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MASTER THESIS

VERSLO ĮMONIŲ INVESTICINĖ ELGSENA	**INVESTMENT BEHAVIOR OF BUSSINESS ENTERPRICES**

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INTRODUCTION

Investment behavior are described as how firms evaluate, forecast, analyze, and review the methods for decision making, which include investment psychology, information collection, defining and comprehending research, and analysis. Investment behavior investigates the interaction between competing demographic characteristics, personal knowledge, and perceived risk attitudes in affecting the stock market behavior of individual investors. Investment behavior is risky since it is predicated on uncertainty about the future. In investing markets, news and rumors, as well as the speed and availability of information, all play crucial roles. In a larger sense, all of these acts constitute investment. Moreover, companies that have spare cash may choose to spend it in expanding their current business or starting a new one. The firms try to invest the cash, because unused cash not only earns no or little return, also, it may even lose purchasing power when compared to market pricing. As a result, firms attempt to deploy capital in calculated and prudent ways while generating a high return and preserving sufficient liquidity to meet emergent demands, and so may explore investments. A marketable asset possessed by a firm, such as bonds, notes, or stocks, is referred to as an investment. Businesses have two primary investment aims that sometimes overlap. The first is to satisfy the company's financial requirements, timeliness, and risk profile. The second purpose is to acquire ownership shares that are consistent with the company's business objectives. Therefore, this research will help to understand firms investment behavior and investment amounts these firms invest. This thesis will help to understand how different financial and economic variables changes the investment behavior in firms of Lithuania, which have no impact to it. This paper will analyze the differences of investment decisions in Lithuania, Latvia and Estonia and show the differences between the countries on investment behavior.

The relevance of this topic is one of the most important in the field of behavioral finance and the research on investment behavior. The relevance of the topic shows the factors and variables, which changes the investment amounts and behavior and which has no impact. What things and variables should be increased or decreased to increase the investment amounts.

The level of exploration of the topic is very low in Lithuania. There are several works comparable to this research in the world but the shortage of this topic research is felt in Lithuania, thus, it shows the importance of this topic. This work will help to solve this problem and research the investment not just in the world, but in Lithuania to.

The novelty of this research: this research is based on recently published economic papers with the novelty of analysis of investment behavior of different authors. This research will

use the examples of these models from literature analysis to research this works problem and compared the investment behavior in different countries.

The problem of this research: which financial and economic aspects affects the investment behavior and investment amounts of firms in Lithuania?

The main goal of this research: to research the firm's investment behavior on business enterprises and investment behavior caused by different economic and financial aspects.

The main objectives of this work:

1. To analyze the research of different authors of investment behavior in different countries, and investment behavior caused by different economic and financial aspects and changes in small firms.
2. To develop a regression analysis that would allow researchers to investigate the investment behavior of commercial firms.
3. To determine which economic and financial variables have the biggest impact on the firm investment and which have no effect.
4. To compare Lithuanian firms investment behavior with Latvian and Estonian firms investment and draw conclusion about investment behavior in these countries compared to Lithuania.

The methods deployed by the Master thesis: the methods used in this analysis conduct the literature review, data and empirical analysis. To begin with, this thesis will start with the literature analysis. The literature analysis is based on different authors and researchers worldwide, who are analyzing the investment behavior caused by different economic and financial aspects. The literature review identifies the scientist's publications with the evidence and surveys from businesses and entrepreneurs around the world, as well as the tools they used to assess and study of the impact on investment from different factors and aspects. After the examples of different literature, there will be the research of the data, which is used in this paper. This panel yearly data is taken from Nasdaq Vilnius Stock Exchange which is the only operator of the secondary regulated securities market in Lithuania. The data is panel yearly data. The currency is the euro and all variables are in millions. This data array contains 24 firms whose stock exchange data are licensed and regulated by Nasdaq Vilnius Stock Exchange. This panel yearly data consists of 6 different variables with the time series from 2017 to 2021. The data contains investment of the firm, firm’s debt, taxes, liquidity rating, firm’s size, stock price, and profit. The summary statistics were used to understand the means and standard deviations of the industries and sample. The methodological analysis shows the methods and regressions, which were used to understand the

investment behavior of Lithuanian firms. The fixed-effect panel data regression was used to regress the model and research these firms.

The description of the structure of the Master thesis: the paper begins with an analysis of the related literature. The literature review is divided into these parts: the conception of investment behavior, research on different investment behavior in different countries, research on investment behavior of small and medium size investment enterprises, research on investment behavior of different enterprises owners and the research on investment behavior caused by different economic and financial aspects. Furthermore, research methods were discussed, and the three models of the fixed-effect regression analysis were created. The thesis continues with data analysis of firms in Lithuania given by the Nasdaq. The paper continues with an empirical analysis of these three regression models, including the investment relationship with the firm's debt, taxes paid, stock price, and the company's profit. The empirical analysis will show how the firm's size changes the investment amounts and how it changes the effects of other variables on investment amounts. This research will show the liquidity ratio's impact on the investment. The paper ends with the conclusion of the results and analysis. Furthermore, the investment behavior of firms in Lithuania will be compared to firms in Latvia and Estonia. These countries will be compared in each indicator in the data array and how this indicator affects the investment behavior in all three countries. Finally, the conclusions and recommendations will be made from the results found in this thesis.

1. RESEARCH ON DIFFERENT INVESMENT BEHAVIOR IN DIFFERENT COUNTRIES

The literature analysis begins with the analysis of research on different investment behavior in different countries. To begin with, Ngoc (2013) has the purpose of looking into the behavioral factors that influence the decisions of individual investors at securities firms in Ho Chi Minh City, Vietnam. The research theory is developed and evaluated using two distinct approaches: induction and deduction. Researchers use a deductive strategy, to begin with, existing theories and logical linkages between ideas before gathering empirical data. Inductive research develops theory from empirical reality observations, and researchers infer the significance of the results for the hypothesis that motivated the investigation. Exploring the behavioral elements impacting the decision making of investors already out there is the major goal of this research. Rather than inferring and creating theory, the deductive technique is the best alternative. The study begins by analyzing behavioral finance theories in general, and the stock market in particular, to get the theoretical and conceptual backdrop and empirical data from earlier studies, from which the research model is developed. The security businesses are picked randomly from all the security companies in Ho Chi Minh City. Individual investors received questionnaires from a pool of 300. 188 completed questionnaires were returned, yielding a response rate of 63%, a moderately high percentage for a mail questionnaire study. Initially, the data were cleaned by deleting questionnaires of low quality, such as having too many missing values or biased ratings. Then there are statistical procedures like Factor Analysis and Cronbach's Alpha test. Cronbach's coefficients were used to assess the dependability of each construct and its unique dimensions. The paper's findings imply that five behavioral factors influence individual investors at the Ho Chi Minh Stock Exchange: herding, market, prospect, overconfidence-fallacy, gamble's and anchoring-ability bias. The herding factor has behavioral components, such as following the decisions of other investors (buying and selling, choice of trading stocks, volume of trading stocks). The market factor has two dimensions: price fluctuations and market information. There are three components to the prospect factor: loss aversion, regret aversion, and mental accounting. The heuristic aspects are divided into two categories: the overconfidence fallacy gambles and the anchoring-ability bias (Ngoc, 2013). Investors are advised to think carefully before investing but not to be overly concerned about previous losses for future investments. Furthermore, investors should not lessen their investment regret by avoiding selling declining equities and gaining ones.

Grinblatt and Keloharju (2000) observed that investors' regional identification influences their investment behavior. This study examines the extent to which prior returns influence the willingness to purchase and sell used data from Finland. It also investigates whether differences in past-return-based behavior and investor sophistication influence the success of different investor groups. This study used the Finnish Central Securities Depository's (FCSD) central registry of shareholdings for Finnish stocks, which is a comprehensive data source. The register now includes nearly all large publicly listed Finnish firms, accounting for 97 percent of the entire market value of Finnish equities. The authors show that foreign investors are the most sophisticated actors in Finland's financial markets. These investors use momentum strategies, according to an examination of their buys and sell in relation to winning and losing stocks, during various return intervals over the last six months. Finnish investors, especially households, on the other hand, are contrarians, purchasing losers and dumping winners. The level of contrarianism appears to be negatively connected to a rating of investor types' expertise. Even after adjusting for the influence of momentum behavior on future portfolio return disparities, sophistication remains linked to performance (Grinblatt and Keloharju, 2000). This data collection, in contrast to studies of American investors, gives a thorough view of the market for a group of significant equities. The capacity to evaluate the universe of trades in a stock market emphasizes the often-overlooked truth that if certain groups of investors pursue trading strategies based on previous return discrepancies among equities, other investor groups must pursue the inverse trading strategy. And, if some investors succeed, others must fail (Grinblatt and Keloharju, 2000). If the performance differences observed between sophisticated and unsophisticated market participants in the Finnish stock market in 1995 and 1996 are representative of earlier times, the performance differences observed between sophisticated and unsophisticated market participants would have been even larger than those observed in this paper. This is because, in Finland, as in most other nations, contrarian conduct with respect to six-month prior results has historically been unsuccessful. The findings might be part of a wider trend in which inexperienced investors are unduly ready to sell winning companies or acquire failing firms, or both, but competent investors are patient enough to do the exact reverse. If inexperienced investors react in this way to prior returns, they should also react in this way to other sorts of information, such as earnings releases.

Lan, Xu and Hu (2017) investigate the association between individual investor traits and behaviors using rank correlation analysis and logistic regression on over 20000 samples of China's individual investors obtained countrywide via online surveys. 20234 samples were gathered for the questionnaire survey. There are 19972 samples from independent IP and 262 samples from non-independent IP. In the end, there are 19872 legitimate questionnaires, and the number of samples in the three stages is 2912, 7456, and 9504. The authors discover that the personal

qualities of investors are highly indicative of their behavior. More specifically, three human variables, "professional knowledge levels," "investment experience," and "income level," have the greatest predictability on all forms of investing behaviors. Using the selected significant personal characteristics as input variables, the researchers build effective predictive models based on data mining methods, allowing them to gain a better understanding of individual investors and investigate irrational investor behavior in China's financial market. Furthermore, such findings may not only give decision information for investor education, marketing, and service personalization but may also provide hints to improve customer cost control, quantitative management, and risk control, among other things.

Xiugang and Yi (2018) investigate the intermediary effect of stock price volatility on investor sentiment in China. This article chooses a-share listed enterprises as the research object. The research sample for this work is from 2009 to 2015, and all of the data for the research samples are gathered from the wind information finance database. In this paper, the authors use the residual investment model to calculate the non-efficient investment of businesses. The residual investment model divides total investment into two parts: capital maintenance expenditure and new project investment expenditure, with the new investment expenditure including both expected new NPV>0 and unexpected investment. The projected new investment is determined by regressing the elements that influence the enterprise's new investment, such as investment opportunities, asset-liability ratio, cash level, enterprise age, enterprise size, return on assets, and the enterprise's previous investment expenditure. The residuals in the regression model are the differences between the predicted new investment and the actual new investment, or the unexpected new investment, with positive residuals indicating overinvestment and negative residuals indicating underinvestment. According to the authors' results, irrational investor sentiment has a direct influence on stock price volatility. The scientists also discover that investors' irrational emotion influences non-efficient enterprise investment indirectly through stock price volatility, implying that stock price volatility serves as a mediator between investors' irrational sentiment and non-efficient investment. Investors' irrational sentiment in the Chinese stock market not only causes abnormal stock price volatility but also increases enterprises' non-efficient investment, which reduces the efficiency of social resource allocation and has negative economic consequences for the healthy development of the Chinese capital market and the operation of the Chinese economy (Xiugang and Yi, 2018). The impact of falling stock prices on under-investment in the Chinese market is found to be far greater than the impact of rising stock prices on over-investment, indicating a greater negative effect of falling stock prices, which may also be one of the reasons why under-investment is so serious in the Chinese market (Xiugang and Yi, 2018). The researchers suggest that Chinese investors should improve their own learning and make rational

investments and investments and that Chinese regulatory departments should reasonably guide investors to respect the true value of businesses, reduce excessive stock price volatility, reduce inefficient enterprise investment, and clarify the investment and financing mechanisms to increase actual investments.

Aukutsionek (2018) researched the entrepreneurs' investment behavior in Russia in 2017–2018. The author uses the data of a research ethics board (REB) survey. In 2017, enterprise investment activity in equipment acquisition and overall capital investment volumes was high. Lack of financial resources and high prices for equipment and construction ranked first and second on the list of investment-restricting issues. Speaking about the sources of funds for capital investment. The most plausible source of funding for capital investments in the next 2–3 years, according to 47 percent of respondents, is a loan from a commercial bank. This is only a little worse than the previous best of 2013. (48 percent). Self-financing took second place in the 2017 rankings, about 44 percent (Aukutsionek, 2018). In the previous 15 years, this source's rating has been consistently high, while it has occasionally fallen below the 40% mark. Moreover, the third spot has long been occupied by a group of respondents, certain that they lack capital investment money and do not expect any in the future two or three years. In 2017, this group accounted for 17% of the total sample. On the one hand, it appears that the number of such pessimists is relatively significant. However, as compared to 1996, it has reduced by about three times (Aukutsionek, 2018). Even if authors consider that some pessimists fall under the category of "difficult to respond," their overall number in 2017 (23 percent) was among the lowest during the whole observation period. Further, the researcher talks about the efficiency of capital investments. The marginal interest rate, which is determined in the questionnaire as the maximum bank interest rate at which the enterprise would still take a loan for a period of 2 to 3 years to finance its capital investments, is used by REB's respondents to indirectly estimate the potential rate of return on investment and investment risk. The marginal bank loan interest rate was 6.7 percent on average in four surveys conducted in 2017, and it reached 6.1 percent in the first two quarters of 2018. The REB's respondents used the characteristic excessive (23–25 percent) two or three times more frequently than the characteristic "insufficient" (7–10 percent) when assessing the existing volume of production capacities against the demand for enterprises output expected in 12 months (Aukutsionek, 2018). The balance of these estimates was negative in 2017–2018 (minus 15–16 percentage points, as it had been over the previous two decades. In general, the creative component of capital investment was prominent in 2017, while it was not the leading factor (as it had been in the previous few years). For example, the respondents indicated the following two major capital investment objectives: enhancing product quality (28 percent) and increasing manufacturing capacity (also 28 percent). Furthermore, for the whole observation period, this is an absolute

record for the second indication (since 1996). In contrast, just 23% of cases (almost twice as low as in the "fat years") indicated the creation and introduction of new items.

