



ADVANCES IN BUSINESS-RELATED SCIENTIFIC RESEARCH JOURNAL (ABSJR)

Volume 15, Number 1 (2024)

ISSN 1855-931X

The influence of exceptional service and product quality on online purchase

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THE INFLUENCE OF EXCEPTIONAL SERVICE AND PRODUCT QUALITY ON ONLINE PURCHASE

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Abstract

This study aimed to assess the influence of service and product quality on customer attitudes and subsequent purchasing decisions. Additionally, individuals with no previous experience in online product purchases were targeted in the population of Serang City, Indonesia. A total of 225 participants were selected through a meticulous proportional random sampling method using the Hair formula. The gathered data was rigorously analyzed using SmartPLS 3.3.3 by adopting a comprehensive structural equation modelling (SEM) method. The five proposed hypotheses were substantiated by the collected data to report crucial insights. The results showed that superior service quality significantly impacted customer attitudes towards the respective company or the services rendered. Furthermore, a strong correlation was established between high product quality and positive attitudes. In the context of purchase decisions, commendable service quality increased the probability of a successful transaction. Moreover, customers perceived enhanced value when considering purchases, particularly with increased service quality. The substantial influence of positive attitudes was also reported towards

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company or product on actual purchasing decisions to show the role of sentiment in driving successful transactions.

Key Words

Service quality; product quality; customer attitude; online purchasing decision.

INTRODUCTION

The COVID-19 pandemic situation is known to have resulted in a significant change in the global order of life, where health status and people are threatened. To avoid certain risks, social restrictions are imposed by staying, working, studying, and doing various activities at home. This policy certainly changes the behavior of sellers and customers in carrying out purchasing and selling activities (Yein, et al. 2020).

Customers are reluctant to visit malls or supermarkets, resulting in new behavior of preferring online shopping with cashless transactions to restrict physical contact (Zabelina et al, 2021). Therefore, these individuals play an important role in making online purchasing decisions (Suleman et al, 2020). Nielsen (2021)) examined more than 30.000 online customers in 63 countries, and the results are presented in Table 1.

Table 1: Customer behavior regarding online shopping

| Behavior | Ever Online (%) | Offline (%) |
|--|-----------------|-------------|
| Online shopping | 93 | 7 |
| Purchasing fashion products | 58 | 42 |
| Traveling Services | 55 | 45% |
| Books, musical instruments, stationery | 45 | 55% |
| Personal care products | 38 | 62% |
| Food | 27 | 73% |
| Packaged Food | 24 | 76% |
| Mean | 49.4 | 50.6 |

Source: Nielsen (2021).

The inclination to shop online, particularly for non-food products, is significantly high. Online shopping dominates offline methods and E-commerce has revolutionized the business world, breaking barriers of time and space, transforming trading methods, facilitating product circulation, and reducing production costs. In Indonesia, 90.18% of business actors use Internet facilities for receiving orders and selling goods and services. The wholesale and retail trade sector accounts for 48.42% of E-commerce businesses, with 90.56% using instant messaging platforms. Food and beverage, groceries, as well as fashion and cosmetics are the top categories for E-commerce transactions. Regarding payment methods, 73.04% of customers use Cash On Delivery (COD) and direct delivery is preferred by 52.81% of E-commerce businesses.

The survey conducted by Statistics Indonesia in 2020 showed a growing digital trade industry, with 71.18% of businesses starting online sales in the last 3 years. In the food and beverage provider category, online sales increased over the past 3 years. The majority of businesses (90.56%) sell goods through instant messaging apps such as WhatsApp, Twitter, Facebook, and Telegram. Marketplaces, websites, social media platforms (Facebook, Twitter), and WhatsApp are commonly used as online sales channels. Bhargava et al. (2020) found that customers showed interest in online grocery shopping even after the pandemic. Over-the-counter drugs and alcohol were popular items purchased online during the COVID-19 crisis. Table 2 presents a summary of the 2020 Statistics Indonesia survey, including data from 17,063 businesses across all provinces.

Table 2: Statistics of E-Commerce in 2022

| Province | Sales Transaction | | Total |
|-------------------------|-------------------|-------|-------|
| | Yes | No | |
| Southeast Sulawesi | 100 | 0.00 | 100 |
| North Maluku | 100 | 0.00 | 100 |
| Riau Islands | 99.64 | 0.36 | 100 |
| North Sumatra | 99.28 | 0.72 | 100 |
| West Papua | 99.22 | 0.78 | 100 |
| Central Java | 99.17 | 0.83 | 100 |
| Bengkulu | 98.8 | 1.20 | 100 |
| East Nusa Tenggara | 98.8 | 1.20 | 100 |
| West Nusa Tenggara | 98.65 | 1.35 | 100 |
| Lampung | 98.36 | 1.64 | 100 |
| West Sulawesi | 98.35 | 1.65 | 100 |
| Maluku | 98.25 | 1.75 | 100 |
| North Sulawesi | 98.02 | 1.98 | 100 |
| West Kalimantan | 97.41 | 2.59 | 100 |
| D.I. Yogyakarta | 97.26 | 2.74 | 100 |
| Aceh | 97.22 | 2.78 | 100 |
| West Sumatera | 97.12 | 2.88 | 100 |
| South Sulawesi | 96.98 | 3.02 | 100 |
| Bangka Belitung Islands | 96.59 | 3.41 | 100 |
| Riau | 96.49 | 3.51 | 100 |
| DKI Jakarta | 96.39 | 3.61 | 100 |
| North Kalimantan | 96.33 | 3.67 | 100 |
| Jambi | 95.55 | 8.06 | 100 |
| South Sumatera | 95.55 | 4.45 | 100 |
| East Kalimantan | 95.04 | 4.96 | 100 |
| South Kalimantan | 93.25 | 6.75 | 100 |
| Bali | 93.04 | 6.96 | 100 |
| West Java | 93.03 | 6.97 | 100 |
| Central Kalimantan | 92.51 | 7.49 | 100 |
| Banten | 91.48 | 8.52 | 100 |
| East Java | 91.25 | 8.75 | 100 |
| Gorontalo | 91.09 | 8.91 | 100 |
| Central Sulawesi | 90.04 | 9.96 | 100 |
| Papua | 71.43 | 28.57 | 100 |

Source: Statistics Indonesia (2023).

Table 2 from the Statistics Indonesia (2023) survey shows that online purchasing and selling activities occur in all provinces, reporting widespread online commerce across the country. This increased competition necessitates sellers to pay close attention to ensure satisfaction and prevent any decrease in customer numbers or disappointment. Service and product quality play an important role in shaping attitudes and influencing purchasing decisions. Sellers must focus on maintaining high levels of quality to effectively attract and retain customers in the competitive online marketplace.

Sharma & Lijuan (2015) stated that website quality in commerce was very important as a factor with a certain potential to attract customers, promote first-time purchases, and retain the capacity to repurchase. Website is an important element in determining purchasing choices. In addition, the preferred websites will lead to more revenue for service providers.

The practical perspective of Hsiao, et al (2010) showed that trust in product quality recommendations was important in promoting purchase intentions. Information on product recommendations provided by product users or previous customers can strengthen trust. Web practitioners must pay attention to trust, increasing the popularity and quality of the website as a whole and strengthening the legal structure or web protection technology. The quality of goods in online stores is described by showing pictures or videos, and an explanation of the type of goods, materials, and sizes. Concerns about the quality of goods exist due to the inability to obtain the physical items to be purchased (Palma & Andjarwati, 2016).

Attitude can be assessed based on the view of customers who pursue hedonic values, pleasure, and entertainment. Exciting, fun, and cheerful experiences are pursued through the shopping process, rather than completing tasks. A website is classified as good when the contents result in pleasure and the value obtained determine shopping behavior in the future. Customers tend to have positive intentions of inviting friends or family due to increased value during online shopping (Shiau & Wu, 2013).

The study conducted by Shiau & Wu (2013) presented the results regarding the context of new shopping patterns on platforms such as group purchasing websites. For instance, when perceptions and emotional judgments about sellers' websites are positive towards the website, the attitude to influence the intention of groups of individuals to purchase becomes very strong.

Habits can influence decisions to purchase a product or service and this behavior is based on the lifestyle of the society (Pangestu et al, 2016). Currently, the world is experiencing very rapid changes due to the development of Internet technology. Many discoveries can facilitate human activities and this condition triggers the growth of E-commerce industry (Suleman, 2018).

Online shopping created several problems and among the efforts to increase the economy during the pandemic, the Indonesian Customers Foundation (ICF) recorded 6.6% of complaints in 2022. Some of the problems in the case of online shopping are reported in Table 3.

Table 3: Customer complaints

| No | Type of Complaint | % |
|----|--|------|
| 1 | Order was not received | 28.2 |
| 2 | Goods ordered did not match the specifications | 15.3 |
| 3 | Difficult refunds | 10.2 |

Source: ICF (2022).

The different problems include materials for improvement to maintain business continuity. The topic also discusses attitude and purchasing decisions by taking the formulation of the problems including: (1) How significant is the effect of service quality on attitude? (2) How significant is the effect of product quality on attitudes? (3) How significant is the effect of service quality on purchasing decisions? and (4) How significant is the effect of product quality on purchasing decisions?

Theory of service quality on attitude

Service quality is the satisfactory level of sellers' service to customers. Good quality leads to satisfaction, and dissatisfaction reflects poor service. Therefore, every seller of goods must provide the best service to increase satisfaction. (Chakrabarty et al, 2007). According to Putra et al., (2021) and Praditya, R. A. (2020), sellers must be able to assess satisfaction with the services provided. (Lovenia, 2012) reported that when self-evaluation of satisfaction was sub-optimal, online and offline sellers must improve the quality of service. Customers who are satisfied with the service received must maintain the level of satisfaction to enable a strong bond between sellers and customers (Iswahyudi, 2009).

According to Novitasari et al. (2021), satisfaction and rating are influenced by emotional value and service technology, respectively. Meanwhile, high-innovating technology provides a higher level of satisfaction than old technology. Service quality reflects a comparison between expectations and the level of satisfaction obtained. The expectations met by sellers can also lead to a high level of satisfaction (Lovenia 2012: 13). According to Kotler & Keller, (2012) a product needed will be purchased by comparing the quality of the service rendered by a store to another (Lovelock et al., 2007). There should be a narrow gap between the quality of service expected and received.

Service quality influences attitude, serving as the difference between expectation and reality. In the context of marketing, this variable is associated with the extent of satisfying and meeting the expectations of customers, as well as achieving competitive differentiation in the mortgage sector. Service quality is very important as a competitive weapon to survive in the industry. Therefore, this variable is the core of attitude and satisfaction

factors which improves company image and promotes a favorable attitude. The relationship between service quality and attitude in a marketing context should be discussed according to the effects of a product or service, which has an impact on the decision to repurchase or reuse. The better the service quality, the more positive the attitude, and the greater the probability of repurchasing the product or service.

Service quality positively influences attitude and company image. The variable is determined and created by feelings and experiences. Meanwhile, attitude will be determined through a continuous process and become part of customers' personality, such as assessing company services.

H1: Service quality has a significant positive effect on customer attitude.

Theory of product quality on customer attitude

Company can recognize brands, and promote the purchase to increase revenue by ensuring product quality. The product is stated to have a good quality when there is an increased level of satisfaction with the service. Therefore, the marketing department should first assess and analyze the needs before making quality judgments based on the data collected (Lewis et al, 2021).

According to Lewis (2021), quality products are preferred and the commitment may be explicit or implicit in the case of a written contract or terms of quality management's expectations of the average customer. Product performance relates to the final functions and services provided. Product is stated to be quality after fulfilling the various criteria of service and time factors. The same quality of physical performance should be provided in a reasonable time, as a necessary aspect of quality. Quality is the conformity between expectation and the actual reality. The market is determined by company, the type of customer, and the quality of service. Therefore, quality decisions are based on various marketing considerations of production, labor, and technology constraints. In this context, quality decisions do not rest with a single functional manager since the process includes strategic decisions for operating the business (Lewis et al, 2021).

Putra, R. A., Hartoyo, H., & Simanjuntak, M. (2017) found that attitude was influenced by product and service quality. Product quality that met expectations certainly led to satisfaction. The conformity with the description is checked when ordered products are received, starting from function, condition, color, and size. Therefore, the quality of the product determines the repurchasing power of customers in the future.

In the study conducted by Yu, H., & Fang, W. (2009), product quality would determine perceptions, where after customers purchased a product, an assessment would appear based on expectations and reality. The conformity with the expectations would certainly have an impact on customer attitude regarding the assessment. This is shown in the

application ratings, represented by stars or perceptions.

H2: Product quality has a significant positive effect on attitude.

Theory of service quality on purchasing decision

According to Kotler & Keller, (2012), a product is purchased by comparing the quality of a store's service to another (Lovelock et al., 2007). There should also be a narrow gap between the quality of service expected and received. Service quality offers services experienced and the variable is a very important aspect of satisfaction and trust (Taghipoor et al, 2014). The variable can describe the condition of customers by comparing the service expected and received. Good service quality is a determining factor in purchasing decisions and this can be stated to be good when customers are satisfied (Wibowo & Soedjono, 2014).

The level of satisfaction will determine the survival and sustainable development of the business. There are many models, scales, and observed variables to assess service quality. In this context, the service quality model is applied by many studies because of the academic and practical value (Kotler, 2011).

Several factors are considered in deciding to make a repurchase at the same online store, one of which is the quality of service provided. In addition, the alertness of sellers in responding to any questions or complaints will greatly affect customer perceptions. Consequently, customers may decide to become loyal customers who will repurchase in the future. Wahyuni, S., & Praninta, A. (2021) found that brand and service quality had a significant positive effect on purchasing decisions. According to Tarigan (2021) and Suseno et al. (2019), good service quality was prioritized before looking at product quality on the Shopee online store. Customers tend to visit stores with good service quality and when a particular product is unavailable, other alternatives are preferred rather than searching elsewhere.

H₃: Service quality has a significant positive effect on purchasing decision.

Theory of product quality on purchasing decision

According to Kotler & Armstrong (2017), product quality refers to how well a product meets customer needs, as well as fulfills objectives and industry standards. In evaluating product quality, businesses should consider several key factors, including the ability to solve a problem, perform efficiently, or meet objectives. Company can also evaluate product quality based on various perspectives showing the perception of different groups regarding the usefulness of a product. Customer, manufacturing, product-based, value-based, and transcendental perspectives, which analyze product value concerning the cost should be considered. Based on certain perspectives, company can determine product quality including intended performance and function, reliability in a certain period, compliance with

specifications, durability and lifespan, serviceability and physical features as well as customer perceptions.

Suseno (2019) and Chaerudin and Syafarudin, A. (2021) reported that product quality determined and had a significant effect on purchasing decisions. The variable can also influence marketing, which is closely related to value and satisfaction. Product quality refers to a characteristic related to the ability to meet customer needs. This determines the ability to purchase a product or look for an alternative.

In the study conducted by Ernawati, (2019), the purchase of products whose quality had been tested was higher with unknown quality. Therefore, customers are more inclined to purchase products that have shown quality and meet the needs in terms of durability and functionality. Kaharu & Budiarti (2016) also confirmed the results that promotion and product quality had a significant positive effect on purchasing decisions. In some cases, many customers were reluctant to repurchase when the quality of the product received did not match expectations. The consumptive behavior towards online shopping presents an opportunity for online business actors. However, this does not imply that sellers can disregard product quality. Fierce competition and the ease of finding other online shops make customers easily switch to other places. These conditions must be considered by online sellers to continuously maintain trust (Suseno et al.2023).

H₄: Product quality has a significant positive effect on purchasing decision.

Theory of Customer Attitude on Purchasing Decision

Customer attitudes are a combination of feelings, beliefs, and reactions. Attitude refers to the way customers perceive the service received when products are purchased online and offline (Parimala & Suruthi, 2021). According to Parimala (2021), attitudes will adjust the service delivered by sellers and this leads to a good response. Customers who need product information should obtain the service from sellers with a good response. Agyeiwaah et al., (2021) explained the components of a good attitude, namely cognitive, affective, and psychomotor. A good attitude is determined by knowledge, and understanding will also appear when sellers understand the attitude delivered to customers. Conative attitude refers more to the behavior of sellers towards customers.

According to Ahn (2021), attitudes are closely related to expectations and the service received during the process of purchasing a product. A good attitude is expected when purchasing due to the reciprocity between customers and sellers.

Miauw, K. Y. H. (2016) found that the motivation and attitude statistically had a significant positive effect on purchasing decisions. Attitudes formed through belief in product and service quality lead to good perceptions. Repurchasing can only be carried out to obtain fulfillment of needs rather than looking elsewhere. This must be maintained by sellers, where attitude and trust are important factors that determine purchasing decisions. In

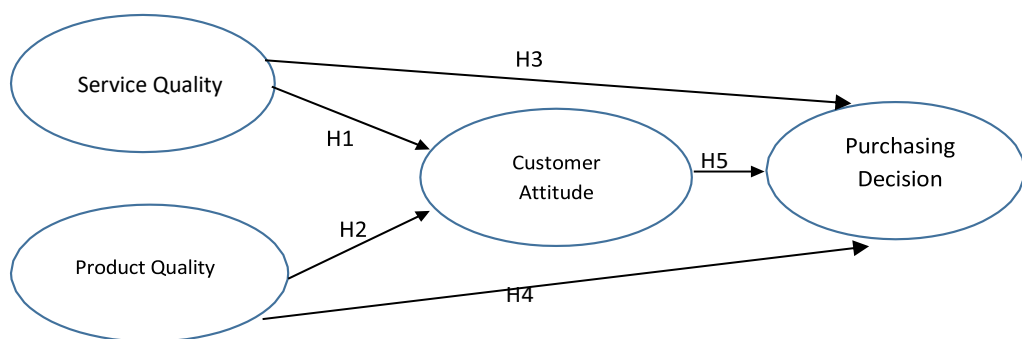
addition, maintaining trust is also an effort to attract new customers.

Sulistiono (2019) confirmed the results of a similar study, where attitudes had a significant positive effect on purchasing decisions. The decision-making process in purchasing a product is subjected to several stages, such as need recognition, information search, evaluation of alternatives, purchasing decisions, and the stage of behavior after making a purchase.

Attitude influences purchasing decisions, which is a complex and comprehensive factor. This is the main culture impacting the uniqueness of each group or social class, including those from lower levels, as well as a reference group (Suseno and Mukhlis, 2023). Therefore, the final stage of purchasing process is the behavior and sellers are expected to provide the best service and product quality to satisfy customers. Customers will consistently return to repurchase when the previous purchase process meets expectations.

H₅: Customer attitude has a significant positive effect on purchasing decision.

Figure 1: Empirical model



METHODS

The method applied in this study was quantitative with a causality descriptive design. The population included the residents of Serang City who had not purchased goods online. Samples selected in inferential statistical study using Structural Equation Modeling (SEM) analysis method were 5 times the number of indicators. This study used 2 exogenous, 1 intervening, and 1 endogenous variable, with 45 indicators. Based on Haire's opinion, the sample size required was 5 X 45 or equal to 225 respondents in Serang City.

The survey method was applied in primary data collection. The questionnaire was developed based on the theory, dimensions, and indicators delivered by several experts.

RESULTS AND DISCUSSION

Validity test was conducted by using the loading factor presented in Table 4.

Table 4: Loading factor

| | Purchasing Decision_(Z) | Service Quality_(X1) | Product Quality_(X2) | Customer Attitude_(Y) |
|-------|----------------------------|-------------------------|-------------------------|--------------------------|
| X1-1 | | 0.849 | | |
| X1-10 | | 0.886 | | |
| X1-2 | | 0.838 | | |
| X1-3 | | 0.889 | | |
| X1-4 | | 0.888 | | |
| X1-5 | | 0.865 | | |
| X1-6 | | 0.877 | | |
| X1-7 | | 0.826 | | |
| X1-8 | | 0.847 | | |
| X1-9 | | 0.850 | | |
| X2-10 | | | 0.885 | |
| X2-11 | | | 0.904 | |
| X2-5 | | | 0.860 | |
| X2-6 | | | 0.846 | |
| X2-7 | | | 0.942 | |
| X2-8 | | | 0.890 | |
| X2-9 | | | 0.936 | |
| Y-10 | | | | 0.924 |
| Y-11 | | | | 0.920 |
| Y-12 | | | | 0.861 |
| Y-13 | | | | 0.865 |
| Y-14 | | | | 0.950 |
| Y-5 | | | | 0.719 |
| Y-6 | | | | 0.925 |
| Y-7 | | | | 0.903 |
| Y-8 | | | | 0.875 |
| Y-9 | | | | 0.948 |
| Z-1 | 0.876 | | | |
| Z-10 | 0.911 | | | |
| Z-2 | 0.879 | | | |
| Z-3 | 0.911 | | | |
| Z-4 | 0.832 | | | |
| Z-5 | 0.863 | | | |
| Z-6 | 0.785 | | | |
| Z-7 | 0.850 | | | |
| Z-8 | 0.880 | | | |
| Z-9 | 0.881 | | | |

On average, each manifested variable had a Loading Factor value of > 0.7, as shown in the output data. Therefore, the manifest in this investigation met the criteria of being reliable and could be used for future examinations. The discriminant validity was applied to ensure that each concept of the construct or latent variable was different from other variables. The results of the discriminant validity were reported based on the cross-loading value. Table 5 presents data related to AVE, AVE root, and correlation values between variables.

Table 5: AVE, AVE Root and Latent Variable Correlation

| | AVE | AVE Root | Purchasing Decision (Z) | Service Quality (X1) | Product Quality (X2) | Customer Attitude (Y) | Purchasing Decision (Z) | Service Quality (X1) | Product Quality (X2) |
|-------------------------|-------|----------|-------------------------|----------------------|----------------------|-----------------------|-------------------------|----------------------|----------------------|
| Purchasing Decision (Z) | 0.753 | 0.566 | 1,000 | | 0.719 | | 0.307 | | 0.368 |
| Service Quality (X1) | 0.742 | 0.551 | 0.719 | 1,000 | | | 0.178 | | 0.208 |
| Product Quality (X2) | 0.802 | 0.643 | 0.307 | | 1,000 | | 1,000 | | 0.492 |
| Customer Attitude (Y) | 0.795 | 0.632 | 0.368 | | 0.208 | | 0.492 | | 1,000 |

The mean AVE root was higher than the correlation value between constructs, showing that each construct in the calculated model met the criteria of discriminant validity.

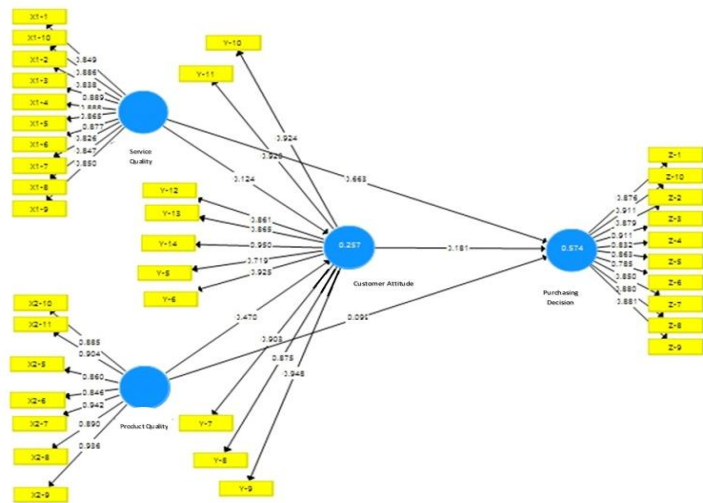
Composite Reliability and Cronbach's alpha values for each variable are reported as follows:

Table 6: Composite reliability and Cronbach's Alpha

| | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|-------------------------|------------------|-------|-----------------------|----------------------------------|
| Purchasing Decision (Z) | 0.963 | 0.964 | 0.968 | 0.753 |
| Service Quality (X1) | 0.961 | 0.964 | 0.966 | 0.742 |
| Product Quality (X2) | 0.959 | 0.964 | 0.966 | 0.802 |
| Customer Attitude (Y) | 0.971 | 0.980 | 0.975 | 0.795 |

The data analysis test obtained composite values of reliability and Cronbach's alpha for all variables by >0.7, hence, the questionnaire items for all variables were reliable. The following Figure 2 shows the calculation results of PLS-SEM model using the algorithm.

Figure 2: PLS Algorithm



Validity refers to the extent to which studies and results are true or support the hypothesis (Tavakoli, 2012). Test for each relationship was conducted using a simulation with the bootstrapping method to minimize the problem of abnormal study data. The results with the bootstrapping method using SmartPLS software are reported as follows:

Table 6: Path Coefficients

| | | Original Sample (O) | Mean Sample (M) | Standard Deviation (STDEV) | T Statistic (O/STDEV) | P Value |
|---|----|---------------------------|-----------------------|----------------------------------|------------------------------|--------------|
| Service Quality_(X1) | -> | 0.663 | 0.659 | 0.063 | 10.556 | 0.000 |
| Purchasing Decision_(Z) | | | | | | |
| Service Quality _(X1) -> Customer Attitude_(Y) | | 0.124 | 0.121 | 0.058 | 2.157 | 0.031 |
| Product Quality _(X2) | -> | 0.099 | 0.100 | 0.043 | 2.309 | 0.021 |
| Purchasing Decision_(Z) | | | | | | |
| Product Quality_(X2) | -> | 0.470 | 0.475 | 0.070 | 6.716 | 0.000 |
| Customer Attitude _(Y) | | | | | | |
| Customer Attitude_(Y) | -> | 0.181 | 0.181 | 0.051 | 3.583 | 0.000 |
| Purchasing Decision_(Z) | | | | | | |

After the bootstrapping process was performed on the measurement model, the results of the hypothesis test were reported as follows:

H₁: The effect size of service quality on customer attitude. The results obtained a beta coefficient value of service quality on attitude of 0.124 and t-statistic of 2.157. The t-statistic was significant since the value was >1.96 with p-value of 0.031 or <0.05, hence, the first hypothesis was accepted.

H₂: The effect size of product quality on customer attitude. The results obtained a beta coefficient value of product quality on attitude of 0.470 and t-statistic value of 6.716. The t-statistic was significant since the value was >1.96 with p-value of 0.000 or <0.05, hence, the second hypothesis was accepted.

H₃: The effect size of service quality on purchasing decision. The results obtained a beta coefficient value of service quality on purchasing decisions of 0.663 and t-statistic value of 10.556. The t-statistic was significant since the value was >1.96 with p-value of 0.000 or <0.05, hence, the third hypothesis was accepted.

H₄: The effect size of product quality on purchasing decision. The results obtained a beta coefficient value of product quality on purchasing decisions of 0.099 and t-statistic value of 2.309. The t-statistic was significant since the value was >1.96 with p-value of 0.021 or <0.05, hence, the fourth hypothesis was accepted.

H₅: The effect size of customer attitude on purchasing decisions. The results obtained a beta coefficient value of attitude on purchasing decisions of 0.181 and t-statistic value of 3.583. The t-statistic value was significant since the value was >1.96 with p-value of 0.000 or <0.05 , hence, the fifth hypothesis was accepted.

DISCUSSION

The first hypothesis shows that service quality has a significant positive effect on customer attitude. The quality of the services provided by online store is directly proportional to attitude. In contrast, a poor quality of service would lead to poor attitude. Incompatible services provided by sellers can also cause complaints or dissatisfaction.

The result is relevant to Hartoyo, H., & Simanjuntak, M. (2017), where service quality has a significant positive effect on attitudes. Even though the order is not consistent with the description, customers do not immediately tender a hard complaint when the service is friendly and good. Therefore, attitude also depends on the quality of the service delivered by sellers, and in some cases, a feeling of dissatisfaction may be reported. Sellers' unfriendly attitude makes customers upset and reluctant to repurchase at the store.

Moon, Y., & Armstrong, D. J. (2020) presented that the service quality model reflected the characteristics of sellers. Meanwhile, sellers who provided the best service quality were preferred by customers, specifically when the product ordered was in line with expectations.

In many cases, there is a discrepancy between expectation and reality, for example, the size or the color may be different. This leads to complaints, and sellers are expected to provide a detailed explanation (Suseno and Basrowi, 2023). At online store, service quality is very important for the sustainability of business. The process must be performed comprehensively starting from the ordering, wrapping, and shipping stages, where goods must be in good condition, maintained, and have normal functions.

The second hypothesis shows that product quality has a significant positive effect on attitude. The quality of the product purchased is directly proportional to attitude. Therefore, a good attitude towards sellers is determined by the conformity of the products purchased. Putra, R. A., Hartoyo, H., & Simanjuntak, M. (2017) found that the variable was also influenced by product quality in providing satisfaction. The conformity of the product with the description is checked when products are received, starting from function, condition, color, and size. The quality of the product determines repurchasing ability, or looking for other places to meet expectations.

