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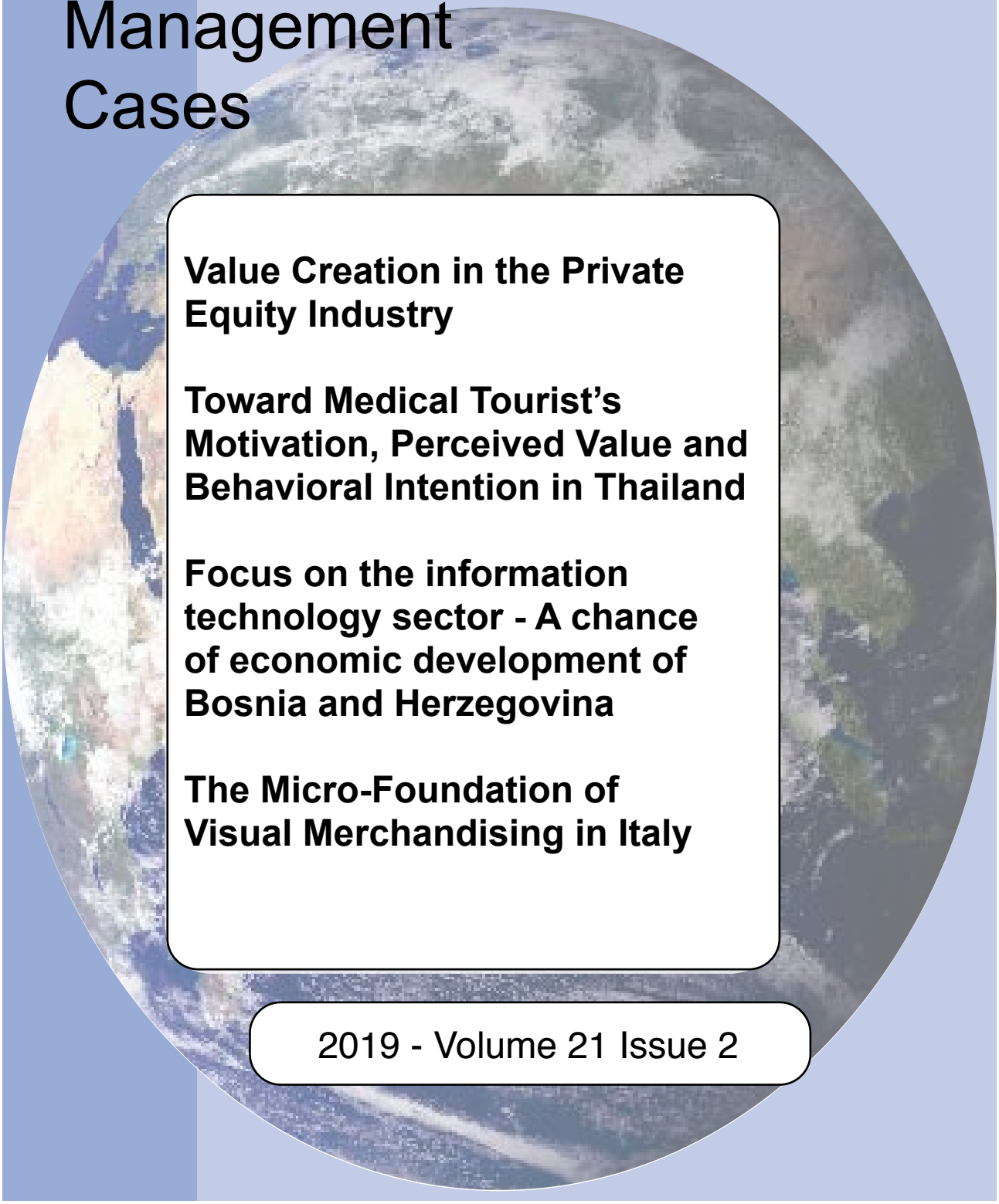

Value Creation in the Private Equity Industry

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Value Creation in the Private Equity Industry

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A*bstract*

Private equity (PE) firms are investment firms that acquire equity shares in companies. The goal of PE firms is to exit the investment after few years with a substantial increase in value. PE firms often claim to outperform the market, i.e. to create alpha.

The overall aim of this paper is to unravel the mystery of value creation in the PE industry. First, the author presents a conceptual framework for value creation in the PE industry based on a multiple valuation model that breaks down value creation into different elements. Second, the paper evaluates whether PE firms really create value by analysing and combining results from prior empirical studies based on the conceptual framework.

The results show that existing empirical evidence is mixed but that there is indeed a tendency toward a positive evidence that PE firms create economic value in average. However, there are methodological difficulties in measuring the value creation and studies are often subject to bias. Finally, it is pointed out that the question whether PE firms really create value has to be viewed from different perspectives such as the perspective of the PE firm, the investors and the portfolio companies.

Key Words: Private Equity, Investments, Value Creation, Value Levers, Multiple Arbitrage

Introduction

Private equity (PE) firms are investment firms that acquire equity shares in companies. The often use of large debt volumes in so-called leveraged buyouts (LBO). The goal of PE firms is to exit the investment after few years with the objective of a substantial increase in value. Private equity firms often claim to outperform the market, i.e. to create “alpha”.

Hence, the overall aim of this paper is to unravel the mystery of value creation in the private equity industry. More specifically, the following objectives are formulated: First, to present a conceptual framework for value creation in the PE industry. Second, to evaluate whether PE really create value based on the conceptual framework and prior empirical results.

The paper is structure as follows: In section 2, the required background is provided by explaining the structure of PE firms as well as a general valuation model using multiples. In section 3, the conceptual framework of value creation in the PE industry is presented. In section 4, prior empirical results are examined. Finally, a conclusion is drawn is section 5.

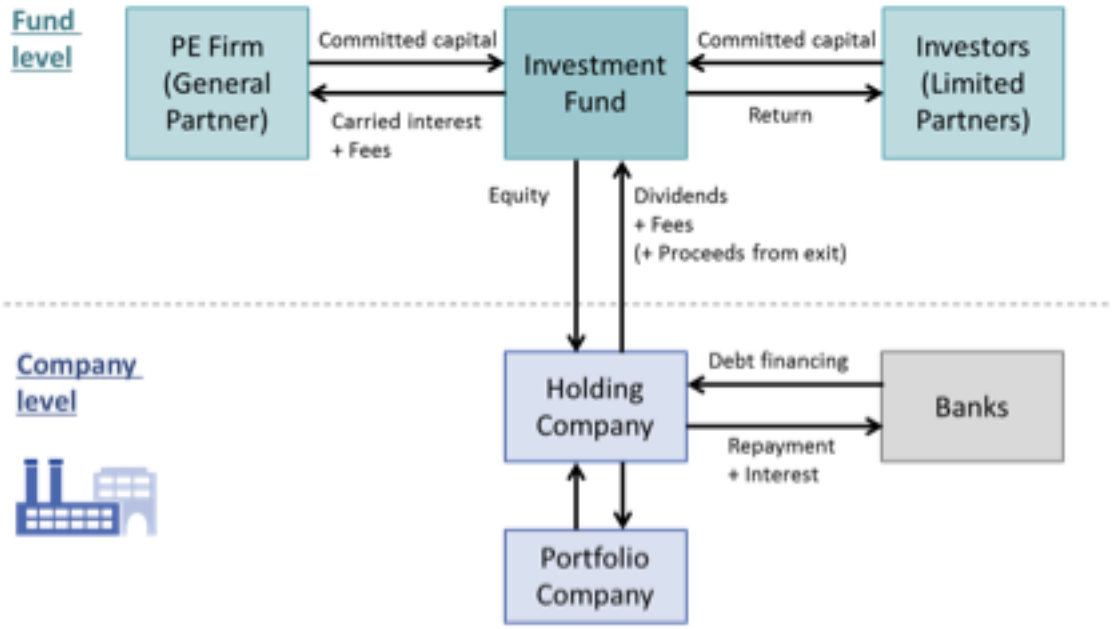
Background

Fundamentals of Private Equity Firms

In this paper, PE is defined in line with Gompers et al. (2015) as “buyout or growth equity investments in mature companies” which does not include venture capital investments.

The typical structure of a PE firm is outlined in Figure 1. On fund level, there is one or more investment fund that is set up by the so-called General Partner, i.e. the PE firm in the narrower sense. The General Partner is compensated for managing the fund by receiving so-called carried interest and a certain fee. The General Partner in most cases also invests in the fund. However, the largest part of the fund volume is raised from the limited partners (Kaplan and Strömberg, 2009). In Europe, the capital of buyout funds is especially raised from pension funds that represented more of 40% of fundraising in 2016 (Invest Europe, 2017).

Figure 1: Structure of PE firms



Source: own illustration based on Kaplan and Strömberg (2009) and Jensen (1989)

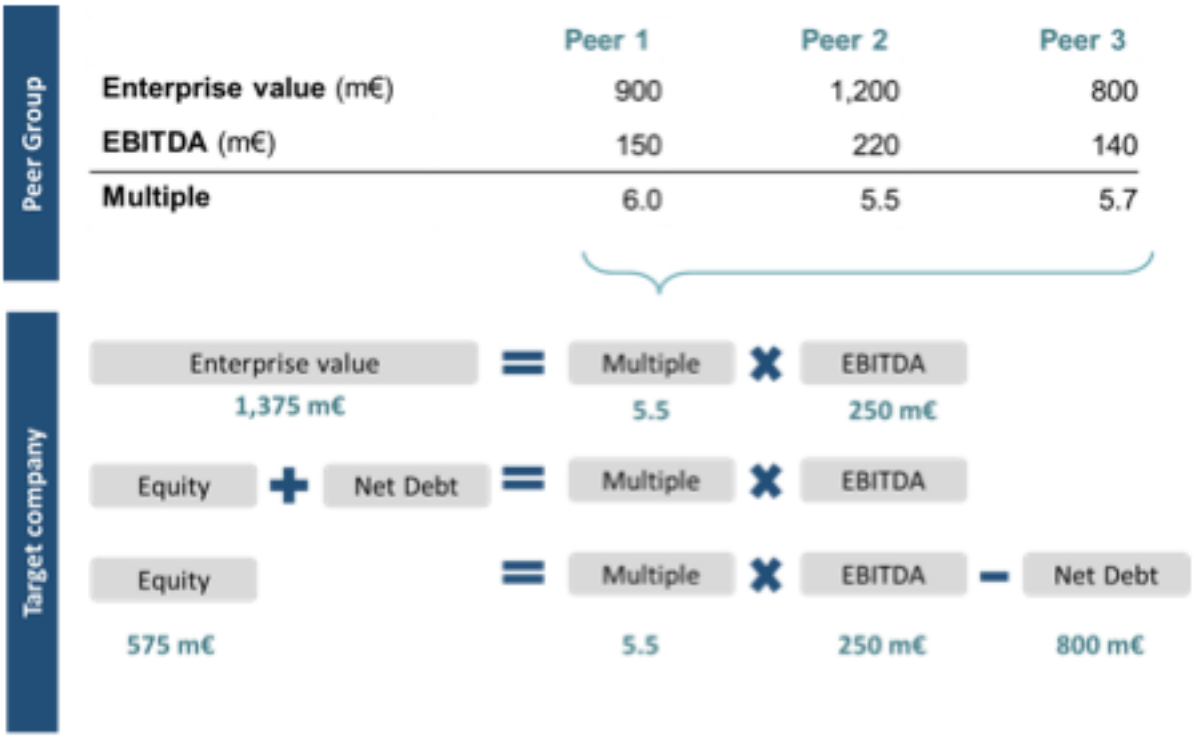
On company level, the different portfolio companies that have been acquired are located. Before an acquisition, usually a new holding company is created and funded with equity from the fund as well as outside debt from banks or debt funds. The holding company subsequently acquires and holds the portfolio company.

Valuation Model

In this paper, value creation is defined as increasing the financial value of the firm. To determine the value of a company, there are different valuation methods. The most relevant ones in theory and practices are the Discounted Cash Flow (DCF) approach and the Multiples Approach. In this paper, the author uses a multiple-based valuation model as a basis for the conceptual framework because it is more suitable for distinguishing the different value creation effects (see section 3.1).

Figure 2 shows an illustrative example of a multiple valuation. To determine the enterprise value of the target company, a peer group of comparable companies is identified in a first step. In a second step, a performance indicator is retrieved for these companies – most often the Earnings Before Interest and Tax (EBITDA). Next, a so-called multiple is calculated as a proportion between the enterprise value and the performance indicator. The multiple is a standardized measure that can be used to compare the enterprise values. Finally, the multiple can be applied to the target company to derive the enterprise value. In order to calculate the equity value, the net debt has to be subtracted as the total enterprise value consists of equity and debt.

Figure 2: Example of multiple valuation



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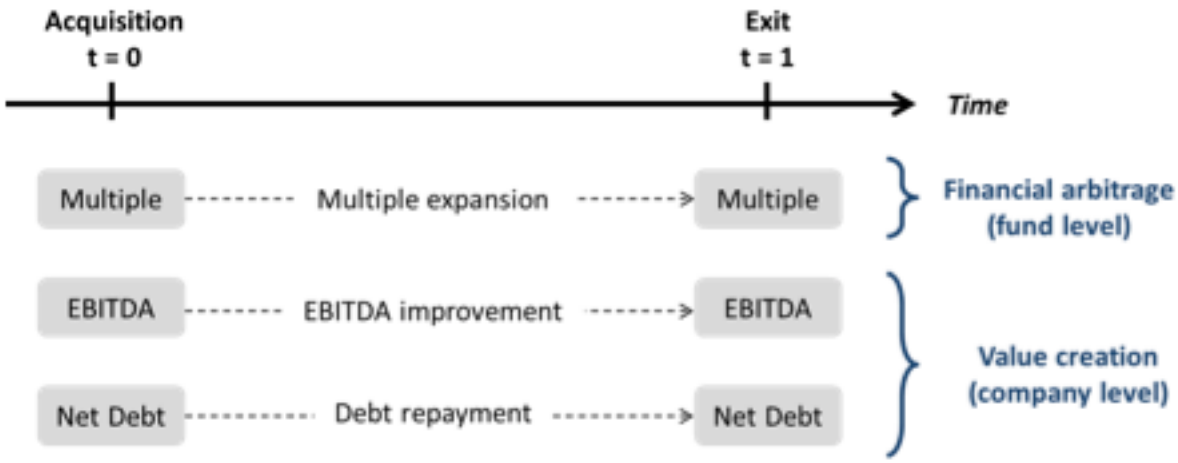
Conceptual Framework

Framework of Value Creation

Referring to the valuation model using multiples, a change of the company value can be achieved by a change in one of the three input factors. Depending on the input factor, there are different effects that lead to an increase in value between the point in time of the acquisition and the exit as illustrated in Figure 3.

Figure 3: Framework of value creation



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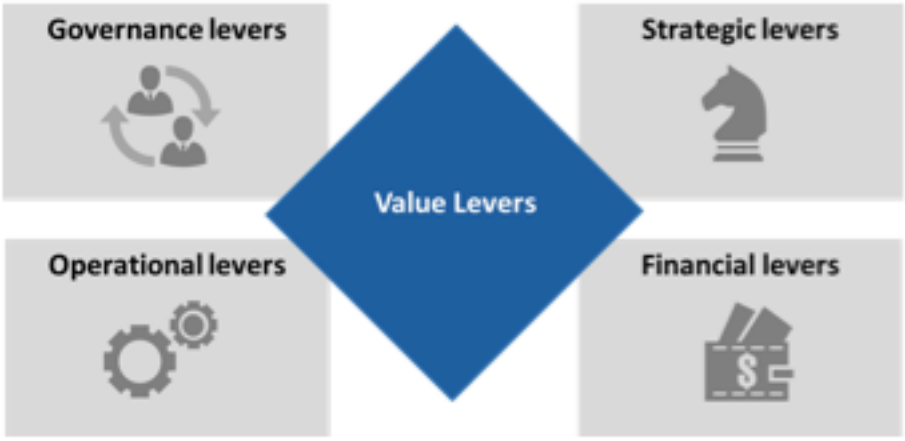
An increase in the multiple is also referred to as a so-called multiple expansion. A multiple expansion can occur for example due to positive market timing or negotiation skills of the PE professionals. Economically, it means that the PE fund has achieved a higher sales price per unit of profit for the company than the original purchase price. Thus, value is created on fund level, i.e. for the investors and the PE firm, but not on company level. This type of value creation can also be classified as financial arbitrage.

In this paper, value creation in the narrower sense is defined as creating value on company level by improving the operating performance (EBITDA) or paying off debt from the acquisition. This type of value creation can be realized with the help of different levers that are explained in the subsequent section.

Framework of Value Levers

Private equity firms use different levers to create value on company level. In the literature, it is often distinguished between three categories of levers (Kaplan and Strömberg, 2009). The author of this paper proposes a framework of four categories that captures the tools that are available in practice more completely (see Figure 4). The detailed measures for the levers have been compiled from different literature sources and complemented with the own practical experiences of the author.

Figure 4: Value levers



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Governance levers aim at solving the principal agent problem, i.e. controlling the managers of the portfolio company in order to ensure that they serve the best interest of the shareholders. This leads to a more effective and efficient management that is supposed to finally result in an increase in value. PE firms enhance the governance using different levers. First, PE funds usually acquire majority shares, i.e. there is a situation of concentrated ownership t ensures effective decision-making as opposed to public companies with a high free float of their shares. Second, the representatives of the private equity firms are often very active as supervisory board members and also intervene in the management of the company informally. Third, the management of PE portfolio companies is often asked to invest in the company themselves so that there is a personal interest in increasing the value of the company.

There are also different strategic levers. PE firms might for example divest business lines that are considered less important or value creating. A different strategy is to combine different portfolio companies to one more powerful organization in a so-called buy and build strategy.

Among the operational levers, different different growth and efficiency measures can be found. These might be marketing or sales oriented measures, production or logistics oriented measures or as well general cost cutting programmes.

Finally, there are different financial levers. First, taxation can be optimized by the increased leverage. Moreover, capital expenditures might be reorganized to only make really value-adding investments. Furthermore, one of the most common measures of PE firms is to optimize net working capital (NWC).

Empirical Results on Value Creation

Overview of Previous Studies and Their Methods

Previous studies have conducted research on the question of value creation in the PE industry using both qualitative and quantitative methodologies.

Qualitative studies provide an in-depth view on one single company of few companies by applying different methods such as interviews or data analysis. Table 1 gives an overview of examples of previous qualitative studies.

Table 1: Overview of qualitative studies

Author	Year	Title
Lahmann et al.	2017	Value creation in SME private equity buy-outs
Achleitner et al.	2014	Value creation drivers in a secondary buy-out

Source: own illustration

Qualitative studies are especially useful to understand how PE firms create value whereas quantitative studies help answering the question whether or not they do. In line with the formulated objectives of this paper, the focus of the following discussion is on the quantitative measurement of value creation.

Quantitative studies attempt to measure the value creation with a larger data set consisting of many companies. Table 2 gives an overview of examples of previous quantitative studies.