Bhushan (2014) showed the investment behavior in relation to financial products and perspectives on salaried individuals' awareness in India in small and medium enterprises. The authors investigate the level of awareness of various financial products among salaried persons and discover salaried persons' investing preferences for various financial instruments. The writers focus on a single state in India. For this study, all salaried persons in India's states, whether in government or non-government jobs, were considered the population. A systematic questionnaire was used to obtain primary data from respondents. For data gathering, multistage sampling has been used. As shown in the findings, bank fixed deposits have the highest level of awareness, followed by savings accounts, life insurance, post office savings, public provident fund, national savings certificate, pension funds, mutual funds, stock market, bonds, debentures, commodity market, and forex market. As a result, it is obvious that respondents are well-versed in classic and safe financial goods. However, public knowledge of new generation financial products is minimal. This highlights the fact that consumers are unable to take advantage of numerous financial solutions available on the market owing to a lack of information, and in order to enhance the financial system, individuals must be made aware of the features of new generation financial goods. They must educate individuals on the risk and return characteristics of these financial instruments so that they can invest in them (Bhushan, 2014). People will also be able to invest in various financial goods, boosting their chances of earning higher returns on their investments. Respondents were requested to submit information on all financial instruments in which they had put their money. According to their replies, over 95 percent of respondents put their money in bank fixed deposits, with the remaining 77.7 percent investing in life insurance. 59.3 percent of respondents invest in post office savings, while over 52.9 percent participate in mutual funds. Only 1.2 respondents invest in the commodities market and none trade in the exchange market. Based on the data, it is apparent that the majority of respondents invest their money in classic and secure investing options. When compared to the stock market, more individuals invest in mutual funds. The findings also show that relatively few people put their money into debentures or the commodity market. Respondents' investment behavior in traditional investment channels can be linked to a lack of knowledge about the features of new financial products, resulting in the loss of attractive investment chances. The results also show that just 24.6 percent of respondents had invested in pension funds, implying that the majority of individuals do not plan for retirement, which is not a good indication. Also, 77.7 percent of individuals have invested in life insurance, indicating that consumers understand the value of life insurance. In addition, just 39.1 percent of respondents contribute to a public provident fund, according to the findings. This suggests that,

despite being a highly strong investment choice, only a small number of individuals participate in public provident funds. This might be attributed to the lengthier lock-in time of public provident funds and a lack of understanding of public funds. Respondents are well-versed in traditional and safe financial goods. However, public awareness of new age financial products is minimal. Most respondents put their money in classic and secure investment vehicles. Overall, the findings imply that consumers should be made more aware of new investment alternatives accessible in the market. They must be appropriately taught about new financial products accessible in the market in order to benefit from better returns.

1.1 Research on investment behavior of small and medium size investment enterprises

Takechi and Matsushima (2009) showed the medium and small enterprises' investment behavior and business sentiment. This research examines how subjective views of business circumstances influence the investment behavior of small and medium-sized firms in Japan. This paper uses panel survey data. The survey data was gathered and collated by SMRJ and the University of Tokyo's Research Institute of Social Science. The data comes from a poll of company attitudes and investment behavior. The article focuses on the link between enterprises' perceptions of their own business circumstances and actual investment activities. SMEs' assessments of business circumstances, financial conditions, and the amount of manufacturing facilities are all included in the data source. The authors use the questionnaire information to create dummy variables for business sentiments and investment choices in order to find a relationship between these two variables. The authors believe that SMEs' investment decisions are influenced by their owners' discretion, unlike large corporations. The organizational structure of large companies, as well as company regulations guiding investment determination, influence investment decisions. As a result, there might not be a strong link between company sentiment and investment activity. A completely different situation is in small companies. Owners of SMEs have some discretion over investment decisions (Takechi and Matsushima, 2009). The findings show how important business sentiments are in making investment decisions. Long-term improvements have a considerable influence on manufacturing enterprises' investment when it comes to changes in business circumstances. The degree of business circumstances is equally significant for the investment choice, according to the authors. Investment is influenced by factors other than business sentiments, such as views of money and manufacturing facilities. Investment is more likely to occur if debt financing is easier and interest rates fall. One intriguing conclusion is that corporations are less inclined to invest if future interest rate projections imply a drop. This

is due to the possibility that they may apply a delaying strategy, which entails waiting and investing in the following period. Finally, companies with a labor shortage are more inclined to invest (Takechi and Matsushima, 2009). This shows that when businesses are unable to find a suitable labor force, they turn to capital instead. This tendency might be exclusive to SMEs. The findings show the influence of psychological elements on investment decisions using data from SME managers' business attitudes.

Trinh, Morgan and Sonobe (2020) analyze micro, small, and medium-sized enterprises (MSMEs') investment behavior during downturns in Vietnam. This article investigates the financial investments altered during and after the global financial crisis of 2008. The paper focused on five two-year periods between 2003 and 2012 to see how MSMEs' investments in their productive fixed assets. This paper answers this issue by examining panel data from around 2500 micro, small, and medium firms (MSMEs) in Vietnam's manufacturing sector, a growing market in Southeast Asia, from 2005 to 2013, which encompasses the global financial crisis. Despite the fact that the data for this study does not include observations of foreign-owned firms, state-owned firms, or other large firms, the MSMEs in this sample are sufficiently diverse in terms of firm size, firm age, formality, amount of external finance, and export orientation to test the hypotheses on the characteristics of those firms that are more resilient to negative shocks. The sample comprises medium-sized enterprises of various ownership kinds, such as joint stock, private limited companies, partnerships, and collectives, as well as tiny family businesses that utilize their homes as workshops or factories. The report revealed that companies severely reduced productive investments while dramatically increasing financial investment around the time of the global financial crisis, which began to spread to the Vietnamese economy and stayed high during the ensuing period of an economic slump. It was also discovered that the fall in the effective investment rate was greater for enterprises with relatively high employment levels and those that were properly registered as corporations than for those that were relatively small and unregistered. External money was also utilized more for financial investment than for productive investment in normal times, according to studies. One possible interpretation of the result that MSMEs boosted financial investment in reaction to a negative shock is that many, if not all, of them, transferred their resources away from their own enterprises and into certain publicly traded corporations (Trinh, Morgan and Sonobe, 2020). In these other words, the negative shock sparked or accelerated the cleaning process, in which inefficient enterprises are replaced by more efficient firms, rather than through firm departure and entry, but through the reallocation of investible funds.

Brandstaetter and Wilfinger (2018) small and medium sized businesses' investment behavior for sustainable economic growth after the global financial crisis. The following article

explains how SMEs' funding circumstances have altered since the financial crisis began. The review paper tries to illustrate if specialized investment calculation processes are employed for decision-making investments. The following paper tries to show if SMEs are taking advantage of this small and medium industries potential and are increasingly relying on government financing. The authors searched the financing terms and ways after the crisis. An investment can be financed in a variety of ways. Internal and external financing may basically be divided into two categories. External funding is further separated into two types: equity and external financing. Credit is the most prevalent source of external funding for SMEs due to restricted access to the capital market. Due to the regulations of Basel III, debt financing arrangements have become more stringent since the financial crisis in 2007 (Brandstaetter and Wilfinger, 2018). For example, under Basel III, financial institutions' capital was more strictly specified, a leverage ratio was implemented, and liquidity criteria were established. Increased capital requirements for banks, in particular, might make it difficult for businesses to obtain financing. Several themes impacting the perception of financing terms were provided to the surveyed firms in order to validate the premise that the financing circumstances for loan applicants in the SME sector worsened after the financial crisis in 2007. These themes should be evaluated in terms of their evolution over time: The paperwork and information standards have worsened significantly, according to 73.6 percent of interviewees.

This is due to Basel III requiring a bank's evaluation of the loan applicant, which necessitates more documentation. More than half of the organizations polled said that terms, additional fees, and requirements had deteriorated or worsened over time. Things are a little different when it comes to the disclosure of the business process and the processing and implementation phase. The majority of respondents said these things are better or much better. The outcomes of the examination of the financial situation of SMEs were as predicted. Documentation and information specifications have degraded dramatically (Brandstaetter and Wilfinger, 2018). The authors show that the issuing of credit on a big scale is affected by increased criteria and the need for collateralization. They said that investment calculations are a tool for developing a comprehensive, long-term investment strategy. A bad investment choice puts the entire firm at risk. Because of their contingent obligations, SMEs, in particular, are at a higher risk of looming illiquidity (Brandstaetter and Wilfinger, 2018). Investments in different industries' applications are supported with financial resources both inside the European Union and on a national level. According to the report, more than three-quarters of the enterprises polled had never used public cash. The following are the grounds for the lost public funds in the companies: the most often cited reason was that businesses did not recognize the need for financial assistance. Another often cited reason was that the financing administration was unappealing to them. Internal finance is the preferred method of funding for SMEs. Modern forms of finance only play a modest

part in meeting funding requirements. Thus, good planning is the only way to ensure the enterprise's long-term viability. This is why, in order to compete with giant corporations, SMEs must first and foremost plan their investments (Brandstaetter and Wilfinger, 2018). Alternative financing options, such as crowdsourcing or funding loans, should be investigated because financial resources, particularly for SMEs, are frequently controlled.

Barno and Tuwei (2020) showed the impact of prospecting bias on investment decisions among Nairobi County's small and medium-sized businesses. Small and micro enterprise investment decisions are critical for economic growth. These enterprises have substantially impacted the economy by providing jobs, money, goods and services, and a market for local items. Despite the success tales, countless businesses failed during the startup or expansion stages. It necessitates a significant financial investment, yet it gives economic benefits to SMEs (Barno and Tuwei, 2020). The study used an explanatory research design under a positivist paradigm. This paradigm was chosen by the authors since the study used quantitative data to determine the direct and moderating effects of the variables under consideration. The study used an explanatory research methodology to evaluate and establish the impact of behavioral characteristics and financial literacy on SME investment decisions in Nairobi County. A total of 102821 registered SMEs in Nairobi County were evaluated as a target population. Managers were specifically chosen since they are in a better position to understand SMEs' investment decision difficulties and provide accurate data. The study controlled random sampling techniques to determine a sample size of 383 based on hyper-geometric distribution equations. A total of 383 surveys were given to Nairobi-based SMEs. After data collection and screening, there were 375 totally filled questionnaires or 97.9% of the total. However, 5 surveys were not finished and could not be utilized in data analysis, thus, they were not included in the 375 completed questionnaires, leaving 370. The authors find that there is a link between prospect factors and financial literacy, as stated by the prospect theory, which explains how prospect factors relate to financial decisions that they influence. This explains why the interaction between financial literacy, prospect considerations, and investment choice is so small. As a result, entrepreneurs should think carefully before making investment decisions, even if the recent loss has little bearing on future investment decisions. Additionally, decision-making must be based on significant investment returns. In order to prevent losing money, entrepreneurs should focus on proven businesses.

1.2 Research on different investment behavior of different enterprises owners

Pelger (2011) investigates whether there is a difference in investing behavior between male and female business owners. This article aims to investigate gender variations in the investment activity of German small and medium-sized businesses (SMEs). Female-owned businesses differ greatly from male-owned businesses. Female entrepreneurs run smaller businesses, begin with less cash, and are more likely to work in the service industry. Furthermore, female-owned businesses appear to underperform male-owned businesses in terms of profitability, innovativeness, and firm development (Pelger, 2011). Most studies conclude that the gender disparity in business performance, or at least a significant portion of it, is due to variations in industry, the firm owner's human capital, professional experience, or access to money and networks. The purpose of this study is to obtain fresh insights into gender variations in investment activity in order to contribute to a better understanding of female-owned enterprises' lower growth rates and smaller company sizes. To that aim, the authors seek to separate the influence of gender on investment activity that remains after controlling for firm and owner specific factors such as industry, firm age, company size, management team size, expectations, innovation activity, cash flow, and firm owner age and education. Using a data set of around 35,000 German SMEs monitored from 2003 to 2009, researchers focus on the vast and intense margin of investment as well as declared investment intentions. First, the authors construct a linear probability model (LPM) using the binary investment choice as the dependent variable to assess the extensive investment margin. Second, researchers examine the investment rate and the intensity margin of investment using a basic reduced form investment model using time-averaged data. Third, they investigate the investment objectives of investment firms. Researchers look at two traditional reasons for women's smaller business sizes: discrimination in the form of financial limitations and preferences. Incorporating cash flow into the study of the extensive and intense investment margin serves as a financial constraint control. The examination of investing objectives reveals gender disparities in preferences. The findings show that female business owners are less likely to invest at extensive and intense margins. The likelihood that they will invest is lower, and if they do, the proportionate quantity of their investment is also lower on average. Furthermore, researchers discover that the availability of internal funds in the form of cash flow does not have the same influence on the investing behavior of male and female business owners. The investment rate in female-owned businesses responds less to a marginal increase in cash flow availability. This suggests that when both men and women have the same financial resources, women are more hesitant to invest. The reason for this behavior cannot be determined directly within the estimation framework, but a closer examination of the firms' investment goals suggests that women are less

growth-oriented than men, as they are less likely to name sales increases and product implementation as investment goals (Pelger, 2011). The authors conclude that women's lower investment proclivity, and therefore their smaller business sizes, is due to choices rather than financial restrictions.