Yu, H., & Fang, W. (2009) reported that product quality would determine customer perception. After purchasing a product, an assessment is conducted based on expectations and reality. The conformity of the product with the expectations certainly has an impact on good attitude. The

assessment is shown in the application ratings, which are represented by stars or in the form of perceptions. This can be interpreted that sellers need to be able to inform product specifications clearly regarding color, size, and function. The information can be considered for customers to decide on purchasing or searching for other products to avoid purchasing goods outside expectations (Mustofa, et al. 2023).

The third hypothesis shows that service quality has a significant positive effect on purchasing decisions. The quality of the service provided by sellers is directly proportional to the tendency of customers to repurchase. In deciding to make a repurchase at the same online store, several factors are considered, such as the quality of service provided. In addition, the alertness of sellers in responding to any questions or complaints will greatly affect the perceptions. These factors influence the decision of customers to become a loyal customer who will shop again.

The result is relevant to Wahyuni, S., & Praninta, A. (2021), where brand and service quality has a significant positive effect on purchasing decisions. This variable is very decisive in attracting customers to purchase products or not. Tarigan, R. J. (2021) on Shopee online store confirmed the result of a study where good service quality was prioritized before looking at products. Products are preferably obtained in stores with good service quality, and when unavailable, other alternatives are followed to meet the needs at the shopping place.

Fatimah, H. N., & Nurtantiono, A. (2022) stated that the quality of service had a significant positive effect on purchasing decisions. The increase in online purchasing and selling service providers makes sellers more competitive in attracting customers. This leads to the decision to purchase a product for the first time or make a repurchase at the same place when satisfied with the services.

The fourth hypothesis shows that product quality has a significant positive effect on purchasing decisions. Product quality is directly proportional to the decision to repurchase. The results can be interpreted that customers are very selective in choosing products. In addition, products with good quality specifications and functions are more in demand. Proven quality influences the decision to purchase new products. Chaerudin, S. M., & Syafarudin, A. (2021) stated that product quality had a significant effect on purchasing decisions and also served as the main factor in marketing. This variable refers to a characteristic related to the ability to meet customer needs in considering to purchase the product or looking for another. Moreover, Ernawati, D. (2019) reported that products with tested quality were highly purchased. In this context, customers are more likely to purchase products with proven quality in terms of strength and function. Kaharu, D., & Budiarti, A. (2016) and Suseno, et al. (2021) stated that promotion and product quality had a significant positive effect on purchasing decisions. In some cases, many customers were reluctant to shop again when the quality received did not match expectations. Meanwhile, the consumptive behavior toward online shopping is an opportunity for business actors. Fierce competition and the ease of finding other online shopping places make customers easily switch to other places. This condition must be considered by online sellers to

continuously maintain trust.

The fifth hypothesis shows that attitude has a significant positive effect on purchasing decisions. The decisions to purchase a product are carried out without deep consideration when trust the service and product quality. In this context, attitude refers to evaluation, emotional feeling, and the tendency of actions towards certain objects or ideas. Based on needs, the pleasure of the product can also be a reason for customers to make purchases. Miauw, K. Y. H. (2016) reported that motivation and attitude had a significant positive effect on purchasing decisions. Attitude formed through trust in product and service quality serves as the basis of perceptions inherent in the minds. In addition, customers will repurchase from the same store when satisfied with the provided service. This must be maintained by sellers, where attitude and trust are important factors in determining purchasing decisions. The level of trust should be maintained to keep customers from switching to other places (Suseno, et al. 2023).

Cool, K., & Sulistiono, S. (2019) and Mahpudin & Suseno (2022) also confirmed the results of a similar study where attitude had a significant positive effect on purchasing decisions. The decision-making process is subjected to several stages including the recognition of needs, information search, alternative evaluation, purchasing decision, and behavior after making a purchase. Therefore, sellers are expected to provide the best service and product quality in determining the attitude and behavior after making a purchase. Repurchase can be conducted when the previous process is assessed as expected.

CONCLUSION

In conclusion, service quality was reported to have a significant positive impact on attitudes. Therefore, customers had a more favorable perception of the service provided by online sellers. The product and service quality had a significant positive impact on customer attitude and purchasing decisions. Product quality had a significant positive effect on purchasing decisions, showing a direct proportionality between the variables. Attitudes significantly influenced purchasing decisions, hence, a positive attitude toward sellers increased the probability of making purchase.

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GREEN BONDS, BORROWING AND OTHER IMPORTANT (REVOLUTIONARY) NOVELTIES OF THE EUROPEAN UNION BUDGET FOR THE PERIOD FROM 2021 TILL 2027

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Abstract

The EU budget 2021 - 2027 stands at 1,824.3 billion euros. It has two parts: Next Generation EU (750 billion euros) and Multiannual Financial Framework (1,074.3 billion euros). The EU already issues different debt instruments to finance more than 40% of its budget (750 billion euros). One-third of this borrowing (250 billion euros) will be funded through the EU's Next Generation Green Bonds. We prove that issuing new short- and long-term EU debt instruments has become an important source and novelty for the EU budget. We also demonstrate that many other important, even 'revolutionary' novelties are connected to the EU budget 2021 – 2027. We explore all these novelties in a very systematic way that represents original contributions to financial research. We systematically researched the EU green bonds for the first time. We also explore some green bonds' characteristics and requirements to prove that the EU green bonds are a very financially and strategically important novelty for the EU 2021 - 2027 budget.

Key Words

EU budget; EU bonds; green bonds.

INTRODUCTION AND LITERATURE REVIEW

We analyse borrowing of the European Union (in fact, the European Commission on its behalf) in the context of the European bond program (from now on referred to as the "Next Generation EU Bonds"); however, we want to emphasise the green bonds within the whole European Union borrowing, within the European Union bonds issuing, and within the European Bond Program. The green bonds make the European Union one of the largest global single issuers and are essential at the forefront of this paper and its central thesis. If the next EU budget from 2028 to 2034 continues with the existing pace of issuing green bonds, the EU might become, by far, the world's largest green bond issuer.

Most of the European Union member states have already received many tranches of the EU budget, mainly within the framework of the Recovery Resilience Facility (RRF); however, although the budget of the European Union for the period 2021 - 2027 is already underway, it is still important to emphasise that its spending has not yet fully started owing to delays in member state regional smart specialization strategies and consequently their operating programmes. The European Commission must approve both before tenders/calls can be published and money used according to the European Union priorities. This national, regional spending of the EU budget (the EU Cohesion Policy: European Structural and Investment Funds supported SMEs, employment of millions of people and clean energy production) goes through the European Cohesion and Investment Funds (ECIF) which consist of the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund (CF), the Agricultural Fund for Rural Development (AFRD) and the European Maritime and Fisheries Fund (EMFF). According to its size, the most crucial part is the Cohesion Fund. Practically, all the EU countries or their regions/provinces, where they are the carriers of drawing structural funds, still take advantage of the possibility of using them from the previous financial perspective of 2014 –2020. This possibility remains within three years after its calendar expiration – by the end of 2023.

These procedures of adopting smart specialisation strategies and operational programmes based on them have taken much time in some countries/regions. The so-called centralised European tenders (that is, those that the European Commission directly carries out entirely in Brussels) according to the EU priorities have already been taking place (see, for example, Veselinovič, Will The EU Budget 2021 - 27 Cause Some Financial Deepening Of The European Union and The European Monetary Union?!), and yet, since the new European Union seven-year budget period 2021 – 2027 has already begun, its consumption because of the delays in structural funds programming and spending has not fully started yet. Regardless of everything analysed, the European Union or the European Commission, on its behalf, has already begun borrowing from the financial markets with many revolutionary innovations. Therefore, the first thesis of the paper is that the European Union's borrowing through international financial markets represents a significant, even revolutionary, novelty of the European budget

2021 – 2027. Additionally, issuing green bonds means a vital novelty and an essential source for the European programmes covering and financing necessary climate changes that the European Union is systematically heading as the first globally.

The primary purpose of the article is to analyse the borrowing of the European Union with a particular emphasis on the EU green bonds and to test the central thesis of the paper whether the outlined EU borrowing, and within it, green bonds issuing, represents a significant global and especially the European Union novelty in terms of the size and form. We will also touch on the taxonomy of green bonds to test the central thesis.

However, along the way, proving the central thesis, we will also test whether the European Union budget for 2021 – 2027 has some essential systemic and other important and even revolutionary novelties never used before.

This paper initially researches in a very systematic way all (revolutionary) novelties of the European Union budget for 2021 – 2027 with a particular emphasis on the 'revolutionary' EU borrowing for the first time in EU history and, within this, on green bonds issuing. The way this article is structured and this theme has been researched and put forward represents a unique contribution to business and business-related science and practice.

Since not much has been explicitly published about this subject, checking with Scopus, Web of Science, Google Scholar, and some other bases like Econlit, many references are based on the primary source of a public budget or the adapted European Union budget and new own resources' decisions by the European Council as Matthijs (2022) stated, as well. The same author published an article about the European Union budget from 2021 to 2027, describing how it was formed and put together. He additionally researched quite in detail what this budget means for Belgium. He correctly points out that the EU has already started borrowing on financial markets for its budget through social bond issuing (100 billion euros) for the European Union SURE (2022) program (short-term employment schemes across the European Union). However, he has not gone into any detail regarding the EU budget novelties.

Schout, Luuk, and Saskia (2023) wrote an interesting article about the EU budget 2021 – 2017 but focused more on the money and program efficiency of this new European Union budget and some previous ones. They elaborated quite precisely on problematic convergence, coherence, and budget flexibility. The EU has a historically record budget, but this is still insufficient for its better results and positive economic consequences, especially in the direction of better convergence. They also mention three new characteristics in the EU budget 2021 – 2023 (size, new revenue sources, borrowing).

In another article, Schout and Riel (2022) again focus on convergence, which is not happening at all. Surprisingly, they found that countries that reduced their debts reached higher GDP growth than countries that had not. They claim that Ireland and Eastern European countries are doing much better than South European countries regarding economic results and convergence with the developed part of the EU. Even with the new budget,

the EU has limited fiscal space, which would change only if the EU took over national budgets.

Kölling (2022) discusses the new EU budget but from the point of view of its conditionality, which causes the so-called stressed EU budget. Countries not respecting the EU rules and laws will be prevented from getting particular European Union money, which will highlight the EU budget.

Vitola, Aleksejeva and Ostrovska (2021) study the new European Union budget from the point of view of its effects on green goals ('Green Deal' and other global and especially the European Union climate goals). Some older scientific articles discuss different issues about the EU's fiscal and budget problems, but then again, nothing in the context of this paper.

Andersen et al. (2018) claim that crises even help the EU in some results regarding its mobilisation, while divergence has prevailed most of the time. Comparing this to Schout, Luuk and Saskia (2023), it is interesting because they claim that divergence exists even with the new historically highest European Union budget. They claim that more than the highest budget is needed. More long-term-oriented research (Sapir et al., 2008) about the European Union budgets claims that the European Union budget (they refer at that time only to Multiannual Financial Facility) has yet to be consistent with the present and future of the European Union integration. That is synchronised with the opinion of Schout and others (2023), who claim that even for the record-high European Union budget 2021 – 2027.

RESEARCH METHODOLOGY

The theme of this paper is a quite specific one. Therefore, I had to adopt such research methodologies to achieve the goal of this article to test all theses: borrowing of the EU budget is an essential revolutionary historical novelty, green bonds represent a vital part of this borrowing, and there are many other novelties of the EU budget 2021 – 2027. Studying a budget means using descriptive methods, analysing, using the first deduction and then synthesis, and comparing different segments and structures of the EU budget 2021 – 2027 and comparing them to the previous budget (2014 – 2020). We use simple statistical methods comparing different budget categories and segments and one budget (2021 – 2027) to another (2014 – 2020) to see and comment on comparisons/differences and to find out specifics about the budgets and their categories/segments. We did not compare only budget figures but also how they were put together. We also researched the concept and methods of how the EU budget 2021-2027 was 'assembled' – if the European Commission used any other methods and financial instruments in 2021 – 2027 compared to the budget 2014 – 2020 and other previous budgets. The quantitative approach in the paper is mixed with the qualitative one. In the last chapter, we synthesise everything together, make a summary, and explain some of the limitations of this research. In the end, we make many suggestions for future research possibilities.

THE EUROPEAN UNION BUDGET PRIORITIES FOR THE PERIOD 2021 - 2027

The so-called 'EU twins,' green transition/climate change (also called Green Deal) and digitisation with targeted spending through various European Union funding programs (calls) are critical spending on the European Union budget. The first represents 37% and the second 20% of total budget consumption. Initially, the percentage of the former was set at 30%, but due to the persistence of the new European Commission, it was further increased to make the EU the most advanced in this field in the world (The Next Generation EU, 2021). Within the Next Generation EU (€ 750 billion), the Recovery Resilience Facility (RRF) program has a massive share of € 672.5 billion.

At the same time, we must remember the unique EU funding instrument - the so-called missions; four out of five represent the green program/transition climate change themes. These are Climate-Neutral and Smart Cities, Adaption to Climate Change, A Soil Deal for Europe, Restore our Ocean and Waters (EU et al. Europe, 2020), and are expected to account for an additional 10% of the total Horizon Europe program, with just over € 81 billion in 2018 prices and just over € 90 billion in current prices (The EU long-term 2021-2027 Budget and Next Generation, 2021). That means the total spending for European Union twins will eventually be even higher than the projected absolute and relative figures above. The fact that almost 60% of the EU budget will be used for only two purposes, which has not been the case ever before, is the first important novelty of the EU budget.

The size and composition of the European Union budget

In many aspects, the seven-year European Union budget for 2021 - 2027 should be viewed differently than in the past. The current EU budget has a new dimension in the form of the Next Generation EU programme, which represents 750 billion euros, and the Recovery and Resilience Facility has a substantial share of 672.5 billion euros. This part arose mainly because of the COVID crisis and was finally unanimously supported by the member states after lengthy negotiations. For this part of the European Union budget, for these 750 billion euros, the European Commission will be using borrowing on the international financial markets for the first time in its history. This is the second (revolutionary!) novelty about the current European Union budget. This borrowing will be done mainly by issuing different short- and long-term debt instruments, including green bonds, in the amount of 250 billion euros altogether. The traditional, 'classic' EU budget as we know it from the past, or the Multiannual Financial Framework, represents (MFF) 1,074.3 billion euros. Together, with the Recovery Resilience Facility, both items represent the record European Union budget of 1,824.3 billion euros (all in 2018 prices, The EU long-term 2021 –2027 Budget and Next Generation, Facts and Figures in Infographic – Multiannual financial framework 2021 –2027 and Next Generation EU).

If we compare these numbers of the new overall EU budget (2021 - 2027) with the previous one for the period 2014 – 2020, we can first note that the overall budget has increased substantially (almost doubled from its predecessor – there is an increase of almost 70%). This is the third revolutionary novelty of the current EU budget. The total EU budget for 2014 - 2020 stood at 959.5 billion euros. Also, as already mentioned, there is now its credit component on the side of its revenues for 750 billion euros (41 % of the total EU budget) and on the expenditure side for 360 billion euros (around 20% of the total EU budget or a good half of the Recovery Resilience Facility). Credit part of the EU budget on both the revenues and expenditures side has never been the case in EU history, and this represents the fourth revolutionary novelty for the EU and its budget. You must understand this 'revolution' with the eyes of some of the European countries that never wanted the European Union to borrow for its spending - by definition, these were the most developed EU member states, Germany being a typical example.

Analysing what the record 2020 - 2027 European Union budget will be spent on and comparing it with the different EU scenarios and the European Union 2014 - 2020 budget, we can see then that the total European Union budget is 1,824.3 billion euros, with the Next Generation EU amounting to € 750 billion and the Multiannual Financial Facility 2021 - 2027 of 1.074.3 billion euros (all figures in constant 2018 prices). Breaking down these big numbers tells us that most of the funds are for cohesion, resilience, and European values in the amount of 1,099.7 billion euros (of which, for example, 330.2 billion euros for "classic" cohesion, as we know it from the past); 672.5 billion euros for recovery and resilience, with more than half of it (53.5%) coming from the European Commission's borrowing from the financial markets (ibid). Additionally, 373.9 billion euros represent spending for natural resources and the environment (of which 336.4 billion euros for the standard agricultural policy); 143.4 billion euros for the single market, innovation and digitalisation; 98.4 billion euros for the neighbourhood and the world; 73.1 billion euros for the entire European administration; 7.5 billion euros for employment regulation, sustainable regional development regarding crisis times, 22.7 billion euros for migration and border control, and 13.2 billion euros for security and defence. Finally, Horizon Europe (Science et al. Program), totalling 81.4 billion euros, and Erasmus 21.7 billion euros are interesting and vital sub-priorities. This spending represents an important EU novelty. Until the 2021 – 2017 EU budget, all these individual priorities had so much money for spending through different EU programmes. As a result, we are also recording specific increased spending for agreed EU priorities based on the new EU budget. We can consider this as the fifth important novelty of the EU budget.

The total EU budget for the period 2014 - 2020 was € 959.5 billion, with some crucial categories not directly comparable to the new EU budget: 325 billion euros in economic, social, and territorial cohesion; sustainable development with natural resources, 373 billion euros including agriculture; competitiveness for growth and jobs 126 billion euros; global Europe 59

billion euros; 16 billion euros for security and citizens, and the European administration almost 62 billion euros.

Table 1: The total European Union budget with its structure for the period 2021 - 2027 and the period 2014 - 2020 in billions of euros

| Categories for: | 2021 - 2027 | Categories for: | 2014 - 2020 |
|---------------------------------------|--------------------|---------------------------------------|--------------------|
| Single Market | 144 | Competitiveness for growth and jobs | 125,6 |
| Cohesion and resilience | 1,100 | Economic & Territorial Cohesion | 324,9 |
| Natural resources and the environment | 374 | Sustainable growth: natural resources | 372,9 |
| Migrations and borders | 23 | | |
| Security and defence | 13 | Security and citizens | 15,7 |
| Neighbourhood and world | 98 | Global Europe | 58,7 |
| EU administration | 73 | EU administration | 61,7 |
| TOTAL | 1,824 | TOTAL | 959,5 |

Source: Infographic – Multiannual financial framework 2021-2027, retrieved from: <https://www.consilium.europa.eu/en/infographics/mff2021-2027-ngeu-final/> and Next Generation EU, retrieved from: https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3014 and Long-term EU budget 2014-2020, retrieved from: <https://www.consilium.europa.eu/en/policies/the-eu-budget/long-term-eu-budget-2014-2020/>

Individual categories of the total European Union budget from 2014 – 2020 (old budget) are mainly incomparable with the categories from 2021 – 2027 (new budget); therefore, it is difficult for us to make and qualitatively analyse a direct comparison. The purest and the most comparable item is Erasmus, which jumped from around 15 billion euros in the previous budget to almost 22 billion euros (idem), an increase of almost 50%. We can also directly compare the cost of the European administration, which jumped from 62 billion euros in the 2014 - 2020 European Union budget to 73 billion euros in the 2021-27 budget, an 18% increase. Cohesion in the strict sense of the word remained at about the same level: 330.2 billion euros versus 324.9 billion euros budget-on-budget. The same goes for agriculture: 374 billion euros versus 372.9 billion euros budget-on-budget. Although both items include some other ingredients, they are pretty comparable. However, the new budget includes additional financial sources for cohesion within the next generation EU part of the total European Union budget (besides grants and some soft loan possibilities). The overall cohesion and resilience financial capacity stands in the 2021 – 2027 European Union budget at 1,100 billion euros, compared to 343,9 billion euros in the previous budget, but as said, not wholly comparable owing to the additional COVID package called next generation EU and soft loans for members states. Maybe we can compare category competitiveness for growth and jobs (new budget) with the category single market (old budget) and register an almost 15% growth in comparable

prices. In the new budget, the defence received its item, the European Defence Fund (EDF) of 8.5 billion euros, as it previously had no meaning and form. However, generally, security issues registered altogether in the new budget high growth compared to the previous one when we put together some categories (46 billion euros vs 16 billion euros). Additionally, the category neighbourhood and world in the new budget increased significantly compared to the old category global Europe owing to 'taking care' of migrations already on 'their' territories. In any case, we can immediately see that the European Union budget 2021 - 2027 represents, in terms of quantity and quality, an essential step toward the European Union's and the European Monetary Union's financial deepening. However, some individual categories and items are not directly comparable as they were designed, combined, and assembled differently in the new budget compared to the previous one.

In the new overall EU budget, individual categories are different for several reasons, from the fact that the new budget is quite different in content, more complex, and broader; it consists of two distinctly different parts, while the old one consisted of only one; it also contains a vital credit component that the previous one did not. Furthermore, the negotiation process was completely different between the two. Nevertheless, the fact is that the new budget is almost 70% bigger than the old one and that this means a significantly more important role and power for the EU. This also strengthens its fiscal function in both directions (revenues and expenditures). We already noted this as a third revolutionary novelty of the EU budget 2021 – 2027.

It is also worth noting that the European Union, through the European Commission, is becoming an essential global player in financial markets. Markets have been waiting for the real European bonds for a long time, and some are already out there, including the green ones. In this way, the euro can get an accurate market reference for long-term and short-term interest rates, as the EU will issue short-term monetary instruments with a maturity of up to one year and long-term bonds, including green bonds. Euro reference interest rates already exist (see, for example, the European long-term interest rate, 2021); however, they are based on the issuance of debt instruments by the EU member states and their various entities. Now, the euro has a reference interest rate based on the debt instruments of the issuer, the European Commission itself - that is, the European Union itself! This is the sixth important (revolutionary) novelty about the European Union budget from 2021 to 2027.

The European Union Budget Revenues

The classic European Union direct revenues are contributions by member states of up to a maximum of 1.2% of their gross national income (GNP), whereby only these can increase by up to 0.2% due to the loss of Great Britain's (net) participation (Brexit). Member states' contributions represent 70% of all revenues of the EU's multiannual financial framework or, as I call

it, the classic part of the overall European Union budget. It is also worth noting that the gross domestic income of the member countries may be additionally burdened by 0.6% to finance EU borrowing (essentially to finance the Next Generation EU) until all the European Union credit sources are repaid but by the end of 2058 at the latest. In addition, the European Union budget revenues are specific customs duties (against third countries), sugar duties, and 0.3% of revenues collected from member states from value-added tax.

Revenues in the European Union budget for the period 2021 - 2027 receive new additional sources, in addition to the already mentioned permanent ones, from charging pollution with non-recycled plastic (0.8 euros per kilogram), and potentially with some other similar instruments in connection with decarbonisation and climate change and digitisation. Revenues from the emission trading system (ETS), the carbon border adjustment mechanism (CBAM) and revenues are based on a levy on the world's largest multinationals. We count this as the seventh revolutionary and, at the same time, also a significant novelty for the European Union and its budget.

The European Union borrowing

With the European Union budget 2021 – 2027, the European Commission has started to borrow from the financial markets – this will be taking place throughout the entire budget period. It has already started through the issuance of various bonds. Financial markets have been waiting for this for a long time because one thing is the borrowing of the individual European Union member states in euros, and something else is additional high-quality and homogeneous borrowing of the European Union by itself as one entity. All the European Union debt issues have the highest credit rating. Of all the bonds that have been and will be issued by the European Union, the most exciting and innovative bonds that support various positive climate changes, including the green economy (all in all, the so-called EU “Green Deal”), are green bonds. According to the title of this paper and theses that we set, they represent the eighth revolutionary novelty of the EU budget 2021 – 2027.

Although it has been recently emphasised that the European Union also issues ‘conventional’ bonds, social bonds (e.g., to maintain employment or employment in emergencies and coming from Temporary Support to Mitigate Unemployment Risks in an Emergency, the so-called SURE programme) and short-term treasury bills (“the EU-Bills”) the EU green bonds in such dimension are the novelty for the EU and one of the research targets of this paper, bonds are issued through auctions and syndication, while T-bills for maintaining liquidity of the European Union budget are issued primarily through auctions.

The European Union borrowing through the financial markets applies to the Next Generation EU for 750 billion euros. As a result, part of the spending of the European Union budget – namely the part of the Recovery Resilience Facility for 360 billion euros - will be passed on to the member states under credit conditions. In comparison, the other part, for 390 billion euros, will be

passed on to the member states through grants. For the first time in the history of the European Union, the European Commission is borrowing through financial markets for the realisation of its spending and for the spending of its member states in line with the EU priorities and with the EU (the European Commission) coordinated national priorities. For the first time in the history of the European Union, creditors of the European Union have in their assets a claim towards the European connection, which is not a classical legal state entity as we know it in the case of national states but an extraordinary legal entity as a contractual union between the European Union member states (a very specific legal "sui generis"). For the first time in the history of the European Union, member states will receive credits from the European Union for implementing their projects (within the Recovery Resilience Facility programme). In the negotiations and coordination for the record budget, the four countries, namely Austria, Denmark, the Netherlands, and Sweden, insisted on this option. They achieved it in the negotiations, while on the other hand, Germany, which was also not the most enthusiastic about it, did not block the negotiations because of it. However, Germany initiated the post-festum appeal at its constitutional court to assess its constitutionality (The German Constitutional Court has blocked the EU's recovery fund. What happens now?), as this European Union borrowing is supposed to represent the so-called Hamilton effect. The case ended positively for the European Union; all the European Union member states ratified the EU budget with all its borrowing through the financial markets, but it raised many controversial issues and debates (ibid).

The European Union as a whole, through its European Commission, has been becoming an important player in global financial markets, as the markets with all their financial institutions have been hardly waiting for actual European bonds for a long time; now, they have already received the first ones. In this way, the euro is also finally getting the right market references through its true long-term and short-term interest rates because, in addition to long-term bonds, the European Union is also issuing short-term monetary instruments with a maturity of up to one year. Of course, euro reference interest rates already exist (e.g., European Long Term Interest Rate, 2021 or Euribor, 2022). However, they are based on credit instruments of the national EU member states and their various entities (mainly banks). EURIBOR, as the most critical indicator of the price of short-term money, represents an introductory short-term interest rate (up to 1 year) and is the internationally recognised reference for interbank-offered interest rates for euro borrowing and lending.

On the other hand, we know that, e.g., the Greek government's long-term euro bond has a much different interest rate and thus yield than, e.g., a comparable German one. The same applies to commercial debtors from both countries. The new EU borrowing, as such, gives us the reference interest rates for the EU as a whole! We can consider this, as already mentioned, the eighth (revolutionary) novelty.

In 2022, the European Union planned to borrow 80 billion euros, with an additional 35 billion euros (Next Generation EU Borrowing: Updates on the European Union's Funding Strategy and Program), but this is only a part of

the whole story, as we clearly explained, since the European Union should borrow for its record budget 2021 – 2027 for 750 billion euros (i.e. for the entire Next Generation EU, of which 360 billion euros will go to the states in the form of credits and 390 billion euros in the form of various subsidies' tendered instruments), of which even EUR 250 billion (at 2018 prices) through green bond issues only.

GREEN BONDS

A green bond is a fixed-income instrument designed to raise money for climate and environmental projects. Although known as a fixed income instrument, it can be issued either with a fixed or floating interest rate. These bonds are asset-linked and backed by the issuing entity's balance sheet, so they usually have the same credit rating as other issuers' debt instruments. Green bonds are also called climate bonds, but the two terms are not always synonymous. Climate bonds specifically finance projects that reduce carbon emissions or alleviate the effects of climate change, while green bonds represent a broader category of instruments related to projects with a positive environmental impact (Troy et al.: Green Bond: Types, How to Buy, and FAQs (Bonds, Fixed Income), September 21, 2022). Green bonds are sometimes also called sustainable bonds. Green bonds may have specific tax incentives to enhance their attractiveness to investors. Green bonds are becoming increasingly important within a significant environmental, social, and governance (ESG) investing trend.

Green bonds are intended to encourage sustainability through financially supporting climate-related and other environmental-related projects. Green bonds finance projects like energy efficiency, pollution prevention, sustainable agriculture, fishery and forestry, aquatic and terrestrial ecosystems protection, clean transportation, clean water, and sustainable water management. They would also finance cultivating environmentally friendly technologies and climate change mitigation.

Tax incentives such as tax exemption and tax credits might be used with the green bonds, making them a more attractive investment. Tax advantages provide a concrete financial incentive to tackle climate change and a movement toward renewable energy sources. To qualify for green bond status, they are often verified by a third party, such as the Climate Bond Standard Board (CBSB) and eminent auditors, which control and hopefully certify that the bond will fund projects that include environmental benefits.

The third most important European Union budget's revenues item (250 billion euros) represents one-third of the whole Next Generation EU programme (750 billion euros) will be realised by the European Commission through the issuance of green bonds of the European Union ("Next Generation EU Green Bonds") through the international financial markets, what we already named as a significant revolutionary novelty. There is no single country in the world where green bonds would represent such an essential part of its budget. Let us remind you that the whole EU budget

stands at 1,824,3 billion euros; therefore, green bonds will represent almost 14% of it, but as said, only in the Next Generation part of the EU budget/programme, even one-third – that is 33%. This represents the ninth important novelty. Development of the EU green bonds taxonomy, which we address later, is considered the tenth important novelty.