In the quantitative studies, there are different approaches of measuring value creation on fund and company level.

a. Comparison of fund performance with a benchmark. The studies from the U.S. use especially the S&P 500 index as a performance benchmark (Harris et al., 2014; Higson and Stucke, 2012; Phalippou and Gottschalg, 2009).

b. Analysis of enterprise values on company level (Guo et al., 2011; Levis, 2011; Meles, 2011)

c. Comparison of operating performance (e.g. sales, EBITDA) on company level – either with non PE-backed peers (Guo et al., 2011) or pre- and post-buyout (Cohn et al., 2014)

Table 2: Overview of quantitative studies

Author	Year	Title	Measurement method
Cohn et al.	2014	The evolution of capital structure and operating performance after leveraged buyouts: Evidence from U.S. corporate tax returns	Company level operating performance
Harris et al.	2014	Private Equity Performance: What Do We Know?	Fund performance
Phalippou	2014	Performance of Buyout Funds Revisited?	Fund performance
Higson, Stucke	2012	The Performance of Private Equity	Fund performance
Guo et al.	2011	Do buyouts (still) create value?	Company level valuation and operating performance
Levis	2011	The Performance of Private Equity-Backed IPOs	Company level valuation
Meles	2011	Do Private Equity Investors Create Value for Italian Initial Public Offerings?	Company level valuation
Phalippou, Gottschalg	2009	The performance of PE funds	Fund performance
Bergström et al.	2007	The Operating Impact of Buyouts in Sweden	Compay level operating performance

Source: own illustration

The variety of approaches to value creation already shows that the question whether or not PE creates value cannot be answered easily. Additionally, the measurement of fund performance can be viewed from different perspectives. On the one hand, it can be seen gross-of-fees, i.e. from the perspective of the funds. On the other hand, from the investor perspective of the limited partners, the return has be to measured net-of-fees, i.e. less the remuneration of the PE firm. Phalippou and Gottschalg

(2009) additionally point out that published fund performance is sometimes biased by inflated accounting valuation of ongoing investments.

Besides the different measurement approaches, there are serious sources of bias in the studies. First, there is a general bias in every performance benchmarking depending on the selection of the benchmark (e.g. stock market index or peer group) as well as the time period selected for the benchmarking. Phalippou (2014) additionally points out a systematic bias in prior U.S. studies that usually use the S&P 500 index as a benchmark. The problem is that buyout funds mainly invest in small companies that have a superior average performance than the S&P 500 companies. Comparing the buyout fund returns to small-cap indices shows an underperformance of buyout funds according to Phalippou (2014). Second, there is a general sampling bias due to data availability restrictions. Furthermore, the author of this paper is convinced that there is a selection bias in studies that are based on a sample of portfolio companies that have undergone a successful exit (e.g. Levis, 2011; Meles, 2011), i.e. a successful sale of the portfolio company by the PE fund. Typically, exited companies are more successful than the portfolio companies for which no buyer could be found.

Analysis of Prior Quantitative Results

The matrix of prior results in Figure 5 gives a rough overview of the previous studies. They are clustered into two columns: The ones that implicate a positive value impact and the ones that show a negative or no value-impact of PE firms. Overall, the results are mixed with a positive tendency.

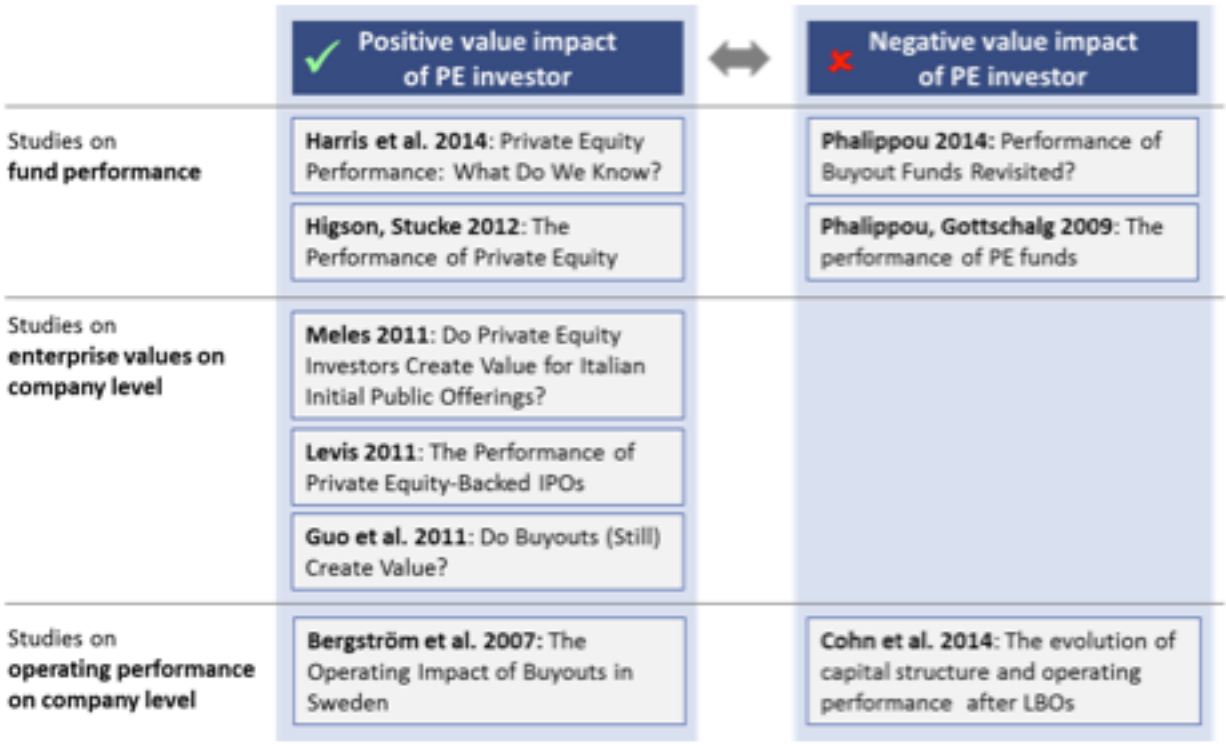
On fund level, some of the analysed studies (Harrison et al., 2014; Higson and Stucke, 2012) show that PE funds in average have consistently exceeded returns of the public markets. However, as Higson and Stucke (2012) find out, the variation between the different funds is considerable and excess returns are driven by the top performing funds. Also Phalippou (2014) confirms the outperformance against the S&P 500 with a different data set, but also shows a clear underperformance using a small-cap index as a benchmark.

Levis (2011) compares the aftermarket performance of PE-backed initial public offerings (IPOs) in the U.K. in the three years following the IPO and concludes that both the market performance and the operating performance exceeds other IPOs and the market as a whole. Also Meles (2011) obtains similar results in Italy which he explains with the relationship of PE investors with the key IPO market players.

With regard to the operating performance, Bergström et al. (2007) conclude that buyouts have a significant positive impact on the companies' operating performance. On the other hand, Cohn et al. (2014) state that they were able to find operating improvements in companies that have public financial statements. However, using corporate tax return data in a

larger data set, the authors found little evidence of operating improvements.

Figure 5: Matrix of prior results



Source: own illustration

The objective of this paper is not only to evaluate the overall ability of value creation, but also to break down the value creation into the different elements according to the framework of value creation: multiple expansion, EBITDA improvement and net debt reduction. The studies that merely compare returns on fund level or total enterprise values on company level are not suitable for this objective. However, some studies provide more detail and also the studies on operating performance on company level are useful to answer the question. According to a number of studies, multiple expansion plays an important role in creating alpha in primary buyouts (Acharya et al. 2013, Guo et al. 2011) while opportunities for multiple expansion are limited in secondary buyouts (Achleitner et al. 2014). EBITDA improvements are also found to be relevant in numerous studies (Acharya et al. 2013, Guo et al. 2011, Achleitner et al. 2014) although Cohn et al. (2014) find contrary evidence. Their results are also negative in terms of debt repayment as they find that firms do not reduce leverage after buyouts. They suggest that the higher leverage is a conscious part of the LBO structure.

Conclusion

Summary

The paper has shown based on the conceptual framework that value creation can be broken down into different effects. Besides multiple arbitrage, the PE industry uses a set of governance, strategic, operational and financial levers to create value on company level.

Evaluating empirical evidence on value creation it can be concluded that the results are mixed with a positive tendency that PE investments create economic value in average. It has also been shown that due to methodological difficulties, the question whether and how PE creates value cannot be easily answered. Moreover, it was shown that value creation has to be viewed from different stakeholder perspectives (limited partners, general partners, and portfolio company). Depending on the point of view, the value that is created differs due to the different participation of the stakeholders in the value creation.

In terms of the different elements of value creation from the framework, all of the elements combined – multiple expansion, EBITDA improvement and net debt reduction – seem to be relevant. However, also for this question the results are mixed.

Limitations and propositions for further research

The conclusions of this paper are based on prior studies. Consequently, the limitations of those studies – as discussed in this paper – are also relevant for this study.

Moreover, also the methodology of this paper is subject to limitations. First, not all available prior studies on the topic might have been included. Second, the studies could be compared on a more detailed level analysing the individual datasets and parameters used for the different models. Furthermore, based on the secondary data, an evaluation of the effects from the framework of value creation was only partially possible.

Finally, the interpretation of the results should be done carefully. Above all, the quantitative evidence of outperformance does not necessarily imply causation. If PE firms are able to create alpha, it could be caused either by active value creation or by a good selection of the investments that would have outperformed also without the investor.

Due to bias in the studies and a limited scope, further research has to be conducted before we can definitely unravel the mystery of value creation. For example, more detailed studies could be conducted that break down total returns into different effects.

Moreover, beyond the scope of this paper, there are research gaps that offer potential for interesting future studies. For example, research on individual value levers might offer interesting potential. For this type of

research questions, both quantitative and qualitative studies might be interesting.

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Toward Medical Tourist's Motivation, Perceived Value and Behavioral Intention in Thailand

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Abstract

According to the International Health Care Research Center Indexes, Thailand ranked sixth of the world medical tourism industry both by the tourism sector and the medical service sector. (International Health Care Research Centre, 2016) However, in today's highly global competitive environment, a number of countries in Asia is offering a medical care to attract medical tourists around the world. Thus, Thailand never cease to further develop medical tourism industry, attract more medical tourists , motivate them to lengthen their period of stay in Thailand and encourage the revisit intention in order to gain in the competitive position. This article aims to analyse the medical tourists' behaviour and the factors relate to lengthen their period of stay and the revisit intention of medical tourists to Thailand. This study applied the quantitative research by giving out 440 questionnaires to international medical tourists in Thailand. The findings indicated that medical tourists chose Thailand as their medical tourism destination because of the resonable price of medical expense and the opportunity to travel in Thailand afterward. These also relate to the result of the perceived value of the medical tourists which primarily perceived money value as the most important factor followed by interpersonal value and emotional value. Considering, medical tourism attribution of Thailand the respondents give value for the facility, activity, and medical tourism attraction respectively.The hypothesis test on perceived value of medical service in Thailand showed that the motivation of selection Thailand as the destination for medical treament was significant effect with the perception of medical tourism in Thailand in all 5 dimensions which are benefit value, money value, emotional value, interpersonal value and risk. The findings also found that interpersonal value and risk have an effect on holiday extension intention and emotional value influenced the revisit intention.

Introduction

Currently, medical tourism is a fast growing tourism sector, the global market for medical tourism is around US$ 439 billion, with an annual growth rate of 25 percent. In the next decade, three-fourthsof the world population will travel for medical reason. According to VISA and Oxford Economics have estimated that the value for medical travel market could soar to US$ 3 trillion by 2025 (Tore,2016). Factors such as rising health care costs, long waiting lists for surgery, an aging population, generally, they all increased the flow of patients seeking treatment abroad in the country with a beautiful scenery with a cheaper price, phenomenon known as medical tourism (Iordacheet. al., 2013) that combines medical treatment with travelling.

One of the main reasons why medical tourism become popularity is due to the cost advantages between the exporter country and the consumer. Apart from cost savings, there are also other reasons for the migration – long waiting period, uninsured procedures, uninsured patients, better quality of care, unavailability of certain procedures (due to ethical reasons), and specialized skills (due to home demand) (Carabello, 2008; Connell, 2006; Ehrbeck et.al, 2008; Freire, 2012; Hopkins et.al., 2010; Marlowe & Sullivan, 2007).

Thailand is poised to become a destination for medical tourism, one of the main reasons that make Thailand gained popularity for medical traveller is the acknowledgement of the top tourist destination. The International Healthcare Research Centre (2016) informed that Thailand ranked sixth of the world medical tourism industry both by the tourism sector and the medical service sector. The attractiveness of Thailand for medical tourists are the natural and cultural attractions, good weather, reasonable price for medical treatment such as cost of treatment, costs of accommodation or cost of travel when receiving the medical service. Moreover, the quality of facility and service of Thailand ranked thirteenth from the world medical service. The ranking is based on doctor's expertise, healthcare standards, or medical equipment. It also assesses the reputation of doctors or hospitalas well as internationalization of staff and accreditation of facility. Finally, it also considers the overall patient experience such as friendliness of staff and doctors.

Nowadays, over 256 medical services in Thailand which more than 100 of those medical services are private hospitals who provide a high quality of medical treatment that are up to an international standard. Since 2002, there was the rising number of international medical tourists which continues to grow rapidly. In 2017, Thailand has become the medical hub of Asia, where there is the highest number of medical tourists in the region. The market for medical tourism still increases with an annual growth rate of 14 percent in accordance with the growth of international tourist of Thailand, the growth rate of 12 percent annually (International Health Care Research Center, 2016).

In today's highly global competitive environment, a number of countries in Asia such as India, Malaysia and Singapore is offering a medical care to attract medical tourists around the world. Even though Thailand is known as the medical hub of Asia but we should still develop medical tourism industry and help to attract more medical tourists and motivate them to lengthen their period of stay in Thailand and encourage the revisit intention in order to gain in the competitive position. This article aims to analyse the medical tourists' behaviour who travel to Thailand for medical services and the factors relate to lengthen their period of stay and the revisit intention of medical tourists to Thailand. This study can assist both government and practitioners in developing various strategies to improve medical tourism industry.

Key issue - Perceived value

Customer-perceived value is one of the interesting topics among many scholars and entrepreneurs. Customer-perceived value is "the consumer's overall assessment of the utility of a product based on perceptions on what is received and what is given" (Zeithaml, 1988 p.14). Customers who are satisfied with the valuereceivedwill be the repeat customer and finally become loyalty to the company. Value also refers to the organisation's value from customers (Hallem & Barth, 2011; Yang & Yang, 2011). Hence value is counted for strategic weapon which can attract and keep customers with the company. Value can be a tool to create business competitiveness and stimulate decision making process. Service marketing scholars (Vargo & Lusch, 2009; Gummesson et al., 2010; Lusch & Vargo, 2011)

viewed value as a phenomenon occurred from customer evaluation of service received. From this point of view, value refers to the co-created value from both customers and business organisation (Saraniemi, 2010, Saarijarvi et al., 2013). This value creation also connects to the brand value (Merz et al., 2009).

In tourism context, value is defined by Wang (2012) as spiritual evaluation of the tourism product. The perceived value of tourists is determined by comparing the price and the utility of the same product. The decision on value is personal satisfaction where attitude and justify are involved which also related to one's experience as tourism is consumption experience (Gallarza & Gil, 2008). Thus, conversation is the main key of experience exchange a conversation is like knowledge sharing about new destination (Hollebeek & Brodie, 2009; Gallarza, Gil-Saura & Holbrook, 2011).In the study of service value in tourism and hospitality, the topic is geneasrlly involved with tourist perceived value, customer service, perceived price value and the measurement of customer quality service. (Cheng, Lin & Wang., 2010; Saraniemi,2011; Rakusic & Seric, 2012; Bajs, 2013; Bigovic & Prasnikar, 2013; Denys & Mendes, 2014) Regarding to the classification of value, it can be classified in different types such as functional value, economic value, social value, altruistic value, emotional/ hedonic value, psychological value, creative value epistemic value, conditional value, novelty value, utilitarian value, hedonistic value, extrinsic value, intrinsic value (Sheth, et.al, 1991; Babin.et.al, 1994; Russell-Bennett et al.,2009; William and Soutar, 2009; Yang and Yang, 2011; Yen and Teng, 2015).

Concerning to value in the context of medical tourism, Hallem and Barth (2011) referred to value as the important stimulus for medical tourists to travel for medical treatment in the third world country. Therefore the medical tourism entrepreneurs should have a clearly understand of value in order to response to the customer need and efficiently provide satisfaction to the customers. Their finding indicated that internet is the key factor for medical tourists in Tunisia in relation to the functional value. The medical service providers in Tunisia developed internet for preoperative diagnosis, follow-up, and postoperative care which applied telemedicine and E-health system such as E-patient history, the communication between the doctor and the patient on website and online consultant. Moreover, medical tourists viewed internet as an experience sharing, encouragement, and information search for other medical service offers in Tunisia. Yap and Chet (2012) explained the successful of applying Blue Ocean strategy in creating strategic positioning for medical tourism in Malaysia. Malaysia government launched the policy to support medical tourism to attract the middle class tourists in Asia and Pacific region. The findings indicated that value attributions were number of medical professionals, advance of technology, price, tourist attraction, travel and accessibility, government policy, and safety from natural disaster and political issues

Research Design and Method

This research explores medical tourists' behavior that received the medical service in Thailand and examines the factors that influence the extension of staying period and the revisit intention of medical tourists in Thailand. The study applied the quantitative approach by reviewing the related literature both from theories and previous research in order to develop the conceptual framework and then the questionnaire for the research. To ensure the content validity of the questionnaire and scale, questions selected were tested with 30 pilot sampling. All the variables used in the study had a reliability coefficient with Cronbach's alpha was higher than 0.7. (Cronbach,1970) The sampling for this study was 440 international medical tourists in Thailand. In order to capture medical tourists, a

purposive sampling technique was used. Because the study is interested in obtaining information from medical tourists who received the treatment or service in Thailand hence purposive sampling was the most appropriate technique. To ensure the suitable subjects (medical tourist) to answer the research questions, the quota sampling was then used in order to obtain the medical tourists from 3 main provinces of Thailand, which are Bangkok, Phuket and Pattaya. A total of 440 surveys were collected and used for quantitative approach data analysis through descriptive statistics, frequency, percentage, mean, standard deviation and inferential statistics. The data analysis process also applied the multiple regression analysis technique, which develops simple linear regression to predict the independent variables with more other variables with the level of significance at 0.05. (Thompson, 1994)

Findings - Profiles of medical tourist in Thailand

The study found that the majority of international tourists who received medical treatment in Thailand was female (57.05%), age 20-35 years old (49.09%), had a high school diploma (52.73%), employed in private company (35.91%), had incomes between 3,001-5,000 USD (35.91%) and spending time in Thailand for 6-10 days. In term of country of origin, 30% of the respondents were from East Asia and China is the majority country, Europe (25.68%), and ASEAN (20%) respectively. The findings indicated that medical tourists in Thailand changed from the previous medical tourists which are from North America, West Europe, and the Middle East. In the past, medical tourists from the Middle East were the main customer for medical industry in Thailand due to the high medical treatment cost in the Middle East, hence the Middle East patients were looking for country abroad for the lower medical service expense. This group of patient is a high-value tourist who could travel for a medical treatment in other countries and Thailand is the main destination. The Middle East medical tourists spend the most money abroad at the same time they require a luxury service. Most of them would travel with family or at least more than 1 companion. Also, after the medical treatment, medical service, or resting period the Middle East medical tourists would travel around Thailand and spend for the trip more than other tourists who have the same purpose.

Nowadays the main medical tourists in Thailand are from East Asia especially from China, Japan, and Korea. The results of the study answer both government and private policies of Thailand to be a medical hub of Asia. Moreover new policy aims to extend the staying period of Chinese medical tourists and companion from 60 to 90 days. This policy previously provided only for the Middle East tourist. For Japanese medical tourists, the results found that many Japanese companies sent their staff to do the annual check-up in Thailand due to the cheaper cost comparing to the same procedure in Japan so that the insurance company is now playing a key role for this situation.