Bai and Lian (2013) investigate and ask why state-owned (SOE) invest excessively. The authors state that corporate investment decisions in a transition economy are influenced by management discretion and government action. From an investment perspective, the study investigates the connections between government and corporate management and adds to the research in three ways. The samples for this study were taken from A-share companies listed on the Shanghai and Shenzhen Stock Exchanges in China between 2003 and 2010. The final samples are unbalanced panel data with 7997 firm-year observations. First, the authors provide evidence on how government behavior affects economic growth to understand the mechanism underlying the impacts of government behavior on financial decisions and thus add to the existing literature on the government-firm relationship. Academic research has focused on the link between government conduct and economic growth, but the micro-channels and processes via which government influences economic growth still need to be understood. Second, this research assesses government action from a microscopic perspective by assessing the 'policy burden' on enterprises, linking studies in macro-public and micro-corporate governance. The findings add to the body of knowledge on how classic agency conflicts between shareholders and managers, as well as conflicts between shareholders and debt holders in mature markets, cause distorted investment behavior. The researches demonstrate that governments in transition economies such as China may expropriate businesses by interfering with their investment decisions. Meanwhile, government efforts limit managerial entrenchment. The findings help to explain the influence of government interference and managerial entrenchment in China's transitional economy on SOE investment activities by examining these institutional elements in the transitional economy. During the economic restructuring, fiscal decentralization and SOE reform result in local governments exerting undue control over SOEs, incentivizing corporate executives to seek greater authority and control. Over-investment in SOEs has been fueled by government interference and management entrenchment (Bai and Lian, 2013). Governments may compel businesses to carry out policy obligations such as economic development and job creation, causing SOEs to overinvest.

Changxin and Mengqiong (2018) showed generational differences and innovation investment decisions in family firms. Family businesses, which make up the majority of China's conventional manufacturing industry, are renowned for their lack of investment in innovation. At the same time, as the first generation of family founders approaches retirement age, an increasing

number of family firms are confronted with the issue of intergenerational inheritance. What impact does family control, the most common type of private enterprise governance, have on the strategic direction of firm innovation? How does a family's intergenerational inheritance affect the firm's decision to invest in innovation? These issues have steadily been the focus of study in domestic and international domains. However, more than one conclusion has been reached in studying family business innovation investment behavior. Because of the high degree of ownership and management of family businesses, research based on stewardship theory and principal-agent theory often believes that family businesses have the patient capital to provide unique resources such as trust and emotional support, which is conducive to family businesses making long-term oriented investment decisions, so family businesses will pay more attention to innovation investment than non-family businesses (Changxin and Mengqiong, 2018). In contrast, according to related research based on socioemotional wealth theory, family businesses are often hesitant to bear the risk of falling under foreign control and foreign capital dependence as a result of long-term investment. Hence, family businesses often choose to reduce innovation investment activities and innovation inputs when compared to non-family businesses. Although the above two perspectives provide theoretical explanations for family company innovation investment behavior, recent theoretical advances and research reveal that the previous study needs to address family businesses' heterogeneity adequately. The size of the shares owned by the first and second generation family as an explanatory variable to reflect the heterogeneity of the family business itself measures the innovation investment intensity of enterprises by the proportion of research investment income and operating income and conduits the data from 1200 A-share listed family enterprises in China from 2008 to 2017. The findings reveal that, first and foremost, differences in willingness and control abilities between generations of family businesses have an influence on innovation investment decision-making. The first generation is more interested in limiting enterprise innovation investment because of the non-economic purpose of keeping family control, therefore, the lower the intensity of innovation investment with the larger degree of entrepreneurial ownership, the better. The second generation is more likely to pursue an economic objective in order to demonstrate its self-worth, therefore, the higher the second generation's ownership level, the greater the intensity of firm innovation investment. Second, in the link between intergenerational inequalities in family companies and the intensity of corporate innovation investment, knowledge-based resources play a regulatory function. Although the first generation is less likely to invest in innovation, the advantages of doing so will become apparent if the business's internal knowledge resources are abundant, the risk of enterprise innovation is low, and external experts are not required to cause the enterprise's control to decline (Changxin and Mengqiong, 2018). The pursuit of economic goals will become more significant as non-economic

goals are protected, the attitude toward creative investment may shift, and as a result, there is a greater willingness to expand investment in innovation. For the second generation, accumulating original knowledge resources lowers the cost of innovation, increases the economic advantages of innovation, and aligns with the motivation to achieve their own economic objectives, potentially increasing investment in innovation (Changxin and Mengqiong, 2018). Therefore, intellectual resources have a negative impact on the association between first-generation ownership and the intensity of innovation investment while having a favorable impact on the relationship between second-generation ownership and the intensity of innovation investment.

Paramita, Isbanah, Kusumaningrum and Hartono (2018) analyze the implementation theory of planned behavior in young investors. This research aims to look into how young investors buy stocks. The Theory of Planned Behavior (TPB), which comprises attitude, subjective norm, and perceived behavior control, is utilized as an independent variable in the analysis of investor behavior. This study relies on primary data and questionnaires to acquire information from Surabaya's student population. A partial least square technique was used to examine the data. Young investors appear to be hesitant to make a choice on whether or not to invest in the stock. Some of them have securities accounts because they want to be like their peers or to complete particular topic assignments that may be learned via the usage of stock trading (Paramita et al., 2018). As a result, it is possible to conclude that one's attitude toward conduct has no bearing on one's behavior intention. The Subjective Norm refers to a person's opinions about whether or not peers and others who matter to him or her believe he or she should engage in an activity. Students who are new to investing still believe they don't have many friends or investors. This has an impact on their approach to stock investment. Students do not have role models who become role models in stock investing, as evidenced by the fact that many respondents also stated that their parents do not invest in stocks and that people who become their role models do not invest in stocks (Paramita et al., 2018). As a result, the subjective norm has no bearing on behavior intention. The more one's conviction in the availability of personal resources and possibilities, the greater one's impression of personal control over a conduct. Respondents were given the impression that they already had appropriate knowledge and abilities based on their responses. The stronger the investor's risk attitude, the more risk seeker he is, therefore, the degree of student overconfidence is still low, leading the investor's perception of risk to be larger (Paramita et al., 2018). Because the responder has a high belief in the availability of resources and possibilities for persons with regard to particular activities, the findings are unimportant because this belief has not been able to modify their behavior. The distribution of student responses also suggests that students with a strong sense of control will continue to be pushed and strive for success because he is certain that with the resources and opportunity available, the challenges they experience can be overcome. They will

continue to invest in stocks and learn from their mistakes in decision-making and analysis, whereas others who are less persuaded will quit investing or make transactions that are not continuous. The student will be more likely to execute particular activities that allude to a habit if their purpose is greater. Several variables impact an investor's decision to buy a stock, including the return gained relative to alternative investments and the investor's willingness to take on risk in exchange for a greater return (Paramita et al., 2018). As a result, aggressive investors are individuals that are willing to take a greater risk and have a strong desire to acquire stock, resulting in stock investor behavior.

Bhatnagar (2011), in his paper, showed that an individual's investment is affected by his own investment decisions for different reasons. This study focused on the investment behavior of different business people, which revealed that they may be deficient in cash or have little interest in investing. The paper results are based on a surveyed sample, demonstrating that entrepreneurs in that area make less money. Data was gathered from 50 respondents. Considerations such as the respondents' class of service, age, pay, educational background, investing experience, and income was taken into account while selecting the sample. During the study, researchers discovered that all of the respondents were men, and no females were discovered to be businesswomen. The authors show that the majority of respondents desire to invest in life insurance and prefer tax benefits. They learn about investments via their peers and from newspapers. The key aspect of responders is the safety and security of the money invested, and compensation plays a vital part in shaping the investing behavior of the investors. For business owners, having operating cash is more important than having investment money (Bhatnagar, 2011) According to this research, the investor's preference is for traditional sources of investment, such as life insurance contracts. The majority of businessmen are unaware of current financial products and have no knowledge about the returns obtained from these items. Bhatnagar (2011) focused on the investment behavior of different business people, which revealed that they may be deficient in cash or have little interest in investing. According to the findings, 30 of the 50 respondents were graduates who were neither well qualified nor undergraduates. Respondents have invested for more than ten years. The authors discovered that, as entrepreneurs, they trust conventional sources of investment, with 28 respondents out of a total of questioned respondents preferring to put their money in LIC policies, followed by investing in shares. When the writers were asked about the objective of their investment, they discovered that liquidity and safety of money are more crucial, followed by a consistent flow of revenue. Respondents review their financial holdings every month, with 14 respondents not bothering to monitor their investments at all.

2. RESEARCH ON INVESTMENT BEHAVIOR CAUSED BY DIFFERENT ECONOMIC AND FINANCIAL ASPECTS

Naomi, Kiprop and Tanui (2018) show the effects of herding behavior on SME investment decisions in Kenya. The study looked at 4196 SMEs in Bomet County, with 108 chosen using stratified random selection. Cronbach's coefficient alpha was used to determine the study instrument's reliability. Questionnaires were used to collect primary data in order to gather the needed information. With the help of the Statistical Package for Social Science (SPSS) software version 21, the data was analyzed using descriptive and inferential statistics. The results were presented in tables and summaries in percentages and proportions. The findings show that herding behavior was not a significant factor in SMEs' investment decisions, according to the research on the link between herding and investment decisions. Because the regression findings revealed that there was no linear link and that it was not an essential component in the multiple regression model, investors should not consider it in their investment selections. It was discovered that 8.49 percent highly agreed, 19.81 percent agreed, 16.98 percent offered a neutral opinion, 26.42 percent strongly disagreed, and 28.31 percent disputed that to be successful in an investment, it is to copy others. Despite the fact that the study's conclusions contradict those of other researchers, investors in SMEs in Bomet County should trust themselves the most and make decisions based on their unique assessments rather than those of others. They should be free to determine their prices for items and the number of goods to be purchased in the firm rather than follow in other investors' footsteps.

Wang, Zhang, Ahmed and Shah (2021) show the impact of investing behavior's impact on financial markets during Covid-19. The researchers analyze the UK situation. This is quantitative research in which data was acquired through primary sources of information, such as a survey questionnaire. The researcher used a non-probability convenience sampling method to get 337 replies. The SEM approach was used to conduct the analysis, which included CFA and path analysis to assess the influence of variables. General risk to tolerance and financial risk to tolerance, as well as satisfaction, risk perception, and rate of profitability, are all elements that impact the study's variables, according to the authors. Covid-19 has a moderating effect on the interaction between them. According to the findings, financial risk tolerance is considered an attitudinal factor when making financial decisions. The conclusion is that the evaluation of financial risk primarily determines the rate of profitability and how changes in the rate of profitability affect risk tolerance. When making investment selections in stocks or another financial commodity that may be defined by creating a high return over financial investment, there is the capacity for risk-taking tolerance. The study found that in prior years, the global financial

market had a negative impact on the outbreak's consequences, which mostly harmed corporate choices. Covid-19's effects on risk perception and overall risk tolerance may be evaluated according to the findings. As a result of worldwide consequences, business sectors have been negatively impacted, resulting in investor insecurity. The study's findings reveal that contentment has a favorable influence on both general and financial risk tolerance. Furthermore, the research demonstrates that Covid-19 uncertainty moderates risk perception and general risk tolerability, as well as risk perception and financial risk tolerability. Covid-19, on the other hand, moderates the relationship between satisfaction and general risk tolerability, as well as the relationship between profitability rate and financial risk tolerability (Wang et al., 2021). As a result, uncertainty in Covid-19 has a moderating influence on the rate of profitability and financial risk tolerance.

Moreover, Albulescu (2020) focuses on looking at how people's financial success affects a company's investing behavior. The author applies firm-level data from a broad number of enterprises to conduct their analysis, which focuses on the wine sector from the main EU producers: France, Italy, and Spain. The panel data research, which uses dynamic model parameters, covers the post-crisis era. The author examines the influence of businesses' financial performance on investment trends from 2007 to 2014 using firm-level yearly data from the Amadeus database. The authors only considered businesses with no missing values for a given indicator to prevent the broken panel bias. Furthermore, researchers excluded any firms with a capitalization ratio greater than 100 percent from the sample. The sample contains 331 enterprises out of 367 registered in France (90%), 335 firms out of 410 registered in Italy (82%), and 442 firms out of 531 registered in Spain (42%). (83 percent). The analyses suggest that companies in these nations have diverse investment strategies. It indicates that Italian companies' investment decisions are unaffected by their financial success. Furthermore, in the case of French enterprises, only capitalization and profitability ratios are major factors in investment decisions, whereas liquidity has little impact. However, these findings are only partially reliable, and they may be influenced by the over-identification of the instruments utilized in the study. Finally, outcomes for Spanish companies are given that are both fascinating and robust (Albulescu, 2020). The author demonstrates that wine firms' financial success significantly impacts their investment decisions. When it comes to capitalization and liquidity, there is a negative impact but a good impact when it comes to profitability. This implies that Spanish enterprises typically reinvest gains, and managers prefer to maintain their investment decisions with internal money. These findings indicate the rising worldwide importance of the Spanish wine industry and have significant policy implications for financial managers working in these firms and also national authorities interested in the wine sector's development and performance.