Countries/governments' treasuries and various entities from the European Union, especially the European Investment Bank (EIB), are world leaders in issuing green bonds. The first in the world was the EIB in 2007, which, with its Climate Awareness Bond (CAB), later successively reached the altogether issued amount of over 52 billion euros (CAB et al. and internal EIB materials). The World Bank followed in 2008 with its green bond issues. The European Commission issues and will issue green bonds within the framework of the Next Generation EU Green Bond program. Thus, in October 2021, the European Commission issued the first such 15-year green bond from the mentioned program for 12 billion euros, which it supplemented with another 2.5 billion euros in January 2022 (Next Generation EU Bonds, European Commission, 2020, 2021 and some internal materials of the European Commission and Next Generation EU Green Bond Dashboard, 2023). Until now (Next Generation Green Bond Dashboard, August 2023), the European Commission, on behalf of the EU, issued 44,220 billion euros of green bonds through auctions and syndications. Through the European Union, the world will thus get one of the largest single issuers of green bonds.

Nevertheless, let us go into some more details. All issued amounts of green bonds worldwide between 2014 and 2022 have been rising all the time apart from 2022. In 2014, there were 37 billion USD in green bonds issued worldwide, while in 2021, already 582 billion USD and in 2022, 487 billion USD. Europe was the most significant issue region, with 229 billion USD, followed by the Asia-Pacific region, with 133 billion USD. The largest issuers worldwide in 2022 were China with 85 billion USD, followed by the USA with 64 billion USD and Germany with 61 billion USD. Between 2014 and 2022, the largest green bond issuer was the USA with 380 billion USD, followed by China, Germany and France (Statista: Statistic, Green Bonds, April 1, 2023). As explained above, the European Union is becoming a significant world issuer of green bonds through its Next Generation Green Bond framework; however, its activities started not earlier than in late 2021. According to all approved green bonds' issuing figures, the European Union, with its Next Generation Green Bond program, will become the world's largest single issuer of green bonds in forthcoming years. The European Union budget was approved for 2021 – 2027 and includes 250 billion euros in green bond issues.

Next Generation EU Green Bonds

At least 37% of the Recovery Resilience Facility is dedicated to the green transition. This means that investing in green bonds will bring investors safe yields on the one hand and the more sustainable, green, and resilient European Union on the other hand. The European Union will issue them up to 250 billion euros (Next Generation EU Bonds and Next Generation EU

Green Bonds). This is the most extensive systematic green bond scheme in the world and represents the eleventh important novelty that means, on the one hand, additional investors in the European Union green programmes and, on the other hand additional opportunities for their investments and additional impetus for sustainable finance and development of euro-zone and the European Monetary Union (EMU) in general. These green bond issues also mean the financial deepening of the EU budget and the European Monetary Union with its currency, the euro. This is the twelfth important novelty for the European Union, the European Monetary Union and its euro. Let us recall that the European Green Deal (A European Green Deal. Striving to be the first climate-neutral continent) means achieving climate neutrality by 2050, while by 2030, reducing carbon emissions by at least 55% compared to 1990 ('Fit for 55,' *ibid*).

The European green bond program complies with the Green Bond Principles (GBP) of the International Capital Market Association (ICMA). The proceeds from this indebtedness will be used for nine (9) categories of purposes, and independent external experts will measure effects. The second opinion regarding the application of the principles of the ICMA green bonds principles and compliance with the European environmental, social and management strategy (Environment, Social and Governance Criteria, from now on ESG; Overview of sustainable finance) will be handled by Vigeo Eiris, a member of Moody's Group (Vigeo Eiris, 2020). United Nations ESG principles as such and among others amended by OECD are also an excellent reference when studying, analysing, and comparing these issues with what is the European Union doing (UN, 17 Goals To Transform Our World; OECD, The UN Principles For Responsible Investment And The OECD Guidelines For Multinational Enterprises: Complementarities And Distinctive Contributions).

Use of proceeds from the European Green Bond program

According to the ESG criteria (for comparison, see also, e.g., Huber, Comstock, Smith), which are based on the methodology of the United Nations on sustainable development (Sustainable Development Goals), the European programme of green bonds (Next Generation EU Green Bonds) has defined nine categories of purposes for the usage of these collected funds:

- Research and innovation supporting the green transition,
- Digital technologies supporting the green transition,
- Energy efficiency,
- Pure energy,
- Implementation of positive climate changes,
- Adequate "green" water and waste management,
- Clean transport and infrastructure,
- Protection of nature, its rehabilitation and biodiversity,
- Other in the context of sustainable development and green transition.

The European Commission is committed to strict reporting on using money from issued green bonds. There will be reporting of allocations and their effects -impacts of these funds will be strictly followed. The countries will follow the allocation of funds for specific uses and report on this to the European Commission. This will also be subject to an independent external audit. Reporting on the impact/effect of funds, or instead on their effectiveness, will be reviewed by independent external experts for individual areas of sustainable development. In December 2020, the European Commission also stepped towards using the European taxonomy in this area and overtook its official introduction.

Some more details below about the selection of spending purposes and their evaluation.

Table 2: A selection of purposes for the use of the European green bond revenues and their valuation in percentages

| | Climate Coefficient | Environmental Coefficient | Eligibility of Green Bonds |
|---|----------------------------|----------------------------------|-----------------------------------|
| Solar Energy | 100% | 40% | 100% |
| Digitisation of hospital infrastructures | 0% | 0% | 0% |
| Railway manage. system (ERTMS) | 40% | 40% | 40% |
| Limitation of risks of non-climate risky natural programs | 0% | 100% | 0% |
| Household recycling | 100% | 40% | 100% |

Source: Next Generation EU Bonds and Next Generation EU and European Rail Traffic Management System.

The table can be a simple explanation because the examples show how certain forms of project spending of money collected through the European green bonds will be measured. The eligibility of green bonds is a combination of achieving the climate and environmental coefficient (much more details about the indicators, e.g., in the IMF, Climate Change Indicators Dashboard or Coefficients of Determination for the Climate Characteristics). The precise processing of environmental and climate indicators and the analysis, testing and discovery of the (most) suitable ones would go beyond the scope of this paper. However, the topic is still relevant, given that we are entering the era of issuing European green bonds and their quality monitoring and consumption. Nevertheless, this subject gives much potential for further future exploration and research.

CONCLUSIONS

We discovered that issuing new short- and long-term debt instruments through financial markets will become an essential source for the European Union budget. Green bonds will represent a vital novelty not only in the European Union budgeting 2021 - 2027, together with the EU taxonomy and all the independent external reporting connected to them, but also a sizable part of the Next Generation EU part of the total European Union budget. The article also explores some green bond characteristics and requirements to prove that the EU Green Bonds programme is financially and strategically crucial for the European Union 2021-2027 budget. The first and second theses were, therefore, proved.

The entire European Union budget for the period 2021 –2027 amounts to 1,824.3 billion euros, of which the Next Generation EU (NGEU) €750 billion, for which the European Union will borrow on financial markets, and the Multiannual Financial Framework (MFF) 2021-2027 of €1,074.3 billion (all in 2018 prices). We discovered that twelve crucial, even revolutionary novelties about the EU budget 2021 – 2027 were recognised and analysed more precisely in the paper. Therefore, the third thesis of the paper is proved too.

Multiannual Financial Facility will be subject to some classic European Union budget revenues like member state contributions, customs duties from third countries, and revenues from value-added tax of member states while the Next Generation EU to some new European Union revenues like direct taxation of users of non-recycled plastics and potentially some other tax instruments in connection with the EU decarbonisation and digitalisation. The critical form of the European Union budget borrowing for 750 billion euros will occur through the Next Generation Green Bonds program for 250 billion euros, which makes the European Union already in 2023 one of the world's largest single issuers of green bonds. Just the European Union green bonds will represent one-third of the Next Generation EU program and almost 15% of the overall EU budget when realised by 2027.

There has yet to be any single issuer in the world with such importance of green financing by issuing green bonds through financial markets auctions. Also, this caused the European Union to borrow from the financial markets for its programmes for the first time in its history. We must also mention the historical record of the EU budget by its size and the quality of its financing programmes. The green bonds' issuance considers the starting points of the United Nations ESG rules and the EU taxonomy, and above all, thorough reporting on spending allocations and their effects/influences, impacts or, in a word, efficiency. External neutral auditors and experts will be reviewing and checking all these. The central thesis of the paper, that EU borrowing to implement the record EU budget is also carried out through the sizable issuance of green bonds, and that this is a significant European and global revolutionary innovation, was confirmed. Seemingly, it also confirmed other theses of the paper that the EU 2021 – 2027 budget brings many important, and even revolutionary, novelties – twelve altogether into the EU (see their transparent summary below).

The EU budget 2021 -2027 novelties introduced for the first time in the history of the European Union (including its predecessors) – qualitative approach:

1. An essential part of the EU budget (60%) goes for just two purposes (the EU twins – green and digitisation);
2. The EU borrows for its budget on the financial markets (750 billion euros);
3. The EU budget 2021-2027, compared to all the previous ones, is substantially increased (70%);
4. The credit part of the EU budget is on both (revenues 750 billion and expenditures 360 billion euros) sides;
5. Substantially increased spending for the anonymously agreed EU priorities;
6. The Euro gets its (own) actual short- and long-term reference interest rates through the EU debt instruments (treasury bills, bonds) issues;
7. The EU is introducing and getting its own original budget revenues besides member countries' grants;
8. Green bonds as a new borrowing source for the EU budget;
9. Green bonds represent a very sizable part of the overall EU budget (almost 15% and even 33% of the Recovery and Resilience Facility part of the EU budget);
10. The green bonds taxonomy started its development;
11. There is the Next Generation EU bonds scheme, which systematically sets the path and is the world's largest green bonds scheme for investors;
12. The EU borrowing through EU short- and long-term debt instruments on the financial markets positively influences the deepening of the EMU (and its euro).

There are some limitations to this study. First of all, we researched the specifics of the budget, which has yet to be realised. There are many risks that the EU budget, borrowing, and other specifics will not be realised as planned and envisaged. Consequently, some calculations and comparisons need to be corrected during this budget period. The same goes for some EU budget effects like green bond financing efficiency, correct usage of collected funds, including the green ones, and similar. Owing to some unplanned global and very influential issues like the war in Ukraine, the Israeli-Palestinian conflict, and some others, many Green Deal targets of the EU might be doubtful. Many items in the EU budget might be replaced with others, like the ones for improving energy issues and security. One thing that will stay in the EU budget no matter the other circumstances is all twelve novelties systematically and in detail analysed in this paper.

How this article is structured and how this theme has been researched and put forward represents a unique contribution to business and business-related science and practice. On the other hand, since an overview of the literature shows that more systematic research on this subject is needed, there are many opportunities and challenges for further research in this specific research area. After 2027, when the EU Multiannual Financial Facility 2020 – 2027 will be over and statistical data will be available, a

thorough study of how the Next Generation Green Bonds Program will be able to be realised. It would be exciting to analyse its effects on the EU programmes related to the Green Deal in general and especially on the nine specific individual categories of purposes we analysed in this paper when using green bond financing. Such a follow-up would also be an essential contribution to the science. Some more years later, a study of how the European Union is repaying all this debt accumulated within the budget period 2021 – 2027 would be an additional significant contribution to the science and how the EU member countries used the credit part of the EU budget for its national purposes.

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THE QUANTIFIABLE IMPACT OF 2007–2022 ON STUDENTS' INTENTIONS TO BECOME ENTREPRENEURS AND THE IMPLICATIONS FOR RESEARCH AND START-UP ACTIVITIES

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Abstract

Utilizing bibliometric analysis, this study identifies academic gaps, research trends, and data pertaining to student entrepreneurial activities. The authors conducted a qualitative analysis of 984 selected studies from the Google Scholar database. Data that have been analyzed include trends in publishing years, the number of papers published, the number of citations, and frequently used keywords in research on students' intentions to start their own enterprises from 2007 to 2022. Additionally, by developing network visualizations, co-authorship network maps, and keyword co-occurrence network maps over a 15-year period (2007–2022), this study validates how well biometric analysis works. In this study, VOSviewer's mapping capabilities helped identify six clusters (a rise in study themes, hot themes, notable authors, eminent journals, publications, and primary research directions). The study's findings aid in directing future research into entrepreneurship and provide policymakers and directors with relevant takeaways for encouraging student entrepreneurship intentions.

Key Words

Entrepreneurial intention; bibliometrics; VOSviewer; entrepreneurship.

INTRODUCTION

Since it fosters innovation, increases job creation, and boosts labor market competitiveness, entrepreneurship is regarded as a significant contributing component and economic engine in any nation (Wennekers and Thurik, 1999). Consequently, many nations across the world have seen entrepreneurship as a strategic trend in recent years. Along with the young generation of entrepreneurs, institutions and colleges all throughout the nation are also seeing an increase in the entrepreneurial spirit. The National Committee for Vietnamese Youth reports that around 22.5% of Vietnam's population is under the age of 30, and 20% of them intend to launch their own business within the next five years (VAEFA, 2023). Thus, research on Vietnamese students' aspirations to launch their own companies is desperately needed.

Up until now, a number of scholarly studies have demonstrated factors affecting students' aspirations to launch their own companies, but they haven't provided a comprehensive examination of the entrepreneurship issues. In order to identify the common and unique traits as well as research gaps on students' entrepreneurial intentions, this study used a qualitative analytic approach called bibliometrics analysis of students' entrepreneurial intents, which is based on the Google Scholar database in the period 2007–2022. In addition, the authors offer a categorization framework that may serve as a foundation for further study and suggest some implications to encourage Vietnamese students' aspirations to pursue entrepreneurship.

The study will address three research questions in order to give an insight of the quantity and trends of research on students' entrepreneurial intentions worldwide from 2007 to 2022:

1. What is the present state of study on students' intentions to launch a business between 2007 and 2022?
2. What are the general features, particulars, and gaps in the body of knowledge about students' intentions to launch businesses?
3. In order to encourage Vietnamese students' entrepreneurial desire, what corresponding management implications are suggested?

As per the research questions, the study aims to: (1) Determine research trends on entrepreneurship over the last 15 years; (2) Identify prominent authors who have contributed to the field of entrepreneurship; (3) Determine the journals with the highest number of citations; (4) Identify key concepts in entrepreneurship research; (5) Identify popular topics; and (6) Identify primary research directions.

The theoretical framework, the implementation strategy, the research findings, and a discussion of the findings and suggested managerial implications will be the following sections of the paper.

FOUNDATIONAL THEORIES

Entrepreneuership Intention

According to Markman and Baron (2003), having an entrepreneurial aim enhances an individual's capacity to launch a firm and helps them develop into true entrepreneurs. Entrepreneurial intention refers to a person's organizational sense that results from their social environment, personal traits, and work ethic that values taking risks, being creative, being independent, and being autonomous in order to create new value for their firm (Van Gelderen et al., 2008; Engle et al., 2010; McIntyre et al., 2023).

Theory of Planned Behaviour (TPB)

The three antecedents that make up an individual's intention are their attitude toward the activity, their perception of behavioral control, and the subjective norm, according to the Theory of Planned Behaviour (TPB) of Ajzen (1991). Positive or negative behavior perceptions are implied by an individual's attitude. The term "subjective norm" describes how social pressure may affect how a given conduct is displayed. Aspects of the person's perceived ease or difficulty of behavior performance are reflected in their perceived behavioral control. Numerous research have demonstrated the impact of TPB model components on entrepreneurial intention (Lortie and Castogiovanni, 2015; Rosdi, 2015; Ayalew and Zeleke, 2018; Zaryab and Saeed, 2018; Yasir et al., 2021).

The Entrepreneurial Event Theory

According to Van Gelderen et al. (2008), attitude and perceived behavioral control factors from the theory of planned behavior are connected to the perceived desirability and perceived feasibility in Shapero Entrepreneurial Event Model (Shapero and Sokol, 1982). According to Shapero's entrepreneurial event model, displacement, perceived desirability, and perceived feasibility may truly influence entrepreneurial intention. Three elements-displacement, perceived desirability, and perceived feasibility are the three elements that Shapero's entrepreneurial event model argues can truly influence entrepreneurial intention. Ledian et al. (2023) stated that Shpero's theory further asserts that while intention is important, it is not sufficient for an action to be completed.

METHODOLOGY

A new qualitative research technique to look at the development of research activities on a particular study object was introduced by Pritchard's research (1969), which introduced the idea of bibliometric analysis. This methodology offers an all-encompassing perspective on a scientific field's development trend (Donthu et al., 2022). It is simple to find notable authors, important papers on the same subject, exceptional research trends, and future research trends with this strategy (Haba, Bredillet and Dastane, 2023). This approach, in particular, helps to reduce researchers' subjective evaluations and increases the objectivity of the study findings (Lim and Kumar, 2024). Another advantage of this approach is the development of some measures to assess the output, significance, or quality of published research, as well as the production of colorful and understandable visual maps of processed data (Punj et al., 2023; Yan et al., 2024). Our decision to employ a bibliometric study of students' entrepreneurial intentions throughout the 2007–2022 period stemmed from our clear comprehension of the aforementioned advantages. The purpose of our article's bibliometrics study is to find pertinent published papers (Zupic and Čater, 2015) and enhance our comprehension of how knowledge is distributed in a certain field. By offering data, analysis, and a general review of scientific articles on the same topic or certain unique features, it can assist reveal gaps and develop the study area (Kakouris and Georgiadis, 2016; Aparicio, Iturralde and Maseda, 2019). The papers that were indexed in Google Scholar and published in reputable scientific journals served as the source of the data for this research. The authors utilized the application management system "Publish or Perish" as a tool for gathering data. There are four phases involved in preparing the list of research publications on students' entrepreneurial intention for bibliometrics analysis:

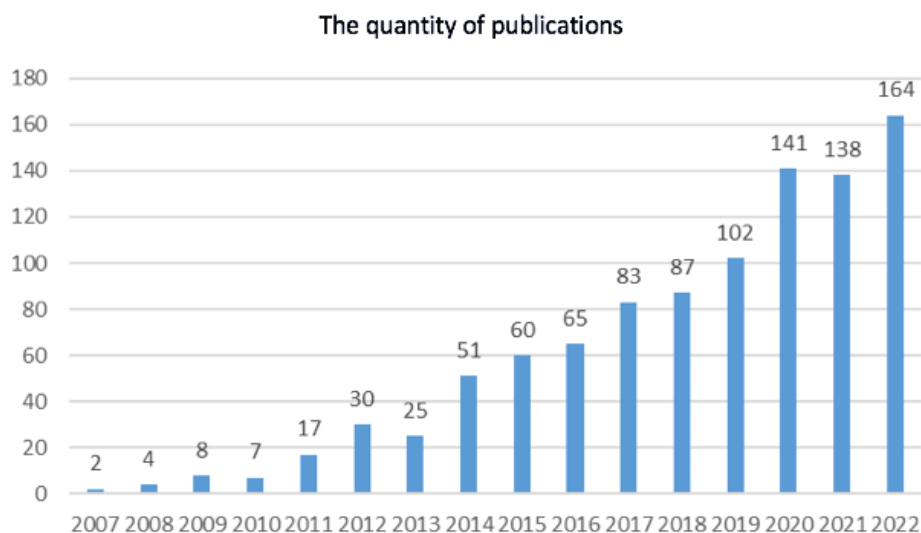
1. Identification: Using the query TITLE-ABS-KEY "entrepreneurial intention" AND "university student", the authors conducted the first search and retrieved data from Google Scholar starting at 13:00 on November 8, 2023.
2. Screening: The authors screened for inaccurate and missing data, as well as papers without abstracts, to make sure the chosen publications aligned with the study goals. One paper was removed overall.
3. Eligibility: Each article is now assessed, and those that include keywords but whose substance or research area are unrelated to the study's focus or those that have been published more than once are eliminated. 14 items were removed as a result of this action.
4. Included: A total of 984 papers were chosen for the study.

RESULTS

Quantitative increase in academic research on students' entrepreneurial intentions between 2007 and 2022

A total of 984 scientific papers were found through the search that were deemed suitable for the research. With 164 articles published, 2022 is the year with the most contributions out of all of them, making up around 16.7% of the samples that were gathered. Of the samples gathered in 2020, 141 publications were obtained, representing 14.3% of the total. Subsequently, 14.0% and 10.4% of the total samples taken were from the years 2021 and 2019, respectively. 87 publications, or 8.8% of the total samples collected, were acquired in 2018. Just 83 articles, or 8.4% of the entire sample gathered, were published in 2017. There were two publications on this topic in 2007, making it the first year that they were published (0.2%). The data above indicates that since 2014, there has been a growth in the interest of researchers in this topic.

Figure 1: Publication distribution from 2007 to 2022



Analysis of citations

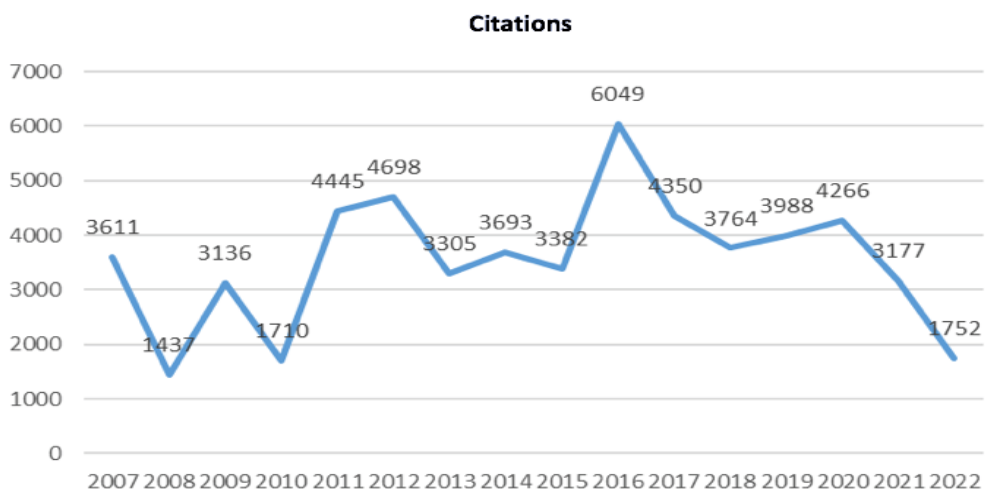
The first stage of the research trend (2007-2013): There were not many studies on students' entrepreneurial intentions at this point, with a maximum of 30 publications and a minimum of 02 publications published in a year (Figure 4.1). Research topics were also relatively limited, and there were not many authors researching in this field. Ninety-three studies were published in total throughout this time span (about 9.5% of the publications published between 2007 and 2022). Specifically, there were just two publications produced in 2007, but one of them (Souitaris at al., 2007) garnered over 3481 citations and receives over 210 citations annually, making it a fundamental paper.

The time frame garnering a lot of interest (2014 – 2018): In comparison to the preceding period, there was a notable rise in interest during this time, and the number of publications climbed gradually over time. Based on observations, more than 50 articles are published year, with 2018 being the

largest number of publications with 87. During this time, 346 works have been published overall, making up about 35.1% of all publications from 2007 to 2022. With 6049 citations (Figure 4.2) across 65 publications, 2016 has the most citations overall. The 2014 paper by Zhang et al., (2014) has 978 citations, making it the publication with the most citations throughout this time period.

A period of very stable and strong growth (2019–2022): During this time, scientific works were produced quite regularly, and the depth and perspective of the study were increasing. There have been 545 works published in total throughout this time, which makes up around 55.4% of all papers released between 2019 and 2022. In contrast, Figure 2 shows a progressive decline in the overall number of citations each year after 2020, despite the rising rise in articles. With 4266 citations, 2020 saw the largest number of citations received during this time; citations then steadily decreased until 2022. With 1752 citations overall, 2022 is the year with the fewest citations. Jena (2020) earned the most citations in 2022 (416 citations).

Figure 2: Trends of paper's citations for year

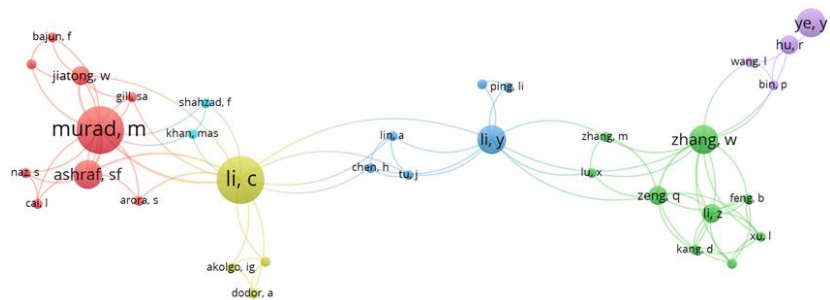


Author analysis

2003 authors have done research, according to author statistics from 984 linked publications in the Google Scholar database. Of them, 262 individuals produced two or more works, 159 contributed three or more, and 1,582 individuals submitted one scientific contribution. Majid Murad (Figure 3) has published the most works in this field of study, with a total of 5 papers in the sample that was gathered. A total of 54 publications written by 34 notable writers make up 5.5% of all the articles published in this topic, according to the statistics. This indicates that after fifteen years of development, the core

group of writers in the field of analyzing students' entrepreneurial intentions has evolved, while there is still room for improvement.

Figure 3: Bibliographic clustering of authors



Analyzing the sources

The publishers that have published the greatest number of scholarly articles on the subject of students' entrepreneurial intentions are listed in Table 1. The Emerald publisher with the highest number of publications (90) is ranked first. Among the ten papers that received the greatest number of citations, Elsevier published three, Emerald published three, Springer published two, Sage One published one, and Taylor & Francis published one. This demonstrates that these ten publishers are the ones who have released the most significant, esteemed, and important scientific studies in the entrepreneurial intention perspective.

Table 1: Top 10 publishers that released articles between 2007 and 2022 about students' entrepreneurship intentions

| Item | Publishing houses | Number of articles |
|------|-------------------|--------------------|
| 1 | Emerald | 90 |
| 2 | ResearchGate | 73 |
| 3 | Elsevier | 54 |
| 4 | Springer | 54 |
| 5 | Academia | 39 |
| 6 | Frontiers | 38 |
| 7 | Taylor & Francis | 33 |
| 8 | MDPI | 29 |
| 9 | Sage | 23 |
| 10 | KoreaScience | 23 |

Table 2: Top 10 journals that between 2007 and 2022 produced most studies on students' entrepreneurship intentions

| Item | Journal title | Number of articles | Citations |
|------|---|--------------------|-----------|
| 1 | Frontiers in psychology | 36 | 1224 |
| 2 | Education + training | 18 | 1954 |
| 3 | Sustainability | 17 | 670 |
| 4 | Journal of Innovation and Entrepreneurship | 14 | 591 |
| 5 | Asia-Pacific Journal of Business Venturing and Entrepreneurship | 13 | 221 |
| 6 | International Entrepreneurship and Management Journal | 11 | 4845 |
| 7 | Management Science Letters | 10 | 350 |
| 8 | The International Journal of Management Education | 10 | 422 |
| 9 | Journal of Global Entrepreneurship Research | 8 | 1655 |

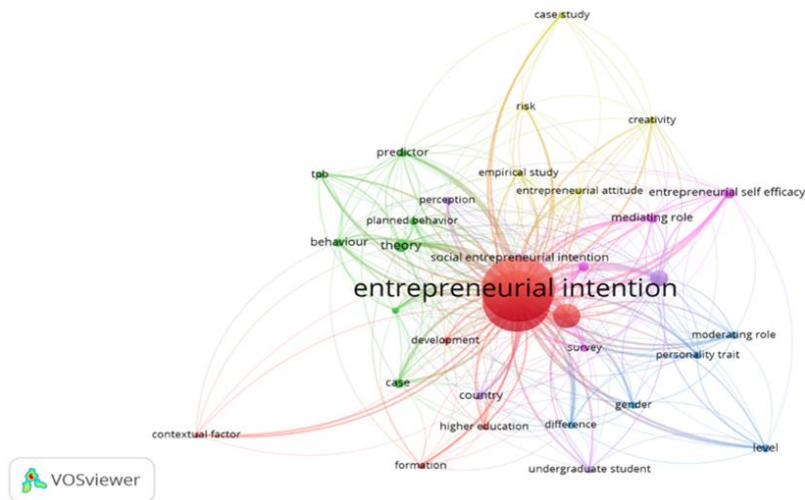
With 36 publications and a total of 1224 citations, the journal *Frontiers in Psychology* published the most articles (Table 4.2). Though it only publishes 12 articles, the *International Entrepreneurship and Management Journal* receives over 4 times as many citations as the journal *Frontiers in Psychology* (4845 citations). Furthermore, three of the top ten publications regarding students' entrepreneurial intentions with the most citations have been published in the *International Entrepreneurship and Management Journal*. This demonstrates that the journal is regarded as a trustworthy publication for research on entrepreneurship intentions.