The interesting findings from this research is that medical tourists have been to Thailand 2-5 times (73.64%) and a little more than half of those tourists (53.74%) used Thai medical service before which are dental (28.57%), health spa (20.71%), and beauty service (17.86%) respectively. The majority of the respondents (83.64%) have never been used medical service in other countries but for 16.36% of the respondents who received the medical service in other countries which are dental (12.78%), health spa (12.03%), annual check-up (9.02%). These findings show that there are a lot of repeat medical tourists in Thailand. For the medical expense, most of the respondents spent 2,001-3,000 USD (31.59%) and the majority of them manage their medical travel by themselves (52.95%). Those respondents search information about medical travel via internet (30.94%) and

friend recommendation (20.70%). Most medical tourist travel to Thailand with friends (45%) and stay in a hotel (83.64%), these indicate that the use of medical service in Thailand is “a day visit” which related to the findings on the purpose of medical trip; dental (27.70%), health spa (24.32%), and beauty service (13.51%). Majority of the respondent (72.95%) states that they travelled to the tourist attraction after the medical treatment, tourist activities are shopping (42.95%) and beauty spa (13.41%). However, most of the medical tourist in the study stated they did not want to stay longer (94.55%) which is the challenge of Thailand to encourage them to stay longer.

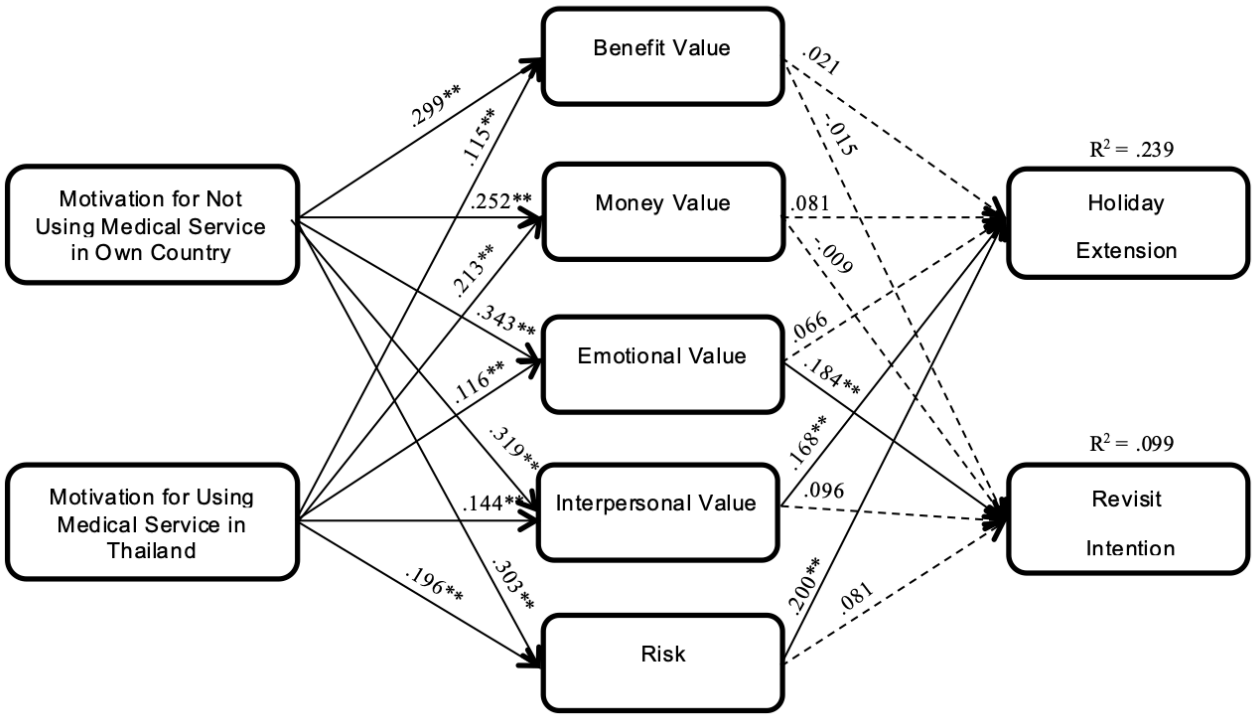
Considering, the reason of medical tourist who travel for the medical treatment in another country using 5 point Likert scales. The reason of the medical cost in their own country (=4.08) is the highest; followed by the nonstandard quality of medical equipment (=3.40), and the lack of medical specialist (=3.26) respectively. These results are in accordance with the motivation of medical tourists in Thailand which agreed with the reasonable price of Thai medical treatment (= 4.26) followed by the opportunity to travel in Thailand (=3.94). The respondents have a perceived value of medical tourism in Thailand; money value and interpersonal value were both in average at 3.10, followed by emotional value (= 3.08), risk (= 3.06), and lastly benefit value (=2.99). When focusing on the tourism attribution of Thailand that induce the medical tourism, the respondents rise the value of facility as the highest at 3.09, activity (= 3.06), medical tourism attraction (=3.03), accessibility (= 3.02), and accommodation (=2.96) respectively.

The Relationship between motivation, perceived value and behavioural intention of the medical tourist in Thailand

This study aims to examine the relationship between the motivation of the medical tourists who travel abroad to receive the medical treatment, the motivation to use the medical treatment in Thailand and the value of medical service, the value of medical tourism attribution. Moreover, the study also intends to explore the relationship between 2 types of value and the behaviour intention of medical touristespecially for the extension of staying period and the revisit intention.

Fourteen research assumptions were tested applying multiple regression analysis, using independent variable to create a linear relationshipbetween the motivation of the medical tourists who travel abroad to receive the medical treatment/ the motivation to use the medical treatment in Thailand/ the important and the perception of Thai medical tourism/ the important and the perception of medical tourism attribution/ the intention to lengthen the period of stay and the revisit intention. The tests were divided into 2 parts.

Assumption Testing Part 1



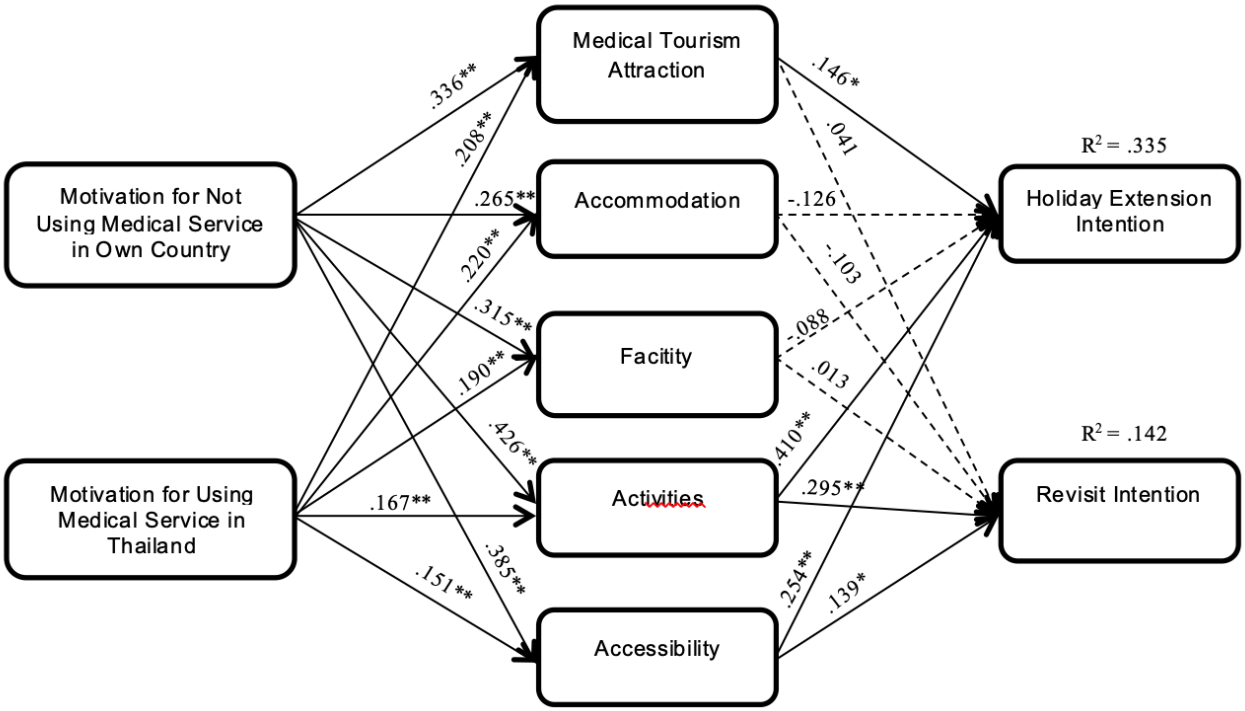
Parameter	β	Sig.
Motivation for Not Using Medical Service in Own Country --> Benefit Value	.299**	0.000
Motivation for Using Medical Service in Thailand --> Benefit Value	.115**	0.002
Motivation for Not Using Medical Service in Own Country --> Money Value	.252**	0.000
Motivation for Using Medical Service in Thailand --> Money Value	.213**	0.000
Motivation for Not Using Medical Service in Own Country --> Emotional Value	.343**	0.000
Motivation for Using Medical Service in Thailand --> Emotional Value	.116**	0.001
Motivation for Not Using Medical Service in Own Country --> Interpersonal Value	.319**	0.000
Motivation for Using Medical Service in Thailand --> Interpersonal Value	.144**	0.000
Motivation for Not Using Medical Service in Own Country --> Risk	.303**	0.000

Motivation for Using Medical Service in Thailand --> Risk	.196**	0.000
Benefit Value --> Holiday Extension Intention	0.021	0.711
Money Value --> Holiday Extension Intention	0.081	0.106
Emotional Value --> Holiday Extension Intention	0.066	0.217
Interpersonal Value --> Holiday Extension Intention	.168**	0.002
Risk --> Holiday Extension Intention	.200**	0.001
Benefit Value --> Revisit Intention	-0.015	0.811
Money Value --> Revisit Intention	-0.009	0.862
Emotional Value --> Revisit Intention	.184**	0.002
Interpersonal Value --> Revisit Intention	0.096	0.095
Risk --> Revisit Intention	0.081	0.218

**Significance at 0.01

According to findings, the motivation for travel for medical treament has an influence for the perception of medical tourism in Thailand in 5 dimensions which are benefit value, money value, emotional value, interpersonal value, and risk with significance level at 0.01.The analysis of the perception of medical tourism in Thailand to understand the behavior intention especially for revisit intention has found that interpersonal value and risk have an influence for holiday extension intention with significance level at 0.01. Moreover, emotional value also has an effect on revisit intention for medical service with significance level at 0.01.

Assumption Testing Part 2



Parameter	β	Sig.
Motivation for Not Using Medical Service in Own Country --> Medical Tourism Attraction	.336**	0.000
Motivation for Using Medical Service in Thailand --> Medical Tourism Attraction	.208**	0.000
Motivation for Not Using Medical Service in Own Country --> Accommodation	.265**	0.000
Motivation for Using Medical Service in Thai --> Accommodation	.220**	0.000
Motivation for Not Using Medical Service in Own Country --> Facitity	.315**	0.000
Motivation for Using Medical Service in Thailand --> Facitity	.190**	0.000

Motivation for Not Using Medical Service in Own Country --> Activity	.426**	0.000
Motivation for Using Medical Service in Thailand --> Activity	.167**	0.000
Motivation for Not Using Medical Service in Own Country --> Accessibility	.385**	0.000
Motivation for Using Medical Service in Thailand--> Accessibility	.151**	0.000
Medical Tourism Attraction --> Holiday Extension Intention	.146*	0.024
Accommodation --> Holiday Extension Intention	-0.126	0.072
Facitity --> Holiday Extension Intention	-0.088	0.146
Activity --> Holiday Extension Intention	.410**	0.000
Accessibility --Holiday Extension Intention	.254**	0.000
Medical Tourism Attraction -->Revisit Intention	0.041	0.573
Accommodation -->Revisit Intention	-0.103	0.198
Facitity --> Revisit Intention	0.013	0.847
Activity -->Revisit Intention	.295**	0.000
Accessibility -->Revisit Intention	.139*	0.038

*Significance at 0.05
**Significance at 0.01

According to findings, the motivation for travel for medical treament has an influence for the perception of medical tourism in Thailand in 5 dimensions which are medical tourism attraction, accommdation, facility, activity, and accessibility with significance level at 0.01.The analysis of the perception of medical tourism in Thailand to the behavior intention particularly for revisit intention has found that medical tourism attraction, activity, and accessibility have an influence for holiday extension intention with significance level at

0.05 and 0.01. Moreover, activity and accessibility also have an effect on revisit intention for medical service with significance level at 0.05 and 0.01.

Conclusion and discussion

This article presents medical tourists' behavior in Thailand by exploring demographic, motivation, value of medical service in Thailand, value of medical tourism attribution of Thailand and revisit intention. The study applied quantitative method using questionnaire in order to find the relationship between motivation,perceived value and behavior intention for medical tourism in Thailand, aiming to help Thailand to attract more medical tourists. The results provide an understanding of medical tourist behavior to find the suitable marketing strategies for extension their period of stay, revisit intention and finally achieving word-of- mouth marketing for Thailand as a medical tourism destination.
Through an empirical study, main conclusions of this study can be made as follows. The main reasons for not using medical service in their country is due to the expensive medical expense, the quality of medical equipment does not meet the standard and lasty lack of medical specilists. These reasons are consistent with the motivation to use the medical service in Thailand which are the resonable price of medical expense and the opportunity to travel in Thailand afterward. These also relate to the result of the perceived value of the medical tourists which primarily perceived money value as the most important factor followed by interpersonal value and emotional value. Considering, medical tourism attribution of Thailand the respondents give value for the facility, activity, and medical tourism attraction respectively.

The hypothesis test on perceived value of medical service in Thailand showed that the motivation of selection Thailand as the destination for medical treament was significant effect with the perception of medical tourism in Thailand in all 5 dimensions which are benefit value, money value, emotional value, interpersonal value and risk. The findings also found that interpersonal value and risk have an effect on holiday extension intention and emotional value influenced the revisit intention. Moreover, the hypothesis test on medical tourism attribution indicated the motivation to receive medical service in Thailand was significant effect with the perception of medical tourism attribution in all 5 dimensions which are medical tourism attraction, accommodation, facility, activity, and accessibility. The findings also discovered that medical tourism attraction, activity, and accessibility had an effect on holiday extension intention and also activity and accessibility highly influenced the revisit intention.

The findings of this study is in line with the study of Gan and Frederick (2011) who studied on tourist motivation and indicated three motivations of international medical tourists as treatment-related component, including quality of treatment, the care after operation, and the fame of the hospital; travel-related component, including place to relax, facilities, similarity of the culture, entry rule, and calmness of the country for treatment; and lastly economic component, including inexpensive cost, payment from the health company, and the speed of admission. The findings also related to the work by Hodges et al.,(2012)who stated that the medical tourist motivation were reasonable price, good quality, and accessibility of service from different country. The cheap price was the main factor that encouraged the patient, relatives, and health insurance especially in the high cost of living country travel to have a medical treatment in the cheaper country (Crozier & Baylis, 2010; Ryu & Han, 2010).

The findings of this study provide the suggestion for Thailand to be the medical tourism destination as medical professionals need to build trust and good experience for the medical tourist from their expertise. Trust building is from the good service, as the service is the heart of medical related business. Besides, the government support on the medical tourism is needed in order to assist the country entry for medical purpose. The good image of medical related services should be continuously promoted. As well as the image of safety when travelling in Thailand should be well support. For the new campaign to attract medical tourists, the government should provide travel insurance in order to build trust for international tourists to visit the country. The growth of medical tourism help the county in many ways. Hence the government encouragement policy on medical business investment, tax reduction for medical equipment, financial measures and infrastructure development will attract foreign patient as well as the special service such as visa for medical treatment and the promotional activity of medical industry.

There should also be a support on academic and technology on medical tourism, especially on the education and training development in order to have sufficient number of medical professional. Other types of medical tourism should be promoted such as health and wellness. Due to the fact that there is a significant number of tourists who come for health and wellness reasons. Thus, we should take this opportunity by creating more choices for the medical tourists such as a health check up with tour package. Integration of other medical related business such as medical suppliers, service providers will increase the wide range of medical tourism customers for example the tour package plus annual checkup, tour package plus dental service, and wellness tourism (Thai massage, Thai spa, senior recover programme, long term health care etc.) Lastly,Thailand medical tourism should focus on the specialised medical treatment that Thai doctors are expertise on in order to add value to the medical treatment and increase the competitive level of business in the industry. The well-known the specialised medical treatment in Thailand are such as heart surgery, knee Osteoarthritis, plastic surgery, dental, rehabilitation medicine and Thai traditional medicine etc.

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Focus on the information technology sector - A chance of economic development of Bosnia and Herzegovina

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Abstract

Bosnia and Herzegovina is amongst the last countries in terms of the success of the economy and business conditions in Europe. The reasons for this are war destruction, inadequate privatization and incomplete transition and great political disagreements. After the war, development strategies focused on the SME sector, which would dynamise the economy that large companies were not destroyed, and that the SME sector functioned as a cooperator. The SME sector is currently weak due to inadequate economic policy and exposure to the impact of globalization. In addition to economic ones, there are problems in the demographic and social sphere. Unemployment and low wages "force" migration to the younger population. The education system is not harmonized with the labor market. The human resources needed for the development of globally propulsive branches of economy are not produced. This limits the use of modern technologies and slows down economic development. This is a logical question to which sectors need to be focused in the future? The authors see the IT sector as a development opportunity for B&H. It is suitable for smaller, open economies because it does not require large infrastructure investments. By creating a more favorable environment for this sector, B&H could export "knowledge" in the form of different IT products and services. These theses are trying to explain based on the available information on the performance and correlation of the IT sector and the overall economy. In the period 2014.-2016., trends in the development of IT industry and the economy as a whole were compared. The aim of the paper is to show that even in an unfavorable market environment, the IT sector records more profitable growth. It should be a signal that it is considered as a serious strategic option. The perception of IT sector as a "profession of the future" will attract a greater number of young people. This would also eliminate the current demographic problems.

Key words: IT sector, economic development, unemployment, Bosnia and Herzegovina.

JEL Classification: O1, M15

Introduction

Bosnia and Herzegovina, according to most macroeconomic indicators of the success of the economy and business conditions, occupies one of the last places in Europe. The consequences of war destruction, a bad privatization model and a transition that has not yet been completed, with political disagreements at all levels of government, led Bosnia and Herzegovina to be positioned as one of the poorest countries in Europe. Before the last war, its economy was relying on large companies

and conglomerates, mainly in the manufacturing sector. After the war, the economic development strategy focuses on the SME sector, which should be the generator of development of Bosnia and Herzegovina's economy. Such an approach would be realistic and economically logical only in the case of large and powerful companies that would link the SME sector as subcontractors and which should become the main bearers of exports of goods and services. However, large companies have disappeared, and the SME sector has become relatively weak due to inadequate support from the government and economic policy makers, and at the same time exposed to the growing impact of globalization and foreign competition. Sometimes highly successful sectors, especially heavy industries, have been replaced by a sophisticated supply of processing industries from the low value added accumulation area, such as the wood or textile industry.

In addition to economic ones, Bosnia and Herzegovina has problems in other spheres of life, especially in the demographic and social sphere. Chronic unemployment, lack of jobs and low wages, and an extremely poor standard of living, affect the migration of a large proportion of the population, especially young people, "forcing them" to leave the country. The system of secondary and higher education is not harmonized and harmonized with the labor market and is not compatible with the needs of the economy for specialized experts and adequate human resources. Although the unemployment rate is high, the system does not produce the personnel needed to develop globally propulsive branches of the economy. This limits the use of modern technologies, which explicitly influences the slow economic growth and development of Bosnia and Herzegovina. Bearing in mind all this, questions are raised as to how can the economy of Bosnia and Herzegovina move more rapidly and faster? And given the permanent crisis in the post-Dayton period and the current state of the economy, the question is also raised on which sectors should put the primary focus in the future? Authors put their focus on the information technology sector (IT sector) as a development opportunity for Bosnia and Herzegovina. The second question that arises, can Bosnia and Herzegovina become the second Ireland if it were to focus more on the IT sector? Observed globally, this sector is suitable for smaller, open economies because it does not require large infrastructure investments, which are required in other sectors of the economy. If a favorable business environment would be created, the state could, instead of goods and services, export "knowledge" in the form of different types of information products and services. Given that this is a profitable and highly globalized sector of the economy, Bosnia and Herzegovina, in addition to improving macroeconomic indicators, increasing the efficiency and effectiveness of business operations, could partly solve some of the demographic problems, such as; "exodus of the brain", emigration of the young population and aging of the workforce.