Yidan (2014) investigates empirical research based on imbalanced dynamic panel data on the effects of financing conditions on the investment behavior of a Chinese cultural sector listed business. Using the System-GMM estimate, this study develops a financing-investment dynamic econometrical model based on unbalanced dynamic panel data from Chinese cultural sector listed businesses from 2006 to 2013 in order to explore the effects of cumulative effect and three financing parameters. This study classifies the average values of total year-end assets of all sampled listed firms, with the top 30% classified as big listed companies and the rest as small or medium listed companies, in order to classify the scale of sampled enterprises. As a consequence, 6 of the 20 examined firms are major publicly traded corporations, while 14 are small or medium publicly traded companies. In contrast to classic OLS estimation utilizing a fixed effect model and a random effect model, the current study uses a system-GMM that completely accounts for the endogenous problem of investment scale factors at the lagged phase. As a consequence, this technique might compensate for the shortage of difference-GMM instrumental factors, making empirical results more accurate and trustworthy. The findings show that investing activity has a cumulative impact and that investment behavior at lag one has a strong promoting influence on present investment behavior. Overall, Chinese listed cultural sectors rely substantially on external financing due to a lack of internal funds. As a result, investment behavior is vulnerable to internal financing, and both debt and equity financing may have a positive, stimulating influence on investment behavior, but the latter has a greater impact (Yidan et al., 2014). Furthermore, in terms of external finance, small and medium-sized businesses choose equity financing. Although the impact of business scale and investment potential of listed firms in cultural sectors is still unknown, profitability may have a detrimental impact on investment behavior. Chinese listed cultural industries should place a greater focus on investment continuity and systematicity, develop long-term investment strategies, capitalize on the positive accumulative effect, and decrease the negative impact of investment (Yidan et al., 2014). Companies in the cultural sector that are publicly traded in China should enhance their internal cash flow management, as well as their internal cash flow yield and internal financing efficiency. Internal financing provides the advantages of cheap cost, low risk, and strong independence, despite the fact that it cannot supply the fund need of investment behavior and has certain intrinsic negative effects. In terms of debt financing, it has a strong promoting influence on the investment behavior of listed culture industries businesses, and bank credit has become the primary source of debt financing for Chinese cultural industries enterprises (Yidan et al., 2014). However, because cultural sectors are notorious for their high financing risk and lack of mortgage assets, bank funding is necessarily challenging. As a result, the government should change the system for evaluating cultural assets and enhance the financial environment so that the source of cultural credit and the quantity of credit available

may be enlarged. The authors show that the low cost, and burden-free properties, small and medium listed enterprises in the cultural sectors choose equity financing in the Chinese market. Finally, in order to optimize investment behavior and improve financing efficiency, it is critical to ensure the smoothness and variety of funding channels. On the basis of the magnitude and stage of listed cultural industries firms, enterprises should make fair investment decisions and adopt appropriate financing structures (Yidan et al., 2014).

Doran, Peterson and Wright (2010) determine finance professors' perspectives on the efficiency of the US stock markets and if their views on efficiency impact their investment behavior. The authors use a survey of over 4000 finance professors in the United States to analyze their thoughts on market efficiency and investigate the hypothesis that an investor's impression of market efficiency significantly impacts his or her decision to invest actively or passively. To begin with, most academicians feel the market is inefficient, ranging from weak to semi-efficient. Second, twice as many academics invest passively as active investors invest aggressively. Third, the respondents' views on market efficiency are virtually uniformly negative. Their trading activity has nothing to do with them. Fourth, academics' investing goals are generally determined by the same behavioral reason that affects amateur investors: one's belief in one's own abilities (Doran et al., 2010). The stock market is not strong form efficient and is weak form efficient, according to the 642 respondents. However, they appear to be split on the subject of semi-strong form efficiency. Market efficiency experts are more convinced than their peers that the market is inefficient. To get a better sense of how respondents genuinely perceive market efficiency, the authors look at their investment intentions and behavior (Doran et al., 2010). The authors discover that twice as many respondents passively invest than actively invest, implying that, while they may be split on market efficiency, they act as if markets are efficient. This conclusion might also indicate that owing to time, resource, or skill constraints, people prefer to invest passively, even if they believe in inefficient markets. Market efficiency experts share the same investing goals as the rest of the sample. The authors discover that a respondent's investing activity has very little to do with their views on market efficiency. Individuals' faith in their talents to beat the market, regardless of their views on market efficiency, drives investing aims and behavior. Regardless of their level of education or expertise, respondents appear to set investing goals and execute trades based on the same psychological component that motivates novice investors: confidence. Efficiencies do not appear to influence investment decisions, but confidence does.

In December 2018, Allianz Life Insurance Company of North America (Allianz) conducted an online poll with Ipsos to learn more about customer views toward socially conscious investment. The research shows the role the environmental, social, and governance (ESG) investment analysis. Investors are increasingly using these three non-financial aspects in their

analytical process to identify major dangers and growth prospects. Although ESG measures are not required in financial reporting, corporations are increasingly, including them in their annual report or in a separate sustainability report. Investment analysis of environmental, social, and governance considerations have in investor decision-making. This Allianz company study concluded that corporate conduct and what it stands for are crucial considerations for customers when deciding whether or not to invest in or do business with them, using a nationally representative sample of 1,000 respondents aged 18 and above. The value Americans place on ESG problems has an impact on how people think about spending and investing their money, as well as the decisions they make. However, while environmental issues are significant, the average investor is also concerned about a company's social and governance standards. When the researchers asked people whether environmental considerations like natural resource conservation or a firm's carbon footprint and impact on climate change are important in selecting whether to invest in a company, 73 percent of customers said yes. However, the same amount of people prioritized social problems such as employee working conditions or racial and gender equality. Almost as many – 69 percent – said, governance issues like financial transparency and CEO salaries were important in their decision-making. Consumers' decisions to conduct business with a firm follow a similar pattern. More than a third of respondents (34%) stated a company's social policy was the most significant element in deciding whether or not to do business with it, followed by 27% who said corporate governance concerns were a major priority. Less than a quarter (22 percent) said their primary worry was a company's environmental record. The rise of ESG investing provides financial professionals with an opportunity, and some might even say an obligation, to engage their customers in new and meaningful ways. Despite the fact that just 18% of those now working with a financial expert engage in ESG investing, nearly three times as many – 51% – say they would want to invest some money in ESG investments. However, not many financial advisors are initiating dialogues with their customers about this sort of investing approach — and consumers want them to.

Lopez-Gutierrez, Sanfilippo-Azofra and Torre-Olmo (2015) research investigate the impact of financial difficulty on corporate investment behavior. The analysis covers firms from Germany, Canada, Spain, France, Italy, the United Kingdom, and the United States, representing a diverse range of institutional contexts. The inclusion of these nations enables for the coverage of corporations operating in various institutional contexts with a wide range of bankruptcy systems from across the world. Controlling for the nation prevents these conditions from influencing the analysis. Between 1996 and 2006, non-financial listed enterprises were included in the sample. Each nation gives an imbalanced panel of enterprises with data accessible for at least 5 years for this research. This condition is required to test the second order serial correlation, which is

fundamental for ensuring the robustness of the System GMM estimations. The sample includes 4029 firms and 31,010 observations. The authors use panel data estimation using the Generalized Method of Moments (System-GMM). This method allows the management of unobservable heterogeneity and endogeneity issues in explanatory factors. The study examines the various behaviors of organizations in financial hardship, taking into account the disparities that may arise across enterprises in financial difficulty based on their investment prospects. The paper's findings indicate that investment behavior is not consistent across all enterprises in financial trouble, and the proclivity to underinvest depends on the investment alternatives accessible to the organization. Thus, companies with larger possibilities that feel that extra investments would help them overcome their issues do not differ from healthy firms' investment behavior when it comes to taking advantage of investment opportunities. (Lopez-Gutierrez et al., 2015) Managers of organizations with fewer investment prospects, on the other hand, have a stronger proclivity to underinvest because they only undertake projects that they believe would keep the company from going bankrupt. This habit causes them to lose out on valuable chances that may assist in improving the company's predicament. This helps to explain why many distressed enterprises' restructuring strategies are typically ineffective in preventing their collapse. In this regard, the findings are especially timely given the recent changes in bankruptcy legislation in several nations, as well as the global economic crisis, which has increased the number of bankruptcies (Lopez-Gutierrez et al., 2015).

Using a supervised learning approach, Liang and Yuan (2013) predicted investor behavior based on social network features. The authors of this research investigate whether investors invest in firms based on social interactions, whether good or negative, similar or dissimilar. The dataset comprises 11916 firms, 12127 people, and 1122 financial organizations within four degrees of separation from Facebook, according to a CrunchBase dataset. The authors discovered that investors are more willing to invest in a firm if they have greater social ties, whether direct or indirect. At the same time, if investors and corporations have too many common neighbors, investors will be less likely to invest in those companies (Liang and Yuan, 2013). The authors try to forecast investment behavior using social network elements such as those indicated in a predictive model based on link prediction. The writers discuss the consequences for startups and enterprises looking for funding. The findings of this experiment suggest that social ties may be used to predict investing behavior. Startups and businesses seeking funding should evaluate their social interactions with potential investors. Furthermore, the authors demonstrate that social characteristics may be used to predict investing behavior. The findings show that social attributes may be utilized to predict investment behavior by computing social similarity between a pair of investors and companies using social features. Not only can social information be utilized to

forecast investment behavior, but it is also a reliable and solid technique to do so: the prediction strategy, which is based on social traits and modeled as a link prediction issue, performs well across the most prevalent learning algorithms (Liang and Yuan, 2013). It does well not just in terms of overall performance but also in terms of individual industries. Finally, the authors demonstrate different link predictors that may be utilized to acquire a deeper and broader understanding of the network. The authors think that their strong performance is due to the learning characteristic of integrating numerous link predictors: because each link predictor represents a distinct component of a social network, combining several link predictors helps to develop a deeper and wider understanding of a network. In this situation, organizations looking for investment might utilize a variety of social indicators to learn more about their potential investors. The authors expect that their study will aid firms in better understanding how and when investors invest, allowing them to be more prepared when seeking external funding. The authors also expect that their research will give a new perspective on the elements that influence investing behavior. Most significantly, the authors want to urge businesses to consider social interactions in addition to other aspects when seeking external investment because investors are social creatures.

Panchenko et al., (2019) showed the importance of investment strategy in a service company's strategic management system. The paper provides knowledge of the importance of investment strategy in the strategic management methodology. The major components of the structure of the investment strategy for the behavior of service firms are defined and described, and four types of investment types in the market are presented. Strategy viewpoints were used to create the service company's strategic chart. The strategic planning process consists of three stages: analysis, goal setting, and decision making. Second, investment strategies are hierarchical in nature; all structural divisions might have their strategies, which are coordinated and incorporated into the overall firm growth strategy (Panchenko et al., 2019). Finally, strategic planning is a continual process of developing, implementing, and adjusting plans. The findings reveal that the challenges of the potential correlation of different investment projects in a portfolio or strategic program, as well as the eligibility of picking the investment projects with the highest profitability, drive the selection of a service company's investment behavior. The aggressive style of conduct demonstrates the continuity of both options (optimizing profitability and optimizing portfolio structure), implying that the investment plan must be adjusted on a regular basis. The moderately aggressive investing style necessitates continuous monitoring of investment projects in order to select the most lucrative and incorporate them into the portfolio. The moderately cautious approach necessitates continual risk monitoring (Panchenko et al., 2019). Passive monitoring is required for the cautious investment behavior. To conclude, an investment plan is a subset of a company's overall business strategy, and it aims to make the most of available

investment opportunities in the face of expected changes in external and internal investment determinants. The creation of an investment plan allows you to boost the efficiency of your investing activity while also reducing the danger of making poor judgments.

Esch, Schnellbächer and Wald (2018) researched the information from integrated reporting, which has an impact on internal decision-making. The objectives and various styles of integrated reports have been studied, as well as how reports give a stronger information base for investors. Integrated reporting data, on the other hand, may have an influence on internal decision-making by giving decision-makers a complete view of the impact of the firm's strategy. The authors provide the findings of a scenario-based experiment that looked at how financial, unlinked financial and non-financial, and integrated data influenced investment choice outcomes. The findings highlight the relevance of non-financial indicators for corporate steering processes, as well as the necessity of multidimensional performance management tools for firms. In addition, the study assessed the decision-making utility of non-financial data given during decision-making processes. The results back up findings in the literature on sustainable reporting since the non-financial information presented was obviously used during the respondents' decision-making process. The authors discover that making judgments based on a comprehensive set of data leads to increased long-term value generation. As a result, the researchers demonstrate that data collected for external reporting may also be utilized internally to assist organizations in establishing long-term decision behavior.

De Vijlder (2016) shows and tries to investigate what motivates corporate businesses to invest. He shows that corporate investment is a critical component of the economy's ultimate demand. It has a significant influence on the variability of real GDP growth due to its volatile character. Potential output is influenced by its impact on the supply side of the economy (capital as a production element), and potential GDP growth is influenced by its impact on productivity growth (De Vijlder, 2016). This, in turn, is linked to interest rate levels, with stronger potential GDP growth leading to a higher neutral rate of interest, which savers and institutional investors would enjoy. The author uses the annual data for a panel of 22 advanced economies from 1996 to 2014 are used. Investment is influenced by GDP growth (actual or predicted), uncertainty measures, and capital cost. According to empirical research, capital creation is influenced by a number of factors, including predicted sales versus existing production capacity, financial concerns and financial frictions, and confidence against uncertainty. Forecasting is particularly challenging because of the nonlinearity of investment in relation to its drivers. An accelerator effect occurs when predicted sales increase, while a financial accelerator occurs when the financial market situation improves. When it comes to monetary policy, central banks expect that a big reduction in interest rates would spur business investment. It is a long-term commitment, which

means no internal money will be utilized for dividend payments or share repurchases. This might have an impact on stock prices. Because of the extended horizon, uncertainty can significantly influence investing behavior (De Vijlder, 2016). The study focuses on the latter, namely corporate investment, its evolution, and the factors that influence it. The conclusion is that a number of factors, including predicted sales versus available production capacity, financial concerns and financial frictions, and confidence vs. uncertainty, influence capital creation. This combination explains why analyzing corporate investment is so difficult.