Keyword analysis

Co-word Analysis and topic analysis

Distinct colors on the VOSviewer map correspond to distinct clusters, whereas the same color corresponds to the same cluster. Using the term "entrepreneurial intention" in VOSviewer, the mapping results are used to determine the number of clusters. A total of 308 nodes and 3475 links were created between the 33 detected keywords in 06 clusters that were constructed (Figure 4).

Figure 4: Cluster of keyword co-occurrence



Red cluster - Entrepreneurship education

There are seven keywords in Topic 1 (Red Network). Keywords associated with this cluster include contextual factor, development, education, entrepreneurial intention, formation, higher education, and university student. According to the graphic, one of the hotspots in student entrepreneurial intention research is entrepreneurship education, as seen by the red cluster that expands around the term "education" as a high-frequency phrase.

Green cluster – Theory of planned behavior (TPB)

With seven keywords, Topic 2 (green network) is the second biggest cluster. The theory of planned behavior (TPB) is used in six of the ten most widely cited studies on the entrepreneurial intentions of students. This demonstrates that TPB is a very important underlying theory for studies on students' entrepreneurship intentions. The most often used terms in research utilizing TPB background theory are behavior, case, planned behavior, predictor, subjective norm, and theory.

Blue cluster – Gender

Keywords that typically appear in topic 3 are difference, gender, level, moderating role, and personality traits. The phrase "gender" is an interesting phrase in studies on entrepreneurial intention of students in this color cluster.

Yellow cluster – Entrepreneurial attitude

The keywords case study, creativity, empirical study, entrepreneurial attitude and risk are associated with Topic 4 (yellow network). The yellow network is

displayed on the graph surrounding the term "entrepreneurial attitude" This indicates that the focus of this cluster is on how students see entrepreneurship (the attitude).

Purple cluster – Country

Topic 5 (purple network) is centered mostly on the term "country". Of all the keywords, this one appears the most frequently. In the purple cluster, perception, relationship, social entrepreneurial intention, undergraduate student are some of the other important phrases. The purple cluster specifically focuses on entrepreneurial intention and country characteristics.

Pink cluster – Entrepreneurial self-efficacy

The cluster known as Topic 6 (pink network) was established in the area of entrepreneurial intention using the notion of self-efficacy. Additionally, data, entrepreneurial self-efficacy, mediating role, and survey are the essential phrases in this cluster.

Visualizing the subject domain network of entrepreneurial intention using VOSviewer

Table 3: Statistics of keyword co-occurrence

| No. | Keywords | Cases | Total link strength | No. | Keywords | Cases | Total link strength | No. | Keywords | Cases | Total link strength |
|-----|----------------------------------|-------|---------------------|-----|-------------------------------------|-------|---------------------|-----|-----------------|-------|---------------------|
| 1 | Theory | 63 | 117 | 8 | Planned behaviour | 28 | 70 | 15 | Behaviour | 22 | 34 |
| 2 | entrepreneurial self-efficacy | 52 | 58 | 9 | Variable | 26 | 37 | 16 | Case study | 22 | 31 |
| 3 | Support | 39 | 60 | 10 | Gender | 25 | 36 | 17 | Undergraduate | 22 | 31 |
| 4 | Control | 34 | 58 | 11 | University student entrepreneurship | 24 | 28 | 18 | Creativity | 22 | 30 |
| 5 | Predictor | 33 | 58 | 12 | Culture | 23 | 27 | 19 | Subjective Norm | 21 | 41 |
| 6 | Country | 32 | 40 | 13 | Entrepreneurial orientation | 23 | 29 | 20 | Motivation | 20 | 22 |
| 7 | Social entrepreneurial intention | 31 | 40 | 14 | TPB | 23 | 47 | | | | |

The terms that appear most frequently in the research are displayed in Table 3. This feature illustrates the present state of scientific study on entrepreneurial intention, related subjects, and their linkages. Out of the 2786 keywords, 73 satisfied the predetermined criteria in this analysis.

The following are the co-occurring terms that appear most frequently: Theory (63), entrepreneurial self-efficacy (52), Support (39), Control (34), Predictor (33), Country (32) and several other frequently occurring keywords combine to generate representative phrases for the study area. The connection strength between the terms "Theory," "Planned Behavior," "Support," "Entrepreneurial Self-Efficacy," "Control," and "Predictor" ranges from high to low.

Figure 5: Map of keyword co-occurrence (78 terms, each with at least 10 appearances)

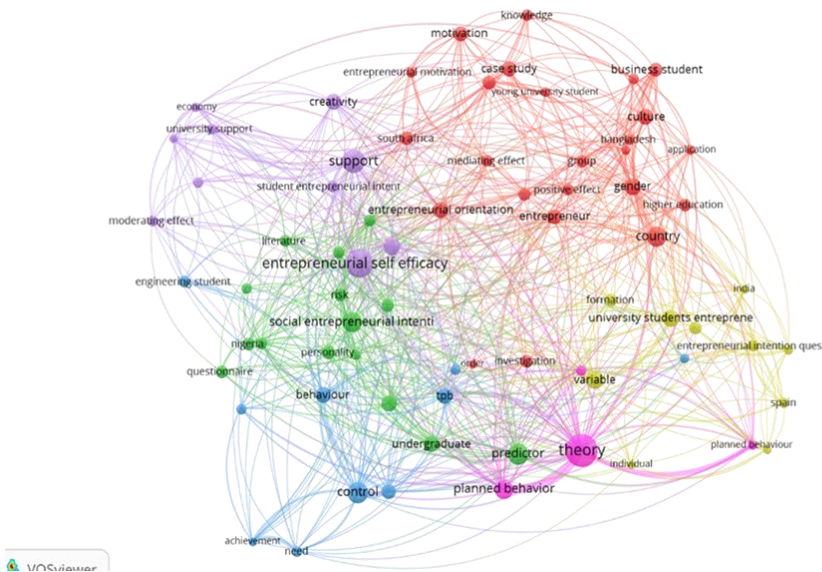
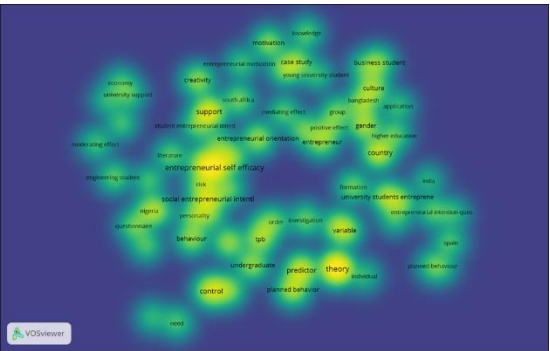


Figure 5 displays a total of 989 nodes across all the terms. The demographic issues of country, gender, culture, and education are included in Cluster 1 (red). Cluster 2 (purple) covers aspects related to entrepreneurial self-efficacy, support, education, and creativity. Topics on social entrepreneurial, predictors, as well as relating risks are included in Cluster 3 (green). Topics including intention, behaviour, subjective norms about entrepreneurship or the TPB theory of entrepreneurial intention are included in Cluster 4 (blue). Cluster 5 (pink) represents topics focusing on theory, the theory of planned behavior (TPB) affecting students' entrepreneurial intentions. Cluster 6 (yellow) covers study forms and factors influencing students' entrepreneurial intentions.

Density map of topic analysis

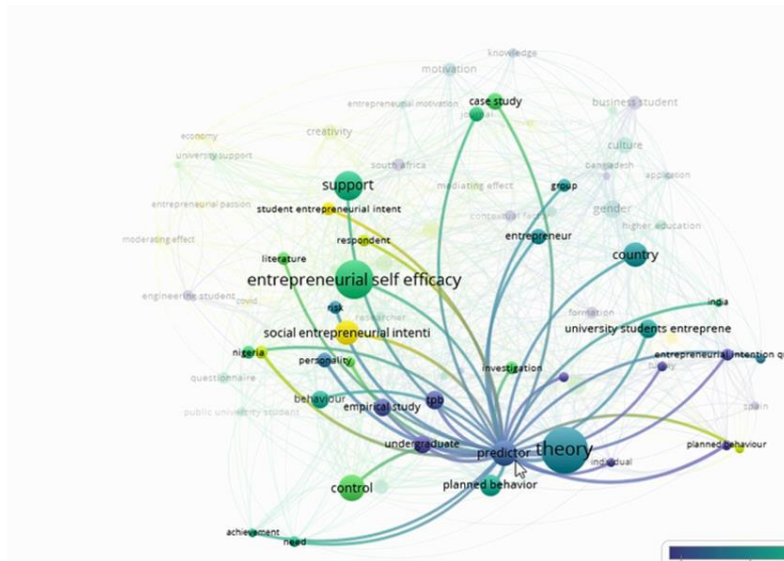
Figure 6: Density map of the keyword for entrepreneurial intentions



The VOSviewer application's density display categorized each keyword according to how frequently it was used in research. The density map for the 2007–2022 survey on students' entrepreneurial intentions is shown in Figure 6. Given that they are depicted on the map with a darker yellow circle than the other keywords, "theory" and "entrepreneurial self-efficacy" have the highest score out of all the examined keywords, according to this simulation.

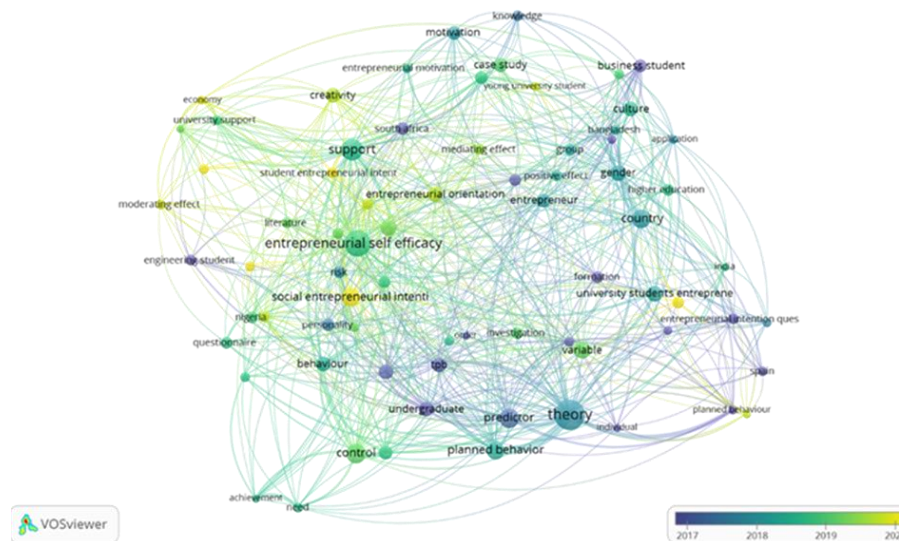
Overlay visualization of entrepreneurship intention topics

Figure 7: Co-occurrence distribution map



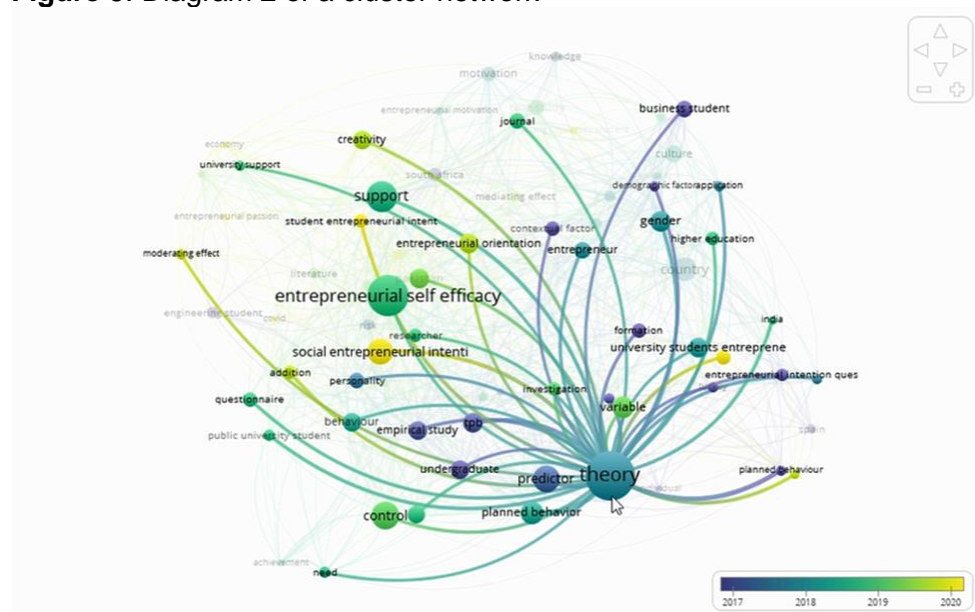
The map with overlay visualization displays the annual popularity of each phrase. Based on various hues, the number of relevant years for each keyword is determined. As seen in Figure 7, the years 2017–2018 are represented by blue, 2018–2019 by light blue, 2019–2020 by green, and 2020 by yellow.

Figure 8: Diagram 1 of a cluster network



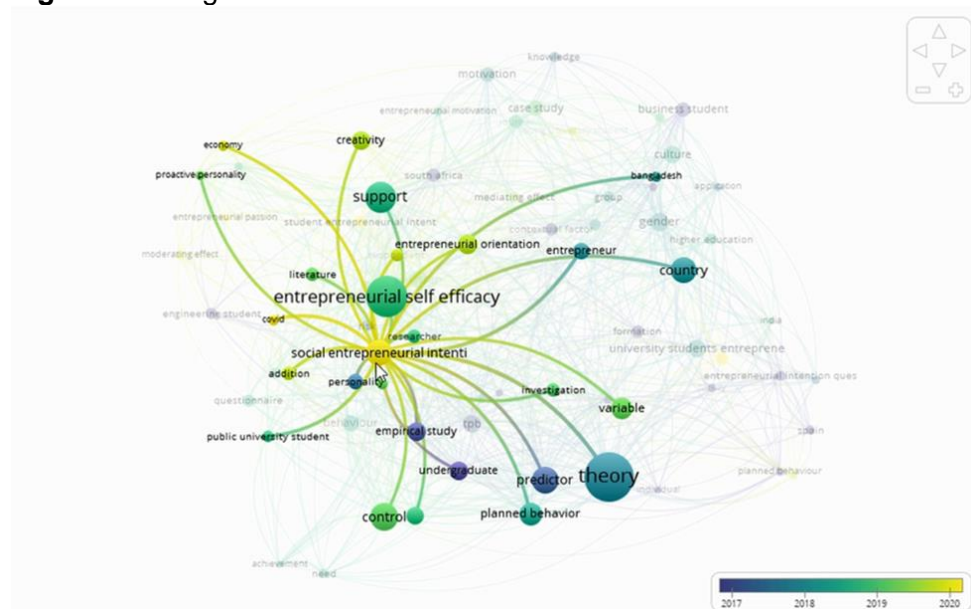
The diagram for the cluster network is shown in Figure 4.8. There is a link between two or more terms in each cluster (Maryanti *et al.*, 2023). The first blue cluster denotes the time frame spanning from 2017.0 to 2017.5. The network diagram's arrangement reveals that "Predictor" is the most often used phrase in relation to entrepreneurial intention (average year of publication: 2017.33, relationship strength of 58, 33 occurrences). The likelihood that a startup concept will succeed is determined in part by predictive criteria.

Figure 9: Diagram 2 of a cluster network



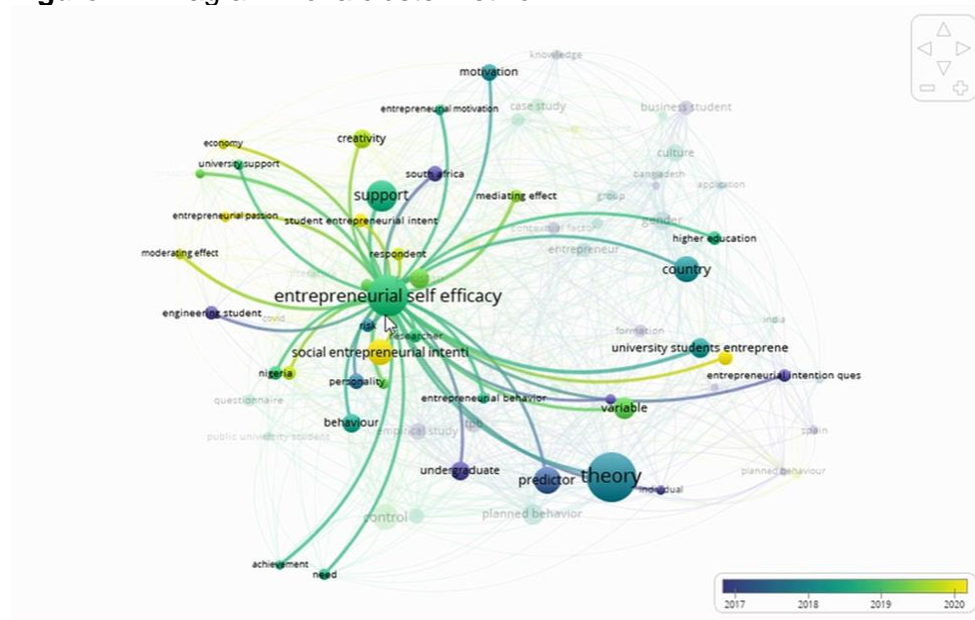
The diagram 2 of a cluster network, as illustrated in Figure 9, indicates that "theory" is the most cited term during this time, with 63 occurrences, an association strength of 118, and an average year of publication of 2017.86. Due to the wide range of theoretical foundations that have been explored and utilized in this field of study, the word "theory" is most frequently referenced in this section. The two most popular theories are Shapero and Sokol's (1982) event model of entrepreneurship and Ajzen's (1991) theory of planned behavior (TPB). According to Zaremohzzabieh et al. (2019), these two theories have been the cornerstones of many studies' investigations (e.g. Branchet et al., 2017; Hockerts, 2017; Jie and Harms, 2017; Osorio et al, 2017; Trivedi, 2017; Basit et al., 2018).

Figure 10: Diagram 3 of a cluster network



The network map of cluster 3, Figure 10, shows that "social entrepreneurial intention" is the most popular subject (31 occurrences, link strength 40, average publication year: 2020.00). During that period, it was also the phrase that received the most citations. Due to the processes of globalization and economic growth, urbanization, and income differentiation, the gap between the rich and the poor across population classes has widened (Tiwari et al., 2017). Social entrepreneurial intention has been shown to be an important factor contributing to promoting the economy (Stoica, Roman and Rusu, 2020; Buhalis, 2022; Scuotto et al., 2022). Furthermore, diseases, natural catastrophes, and abrupt changes in the environment have a detrimental impact on the lives of people from a wide range of socioeconomic backgrounds, particularly the most vulnerable. These problems encourage the emergence of social entrepreneurial intentions, which are defined as commercial endeavours motivated by social concerns (Huda et al., 2019).

Figure 11: Diagram 4 of a cluster network



With 52 occurrences, 51 link strength, and an average publication year of 2018.81, "entrepreneurial self-efficacy" is the most popular and often referenced phrase in cluster 4 of Figure 11, which has a noticeable green node. "Entrepreneurial self-efficacy" has become a primary psychological notion in entrepreneurial intention research, and several studies on undergraduate and graduate students have examined this concept (Newman et al., 2019). Additionally, it has been demonstrated that "subjective norms"—such as having an entrepreneur in the family or an mentor assistance—and individual differences—such as gender, personality, and drive for achievement—have an impact on entrepreneurial self-efficacy (Christensen et al., 2023).

DISCUSSION AND MANAGEMENT IMPLICATIONS

Using Harzing's Publish & Perish tool, this study gathered 984 high-quality documents published between 2007 and 2022 from the Google Scholar database. The obtained documents were analyzed using quantitative techniques. Here are some compelling research results from our investigation. Firstly, there has been a steady increase in the number of published works covering students' entrepreneurial intentions over the period of 2007–2022, with studies on this topic seeing the largest growth in citations in 2016, and the number of academics and authors investigating this topic has also increased over time. Secondly, authors are regarded as major authors if they have two or more publications (Murad has the most publications, with five). Thirdly, the journal with the greatest number of

articles in this discipline is *Frontiers in Psychology*; on the other hand, the journal with the most citations is *International Entrepreneurship and Management Journal*. It is surprising that prestigious entrepreneurial publications like *Entrepreneurship Theory and Practice*, *Strategic Entrepreneurship Journal*, etc. are not included in this study's rankings. This indicates that prominent entrepreneurship journals may not have paid enough attention to the issue of research on students' entrepreneurial intentions. Fourthly, a total of six study themes have been identified regarding students' entrepreneurial intentions, which include: 1/ Entrepreneurship education, 2/ Theory, 3/ Gender, 4/ Entrepreneurial attitude, 5/ Nation and. 6/ Self efficacy. Fifthly, four hot themes in this sector from 2017 to 2020 are shown by the overlay visualization results: theory, predictive variables, self-efficacy, and social entrepreneurship intention. Sixthly and last, the density visualization findings indicate that there are now two primary research directions: studies on the self-efficacy of students who are exhibiting entrepreneurial intentions, and studies on theoretical research to explain students' entrepreneurial intents.

Based on the aforementioned findings, this study has provided a thorough and extremely methodical response to the original research questions. First, there has been a consistent rise in the number of studies on entrepreneurship throughout time, and the pattern (Figure 1) indicates that this trend may continue in the years to come. Second, the primary areas of interest for entrepreneurship research in this period include self-efficacy, attitudes, gender, and nations, as well as entrepreneurship education and behavioral intention theories. This demonstrates the multitude of significant facets that startup research between 2007 and 2022 has failed to address (e.g., business lines, variations in the qualifications of entrepreneurs). Additionally, studies on entrepreneurial intention during this time have not taken into account the role of startup funding, a factor believed to be important in startup activities (Cavallo et al., 2019).

Managerial implications

On the one hand, the study's findings have given researchers several ideas for other research projects in future. First, despite a decline in citations recently, research on students' entrepreneurship intentions still has a lot of untapped potential and receives substantial attention from academics and industry professionals. Second, the study's findings demonstrated how uncommon it is for academics to have four or more research publications. Therefore, in order to completely comprehend this field of study, academics must do more in-depth research on a wide range of entrepreneurship-related issues. Third, there is a lack of research on students' entrepreneurial intentions in some well-known publishers (Inderscience, Wiley, for example) and in some prestigious journals (*Entrepreneurship Theory and Practice*, *Entrepreneurship and Regional Development*, etc.). To encourage academics to do high-quality, in-depth research on students' entrepreneurial purpose, publishers or researchers could offer research call programs that focus on student entrepreneurship subjects or specific challenges. In

addition, related topics and keywords reveal that research on students' entrepreneurial intentions still has many gaps that require further investigation. The function of investment funds and startup money is still disregarded, the basic theories of entrepreneurship connected to technological platforms are few, and a noteworthy topic—entrepreneurship restart—was left out of the 2007–2022 research period. To close these gaps in the future, researchers must carry out further studies.

On the other hand, according to research findings, students' entrepreneurial intention is significantly influenced by entrepreneurship education, entrepreneurial self-efficacy, gender, entrepreneurial attitude, and national cultural characteristics. These findings may have policy implications that policymakers should consider. The final question posed in the study's first section is likewise addressed by these managerial recommendations and ideas provided for academics above. First, in order to change public perceptions of student entrepreneurship, the government should, as suggested by Sukumar et al. (2021), develop communication strategies and initiatives to honor students who have founded profitable enterprises or who have come up with innovative startup concepts.

Second, by offering career guidance and inspiration through seminars, talks, and consultations, educational institutions and staff members may help students realize the importance of entrepreneurship for themselves. Additionally, curriculum development, skill enhancement, and knowledge expansion should be used to spark students' imaginations and boost their self-esteem, assisting them in becoming more aware of and interested in the world of business, as well as to strengthen their own capacity to launch a venture. Otherwise, as recommended by Ljubotina and Vadnjak (2023), universities should also encourage students from business-oriented families to actively participate in entrepreneurship activities and families with a business tradition should also collaborate with entrepreneurship education institutions to share real-world experiences.

Third, in order to enable students to engage and study whenever and wherever they want, educational institutions must provide user-friendly learning platforms like machine learning for startups, virtual learning materials, and electronic learning materials.

Fourth, in order to plan startup exchanges that are appropriate for each student group, universities that offer both economics and non-economic degrees must establish connections with businesspeople.

Limitations and future research directions

This research is still subject to certain limitations. At first, this study's data came from a single data source (Google Scholar). Retrieving data from the Google Scholar database has certain drawbacks, such as the inability to filter data by publishers or eliminate less respectable journals or subpar research papers. Consequently, the vast amount of information available on Google Scholar may obscure papers or respected publications about entrepreneurship, such as *Entrepreneurship Theory and Practice*, *Entrepreneurship and Regional Development*, etc., from our search results.

Due to this flaw, the study findings in the paper can be slightly skewed. Future research may try to gather information from more sources, such as the Web of Science or Scopus databases.

Second, the analysis does not take into consideration the bias of previous studies or distinguish the environment in which a particular citation was created, even when more recent research may have made important contributions. The context and methods for evaluating study quality should be carefully considered in future research. Third, only numerical indications are the subject of this investigation. Citation counts alone as a metric of journal performance can be deceptive (Sukumar et al., 2021). Thus, more research using different measures might provide more details on the relative reach and strengths and shortcomings of a journal. Fourth, the study was unable to identify the main drivers and reasons of the increase in publications about the goals of entrepreneurs. Further research endeavors ought to probe more thoroughly into the causes and motivators behind the remarkable surge in student studies on entrepreneurial purpose. Further studies could explore the relationship between technology applications and entrepreneurship in more detail, taking into account variables such as technological accessibility, contextual factors (such as opportunities, perceived government support, and recent economic and market awareness), and social factors (such as previous experience and role models) to see how these factors affect students' propensity for entrepreneurship. Conducting cross-national empirical research in the future ought to be intriguing.

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STRATEGIC FORESIGHT FOR SUSTAINABILITY

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Abstract

The goal of this paper is to present the results of the interviews which were conducted in September 2022 by GEA College with various stakeholders, including representatives from the agri-food, health and mobility sectors, representatives from the education sector and consulting field to better understand the specific green, digital, and foresight skills required to drive sustainable practises in Slovenia. This paper gave us a more thorough picture of Slovenia's prospects and problems and serves as a valuable resource for understanding the current state of the industry, the required skills for a sustainable future, and the best practices that could be adopted to foster positive change.

Key Words

Strategic foresight; sustainability; education.

INTRODUCTION

In many places, an enormous rise in human activity has been noted since the 1950s. The natural resources required for expansion have decreased as a result of global growth. "The great acceleration" refers to the acceleration of progress and the depletion of natural resources. Twelve socio-economic megatrends and twelve ecological megatrends are juxtaposed in the model of the same name. These indicators show a strong correlation between economic development and changes in the Earth's systems since 1950. This indicates that human-induced development made a major contribution to the major changes in the Earth's systems (Stefen et al., 2015)

Currently, humanity is consuming the equivalent of 1.7 planets to provide the resources needed to produce goods and recycle waste. This means that the earth needs one year and seven months to regenerate what is used in one year. The date on which all resources available to the country are used up is also called "Planet Overshoot Day". If we carry on as before, i.e., if the needs of the population and consumption trends continue to develop in the same way, we will need the equivalent of 2 planets in the 2030s to be able to continue our lives as we know them (Global Footprint Network, n.d.).

Foresight methods are strongly related to sustainability since they offer useful tools for comprehending, anticipating, and reshaping the future in a way that promotes sustainable development. They are strategic methods that help with foresight and planning, empowering stakeholders to make wise choices and lead to desired outcomes. These methods are essential for spotting new trends, threats, and opportunities in the context of sustainability as well as for directing the creation of sustainable plans and practices (Major et al., 2001).

Numerous industries and academic fields use foresight methods. They provide strategic planning, product creation, and innovation in business and industry by detecting emerging markets, consumer trends, and technology developments. Foresight methods aid in long-term planning, policy creation, and risk management in government and policymaking. A proactive strategy for anticipating and influencing the future is crucial in industries including science and technology, education, healthcare, environmental sustainability, and social development. These sectors all benefit from foresight (Meissner, 2012).

Let us also point out that strategic foresight is not strategic planning. In strategic planning, specific goals, objectives, and action plans are defined based on the most recent knowledge of the organization's capabilities and the market trend focusing on immediate to medium-term activities. On the other hand, strategic foresight is about anticipating and preparing for the future (AGRIP, n.d.; UNIPAN, n.d.).