The authors try to explain the justification of the focus on the IT sector on the basis of the available information on the participation of the IT service sector in the total economy. Combining data on the success of companies from this sector, collected from available databases, with basic macroeconomic indicators from official statistical publications in the period 2014-2016, comparisons of trends in the development of information service activities have been made with trends in the movement of gross domestic product and the economy as a whole. The aim of this paper is to show that even in the relatively unfavorable market environment that is present in Bosnia and Herzegovina, service activities from the IT sector record faster and more profitable growth than the economy as a whole. The three-year period is relatively short, but the

databases from which the data obtained, presented in the paper, do not currently give the possibility of extending research into trends before 2014.

The results of the comparison should be a signal to the national development strategies to take the IT sector as a serious strategic option in the development of the domestic economy. The primary focus on the IT sector will raise global competitiveness of Bosnia and Herzegovina, aggregate higher added value than the existing one, and a higher employment rate in this area. Given the current global perception of information technology activities as "the interest of the future," this will attract a large number of young and educated people. This will indirectly alleviate the current migration and demographic problems. To reach the level of development of the least developed countries of the EU, Bosnia and Herzegovina, according to projections, it needs several decades. If the growth strategy is based on innovation, knowledge society and IT sector, this period can be significantly shortened.

1. ECONOMIC DEVELOPMENT OF BOSNIA AND HERZEGOVINA IN THE PERIOD OF 2014-2016

Bosnia and Herzegovina's economic development is based on a neoliberal pattern based exclusively on macroeconomic, especially financial stability. Reduced market transformation of Bosnia and Herzegovina (hereinafter B&H) to a very narrow number of elements, which are carried out, first of all, to macroeconomic stabilization, whereby the country enjoys exclusively stability alone, nominal indicators, namely the stability and convertibility of the domestic currency, the fixed exchange rate and the low rate of inflation. As the guarantor of monetary stability, the Central Bank of Bosnia and Herzegovina operates according to the rules of the currency board. Since its existence, the currency board has shown certain advantages: (1) creating conditions for maintaining macroeconomic stability, (2) ensuring the convertibility of the domestic currency with a fixed exchange rate, (3) installing an automatic balance adjustment mechanism, (4) preventing or restricting monetization fiscal deficit and (5) strengthening the credibility of economic policy. However, he also exhibited certain shortcomings:

1) Tied the hands of the state with regard to discretionary monetary and fiscal policy

2) High unemployment is maintained

3) Devaluation can not be carried out (with devaluation foreign exchange rates, domestic production abroad can be cheaper and more competitive)

4) He could not play the role of the ultimate lender (if the commercial banks become illiquid and insolvent, the currency board can not help them to avoid liquidation)

Monetarist misconception ignores the structural characteristics of the real economy - economic growth, current account and unemployment, and for economic success, it overestimates the role of low inflation. The above case was confirmed on the example of B&H, in which any macroeconomic stability is fragile if there is no dynamism of the economy, that is, of increasing productivity, and hence the competitiveness of the country. Therefore, it can be concluded that Bosnia and Herzegovina is at the turning point and in the face of the big challenges of self-sustainable economic development with the application of a more efficient (and in any case unsustainable neoliberal model based on the so far implemented "Washington Consensus" model used in Bosnia and Herzegovina) models of

economic development and structural reforms on the path of real convergence to the European Union.

The movement of GDP of Bosnia and Herzegovina and its components in the period 2008-2016 is given in Table 1:

Table 1: Gross domestic product-GDP, by expenditure approach, current prices (in 000 BAM)

YEAR	Final consumption expenditure	Households	Goverment	Gross capital formation	Exports of goods and services	Imports of goods and services	GROSS DOMESTIC PRODUCT	YEAR
	1 =2+3	2*	3	4	5	6	7=1+4+5-6	
2008	27,541,410	21,902,675	5,638,735	6,908,991	6,851,447	15,136,742	26,165,106	2008
2009	26,899,589	21,085,602	5,813,987	4,905,673	6,201,956	12,086,332	25,920,886	2009
2010	27,324,906	21,461,605	5,863,301	4,143,473	7,532,260	13,005,289	25,995,350	2010
2011	28,117,400	22,058,555	6,058,844	4,915,744	8,403,440	14,637,143	26,799,441	2011
2012	28,606,834	22,505,058	6,101,777	5,039,414	8,481,929	14,635,943	27,492,234	2012
2013	28,970,223	22,860,496	6,109,728	4,864,652	9,035,823	14,496,377	28,374,321	2013
2014	29,313,354	23,057,028	6,256,326	5,229,688	9,299,204	15,477,350	28,364,896	2014
2015	29,665,144	23,381,597	6,283,548	5,332,896	9,884,363	15,216,480	29,665,923	2015
2016	30,042,257	23,776,124	6,266,133	5,867,947	10,587,840	15,635,760	30,862,284	2016

Source: Agency for Statistics of Bosnia and Herzegovina, Economic Statistics, National Accounts [downloaded from http://www.bhas.ba/saopstenja/2017/NAC_04_2008_Y8_0_BS.pdf , accessed 24.02.18]

If 2014 is taken as the base year, in 2016, changes in these macroeconomic indicators were recorded: GDP growth of 8.8% and exports with a growth of 13.9%:

Table 1-a: Elements of GDP (in 000 KM/BAM)

Elements of GDP	2014	2016	Index 2016/2014
Final consumption	29.313.354	30.042.257	102,5%
Gross investments	5.229.688	5.867.947	112,2%
Export	9.299.204	10.587.840	113,9%
Import	15.477.350	15.635.760	101,0%
Total GDP	28.364.896	30.862.284	108,8%

Based on data from Eurostat, GDP growth in 28 countries in Europe was 6.1% in the observed period, while export growth was 8.3%. From this it could be concluded that Bosnia and Herzegovina has somewhat higher growth rates than the countries of the European Union. On the other hand, the current level of development of Bosnia and Herzegovina is far lower than the EU average, and therefore significantly higher growth rates should be brought closer to the level of EU development. Obviously, Bosnia and Herzegovina has to accelerate its development, however, there is no clear vision and strategy to do so. From economic theory, it is known that economic growth and development (or productivity) are determined by four factors, which comprise: human capital, natural resources, physical capital, and technologies.

Bosnia and Herzegovina's increase in productivity should focus on two of the four listed factors, namely:

1) Human capital, knowledge and skills that workers gain through education (skill, knowledge and motivation of the workforce); Usually it is taken as the most important factor of economic growth and

2) Technology (technical-technological progress, innovation) implies the best / fastest technological methods for the production of goods and services.

High rates of economic growth can be achieved in fast-growing sectors of the economy. One of them, of course, is the information technology sector, which is mostly based on the strengthening of human capital and the application of technology. This sector serves as an accelerator for the development of all other sectors of the economy, which is why all EU countries strive to develop as much as possible and invest in this sector. Due to the rapid development of the IT sector, there is a growing demand for IT professionals and engineers. According to recent media reports, estimates are that by the year 2020, there will be two million software engineers in the world missing, and currently in Bosnia and Herzegovina they are missing about 6,000.

2. PERFORMANCE INDICATORS OF THE COMPANY IN THE PERIOD OF 2014-2016

Taking into account all the above stated conclusions on the economic development of BiH, which is focused primarily on monetary stability, it is necessary to explore the trends in the real sector of the economy. The main indicators of the success of Bosnia and Herzegovina companies in the period of 2014-2016 are given in Table 2:

The table shows that a significant increase in the number of employees in companies (+ 29.6%) and total sales revenue (+ 15.2%) is evident, however, revenues per employee (-11.1%) and costs pay per employee (-12.9%). This implies that the state of Bosnia and Herzegovina continues to have negative trends in the productivity segment, and that wages and wages are reduced, which further negatively affects total consumption.

It has already been stated earlier that according to the authors of this paper, Bosnia and Herzegovina's economic development should be based on the focus on the IT sector. Therefore, it is necessary to see what the results of the companies that operate in this sector are. To view performance indicators of companies from the IT sector, data were taken from the credit rating company LRC d.o.o. It was established in 2000 and operates on the principles and model of modern business support companies around the world. It is the oldest and largest credit rating company in Bosnia and Herzegovina that has a significant database of all registered domestic businessmen.

Table 2: Success indicators of B&H companies in the period of 2014-2016.

Category	Bosnia and Herzegovina - all activities	Index 2016/2014		
	2014	2015	2016	
number of companies	24.148	25.510	26.060	107,9%
total number of employees	403.486	498.581	523.069	129,6%
average number of employees	17	20	20	120,1%
total sales revenue (BAM)	53.701.574.000	61.311.480.000	61.876.319.000	115,2%
export revenue (BAM)	8.681.742.000	8.987.314.000	9.416.616.000	108,5%
average sales revenue (BAM)	2.223.852	2.403.429	2.374.379	106,8%
income per employee (BAM)	133.094	122.972	118.295	88,9%
average cost of salary per employee (BAM)	15.761	14.033	13.721	87,1%

Source: Edited by authors on the basis of Business Statistics of the Agency for Statistics of Bosnia and Herzegovina, [downloaded from http://www.bhas.ba/saopstenja/2017/SBS_00_2016_Y1_0_BS.pdf , accessed 24.02.18]

Data on the success of companies in the IT sector in the observed period are given in Table 3. It should be noted that only two key activities from the IT sector are included in the analysis, according to the current classification of activities from 2010:

1. Sector 62 - Computer programming, consulting and related activities and

2. Sector 63 - Information service activities.

Table 3: Success indicators for companies in the IT sector in the period of 2014-2016.

Source: Author's processing based on data from LRC d.o.o. Sarajevo.

By comparing the data from Table 2 and Table 3, higher growth rates in the IT sector are seen in relation to the companies as a whole. This claim can be supported by the following comparisons:

1. The number of companies providing different types of IT services increased by 23.1% in the observed period. In the same period, the total number of companies in Bosnia and Herzegovina increased by only 2.2%.

2. Out of the new 1,912 companies, the newly opened IT companies have 116 or 6.1%. This implies the conclusion that an increasing number of new entrepreneurs are interested in the IT sector and that the number of companies is growing rapidly.

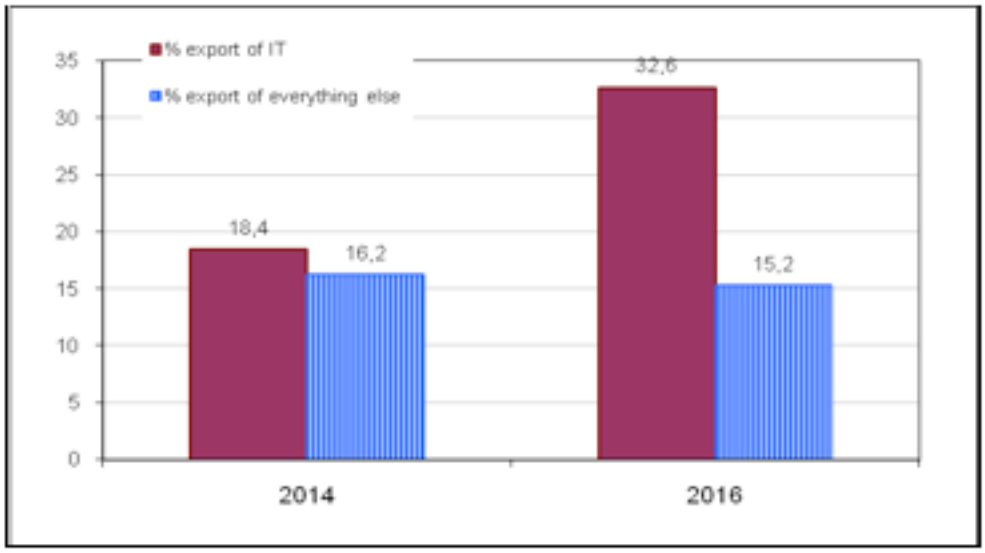
3. Analyzing trends in the number of employees, it can be noted that the number of employees in the IT sector has a relatively small share in the total number of employees. In 2014, this share was 0.9%. After two years, this share remained the same. It should be noted that the number of employees in the IT sector increased by 35.5% compared to base year 2014, while at the level of all companies this growth was 29.6%. And in the sphere of employees, there is evidently a faster increase in the number of employees in the IT sector compared to companies in general.

4. Sales revenue of IT companies in the observed period amounted to 0.7% of total company income and has a tendency for a stable share. New 44.24 million KM of sales revenues were generated, which is a growth of 12.1%. Unlike IT companies, the revenue of all companies grew 8.5%. And here it can be seen that the IT sector has better growth indicators than the average of all companies in Bosnia and Herzegovina.

5. Focusing on foreign markets, an impressive growth in revenues from export of IT companies was achieved. In 2014, it participated with 18.4% of their total revenues, so that two years later this share significantly increased to 32.6%. Practically, the growth of revenues from foreign markets increased from 98.5%.

6. If the export data is compared with all companies as a whole, where the share of export earnings fell practically from 16.2% to 15.2% and where in the 2014-2016 period this growth was only 8.5%, it can be concluded that the IT sector in Bosnia and Herzegovina one of the generators of export growth from Bosnia and Herzegovina.

Diagram 1: Change in the share of exports in total revenues



Source: Author's processing based on data from LRC d.o.o. Sarajevo.

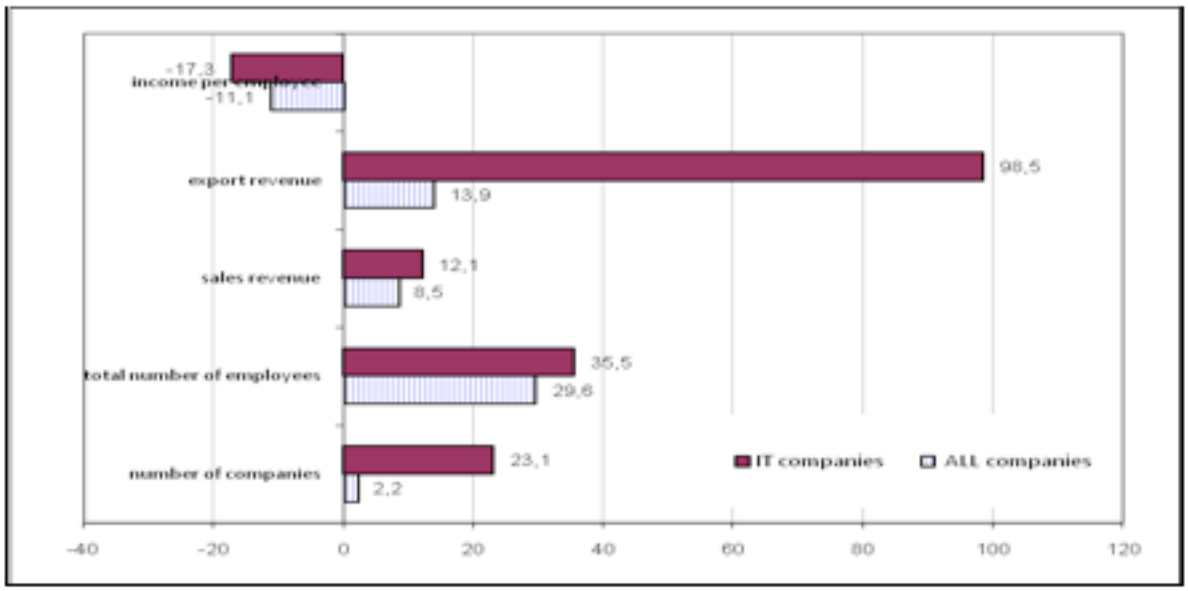
7. It is true that IT sector participation in this category of income is relatively small and amounted to only 0.8% in the base year. However, after two years, this share almost doubled to 1.4%.

8. The increase in the number of employees is not in linear relation to the increase in income at the level of companies as a whole. In the observed period there was a fall

in revenues per employee of 11.1%. In the IT sector this drop is 17.3%. This can be explained in part by increasing employment in this sector in the observed period compared to all companies in general.

All of the above statements are shown in diagram 2:

Diagram 2: Changes in success indicators for all IT companies in the period 2014-2016



Source: Author's processing based on data from LRC d.o.o. Sarajevo.

Analyzing the relationship between IT and all companies, it can generally be concluded that the IT sector has relatively little participation: the number of employees (approximately 0.9%), sales revenues (approx. 0.7%) and export earnings (growth from 0.8% to 1.4%), but on the other hand there are significantly higher growth rates mentioned and other indicators, which is evident that the IT sector strengthens its participation in the overall economy.

Category	Macroeconomic indicator	relation 2016/2014	relation 2016/2015		
	2014	2015	2016		
GDP (ESA 2010)	28.365.000.000	29.666.000.000	30.862.000.000	108,80%	104,03%
Nominal growth rates	-0,03%	4,59%	4,03%	13433,00%	87,80%
Real growth rates	0,25%	3,84%	2,92%	1168,00%	76,04%
Income from the sale of IT companies (groups 62 and 63) (BAM)	365.373.767	357.762.655	409.618.271	112,11%	114,49%
The share of sales sells IT companies in GDP	1,29%	1,21%	1,33%	103,04%	110,06%
Export of goods and services (BAM)	9.299.204.000	9.884.363.000	10.587.840.000	113,86%	107,12%
Share of exports of goods and services in GDP	32,78%	33,32%	34,31%	104,65%	102,97%
Exports of services (BAM)	2.679.520.000	2.916.800.000	3.005.770.000	112,18%	103,05%
Participation of exports of services in total exports	28,81%	29,51%	28,39%	98,52%	96,20%
Export of IT services (groups 62 and 63) BAM	67.318.662	98.327.335	133.595.958	198,45%	135,87%
The share of exports of IT services in total exports of services	2,51%	3,37%	4,44%	176,91%	131,85%

Comparison of the growth of the IT sector in relation to trends in the service sector and GDP is given in Table 4.

Table 4: IT sector participation in GDP

Category	Macroeconomic indicator			relation	relation
	2014	2015	2016	2016/2014	2016/2015
GDP (ESA 2010)	28.365.000.000	29.666.000.000	30.862.000.000	108,80%	104,03%
Nominal growth rates	-0,03%	4,59%	4,03%	13433,00%	87,80%
Real growth rates	0,25%	3,84%	2,92%	1168,00%	76,04%
Income from the sale of IT companies (groups 62 and 63) (BAM)	365.373.767	357.762.655	409.618.271	112,11%	114,49%
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Export of goods and services (BAM)	9.299.204.000	9.894.363.000	10.587.840.000	113,86%	107,12%
Share of exports of goods and services in GDP	32,78%	33,32%	34,31%	104,65%	102,97%
Exports of services (BAM)	2.679.520.000	2.916.800.000	3.005.770.000	112,18%	103,05%
Participation of exports of services in total exports	28,81%	29,51%	28,39%	98,52%	96,20%
Export of IT services (groups 62 and 63) BAM	67.318.662	98.327.335	133.595.958	198,45%	135,87%
The share of exports of IT services in total exports of services	2,51%	3,37%	4,44%	176,91%	131,85%

Source: Edited by authors based on data from LRC d.o.o. Sarajevo, Agency for Statistics of BiH,[http://www.bhas.ba/] 2018.