3. INVESTMENT BEHAVIOR RESEARCH METHODOLOGY

The main goal of this research: to research the firm's investment behavior of business enterprises caused by different economic and financial aspects and research how these indicators affect the investment in firms of Lithuania.

The objectives of this research:

1. To select the data and create the data analysis, which allows the creation of the panel data regression model.
2. To create regression analysis that allows research of investment behavior of business enterprises.
3. To analyze which economic and financial indicators will change the investment of business enterprises most and which have no impact on it.
4. To compare Lithuania, Latvia and Estonia's investment behavior and how economic and financial indicators affect the investment in each country.

To begin with, the data research will be done, and the panel data with investment behavior data sample will have to be found. The data is taken from Nasdaq Vilnius Stock Exchange. The data is yearly data from 2017 to 2021, and this array contains 24 firms from Lithuania whose stock exchange data are licensed and regulated by Nasdaq. The data array currency is Euro and it is counted by millions. This paper analyzes the data of firms' investment, stock price, company debt, taxes they pay, liquidity rating, profit the concrete firm has and the changes when the firm is medium, small or has a large number of workers. The descriptive statistics of the data will allow to analyze the data sample and compare the data sections by the means, standard deviations, and other factors with whom the data set will be concluded.

After analyzing the panel data array, the model will be constructed by the fixed effect panel data model. A fixed-effects regression is a panel data estimate approach that allows one to control for time-invariant unobserved individual characteristics that might be linked with the observed independent variables. These fixed-effects models eliminate omitted variable bias and are a type of statistical model in which the levels of independent variables are considered to remain constant, and only the dependent variable responds to the levels of independent variables. This procedure allows to calculate the relationship between the firm's investment and the firm's other panel data

variables from 2017 to 2021. The regressions and the model will be built on R statistical computing program. The fixed effect regression analysis will estimate the effect of stock price, taxes, firm's profit, firm size, company debt, and liquidity rating.

For the first model, the fixed effect regression analysis is created of investment behavior relationship with company debt, stock price volatility, firm's taxes, and profit. To determine if this model (1) has adequate statistical data and to infer whether or not company debt, stock price volatility, and taxes decrease or increase the investment, the hypothesis testing for his model (1) has to be made:

H_0: company debt, stock price volatility, and taxes decrease the investment.

H_1: company debt, stock price volatility, and taxes increase the investment.

The H_0 and H_1 analysis will allow to answer the investment behavior relationship with company debt, stock price volatility, and taxes. I will reject the H_0 if the statistical analysis reveals that the significance level is less than the p-value, which is 0.05 for this model, and accepts the H_1, which shows that the company's debt, stock price volatility, and taxes increase the investment amounts in a particular year. For this model (1) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual.

$$Y_{it} = alpha_0 + debt_i + tax_i + stock_i + profit_i + \varepsilon_{it} \qquad (1)$$

Moreover, another regression was made to determine if the firm's size impacts the investment amount. The firm's size variable gives additional data and information to increase the R-Squared of the model. It will show the investment amount depends on the number of workers in that firm. It is based on the same regression as in model (1) but with added firm size to the regression. The hypothesis analysis will be created:

H_0: A firm with a smaller number of workers will have a lower investment.

H_1: A firm with a smaller number of workers will have a bigger investment.

The H_0 and H_1 analysis will allow answering the investment behavior relationship with firm size. The null hypothesis will be rejected if the statistical analysis reveals that the significance level is less than the p-value, which is 0.05 for this model and accepts the H_1, which shows that the firm's size increases the investment amounts in a particular year.

For this model (2) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. Model (2) is the same as the model (1), but with added $size_i$ variable to it.

$$Y_{it} = alpha_0 + debt_i + tax_i + stock_i + profit_i + size_i + \varepsilon_{it} \qquad (2)$$

Moreover, further analysis will be based on adding another estimate of financial indicator. The variable of $liquidity_i$ should be added to the model (2). This variable will give additional data, which could improve the model and increase the R-squared. The $liquidity_i$ shows the liquidity ratio. With model (3), Lithuania's, Latvia's, and Estonia's investments will be compared each other, because it includes all the variables the data set contains. The hypothesis testing should be made for this model (3):

H_0: Bigger liquidity ratio will increase investment.

H_1: Lower liquidity ratio will increase investment.

The H_0 and H_1 analysis will allow to answer the investment behavior relationship with the firm liquidity ratio. I will reject the H_0 if the statistical analysis reveals that the significance level is less than the p-value, which is 0.05, for this model, and accepts the H_1, which shows that a bigger firm's liquidity ratio increases the investment amounts in a particular year. For this model (3) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows

the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. Model (3) is the same as the model (2), but with added $liquidity_i$ variable to it.

$$Y_{it} = alpha_0 + debt_i + tax_i + stock_i + profit_i + size_i + liquidity_i + \varepsilon_{it} \quad (3)$$

Model (3) will show how the liquidity ratio will change the investment amount and how it changes all other variables influencing the investment in this model (3). The results have to show which effects and variables of the data influence the firm's investment most and which have no effect, how the company's debt, firm taxes, firm profit, stock price volatility, firm size and liquidity ratio changes the investment and which hypothesis I will have to accept and which to reject. Furthermore, with the model (3), Lithuania's, Latvia's, and Estonia's investments will be compared between each other.

4. FIRMS' INVESTMENT BEHAVIOR RESEARCH RESULTS ANALYSIS

4.1. Data analysis results of investment and different financial aspects in firms of Lithuania

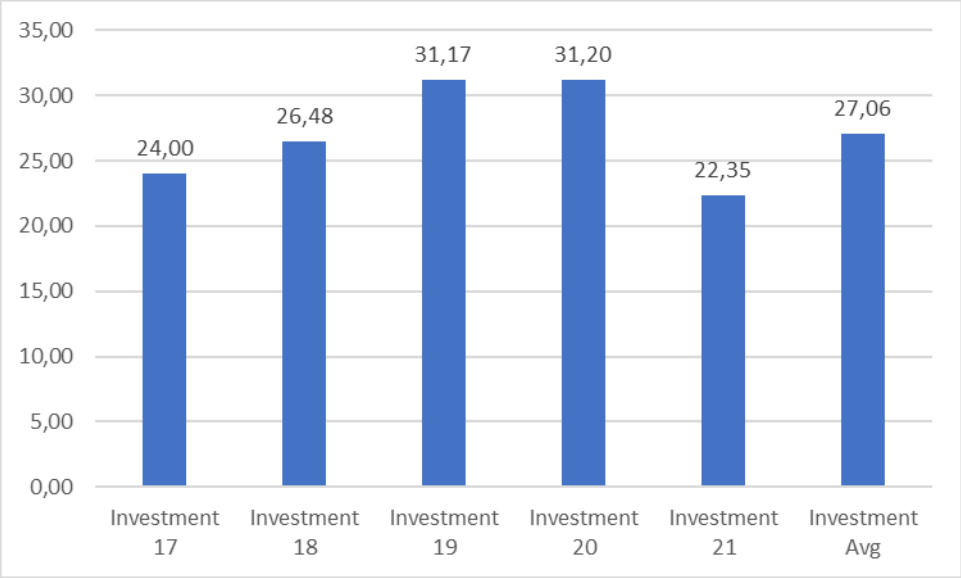
This section contains the data analysis of this publication. It will summarize the data, make comparisons, and review all the data. This data is taken from the Nasdaq Vilnius Stock Exchange, which is the only operator of the regulated securities market in Lithuania. The data is yearly panel data. The currency is the euro, and all variables are in millions. This data array contains 24 firms of Lithuania whose stock exchange data are licensed and regulated by Nasdaq Vilnius Stock Exchange. The total firms' numbers and firm names, which are analyzed in this paper, are found in Annex 1. Annex 1 shows the firms list, industry, and subsector analyzed in this research. The biggest industry in this firm's list is day to day consumer goods, with 6 firms. The second is the discretionary use industry with 4 firms, and other firms are from energy, basic materials, public utilities, financial services, real estate, industrial products and telecommunications industries. The biggest subsector is food, beverages and tobacco, with 6 firms in this list, the second is consumer goods and services, with 4, and the public utilities subsector has 3 firms in that list. The other subsectors are energy, retail, key resources, financial services, industrial goods and services, travel and leisure, banks and telecommunications.

This yearly panel data consists of 6 different variables with the time series from 2017 to 2021 and the firm's number of workers, which are taken from Nasdaq in 2022-05. The data contains the investment of the firm, the firm's debt, taxes, liquidity rating, the firm's size, stock price, and profit. The firm's investment consists of short-term investments of the firm and long-term investments, which is an investment in property, plants, and equipment. Investment has a time series from 2017 to 2021. The firm's debt shows the company's debt at that time. The firm's debt has a time series from 2017 to 2021. The firm's taxes show the taxes they had to pay at that time. The firm's taxes have a time series from 2017 to 2021. The firm's liquidity rating shows the company's ability to pay debt obligations and margin of safety, including the current ratio, quick ratio, and operational cash flow ratio. The liquidity ratio has a time series from 2017 to 2021. The firm's size, which shows the number of workers this firm has, is the only variable that had not the time series and is taken from the data of 2022-05. Stock price shows the price that a share of stock is trading for on the market. Stock prices have a time series from 2017 to 2021. The firm's profit shows the gross operating profit with the formula of revenue minus the cost of revenue. The firm's profit has a time series from 2017 to 2021. First, the data analysis will start with a comparison of

means between investments of all years of the data. *Figure 1* illustrates the firm's investment from 2017 to 2021 and the mean for all years.

Figure 1.

Firm's investment from 2017 to 2021 separately and in general.



Source: prepared by the author, based on the data provided by Nasdaq, 2022.

Figure 1 shows the investment averages between 24 firms in the data array in all years separately and in general. As can be seen from *Figure 1*, the firm's investment rises with the progression in each year from 2017 to 2020. In 2017 the investment was lowest at 24 m EUR. 26.48 m EUR in 2018, 31.17 m EUR in 2019, and 2020 it was 31.20 m EUR. The increase in investment each year stopped in 2020 due to big Covid-19 consequences and lower profits in all these firms. The reason why the number of investments stopped increasing in 2020 might be that the period was the most stressful in the world due to the beginning of quarantine. The Lithuanian government initially declared a quarantine from 16 March to 30 March, but it was stopped and extended several times until March 2021. Due to the quarantine restrictions and the stop of the economy of the world, the first thing the firms want to protect themselves from bankruptcy and cut is an investment in the future. But on the other hand, the biggest investment on average is in 2020 and 2019. It shows that before Covid-19, the firms seek to invest in the future and to increase spending in investment, but the pandemic has slowdown. The consequences of Covid-19 will have a big impact on investment in 2021. *Figure 1* shows that the investment in 2021 is the lowest on average among these 5 years. Many of these firms in the array have a huge decline in profit in all Covid-19 periods, thus, the investment in the second year of Covid-19 is the lowest of all these years. Moreover, the means, variances, and standard deviations will be compared among all

variables in these 5 years. Table 1 shows the means, variances, and standard deviations of all the variables.

Table 1

Means, variances, standard deviations of investment, debt, taxes, liquidity, size, stock and profit

Variable	**Mean**	**Variance**	**St Deviation**
Investment	27.06	3690.46	60.75
Debt	19.24	1629.79	40.37
Tax	1.86	26.63	5.16
Liquidity	2.44	17.71	4.21
Size	1125.04	1582931	1258.146
Stock	2.78	20.03	4.47
Profit	48.15	6913.17	83.15

Source: prepared by the author, based on the data provided by Nasdaq, 2022.

As we can see from Table 1, the five-year investment on average is 27.06 m EUR. The debt on a five-year average in 24 firms is 19.24 m EUR. It is most likely that the debt is covering the investment in many of these firms. Many companies in the world apply the strategy to lend money and invest due to big inflation and depreciation of money in the future. The biggest average is the number of workers in firms, which is 1125.04 m EUR, while Table 1 shows that firms spend the least on taxes on a five-year average is 1.86. The profit the firms had for a five-year sample is 48.15 m EUR. The stock price is 2.78 m EUR when the liquidity ratio is 2.44 on average in 24 firms. The standard deviation and variance are the biggest in the size section which shows that the range between the number of workers is the biggest among all the variables. The larger standard distribution can infer the wider spread of the data distribution and data points, which are far from the meanwhile, the variance of a data set is a measure of dispersion that takes into account the spread of all data points. The second biggest spread in standard deviation is profit. The explanation why the size and the profit have the biggest spread is because there are small firms with a very low number of workers, which decreases the averages. The third biggest standard deviation is an investment, where I will research why and what variables influenced the investment most. The tax, liquidity, and stock have the smallest variance and standard deviation. It shows that the volatility and spread of these variables stayed mostly the same on five year average of these firms.

4.2. Empirical analysis of different economic and financial aspects on investment behavior

This section of empirical analysis shows the analysis of this thesis and provides the research results. The empirical analysis using the research methods described before shows the effects of different economic and financial aspects on investment amounts and how these indicators affect the investment behavior of business enterprises. Firstly, the empirical analysis shows the investment relationship with the firm's debt, taxes the firm paid, stock price, and the company's profit. Secondly, the empirical analysis will show how the firm's size changes the investment amounts and how it changes the effects of other variables on investment amounts. Lastly, this research will show the liquidity ratio's impact on the investment.