Popper (2008) defines 33 foresight methods which are divided into three groups: qualitative, quantitative and semi-quantitative. In order to investigate potential future situations and trends, qualitative foresight approaches collect and analyse expert opinions, subjective data, and insights. These methods are particularly useful when dealing with complex, uncertain, and qualitative aspects of the future. Quantitative foresight methods involve the use of

numerical data, statistical analysis, modelling, and simulations to quantify future trends, patterns, and probabilities. These methods are particularly valuable when dealing with measurable and quantifiable aspects of the future. Many quantitative methods are used in foresight, for providing an evidence base for futures thinking, or supplying forecasting tools themselves like trend extrapolation. Semiquantitative foresight methods combine qualitative and quantitative elements, incorporating both subjective insights and objective data analysis. These methods bridge the gap between purely qualitative and quantitative approaches and provide a more comprehensive understanding of the future (Adegbile et al., 2017; Giaoutzi and Sapio, 2012).

When looking for more innovative and sustainable solutions, businesses still aspire to make evidence-based decisions, which is often translated into “show me the data” that this solution/innovation is viable. With no data available on the future, organizations fail to make leaps towards more sustainable futures. To overcome this dilemma we need to form corporate agents capable of dealing with diverse stakeholder values in uncertain environments that are governed by the rules of complex systems. Features of complex systems include being subject to delays, governed by trade-offs, resistant to change and counterintuitive.

The second dilemma relates to the development of curricula and master classes. Training curricula are still too often built within existing knowledge domains with little cross-fertilization from other disciplines and tend to be resistant to changes in response to societal needs. They are of course also subject to employer feedback and governmental review, which unfortunately often reinforces disciplinary excellence rather than opening the door towards impact-driven programs that are built on multi-disciplinary elements.

According to the above dilemmas, the project Strategic Foresight for Sustainability (SF4S), funded by Erasmus + program (2022 - 2024), supports the transition to a more sustainable European economy. It addresses the lack of green, digital, and future (i.e. sustainability foresight) skills among students and professionals and by connecting knowledge flows between HEI, VET, and industry actors that are necessary for Europe to develop collaborative solutions on a large scale and support the recommendations for action in the major reports and initiatives: Green Deal, NextGenerationEU, and European Skills (SF4S, 2023). This project is in response to two needs:

- Approaches to co-develop solutions for grand sustainability challenges in three industries (agri-food, health and mobility), in multi-actor settings and complex opportunity spaces.
- Portable skills that allow individuals to engage in results-driven foresight projects across institutional boundaries and across the industry/academia divide to identify solutions for sustainable development.

Within the project, we developed engagement and insight from three industries through interviews. GEA College – Canter of Higher Vocational Schools, as a full partner of the consortium, conducted interviews with managers from Slovenian business entities from the above-mentioned sectors. The goal of this paper is to present the results of the interviews. On

that basis, we will prepare, test and deploy learning and training materials and workshops for HEIs, VETs and the business sector throughout the community.

By the project SF4S, 400 students will be initially reached and its open-access materials, which have a pan-European scope. Beyond the project itself, the living community of practice will spread to different sectors. The long-term impact, which is already a springboard for a transition across Europe, will be three industries adopting new sets of future sustainability foresight skills, and both VET and HEI students entering the workforce with Foresight for Sustainability skills that allow them to develop actions that support the long-term green transition that Europe needs.

MATERIALS AND METHODS

Based on semi-structured interviews with the key community actors, we identify key skills and good practices. To better understand the specific green, digital, and foresight skills required to drive sustainable practises and innovations within the industry, we conducted 12 interviews with various stakeholders, including representatives from the industry, education sector, and consulting field.

We were able to investigate the perspectives and experiences of a wider spectrum of people working in the sector thanks to the interviews, which allowed us to look beyond the viewpoints of senior executives and specialised consultants. We intended to discover important competencies and best practices through these interviews that businesses are presently doing to improve sustainability and foresight projects.

We also attempted to explore how these good practices may be transmitted and applied on a larger scale within the industry by probing the experiences of various stakeholders. This method assisted us in finding extra skills and knowledge that could help promote and support sustainable practices.

In addition to interviews with some key players in the fields of agri-food, mobility, and health, we also conducted interviews with representatives from the education sector and consulting industry which allowed us to gain valuable insights from different perspectives. These experts gave us a more thorough picture of Slovenia's prospects and problems. We were able to collect a wide range of perspectives and recommendations for prospective advancements and breakthroughs in the domains by including these stakeholders.

Furthermore, investigating the demands and recommendations from the education sector helped us comprehend how we may better prepare future professionals with the abilities and knowledge to manage difficulties associated with sustainability and innovation in these industries. The insights from the consultancy sector, on the other hand, contributed significantly to the practical strategies and solutions that can be put into place to help the shift to a more sustainable and technologically sophisticated European economy. We were able to identify potential areas of collaboration and

synergy between various sectors and stakeholders thanks to the inclusion of this broader perspective, opening the door for more effective and significant responses to the constantly changing problems in Slovenia and throughout Europe.

All interviews have been transcribed and a summary of the interviews, using a shared project template, has been uploaded to a shared platform. As a result, we wrote a synthesis report that summarized the key results. This report serves as a valuable resource for understanding the current state of the industry, the required skills for a sustainable future, and the best practices that could be adopted to foster positive change. Furthermore, the insights obtained from the interviews form a fundamental cornerstone for organizing workshops tailored to cater to the needs of managers, industrial collaborators, and other key personnel within various companies.

RESULTS

In September 2023, we conducted 12 interviews with representatives from selected sectors, as shown in Table 1.

Table 1: The list of companies

| Organization/Company | Cluster |
|---|-------------------------|
| Atlantic Trade | Agri-Food |
| Eko School | Agri-Food, Education |
| DARS Slovenija (Company for Highways of the Republic of Slovenia) | Mobility |
| PETROL Slovenija | Mobility |
| Faculty of Logistics, University of Primorska | Mobility, Education |
| CER Sustainable Business Network Slovenia | Consulting |
| Recosi Slovenia | Consulting |
| Chamber of Commerce and Industry in Slovenia (GZS) | Consulting |

The purpose of these semi-structured interviews was a conceptual analysis of how the interviewee understands and perceives the topic “Strategic Foresight for Sustainability”. The interviewer wanted to map the subject’s or a group of subjects’, conceptions and intersections of the tasks domains of “strategic foresight”, “organizational sustainability” and “innovation management”. Each interview explored the respondents’ understanding of these three domains, his or her experience-based knowledge and methodological approach to deal with their intersections, and persisting challenges.

In-depth knowledge of the participants’ opinions, experiences, and views on foresight, sustainability, and digitization, as well as how these areas affect innovation inside their organisations, was the goal of the interviews. The interview consisted of three main sections, focusing on future possibilities

and challenges, foresight methods and practices, and teaching sustainability foresight.

Participants were first questioned about their unique methods for managing or promoting innovation in the fields of foresight, sustainability, and digitization. The interview then concentrated on examining potential future developments in sustainability and digitization as well as their obstacles, while identifying the critical knowledge and abilities needed to effectively address these new developments.

Concerning industry trends, developing subjects, weak signals, and wild cards, the use of foresight methods and practises, as well as unique foresight demands were highlighted. Lastly, the interview focused on the significance of sustainable innovation and foresight abilities and competences in the participants' current roles as well as their opinions on the variables influencing the future of teaching sustainable innovation and foresight. The participants were also urged to suggest topics for additional talks or the participation of additional experts in similar interviews.

The questions in the interviews are provided in the appendix. Below, we present the summaries of the responses by sections.

Future possibilities and challenges in sustainability and digitalisation

According to interviewees, by improving procedures, content, monitoring, and accessibility, digitalization plays a crucial role in achieving sustainability. Understanding complex sustainable difficulties and their effects is aided, which makes it easier to put solutions into action. It does, however, also call for new competencies and abilities. Key problems include rapid change and the requirement for swift adaptation.

The energy crisis, as well as issues with information and cyber security, are obstacles in the fields of sustainability and digitalization. To address the energy crisis, rational energy consumption, the introduction of energy solutions, and the promotion of a culture of care are crucial. The importance of information and cyber security is increasing as technological development quickens.

While presenting opportunities for adaptation, new disruptive inventions also present hazards to the stability and well-being of society. Multiple stakeholders must be involved in education and capacity-building initiatives to successfully manage these changes. It is essential to be digitally literate and to comprehend how innovation and digitalization support sustainable development. Collaboration between businesses, research facilities, educational institutions, and the economy is seen as an essential first step.

An additional challenge in this context is the need to develop competencies and knowledge for assessing the risks associated with new technologies. Investments in new technologies are substantial and often risky, making it crucial for businesses to have experts with a wide range of skills capable of properly evaluating the risks and opportunities associated with digitization.

Table 2: Future possibilities and challenges in sustainability and

| Key Points |
|--|
| 1. Digitalization plays a crucial role in achieving sustainability. |
| 2. The importance of information and cyber security. |
| 3. Rapid change requires swift adaptation. |
| 4. Collaboration between businesses, research facilities, and educational institutions is essential. |
| 5. Investments in new technologies are substantial. |

digitalization

Foresight methods and practices

The interview findings reveal that Slovenian companies generally exhibit limited usage of foresight methods. Foresight needs differ among the interviewees, with a notable emphasis on obtaining information regarding industry trends, emerging topics, weak signals, and wild cards to navigate future possibilities and challenges.

For companies seeking to advance sustainability goals, creating a roadmap is considered essential. For instance, if a company aims to achieve carbon-free emissions, integrating this goal into product roadmapping becomes crucial during the development phase. Some interviewees reported utilizing foresight methods such as roadmapping and scenario planning for market entry and product development, although not explicitly for sustainability purposes.

Given the dynamic nature of society, nature, and technology, many companies recognize the necessity of utilizing foresight methods to adapt to rapid changes. Preparing for the advent of 5G and 6G technologies is considered imperative for future operations. Targets for reducing carbon footprints are defined through projections and micro-process planning, allowing companies to make tangible contributions to overarching corporate sustainability goals. Effective integration of predictive models is emphasized for formulating strategies and implementing policies, particularly concerning corporate climate policies.

Overall, while some companies embrace foresight methods and acknowledge their importance, there remains a potential for wider adoption of such methods, especially in the context of sustainability and in response to the ever-changing landscape across various industries.

Table 3: Foresight methods and practices

| Key Points |
|--|
| 1. Strategic foresight methods play a pivotal role in the realm of sustainability and merit increased utilization. |
| 2. A lack of familiarity with various foresight techniques, particularly those of a quantitative nature. |
| 3. Roadmapping is one of the key methods used in companies. |

Teaching sustainability foresight

The interviews have provided valuable insights into the importance of sustainable innovation competences and key changes in the future. Today, the most crucial competences include the ability to understand and address the complexity of sustainable issues, fostering digitalization and innovation solutions that can be practically applied in various industries and everyday life. Soft skills such as problem-solving, adaptability, networking, empathy towards the environment and society, and multidisciplinary are also highly valued.

Looking ahead, the future of teaching sustainable innovation and foresight will be influenced by rapid technological progress and the interconnection of different fields, calling for greater emphasis on soft skills. Furthermore, the adoption of innovative teaching methods and ICT equipment is crucial in the pedagogical process.

To promote sustainable innovation, it is essential for management and employers to recognize its significance, along with fostering soft skills among employees. Additionally, educational institutions should place greater emphasis on sustainable topics in their programs.

The rapid development of ICT equipment and robotization will significantly shape the future of teaching and learning. Alongside these technological advancements, soft skills will gain even more prominence, especially in the context of natural, economic, and social challenges. Lifelong learning will become imperative to keep up with the evolving trends.

Additionally, the prevalence of microcredentials, which are brief, focused certificates in a variety of sectors, will increase. Microcredentials will be particularly relevant in the context of rapidly evolving industries and technologies, where professionals need to adapt swiftly to stay competitive. With the help of these microcredentials, people will be able to quickly pick up specialised knowledge and abilities and adjust to the labour market's rapid changes. They will provide professionals with a flexible and convenient option to advance their skills and stay competitive in their particular sectors. As a result, the educational environment will diversify more to accommodate people's varied learning needs in the digital age.

Table 4: Teaching sustainability foresight.

| Key Points |
|--|
| 1. The most crucial competences include the ability to understand and address the complexity of sustainable issues, fostering digitalization and innovation solutions that can be practically applied in various industries and everyday life. |
| 2. Educational institutions should place greater emphasis on sustainable topics. |
| 3. ICT significantly shape the future of teaching and learning. |
| 4. The significance of soft skills is continuously increasing. |
| 5. Microcredentials are the future of education. |

DISCUSSION

Within this study, we used semi-structured interviews as a research method to provide in-depth insights and valuable firsthand information, enabling us to gain a comprehensive understanding of the sectors' needs, challenges, and opportunities in moving towards a sustainable future. In September 2023, we conducted 12 interviews with representatives from agri-food, mobility, and health sectors as well as with representatives from the education sector and consulting industry which allowed us to gain valuable insights from different perspectives.

An important finding from the interviews was that foresight, as a competency covering different methodologies, emerged as a critical capability. Nearly all of the businesses that were surveyed stated that there remains a potential for wider adoption of foresight methods, especially in the context of sustainability. During the interviews, scenario-based techniques and evidence-based, data-driven approaches were the two foresight trajectories that were most frequently highlighted.

A significant issue in many companies is the limited awareness and understanding of various foresight methods, particularly those that involve quantitative approaches. This gap in knowledge hinders their ability to effectively anticipate and plan for future developments in a data-driven manner.

After analysing the interviews, some meta-level competencies that will be crucial in the future were pointed out. Cognitive competences such as systems thinking and future orientation, coupled with emotional competences like a connection with nature and empathic care, will play a vital role in enhancing innovation and fostering organizational learning capabilities in the context of sustainability.

First, a comprehensive awareness of systemic fabrics and specific relationships within a domain is required for systems thinking, which has emerged as an essential competency. Understanding broader systemic contexts, such as relationships between socio-economic areas like agri-food, mobility, and health, is also included here. Moreover, a fundamental competency recognised across all areas is critical thinking, which is not only important for understanding dynamics in the general operational environment but also for scientific or research and development activity. The fourth competency relates to digital skills, particularly in data administration, visualisation, and analysis. Additionally, social and cultural competencies like networking and communication abilities were considered as becoming more and more important.

Interviews also showed a need for innovative storytelling abilities to portray events, products, and solutions through a variety of narratives. Additionally listed as emerging abilities for future employment were emotional intelligence and empathy. Last but not least, a category known as "new literacies" arose, including numerous skills required to comprehend our technologically impacted and contextually rich contexts. This comprises knowledge of information (data), sustainability, algorithms, and the future.

CONCLUSIONS

Fostering collaborative action and innovation to drive sustainability on a European level requires many roadblocks to be overcome. Within the SF4S project, we tackle two in particular:

- The lack of integrated green, digital and future (i.e. sustainability foresight) skills among students and professionals. To mainstream such skills and tackle grand industrial challenges, the solution search needs to start in the distant future and apply systemic thinking to leverage trigger points for lasting change towards sustainable development. However, current HEI, VET and executive curricula are still dominated by linear and uni-disciplinary solutions that prevent innovation professionals and leaders from leading from and towards desirable futures that tackle sustainability at scale.
- The lack of approaches to make flows of knowledge connect between HEI, VET, industry and the next generations. Innovation requires connecting different planes of thought, knowledge from different domains and tacit knowledge from different stakeholders. This is particularly important for developing solutions for the sustainable development of industries. Good practices are still scarce, not sufficiently accessible and not sufficiently used.

This paper aimed to present a small part of the broader project that took place in Slovenia. More precisely, the focus was on showcasing the results of interviews conducted by GEA College, aiming to gain a deeper understanding of the state of sustainability and foresight methods, particularly within the agri-food and mobility sectors. These three industries were chosen for the interviews based on several criteria:

- The agri-food and mobility sectors have a crucial effect on society and the environment.
- These sectors are facing several issues, including maintaining food security, creating environmentally friendly transportation options, and improving medical technology.
- These sectors' lessons learnt and best practices can be applied to other industries, advancing efforts towards sustainable development as a whole.
- Participating various industries encourages cross-sector collaboration and knowledge-sharing, which can result in new ideas and improvements in sustainable practices.
- The project's goal was to conduct interviews in these particular sectors to learn more about their existing procedures, difficulties, and possibilities for growth to help the larger community have a more sustainable future.

By conducting interviews in these specific sectors, we learnt more about current practices, challenges, and potential opportunities for further advancement, thus contributing to a more sustainable future for the broader community.

The described results are limited only to Slovenia. However, within the SF4S project, we also conducted interviews in other countries: Denmark,

Estonia, Finland, France, and Germany. The broader research findings will be summarized in a report, which will be published on the project's website and will serve as a basis for developing study materials and training programs for managers, students, and lecturers.

The ambition of the SF4S project is to continue its work and engagement with the target group after the project is finished, the end of the project will be the start of a bigger community. This is precisely the reason that the project implements sustainability planning, the final version of which, the SF4S Action Plan (Sustainability strategy) will define the continuation of the project and ensure that target groups are reached efficiently and effectively. Strategically therefore and during the project, outreach activities will be tested and the most prominent channels put in place.

Acknowledgements: This study was funded by the Erasmus + project Strategic Foresight for Sustainability – SF4S.

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Appendix

INTERVIEW QUESTIONS

Starting the interview

Do you have experience in foresight, sustainability and digitalisation? If so, what are your specific approaches in these domains to manage or drive innovation?

I Future possibilities and challenges in sustainability and digitalisation

In your view, what are the most important future possibilities or challenges in the domains of sustainability and digitalisation that could have an impact on your innovation strategy and practices? What impacts these could have in your organisation?

What are the most important sustainability/digitalisation skills and competences for tackling these emerging changes?

II Foresight methods and practices

Have you utilized foresight methods (e.g. horizon scanning, exploratory or normative scenarios, roadmapping) in the context of innovation?

What are the specific foresight needs in your work and organisation (e.g. industry trends, emerging topics, weak signals, wild cards)?

III Teaching sustainability foresight

Which sustainable innovation and foresight skills and competences are important in your job already today? How do you see them changing in the future?

In your view, what factors (e.g. ideas, developments, technologies) will potentially influence the teaching of sustainable innovation and foresight in ten years? What skills and competencies would then be needed [in sustainable innovation and foresight]?

Ending the interview

In your view, are there any issues that should have been discussed? Do you have recommendations on who else should we talk to?

THE DYNAMICS AND FINANCING OF STRATEGIC INVESTMENTS: AN EXAMPLE OF SLOVENIAN COMPANIES

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Abstract

The author shows how companies in the real sector of the economy carry out their investment activities, especially how they invest in long-term assets, in terms of both investment dynamics and investment financing, with an emphasis on strategic investments. In the theoretical part of the paper, the author presents certain laws that apply in the field of investment activity, addressing the issue of the intensity of the investment activity of companies over time and the issue of providing the necessary financial resources for the implementation of strategic investments. In the empirical part of the paper, on a sample of Slovenian large and medium-sized companies from the real sector of the economy, the investment activity of companies in the period 2010–2017, i.e. after the great financial crisis and economic recession, is shown. This is done through the prism of various factors and their effects on investment ability. The author puts forward several research hypotheses (6), which he fully confirms.

Key Words

Strategic investments; investment opportunities; investment dynamics; investment financing; investment ability.

INTRODUCTION

The term “investment” usually means investing money in the purchase of long-term assets, which are used in the business process for a long time and from which certain economic benefits are expected. Although investments can also be understood as investments in various forms of short-term assets, such as inventories, short-term securities, etc. – they are typical for the money market, and these are more or less liquidity operations – investments mainly mean investments for a longer term, upwards of one year.

We distinguish between productive investments and financial investments. The former are investments in tangible and intangible long-term assets. Tangible long-term assets are fixed assets, such as buildings, equipment, etc., while intangible assets are intangible investments, such as licenses, patents, know-how, etc. Long-term financial investments involve investing money in the purchase of various forms of long-term securities, such as shares, bonds, deposits, loans, etc.

We can shed light on investments from other angles as well. Thus, the terms “investments” and “investing,” which can be found in almost all economic sectors, and of course also in the field of social activities, are closely related to the preservation, reduction or expansion of consumption. Investment plays a major role in the expansion of both personal and social consumption and in the increase or decrease in the economic growth of any national economy.

A distinction has to be made between so-called strategic and non-strategic investments. With strategic investments, such as investments in modern technological equipment, in the development of new products, etc., companies ensure their growth. With non-strategic investments, such as investments in transport equipment, storage facilities, and furniture, they support and maintain their strategic investments.

The purpose of investing is to direct current financial resources into various forms of real or financial assets to achieve expected returns in the future. Here we collide with the concept of uncertainty. The longer the period to which the investment relates, the greater the uncertainty regarding the generation of future returns. It accordingly follows that time and uncertainty are extremely important investment dimensions. We make an investment decision today, and reap its results (the expected returns) in the future. If the investment decision was not well considered enough, future consequences can be very painful for the investor, even fatal (failed investments as a result of wrong investment decisions). Therefore, when making investment decisions, information that can help form a vision about the levels of certainty of the investment's status in the future is very important.

Serious investors, i.e. companies in the real sector of the economy, various organizations in the field of social activities, individuals, “venture” capitalists (blue angels), and financial institutions such as banks, funds, etc., undertake investments in a prudent manner. This means, among other things, that before making any investment decisions they try to check and evaluate the economic benefits of the planned investment. For this purpose, they use a wide variety of investment criteria, giving preference to those that

also take into account the temporal aspect. The most widespread among dynamic investment criteria is net present value.

The purpose of investing money in various forms of assets (even money in a current account is a short-term financial asset) is to generate a return. Income generated either by the sale of real estate or a financial investment, or by unrealized capital appreciation (or depreciation), or from investment income, such as dividends or interest, or rental income, or exchange gains or losses, or from a combination of all the above, can be either a profit or a loss (negative return).

Investors generally expect higher returns from riskier investments. Risk is not the same for all investors. Different companies take different risks, i.e. have different risk appetites. Risk appetite is the amount of broad-based risk a company is willing to accept in achieving its strategic goals. Risk appetite reflects the risk management philosophy that a company's management adopts and that consequently influences its risk culture, its way of operating and decision-making (The Global Fund, 2018).

In this introductory part of the paper, we wanted to present briefly the essence of investments and investing, the types of investments, the purpose of investing, and the basic elements in making investment decisions to provide a starting point for the further presentation of our research. In the following, we only consider productive investments in the real (non-financial) sector of the economy, i.e. investments in long-term tangible fixed assets. Thus, we are primarily interested in strategic investments, their dynamics and their financing.

The purpose of this paper is to show how companies in the real (non-financial) sector of the economy carry out their investment activities, especially how they invest in long-term assets (in physical capital) both in terms of investment dynamics and in terms of investment financing, with a focus on strategic investments. In the theoretical part of the paper, we want to present certain laws that apply in the field of investment activity. We examine the question of the intensity of investment activity undertaken by companies over time and the question of providing the necessary financial resources for the implementation of strategic investments. Regarding the latter, we are also interested in the question of companies' access to long-term financial resources on the financial markets.

In the empirical part of the paper, using a sample of Slovenian large and medium-sized companies active in the real (non-financial) sector of the economy, we look at the investment activity of companies in the period 2010–2017. We do so through the prism of various factors that influenced their investment ability in terms of the exploitation of investment opportunities, the financing of investments or their creditworthiness, and their investment dynamics.

In the following, we first provide an overview of the current literature on investments. As mentioned, strategic investments are key for company growth, which is why we pay them special attention. We are particularly interested in investment dynamics over time, as it does not matter whether companies invest all at once or over time, more or less evenly at specific

time intervals. Special attention is also given to investment financing, the provision of financial resources for capital-intensive investments.

The following is an outline of the methodology used in our research. We propose six research hypotheses and briefly present the scientific methods used in the theoretical part of the study and the statistical methods used in its empirical part. We describe the sample of companies and the method of obtaining primary and secondary data. We also point out the main limitations of our research.

In the empirical part of the paper, we present the investment activity of large and medium-sized companies from our sample in the period 2010–2017. In this context, we are particularly interested in the financing of these companies' investments before and after the last financial crisis and recession. We purposely highlight their creditworthiness and their indebtedness during this time period as factors playing an important part in determining their investment ability. To this we add some of our key findings from the analysis of the companies' investment activity in the studied period, taken from the empirical part of our extensive research.

To conclude, in addition to stating the arguments why we fully accept all six research hypotheses, we provide suggestions and guidelines for further research in the field of the investment activity of companies.

LITERATURE REVIEW

Schultes (2011) studied multiple factors that affect the performance of investments for years, and quite a few academics and other experts (Grazzi, Jacoby & Treibich, 2013; Pollack & Adler, 2014) examined similar topics, especially those that refer to investments in long-term assets (tangible and intangible), investment projects, and the measurement of their effectiveness from the point of view of the business performance of companies, which can ultimately be discerned from the long list of references provided at the end of this paper. Great interest has been shown in strategic investments, particularly their role in strategic planning and their treatment, as a key factor in company growth and progress (Weissenrieder, 1998).

Strategic corporate investments and investments in long-term assets

Following the literature in the field of investment activity, we can define investments as expenditures intended to increase or maintain capital stock. These are only net investments, which mean a real increase in physical capital. Renewal investments or investment transfers do not increase the productive fund, unless they are technologically more advanced. The capital stock consists of durable goods that are used in the production process. While according to the statistical definition investments are everything that is not consumed, the most general definition states that an investment is any expenditure issued with the purpose of increasing income in the future (Senjur, 1995). Investment expenditures can be classified into three categories: corporate long-term investments, which are the subject of this

scientific discussion and consist of business expenditures on durable goods (equipment, buildings), housing investments, and inventory investments.

Whenever investments are analyzed at the corporate level, the first question is how much capital the companies would like to use, taking into account the given costs of and returns on the use of capital and the level of the product that is intended to be produced. So what determines the desired capital stock, i.e. the stock of capital companies would like to have in the long run? Of course, companies cannot immediately adjust their capital to the level needed in production. This requires a certain amount of time. We are talking about the level of adjustment by which companies adjust from the existing capital stock to the desired level of capital. The level of adaptation determines the level of investment. Investments therefore express the level of adaptation of the economy to the desired state (Senjur, 1995). Such micro-level adaptation is, for example, the technological modernization of production processes, such as robotization and digitization in companies. Today, we are facing the fourth industrial revolution, with cyber-physical systems, the Internet of Things (IoT), artificial intelligence, and, above all, rapidly growing production efficiency.¹

From the point of view of value-based management, business owners are interested in which strategies create value and which do not. In this, they should be guided by business logic. Weissenrieder (1998) classifies investments into two groups: strategic and non-strategic investments. Strategic investments are those whose goal is to create new value for owners and which ensure company growth. According to Kaur & Kaur (2019), strategic investment decisions can be related to joint ventures, research and development, product and market diversification, new plant investment, new project investment, expansion investment and other capital expenditures. The authors' study has captured the effect of announcements of strategic investment decisions on market value of firm. On the other hand, non-strategic investments are those that maintain or preserve the value created by strategic investments. Strategic investments are followed by several non-strategic ones. A strategic investment can be an investment in tangible fixed assets, which is the subject of our research, or in intangible assets. It is irrelevant whether there is any investment expenditure or not. Everything that counts as a cash expense in the company is related to the creation of new value, which, according to Weissenrieder (1998), can be defined as a strategic investment.

This division of investments into two groups guided Weissenrieder (1998) in designing the measure of cash value added (CVA), which is much easier to calculate than economic value added (EVA). His CVA model is mentioned here only because it is closely related to strategic investments. With the CVA model, we can very well explain the meaning and role of strategic

¹ Despite many new technologies, the 4th industrial revolution is most marked by the growth of robots, with Asian economies being the most robotized. While South Korea leads the world with 631 robots per 10,000 employees, Slovenia ranks 16th with 137 robots per 10,000 employees (Prašnikar, Koman & Redek, 2018).

investments, as it refers to the specific outline of such investments. Strategic investments form the capital base of the CVA model, since the financial requirements of owners (the reward for their invested funds) come precisely from entrepreneurial (investment) projects, from strategic investment decisions, but by no means from investments in office space and similar equipment. This means that we have to treat all other investments that are supposed to maintain the new value created by the strategic investments as "costs" (Weissenrieder, 1998).

Let us see below how we define and calculate the so-called capital base for the CVA model, which is based on strategic investments. The operating cash flow demand is calculated for each strategic investment (i.e. the first factor out of the four that define value). The sum of the required cash flow of each strategic investment in a company is the capital base of that company. The required cash flow from operations (i.e. the second factor out of the four that define value) also represents the same amounts in real terms that are generated by strategic investments every year. Discounting them by the appropriate cost of capital (i.e. the fourth factor of the four that define value) yields a net present value of zero for each strategic investment over its lifetime (i.e. the third factor of the four that define value). The required cash flow from operations is a real annuity adjusted for actual annual inflation. If strategic investments are to create value, cash flow from operations, which is cash flow before strategic investments but after non-strategic investments, should satisfy the required cash flow needs. We cannot predict the required cash flow, which should essentially represent the future cash flow from operations. A strategic investment creates value if the cash flow from operations over a period of time is greater than the required cash flow from operations, which, according to Weissenrieder (1998), can be imagined as follows:

- + Net sales revenue
- Costs
- = Profit/Loss from operations
- +/- Change in working capital
- Non-strategic investments
- = Cash flow from operations
- Required cash flow from operations
- = Cash Value Added (CVA)

Unlike EVA, CVA is based solely on cash flow.