Table 4 shows the following:

• IT sector increased its share in GDP by 3.04% compared to 2014;

• Export of goods and services grew by 13.86% in the observed period, while exports of services grew slightly slower (+ 12.18%)

• Although the slower growth of exports of all services is present, the export of IT services increased by 76.91%, and in 2016 it recorded a share of 4.44%. This implies that the growth of exports of services is due in large part to the growth of exports of services from the IT sector.

• Bosnia and Herzegovina increased export of services by KM 326.52 million. Out of this, exports of IT services amounted to KM 66.28 million or 20.3%. Practically 1/5 of service exports is related to services from the IT sector.

3. INTERNAL INDICATORS OF THE SUCCESS OF IT COMPANY IN THE PERIOD OF 2014-2016

Additional arguments for strengthening the IT sector should be sought in the internal performance indicators of this sector, since there are no such indicators for all companies in official statistical publications. Internal indicators are given in Table 5:

Table 5: Internal performance indicators for sectors 62. and 63.

Category	Branch 62 Computer programming and consulting			Branch 63 Information service activities		
	2014	2015	2016	2014	2015	2016
total number of employees	2.870	3.283	3.806	671	678	993
total sales revenue (BAM)	331.549.654		314.540.115	346.427.275	33.824.113	43.222.540	63.190.996
average sales revenue (BAM)	798.915		682.300	681.943	388.783	432.225	574.464
total profit (BAM)	43.469.270		47.693.052	51.661.136	3.674.063	3.935.734	8.060.512
share of profit in total revenue	13,1%		15,2%	14,9 %	10,9 %	9,1 %	12,8 %
income per employee (BAM)	115.523		95.809	91.021	50.409	63.750	63.636
average cost of salary per employee	26.691		27.740	27.898	20.951	22.119	20.617
business expenses/ income	85,8%		83,4%	84,4 %	85,6 %	88,9 %	84,3 %
indicators of current liquidity	1,73		1,91	1,78	1,70	1,52	1,64
indicators of accelerated liquidity	1,56		1,75	1,64	1,56	1,40	1,46
% of other sources of funds	47,0%		44,0%	45,4 %	40,9 %	42,8 %	44,5 %
credit indebtedness/ capital	17,9%		17,0%	19,7 %	25,1 %	26,6 %	22,6 %
ROE (return on capital)	34,4%		32,5%	31,5 %	14,4 %	15,4 %	30,8 %
ROA (return on total assets)	17,9%		17,8%	17,6 %	8,3 %	9,0 %	16,9 %

Source: Edited by authors based on data from LRC d.o.o. Sarajevo, Agency for Statistics of BiH,[http://www.bhas.ba/] 2018.

Profitability - from Table 3 it is obvious that the IT sector has a profit growth of 26.7%, which is another indicator that attracts more and more new entrepreneurs into this sector. Comparing the realized profit with sales revenues, the profit rate of the IT sector increased from 12.9% to 14.6%. Interestingly, out of 470 IT companies in 2016, 468 of them were profitable, which is said by virtually all companies (99.6%) in this sector positively doing business.

Current liquidity, as a ratio of short-term assets and short-term liabilities for this sector in both branches, amounted to an average of 1.71 in the observed period. It is known from business practice that this coefficient should be over 2. However, these are branches of service activities where commodities stocks, as part of short-term assets, are relatively small. Therefore, for this sector, a more interesting indicator of accelerated liquidity, which eliminates the effect of stocks from this relationship. The average liquidity ratio for both branches is 1.56. This is significantly more than the minimum required value of 1.00. From this it can be concluded that this is a liquid and solvent sector of Bosnia and Herzegovina economy.

The rate of use of other sources of funds is on average 0.44. One of the common rules is that this rate should be optimal around 0.50. It can be concluded that the IT sector has somewhat lower indebtedness than the optimal ratio, and that it uses its own capital in comparison with other sources, which is certainly a positive indicator.

Credit indebtedness on equity amounts to an average of 21.5% for both sectors in the observed period. On the other hand, ROE - Return on Equity amounts to 26.5% for both industries. ROE is also a good indicator of the company's growth rate because it is considered that total revenues can not grow at a rate higher than the current ROE, other than borrowing from banks. It is usually considered that a ROE of 15% is the average for a good company. In this case, both sectors of the IT sector, as already mentioned, amount to 26.5%, which is significantly more than "a good 15%.

Bearing in mind the rule that ROE should be higher than the credit debt on capital, it is evident that the IT sector, on the whole, can service its credit indebtedness without major problems and show significant profitability.

Return on Assets (ROA - Return on Assets) how effectively a company earns money. ROA can also help in estimating the profitability of some new projects that the company plans, namely, a new project is profitable if the ROA is higher than the amount of loan interest rates. In the IT sector, the average ROA was 14.6%. The range of banks' interest rates in Bosnia and Herzegovina to finance the company's operations ranges from 3-12% and is stable over the past several years. Comparing this range of interest rate movements with realized ROA in the IT sector, it is evident that this sector as a whole is relatively profitable.

4. EXAMPLE OF SUCCESSFUL IT COMPANY IN BOSNIA AND HERZEGOVINA

The IT sector in Bosnia and Herzegovina has recorded a higher number of companies in the last three years. According to the previously mentioned data, almost everything is profitable. What is even more characteristic of the domestic market in this sector is to reduce the concentration of activity to a smaller number of larger companies. Another feature is the relocation of activities from the capital to the regional centers, primarily Mostar and Banja Luka. These trends are seen in the table.

Table 6: TOP 10 largest IT companies in total revenue in 2016.

Source: edited by authors based on data published in Poslovne novine, "100 largest in Bosnia and Herzegovina", number 1277, September / September edition, Sarajevo, 2017, p. 171.

Table 6. shows that the participation of TOP 10 IT companies decreased considerably in total revenue, by 8.6%. It is known that this sector as a whole grew by 12.1%, which suggests that higher sales revenues came from small and medium-sized IT companies, worse than the TOP 10. Also, the TOP 10 revenue fell by 14.5% in the observed period, which is contrary to the trends of IT sector growth in general.

In addition to reducing the participation of the TOP 10 companies, there is also the transfer of some of the largest IT companies outside the capital of Sarajevo. This is corroborated by the data on the first-ranked company N Soft d.o.o. Mostar and ten-rated Huawei Technologies d.o.o. Banja Luka. The table shows that they were not in the TOP 10 IT companies in 2014, at least not in terms of total revenues. Migration or strengthening of IT companies in other regions of Bosnia and Herzegovina contributes to the geographical, more balanced economic development of Bosnia and Herzegovina.

Finally, it should be noted that "relatively small investment of material resources and high profitability (approximately 15% annually) are some of the main motives that attract young people and new entrepreneurs to this sector. In addition, this sector has certain business specificities that are difficult to find in other sectors. These specificities are related to flexible working hours, the ability to work in their own home, dominant communication over the Internet, creativity and innovation, etc. "

The IT sector is relatively open to other sectors in Bosnia and Herzegovina. There are no major barriers to starting a business, and the primary focus is on human capital (one of the elements of productivity and the largest measure of economic growth), while material resources for this kind of activity are less demanding. This combination of human and material resources corresponds to the impoverished Bosnia and Herzegovina economy. An example of the first-ranked company Nsoft d.o.o. says that the focus on human resources can be achieved above-average business results. from Mostar. It is a company that has increased its income over 5 times in the past three years, which ranks it to the fifth position of the 50 fastest growing companies in the region of Southeast Europe (this award is given for the second year in a row). The company currently employs 190 employees and is mainly young people with IT experts. The owner of the company explains his own success through the focus on human resources. Business strategy Nsoft d.o.o. Mostar is based on the following postulates:

• The primary focus of business is on interpersonal relationships in the company;

• All employees are considered a large family and are trying to build a family atmosphere in the company;

• Every success of the company is shared with all employees;

• Focused on attracting young people who want to try out the IT sector.

• It is intensively working on team building and interconnecting not only on a business but also on a private level.

Bearing in mind the above, it can be concluded that the combination of a positive "family" climate and work in the field of IT technology represents a good marketing strategy for the company in attracting young people. The company is abandoning formal organizational structures and division of labor, applying the business practice applied by some of the largest IT companies in the world, primarily to the US. This

can be a good incentive for other companies in Bosnia and Herzegovina to consider implementing such a strategy in their business, in order to attract and retain as many young people (especially those educated) in Bosnia and Herzegovina.

CONCLUDING CONSIDERATIONS

Bosnia and Herzegovina lags behind the countries of the region and the European Union. Relatively slow growth of GDP and economy as a whole increases this backlog and it will take decades to catch up. Economic policy makers and development strategies need to speed up economic development, but the question is how. Also, it would be disputable which of the four components of economic development should put a greater focus on. The poor Bosnia and Herzegovina economy can not generate rapidly the material resources needed for this growth, and the use of natural resources is relatively limited and is rapidly exhausted. Therefore, these two components need not be in the strategic focus, but primacy should be given to human capital and technology.

The IT sector is one of the more promising sectors. The paper presents data that the growth of all observed parameters has shown that it is a sector in expansion. IT sector revenue grows faster than GDP growth, as well as the growth of companies as a whole. It is especially important to point out that growth is primarily based on the strengthening of exports, which in 2016 reached 1/3 sales revenue of the IT sector. This sector recorded a higher increase in the number of employees than the companies in general. Growing indicators of liquidity and profitability are attracting an increasing number of companies in this sector. Also, data were presented that the sector is optimum in charge and ensures profitability for almost all companies operating within it. In addition to all the mentioned sector, the growth of revenues of small and medium-sized companies in the IT sector and geographical dispersion across Bosnia and Herzegovina is recorded.

All the above points to the benefits of the IT sector in relation to others. Critical success factors are certainly human potentials that require specific knowledge and application of modern technologies in this sector. Taking into account the ubiquitous trends of globalization and global cohesion, this knowledge is increasingly available to young people in Bosnia and Herzegovina. Another important fact is that more and more young people turn to IT technologies instead of traditional occupations. This will make it easier for economic policy makers to create a critical mass of young people who will seek their existence in this sector. In legal and economic terms, it is relatively easy to provide a stimulating work environment for the IT sector, but for some other sectors in Bosnia and Herzegovina. Because of the stated operating conditions and flexibility of work, combined with the possibilities for achieving above-average wages, young people will not leave Bosnia and Herzegovina. This should reduce the negative demographic trends that have been present in the last few years.

In the end, in order to increase economic development, Bosnia and Herzegovina should do the following:

- Increase the level of awareness of the growing importance of the IT sector;
- Emphasize the IT sector in development strategies at all levels of government;
- Adapt education systems, especially higher education, to the needs of the IT sector;

• Create a favorable environment for the development of the IT sector in the economic and
legal sense;

• Bring legal solutions that are the current obstacle to the development of the IT sector (such
as, for example, electronic commerce laws, electronic stamps, etc.)

• Encourage the employment of young people in this sector through subsidies and co-
financing of the newly-newly employed;

• Provide tax and other facilities especially for start-up companies in this sector;
• Strengthen the capacities of institutions that promote the IT sector, such as technology and
IT parks, faculties, etc.

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The Micro-Foundation of Visual Merchandising in Italy

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Abstract

Purpose. *The aim of the research is to evaluate the relevance of Visual Merchandising Strategies in the context of shopping mall in Italy. In particular the paper investigates the relations among three aggregate variables Visual Merchandising Investment, Visual Merchandising Control Costs, and Visual Merchandising Areas of Interest in estimating Visual Merchandising Index. The aim of the case study is to offer solutions to shopping malls managers in order to define the level of investment able to affect consumer behaviour positively. The cultural context of the study is based on the literature of consumer buying behavior e.g. (Arora, et al., 2007). The object of the research is to find tools able to increase the ability of shopping mall managers to improve profits by visual merchandising tools.*

Design/Methodology/Approach. *Data from 177 firms operating in shopping malls in Italy in the years 2008,2011,2014 are used. Secondary data are used. A correlation analysis has been used to estimate essential relations affecting visual merchandising. Later a panel data regression has been performed to estimate the role of specific component of shelf marketing on Visual Merchandising. A third analysis is introduced to verify the relation among correlation analysis results and panel data coefficients.*

Findings. *Visual Merchandising Index is positively associated with Visual Merchandising Areas of Interest and negatively associated with Visual Merchandising Control Costs. The relation between Visual Merchandising Index and Visual Merchandising Investment misses statistical significance.*

What is original/value of the case study. *The originality of the paper is twofold either in the building of aggregate variables from a set of micro-variables affecting Visual Merchandising either in the comparative analysis of correlation and panel data regression results. Visual merchandising has a positive effect on profits due to the ability to increasing compulsive and impulsive behavior. But while visual merchandising can improve consumption, it can reduce saving ending in an increasing of financial fragility for households. On a theoretical point of view the case study supports marketing tools to improve the ability to improve consumption. The case study offers practical tools to increase the value of visual merchandising with specification of single variables regarding the optimization of technologies and human capital.*

Keywords*: Marketing, Visual Merchandising, Consumer Buying Behaviour, Panel Data, Case study, Secondary Data.*

1.Introduction

Visual Merchandising can increase impulsive buying behaviour(Mehta & Chugan, 2013). Data shows

> *« […] that most people -almost 90 per cent- make purchases on impulse occasionally […] and between 30 per cent and 50 per cent of all purchases can be classified by the buyers themselves as impulse purchases […].»* (Hausman, 2000)

In particular visual merchandisers use: hostess, video, images, shelf, display, extra-display and others elements to activate impulsive and compulsive behaviour(Bhatti & Latif, 2014).

Visual merchandising can improve shopping mall efficiency increasing impulsive buying behavior (Gudonavičienė & Alijošienė, 2015). The ability to generate impulsive and compulsive behaviour increases the probability to maximise profits.

The paper presents a Visual Merchandising Index-VMI based on the relation of Visual Merchandising Areas on Interests-VMAI, Visual Merchandising Control Costs-VMCC, and Visual Merchandising Investment-VMInv. The paper considers the relationship which exists amongst a set of variables, which are able to show the connection between Visual Merchandising and consumer buying behavior. The first section presents an introduction; the second section presents a literature review oriented to evaluate the relation between Visual Merchandising and Consumer Buying Behavior; third section presents a correlation matrix among different tools of Visual Merchandising to evaluate significant coefficients; the fourth section presents panel data models devoted to estimate the determinants of Visual Merchandising Index. In the fifth section the paper matches correlation matrix and panel data regressions results to evaluate the impact of shelf strategies on visual merchandising Index. Conclusions are presented in sixth section.

1.Literature review

(Arora, et al., 2007) analyze the role of Visual Merchandising in the retail sector in India. Authors estimate a growth in the presence of retail in the country even if there is manifested a lack in competencies able to build long term relationships with buyers that are built on loyalty, price, quality, variety and right image. (Arora, et al., 2007) consider the necessity to improve visual Merchandising skills to increase retail productivity in the contest of Indian food retail sector. Authors analyze the relation among a set of enterprise that are Food Bazar (Ambala), Subhiksha (Chandigarh) and ITC Choupal Fresh (Chandigarh). To solve this problem, authors have considered the possibility to introduce some technique devoted to increase the ability of retails to perform a model with Visual Merchandising. In particular they wrote:

> *« The VM encompasses a number of activities starting with the designing of layout for the store and packaging of products to the final display of products in the store. » (Arora, Sharma e Singh 2007, pag. 448)*

(Niazi, et al., 2015) afford the question of the role of Visual Merchandising to increase the efficiency of retailers. Authors concludes that:

> *« […] Visual Merchandising is the key to gain the competitive advantage against rivals in the market and it helps the firms to increase the sales, to create brand image, to attract the customers towards the products. So the firms should make strategic long term planning's to execute the visual merchandising at the POS (Point of Sale).»* (Niazi, et al., 2015)

In the mind of the authors, Visual Merchandising is not only a way to affect consumer behaviour, triggering impulsive and compulsive buying, but it is also a long run strategy, able to increase the ability of the retailer to gain profits. Visual Merchandising has a twofold meaning: a short-term orientation devoted to increase the role of consumer buying behaviours and a long-term effect able to shape retail organizational preferences.

(Baek, et al., 2015) analyses the case of a Visual Merchandising modelled using 3D technology. Authors show the usage of 3D technology to design store environment, emotional response, and approach behavior. The idea of the paper is to analyze different Visual Merchandising strategies that are optimized for different environments, customers and stores. 3D technology can be used to develop a complex set of ICT application devoted to increase Visual Merchandising efficiency finalized to activate consumer buying behaviour in a context of profit maximization.

(Štulec, et al., 2016) analyses the question of the presence of Visual Merchandising in the context of food retail. In particular authors consider the usage of Visual Merchandising as a tool to increase the customer's evaluation of retailer's image, store loyalty and overall satisfaction. Visual Merchandising can increase the level of quality, service in general, store layout, cleanliness and atmosphere. In particular the role of Visual Merchandising has an important role in strategic positioning of retail. Visual Merchandising is considered a tool to increase the ability of the store to use space to develop customer satisfaction, impulsive buying behavior, and store profit. Space retail is a source of profit for the store, but it can also produce a negative and detrimental aspects reducing sales, customer satisfaction, missing the activation process of impulsive buying behavior, and reducing profit maximization. In particular (Štulec, et al., 2016) found that the role of space store optimization growth with the increasing level of standardization in food store. The sensibility of customer for space management and for the level of space organization increase with the level of standardization. In particular an increasing level of standardization in food retail is associated with a growth in the sensibility of customer for space management such as for example for store layout, and shelf organization. If customers can find identical merchandise in more than one store, layout and presentation become key differentiating factors. (Štulec, et al., 2016) suggest that visual merchandisers can increase consumer buying behaviour through space management affecting consumer impulsive and compulsive decisions.

(Dash, 2016) analyses the level of Visual Merchandising in the context of apparel store. In particular authors try to verify the presence of social determinants able to explain conspicuous consumption. Conspicuous consumption is motivated by social and relational needs. The author relates conspicuous consumption with the necessity for possession able to denotate wealth and status. Consumers

acquire goods and services to be part of social communities, elites, consumer-tribes identified by the presence of brands. In particular (Dash, 2016) analyses the presence of a relation between materialism and conspicuous consumption in 640 emigrants from Kerala. In particular author suggests the presence of a positive effect of conspicuous consumption in apparel retail as a tool devoted to increase the sense of community among emigrants. The author concludes its paper with an ethical claim, suggesting apparel retail to increase the level of social responsibility "*stemming*" the nexus between materialism and conspicuous consumption.

(Bhatti & Latif, 2014) analyzed the role of Visual Merchandising in consumer buying behavior. Authors analyze the question of the competition among different retail to increase Visual Merchandising efficiency devoted to determine increase in consumer buying behavior. VM can be used as a tool to acquire new centrality in the context of competition among retailers. VM is disposed and organized to trigger consumer impulsive behavior. Authors have conducted an analysis by using 350 questioners in consumer outlets in Pakistan. Authors estimate four hypotheses that are window display, forum display, floor merchandising and shop brand name. Results show the presence of a positive association among four typologies of independent variables that are window display, forum display, floor merchandising and shop brand name and impulse buying behaviour analyzed as dependent variable.

(Martins, et al., 2012) analyses the question of Visual Merchandising in the context of e-commerce. The role of Visual Merchandising in the context of e-commerce is realized to increase impulsive buying behaviour devoted to increase profits. The usage of Visual Merchandising in the context of e-commerce is realized to increase the degree of consumer experience triggering consumption. Visual Merchandising can be realized also with the introduction of virtual reality to increase the possibility of consumers to make experience of consumption.

(Upadhyay, et al., 2017) presents an integrative review of Visual Merchandising with an application to Indian retail market. Authors show the necessity to innovate store management through the usage of visual merchandising specially to generate an increasing in individual consumer behavior. The development of retail store in Indian is a relatively recent phenomena. But with the increase of retail offer and the shaping of consumer preferences, the question of Visual Merchandising has acquired a central role. Visual Merchandising is used to exercise an influence in consumer preferences to generate changes in consumer decisions, either in an implicit and unconscious environment.