To begin with, the research will have to start with the check if the data is stationary. The research will be checked with the panel unit-root test to determine whether the data is stationary. The unit-root tests show that the p-value is below 0.05, the H_0 should be rejected, that the series has unit roots, and H_1 should accept that the data is stationary. Moreover, the analysis will start with the investment relationship with economic and financial variables. The empirical analysis will start with the results of the first regression model. Model (1) showed the fixed effect regression analysis of investment behavior relationship with company debt, stock price volatility, firm's taxes and company profit. This model (1), as it was mentioned before, Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. The results are summarized in fixed effect panel data regression analysis from model (1) shown in Table 2.

Table 2

The results of the model (1) regression. Investment dependence on taxes, stock, debt and profit.

	Investment		
Predictors	*Estimates*	*CI*	*p*
Tax	3.35	1.26 – 5.44	**0.002**
Stock	3.28	1.36 – 5.21	**0.001**
Debt	0.07	-0.15 – 0.29	0.551
Profit	0.27	0.15 – 0.39	**<0.001**
Observations	120		
R^2 / R^2 adjusted	0.694 / 0.671		

Source: prepared by the author, based on the data provided by Nasdaq, 2022.

Table 2 shows the results of investment amounts dependent on the firm's taxes, stock price volatility, firm debt, and profit. It shows this relationship from 2017 to 2021 panel data. The R-squared, a statistical metric that quantifies the proportion of the variation explained by an independent variable for the investment variable, is 0.694 in this model (1). It shows that the model fits the data not very well and can be improved by doing this model with quarterly or monthly data or adding more time-series data. There are 120 observations in this regression. The observation number is small in this research because of the small number of firms that are licensed and provided in this researched panel data array by Nasdaq. The observations can have influenced the R-squared number. It can be improved by adding more firms or including a comparison with other Baltic nations. Table 2 shows the fixed effect model analysis that the more taxes a particular firm paid, the more the firm invested in the future. This seems interesting that if the firm paid more taxes, it should have a low investment. After all, their revenues are spent on taxes. But on the other hand, when the firm has high amounts of taxes, it shows the firm has to have a big firm's size and higher revenues. Thus, this fixed-effect model shows that the taxes increase the investment amount by 3.35 with confidence intervals from 1.26 to 5.44. The p-value of taxes showed that the p-value is less than 0.05, which shows a statistically significant p-value. The stock price is shown in Table 2, and the higher the stock price is, the more firms invest in the future. The stock price increases the investment amounts on average by 3.28 with confidence intervals from 1.36 to 5.21. The stock price p-value is statistically significant because it is 0.01, and it is lower than the 0.05 significant level. The firm's debt shown in Table 2 shows that the higher firm's debt increases the firm's investment amount by 0.07 with the confidence interval from -0.15 to 0.29. But the probability of the firm's debt is equal to 0.551, which is bigger than 0.05, and the H_0 hypothesis that the firm's debt is not statistically different from zero cannot be rejected. Table 2 shows the investment and firm's profit relationship. It shows that if the firm has more profit, that firm invests more in the future. The higher profit increases the investment amount by 0.27 with confidence intervals from 0.15 to 0.29.

Furthermore, two hypotheses were raised in the methodology section of this research in this model (1). The null hypothesis said that company debt, stock price volatility, and taxes decrease the investment amounts. While the alternative hypothesis constitutes that company debt, stock price, and taxes increase the investment amounts. From the analysis of the results from Table 2, the null hypothesis has to be rejected, and the alternative hypothesis, which shows that company debt, stock price, and taxes increase the investment amounts, is accepted. It is because the firm's taxes, debt, stock price, and firm's profit show a positive correlation with investment. All 4 variables showed that then they are increasing the investment amount increased too. The alternative hypothesis has to be accepted because of the p-values that are obtained in Table 2. The

taxes, stock price, and firm's profit probabilities are lower than 0.05, while the firm's debt value is statistically insignificant due to the higher value than 0.05. Thus, the conclusion has to make is that the firm's taxes, firm's debt, stock price, and profit increases the investment amounts. Furthermore, the research will continue with an analysis of the investment relationship with a firm's size. To have better knowledge of the impact of a firm's size on the investment behavior of firms, the company's size should be added to the model. The firm's size variable gives additional data and information to increase the R-squared of the model. It will show the investment amount depends on the number of workers in that firm. For this model (2) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. Model (2) is the same as the model (1), but with added $size_i$ variable to it. The results are summarized in fixed effect panel data regression analysis from model (2) shown in Table 3.

Table 3

The results of the model (2) regression. Investment dependence on firm's size.

	Investment		
Predictors	*Estimates*	*CI*	*p*
Tax	3.37	1.29 – 5.45	**0.002**
Stock	3.09	1.16 – 5.01	**0.002**
Debt	0.19	-0.08 – 0.45	0.166
Profit	0.29	0.17 – 0.41	**<0.001**
Size	-0.04	-0.08 – 0.00	**0.022**
Observations	120		
R^2 / R^2 adjusted	0.701 / 0.676		

Source: prepared by the author, based on the data provided by Nasdaq, 2022.

Table 3 analyzes a firm's size, taxes, stock price, debt, and profit impact on the investment amount. It shows this relationship from 2017 to 2021 panel data. The R-squared, a statistical metric that quantifies the proportion of the variation explained by an independent variable for the

investment variable, is 0.701 in this model (2). It shows that model (2) fits the data better than model (1). Adding one variable more makes R-squared higher, which shows that the model can be improved by adding more data. The observation number is the same as 120. Table 3 shows how adding the firm's size to the model changes all variables' impact on the investment. Model (2) shows that a firm's taxes increase investment by 3.37 with confidence intervals from 1.29 to 5.45. The taxes number in the model (2) is higher than in model (1) by adding the firm's size to the model. The p-value of taxes indicates that the p-value is less than 0.05, meaning that the p-value is statistically significant. Table 3 illustrates that the investment dependence of stock price is lower than in Table 2. It shows that the greater the stock price, the more firms invest in the future. The stock price raises investment amounts by 3.09 on average, with confidence intervals ranging from 1.16 to 5.01. The stock price p-value is statistically significant since it is 0.02 and less than the 0.05 level of significance. Table 2 illustrates that the firm's debt has a higher impact on investment than in Table 1. It increases from 0.07 to 0.19. It shows that the more the firm's debt, the greater its investment amount, with a confidence interval ranging from -0.08 to 0.45. However, because the likelihood of the firm's debt is greater than 0.05, the H_0 hypothesis that the firm's debt is not statistically different from zero cannot be discarded. Table 2 depicted the link between a firm's investment and profit, which is better than in the previous model. The larger the profit, the greater the increase in investment, with confidence intervals ranging from 0.17 to 0.41. Furthermore, this model (2) examines the influence of the number of workers and firm size on the investment amount. Table 3 shows the minimal effect of decreasing the investment size by -0.04 with confidence intervals from -0.08 to 0.00. It shows that smaller companies with a smaller number of workers invest more in the future than bigger size firms. It can be interpreted that smaller firms want to expand and invest in the future more than big firms. In this model (2), the null and alternatives hypothesis were tested. The null hypothesis constitutes that a firm with a smaller number of workers will have lower investment spending, whereas the alternative hypothesis says that a firm with a smaller number of workers will have bigger investment spending. Table 3 shows that the p-value of the firm's size in the model (2) is 0.022 and is lower than 0.05, thus, there is enough evidence to reject the null hypothesis that a firm with a smaller number of workers will have lower investment spending. Therefore, the alternative hypothesis is accepted that firms with a smaller number of workers will have bigger investment spending.

Moreover, the analysis will continue with the investment relationship with the firm's liquidity ratio. The variable of liquidity was introduced to the regression analysis to improve understanding and investigation of the model. Liquidity ratios calculate indicators to determine a company's capacity to meet debt commitments and margin of safety. For this model (3) Y_{it} stands for the investor behavior in t month for firm i. The $alpha\_0$ is the intercept of the regression. The

$size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company i debt. Tax_i shows the company i taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm i profit by that year. ε_{it} is regression residual. The results are summarized in fixed effect panel data regression analysis from model (3) shown in Table 4.

Table 4

The results of the model (3) regression. Investment dependence on liquidity ratio.

	Investment		
Predictors	*Estimates*	*CI*	*p*
Tax	3.39	1.30 – 5.47	**0.002**
Stock	3.11	1.17 – 5.04	**0.002**
Debt	0.19	-0.08 – 0.45	0.166
Profit	0.29	0.16 – 0.41	**<0.001**
Size	-0.01	-0.01 – 0.00	**0.003**
Liquidity	-0.41	-1.92 – 1.10	**0.009**
Observations	120		
R^2 / R^2 adjusted	0.701 / 0.674		

Source: prepared by the author, based on the data provided by Nasdaq, 2022.

Table 4 depicts the liquidity, firm's size, tax, debt, stock price, and firm's profit dependence on the investment. The R-squared in this model (3) is the same as in model (2). The number is 0.701, as it was before. It shows that the liquidity ratio added to the model did not improve the model and how the data fits it. Table 4 shows how including the liquidity ratio in the model modifies the influence of all factors on the investment. Model (3) reveals that firm taxes increase investment by 3.39 percent, with confidence intervals ranging from 1.30 to 5.47 percent. With the addition of liquidity to the model, the tax value in the model (3) is larger than in model (2) and model (1). The tax p-value shows that the p-value is less than 0.05, indicating that the p-value is statistically significant. Table 4 shows that the investment reliance on stock price is higher than in Table 3 but lower than in Table 2. On average, the stock price increases investment amounts by 3.11, with confidence intervals ranging from 1.17 to 5.04. Because it is less than the 0.05 level of significance, the stock price p-value is statistically significant. Table 4 shows that the firm's debt

in the model (3) has the same influence on the firm's investment as in model (2). 4 illustrates that the higher the firm's debt, the greater the firm's investment amount, with a confidence interval ranging from -0.15 to 0.29. But as in previous models, given that the probability of the firm's debt is larger than 0.05, the H_0 hypothesis, which states that the debt is not statistically different from zero, cannot be rejected. Table 4 demonstrated the same relationship between company investment and profit as in prior Table 4. With confidence intervals ranging from 0.17 to 0.41, the bigger the profit, the greater the increase in investment. The investment p-value is statistically significant since it is less than 0.001 and less than the 0.05 level of significance. Moreover, this model (3) investigates the impact of employee number and business size on investment behavior. Table 4 depicts the relatively small effect of reducing the investment amount by -0.01 with confidence intervals ranging from -0.01 to 0.00. It is a smaller effect than in the previous model (2), but it also demonstrates and approves that smaller organizations with fewer employees spend more in the future than larger firms. Furthermore, this model (3) illustrates the liquidity ratio relationship to investment. Table 4 depicts that it has a negative impact on the investment size of the firm. If the company has a bigger liquidity ratio, that company will invest less than companies with a lower liquidity ratio. The liquidity ratio in this model has a number of -0.41 with a confidence interval from -1.92 to 1.10, which means that if the firm has a higher liquidity ratio by one unit, the investment will decrease by -0.41. As in previous models, the null and alternative hypotheses were evaluated in this model (3). The null hypothesis constitutes that a bigger liquidity ratio will increase investment spending, whereas the alternative hypothesis says that a lower liquidity ratio will increase investment spending. Table 4 shows that the p-value is less than 0.05 with a value of 0.009. That means that the null hypothesis has to be rejected, and there is enough evidence to accept the alternative hypothesis and conclude that the lower liquidity ratio will increase investment spending.

4.3 Lithuanian firms investment behavior comparison with other Baltic states companies.

This section contains the data and empirical analysis comparison between Lithuania, Latvia and Estonia. It will summarize the data, compare, and review all the empirical research between Baltic countries. Firstly, this section compares the data array between the countries. Secondly, it will compare the empirical research differences in how profit, debt, taxes, stock price firm’s size and liquidity effects the investment in these countries. Lastly, it will summarize the investment behavior distinction between Lithuania, Latvia and Estonia. This data array contains 18 Estonian and 10 Latvian firms whose stock exchange data are licensed and regulated by Nasdaq

Vilnius Stock Exchange. This Estonian and Latvian panel data is collected the same way as Lithuanian panel yearly data described in section 4.1. The yearly panel data of Latvia and Estonia is the same as Lithuanian data and consists of 6 different variables with the time series from 2017 to 2021. The data contains the investment of the firm, the firm's debt, taxes, liquidity rating, the firm's size, stock price, and profit. To begin the comparison, the investment means in each year will be compared between the countries. The results of this comparison are shown in Table 5.

Table 5

The comparison between Lithuania, Latvia and Estonia investments means.

	Lithuania	Latvia	Estonia
Investment 2017	24.00	2.45	2.86
Investment 2018	26.48	5.24	3.16
Investment 2019	31.17	6.87	4.38
Investment 2020	31.20	6.80	5.12
Investment 2021	22.35	8.68	5.47
Investment Average	27.06	6.01	4.20

Source: prepared by the author, based on the data provided by Nasdaq, 2022

Table 5 illustrates that, on average, Lithuanian firms spend more on investment than Latvia and Estonia. Lithuania invested 27.06 EU on average in these five years compared to Latvia's 6.01 m Eu and Estonia's 4.20 m EU in these five years. This means 24 Lithuanian firms, 18 Estonian and 10 Latvian firms. As Lithuanian investment spending is described in *Figure 1* and section 4.1., we can discuss the investment spending in Latvia and Estonia. As can be seen from Table 5, the investment is bigger in Latvian companies compared to Estonian firms. The biggest investment was in 2021 in both countries, it was 8.68 m EU in Latvia and 5.47 m EU. The investment in Latvia increases year after year progressively, but in 2020, it decreased by 0.07 m EU on average. One of the main reasons that investment decreased in 2020 is Covid-19, which stopped the economic system and lowered and decreased investment spending in all countries. 2021 the year after Covid-19, have an increase in investment in both countries Latvia and Estonia. The smallest investment was in 2017 in Latvia, 2.45 m EU, where in 2018, the investment had a big increase in firms spending, increased to 5.24. Estonia has 1.80 m EU lower investment spending on average in these five years compared to Latvia. The means of each year increase year after year and increase progressively. The smallest investment was in 2017, which is equal to 2.86 m EU and the biggest is in 2021, which is equal to 5.47 m EU. Table 5 does not show the big impact of Covid-

19 on investment in 2020 and 2021. The investment in 2020 was 3.16 m EU, in 2019 was 4.38 m EU and in 2018 was 3.16 m EU.