The dynamics of corporate investment

Modern literature in the field of investment activity gives significant weight to the dynamics of investing itself. While in one period of time companies may completely give up investing, in another they may approach the implementation of relatively large investment projects (Becker, Haltiwanger, Jarmin, Klinek & Dan, 2006). Depending on investment frequency, investment activity in companies takes place in two ways. First, investments in companies take place routinely, especially when it comes to, for example, the replacement of depreciated and economically obsolete equipment while

the company follows a normal business growth trend. Every viable company must generate enough cash flow from regular operations to replace worn-out equipment, to follow the long-term growth trend in the industry, and to finance routine investments (Im, Mayer & Sussman, 2017). The remaining cash flow should be sufficient to repay debt and provide a market risk-adjusted return for the owners.

Second, from time to time companies are faced with a larger comprehensive investment project (a lumpy, non-divisible investment project), such as the construction of a new production plant, the development and installation of a new production line, or the acquisition of another company. When it comes to capital adjustment in companies, quite a few studies (Caballero, Engel & Haltiwanger, 1997; Doms & Dunne, 1998; Barnet & Sakellaris, 1998; Letterie & Pfann, 2007) have revealed that companies adjust their production factors, such as capital, in a lumpy fashion.

A group of researchers (Grazzi, Jacoby & Treibich, 2013) has claimed that companies' decisions regarding large investment projects and their temporal dimension are related to managers' expectations of future business opportunities and investment cycles. In this regard, Gourrio & Kashyap (2007) demonstrate that most changes in aggregate investments can be explained by changes in the number of companies that are in the large-scale investment phase and have so-called investment spikes. Similar to macroeconomics, where we are interested in how to interpret changes in aggregate investments and how these changes affect economic growth, we would also like to have a good understanding of heterogeneous behavior at the micro level.

Evaluating the impact of investments at the corporate level has not been a common topic of research so far, primarily due to the lack of relevant data. Only in the last 20 years have some researchers begun to deal with the nature of the investment behavior of economic entities. One of the first among such experiments was conducted by Doms & Dunne (1998), who used data on American companies. Afterward, other researchers conducted similar studies in France (Duhautois & Jamet, 2001), Norway (Nilsen & Shantarelli, 2003; Nilsen, Raknerud, Rybalka & Skjerpen, 2009), and Sweden (Carlson & Laseen, 2005). Their common conclusion was the uneven or lumpy nature of business investments: there were years without investments or, conversely, investment maintenance was followed by years of extensive investments. Carlsson & Laseen (2005) showed that non-convex cost adjustment models offer a more appropriate explanation of investment decisions and reject those that assume a uniform pattern of capital accumulation. The aforementioned lumpy nature of investments at the corporate level can be explained in general as a consequence of investment irreversibility, which originates from the characteristic nature of the purchase of capital and the indivisibility of physical capital (Grazzi, Jacoby & Treibich, 2013).

In the literature, lumpy investment is defined as an investment-to-capital ratio that surpasses a certain threshold, called the investment spike, which is typically set at 20% (Cooper, Haltiwanger & Power, 1999). Nilsen et al.

(2009) define the relative threshold as the conditional expectation of the investment rate, multiplied by a fixed factor that reduces the relative threshold of large firms. The absolute threshold does not allow the threshold for the investment spike to be less than 20%.

Here it is necessary to take into account that such ratios above 20% are quite common among small companies and that the variance of the ratio between investment and capital decreases significantly with the size of the company. The threshold as an investment spike thus decreases as the size of the company increases.

Sometimes companies refuse to invest, while at other times they are caught up in a real wave of investment. Caballero (1999) argues that taking into account this lumpiness of investments is critical, as it has an impact on the formation of the dynamic behavior of aggregate investments. Gourio & Kashyap (2007) confirmed this thesis with their research on the case of American and Chilean companies. The waves of investment were called investment spikes. According to them, most of the changes in investment levels are due to changes in the investment of companies that had investment spikes. This can be explained by changes in the number of companies that made large investments (extensive limit), but not by changes in the average size of the investment spikes (intensive limit). The aforementioned authors found that the prevalence of investment spikes in a particular year makes it possible to predict aggregate investments in the following year. Years with a relatively greater number of investment spikes are followed by years with less investment (Gourio & Kashyap, 2007). In their research, the authors relied on the model proposed by Thomas (2002), which assumes that companies must pay a certain fixed cost to adjust their capital. However, this model does not foresee the dominant role of investment spikes and the extensive limit of investments. The average level of fixed costs is too low, as is the curvature of the profit function.

In theory, attempts have been made to define the investment spike in several ways (Power, 1994, 1998; Cooper et al., 1999; Nilsen et al., 2009). If the investment rate, which is measured by the ratio between total investments and total assets and the ratio between fixed investments and fixed capital, exceeds the absolute threshold, the investment is defined as an investment spike. The most commonly used threshold is, as already mentioned, 20% (Cooper, Haltiwanger & Power, 1999).

The financing of more demanding corporate investments

Based on a thorough review of the literature dealing with the financing of corporate investments, we have outlined certain theories and laws that apply in this area. In companies, the regime of financing their business changes over time, when financial resources become limited. That time presents an excellent opportunity for studying various financial patterns. Thus, under normal conditions, companies can maintain their capital adequacy when they invest a lot, take on heavy debt, and pay off said debt after the investment spike (Im, Mayer & Sussman, 2017).

Relatively large investment projects require diverse financial resources. If there are not enough internal resources in the company, the company must find external resources if it is to implement its investment. Grazzi et al. (2013) discern two possible methods related to the external financing of investments. First, the investment activity of a company must be limited if the company has financial constraints, which is also advocated by Schintarelli (1996), Andretsch & Elston (2002), and Whited (2006). This means that the investment desires of the company are very limited, or they simply do not exist due to poor or completely closed access to external financial resources. Second, to the extent that investment affects the growth of a company, financial constraints will preclude the possibility of taking advantage of growth opportunities.² In this case, limited access to external financial resources, resulting in insufficient investment, will limit the growth of the company. Oliveira & Fortunato (2006), Whited (2006), Angelini & Generale (2008), and Bottazzi, Secchi & Tamagni (2014) also prove this in their research.

The investment activity of companies is strongly influenced by the macroeconomic policy environment. According to Aktar, Abedin & Gupta (2021), monetary policy is one of the important macroeconomic variables that influence a company's investment decisions. In theory, it is well known that investment is one of the key channels of monetary transmission in a series of standard macro models. Nevertheless, there is still relatively little evidence on how monetary policy affects company investment and which types of companies are most likely to be most responsive to changes in monetary policy with different financial heterogeneities.

It has been found (Aktar, Abedin & Gupta, 2021) that both lower leveraged and higher cash holding companies tend to experience higher capital during a cash shock, implying that low leveraged and cash holding companies are more responsive to monetary policy shocks. Cash holdings play a more important role in explaining the different investment responses of companies to monetary policy shocks than leverage, strengthening the company's investments and increasing the efficiency level of the company's investments in times of contractionary monetary policy. This fact prompts the need to study the asset management and liquidity of companies in addition to their financing methods. Another important finding of the above-mentioned authors is that cash has a greater impact on the level of corporate investment than one period of leverage lag. In any case, the liquid assets of companies play a key role in their ability to finance investments, which should not be considered as a marginal source of financing at any time. Therefore, highly leveraged companies should pay more attention to monetary authorities.

The question of how a company should meet its extraordinary financial needs for unusually large investment opportunities has become the subject of study of many authors (DeAngelo, DeAngelo & Whited, 2011; Elsas, Flannery & Garfinkel, 2014). DeAngelo, DeAngelo & Whited advocate a

² In their paper, Rebernik et al. (2018) show the growth of entrepreneurial opportunities in Slovenia in 2017.

dynamic capital structure model, which means that companies can deliberately and temporarily move away from the permanent target leverage in the event that they temporarily take on debt to finance their investment spikes. The model of the mentioned authors better explains decisions related to borrowing and deleveraging than the static trade-off model and explains well the changes in financial leverage that accompany investment spikes. In their model, companies have a target leverage similar to the exchange model, and managers can make decisions from time to time that represent a departure from the target leverage. Such a strategy calls for the restoration of the financial balance by deleveraging with a certain delay, conditioned by the temporal dimension of investment opportunities and profit generation. Their model provides a plausible explanation of capital structure decision-making from several perspectives: first, it accounts for why companies often choose to move away from the target leverage, and second, it explains why empirical studies point to a slowness in re-establishing the target leverage. This can also be linked to financial flexibility (Bukvič, 2016).

We can conclude that the financing of investment spikes is quite different from the financing of routine investments. While retained earnings, viewed in aggregate, are by far the largest source of financing for corporate investment, they are not the primary form of financing spike investment. During investment spikes, external financing dominates, with debt as its largest source. The share of investments financed with long-term debt is much higher than the share of investments financed with equity capital. These findings are generalizable and consistent across industries. In contrast, there are noticeable differences in financial patterns over time and between companies. Investment spikes are more prevalent during economic booms than during recessions.³ Equity financing is more widespread in boom times than in times of stagnation and recession. The biggest differences are certainly between large and small companies. Investment spikes that include acquisitions (purchases of companies) are larger than those that involve only capital expenditures (capex) and are financed by companies predominantly with debt rather than with equity capital. This applies even to small companies, which, as already mentioned, use more equity than debt financing (Im, Mayer & Sussman, 2017).

RESEARCH METHODOLOGY

In the course of our research, we set the following research hypotheses:

H1: Strategic investments are the only ones that ensure the organic growth of companies.

H2: Companies' investment decisions and investment dynamics are related to expectations about future business (investment) opportunities and investment cycles.

³ The share of companies with investment spikes was noticeably lower immediately after the financial crisis of 2008–2009 (Im, Mayer & Sussman, 2017).

H3: There are relatively many companies that are unable to take advantage of business (investment) opportunities.

H4: Financial patterns during investment spikes differ from patterns outside of this period.

H5: External sources of financing, especially debt, are more important for financing business investments than equity financing, especially when investment expenditures are relatively high.

H6: There is a strong relationship between the type of creditworthiness of the company and the level of indebtedness of the company.

In the theoretical part of the study, we used the scientific method of description, as well as the scientific methods of classification, comparison, analysis, and synthesis.

In the empirical part of the study, we used statistical methods and processed the data using the SPSS statistical package. The data were captured at a single point in time (cross-sectional data). This method is suitable for the type of research whose goal is to find connections between specific phenomena or factors (Churchill, 1995). Since our purpose was also to check the connection and influences between investments and the efficiency and effectiveness of business operations, in this case a survey of data referring to the same point in time is more suitable than a survey of data collected sequentially over time (longitudinal data). Another important reason for this choice of research method was the fact that it had been used in the majority of research in the studied field, especially as concerns the influence of the dynamics and volume of investments on the performance of business operations, so the results of our study can be compared to a certain extent with the results of others.

The primary data were collected in the period January–April 2017 by means of the questionnaire being distributed to 1142 Slovenian large and medium-sized enterprises, sorted from A to J according to the Standard Classification of Activities (SKD) 2008, V2. The segmentation into large and medium-sized companies was based on the Slovenian Companies Act (Paragraph 55, ZGD-1-NPB14). In total, 293 questionnaires were completed (of which 91.14% were useable). Thus, we have received 267 valid questionnaires (respondent rate 23.40%). The sample consists of large companies (29.21%) and medium-sized companies (70.79%). Companies from all Slovenian statistical regions (12) were included in the sample.⁴ In terms of their legal and organizational status, the majority of the companies in the sample were limited liability companies (74.54 %) and stock companies (21.35 %). Almost 72% of the companies in the sample fall in the age span between 11 and 30 years, which means that the majority of the companies in our sample are mature from the perspective of their life cycle. The questionnaire was designed according to the relevant guidelines (Churchill, 1995; Fowler, 2002; Malhotra & Birks, 2007). The questionnaire consisted of two sections. The first section consisted of key questions inquiring about the opinions of respondents (mainly financial managers and

⁴ Deviations of the sample data from the total population of Slovenian companies were negligible, which was verified by the Mann-Whitney U Test and the Related-Samples Willcoxon Signed Ranked Test.

CEOs) about investment ability and its impact on business performance, about financial flexibility and how they perceive it, about investment dynamics and investment financing, and about the HR capabilities in their companies. These questions were used to measure the indicators representing the constructs in our research model. The second section of the questionnaire gathered general data on the respondents, such as their position in the company, age, etc., as well as on their companies, for example the company's year of incorporation, size, average number of employees, technical staff, etc. The first draft of the questionnaire was pilot tested on a convenience sample of 20 financial managers and CEOs. The final version was designed with minor amendments.

The financial data of the companies who sent back the questionnaires were acquired for the period 2010–2017 from the GVIN database, generated from the annual reports of the companies.

The research refers to the period from 2010 to 2017 inclusive, and to a lesser extent to the longer period from 2000 to 2017 inclusive (for a comparison between the increase in tangible fixed assets and select financial categories). The data is covered on an annual basis for each individual year during this period.

At this point, we should mention the limitations we encountered in our research, which relate mainly to the empirical part of the study. The first limitation is the size of our sample, since we looked only at Slovenian companies. If the study had been set internationally, it would have included a larger number of larger companies, where the influence of strategic investments is more pronounced. The relevant literature led us to assume the direction of causality in our conceptual model (the economic effects of investments and their impact on the business performance of companies). Our research is based on cross-sectional data, which prevented us from determining causality. The direction of causality could only be determined through a longitudinal study, which represents one of the opportunities for further research. The next limitation relates to the size of our companies, which are relatively small compared to foreign competitors. That is why the average size of their investments, their investment spikes, is smaller compared to foreign companies. This applies to an even greater degree to medium-sized companies, which were also included in our research sample. The third limitation is related to the possible influence of subjectivity, since as a rule only one person responded to the questionnaire (usually a financial officer, in individual cases also a company director or other managerial staff).

FINDINGS RELATING TO FINANCING OF INVESTMENT ACTIVITY FOR SLOVENIAN COMPANIES IN THE PERIOD 2010-2017

Financing of investments by Slovenian companies before and after the last financial crisis and recession

The first decade of this century, with the exception of its last couple of years, was a period of economic growth, which was greater and faster in South-

East Europe, including Slovenia, than in Central Europe. This growth was based on large investments, which companies financed mainly through borrowing (Hunya, 2009). In the period before the last financial crisis and economic recession, Slovenian companies mainly financed their growth and larger investments in tangible fixed assets with borrowed resources, which culminated in high financial leverage and completely destroyed the ratio between net financial debt and the EBITDA required by the banks (2.5). This was the reason why during the aforementioned crisis investments stopped and companies were forced to deleverage afterward.

In the period before the last global financial and economic crisis, the relatively large supply of loan funds with low prices and long maturities drove credit growth directly and especially through banks, so it exceeded 30% annually in 2007 (Bradeško, 2016). The companies directed the borrowed funds to their core business, the expansion of production abroad, and to various takeover activities and real estate projects (Prašnikar, Domadenik & Koman, 2015).

After the global crisis, a discussion began in the academic sphere about how to stimulate economic growth and economic recovery. In the context of our research, this question is somewhat relevant, as it deals with the dynamics of investing in the period after the global crisis, from 2010 onwards. Considering that the crisis started in the financial sector and hit it very hard, one would expect (conventional assumption) that the rehabilitation of the financial sector would be a condition for the rehabilitation of the corporate sector. Although such an assumption seems reasonable, and many researchers around the world have examined it, the recovery of the real sector started before the recovery of the financial sector (Calvo, Izquierdo & Talvi, 2006; Claessens, Kose & Terrones, 2009; Abiad, Dell'Ariccia & Li, 2011). According to Calvo et al. (2006), declines in GDP are associated with sharp declines in the liquidity of a country's financial sector. These creditless recoveries were called the "phoenix miracle." The point is that while credit goes down along with revenue, revenue goes up without credit going up as well. The recovery of the corporate sector should accordingly take place without a renewed increase in credit, i.e. without renewed borrowing.

Based on a survey of CFOs, Campello, Graham, Giambona & Harvey (2011) found that credit lines are an important source of financing current operations in times of crisis, and that companies look for substitutes among credit lines and the internal resources of the company when there is a lack of credit. They found that when companies have limited access to credit lines during a crisis, they make a choice between saving and investing, but still want access to credit lines. Companies that have more financial resources also invest more. Almeida, Campello & Hackbarth (2011) found that companies that had a large proportion of their long-term loans due right at the time of the crisis recorded a significant drop in their investments, i.e. they invested much less.

To sum up, after the financial crisis, companies were expected to recover before the financial sector, i.e. independently of the recovery of banks and other financial institutions, which is called the phoenix miracle according to Calvo et al. (2006). However, in their investigation of different corporate

recovery patterns in both developed and developing markets, a group of researchers led by Ayyagari (2001) found that only a small proportion of companies (less than 31%) followed this pattern. Most companies continued their investments and had a positive cash flow from operations.

Based on a study by Bradeško (2016), our sample companies are among those characterized by the phoenix miracle phenomenon. In his research, the author covered the period from 2013 to 2015, i.e. the period after the last major financial crisis and recession, in which a pattern of creditless economic growth can be observed. Aggregate non-credit growth was generated by less than half of the companies that increased turnover and added value when credit was shrinking. The decomposition of cash flows shows that companies mostly deleveraged by reducing short-term bank loans, and the source of deleveraging was the growing positive cash flow from operations. All other items of the cash flow were negative, so that despite the reduction of debt to banks, companies still invested in net fixed assets (even to an increased extent), made financial investments, paid out net payments to owners, reduced their debts to other companies, and increased the balance of money on their accounts (Bradeško, 2016, p. 74). We will return to this question in the empirical part of this study.

The creditworthiness of companies and their indebtedness as an important factor of investment ability

A company's credit rating is crucial for its investment activity and investment ability. This is particularly important from the point of view of obtaining foreign sources of financing, especially bank credits. This particular segment of the empirical part of the study is sensibly linked to its previously published theoretical part (Bukvič, 2023), in which, within the framework of internal and external factors that influence a company's investment ability, we described in detail the role of financial constraints in defining investments and presented the connection between the company's net worth and capital (Hubbard, 1998). It is also linked to the theoretical part (Bukvič, 2023) that describes the effects on the investment ability of companies caused by restrictions on various types of capital, where we presented in detail the credit model developed by Holmstrom & Tirole (1997). Finally, it refers to the previously elaborated theoretical consideration (Bukvič, 2023) where, in the context of the financing of business investments, we learned about two possible methods related to the external financing of investments (Grazzi, Jacoby & Treibich, 2013), i.e. the limitation of investment activity due to financial constraints of the company and financial constraints to a certain extent excluding the possibility of taking advantage of growth opportunities. According to Fazzari, Hubbard & Petersen (1988), Kaplan & Zingales (1997), Dasgupta, Noet & Wang (2011), Gatchev, Pulvin & Tarhan (2010), Ostergaard, Sasson & Sørensen (2011), and Drobetz, Haller, Meier & Tarhan (2014), limitations arise from market irregularities, especially information asymmetry and improper choice, which depend on the creditworthiness of the company. It is precisely because of these limitations that companies cannot hire external financial sources to finance investments

that would be justified from the point of view of net present value. Therefore, they can finance investments only with their own resources. The volatility of own funds is therefore reflected in the volatility of investments, and the elasticity of investments with regard to cash flow from operations increases. On the other hand, good companies are not limited in terms of financing, their investments are independent of short-term fluctuations in business performance, and the relevant elasticity is zero or very low (Bradeško, 2016). According to Bradeško (2016), the analysis of responses to the cash flow impulse from operations does not support his hypothesis of the existence of a credit constraint, i.e. that banks and other financiers will systematically avoid solvent companies with slightly worse credit ratings. The responsiveness of investments as a measure of restrictions decreases monotonously with increasing indebtedness. Fazzari et al. (1988), however, predicted the opposite. When cash flow from operations improves, companies with limited access to financing and good investment opportunities spend it on investments.

In addition to the qualitative data (classification into credit ratings), which are shown for the last year of the studied period (2017) on the basis of the surveyed companies (their financial officers) in Table 1, we followed the example of some other authors (Bradeško, 2016), using, as an approximation of the credit rating for the same companies, the ratio between NFD/EBITDA (NFD meaning "net financial debt"), calculated on the basis of data obtained from the AJPES database for all years in the studied period. We did not use other criteria for the credit rating of companies, such as the amount of dividends paid out, as these criteria are rougher, less universal, or simply not available. The NFD/EBITDA indicator reflects a company's current ability to generate cash flow to repay debts well, which was also confirmed by other authors who used it (Bradeško, 2016). The indicator is not least suitable for the behavior of investors in cases of takeovers, especially during crisis periods. Bradeško (2016) warns that due to the weak theoretical basis and some other reasons, the results of his model should be interpreted with caution. Companies in crisis lowered their borrowing levels for their own reasons. We cannot overlook the consequences of pressure from buyers and suppliers, which increased the risk of insolvency of business partners. In such a situation, the greater part of the cash flow is dedicated to reducing indebtedness. As a result, the sensitivity of investments to cash flow from operations is lower than is usually the case. In Table 1, we provide the credit ratings of the companies in the research sample.

Table 1: Credit ratings of companies in the sample

| Creditworthiness | Count | % |
|---|-------|-------|
| Class A: companies for which the banks do not anticipate problems with paying their obligations | 215 | 80,52 |
| Class B: companies that have a temporarily weak financial situation, but do not show that it will significantly deteriorate in the future and do not repeatedly pay their obligations late | 40 | 14,98 |
| Class C: companies that do not have sufficient long-term sources of funds to finance investments and from whom the bank does not receive | 6 | 2,25 |

| | | |
|--|------------|------------|
| ongoing satisfactory information or appropriate documentation regarding borrowing | | |
| Class E: companies judged to be insolvent; with this, they determine their “expected” solvency, and based on this assessment, they manage their credit policy | 2 | 0,75 |
| Unknown | 4 | 1,50 |
| Total | 267 | 100 |

At this point, talking about the indebtedness of companies, we should highlight another aspect of the issue: the problem of indebted companies with late payments. Prašnikar, Pahor & Cirman (2014) concluded that those Slovenian companies that are in greater debt are also more likely to be late with their payments. Commercial banks that monitor the operations of their clients pay particular attention to those companies that have been late in repaying their debts in the past. Thus, they lowered their credit rating and restricted them from further borrowing (Prašnikar, Bole, Ahčan & Koman, 2003). As a result, companies that have a lack of financial resources and are relatively deep in debt try to solve their liquidity problems also by postponing payments to their suppliers. Thus, in addition to high financial obligations, they also have high obligations from operations.

In order to investigate in greater detail, on a selected sample of large and medium-sized companies, how the NFD/EBITDA ratio is reflected in a company's ability to generate cash flow for debt repayment, and at the same time indirectly indicates the company's investment ability, we divided all the companies in the sample into three segments according to indebtedness. For the period from 2013 to 2015, Bradeško (2016) found that the share of cash flow that companies used for deleveraging increased with the level of indebtedness. To a lesser extent, the share retained by the companies in monetary form also decreased at the same time. Into the first segment, we classified companies with an NFD/EBITDA ratio less than or equal to 2 (≤ 2). There were 109 (40.8%) such companies at the beginning of the studied period (2010), and 164 (61.4%) at the end of the studied period (2017). These companies were able to repay their financial debts within two years, so banks and other financiers were ready to grant them new loans. In fact, we also included in the first segment all those companies that were net creditors, with a negative net debt. These are companies whose balance of cash and cash equivalents on the balance sheet date exceeded the balance of financial liabilities. There were 42 (15.7%) such companies in 2010, and 77 (28.8%) in 2017. Into the second segment, we classified companies with a debt of 2 to 5 times the EBITDA; there were 72 (27.0%) such companies in 2010, and 65 (24.3%) in 2017. The third segment included heavily indebted companies with an NFD/EBITDA ratio greater than 5. There were 71 (26.6%) such companies in 2010, and 37 (13.9%) in 2017. We excluded from the analysis those companies that had a negative EBITDA, meaning companies with a negative cash flow from operations. In our sample, there were 13 (4.9%) such companies in 2010, and 6 (2.2%) in 2017.

For the last year of the studied period (2017), we also performed a chi-square test. For this purpose, we created two categories for each variable:

for creditworthiness “good creditworthiness” and “bad creditworthiness,” and for indebtedness “adequate indebtedness” and “inadequate indebtedness.” The results are shown in Table 2.

Pearson’s chi-square test, χ^2 , checks if there is a relationship between two categorical variables, in our case between the type of creditworthiness of the company and the company’s level of indebtedness. With the crosstabs process, we get a contingency table of the results of the chi-square test and its characteristic, the significance value. Pearson’s chi-square test checks whether the two studied variables are independent. If the significance value is small enough (conventionally less than 0.05), the hypothesis that the two variables are independent is rejected and confidence in the hypothesis that the studied variables are related in some way is gained (Field, 2013). The value of the chi-square statistic is given in Table 2 along with the degrees of freedom and the significance value. The value of the chi-square statistic is 42.341, which is within the rounding error. This value is highly significant ($p < 0.001$), indicating that the type of credit rating of a company has a significant effect on whether a company’s leverage is adequate or not, or, vice versa, indicating that a company’s level of leverage has a significant effect on whether the credit rating is good or bad.

The highly characteristic result shows that there is a relationship between the type of credit rating and the level of leverage, regardless of whether the latter is adequate or inadequate. In other words, there is a significant difference in the response pattern (i.e. the proportion of companies with good credit versus the proportion of companies with poor credit) in the case of two levels of indebtedness. On the example of the z-test, we saw that companies with a good credit rating are significantly less indebted, whereas companies with a bad credit rating are significantly more indebted. This important finding can be expressed in percentage terms as follows: more than 60% of companies with good credit ratings (A and B) are adequately leveraged and more than 85% of companies with bad credit ratings (C, D, and E) are inadequately leveraged.

Table 2: The relationship between a company’s creditworthiness and its indebtedness, measured by the NFD/EBITDA ratio

| |
|--|
| Contingency table for the relationship Creditworthiness * Indebtedness |
|--|

| | | | Indebtedness | | Total |
|---|---------------------|---------------------------|-----------------------------------|------------------------------|------------------------------|
| | | | Inadequate | Adequate | |
| Creditworthiness | Good | Count | 68 _a | 149 _b | 217 |
| | | Expected Count | 87.3 | 129.7 | 217.0 |
| | | % within Creditworthiness | 31.3% | 68.7% | 100.0% |
| | | % within Indebtedness | 64.8% | 95.5% | 83.1% |
| | | % of total | 26.1% | 57.1% | 83.1% |
| | | Standardized Residual | -2.1 | 1.7 | |
| | Bad | Count | 37 _a | 7 _b | 44 |
| | | Expected Count | 17.7 | 26.3 | 44.0 |
| | | % within Creditworthiness | 84.1% | 15.9% | 100.0% |
| | | % within Indebtedness | 35.2% | 4.5% | 16.9% |
| | | % of total | 14.2% | 2.7% | 16.9% |
| | | Standardized Residual | 4.6 | -3.8 | |
| Total | | Count | 105 | 156 | 261 |
| | | Expected Count | 105.0 | 156.0 | 261.0 |
| | | % within Creditworthiness | 40.2% | 59.8% | 100.0% |
| | | % within Indebtedness | 100.0% | 100.0% | 100.0% |
| | | % of total | 40.2% | 59.8% | 100.0% |
| Each subscript letter denotes a subset of the Indebtedness categories whose column proportions do not differ significantly from each other at the p = 0.05 level. | | | | | |
| Chi-square Tests | | | | | |
| | Value | df | Asymptotic significance (2-sided) | Exact significance (2-sided) | Exact significance (1-sided) |
| Pearson's Chi-Square | 42.341 ^a | 1 | .000 | .000 | .000 |
| Continuity Correction ^b | 40.175 | 1 | .000 | | |
| Likelihood Ratio | 43.388 | 1 | .000 | .000 | .000 |
| Fisher's Exact Test | | | | .000 | .000 |
| N of Valid Cases | 261 | | | | |
| a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 17.70. | | | | | |
| b. Computed only for a 2x2 table. | | | | | |

We can conclude that the level of indebtedness of a company has a significant impact on its creditworthiness: the creditworthiness of a company is good if the company is adequately (i.e. less) indebted. We calculated the correlation between these two types of data, which are shown in Table 3.