(Mehta & Chugan, 2018) have studied how Visual Merchandising affects the consumer behaviour in India. In particular authors have studied the role of window display, store front, shelf display, wall mount display, counter top display, electronic centre rack, signages /graphics and store atmosphere in determining consumer behaviour choices. Authors found that there is an individual and unique set of elements in the single retail store. Store can be oriented in an individual strategy devoted to increase the efficiency of Visual Merchandising as a tool to improve customer loyalty, impulsive and compulsive buying behavior.

(Khakimdjanova & Park, 2005) analyses Visual Merchandising in the context of e-tailers. Authors have conducted an analysis among 32 apparel e-tailers using content analysis. E-tailers have justified elements of strength and limitations trying to evaluate the relation between e-shopping environment and traditional retail channels. Authors analyze the presence of "*click*" and "*click and mortar"* e-tailers. "*Click*" tailers have a business model for e-commerce. "*Click and mortar*" e-tailers have the ability to create a strategy able to combine traditional business models with innovative business models. Authors report a series of data and statistics able to show how visual merchandising can affect consumer buying behavior. (Khakimdjanova & Park, 2005) suggest to implement a series of 2-D and 3-D tools able to increase the quality of the consumer experience in a context oriented to consumer buying behavior. The development of an online environment able to create services for consumers can be realized either with the realization of virtual reality.

(Ogle & Schofield-Tomschin, 2002) analyses the Visual Merchandising practices used for analyzed textile selling product in Mexican markets. In particular author have analyzed markets in Oaxaca Valley region. Authors shows a series of practices able to describe Visual Merchandising techniques. (Ogle & Schofield-Tomschin, 2002) have considered 7 elements. Grouping of similar products; linearity of displays, overlapping of products, use of fixtures, high levels of product density, on site production of density, on site production of products sold; wearing of product sold.

(W., et al., 2015) analyses the value of co-design visual merchandising in 3-D Visual store. Authors analyses the presence of Visual Merchandising activity in physical store top shed light on the future development of virtual store. In particular authors apply a facet theory analyzing Visual Merchandising directives in a 3-D store. Authors analyzed 67 virtual store in three different product categories i.e.: woman ready to wear, boy 's Cherokee, and men's swim wear. Authors have focused their research in three different VM facet: merchandising presentation- i.e. fixturing, product density, manner of presentation, and product adjacency; in store environment i.e. layout and interior; in store promotion-signage. Research shows that consumer give relevance to ecological aspect and that retailers should not only be focused in offering sale solutions but should also try to develop some value-based offer devoted to having a lifestyle impact on consumer behavior. Authors of the cited papers have the ability to increase the level of VM techniques able to create tools and strategies to fix together real and online strategies to boost consumer buying behaviour and customer satisfaction. Online Virtual Store and traditional Store can apply an integrated VM methodology to increase store performance and customer satisfaction.

(Ha, et al., 2007) analyses the question of Visual Merchandising apparel website. In particular authors try to analyze how visual merchandising techniques can be realized to effectively affect consumer buying behavior. The new age of Visual Merchandising is based on the relation between real store techniques and virtual techniques, trying to create an enviroment and a complex of recognized elements that can give to the consumer the possibility of living a complex experience in the context of buying behavior. The paper has analyzed 50 websites in US and 50 websites in Korea under a set of circumstances base on environment, manner of presentation and path finding. Authors find a relation

between offline store and online store Visual Merchandising techniques. In particular using a complex set of Visual Merchandising categories authors have realized a simulation able to shed lights on the possibility of the Visual Merchandising to realize new aspects. Authors have found the presence of a positive relation between VM techniques and consumer buying behaviors either in traditional store and in online store.

1.Secondary data analysis

The case study is builded on secondary data collected from (Zaghi, 2013). The use of data is twofold: at the first time data are used to perform a correlation analysis among Visual Merchandising techniques. Later Visual Merchandising data are used to estimate different dependent variables i.e. Visual Merchandising Investments, Visual Merchandising Area of Interests, Visual Merchandising Control Costs, and Visual Merchandising Index based on an inquiry of 177 firms operating in the shopping mall sector.

1.Correlation matrix

Data are organized to perform a correlation matrix based on a complex set of variables affecting Visual Merchandising based on (Zaghi, 2013). We have selected only relations that are in the sequent intervals [0.800;1.000] and [-0.800;-1.000]. Correlation analysis shows the sequent results:

Variables	Correlation	Value	
Correct Brand Exposition	*POP Material Presence*	Positive	0,958989
POP Material Maintenance	*Correct usage of POP material*	Positive	0,94925
Pricing Respect	*Stock Break*	Positive	0,94169
Respect Space/ Market Ratio	*Null or Partial Usage of POP Material*"	Positive	0,879466
End of Line	*Retail Resistance*	Positive	0,871888
New Position	*POP Material Maintenance*	Positive	0,864388
Correct Exposition for Product Line	*Position Towards Competitors*	Positive	0,862902

Central Resistance	*Portfolio Products Increasing*	Positive	0,843573
Correct Brand Exposition	*Correct Exposition for Product Line*	Positive	0,840477
Stock Break	*Correct Exposition for Product Line*	Positive	0,834829
Correct Exposition of Different Formats	*POP Material Maintenance*	Positive	0,834144
Bi-Monthly	*Product Category Development";*	Positive	0,831776
POP Material Presence	*Correct Usage of POP Material*	Positive	0,828989
POP Material Maintenance	*New Position";*	Positive	0,811186
General Director	*Retail Resistance*	Positive	0,809521
Position Towards Competitors	*Increasing in Mean Rotation*	Positive	0,805299
Stock Break	*Increasing in Mean Rotation*	Positive	0,804739
Portfolio Products Increasing	*Monthly*	Positive	0,804739
Fifteen-day	*Respect Space/ Market Ratio*	Negative	-0,80063

New Position	*Stock Break*	Negative	-0,80158
End of Line	*Non Correct Usage of Pop Material”;*	Negative	-0,80166
New Position”	*Multi-Week*	Negative	-0,80497
Stock Break	*New Position*	Negative	-0,8146
Position Towards Competitors	*Correct Exposition of Different Formats*	Negative	-0,81494
Marketing Director	*Stock Break*	Negative	-0,81646
Sellers	*Increasing in Space/ Market Ratio*	Negative	-0,81646
Correct Brand Exposition	*Increasing in Space/ Market Ratio*	Negative	-0,82302
Stock Break	*Consumer Behaviour Knowledge*	Negative	-0,82309
Position Towards Competitors	*POP Material Maintenance*	Negative	-0,82632
Correct usage of POP material	*Multi-week*	Negative	-0,82754
Position Towards Competitors	*POP Material Maintenance*	Negative	-0,82861

Position Towards Competitors	*Null or partial Usage of POP material*	Negative	-0,83853
Correct Exposition for Product Line	*Consumer Behaviour Knowledge*	Negative	-0,84132
Marketing Resistance	*Department*	Negative	-0,84249
Increasing in Mean Rotation	*Consumer Behaviour Knowledge*	Negative	-0,84299
Portfolio Products Increasing	*Central Resistance*	Negative	-0,84357
POP Material Presence	*Percentage*	Negative	-0,8442
POP Material Presence	*Categories*	Negative	-0,8444
Correct Exposition of Different Formats	*Respect Space/ Market Ratio*	Negative	-0,86133
Promoter/ Hostess	*Time Availability*	Negative	-0,86406
Position Towards Competitors	*Portfolio Products Increasing*	Negative	-0,87274
Null or Partial Usage of POP Material	*Respect Space/ Market Ratio*	Negative	-0,87947
Difficulty in Retail Clusterization	*Retail Resistance*	Negative	-0,88313

P O P Material Presence	*Multi-Week*	Negative	-0,88918
Commercial Resistance	*Agents*	Negative	-0,89093

CORRELATION ANALYSIS BASED ON DATA OF (Zaghi, 2013)			
RANK	**VALUE**	**VARIABLES**	
1	0,958989	Correct Brand Exposition	P O P Material Presence
2	0,94925	P O P Material Maintenance	Correct Usage of P O P material
3	0,94169	Pricing Respect	Stock Break
4	0,934886	Extreme Agency	Department
5	0,879466	Respect space/ market ratio	Null or Partial Usage of P O P Material
6	0,871888	End of Line	Retail Resistance
7	0,864388	New Position	P O P Material Maintenance
8	0,862902	Correct Exposition for Product Line	Position Towards Competitors

9	0,843573	Central Resistance	Portfolio Products Increasing
10	0,840477	Correct Brand Exposition	Correct Exposition for Product Line
11	0,837166	POP Material Maintenance	POP Material Presence
12	0,834829	Stock Break	Correct Exposition for Product Line
13	0,834144	Correct Exposition of Different Formats	POP Material Maintenance
14	0,831776	Bi-Monthly	Product Category Development
15	0,828989	POP Material Presence	Correct Usage of POP Material
16	0,816221	Respect Space/ Market Ratio	Position Towards Competitors
17	0,811186	POP Material Maintenance	New Position
18	0,809521	General Director	Retail Resistance
19	0,808425	Commercial Director	Stock Break

20	0,805299	Position Towards Competitors	Increasing in Mean Rotation
21	0,804739	Stock Break	Increasing in Mean Rotation
22	0,800001	Portfolio Products Increasing	Monthly
23	-0,80063	Fifteen-day	Respect Space/Market Ratio
24	-0,80158	New Position	Stock Break
25	-0,80166	End of Line	Non Correct Usage of Pop Material
26	-0,80497	New Position	Multi-Week
27	-0,8146	Stock Break	New Position
28	-0,81494	Position Towards Competitors	Correct Exposition of Different Formats
29	-0,81646	Marketing Director	Stock Break
30	-0,81655	Sellers	Increasing in Space/Market Ratio
31	-0,82302	Correct Brand Exposition	Increasing in Space/Market Ratio
32	-0,82309	Stock Break	Consumer Behaviour Knowledge

Dependent variable=Visual Merchandising Index		Independent variables, number of observation:27. Time Series:3; Cross Country:9.														
		Constant	Linear display	Out of display	Hostess promoter	Shelf	Other shelf	Extra Display	Promotional areas	Expository Values	Crowner	Posters	Base	Video	Images	Interactive Screen
Panel data with fixed effects	Coefficient	221,43	-4,98421	-1,61079	-2,21689	-3,83644	5,43112	0,84139	-0,729709	-0,675263	1,05785	-1,83088	0,541726	0,496368	1,70572	-1,50968
	Std. Error	59,0281	0,893904	0,61698	0,738736	0,993787	1,16813	0,178079	0,323853	0,217108	0,24 2565	0,28468	0,181857	0,190007	0,374141	0,293616
	t	3,751	-5,576	-2,611	-3,001	-3,860	4,649	4,74	-2,253	-3,110	4,361	-6,431	2,979	2,612	4,559	-5,142
	p-value	0,0038	0,0002	0,026	0,0133	0,0032	0,0009	0,0008	0,0479	0,0111	0,0014	<0,0001	0,0138	0,0259	0,001	0,0004
		***	***	**	**	***	***	***	**	**	***	***	**	**	***	***
Panel data with random effects	Coefficient	220,649	-4,918	-1,6251	-2,2398	-3,7382	5,32154	0,86639	-0,6992	-0,6981	1,02313	-1,8091	0,54281	0,5084	1,63072	-1,486
	Std. Error	55,6497	0,83691	0,58	0,6828	0,90786	1,08251	0,16515	0,29413	0,20201	0,22372	0,26642	0,16709	0,17506	0,33915	0,27307
	Z	3,965	-5,876	-2,802	-3,28	-4,118	4,916	5,246	-2,377	-3,456	4,573	-6,79	3,249	2,904	4,808	-5,442
	p-value	<0,0001	<0,0001	0,0051	0,001	<0,0001	<0,0001	<0,0001	0,0174	0,0005	<0,0001	<0,0001	0,0012	0,0037	<0,0001	<0,0001
		***	***	***	***	***	***	***	**	***	***	***	***	***	***	***
OLS	Coefficient	213,368	-4,57430	-1,69450	-2,24639	-3,07531	4,64865	0,98624	-0,605478	-0,803918	0,86093	-1,69445	0,58017	0,5408	1,27318	-1,34004
	Std. Error	62,0864	0,92866	0,65833	0,7075	0,82098	1,11073	0,17209	0,27689	0,21864	0,23114	0,29472	0,16407	0,17954	0,31198	0,28793
	t	3,437	-4,926	-2,574	-3,175	-3,746	4,185	5,731	-2,187	-3,677	3,725	-5,749	3,536	3,012	4,081	-4,654
	p-value	0,0049	0,0004	0,0244	0,008	0,0028	0,0013	<0,0001	0,0493	0,0032	0,0029	<0,0001	0,0041	0,0108	0,0015	0,0006
		***	***	**	***	***	***	***	**	***	***	***	***	**	***	***
WLS	Coefficient	207,692	-4,28722	-1,65878	-2,22249	-2,63084	3,84061	0,93265	-0,651841	-0,748371	0,79619	-1,47464	0,65381	0,51194	0,96381	-1,19875
	Std. Error	50,1938	0,8408	0,48981	0,57889	0,81269	1,03646	0,13235	0,23906	0,1733	0,25156	0,30649	0,13526	0,16171	0,27085	0,2745
	t	4,138	-5,099	-3,387	-3,839	-3,237	3,705	7,047	-2,727	-4,318	3,165	-4,811	4,834	3,166	3,558	-4,367
	p-value	0,0014	0,0003	0,0054	0,0024	0,0071	0,003	<0,0001	0,0184	0,001	0,0081	0,0004	0,0004	0,0081	0,0039	0,0009
		***	***	***	***	***	***	***	**	***	***	***	***	***	***	***

	33	-0,82632	Position Towards Competitors	POP Material Maintenance
	34	-0,82754	Correct usage of POP material	Multi-week
	35	-0,82861	Position Towards Competitors	POP Material Maintenance

Tests										
Panel data with fixed effects	*Mean dependent variables*	8,062691	*Schwarz criterion*	211,1139	*P-value(F)*	0,000407	*con p-value = P(F(14, 10) > 10,6575) = 0,000327595*			
	Sum of Residual	493,655	*Rho*	−0,194751	*Criterio di Akaike*	189,0847	*Test of the difference of interception among groups.*			
	R-quadro LSDV	0,940726	*SQM dependent variable*	17,89746	*Hannan-Quinn*	195,6351	*Null Hypothesis: groups that have a common intercept*			
	LSDV F(16, 10)	9,91918	*E.S. regression*	7,026058	*Durbin-Watson*	2,089078	*Test Statistics: F(2, 10) = 1,86684*			
	Log-verosimiglianza	−77,54234	*R-quadro intra-group*	0,937188	*Test Statistics: F(14, 10) = 10,6575*		*With p-value = P(F(2, 10) > 1,86584) = 0,204675*			
Panel data with random effects	*Variance 'between' = 37,8584*	*Theta usato per la trasformazione = 0,774328*	*Chi-quadro(14) = 168,533*	*Test Breusch-Pagan -*	*Asymptotic test statistics: Chi-square (1) = 0,161996*					
	Variance 'within' = 18,2835	*Conjunct Test on Regressors*	*With p-value = 1,35437e-028*	*Ipotesi nulla: varianza dell'errore specifico all'unità = 0*	*With p-value = 0,687325*					
OLS	*Mean Dependent variable*	8,06269	*Log-likelihood*	−35,78970	*Mean Dependent Variable*	8,06269	*R-squared correct*	0,85913	*Hannan-Quinn*	199,431
	Sum of Squared Residuals	677,97	*F(14, 12)*	9,67215	*Sum of Squared residuals*	779,664	*P-value(F)*	0,00005	*Hannan-Quinn*	107,359
	R-square	0,91859	*Log-likelihood*	−81,82543	*Rho*	−0,244770	*Akaike Criterion*	101,579	*SQM dependent variable*	17,8975
WLS	*Sum of Squared Residuals.*	22,3997	*Schwarz Criteria*	213,088	*E.S. of regression*	7,51648	*P-value(F)*	0,00018	*E.S. of the regression*	8,06052
	R-square	0,93499	*Schwarz Criteria*	121,017	*R-squared correct*	0,82362	*Akaike Criterion*	193,651	*Durbin-Watson*	2,09726
	F(14, 12)	12,3266	*Statistiche basate sui dati originali:*		*E.S. of regression*	1,36625				

36	-0,83853	Position Towards Competitors	Null or partial Usage of POP material
37	-0,84132	Correct Exposition for Product Line	Consumer Behaviour Knowledge
38	-0,84249	Marketing Resistance	Department
39	-0,84299	Increasing in Mean Rotation	Consumer Behaviour Knowledge

Independent variables. Number of observation: 27; Time Series:3; N=9.									
Dependent variable: Visual Merchandising Index		**const**	**Ahead Check out**	**Promotional Activity monitoring**	**Check of Pop Material**	**Pop material Maintenance**	**Space Control to Reduce out of Stock**	**Check Expired POP material**	**Extra-Display Procurement**
Panel data with Fixed Effects	*Coefficient*	27,671	0,893183	−0,382554	0,616694	−0,0465456	−0,417914	−0,237113	−0,352125
	Std. Error	9,6569	0,199077	0,134175	0,202775	0,0138897	0,171436	0,108643	0,16072
	t-rapport	2,865	4,487	−2,851	3,041	−3,351	−2,438	−2,182	−2,191
	p-value	0,0107	0,0003	0,011	0,0074	0,0038	0,0261	0,0434	0,0427
		**	***	**	***	***	**	**	**
Panel data with random effects	*Coefficient*	28,234	0,840639	-0,390145	0,607167	-0,0491442	-0,388326	-0,223143	-0,36995
	Errore Std.	10,3	0,186436	0,130301	0,196254	0,0132105	0,163982	0,104774	0,152055
	Z	2,741	4,509	-2,994	3,094	-3,72	-2,368	-2,13	-2,433
	p-value	0,0061	<0,0001	0,0028	0,002	0,0002	0,0179	0,0332	0,015
		***	***	***	***	***	**	**	**
OLS	*Coefficient*	29,866	0,657	−0,417602	0,555	−0,0574156	−0,272099	−0,173383	−0,403983
	Std. Error	10,158	0,175	0,142	0,209	0,013	0,166	0,111	0,146
	t-rapport	2,940	3,760	−2,945	2,662	−4,296	−1,640	−1,560	−2,759
	p-value	0,008	0,001	0,008	0,015	0,000	0,117	0,135	0,013
	Std. Error	***	***	***	**	***			**
WLS	*Coefficient*	30,8066	0,624312	−0,448400	0,562804	−0,0578138	−0,245806	−0,170969	−0,404324
	Std. Errors	9,86302	0,165326	0,138651	0,209548	0,0125079	0,165242	0,111864	0,141468
	t-rapport	3,123	3,776	−3,234	2,686	−4,622	−1,488	−1,528	−2,858
	p-value	0,0056	0,0013	0,0044	0,0146	0,0002	0,1533	0,1429	0,0101
		***	***	***	**	***			**