Secondly, the firm's debt, taxes, profits, liquidity, size, and stock averages on the five year timeline will be compared between Lithuania, Latvia and Estonia. The firm's debt, on average of one firm is the biggest in Estonia at 37.92 m EU, the smallest is in Latvia at 6.02 m EU and Lithuania is equal to 19.24 m EU. It means that the total amount of liabilities owed by the firm to outsiders is the biggest in Estonia and Lithuania, while in Latvia, the number is very small. The biggest number of taxes on average is paid in Latvia, 3.32 m EU while in Lithuania, 1.86 m EU and in Estonia, 2.74 m EU. The liquidity means the biggest in Latvia is 3.32, in Lithuania, it is 2.43, and the smallest one is in Estonia, 2.05. It shows that the firms in Lithuania can convert assets to cash or acquire cash much easier than in Latvia or Estonia and pay their short-term obligations or liabilities. The biggest firm is in Lithuania, with 1125 workers on average. The Estonian firms have 949 workers on average, where Latvian firms have 313 workers on average. The biggest profits are in Lithuanian firms, 48.15 m EU on average, in Estonia, the mean profit is 35.41, while the smallest profits are in Latvia, 14.84 m EU.

Therefore, this section will analyze and compare empirical results between Lithuania, Latvia and Estonia. These countries will be compared by the regression model (3), which is shown in the methodology analysis section. It shows which effects and variables of the data influence the firm's investment most and which have no effect, how the company's debt, firm taxes, firm's profit, stock price volatility, firm size and liquidity ratio changes the investment. The reason why to choose model (3) to compare the countries between each other is that it covers and analyzes all the variables that are in the data array of this publication. For this model (3) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company i debt. Tax_i shows the company i taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. Model (3) is the same as the model (2), but with added $liquidity_i$ variable to it. The results of model (3) with Lithuanian firms data array is found and analyzed in the section 4.2. Now this section will show, analyze and compare the model (3) results with Latvian and Estonian firms. The table 6 shows the results of model (3) of Latvian firms.

Table 6

The results of the model (3) regression with Latvian firms data array. Investment dependence on taxes, stock, debt and profit, size and liquidity ratio.

	Investment_Lat		
Predictors	*Estimates*	*CI*	*p*
Tax_Lat	-2.76	-4.34 – -1.17	**0.002**
Stock_Lat	-0.19	-0.52 – 0.14	0.13
Debt_Lat	3.36	1.60 – 5.12	**0.001**
Profit_Lat	0.18	-0.35 – 0.71	**0.02**
Size_Lat	0.17	0.12 – 0.22	**<0.001**
Liquidity_Lat	2.27	0.28 – 4.26	**0.031**
Observations	50		
R^2 / R^2 adjusted	0.929 / 0.911		

Source: prepared by the author, based on the data provided by Nasdaq, 2022

Table 6 depicts the liquidity, firm's size, tax, debt, stock price, and firm's profit dependence on the investment in Latvia firms. To begin with, the R squared value of 0.929 shows that the model explains about 90% of the variance in the dependent investment variable with the Latvian firm's data. The 0.929 R-Squared value shows that model (3) fits the data more than model (3) with the Lithuanian firm's data, where the R-Squared was 0.701. The observation is number is very low compared to other Baltic countries because there are just 10 firms in the Latvia data array whose stock exchange data are licensed and regulated by Nasdaq Vilnius Stock Exchange. Model (3) reveals that firm taxes in Latvia decrease investment by 2.76, with confidence intervals ranging from -4.34 to -1.17. It is completely different from what was in model (3) with Lithuanian firms. The taxes in Lithuania increases the investment by 3.39. Table 6 indicates that if the firm has bigger taxes in Latvia, it has smaller investments and vice versa with Lithuanian firms. The stock price probability in this Table 6 is 0.13, indicating that the stock price does not have a statistically significant effect on investment at the 5% significance level, and the null hypothesis cannot be rejected. Table 6 illustrates that the higher the firm's debt, the greater the firm's investment amount. Then the higher debt is bigger by 1 the investment increases by 3.36. Profit in Latvia's firm's data model (3) is 0.18, which is lower by 0.11 than in the Lithuania case, but it keeps a positive value and has a positive correlation with investment. The impact of employee number and business size on investment behavior shows a positive correlation. Table 6 depicts the relatively small effect of increasing the investment amount by 0.17. The liquidity value shows a positive correlation with

investment in Latvia firms with a 2.27 value. It is completely different compared to Lithuania -0.41, which shows the negative liquidity and investment correlation. Moreover, empirical analysis will compare Estonia's firms regression model (3) with previous Lithuania's and Latvia's numbers. For this Estonian model (3) Y_{it} stands for the investor behavior in *t* month for firm *i*. The $alpha\_0$ is the intercept of the regression. The $size_i$ shows how many workers the firm has or it is an investor by himself. The $debt_i$ shows the company *i* debt. Tax_i shows the company *i* taxes paid in that year. $Stock_i$ shows the stock price volatility. The $profit_i$ shows the firm *i* profit by that year. ε_{it} is regression residual. The table 7 shows the results of model (3) of Estonian firms.

Table 7

The results of the model (3) regression with Estonian firms data array. Investment dependence on taxes, stock, debt and profit, size and liquidity ratio.

	Investment_Est		
Predictors	*Estimates*	*CI*	*p*
Tax_Est	0.43	-0.16 – 1.03	**<0.001**
Stock_Est	0.04	-0.20 – 0.28	0.065
Debt_Est	-0.03	-0.05 – -0.00	**0.029**
Profit_Est	0.03	-0.01 – 0.07	**0.023**
Size_Est	-0.00	-0.00 – 0.00	**<0.001**
Liquidity_Est	-0.33	-0.73 – 0.08	**<0.001**
Observations	90		
R^2 / R^2 adjusted	0.752 / 0.720		

Source: prepared by the author, based on the data provided by Nasdaq, 2022

Table 7 shows the Estonian firms' investment dependence on investment dependence of taxes, stock, debt and profit, size and liquidity ratio. Table 7 shows that the R-Squared is 0.752, which is lower than in the Latvia model (3) but quite bigger than in the Lithuania case. The R squared value of 0.752 shows that the model explains about 75% of the variance in the dependent investment variable with Latvian firms' data. The observation number 90 is bigger than in Latvia's case but lower in Lithuania due to the firms included and analyzed in the data array. 18 firms are included in the Estonia data array, whose stock exchange data are licensed and regulated by Nasdaq Vilnius Stock Exchange. Model (3) reveals that firm taxes in Estonia increase investment by 0.43. It is entirely different from what was in a model (3) with Latvia firms because, in Latvia, the investment negatively correlates with taxes. However, it is similar to the Lithuania model (3)

because tax and investment dependence is positive by 3.39. Table 7 indicates that if the firm has bigger taxes in Estonia and Lithuania, it has smaller investments and vice versa with Latvia firms. The stock price probability in this Table 7 is 0.065, indicating that the stock price does not have a statistically significant effect on investment at the 5% significance level, and the null hypothesis cannot be rejected. The same was and in the Latvia model, which shows that the model did not fit very well the stock price data dependence with investment, but the stock price in the Lithuania model (3) has a positive correlation with an investment with a 3.11 value. Table 7 illustrates that the more firm's debt is lower, the greater the firm's investment amount. It is completely different in the Estonian model (3) compared to Latvia's case. When the debt is bigger by 1 in Estonian firms the investment decreases by -0.03. Profit in Estonia's firms' data model (3) is 0.03. It is lower by 0.21 than in the Lithuania case and lower by 0.15 than in the Latvia case, but it keeps a positive value and has a positive correlation with investment. The investment dependence on firms' size shows that size has no impact on investment in the Estonia case. The liquidity value shows a positive correlation with investment in Latvia firms with a 2.27 value. It is completely different compared to Lithuania -0.41, which shows the negative liquidity and investment correlation.

Therefore, in his section, the results of the investment behavior of these 3 Baltic countries can be summarized. Firstly, this regression model fits the best Latvian firms' data array, shown in the R-Squared number. The Lithuania and Estonia firms' data fits the model quite the same. Secondly, tax dependence on investment showed a positive correlation in Lithuania and Estonia and a negative correlation in Latvia's model. The stock price has a positive impact on investment in Lithuania, but in Latvia and Estonia, the stock price effect has no impact due to a bigger probability than 0.05 in the regression model. This thesis results indicate that in Latvia, if the firm has higher debt, the investment will be bigger, but in Estonia is completely different. It shows that higher firm debt lowers investment. The profit in all three countries has a positive effect on investment, which means that the profit increases the investment increases in the Baltic countries. The size effect has no effect on investment in Estonia, a minimal negative effect in Latvia and a positive effect in Lithuania. The liquidity ratio analysis shows a negative impact on investment in Lithuania and Estonia but a positive impact on Latvia.

To conclude, the empirical analysis results of Lithuania, Latvia and Estonia can be compared with the results described in the literature and theory analysis section: research on different investment behavior in different countries. The results can be compared with 3 different authors' papers: Takechi and Matsushima (2009), Brandstaetter and Wilfinger (2018), and Albulescu (2020). Takechi and Matsushima (2009) showed that if the firm size is lower, the firm will invest more. The authors show that when businesses don't have a big size of firm, they turn to invest in capital and want to extend the firm. Takechi and Matsushima (2009) made the analysis

in firms in Japan, and these results can be compared to results found in my publication with Lithuania, Latvia and Estonia. This publication showed that in Lithuania if the size is smaller, the firm has a bigger investment. In Latvia, if the firm has a bigger size, the firm has lower investment, and in Estonia, the firm size has no effect on the firm investment. Thus, as the results are compared between the countries, Japan and Lithuania's results are the same, but these results differ from Latvia and Estonia. Furthermore, the results can be compared with Brandstaetter and Wilfinger (2018) paper, which shows that debt is the most prevalent source of external funding and investment for SMEs in Austrian firms. My publication shows the same results in Lithuania and Latvia and different in Estonia firms. This thesis results that if the debt is higher in Lithuania and Latvia firms, the investment will be higher, and if the debt is lower, the investment will be higher in Estonia. Finally, the results of the thesis can be compared with the results of Albulescu (2020). Albulescu (2020) compares and shows the relationship between the wine companies' success and their stock prices with that companies' investment decisions. She showed that Italian companies' investment decisions are unaffected by the stock prices of the firm and their financial success. In the case of French enterprises, only capitalization and profitability ratios are major factors in investment decisions. In the Spanish companies, The author demonstrates that Spanish wine firms' financial success has a significant impact on their investment decisions. It shows that if the firm stock price is up, the firm has a higher investment. The results of this thesis of firms in Lithuania agreed with these results in Spanish firms and showed that if the firm has a higher stock price, the investment will be higher.

CONCLUSIONS AND RECOMMENDATIONS

1. The literature research on investment behavior in different countries shows the changes between the multiple countries across the globe. The authors showed that different economic and financial aspects affect investment differently in each country.
2. The literature research on the investment behavior of small and medium-sized investment enterprises shows that small firms want to invest more in the future and have bigger and faster growth than larger ones.
3. The investment and different economic and financial variables analysis showed that if the firm has higher taxes, the investment increase in Lithuanian firms. The bigger profit and stock price increase the investment, but the company's debt has no impact on it.
4. The investment and firm size research in Lithuanian firms showed that the firm with a smaller number of workers has bigger investment. It shows that an alternative hypothesis has to be accepted that firms with a smaller number of workers will have bigger investment spending.
5. The investment and liquidity ratio analysis showed that firms with lower liquidity ratios have bigger investment spending. It showed that the liquidity ratio has a negative impact on a firm's investment spending and that hypothesis that a lower liquidity ratio will increase investment spending.
6. The comparison between Lithuania, Latvia and Estonia showed that the taxes and investment correlation is positive in Lithuania and Estonia regression model analysis, whereas if the firm has higher taxes in Latvia, it will have lower investment.
7. This thesis results indicate that in Latvia, if the firm has higher debt, the investment will be bigger, but in Estonia is completely different. It shows that higher firm debt lowers investment.
8. The profit and investment correlation shows that if the profit increases, the investment increases in all three Baltic countries. There the size effect has a negative impact on investment in Lithuania, a positive impact in Latvia and no impact at all in Estonia.
9. The investment and liquidity ratio analysis showed that firms with lower liquidity ratios have a bigger investment in Lithuania and Estonia, whereas, in Latvia, the firms with lower liquidity ratings have bigger investments.

Considering and looking at the results found in this thesis, the firms in Lithuania are recommended to look forward to take the debt for bigger investments and expansions in the future. Moreover, if the firms in Lithuania seek to have bigger investments, the results in this thesis show

that they are recommended to seek to have lower liquidity rating, higher profit and higher stock price.