Table 3: Number of companies in terms of creditworthiness and indebtedness measured

| <i>NFD/EBITDA</i> | <i>Creditworthiness</i> | | | | | |
|-------------------|-------------------------|-----------|----------|----------|----------------|--------------|
| | <i>A</i> | <i>B</i> | <i>C</i> | <i>E</i> | <i>Unknown</i> | <i>Total</i> |
| ≤ 2 | 151 | 10 | 1 | | 2 | 164 |
| > 2 and ≤ 5 | 47 | 13 | 2 | 2 | 1 | 65 |
| > 5 | 16 | 17 | 3 | | 1 | 37 |
| n/a | 1 | | | | | 1 |
| Total | 215 | 40 | 6 | 2 | 4 | 267 |

Source: AJPES database for 2017.

For example, it can be seen from Table 3 that in 2017 there were 151 companies to which the surveyed financial officers in the companies assigned a credit rating of A (indicating that this is how their parent banks should treat them), and according to AJPES data these companies had a calculated NFD/EBITDA ratio less than or equal to 2. Such a result is logical. It is also logical that a company with an E rating is placed in the class with the highest NFD/EBITDA ratio, so it is highly indebted. However, it is not logical, for example, that 16 companies have a credit rating of A and are at the same time highly indebted, or that a company has a credit rating of C while featuring in the first class, with a low level of indebtedness. For four companies in the returned survey questionnaires, it was not indicated what kind of credit rating they have with their parent bank.

We calculated the rank correlation, or Spearman's correlation coefficient, r . We assigned the appropriate rank to both types of data, rating A as the highest rank, i.e. 5, and E as the lowest, i.e. 1. To the least indebted companies, i.e. companies with an NFD/EBITDA ratio of less than 2, we assigned rank 3, to medium-indebted companies rank 2, and to the most indebted companies rank 1. The results are shown in Table 4.

Table 4 shows that the correlation coefficient between the studied variables, i.e. the creditworthiness of the company and the ratio between NFD and EBITDA, is $r = 0.437$. Under the correlation coefficient, the significance value of the correlation and the sample size ($N = 261$) are written. As mentioned, 6 companies were excluded from the sample population because they had negative EBITDA. The significance of the correlation value is less than 0.001 (as indicated by the double asterisk after the correlation coefficient). This significance of the value indicates that the probability of obtaining such a large correlation coefficient in the sample of 261 companies, if the null hypothesis (that there is no relationship between these two variables) were valid, is very small, in fact very close to zero. All significance values are below the standard criterion of 0.05, indicating a

“statistically significant” relationship between the variables. Given the lack of normality in some variables, we should be more concerned about the bootstrapping method or confidence intervals than the significance itself (Field, 2013). This is because this interval will not be affected by the distribution of scores, while only the significance of the value can be. The confidence interval is marked in Table 4 with “BCa 95% Confidence Interval” and two values are given for it: the lower and upper limits, i.e. 0.332 and 0.539.

Let us highlight two important points. First, since the confidence limits are derived empirically from a random sampling procedure (or bootstrapping), the results will differ very little when we repeat the analysis. Therefore, the confidence limits will not always be the same, which is normal (Field, 2013). Second, let us consider what it means if the correlation between the studied variables is zero, i.e. if there is no effect. A confidence interval is the range within which the population value lies (within 95% of the samples). If this interval exceeds zero, it means that the population value could be zero, i.e. without any effect. If the interval exceeds zero, it furthermore means that the population value could be a negative number (a negative relationship between the variables) or a positive number (a positive relationship between the variables), making it impossible to say whether the actual relationship between the variables proceeds in one direction or a completely different one. In our case, the confidence interval for the correlation coefficient does not exceed zero, so we can trust (be sure) that there is a true, real effect in the population. This means that if the company has a high credit rating, say A or at least B, it is not heavily indebted, or the ratio between NFD and EBITDA is low. Note that we assigned a rank to both variables: both a high credit rating and a low ratio between NFD and EBITDA received high ranks. Both types of rank values are increasing, so the correlation coefficient is positive, which means that an increase in creditworthiness often occurs simultaneously with a decrease in the NFD/EBITDA ratio and vice versa.

Table 4: Calculation of rank correlation, or Spearman’s correlation coefficient, for two variables of the company’s creditworthiness and the *NFD/EBITDA ratio*

Correlations

| | | | | | Creditworthi ness | NFD/EBI DTA |
|---|------------------------|-------------------------|-----------------------------|-------|----------------------|----------------|
| Spearman's rho | Creditworthiness | Correlation Coefficient | | | 1.000 | 0.437** |
| | | Sig. (2-tailed) | | | . | 0.000 |
| | | N | | | 261 | 261 |
| | | Bootstrap ^b | Bias | | .000 | .000 |
| | | | Std. Error | | .000 | .055 |
| | | | BCa 95% Confidence interval | Lower | 1.000 | .055 |
| | | | | Upper | 1.000 | .539 |
| | | NFD/EBITDA | Correlation Coefficient | | | .437** |
| | Sig. (2-tailed) | | | .000 | | |
| | N | | | 261 | 261 | |
| | Bootstrap ^b | | Bias | | .000 | 0.000 |
| | | | Std. Error | | .055 | 0.000 |
| | | | BCa 95% Confidence interval | Lower | .332 | 1.000 |
| | | Upper | | .539 | 1.000 | |
| **. Correlation is significant at the p = 0.01 level (2-tailed). | | | | | | |
| b. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples. | | | | | | |

In the empirical part of the study, we also took into account the longitudinal aspect, since for some indicators we were interested in how the NFD/EBITDA ratio changed in the eight-year period under study and whether anything improved. Unfortunately, we did not have the credit ratings for these companies at our disposal, as we obtained data for the last year of the studied period on the basis of a survey questionnaire. Table 5 shows the distribution of companies in the sample according to their indebtedness, measured by the NFD/EBITDA ratio, at the beginning and end of the studied period.

Table 5: Distribution of companies by indebtedness at the beginning and end of the studied period 2010–2017

| Value of indicator NFD/EBITDA | 2010 | | 2017 | | Index |
|--|------------|------------|------------|------------|------------|
| | Count | % | Count | % | 2017/2010 |
| ≤ 2 | 109 | 40.82 | 164 | 61.42 | 150 |
| of which net creditors (< 0) | 42 | 38.53 | 77 | 46.95 | 183 |
| > 2 and ≤ 5 | 72 | 26.97 | 65 | 24.34 | 90 |
| >5 | 71 | 26.59 | 37 | 13.86 | 52 |
| n/a | 15 | 5.62 | 1 | 0.37 | 7 |
| Total | 267 | 100 | 267 | 100 | |
| Average value NFD/EBITDA | 7 | | 1.92 | | 3.65-times |
| Weighted average value NFD/EBITDA ⁵ | 1.94 | | 1.2 | | 1.62-times |

Source: AJPES database for the period 2010 to 2017.

DISCUSSION RELATING TO THE ANALYSIS OF THE INVESTMENT ACTIVITY OF SLOVENIAN COMPANIES IN THE STUDIED PERIOD 2010-2017

In the following, we summarize some of the key findings from the extensive empirical research we conducted regarding the investment activity of Slovenian companies in the period 2010–2017.

Utilization of business/investment opportunities

Table 6 shows how companies took advantage of those business opportunities on the market that required certain investments.

Table 6: Utilization of business opportunities in the market related to investments

| Utilization | Large | | Medium-sized | | Total | |
|--------------|-----------|------------|--------------|------------|------------|------------|
| | Count | % | Count | % | Count | % |
| Partly | 37 | 47.44 | 102 | 53.96 | 139 | 52.06 |
| Fully | 39 | 50.00 | 82 | 43.39 | 121 | 45.32 |
| No | 2 | 2.56 | 4 | 2.12 | 6 | 2.25 |
| Unknown | | | 1 | 0.53 | 1 | 0.37 |
| Total | 78 | 100 | 189 | 100 | 267 | 100 |

Table 7 shows the reasons why companies did not take advantage or only partially took advantage of those business opportunities on the market that required certain investments.

Covering an eight-year period, the present research also examines the last two years of the great financial and economic crisis, i.e. 2010 and 2011. Therefore, it is understandable that almost 15% of the sample companies responded that their company was forced to deleverage primarily due to borrowed credits in the past, which meant that the companies did not use or

⁵ As weights, we took into account the shares of net sales revenue for an individual company in the sum of the total sales of sample companies, specifically for the years 2010 and 2017.

only partially used those business opportunities on the market that required certain investments.

Table 7: Reasons for lost business opportunities in the market related to investments

| Reason | Count | % |
|---|------------|------------|
| Our company did not have enough of its own financial resources for the necessary investments. | 72 | 22.72 |
| Our company was forced to pay off debt primarily due to loans taken out in the past. | 47 | 14.84 |
| The investments were too demanding in terms of value. | 27 | 8.52 |
| No strategic guidelines were adopted for the necessary investments (the investments were not part of the strategic plan of our company). | 26 | 8.2 |
| Our company was unable to obtain debt (borrowed financial resources) for the necessary investments. | 26 | 8.2 |
| The owners (via the supervisory board) did not approve the investment programs or business plans. | 20 | 6.31 |
| In our company, we were not yet ready to realize the necessary investments (in the sense of preparing the necessary project documentation and obtaining the relevant permits and consents). | 17 | 5.36 |
| Other. | 17 | 5.36 |
| During this time, there were major organizational changes in our company. | 15 | 4.73 |
| Our company did not have enough personnel (lack of qualified physical labour). | 12 | 3.79 |
| Our company did not have enough human resources (lack of technical knowledge). | 10 | 3.15 |
| Our company failed to acquire new customers for products/services from newly planned investments. | 10 | 3.15 |
| Our company failed to get new orders from existing customers. | 8 | 2.52 |
| The investments were too demanding from the technological point of view. | 8 | 2.52 |
| Our company has been overtaken by the competition in terms of investments. | 2 | 0.63 |
| Total | 317 | 100 |

Almost 23% of the companies included in the sample answered that their company did not have enough of its own financial resources for the necessary investments, and more than 8% of the companies said that their companies failed to obtain debt (borrowed financial resources) for the necessary investments. As a result, it can be concluded that during this period a certain number of companies did not take on new debt for new investments, because they already had too much financial leverage, i.e. an inadequate capital structure, or they could not get new loans due to the credit crunch.

More than 45% of the sample companies answered that during the studied eight-year period they fully utilized those business opportunities on the market that required certain investments, which means that these companies mainly increased the volume of their operations during this period, that is, if we exclude those that only made investments in order to modernize their production process (automation). This post-crisis period was, as mentioned, a credit crunch period that lasted quite a few years. Therefore, we can talk about credit-free economic growth, which was typical

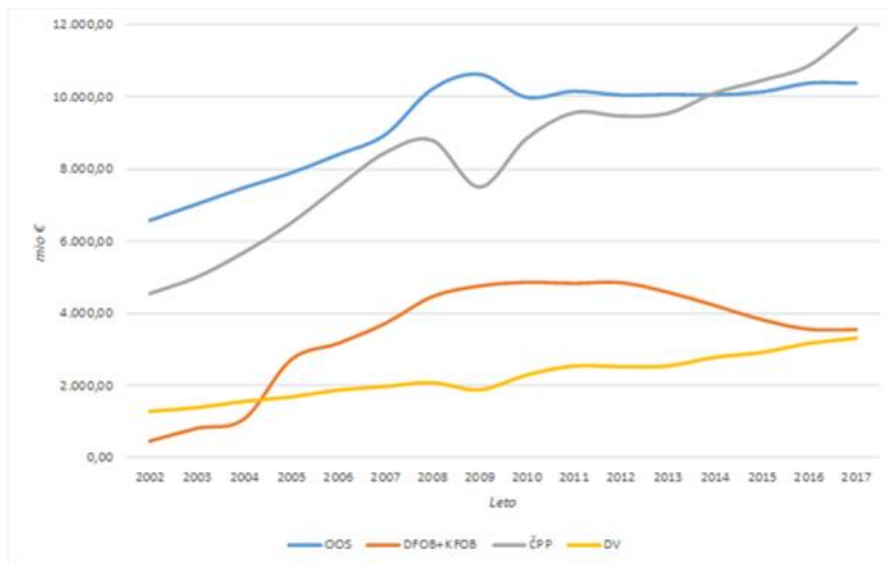
of Slovenia in the period from 2013 to the end of 2015 (Bradeško, 2016). Credit-free growth is only a special (marginal) form of reducing financial leverage. This reduction continued even later, after the revival of credit growth. Indeed, there are episodes when the economy recovered after the crisis without a simultaneous or prior recovery of credit growth. This phenomenon was observed in cases of crisis exits by Calvo, Izquierdo & Talvi (2006). The emergence of these crises was associated with the sudden stoppage of the inflow of capital to developing countries, but later these same authors and others (Claessens, Kose & Terrones, 2009) found similar patterns also in exits from crises that had a different genesis, even in developed countries. This phenomenon of creditless growth is known as the “phoenix miracle.”

According to Bradeško (2016), the current quarterly rates of economic growth turned positive at the beginning of 2013, while the annual rates turned positive at the end of 2013 and then increased further in 2014. The dynamics remained similar throughout 2015. Later, we can already talk about a full economic recovery. Solid economic growth took place right after the crisis at the same time as the credit of domestic banks was shrinking. According to Bradeško (2016), the economic recovery of Slovenia up to and including 2015 corresponds to a pattern of creditless growth or recovery, which can be account for by: (a) the re-allocation of production factors to sectors with lower requirements for external financing, (b) the increase in alternative sources of financing, (c) improved cash flow from business operations, and (d) the reduction of investments and assets sales. Alternative sources of financing include securities, long-term financial leasing, the sale of receivables (recourse factoring), and borrowing from foreign banks.

We checked whether creditless recovery also applies to our sample companies after the great financial crisis. Figure 2 shows that from the beginning of the previous decade until the great crisis of 2009, investments in tangible fixed assets increased in parallel with bank loans. This means that bank credits were a generator and accelerator of investment growth.⁶ After the great financial crisis and recession, investments in the vast majority of companies in our sample stagnated (investment took place in the scope of depreciation, i.e. with so-called replacement investments in tangible fixed assets), but picked up again after 2014, while bank loans visibly decreased until 2016. The recovery of the companies in our sample was accompanied by a decrease or negative growth of bank loans. Based on the aggregate data shown, we cannot conclude that the phoenix miracle applies to the companies in our sample, since it would be necessary to take into account and analyze the data at the micro level, which can be the subject of further research.

⁶ In the statistical software tool SPSS 24, we calculated the linear regression between investments as a dependent variable and bank loans as an independent variable. The R^2 value is 0.842, which means that bank loans can explain as much as 84.2% of the variation in investments. The F statistics for this data is 74.49, which is statistically significant at $p < 0.001$.

Figure 1: Increase in tangible fixed assets, net sales revenue, and value added versus the decrease in financial liabilities (bank loans) after the last recession



Legend:

OOS - tangible fixed assets

DFOB + KFOB – long-term and short-term financial liabilities

ČPP – net sales revenue

DV – Added value

Dynamics of investing

Table 8 shows the dynamics with which companies realized larger and more financially demanding investments during the studied period.

Table 8: Investment dynamics of Slovenian large and medium-sized companies in the period 2010–2017

| Dynamics of investing | Medium-sized | | Large | | Total | |
|--|--------------|-------|-------|-------|-------|-------|
| | Count | % | Count | % | Count | % |
| Equally, in approximately the same amount every year | 98 | 51.85 | 42 | 53.84 | 140 | 52.44 |
| Concentrated, with an investment spike in one or two years at the end of the eight-year period | 49 | 25.93 | 16 | 20.51 | 65 | 24.34 |
| Concentrated, with an investment spike in one or two years in the middle of the eight-year period | 18 | 9.52 | 9 | 11.54 | 27 | 10.11 |
| Concentrated, with an investment spike in one or two years at the beginning of the eight-year period | 21 | 11.11 | 8 | 10.26 | 29 | 10.86 |
| Unknown | 3 | 1.59 | 3 | 3.85 | 6 | 2.25 |

| | | | | | | |
|--------------|------------|------------|-----------|------------|------------|------------|
| Total | 189 | 100 | 78 | 100 | 267 | 100 |
|--------------|------------|------------|-----------|------------|------------|------------|

More than half of the surveyed companies invested steadily during the studied eight-year period, i.e. without major investment spikes. This finding applies more or less to both large and medium-sized companies. About a quarter of all companies included in the research sample invested in a concentrated fashion, with an investment spike in one or two years at the end of the eight-year period. Investment activity was somewhat more pronounced in medium-sized companies. This can also be explained by the fact that in the first years after the crisis, those companies that were in above average debt allocated their accumulation created on the fly for debt relief and less for investing in tangible fixed assets. In this case, we can once again refer to the financial accelerator and support the facts given above with findings from the already mentioned study by Bole, Oblak, Prašnikar & Trobec (2017), who build on the realistic assumption that the size of the financial accelerator changes not only in different phases of the business cycle (boom, crisis, and revival of economic growth), but also in different types of investments (i.e. investments in the real sector), across different industries and regions, and in terms of the solvency of economic entities.

In addition to data from the survey questionnaire, we tried to obtain data from the AJPES database on the book (current) value of tangible fixed assets for each year in the studied period 2010–2017 for the companies in our sample, and on this basis determine, first, whether their book value increased or decreased in these eight years, second, what was the average growth rate of this increase or decrease, and third, with what dynamics the book value changed, i.e. either uniformly or in a concentrated manner at the beginning, end, or middle of the studied period.

Table 9 shows the number and structure of companies that increased or decreased the book (current) value of their tangible fixed assets (2017/2010). We also show the average growth of their increase or decrease, calculated as the weighted geometric mean of the chain indices by individual years for each company and also for all companies in the sample taken together.

Table 9 shows, among other things, that 150 companies (a little less than three fifths of all companies) in our research sample had a positive investment growth (16%) in the studied eight-year period, and that 105 companies (two fifths) had a negative investment growth in the same period (–8%).

Table 9: Number and structure of companies according to the movement of the book (current) value of tangible fixed assets in the studied period 2010–2017

| Movement (trend) | Count | % |
|---|--------------|------------|
| Increase of the book value of tangible fixed assets | 157 | 58.81 |
| Decrease of the book value of tangible fixed assets | 107 | 4.07 |
| Unchanged book value of tangible fixed assets | 3 | 1.12 |
| Total | 267 | 100 |

| | | |
|--|------------|------------|
| Positive growth | 150 | 56.18 |
| Negative growth | 105 | 39.33 |
| Zero growth | 12 | 4.49 |
| Total | 267 | 100 |
| Average rate of increase in the book value of tangible fixed assets | 16% | |
| Average rate of decrease in the book value of tangible fixed assets | 8% | |
| Average investment growth rate for all companies in the survey sample | 6% | |

Slightly less than 5% of the companies in the research sample had zero investment growth during the studied period. In the period 2010–2017, the average annual growth rate of investment in tangible fixed assets for all companies in the research sample was 6%. This means that almost three fifths of the companies invested more rather than wrote off the value of their tangible fixed assets during this period. Of course, the increase in the book (present) value of tangible fixed assets could also be influenced by the revaluation of these assets. We did not take this factor into account in our research, as we did not have the relevant data at our disposal, which means that the calculations may not be completely accurate. However, given the fact that the eight-year period under study was subject to a low inflation rate, and even deflation in the last years of said period, we assume that companies predominantly did not revalue their tangible fixed assets during this period and that this error is therefore negligible in the scope of the analysis.

CONCLUSIONS AND IMPLICATIONS

Based on a thorough review of the literature on the topic of investment activity of large and medium-sized companies in the real (non-financial) sector of the economy and on the basis of empirical research, which included a relatively large and very representative sample of Slovenian companies, we can fully accept the research hypotheses set out in the introduction to this paper. Let us look at them again and provide arguments in favor of their confirmation.

H1: Strategic investments are the only ones that ensure the organic growth of companies.

It is an undeniable fact that only strategic investments, meaning investments in long-term assets whose goal is to create new value for the owners, are the only ones that ensure the organic growth of companies. From the point of view of value-based management, business owners are interested in which strategies create value and which do not.

H2: Companies' investment decisions and investment dynamics are related to expectations about future business (investment) opportunities and investment cycles.

Exploitation of business (investment) opportunities is one of the key variables of investment ability according to resource-based theory. Therefore, the investment decisions of companies and the dynamics of their

investments are strongly related to expectations about future business (investment) opportunities and investment cycles.

Depending on its intensity and frequency, investment activity in companies takes place in two ways. First, companies invest routinely and follow the normal trend of business growth. Second, from time to time, during campaigns and in certain cycles, companies undertake larger and more demanding investments when they want to take advantage of select investment opportunities, leading to so-called uneven investments and investment spikes. If we look at our sample of Slovenian companies, we find that in the studied eight-year period 2010–2017 more than half of the surveyed companies invested evenly, routinely and without major investment spikes. About a quarter of all companies included in the research sample invested in a concentrated fashion, with an investment spike in one or two years at the end of the eight-year period. Undoubtedly, an important reason for such an investment pattern was the deleveraging of companies after the last great crisis.

H3: There are relatively many companies that are unable to take advantage of business (investment) opportunities.

Given the results of our empirical research, in this context, we can accept the research hypothesis that there are relatively many companies that are unable to take advantage of business (investment) opportunities. Among the most frequently cited reasons for such a state of affairs, we can point out those related to financial resources, such as a lack of own financial resources, excessive indebtedness, too capital-intensive investments, and denied access to borrowed financial resources. Together, these account for more than half of all stated reasons why companies did not take advantage of the offered investment opportunities.

H4: Financial patterns during investment spikes differ from patterns outside of this period.

In terms of investment dynamics, we can also confirm the research hypothesis that during investment spikes financial patterns differ from patterns outside of this period. While in most periods internal financial resources mainly cover routine investments, debt resources dominate during investment spikes. Debt resources are less important in the period immediately after investment spikes, as companies are slowly re-establishing their target leverage.

H5: External sources of financing, especially debt, are more important for financing corporate investments than equity financing, especially when investment expenditures are relatively high.

This research hypothesis is related to the previous one (H4) and can also be fully confirmed, since during investment spikes the share of investments financed by debt is much higher than the share of other sources. This is especially true for large companies, where it is only a matter of capital expenditure and which companies finance to a greater extent with debt than with equity capital. This is true even for small businesses that use equity rather than debt financing.

H6: There is a strong relationship between the type of creditworthiness of the company and the level of indebtedness of the company.

In the context of obtaining debt sources of financing, the credit rating of the company as an investor is crucial. In an empirical study of a representative sample of Slovenian companies, we used the z-test to verify that companies with a good credit rating are significantly less indebted and, conversely, that companies with a bad credit rating are significantly more indebted. At the end of the studied eight-year period, according to their financial officers, a good half of the sample Slovenian companies had a credit rating of A, and the studied ratio was less than or equal to 2. Among other things, we used the ratio between net financial debt and EBITDA that, in the case of Slovenian companies, this ratio is reflected in the ability of companies to generate cash flow to repay debts.

Despite the limitations stated in the methodology section of the paper, we estimate that we have achieved our stated goals. These goals represent a relevant contribution to investment theory as well as to real-world practice, suggesting that company management should be encouraged to achieve lasting competitive advantages so as to strengthen the company's investment ability continuously. As previously mentioned, the results of our study offer quite a few opportunities for further research in the area under consideration. In order to be able to confirm the cause-and-effect relationships in our conceptual model, it would be prudent to undertake a longitudinal study to investigate the time lag and the delayed effects of investments (the dynamic aspect of investing). Here, we should once again point out that we set our research in the period after the last major financial crisis and economic recession, in the immediate aftermath of which companies, with certain exceptions, mainly deleveraged rather than invested heavily.

It would also make sense to extend the research to small companies and perhaps include some other aspects that may be important for a company's investment activity, such as the influence of ownership structure on investment decisions. It would be interesting to compare investment activity and its specifics by industry.

Finally, it would be sensible to examine to what extent strategic investments in companies are the result of prior investment in own development and research, in own knowledge. This connects investments in physical capital with investments in human capital, providing a clue for further, more extensive research in the field of investment.

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GAINING INSIGHT INTO CONSUMERS' CHOICE OF PREFERRED WORDS

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Abstract

This research utilizes the MaxDiff method to categorize associations with the term *trust* and evaluate its effectiveness in advertising messages. Statistical analysis reveals significant differences among various word linked to term *trust*. Adjectives like reliable, loyal, and caring emerge as the most prevalent, reflecting respondent preferences. Furthermore, 80.8% of respondents prefer adjectives over nouns in associating with trust. By employing the MaxDiff methodology, this study offers valuable insights into nuanced perceptions of trust in advertising, facilitating the development of more impactful messaging strategies.

Key Words

Trust; advertising credibility; preferences; adjectives; nouns.

INTRODUCTION

Advertising, as defined by Kotler & Armstrong (2007), is a compensated form of displaying and advancing ideas, products, or services by a known benefactor. The authors argue that the success of advertising is influenced by various factors, including advertising objectives (informing, persuading, or reminder advertising), advertising budget, and advertising strategy. The latter comprises two major elements: crafting advertising messages and choosing advertising media.

This article specifically focuses on persuasive advertising and the element of crafting advertising messages. It emphasizes the choice of words and their categorization, aiming to improve the effectiveness of advertising messages and reduce the negative impact of deceptive advertising. The occurrence of distrust in promotional content is increasing and gaining prevalence, which harms not only retailers and suppliers but also their customers. We maintain that numerous goods and offerings are capable of enriching people's way of living.

Through this paper, we examine the occurrence of consumer distrust and its impact on consumer habits, exploring consumer preference words using the MaxDiff method. As mentioned, the effectiveness of communication between advertisers and their recipients (consumers) depends on many factors; however, this study focuses on the word choice approach. We are interested in determining whether there is a statistical difference among specific words that can be linked to the term trust.

According to Emodi (2011), advertising is an important element of communication, with the crucial aspect being the attainment of understanding of the meaning. Agarwal & Agarwal (2023) pointed out in their article that "advertisements are designed to convey messages and create associations between products, brands, and desired meanings." Through the use of language, visual elements, and symbols, advertisers strategically manipulate to evoke certain emotions, values, and desires in consumers. Semantics plays a key role in advertising as it is responsible for conveying meaning and creating impactful messages. It helps advertisers communicate effectively with their target audience and influence their perceptions, attitudes, and behavior. Semantics is the study of the literal meaning conveyed by words and phrases. It links 'sign' with the 'signifier' (=differential mark) and the 'signified'. The signifier represents the tangible expression of a sign, like a word, sound, or image, whereas the signified refers to the idea or meaning linked to the signifier (Chandler, 1994). Simply put, it makes sentences meaningful in language by determining the object or idea that each word represents (Agarwal and Agarwal, 2023).

Vasiloaia (2020) emphasizes in her article the importance that the advertiser, even if the meaning is incredibly ambiguous, incorporates their background and a range of implied meanings and associations into the work. When faced with pictures and words, our minds begin to connect all the signifiers within the construct with our personal experiences, knowledge, emotions, and feelings. Therefore, even if the advertiser of such a construct

never intended it to have any meaning, it is practically impossible to exclude any associations for the viewer.

Cortés de los Ríos (2002) discusses a semiotic advertising approach in which advertisers amplify the meaning of a concept by incorporating another. Metaphorical language in advertising creates images and associations to stimulate cognitive processes. Advertisers strive to find the most impactful metaphor, i.e., a term that resonates most strongly with the promoted company, considering the reader's physical and cultural background.

Rajaobelina et al. (2019) note the influence of relational advertising as a factor in attitude formation in experiential advertising. They term this phenomenon as value-expression appeal, as suggested by Johar and Sirgy (1991). This principle revolves around how the portrayal of the product or brand user influences consumers' identification with their self-image, encompassing actual, ideal, social, and ideal social self-images.

Considering the theory presented by Johar and Sirgy, we can agree that the relationship between an advertisement and a consumer is established when the consumer identifies with the message. Could we say that identification can also be reflected in the choice and perception of words and how this is reflected in consumer behavior?

Consumer behavior is both reasonable and unreasonable. The neoclassical economic theory perceives the consumer as a reasonable thinker whose actions are logical given the constraints of limited information and cognitive capacity. As a result, consumers tend to narrow down their choices to a select few prominent alternatives and evaluate them using a limited set of criteria (Schmid, 2004). The decision-making solution meets the predetermined goal for the intended purpose. However, this raises the question of whether the decision will ultimately satisfy the consumer.

The paradox of choice is a concept thoroughly researched by Schwartz (2004), where individuals feel overwhelmed by an abundance of choices, leading them to analyze and compare various options due to the fear of making the wrong decision. Because of this overwhelming occurrence, sometimes they do not decide at all. Possibly, this could be indicative of the necessity for rapid decision-making, as we face thousands of decisions daily, potentially exhausting our cognitive resources to process the most optimal choices, which might also involve irrational factors.

