on the sample of 1985-2003 years, whilst we captured the most recent time period of 2000-2015 years (to allow for five-year performance items calculations). The more profound comparison of results was not achieved due to lack of researches on the topic, however, we believe that the results of the work could be used for further investigation of this exciting topic (e.g. taking into account non-U.S. developed markets or developing markets).

The results of the research could be useful for different parties of IPO process. Investors could benefit from getting insights about engagement of newly public companies in acquisition deals within the first year after the IPO. Thus, they will not overreact on announcement of acquisition and overestimate its impact on a company's performance. Companies' insiders and their advisors could use our findings as a complementary input whilst analyzing the sources of growth opportunities of newly public companies. Assuming that investors believe that acquisition activity within the first year after the IPO does not affect the performance of newly public companies, underwriters could focus on other strategic plans and drivers of growth during roadshows and other marketing events before the IPO.

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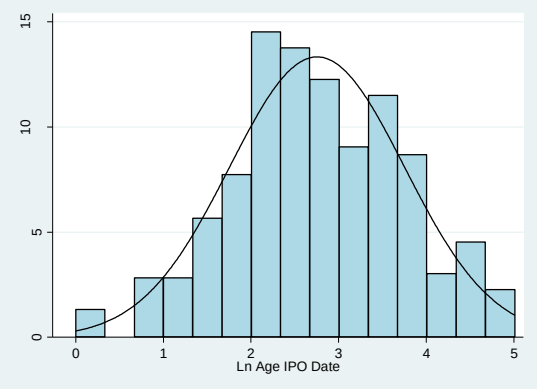
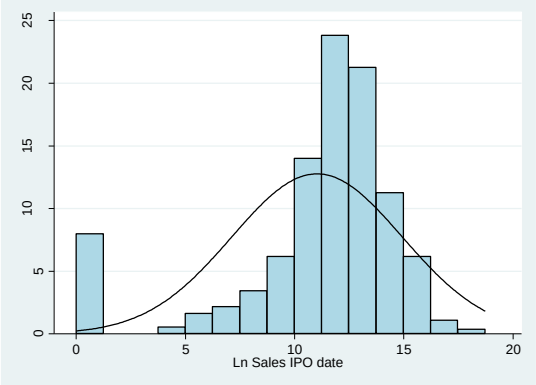
Appendices

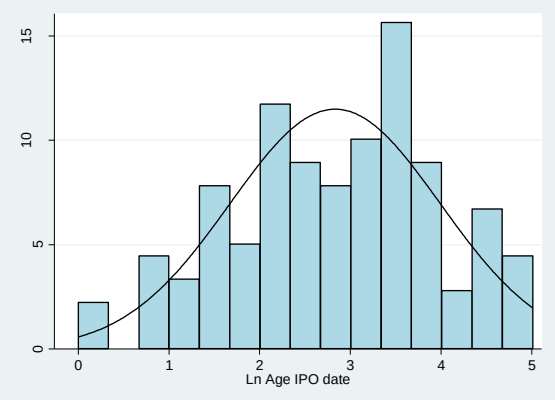
Appendix 1.A: Histograms of general sample, distribution by logarithm of (1+age)



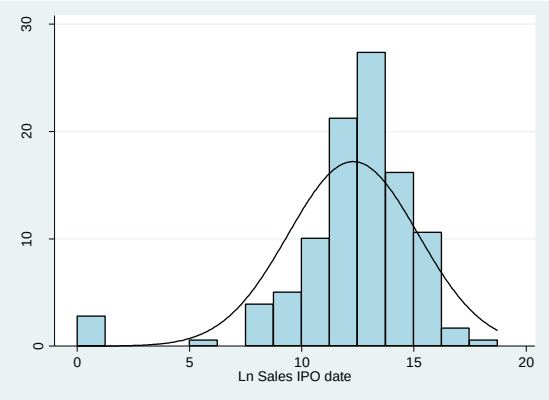
Appendix 1.B: Histograms of general sample, distribution by logarithm of sales



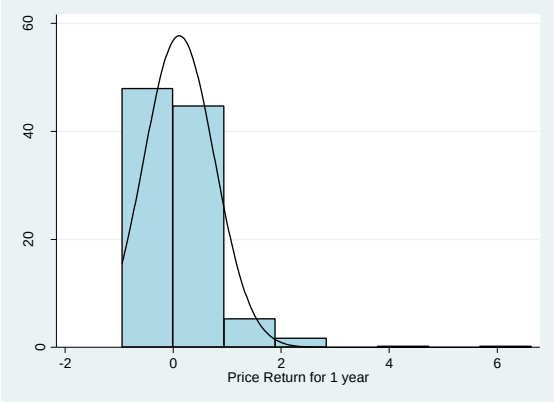
Appendix 2.A: Histograms of first-year acquirers sub-sample, distribution by logarithm of age



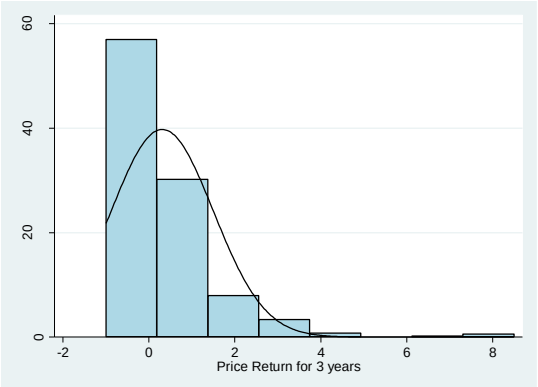
Appendix 2.B: Histograms of first-year acquirers sub-sample, distribution by logarithm of sales