REFERENCES

Albulescu, C, T. (2019). *Investment Behavior And Firms Financial Performance: A Comparative Analysis Using Firm-Level Data From The Wine Industry.* https://ideas.repec.org/h/tkp/mklp19/227.html

Aukutsionek, S. (2018). *Investment behavior of enterprises in 2017- 2018*. Russian economic barometer 3-4 (71-72) p 3-10. DOI: 10.20542/2307-0390-2018-3/4-3-10

Bai, J., Lian, L. (2013). *Why do state-owned enterprises over-invest?* Government intervention or managerial entrenchment, China Journal of Accounting Studies, 1:3-4, 236-259. DOI: 10.1080/21697221.2013.867401

Barno, L. J., & Tuwei, J. K. (2020). *Effect of Prospecting Bias on Investment Decision Making among Small and Medium Enterprise in Nairobi County*. Journal of Business Management and Economic Research, 4(3), 253. https://www.researchgate.net/publication/344834054_Effect_of_Prospecting_Bias_on_Investment_Decision_Making_among_Small_and_Medium_Enterprise_in_Nairobi_County

Bhatnagar, V. (2016*). Investment Behavior of Businessmen-A study with Special Reference to Gwalior*. Journal of Banking, Information Technology and Management, Research Development and Research Foundation 9: 3–14. https://www.researchgate.net/publication/296247225_Investment_Behavior_of_Businessmen-_A_study_with_Special_Reference_to_Gwalior_MP

Bhushan, P. (2014). *Relationship between Financial Literacy and Investment Behavior of Salaried Individuals.* https://www.researchgate.net/publication/264355697_Relationship_between_Financial_Literacy_and_Investment_Behavior_of_Salaried_Individuals

Brandstaetter, C., Wilfinger, D. (2018). *Investment behavior of small and medium-sized enterprises for a sustainable economic growth after financial crisis.* Annals of the Faculty of Engineering Hunedoara, 16(1), 21-26.

http://annals.fih.upt.ro/pdf-full/2018/ANNALS-2018-1-02.pdf

Changxin, X., Mengqiong, Z. (2019). *Generational differences and innovation investment decision in family firms*. Science Research Management, 2019, 40(12): 282-291. http://journal26.magtechjournal.com/Jwk3_kygl/EN/abstract/abstract21975.shtml

Doran, J. S., Peterson, D. R., Wright, C. *Confidence, opinions of market efficiency, and investment behavior of finance professors*. Journal of Financial Markets, Volume 13, Issue 1, 2010, Pages 174-195, ISSN 1386-4181. https://doi.org/10.1016/j.finmar.2009.09.002.

Esch, M., Schnellbächer, B., Wald, A. (2019). *Does integrated reporting information influence internal decision making? An experimental study of investment behavior*. Business Strategy and the Environment, Wiley Blackwell, vol. 28(4), pages 599-610, May. https://onlinelibrary.wiley.com/doi/abs/10.1002/bse.2267

ESG Investor sentiment study report of Allianz Life Insurance Company of North America. (2018). *Ethics and investing: How environmental, social, and governance issues impact investor behavior*. https://www.allianzlife.com/-/media/files/allianz/pdfs/esg-white-paper.pdf

Grinblatt, M., Keloharju, M. (2000). *The investment behavior and performance of various investor types: a study of Finland's unique data set*. Journal of Financial Economics. https://doi.org/10.1016/S0304-405X(99)00044-6.

Yi, H., Xiugang, Y. (2018). *Investors Sentiment and Enterprise's Non-Efficient investment: The Intermediary Effect of Stock Price Volatility*. International Journal of Business and Social Research, 8(7), 1-14. https://ideas.repec.org/a/lrc/larijb/v8y2018i7p1-14.html

Yidan, X. (2014). *Effects of financing factors on investment behavior of Chinese cultural industrylisted company: An empirical study based on unbalanced dynamic panel data*. Journal of Chemical and Pharmaceutical Research,6, 2012–2019. https://www.researchgate.net/publication/269932668_Policy_momentum_for_the_development_of_Taiwan's_cultural_creative_industries

Lan, Q., Xu, Q., Hu, X. (2017). *Predictability of Investment Behavior Based on Personal Characteristics about China's Individual Investors.* Eurasia Journal of Mathematics, Science and Technology Education, 13(12), 8331-8341. https://doi.org/10.12973/ejmste/78104

Lee, Y. (2011). *The Investment Behavior , Decision Factors and Their Effects Toward Investment Performance in the Taiwan Stock Market.* https://www.semanticscholar.org/paper/The-Investment-Behavior-%2C-Decision-Factors-and-in Lee/4f42a1b7616c1c86a2f9d606220dd4077a4de60c

Liang, E., Yuan, S.D. (2013). *Investors Are Social Animals: Predicting Investor Behavior using Social Network Features via Supervised Learning Approach.* http://snap.stanford.edu/mlg2013/submissions/mlg2013_submission_7.pdf

Lopez -Gutierrez, C., Sanfilippo-Azofra, S., Torre-Olmo, B. (2015). *Investment decisions of companies in financial distress.* University of Cantabria, Business Administration Faculty, Cantabria, Spain. https://www.sciencedirect.com/science/article/pii/S2340943614000644

Matsushima, S., Takechi, K. (2009). *Investment Behavior and Business Sentiments of Small and Medium Enterprises.* https://www.researchgate.net/publication/32053760_Investment_Behavior_and_Business_Sentiments_of_Small_and_Medium_Enterprises

McMahon, R. G. P., Stanger, A. M. J. (1995*). Understanding the Small Enterprise Financial Objective Function. Entrepreneurship Theory and Practice*. 19(4), 21–39. https://doi.org/10.1177/104225879501900403

Naomi, C., Kiprop, S., Tanui, J. (2018). *Influence of Herding Behavior on Investment Decision of SMEs in Bomet, County, Kenya.* East African Scholars Journal of Economics, Business and Management A Publication of East African Scholars Publisher, Kenya County, Kenya. https://www.easpublisher.com/media/articles/EASJEBM_12_34-39_cc.pdf

Ngoc, L.T. (2013). *Behavior Pattern of Individual Investors in Stock Market*. International Journal of Biometrics, 9, 1. https://www.ccsenet.org/journal/index.php/ijbm/article/view/28238

Panchenko, V., Ilyina, A., Mihus, I., Vavrin, M., Karpenko, Y.D. (2019). *The Role of Investment Strategy in the Strategic Management System of Service Companies*. Academy of Strategic Management Journal, 18, 1. https://www.abacademies.org/articles/the-role-of-investment-strategy-in-the-strategic-management-system-of-service-companies-8922.html

Paramita, R.S., Isbanah, Y., Kusumaningrum, T.M., Musdholifah, M., Hartono, U. (2018). *Young investor behavior: implementation theory of planned behavior.* https://www.researchgate.net/publication/327335452_Young_investor_behavior_implementation_theory_of_planned_behavior

Pelger, I. (2012). *Male vs. female business owners: Are there differences in investment behavior?*. https://ideas.repec.org/p/zbw/vfsc12/62016.html

Trinh, Q. L., Morgan, P. J., Sonobe, T. (2020). *Investment behavior of MSMEs during the downturn periods: Empirical evidence from Vietnam, Emerging Markets Review*., Volume 45, 2020, 100739, ISSN 1566-0141. https://doi.org/10.1016/j.ememar.2020.100739

Vijlder, W.D. (2016). *What is driving corporate investment?*. https://economic-research.bnpparibas.com/html/en-US/driving-corporate-investment-10/13/2016,29177

Wang, F., Zhang, R., Ahmed, F., Shah, S. (2021*) Impact of investment behaviour on financial markets during COVID-19: a case of UK*. Economic Research-Ekonomska Istraživanja. DOI: 10.1080/1331677X.2021.1939089

INVESTMENT BEHAVIOR OF BUSSINESS ENTERPRICES

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Master Thesis

Finance and Banking Master Program

Faculty of Economics and Business Administration, Vilnius University
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SUMMARY

58 pages, 8 tables, 1 figure, 29 references.

The main goal of this research is to analyze the firm's investment behavior on business enterprises and investment behavior caused by different economic and financial aspects. The paper consists of the analysis of related literature, research methods, data analysis, fixed effect regression analysis, the comparison between Lithuania, Latvia and Estonia, and conclusions. This panel's yearly data is taken from Nasdaq Vilnius Stock Exchange. The data contains 24 firms in Lithuania, 18 in Estonia and 10 in Latvia. The data contains the investment of the firm, the firm's debt, taxes, liquidity rating, the firm's size, stock price, and profit. The fixed effect regression was used to analyze the effects of each variable on investment behavior. The results show that if the firm has higher taxes, the investment increases in Lithuanian firms. The bigger profit and stock price in Lithuanian firms increase the investment, but the company's debt has no impact on it. The investment and firm size research in Lithuanian firms showed that the firm with a smaller number of workers has bigger investment spending. The investment and liquidity ratio analysis showed that firms with lower liquidity ratios have bigger investment spending. The comparison between Lithuania, Latvia and Estonia showed that the taxes and investment correlation is positive in Lithuania and Estonia, whereas if the firm has higher taxes in Latvia, it will have lower investment. This thesis result indicates that if the firm has higher debt in Latvia, the investment will be bigger, but Estonia is entirely different. It shows that higher firm debt lowers investment. The profit and investment correlation shows that if the profit increases, the investment increases in all three Baltic countries. There the size effect has a negative impact on investment in Lithuania, a positive impact in Latvia and no impact at all in Estonia. The investment and liquidity ratio analysis showed that firms with lower liquidity ratios have a bigger investment in Lithuania and Estonia, whereas, in Latvia, the firms with lower liquidity ratings have a bigger investment.

VERSLO ĮMONIŲ INVESTICINĖ ELGSENA

Dominykas BUČAS

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SANTRAUKA

58 puslapiai, 7 lentelės, 1 paveikslas, 29 šaltiniai.

Pagrindinis šio tyrimo tikslas – ištirti įmonės investavimo elgseną verslo įmonėse ir investavimo elgseną, nulemtą skirtingų ekonominių ir finansinių aspektų. Darbą sudaro literatūros analizė, tyrimo metodai, duomenų analizė, fiksuoto efekto regresinė analizė, Lietuvos, Latvijos ir Estijos palyginimas bei išvados. Šie metiniai duomenys yra paneliniai ir paimti iš Nasdaq Vilniaus vertybinių popierių biržos. Duomenis sudaro 24 įmonės Lietuvoje, 18 Estijoje ir 10 Latvijoje. Duomenys apima įmonės investicijas, įmonės skolą, mokesčius, likvidumo reitingą, įmonės dydį, akcijų kainą bei pelną. Fiksuoto efekto regresija buvo naudojama analizuojant kiekvieno kintamojo poveikį investavimo elgsenai. Gauti rezultatai rodo, kad jei įmonė turi didesnius mokesčius, investicijos Lietuvos įmonėse didėja. Didesnis pelnas ir akcijų kaina Lietuvos įmonėse didina investicijas, tačiau šio tyrimo rezultatai parodė, kad įmonės skolos tam įtakos neturi. Investicijų ir įmonės dydžio tyrimas Lietuvos įmonėse parodė, kad įmonė, kurioje dirba mažesnis darbuotojų skaičius, turi didesnes investicijas. Investicijų ir likvidumo santykio analizė parodė, kad įmonės, kurių likvidumo rodikliai mažesni, investicijos yra didesnės. Lietuvos, Latvijos ir Estijos palyginimas parodė, kad Lietuvos ir Estijos regresijos modelio analizėje mokesčių ir investicijų koreliacija yra teigiama, o jei įmonė Latvijoje taikys didesnius mokesčius, investicijos bus mažesnės. Taip pat, rezultatai rodo, kad jei įmonė turi didesnę skolą Latvijoje, investicijos bus didesnės, tačiau Estijoje situacija yra visiškai kitokia. Estijos firmų tyrimas rodo, kad didesnė įmonės skola mažina investicijas. Pelno ir investicijų koreliacija rodo, kad jei pelnas didėja, investicijos didėja visose trijose Baltijos šalyse. Įmonės dydžio efektas neigiamai veikia investicijas Lietuvoje, teigiamą įtaką Latvijoje, o ir nedaro jokios įtakos Estijoje. Investicijų ir likvidumo rodiklių analizė parodė, kad įmonės, kurių likvidumo rodikliai mažesni, Lietuvoje ir Estijoje investuoja daugiau, o Latvijoje žemesnius likvidumo rodiklius turinčios įmonės.

ANNEXES

Annex 1. Lithuanian firms, firms industry and subsector list analyzed in this research.

Firm	Industry	Subsector
Amber Grid	Energy	Energy
Apranga	Discretionary use	Retail
AUGA group	Day-to-day consumer goods	Food, beverages and tobacco
Grigeo	Basic materials	Key resources
Ignitis grupė	Public utilities	Public utilities
INVL Technology	Financial services	Financial services
INVL Baltic Real Estate	Real Estate	Real Estate
Invalda INVL	Financial services	Financial services
Klaipėdos nafta	Industrial products	Industrial goods and services
Kauno energija	Public utilities	Public utilities
LITGRID	Public utilities	Public utilities
Linas Agro Group	Day-to-day consumer goods	Food, beverages and tobacco
Linas	Basic materials	Key resources
Novaturas	Discretionary use	Travel and leisure
Panevėžio statybos trestas	Industrial products	Construction and materials
Pieno žvaigždės	Day-to-day consumer goods	Food, beverages and tobacco
Rokiškio sūris	Day-to-day consumer goods	Food, beverages and tobacco
Šiaulių bankas	Financial services	Banks
Snaigė	Discretionary use	Consumer goods and services
Telia Lietuva	Telecommunications	Telecommunications
Utenos trikotažas	Discretionary use	Consumer goods and services
Vilniaus baldai	Discretionary use	Consumer goods and services
Vilkyškių pieninė	Day-to-day consumer goods	Food, beverages and tobacco
Žemaitijos pienas	Day-to-day consumer goods	Food, beverages and tobacco

Source: prepared by the author, based on the data provided by Nasdaq, 2022.