The most recent economic and marketing literature particularly emphasizes the experiential selection of services and products, advocating for the utilization of intangible aspects associated with the emotional value perceived by customers in experiential marketing (Gentile et al., 2007). For example, Rajaobelina et al. (2019) examined the effect of heightened credibility within a banking environment through experiential advertising, which is shaped by five aspects: cognitive, emotional, sensory, relational, and behavioral. The goal is to assess whether enhancing banks' credibility via an experiential advertising approach can effectively restore consumer trust. The suggested conceptual framework comprising five aspects of experiential advertising indicates a favorable influence on advertising credibility. Findings suggest that the configuration of experiential advertising corresponds to instability in the credibility of advertising messages.

In addition to disseminating information about their offerings, advertising also demonstrates an appreciation for potential customers, who are more likely to resonate with advertising messages if they evoke emotional responses. Are there specific words that can impact consumer behavior? We are curious to know if there are specific words related to trust that Slovenian consumers are more responsive to in advertising messages and what those could be.

At this point, we should mention prototype categorization, which is a kind of combination of the theory of categorization founded by Eleanor Rosch in the 1980s and Lakoff's cognitive semantics (1988). Ahmed (2020), in his article, described two basic principles of prototype theory that guide the development of categories: (1) the principle of cognitive economy and (2) the principle of the perceptual structure of the world. These two principles combine to create the human categorization system (Ahmed, 2020).

Interestingly, prototype theory has also been extended to the study of the meaning of many words by describing them as a complete set of characteristics (attributes). None of these characteristics is individually necessary or sufficient to determine the meaning of a word. Individual words in a language share certain common characteristics or attributes, but none of them is necessarily present in all cases for a word to belong to a particular category or have a particular meaning. A concept is unified by what certain philosophers refer to as a family resemblance structure (Ahmed, 2020). It is thus a term often used in the context of prototypical semantics, which emphasizes that members of a category are related to each other by shared characteristics, much as members of a family share relatedness but not necessarily identity.

Lee and Potter (2020) investigated how listeners respond to negative, neutral, and positive words in audio advertising. In addition to measuring intervals between heartbeats, they used facial electromyography (EMG) as a physiological indicator of emotional response to gauge how words impact the dynamic interaction between the listener and the message. They recommended advertisers choose words that align with the emotional tone of the message, as they concurrently explored discrepancies between words and messages, where negative or neutral words appeared in messages of a positive nature. Individuals were less successful in recognizing target words, indicating the influence of emotional incongruity between the text and the overall tone of the message on the ability to remember and recognize words. This suggests that emotionally charged words, contrary to the general tone, disrupt cognitive processing and reduce memory efficiency. The brain attempts to adapt by limiting its processing to avoid conflicting or contradictory information. This response may act as a way to reduce discomfort caused by dissonant or conflicting information in the message. Do our brains respond similarly to deceptive messages?

RESEARCH PROBLEM

Darke & Ritchie (2007) pointed out in their research that deceptive advertising leads to a loss of trust, which subsequently impacts individuals' receptiveness to future advertising efforts from the same source as well as from other sources. Initial deceitfulness fosters a negative perception of advertising and marketing in general, thus eroding the credibility of subsequent advertising endeavors (Darke and Ritchie, 2007). Similarly, Newell et al. (2015) validated their hypotheses in their research, revealing that increased perceptions of deceitfulness are linked with diminished perceptions of a company's credibility. Respondents in the research showed less favorable reactions to the advertisement, held less positive opinions about the promoted brand, and consequently, expressed reduced intentions to buy the promoted product when suspicion of deception arose. Furthermore, the research highlighted that the perception of deception is sufficient to trigger negative emotions toward the advertisement, regardless of its actual deceptive nature. As a result, marketing and advertising managers should proceed with caution when crafting campaigns (Newell et al., 2015).

Another aspect highlighted in this research is the acknowledgment of deceptive advertising, as outlined in Article 38 of the Consumer Protection Act, where greater emphasis is placed on the fact that deception can create economic insecurity among competitors, with consumers being almost unmentioned. They are mentioned in Article 37, which defines indecent advertising: 'Indecent advertising of goods, services, or digital content means advertising that contains elements that are offensive or could be offensive to consumers, readers, listeners, and viewers, or elements that contradict morality.' (Consumer Protection Act, 2022). Regarding this subject, we encountered an article where Xie et al. (2015) conducted two experiments aimed at distinguishing the impact of harm on consumer attitudes towards the brand and purchase intent in the case of perceived deception. The study also delved into how anticipated harm could affect a consumer's reaction to the 'diagnosis of perceived deception'. This pertains to the significance of potential deception as consumers assess advertised products and brands. The article highlights that the impact of the extent of anticipated harm resulting from deception has received less attention compared to earlier research in behavioral advertising, which primarily examined how consumers could be misled by the assertions and implications of advertising messages. The findings suggest that the significance of perceived deception can impact anticipated harm. In other words, the adverse impact of perceived deception may escalate when the expected outcomes of deception are consequences of deception are viewed as more serious.

Jakomin et al. (2022) conducted a study examining how retailers promote environmentally friendly packaging for green products offered in online stores using the MaxDiff method. According to the findings, less than a third of participants express trust in manufacturer-provided information regarding green products, even though that two-thirds of respondents are willing to pay a premium for green products. Is this outcome solely attributed to insufficient

advertising of green products in online stores, or does it also reflect broader skepticism towards advertising messages in general?

Interestingly, in the study by Pollay and Mittal (1993), a similar proportion of respondents (38%) rated advertising messages as truthful and informative. Are there specific language choices that could enhance the credibility of advertising messages, particularly in situations where there is no intention to deceive and the sole aim is to promote products or services? While numerous factors contribute to credibility, could we potentially mitigate the prevailing resistance towards advertising messages by catering to consumer preferences in terms of word choice?

To explore the process of transitioning from distrust to trust, it is imperative to establish a comprehensive understanding of the underlying concept of trust itself. According to the Cambridge Dictionary online, the term trust is defined as "to believe that someone is good and honest and will not harm you, or that something is safe and reliable" (Trust, n.d.).

Gambetta (2000) claims that trust is one of those states that cannot be intentionally triggered, either concerning oneself or others. Indeed, trust cannot be logically or intentionally cultivated, as the act of trying to do so undermines the very state one seeks to establish. Trust often emerges as a natural consequence, usually stemming from familiarity and friendship, both of which entail a degree of mutual understanding and concern for each other's well-being. This suggests that trust may arise as a by-product of moral and religious principles advocating honesty and mutual affection (Gambetta, 2000). Even though trust cannot be intentionally triggered, it may be understood by exploring words linked with it.

METHODS

Maximum Difference Scaling, also referred to as "best-worst scaling," is a research technique utilized to assess the relative preference variances among various elements or attributes—in our study, words—to ascertain which words respondents primarily associate with the concept of trust. MaxDiff can significantly contribute to examining purchasing motivations, identifying desired benefits, and evaluating the responsiveness of benefits to marketing strategies, particularly in scenarios where individuals within preexisting groups exhibit similarities that make it difficult to differentiate from one another (Cohen, 2003).

The MaxDiff model functions under the premise that respondents evaluate each possible pair within a given subset and choose the pair with the most significant difference as the best-worst or maximum difference pair. Consequently, MaxDiff can be viewed as a more efficient method for collecting paired comparison data.

We decided to choose 6 adjectives and 6 nouns. The selected adjectives were synonyms of the term trust (WordNet 2.1 database), while the nouns were chosen based on the conceptual model of the five dimensions by Rajaobelina et al. (2019), who explored how these dimensions of experiential advertising influence credibility (cognitive, emotional, sensory,

relational, and behavioral). We anticipated that most respondents could relate to body parts. Additionally, Cortés de los Ríos (2002) suggests that advertisers should consider the physical and cultural backgrounds of their audience when designing advertisements. We focused on body parts and their functions in the choice of nouns: pulse (heart), vision (eyes), sense (intellect), touch (hand), step (leg), and inspiration (lungs), which also takes into account the structure of family resemblance (Ahmed, 2020).

Moreover, Pulvermüller, Härle, and Hummel (2000, 2001) measured in their articles the EEG brain response to verbs referring to actions performed by different body parts. Not only were different areas in the cerebral cortex activated—for example, the motor area was activated in the case of the verb "to walk," while the perisylvian area was activated for the verb "to talk" (Pulvermüller, Härle, and Hummel, 2000)—but also the processing speed of such verbs varied (Pulvermüller, Härle, and Hummel, 2001). Although the described studies measured brain responses to verbs, we considered it crucial to choose nouns, as we were interested in which of them were most linked with the term trust.

Ebaid (2018) delves into the realm of adjectives, asserting that they are essential components of linguistic constructs, primarily serving to characterize, depict, and alter nouns or pronouns. His study focuses on the prevalent and pervasive utilization of adjectives, highlighting their potency as persuasive devices, sometimes capable of standing alone without accompanying nouns. For the choice of adjectives, we used synonyms of the term trust: reliable (zanesljiv), genuine (pristen), propulsive (prodoren), consistent (dosleden), loyal (zvest), caring (skrben).

We are interested in whether adjectives will be chosen more often than nouns. Please note that these are translations, which were the closest approximations of the semantic content in our estimation. For example, we were not measuring the word authentic (slo. avtentičen), but the Slovenian word pristen is so authentic that it has no literal translation in English. "Real" might be the only substitution; however, the Slovenian translation for pravi = real, thus we choose authentic = pristen.

Table 1: Distribution of adjectives and nouns & their translation

| Adjectives | | Nouns | |
|------------|------------|-------------|-------------|
| Slovenian | English | Slovenian | English |
| zanesljiv | reliable | utrip | pulse |
| pristen | authentic | vizija | vision |
| prodoren | persuasive | razum | intellect |
| dosleden | consistent | prijem | grip |
| zvest | loyal | korak | step |
| skrben | caring | inspiracija | inspiration |

RESEARCH QUESTIONS AND HYPOTHESIS

The article by Prihatini (2020) focuses on describing word associations and their role in understanding language constituents in language learning. The author claims that word association presents a correlation between a word and other words stemming from semantic relationships, prompting our first research question: Are some words more frequently linked with the term trust by respondents? (RQ1).

Even though links are unique semantic connections made by individuals in hypothesis 1, we propose that there is a statistical significance between words linked with the term trust, addressing RQ1.

As we mentioned, the study by Ebaid (2018) is focused on emphasizing the features and meanings associated with products. In his article, Ebaid (2018) highlights that adjectives are sometimes used independently to name products, although adjectives typically accompany nouns. Based on the findings, a second research question could be formulated as follows: In the set of word links, is the selection of adjectives for the term trust more common? (RQ2).

Taking into account the result of the mentioned research provides us with a basis for the second hypothesis: Adjectives are statistically significantly more appropriate than nouns.

Respondents indicate their most and least preferred links with the term trust in the questionnaire, with all 12 words (6 adjectives and nouns) represented with equal frequency.

DATA ANALYSIS

The survey was generated utilizing Sawtooth Software SSI Web (Sawtooth Software, Inc., USA) and processed with the MaxDiff module. It consisted of two parts. In the first part, respondents selected words that are linked with the term trust. In the second part, they first indicated their gender, followed by their age group (up to 20 years, 20 to 40 years, over 40 years).

Utilizing multiple items for scaling facilitates researchers, especially those with limited statistical expertise, to conduct sophisticated analyses. The item estimates are straightforward to interpret, as they are placed on a comprehensive scale ranging from 0 to 100 points, totalling 100" (Jakomin et al., 2022). The results derived from the "Analysis/Max Diff Scores" function in the Sawtooth Software program were delivered in both raw and rescaled formats. These scores are direct outcomes of the Hierarchical Bayes analysis. The software then presents the data in an Excel table, including counts and scores.

The software also provides a 95% confidence interval, indicating the level of certainty with which specific estimates for the displayed parameters are provided. This implies that if the experiment were replicated multiple times with new random samples on each occasion, the true population average would be within the calculated confidence interval in 95% of the experiments.

In simpler words, we can have 95% confidence that the genuine population average lies within the 95% confidence interval.

To test H1, we compared the means between the most and least frequently selected adjectives using a Paired Samples t-test. This test evaluates the means of two measurements obtained from the same group, offering insights into whether there exists a significant statistical difference between the two datasets. It produces a p-value, with a value below 0.05 suggesting a less than 5% probability that the outcome is random. The t-test is employed to compare the means of the two groups. To test H2, we compared the means with a Paired Samples t-test of two related sample groups: adjectives and nouns.

Data Retrieval: Commands first read data from the scores in the Excel file generated by the software, with the first row containing column names. We set a minimum valid value percentage at 95%.

T-Test Calculation: We then conducted a t-test comparing the means between the: most and least frequently chosen adjectives, between the most frequently chosen adjective and noun, and the means of adjectives and nouns. The t-test determines whether there are statistically significant differences between the means of these two groups, with significance determined at a 95% confidence level.

Handling Missing Data: Instructions also include the use of the /MISSING=ANALYSIS option, indicating that the t-test will consider any missing values when calculating the results.

FINDINGS

In a sample of 138 respondents, consisting of 47% males and 53% females, participants were required to select the best and worst words linked to the term *trust* from a set of 4 words presented in 8 displays. This measurement assessed preferences among 6 adjectives and 6 nouns, which were equally represented on average.

The result shows that the words *reliable* (20.6 %) and *loyal* (19%) received the highest average ratings and are therefore likely the most strongly linked with the word *trust* based on participants' opinions. The result simultaneously serves as the answer to our research question (RQ1): Some words are more frequently linked with the term *trust* by respondents. Words such as *propulsive* (1.1%), *step* (1.5%), *pulse* (1.8%), and *touch* (2.3%) received lower ratings and are therefore less linked with trust in this context.

Table 2: Results of rescaled scores

Rescaled Scores (0 to 100 scaling)

| Label | Item Number | Average | % | 95% Lower | 95% Upper |
|-----------|-------------|----------|------|-----------|-----------|
| Zanesljiv | 1 | 20,60138 | 20,6 | 20,15077 | 21,05200 |
| Zvest | 5 | 18,98539 | 19 | 18,25693 | 19,71385 |
| Skrben | 6 | 15,20113 | 15,2 | 14,41266 | 15,98961 |
| Dosleden | 4 | 12,61735 | 12,6 | 11,64624 | 13,58847 |
| Pristen | 2 | 12,29843 | 12,3 | 11,30961 | 13,28725 |
| Razum | 9 | 8,26271 | 8,3 | 7,34555 | 9,17988 |
| Navdih | 12 | 2,68351 | 2,7 | 2,00376 | 3,36326 |
| Vizija | 8 | 2,61084 | 2,6 | 2,09508 | 3,12659 |
| Prijem | 10 | 2,31462 | 2,3 | 1,76214 | 2,86709 |
| Utrip | 7 | 1,77525 | 1,8 | 1,19844 | 2,35206 |
| Korak | 11 | 1,54056 | 1,5 | 1,08890 | 1,99221 |
| Prodoren | 3 | 1,10883 | 1,1 | 0,93167 | 1,28598 |

From the graph above and below (which we added for better representativeness of Table 2), we can discern a pattern in which adjectives (5 out of 6) have the strongest preferences, followed by all 6 nouns except for one adjective that deviates from the pattern. The reason likely lies in the choice of preferences, which we may not have accurately anticipated.

Table 3: Frequency of chosen words to term trust (n = 138)

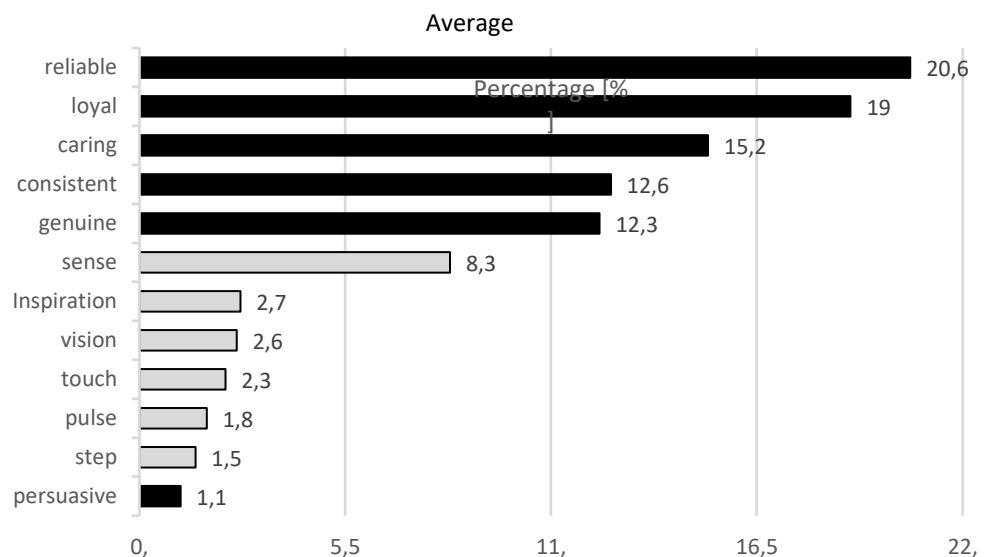


Table 4: Results of paired samples t-test between the adjective *reliable* and the adjective *propulsive*

| Paired Samples Statistics | | | | | |
|---------------------------|-----------|--------|-----|----------------|-----------------|
| | | Mean | N | Std. Deviation | Std. Error Mean |
| Pair 1 | Zanesljiv | 20,601 | 138 | 2,701 | ,230 |
| | Prodoren | 1,109 | 138 | 1,062 | ,090 |

| Paired Samples Correlations | | | | |
|-----------------------------|----------------------|-----|-------------|------|
| | | N | Correlation | Sig. |
| Pair 1 | Zanesljiv & Prodoren | 138 | -,173 | ,043 |

| Paired Samples Test | | | | | | | | | |
|---------------------|----------------------|--------------------|----------------|-----------------|---|--------|--------|-----|-----------------|
| | | Paired Differences | | | | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | Sig. (2-tailed) |
| | | | | | Lower | Upper | | | |
| Pair 1 | Zanesljiv - Prodoren | 19,493 | 3,057 | ,260 | 18,980 | 20,005 | 75,177 | 138 | ,000 |

However, considering that we compared the means of two adjectives, we cannot definitively confirm the presence of differences among words linked to the term *trust*. This exclusion occurs because nouns (besides verbs, etc., which are not included in the scope of this study) are not considered here. Therefore, we subsequently conducted a statistical comparison between the most frequently chosen adjective *reliable* and the most frequently chosen noun *sense*, obtained from the calculation in the Sawtooth Software MaxDiff program. We analyzed the SPSS program and found, through the calculation of the t-test, that there is a statistically significant difference between these two words, specifically at $p < 0.02$. In the table below, we see that we can confirm statistical significance, indicating a statistically significant difference in the selection of words linked with the term *trust*, supported by the standard deviation value ($SD = 6.57$).

Table 5: Results of paired samples t-test between adjective *reliable* and the noun *sense*

| Paired Samples Statistics | | | | | |
|---------------------------|-----------|--------|-----|----------------|-----------------|
| | | Mean | N | Std. Deviation | Std. Error Mean |
| Pair 1 | Zanesljiv | 20,601 | 138 | 2,701 | ,230 |
| | Razum | 8,263 | 138 | 5,500 | ,468 |

| Paired Samples Correlations | | | | |
|-----------------------------|-------------------|-----|-------------|------|
| | | N | Correlation | Sig. |
| Pair 1 | Zanesljiv & Razum | 138 | -,192 | ,024 |

Paired Samples Test

| | | Paired Differences | | | | | | | |
|--------|-------------------|--------------------|----------------|-----------------|---|--------|--------|-----|-----------------|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | Sig. (2-tailed) |
| | | | | | Lower | Upper | | | |
| Pair 1 | Zanesljiv - Razum | 12,339 | 6,550 | ,555 | 11,240 | 13,440 | 22,212 | 138 | ,000 |

Considering that we compared both adjectives with each other and adjectives with nouns, and in both cases, the p-value did not exceed 0.05, we can confirm that there is a statistical difference between words linked to the term trust (H1).

Among the 12 possible words that were displayed equally, 80.8% of 138 respondents chose adjectives as a more relevant link to the term trust. The result answers our second research question (RQ2): In the set of word links, the selection of adjectives for the term trust is more common. To test H2, where we claim that adjectives are statistically significantly more appropriate than nouns, we compared the frequencies of average ratings of nouns and average ratings of adjectives, obtained from calculations in the Sawtooth Software MaxDiff program. We analyzed the SPSS program and found, through the calculation of the t-test, that there is also a statistically significant difference between nouns and adjectives, at the level of $p < 0.05$, as seen in Table 6.

Table 6: Results of paired samples t-test between means of adjectives and nouns

Paired Samples Statistics

| | | Mean | N | Std. Deviation | Std. Error Mean |
|--------|----------|-------|-----|----------------|-----------------|
| Pair 1 | PRID-avr | 13,47 | 139 | 1,66 | ,14 |
| | SAM-avr | 3,20 | 139 | 1,66 | ,14 |

Paired Samples Correlations

| | | N | Correlation | Sig. |
|--------|--------------------|-----|-------------|------|
| Pair 1 | PRID-avr & SAM-avr | 139 | -.100 | ,000 |

Paired Samples Test

| Paired Samples | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|----------------|--------------------|--------------------|----------------|-----------------|---|-------|-------|-----|-----------------|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PRID-avr - SAM-avr | 10,27 | 3,32 | ,28 | 9,71 | 10,83 | 36,50 | 138 | ,000 |
| | | | | | | | | | |

DISCUSSION

This study investigates the notion of distrust and its implications for consumer behavior, with a specific focus on word preferences in advertising messages using methodologies, particularly MaxDiff, in an innovative approach.

In our study, we focused on word preferences within the research questions: "Some words are more frequently linked with the term trust by respondents" (RQ1) and "In the set of word links, the selection of adjectives for the term trust is more common" (RQ2), to possibly understand consumer word preferences better. In a study conducted by Jakomin et al. (2022), measurements were made using the MaxDiff method, which revealed that fewer than one-third of those surveyed expressed confidence in the information provided by manufacturers regarding their products (in their case, green products).

In the methodology section, MaxDiff was presented as a tool for discerning the word preferences of participants and identifying which words are associated with the concept of trust. We asked 138 respondents ($n=138$) which word out of 12 possible words (6 adjectives and 6 nouns) they chose as the closest link to the term trust. It turned out that the adjective "reliable" accounts for 20.6% of all attributes (words). It is followed by the adjectives "loyal" (19%) and "caring" (15.6%). To measure H1, which assesses statistical significance between words linked with the term trust, we compared the average values of two adjectives: the most frequently chosen "reliable" and the least chosen "propulsive" with a t-test. For additional confirmation, we also conducted a measurement between the most frequently chosen adjective "reliable" and the most frequently chosen noun "sense" to avoid excluding nouns. The result of $p < 0.04$ (for the comparison between "reliable" and "propulsive") and $p < 0.02$ (for the comparison between "reliable" and "sense") means that in 95% of trials, the true population mean value would lie within the confidence interval that has been calculated. We found that 80.2% of the total preferences are represented by adjectives. We confirmed with a t-test and a standard deviation value ($SD=3.33$, $p < 0.02$) that there is a statistical difference between adjectives and nouns, thus confirming H2, that adjectives are statistically significantly more appropriate than nouns.

Our findings show that certain words, particularly adjectives like "zanesljiv" (reliable), "zvest" (loyal), and "skrben" (caring), are more strongly linked to the term trust in the minds of respondents. This highlights the significant role that word choice plays in influencing consumer perceptions and trust in advertising messages.

The fact that adjectives received the highest preference and that statistical tests confirmed their significance compared to nouns underscores the importance of selecting the right words when crafting advertising messages. These insights suggest that words are indeed an important element in building trust with consumers and can have a significant impact on their perceptions and preferences.

We must mention that respondents were provided with a limited set of words from which they could choose, and they did not have the option for open-ended responses. We are aware that there may be more suitable

words that were not measured. For example, instead of "propulsive" (1.1%), which turned out to be the least frequently chosen word, even though it is an adjective, it was rated as less preferable than nouns.

This study explores the occurrence of specific words associated with the concept of trust to gauge consumer preferences in language. By pinpointing words that have a meaningful impact on consumers, marketers, and advertisers can tailor their messages effectively, leading to increased credibility and deeper connections with their intended audience. Ultimately, the insights gained from this research can improve the efficacy of advertising tactics, offering long-term benefits to both consumers and advertisers.

In conclusion, the decline in trust within advertising not only impacts marketers but also impacts consumers' capacity to make knowledgeable decisions regarding products and services that could enrich their lives.

This research paper delves into the critical issue of credibility within advertising messages, which has increased due to growing consumer distrust. We proposed the use of the MaxDiff method to analyze word preferences as attributes to enhance the effectiveness of advertising messages, as we measure the links between 12 words to the term trust.

One of the limitations evident in this research is the limited number of words available as options for possible connections to the term trust. For easier statistical processing and an innovative approach, we selected the MaxDiff module, which does not allow open-ended responses. It is also worth mentioning that the word *propulsive* stands out within the word set, indicating a very atypical link. The link to the term trust seems inappropriate, for which perhaps a better alternative would be *persuasive*. Another important limitation to mention is the automatic exclusion of individuals who are not computer literate.

The survey was conducted online, meaning that only those with internet access and computer literacy could participate. This represents a convenience sample, which may affect the representativeness of our sample. Not all potential participants had equal opportunities to take part, potentially biasing our sample towards individuals who are more technologically adept and have internet access. As a result, the overall validity of the results may be affected.

At the same time, we selected adjectives using the simple synonymy principle, while the nouns were selected based on prototypical categorization (Ahmed, 2020) while simultaneously taking into account the reader's cultural and physical experience (Cortés de los Ríos, 2022) and the influence of the five dimensions that affect credibility (Rajaobelina et al., 2019). Perhaps we should opt for one or the other approach here, which means that it might be better to also use simple synonyms for the nouns, such as credibility, trustworthiness, reputation, commitment, loyalty, and dedication.

The aim of utilizing quantitative data in this study is to acquire objective, numerical findings concerning consumer preferences in advertising. The emphasis lies not so much on understanding the reasons behind consumers' preferences for specific words and phrases, but rather on identifying which words possess greater persuasive influence.

Considering that word preferences are subjective and that the concept of trust is influenced by cultural factors, utilizing the MaxDiff method, similar to what we conducted in our study in the Slovenian language, could be implemented in different countries. By conducting cross-cultural studies, researchers could uncover cultural nuances and differences in the interpretation of trust-related words, providing valuable insights for global marketing strategies.

Future research could utilize the MaxDiff method to delve deeper into the connections of trust across sex and age groups, examining how perceptions of trust and word preferences vary among these demographics. Researchers could design surveys tailored to specific sex and age groups, presenting participants with sets of words related to trust and asking them to choose the most and least preferable words. By analyzing the responses from different demographic groups, researchers could gain insights into how trust and word preferences differ.

Additionally, exploring the long-term effects and correlations of trust and word preferences on consumer behavior and brand loyalty could offer deeper insights into advertising strategies. Longitudinal studies tracking changes in consumer perceptions and behaviors over time in response to different advertising messages and word choices could provide valuable data on the effectiveness of various marketing approaches.

For example, a longitudinal study could track a sample of consumers over several years, periodically measuring their levels of trust in a particular brand and their word preferences in advertising messages. Researchers could collect data on consumer behavior, such as purchase intentions, brand loyalty, and actual purchase decisions, at multiple time points throughout the study.

Throughout the study period, participants could be exposed to different advertising campaigns featuring varying word choices related to trust. By analyzing changes in consumer perceptions and behaviors over time in response to these advertising messages, researchers could assess the long-term effects and correlations between trust, word preferences, and consumer behavior.

For instance, they might find that consumers who consistently encounter advertising messages with trustworthy word choices are more likely to exhibit higher levels of brand loyalty and make repeat purchases over time compared to those exposed to less trustworthy messaging. Conversely, they could identify that changes in word preferences in advertising are associated with shifts in consumer trust levels and subsequent changes in brand loyalty and purchase behavior.

Similarly, we see this method as useful in brand name selection, in cases where there is doubt and there is a desire to learn how people respond to a particular name, or when alternative options are very close and pose a challenge in decision-making. All options are presented in the MaxDiff questionnaire, where respondents are asked: "Which name do you find as most suitable for a company that deals with..." and they choose the best and worst representative. Here, MaxDiff can serve as an answer to "What if?"

Finally, it is worth mentioning Sweetser (1987), who analyzed the word "lie" in the English language (which is somewhat the opposite of the term trust), stating that "prototypical semantics treat the meaning of words as determined by central or prototypical use, rather than categorical boundaries. This allows clear definitions for words with unclear boundaries of use. We determine the best example of word use and expect real-world examples to more or less correspond to this best example, but not completely or not at all."

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