40	-0,84357	Portfolio Products Increasing	Central Resistance

TESTS						
Panel data with fixed effects	Mean dependent variable	8,062691	SQM dependent variable	17,89745	Conjuct test on regressors	
	Sum of Squared Residuals	1259,261	E.S. of the regression	8,606636	Test Statistics: F(7, 17) = 12,7285	
	R-squared LSDV	0,848797	R-square intra-group	0,839773	With p-value p-value = P(F(7, 17) > 12,7285) = 1,18978e-005	
	LSDV F(9, 17)	10,60354	P-value(F)	0,000022	Test for the difference of group intercepts.	
	Log-Likelihood	-90,18433	Akaike Criterion	200,3687	Null Hypothesis: groups have a common intercept	
	Schwarz Criterion	213,327	Hannan-Quinn	204,2219	Test Statistics: F(2, 17) = 2,27273	
	rho	-0,214420	Durbin-Watson	2,024086	With p-value = P(F(2, 17) > 2,27273) = 0,133441	
Panel data with random effects	Variance 'between' = 36,6375	Conjuct test for regressors		Test Breusch-Pagan -	Test di Hausman -	
	Variance 'within' = 46,6393	Asymptotical statistical test Chi-squared (7) = 93,9631		Null Hypothesis on error variance of the specific error=0.	Null Hypothesis: GLS estimation are not considered.	
	Theta used for transformation= 0,647982	With p-value = 1,8951e-017		Test Statistic Asymptotical Chi-squared (1) = 0,00187751	Asymptotical Statistical Test: Chi-squared. (2) = 1,55259	
				With p-value = 0,965438	With p-value = 0,460108	
OLS	Mean dependent variable	8,062691	rho	-0,043183	Hannan-Quinn 205,8489	
	Sum of Squared Residuals	1595,963	SQM of dependent variable	17,89745	Durbin-Watson 1,774955	
	R-squared	0,808369	E.S. of the regression	9,165045		
	F(7, 19)	11,44982	R-squared correct	0,737768		
	Log-Likelihood	-93,38318	P-value(F)	0,000012		
	Schwarz Criterion	213,1331	Akaike Criterion	202,7664		
WLS	Statistics on weighted data		Schwarz Criterion	102,7439	E.S. of the regression	1,186672
	Sum of Squared Residuals	26,75561	Statistics based on original data.		R-squared correct	0,758993
	R-squared	0,823879	Mean dependent variable.	8,062691	P-value(F)	5,64E-06
	F(7, 19)	12,69721	Sum of squared residuals	1609,531	Akaike Criterion	92,37717
	Log-Likelihood	-38,18859			Hannan-Quinn	95,45974

41	-0,8442	POP Material Presence	Percentage
42	-0,8444	POP Material Presence	Categories
43	-0,86133	Correct Exposition of Different Formats	Respect Space / Market Ratio

44	-0,86406	Promoter / Hostess	Time Availability
45	-0,87274	Position Towards Competitors	Portfolio Products Increasing
46	-0,87947	Null or Partial Usage of POP Material	Respect Space / Market Ratio
47	-0,88313	Difficulty in Retail Clusterization	Retail Resistance
48	-0,88918	POP Material Presence	Multi-Week
49	-0,89093	Commercial Resistance	Agents

1.Models

In this section we define the variable "*Visual Merchandising Index*". Visual merchandising index has been defined as a complex index built with the sequent formula:

$$VisualMerchandisingIndex_{it}=MeanVisualMerchandisingInvestment_{it}+MeanVisualMerchandisingInterestsAreas_{it}-MeanVisualMerchandisingControllingCosts_{it}$$

Visual Merchandising Index is defined as follows:

$$Mean(VMInvestments_{it})=LinearDisplay_t+OffTheCounter_t+CashDesK_t+HostessPromoter_t+Shelf_t+OtherInvestments_t$$

$$Mean(VMAreasOfInterest_{it})=ExtraDisplay_{it}+PromotionalAreas_{it}+Facing_{it}+ExpositoryLevel_{it}+HostessAndPromoter_{it}+LeafletBrochure_{it}+Crowner_{it}$$
$$19+Stopper_{it}+Poster_{it}+Basetters_{it}+GoodsCounter_{it}+PositiveVicinity_{it}+Flag_{it}+Animation_{it}+Video_{it}+Image_{it}+InteractiveScreen_{it}+DisplayCounter_{it}+ShoppingCart_{it}$$

Visual Merchandising Areas of Interests is defined as follows:

Model 1. Estimating the value of Visual Merchandising Index using variable from Visual Merchandising Investment and Visual Merchandising Areas of interest. Model 1 estimates the sequent formula:

$$VisualMerchandisingIndex_{it}=\beta_t+\beta_t LinearDisplay_t+\beta_t OutOfDisplay_t+\beta_t HostessPromoter_t+\beta_t Shelf_t+\beta_t OtherShelf_t+\beta_t ExtraDisplay_t+\beta PromotionalAreas_t+\beta ExpositoryValues_t+\beta Crowner_t+\beta_t Posters_t+\beta Base_t+\beta Video_t+\beta Images_t+\beta InteractiveScreen_t+u_{it}$$

$$+POPMaterialMaintenance_t+ExtraDisplayMaintenance_t+PriceAnalysis_t+OutOfStockControl_t+ControlOfPopMaterialExpired_t+DisplayProcurement_t+ExtraDisplayProcurement_t+CustomerBehaviorAnalysis_t$$

Results. "*Visual Merchandising Index*" has a negative association with "*Linear Display*" with a p-value equal to 0.000 in the case of panel data with fixed effects, with random effects, in the case of OLS and in the case of WLS. "*Visual Merchandising Index*" has a negative association with the value of "*Out of Display"* with a value of p-value statistical significant either in the case of panel data with fixed effects, with random effects, with OLS and WLS. "*Visual Merchandising Index*" has a negative association with the "*Hostess and Promoters*" with a p-value statistical significant in the case of panel data with random effects, with fixed effects, in the case of OLS and WLS. "*Visual Merchandising Index*" is negatively associated with "*Shelf*" with a p-value significant in the case of panel data with fixed effects, random effects, OLS and WLS. "*Visual Merchandising*" has a negative association with the residual variable "*Other Shelf*" that indicate a non-explicit complex set of shelf marketing strategies with a value of p-value statistical significant in the case of panel data with random effects, with fixed effects, and in the case of OLS and WLS. "*Visual Merchandising Index*" has a positive association with "*Extra Display*" with a p-value of 0.0008 in the case of panel data with fixed effects, equal to 0,000 in the case of panel data with random effects, OLS and WLS. "*Visual Merchandising Index*" has a negative association with the value of "*Promotional areas*" with a p-value equal to: 0,0479 for fixed effects; 0,0174 for random effects; 0,0493 for OLS and 0,0184 in the case of WLS. "*Visual Merchandising Index*" has a negative association to the value of "*Expository Values*" with a value of p-value equal to: 0,0111 in the case of panel data with fixed effects; equal to 0,0005 in the case of panel data with random effects; equal to 0,0032 in the case of OLS and equal to 0,001 in the case of WLS. "*Visual Merchandising Index*" has a positive association with "*Crowner*" with a value of p-value equal to: 0,0014 in the case of panel data with fixed effects; equal to 0,000 in the case of panel data with random effects; equal to 0,0029 in the case of OLS and equal to 0,0081 in the case of WLS. The value of "*Visual Merchandising Index*" has a negative association with the value of "*Posters*" with a p-value statistical significant equal to: 0,000 in the case of panel data with fixed effects, random effects, OLS and

WLS. "*Visual Merchandising Index"* has a positive association with *"Base"* with a p-value equal to 0,0138 in the case of panel data with fixed effects, with a value of 0,0012 in the case of panel data with random effects, with a value of 0,0041 in the case of OLS and 0,0004 in the case of WLS. "*Visual Merchandising Index*" has a positive association with "*Video*" with a p-value equal to 0,0259 in the case of panel data with fixed effects, equal to 0,0037 in the case of panel data with random effects, equal to 0,0108 in the case of OLS and equal to 0,0081 in the case of WLS. "*Visual Merchandising Index*" has a positive association with "*Images*" with a value of p-value equal to 0,001 in the case of panel data with fixed effects, with a value of 0,0001 in the case of panel data with random effects, equal to 0,0015 in the case of OLS and equal to 0,0039 in the case of WLS.

Estimating Visual Merchandising Investments through Visual Merchandising Control Costs. Time Series:3, N=9. Number of Observation=27.

Dependent Variable: _visual Merchandising Investment		const	Display Maintenance	Control of Pop material	Contract Checks	Extra-Display Maintenance	Price detecting
Panel data with fixed effects	Coefficient	14,6097	0,0416696	−0,0572712	0,0282137	−0,0252358	0,024423
	Std. Error	0,56621	0,00932567	0,0131157	0,0086551	0,007468	0,007562
	t-rapport	25,8	4,468	−4,367	3,26	−3,379	3,23
	p-value	<0,0001	0,0003	0,0003	0,0041	0,0031	0,0044
		***	***	***	***	***	***
Panel data with random effects	Coefficient	14,6295	0,0414533	-0,0571249	0,0273624	-0,0250585	0,025019
	Std. Error	0,573537	0,00906612	0,0127627	0,008325	0,007271	0,006908
	Z	25,51	4,572	-4,476	3,287	-3,447	3,622
	p-value	<0,0001	<0,0001	<0,0001	0,001	0,0006	0,0003
		***	***	***	***	***	***
OLS	Coefficient	14,6946	0,0405416	−0,0563380	0,0252538	−0,0243535	0,025965
	Std. Error	0,591006	0,00963805	0,0135996	0,00867099	0,00775	0,006434
	t-rapport	24,86	4,206	−4,143	2,912	−3,142	4,035
	p-value	<0,0001	0,0004	0,0005	0,0083	0,0049	0,0006
		***	***	***	***	***	***
WLS	Coefficient	14,4036	0,0424927	−0,0520515	0,0263681	−0,0283197	0,02589
	Std. Error	0,539834	0,00923281	0,0133256	0,00836679	0,007223	0,006188
	t-rapport	26,68	4,602	−3,906	3,152	−3,921	4,184
	p-value	<0,0001	0,0002	0,0008	0,0048	0,0008	0,0004
		***	***	***	***	***	***

TEST STATISTICS						
PANEL DATA WITH FIXED EFFECTS	Mean dependent variable	15,71481	SQM dependent variable	0,78159	Conjuct test on regressors	
	Sum of squared residuals	4,147612	E.S. of the regression	0,467221	Test: F(5, 19) = 9,14729	
	R-squared LSDV	0,738864	R-squared intra-groups	0,706502	p-value = P(F(5, 19) > 9,14729) = 0,000146073	
	LSDV F(7, 19)	7,679863	P-value(F)	0,000187	Intercepts test for difference of group intercepts.	
	Log-Likelihood	−13,02174	Akaike Criterion	42,04347	Null Hypothesis: groups have a common intercepts	
	Schwarz Criteria	52,41017	Hannan-Quinn	45,12603	Test Statistics: F(2, 19) = 2,05597	
	rho	−0,041096	Durbin-Watson	1,874445	With a p-value = P(F(2, 19) > 2,05597) = 0,155494	
PANEL DATA WITH RANDOM EFFECTS	Mean of dependent variable	15,71481	Variance 'between' = 0,0526214	Asymptotical test statistics Chi-squared (1) = 0,484917		
	Sum of squared residuals	5,068525	Variance 'within' = 0,153615	With p-value = 0,486204		
	Log-Likelihood	-15,72872	Theta used for transformation = 0,505107	Hausman Test-		
	Schwarz Criterion	51,23245	Conjunct test on regression-	Null hypothesis: GLS estimations are consistent e		
	SQM dependent variable	0,78159	Asympotitical statistical test Chi-quadro(5) = 48,8789	Asymptotical test statistics. Chi-squared (2) = 1,48511		
	E.S. of the regression	0,479987	With p-value = 2,3494e-009	With p-value = 0,475896		
	Akaike Criterion	43,45743	Test Breusch-Pagan -			
	Hannan-Quinn	45,76935	Null Hypothesis: variance of the specific error at the unity=0			
OLS	Mean dependent variable	15,71481	Schwarz Criterion	51,10808	P-value(F)	0,000107
	Sum of squared residual	5,045231	rho	0,205626	Akaike Criterion	43,33306
	R-squared	0,68235	SQM dependent variable	0,78159	Hannan-Quinn	45,64498
	F(5, 21)	9,02208	E.S. of the regression	0,490152	Durbin-Watson	1,464934
	Log-Likelihood	−15,66653	R-squared correct	0,606718		
WLS	Sum of squared residual	26,10403	E.S. of the regression	1,114921	Mean dependent variable	15,71481
	R-squared	0,70841	R-squared correct	0,638984	Sum squared residuals	5,195903
	F(5, 21)	10,2038	P-value(F)	0,000046	SQM dependent variable	0,78159
	Log-Likelihood	−37,85575	Akaike Criterion	87,71151	E.S. of the regression	0,497417
	Schwarz Criterion	95,48653	Hannan-Quinn	90,02343		

Model 2. Estimating Visual Merchandising Index using variable from Visual Merchandising Interesting areas and Visual Merchandising Costs.

Model 2 estimates the Visual Merchandising index with the same formula:

$$VisuaMerchandisingIndexit=\beta t+\beta tAheadCheckOut\ t+\beta tpromotionalActivityMOnitoring\ t+\beta tCheckOfPopMaterial\ t+\beta tPopMaterialMaintenance+\beta tSpaceControlToReduceOutOfStock\ t+\beta tcheckExpiredPOPMaterial\ t+\beta tExtraDisplayProcurement\ t+uit$$

Results. The value of "*Visual Merchandising Index*" has a positive association with the value of "*Ahead Check Out*" with a value of p-value equal to 0,0003 in the case of panel data with fixed effects, equal to 0,000 in the case of panel data with random effects, equal to 0,001 in the case of OLS and equal to 0,0013 in the case of WLS. "*Visual Merchandising Index*" has a negative association with "*Promotional Activity Monitoring"* with a value of p-value equal to 0,011 in the case of panel data with fixed effects, equal to 0,0028 in the case of panel data with random effects. equal to 0,008 in the case of OLS, and to 0,0044 in the case of WLS. "*Visual Merchandising Index*" has a positive association with "*Check of Pop Material*" with a p-value of 0,0074 in the case of panel data with fixed effects, equal to 0,002 in the case of panel data with random effects, and equal to 0,0015 in the case of OLS and 0,0146 in the case of WLS. "*Visual Merchandising index*" has a negative association with the value of "*Pop Material Maintenance*" with a p-value equal to 0,0038 in the case of panel data with fixed effects, equal to 0,0002 in the case of panel data with random effects and equal to 0,000 in the case of OLS, and 0,0002 in the case of WLS. "*Visual Merchandising Index*" has a negative association with the value of "*Space Control to reduce out of Stocks*" with a value equal to 0,0261 in the case of panel data with fixed effects, equal to 0,0179 in the case of panel data with random effects and without statistical significance in the case of OLS and WLS. "*Visual Merchandising Index*" has a negative association with "*Check Expired Pop Material*" with a value of p-value equal to 0,0434 in the case of panel data with fixed effects, with a value of p-value equal to 0,0332 in the case of panel data with random effects, and without statistical significance either in the case of OLS and in the case of WLS. "*Visual Merchandising Index*" has a negative association with the value of "*Extra-display procurement*" with a value of p-value equal to 0,0427 in the case of panel data with fixed effects, equal to 0,015 in the case of panel data with random effects, equal to 0,013 in the case of OLS, and equal to 0,0101 in the case of WLS.

Model 3. Estimating Visual Merchandising investments using shelf marketing variables. Model 3 estimates Visual Merchandising Investments as indicated:

$$VisualMerchandisingInvestmentsit=\beta tPromotionalAreas\ t+\beta tFacing\ t+\beta Stopper\ t+\beta tCounter\ t+\beta tFlag\ t+\beta tAheadCheckOut\ t+\beta ShoppingCarts\ t+uit$$

Results. "*Visual Merchandising Investments*" has a negative association with value of "*Promotional Areas*" with a value of p-value equal to 0,0065 in the case of panel data with fixed effects, equal to 0,0009 in the case of panel data with random effects, equal to 0,0038 in the case of OLS and equal to 0,013 in the case of WLS. "*Visual Merchandising Investment*" has a positive association with the value of "*Facing*" with a value of p-value equal to 0,0042 in the case of panel data with fixed effects, with a value of p-value equal to 0,0004 in the case of panel data with random effects, and equal to 0,002 in the case of OLS and 0,0064 in the case of WLS. *"Visual Merchandising Investments"* growths with the value of "Stopper" with a p-value equal to 0,0135 in the case of panel data with fixed effects, equal to 0,0039 for panel data with random effects, equal to 0,0004 for OLS, and equal to 0,0064 for WLS. *"Visual Merchandising Investments"* has a negative association with the value of "*Counter*" with a p-value equal to 0,0584 for panel data with fixed effects, equal to 0,0116 for panel data with random effects, equal to 0,0129 for OLS and equal to 0,0125 for WLS. *"Visual Merchandising Investments"* has a negative association with the value of *"Flag"* with a p-value equal to 0,001 for panel data with fixed effects, equal to 0,0001 for panel data with random effects, equal to 0,0001 for OLS, equal to 0,0001 for WLS. "*Visual Merchandising Investments*" has a positive association with the value of "*Ahead Check Out*" with a value of p-value equal to 0,017 in the case of panel data with fixed effects, equal to 0,0007 for panel data with random effects, equal to 0,0015 for OLS, and equal to 0,0071 for WLS. "*Visual Merchandising Index*" has a negative association with the value of "*Shopping carts*" with a p-value equal to 0,0384 in the case of Panel data with fixed effects, equal to 0,0117 in the case of panel data with random effects, equal to 0,0206 in the case of OLS, and equal to 0,0206 for WLS.

$$\begin{aligned}\boldsymbol{VisualMerchandisingControlIndex_{it}} &= \boldsymbol{\beta_{1t}} + \boldsymbol{\beta_{2t}}(\boldsymbol{ExtraDisplay})_{2t} + \boldsymbol{\beta_{3t}}(\boldsymbol{PromotionalAreas})_{3t} \\ &+ \boldsymbol{\beta_{4t}}(\boldsymbol{Facing})_{4t} + \boldsymbol{\beta_5}(\boldsymbol{Hostess})_{5t} + \boldsymbol{\beta_6}(\boldsymbol{Animation})_{6t} + \boldsymbol{\beta_7}(\boldsymbol{Images}) + \boldsymbol{u_{it}}\end{aligned}$$

TEST						
Panel data with fixed effects	Mean dependent variable	15,71481	SQM dependent variable	0,78159	Conjunct test for regressions-	
	Sum of squared residuals	4,878453	E.S. of the regression	0,535694	Test Statistics: F(7, 17) = 4,6064	
	R-squared LSDV	0,69285	R-squared among groups	0,654786	With a p-value = P(F(7, 17) > 4,6064) = 0,00475828	
	LSDV F(9, 17)	4,260838	P-value(F)	0,004957	Test for the difference of group intercepts	
	Log-Likelihood	−15,21272	Akaike Criterion	50,42545	Null Hypothesis. Groups have a common intercepts.	
	Schwarz Criteria	63,38382	Hannan-Quinn	54,27865	Test Statistics: F(2, 17) = 0,616076	
	Rho	0,118371	Durbin-Watson	1,49642	With a p-value = P(F(2, 17) > 0,616076) = 0,551688	
PANEL DATA WITH RANDOM EFFECTS	Mean dependent variable	15,71481	Variance 'between' = 0,0236819		Asymptotical statistical test: Chi squared (1) = 0,396226	
	Sum of squared residuals	5,247646	Variance 'within' = 0,180683		With a p-value = 0,529045	
	Log-Likelihood	â^'16,19757	Theta used for transformation = 0,322655		Hausman Test	
	Schwarz Criterion	58,76183	Conjunct test for regression		Null Hypothesis: GLS estimation are consistent	
	SQM dependent variable	0,78159	Asymptotical statistical test: Chi-squared (7) = 37,1271		Asymptotical statistical test: Chi-quadro(2) = 0,981591	
	E.S. of the regression	0,512233	With p-value = 4,43767e-006		With p-value = 0,612139	
	Akaike Criterion	48,39514	Test Breusch-Pagan			
	Hannan-Quinn	51,4777	Null Hypothesis on variance of spefic errors = 0			
OLS	Mean dependent variable	15,71481	Schwarz Criterion	58,68142	P-value(F)	0,00138
	Sum of squared residuals	5,232041	Rho	0,120471	Akaike Criterion	48,3147
	R-squared	0,670588	SQM dependent variable	0,78159	Hannan-Quinn	51,3973
	F(7, 19)	5,5255	E.S. of the regression	0,524758	Durbin-Watson	1,45576
	Log-Likelihood	−16,15736	R-squared correct	0,549225	Akaike Criterion	86,4564
WLS	Sum of squared residuals	21,48719	Mean dependent variable	15,71481	Hannan-Quinn	89,539
	R-squared	0,758235	Sum of squared residuals	6,040868	SQM of dependent variable	0,78159
	F(7, 19)	8,51269	E.S. of the regression	1,06344	E.S. of the regression	0,56386
	Log-Likelihood	−35,22821	R-squared correct	0,669164		
	Schwarz Criterion	96,82312	P-value(F)	0,000095		

	p-value	<0,0001	0,013	0,0064	0,0041	0,0125	<0,0001	0,0071	0,0206
		***	**	***	***	**	***	***	**

$$Visual Merchandising Investment it = \beta t + \beta t Display Maintenance t + \beta t Control Of Pop Material t + \beta t Extra Display Maintenance t + \beta t Price Detecting t + uit$$

MODEL 4. Estimating the value of Visual Merchandising Investment Index through Visual Merchandising Control Cost. Model 4 estimates Visual Merchandising Investment as indicated in the sequent formula:

Results. The value of "*Visual Merchandising Investment*" has a positive association with the value of "*Display Maintenance*" with a value of p-value equal to 0,0003 in the case of panel data with fixed effects, with a value of p-value equal to 0,0001 in the case of panel data with random effects, equal to 0,0004 in the case of OLS, and equal to 0,0002 in the case of WLS. "*Visual Merchandising Investment*" has a negative association with the value of "*Control of Pop Material*" with a value of p-value equal to 0,0003 in the case of panel data with fixed effects, equal to 0,0001 for panel data with random effects, to 0,0005 for OLS and equal to 0,0008 for WLS. "*Visual Merchandising Investments"* has a positive association with the value of Contract Checks with a value of p-value equal to 0,0041 in the case of panel data with fixed effects, equal to 0,001 in the case of panel data with random effects, equal to 0,0083 in the case of OLS and equal to 0,0048 for WLS. "*Visual Merchandising Investment*" has a negative association with the value of "*Extra-Display Maintenance*" with a value of p-value equal to 0,0031 in the case of panel data with fixed effects, with a p-value equal to 0,0006 in the case of panel data with random effects, equal to 0,0049 in the case of OLS, and equal to 0,0008 in the case of WLS. "*Visual Merchandising Investment*" has a positive association with the value of "*Price detecting*" with a p-value equal to 0,0044 in the case of panel data with fixed effects, equal to 0,0003 in the case of panel data with random effects, equal to 0,0006 in the case of OLS, and equal to 0,004 in the case of price detecting.