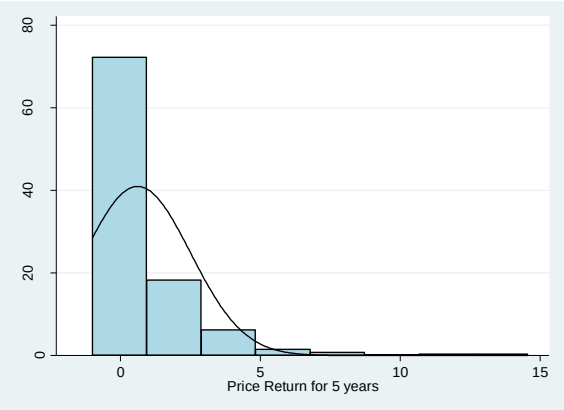
Appendix 3.A. Histograms of Price Return for 1 year after the IPO



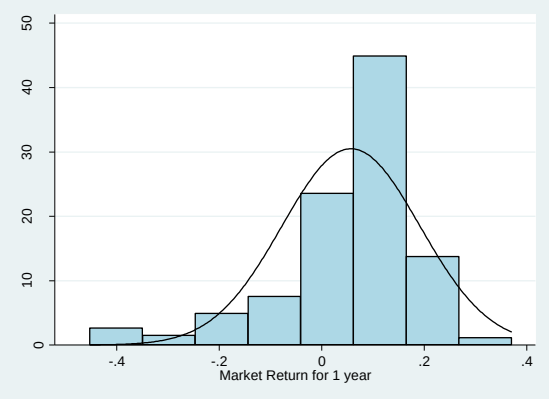
Appendix 3.B. Histograms of Price Return for 3 years after the IPO



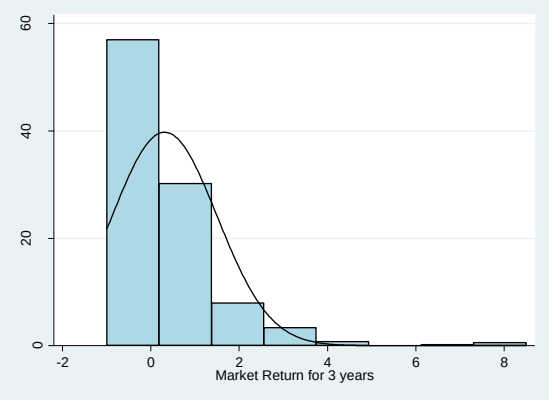
Appendix 3.C. Histograms of Price Return for 5 years after the IPO



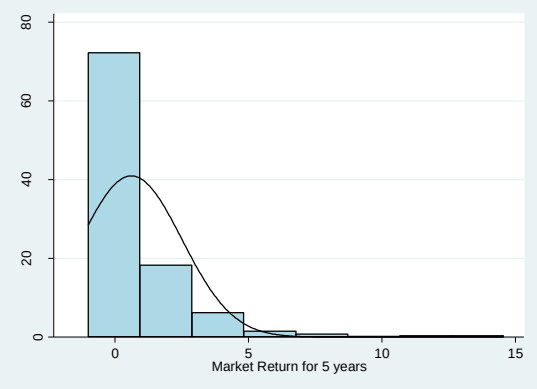
Appendix 4.A. Histograms of Market Return for 1year after the IPO



Appendix 4.B. Histograms of Market Return for 3 years after the IPO



Appendix 4.C. Histograms of Market Return for 5 years after the IPO



Appendix 5.A. Corr. matrix PriceReturn 1 year

	Price Return (1 year)	Market (1 year)	Size
Price Return (1 year)	1.00		
Market (1 year)	0.281*	1.00	
Size	0.099*	-0.007	1.00

Appendix 5.B. Corr. matrix PriceReturn 3 years

	Price Return (3 year)	Market (3 year)	Size
Price Return (3 year)	1.00		
Market (3 year)	0.227*	1.00	
Size	0.138*	-0.052	1.00

Appendix 5.C. Corr. matrix PriceReturn 5 years

	Price Return (5 year)	Market (5 year)	Size
Price Return (5 year)	1.00		
Market (5 year)	0.206*	1.00	
Size	0.1384*	-0.04	1.00

Appendix 6.A. Corr. matrix ROA 1-year

	ROA (1 year)	ROA (IPO year)	Size (1 year)	Leverage (1 year)
ROA (1 year)	1.00			
ROA (IPO year)	0.721*	1.00		
Size (1 year)	0.540*	0.5146*	1.00	
Leverage (1 year)	-0.098*	0.082	0.357*	1.00

Appendix 6.B. Corr. matrix ROA 3-year

	ROA (3 year)	ROA (2 year)	Size (3 year)	Leverage (3 year)
ROA (3 year)	1.00			
ROA (2year)	0.724*	1.00		
Size (3 year)	0.550*	0.5641*	1.00	
Leverage (3 year)	-0.224*	-0.074	0.142*	1.00

Appendix 6.C. Corr. matrix ROA 5-year

	ROA (5 year)	ROA (4 year)	Size (5 year)	Leverage (5 year)
ROA (5 year)	1.00			
ROA (4year)	0.555*	1.00		
Size (5 year)	0.397*	0.477*	1.00	
Leverage (5 year)	-0.355*	0.227*	0.108*	1.00