MODEL 5. Estimating the value of Visual Merchandising Area of Interest Using variables from "*Visual Merchandising Control costs*". Model 5 estimates Visual Merchandising Areas of Interests as indicated in the sequent formula:

$$VisualMerchandisingAreaOfinterests_{it} = \beta_{1t} + \beta_{2t}(PopMaterialMaintenance)_{2t} + \beta_{3t}(ContractChecks)_{3t} + \beta_{4t}(DisplayProcurement)_{4t} + \beta_{5t}(ExtraDisplayProcurement)_{5t} + u_{it}$$

Results. "*Visual Merchandising Area of Interests*" has a positive association with the value of "*Pop material Maintenance*" with a value of p-value equal to 0,0118

in the case of panel data with fixed effects, equal to 0,0022 in the case of panel data with random effects, equal to 0,004 in the case of OLS, and equal to 0,006 in the case of WLS. "*Visual Merchandising Areas Of Interests*" has a positive association with "*Contracts Checks*" with a value of p-value equal to 0,0264 in the case of panel data fixed effects, equal to 0,0182 in the case of panel data with random effects, equal to 0,0365 in the case of OLS and equal to 0,0342 in the case of WLS. "*Visual Merchandising Area of Interests"* has a positive association with "*Display Procurement*" with a value of p-value equal to 0,007 in the case of panel data with fixed effects, equal to 0,0025 in the case of panel data with random effects, equal to 0,008 in the case of OLS, and equal to 0,004 in the case of WLS. "*Visual Merchandising Area of Interests*" has a negative association with "*Extra-Display Procurement*" with a value of p-value equal to 0,0753 in the case of panel data with fixed effects, equal to 0,0356 in the case of panel data with random effects, equal to 0,0402 in the case of OLS and equal to 0,0277 in the case of WLS. The sum of coefficient is positive. The complex relation between Visual Merchandising Areas of Interest and Visual Merchandising Control Cost is positive. But if we consider the value of Constant the sum of coefficient turns to negative meaning that an increase in control costs reduce the value of areas of interests in Visual Merchandising Areas of Interests.

Estimating Visual Merchandising Areas of Interest using Visual Merchandising Control Costs Variables.

Visual merchandising Area of Interests		Costant	Pop Material Maintenance	Contracts Checks	Display Procurement	Extra-Display Procurement
Panel data with fixed effects	Coefficiente	−8,98431	0,31076	0,268732	0,383969	−0,263467
	Errore Std.	8,82903	0,112184	0,112126	0,127919	0,140426
	rapporto t	−1,018	2,77	2,397	3,002	−1,876
	p-value	0,321	0,0118	0,0264	0,007	0,0753
			**	**	***	*
Panel data with random effects	Coefficiente	-8,09572	0,327824	0,25269	0,369375	-0,2769
	Errore Std.	8,40808	0,106961	0,106965	0,122113	0,131778
	z	-0,9628	3,065	2,362	3,025	-2,101
	p-value	0,3356	0,0022	0,0182	0,0025	0,0356
			***	**	***	**
OLS	Coefficiente	−7,54545	0,343387	0,238578	0,357822	−0,284690
	Errore Std.	8,24578	0,106984	0,107155	0,122594	0,130558
	rapporto t	−0,9151	3,21	2,226	2,919	−2,181
	p-value	0,3701	0,004	0,0365	0,008	0,0402
			***	**	***	**
WLS	Coefficiente	−6,81691	0,318519	0,237182	0,370043	−0,266636
	Errore Std.	8,20017	0,10474	0,105014	0,115084	0,113086
	rapporto t	−0,8313	3,041	2,259	3,215	−2,358
	p-value	0,4147	0,006	0,0342	0,004	0,0277
			***	**	***	**

Statistical Tests						
Panel data with fixed effects	Mean dependent variable	43,1271	SQM dependent variable	10,26829	Conjunct test on regressors	
	Sum of squared residuals	871,9574	E.S. of the regression	6,602868	Test Statistics: F(4, 20) = 10,251	
	R-quadro LSDV	0,681928	R-squared infra-group	0,672152	With p-value = P(F(4, 20) > 10,251) = 0,000110771	
	LSDV F(6, 20)	7,14647	P-value(F)	0,000354	Test for differences in interncepts of the groups	
	Log-Likelihood	−85,22254	Akaike Criterion	184,4451	Null Hypothesis: groups have a common intercept	
	Schwarz Criterion	193,5159	Hannan-Quinn	187,1423	Test Statistics: F(2, 20) = 0,686604	
	rho	0,091843	Durbin-Watson	1,347472	With p-value = P(F(2, 20) > 0,686604) = 0,514758	
panel data with random effects	Mean Dependent Variable	43,1271	Variance 'between' = 4,05607	Asymptotical Test Statistics: Chi-Square (1) = 0,431937		
	Sum of square residuals	934,2264	Variance 'within' = 32,2947	With p-value = 0,51104		
	Log-Likelihood	-86,15375	Theta used for transformation= 0,314869	Hausman test-		
	Schwarz Criterion	188,7867	Conjunct test of Regressors	Null Hypothesis: GLS estimations are inconsistent		
	SQM dependent variable	10,26829	Asymptotical statistical test : Chi-squared (4) = 43,755	Asymptotical statistical test Chi-square (2) = 0,951542		
	E.S. of the regression	6,373268	With p-value = 7,21313e-009	With p-value = 0,621406		
	Akaike Criterion	182,3075	Test Breusch-Pagan -			
	Hannan-Quinn	184,2341	Null Hypothesis: variance of the specific error. = 0			
OLS	Mean of dependent variable	43,1271	Schwarz Criterion	188,7172	P-value(F)	0,000058
	Sum of squared residuals	931,8264	rho	0,147592	Akaike Criterion	182,238
	R-squared	0,660089	SQM dependent variable	10,26829	Hannan-Quinn	184,1646
	F(4, 22)	10,6807	E.S. of the regression	6,508129	Durbin-Watson	1,303449
	Log-Likelihood	−86,11902	R-squared correct	0,598287		
WLS	Statistics based on Weighted data					
	Sum of squared residuals	26,67713	E.S. of regression	1,10118	Statistics based on original data	
	R-squared	0,659043	R-squared correct	0,597051	Mean of dependent variable	43,1271
	F(4, 22)	10,63107	P-value(F)	0,00006	Sum of squared residuals	941,8237
	Log-Likelihood	−38,14893	Akaike Criterion	86,29787	SQM dependent variable	10,26829
	Schwarz Criterion	92,77705	Hannan-Quinn	88,22447	E.S. of regression	6,542948

Model 6. Estimating Visual Merchandising Control Cost using Area of Interests variables . Model 6 estimates Merchandising Control Costs has indicated with the sequent formula:

Results. "*Visual Merchandising Control Costs*" has a negative association with "*Extra-Display*" with a value of p-value equal to 0,0035 in the case of panel data with fixed effects, equal to 0,0003 in the case of panel data with random effects, equal to 0,001 in the case of OLS, and equal to 0,0001 in the case of WLS. "*Visual Merchandising control Costs*" has a positive association with the value of "*Promotional Areas*" with a value of p-value equal to 0,0058 in the case of panel data with fixed effects, equal to 0,0002 in the case of panel data with random effects, equal to 0,0001 in the case of OLS equal to 0,0001 and equal to 0,0001 in the case of WLS. "*Visual Merchandising Control Costs*" has a positive

	STATISTICS							
Panel data with fixed effects	*Media var. dipendente*	64,06239	*SQM var. dipendente*	17,58097	*Conjunct test on regressors -*			
	Somma quadr. residui	2107,818	*E.S. della regressione*	10,82132	*Test Statistics*: F(6, 18) = 7,52812			
	R-quadro LSDV	0,737715	*R-quadro intra-gruppi*	0,715049	*With p-value* = P(F(6, 18) > 7,52812) = 0,000377078			
	LSDV F(8, 18)	6,328442	*P-value(F)*	0,000578	*Test for the difference of the intercepts among the groups.*			
	Log-Likelihood	−97,13856	*Criterio di Akaike*	212,2771	*Null Hypothesis: groups have a common intercept*			
	Schwarz Criterion	223,9396	*Hannan-Quinn*	215,745	*Test Statistics* : F(2, 18) = 1,81173			
	Rho	−0,384634	*Durbin-Watson*	2,30133	*With a p-value* = P(F(2, 18) > 1,81173) = 0,191923			
Panel data with random effects	*Mean dependent Variable*	64,06239	*SQM dependent variable*	17,58097	*Variance 'between' = 42,8592*	*Asymptotical test statistics Chi-squared (6) =* 47,5994	*Asyemptotical Statistical test Chi-squared (1) =* 0,0251307	*Hausman - test*
	Sum of squared residuals	2705,346	*E.S. of the regression*	11,35016	*Variance 'within' = 78,0673*	*p-value =* 1,42069e-008	*p-value =* 0,874042	*Null Hypothesis : GLS estimation are consistente*
	Log-Likelihood	â^'100,5078	*Akaike Criterion*	215,0157	*Theta used for the transformation= 0,589731*	*Test Breusch-Pagan -*		*Asymptotical statistical test: Chi-squared*(2) = 1,4415
	Schwarz Criterion	224,0865	*Hannan-Quinn*	217,7129	*Test on conjuct regressors*	*Null Hypothesis : variance on specific error=*0.		*With p-value =* 0,486388
OLS	*Mean dependent variable*	64,06239	*F(6, 20)*	7,245848	*SQM dependent variable*	17,58097	*P-value*(F)	0,000325
	Sum, of squared residuals	2532,128	*Log-Likelihood*	−99,61455	*E.S. of the regression*	11,25195	*Akaike Criterion*	213,2291
	R-quadro	0,684916	*Schwarz Criterion*	222,3	*R-squared correct*	0,59039	*Hannan-Quinn*	215,9263
			rho	*−0,272013*			*Durbin-Watson*	2,203442
WLS	*Statistics based on Weighted data*				*Statistics based on original data*			
	Sum of Squared Residuals	19,14102	*E.S. of the regression*	0,97829	*Mean of dependent variable*	64,06239		
	R-squared	0,840386	*R-squared correct*	0,792502	*Sum of Squared Residuals*	2908,197		
	F(6, 20)	17,55035	*P-value(F)*	5,18E-07	*SQM dependent variable*	17,58097		
	Log-Likelihood	−33,66730	*Akaike Criterion*	81,3346	*E.S. of the regression*	12,0586		
	Schwarz Criterion	90,40545	*Hannan-Quinn*	84,03184				

			***	***	**		*	
WLS	*Coefficient*	4,95355	−0,748547	0,753553	0,371646	0,578679	−0,298160	0,343863
	Std. Error	8,03661	0,135555	0,117761	0,088801	0,155314	0,111919	0,132696
	t-rapport	0,6164	−5,522	6,399	4,185	3,726	−2,664	2,591
	p-value	0,5446	<0,0001	<0,0001	0,0005	0,0013	0,0149	0,0174
			***	***	***	***	**	**

association with "*Facing*" with a value of p-value equal to 0 ,038 in the case of panel data with fixed effects, equal to 0,0221 in the case of panel data with random effects, equal to 0,0401 in the case of OLS and equal to 0,0005 in the case of WLS. "*Visual Merchandising Control Costs*" has a positive association with the value of "*Hostess*" with a value of p-value equal to 0,0467 in the case of panel data with fixed effects, equal to 0,0396 for panel data with random effects, equal to 0,1377 for OLS and equal to 0,0013 in the case of WLS. "*Visual*

Merchandising Control Cost" has a positive association with the value of Animations with a p-value equal to 0,0165-panel data fixed effects, 0,0092-panel data random effects; 0,053-OLS; 0,0149-WLS. "*Visual Merchandising Control Cost*" has a positive association to "*Images*" with the sequent p-values: 0,0579-panel data fixed effects; 0,0505-panel data random effects; 0,1524-OLS, 0,0174-WLS. The sum of coefficients shows a positive relation amount Visual Merchandising Control Costs and Visual Merchandising Area of Interests variables showing that the increasing in Visual Merchandising Area of Interests turns in a growth of Visual Merchandising Control Costs.

5. The relation between correlation matrix and regression analysis

In the sequent analysis the paper puts together some of the relations generated from correlation analysis with results obtained from panel data regression. Data are from (Zaghi, 2013). In particular in this section six different set of multiple-relations are considered:

- ***Model 1****. The relation among Pop Material Maintenance, Visual Merchandising Investment Index and Visual Merchandising Areas of Interests;*
- ***Model 2****. The relation among variables from Controls and Visual Merchandising Investment Interests and from Areas of interest;*
- ***Model 3-****The relation among correlation matrix results and panel data regressions results in the sense of competition;*
- ***Model 4****-The relation among correlation matrix results and panel data regressions results in the sense of stock break and shelf inefficiency;*
- ***Model 5****-The relation among correlation matrix results and panel data regressions results in the context of Human Resource and Space Store Management in Visual Merchandising;*
- ***Model 6-*** *The relation among correlation matrix results and panel data regression results for marginal variables affecting Visual Merchandising Management.*

The and describe every single model describing the relation among correlation analysis and panel data regressions.

Model 1. The relation among Pop Material Maintenance and Visual Merchandising Investment Index and Visual Merchandising Areas of Interests.

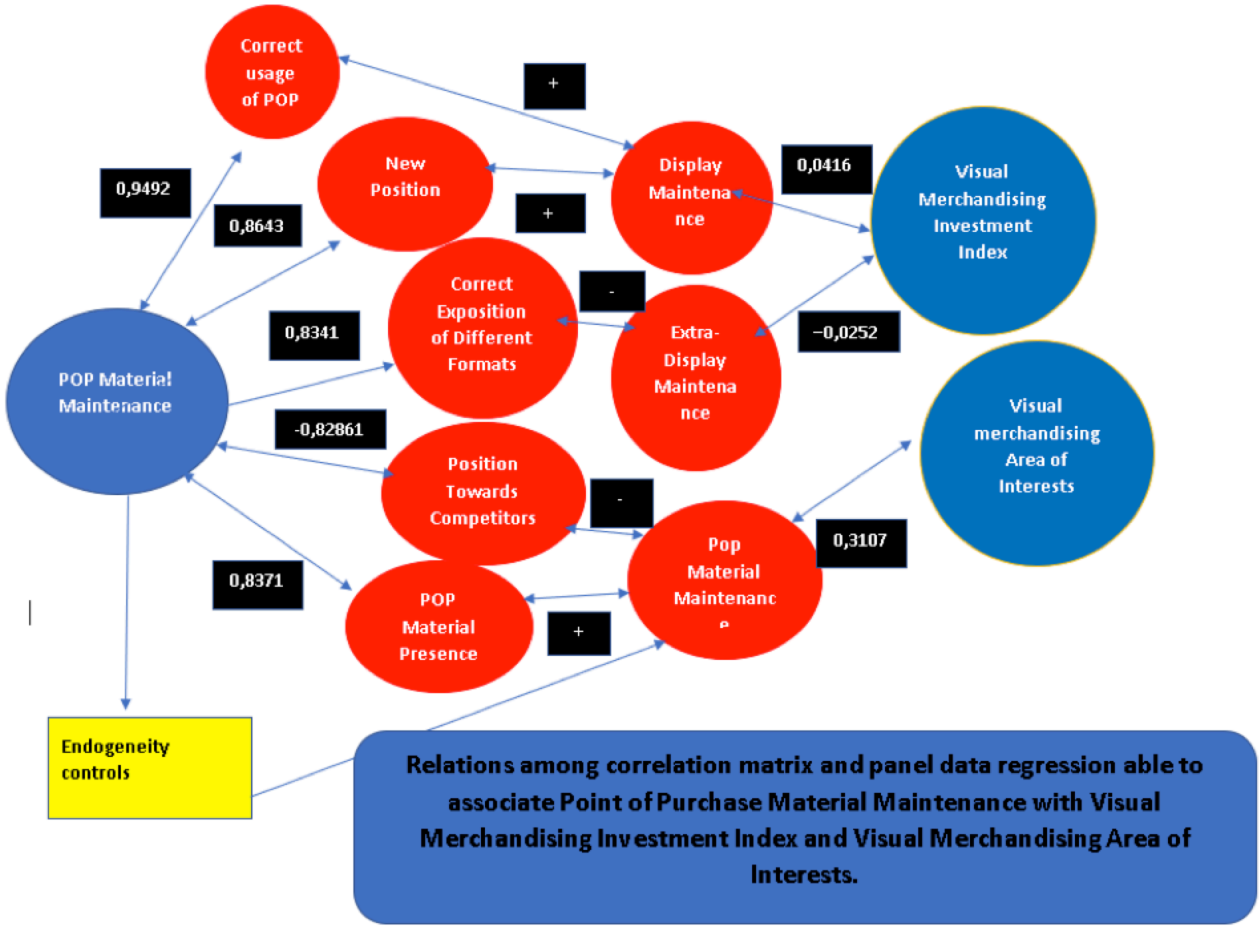
Model 1 presents an analysis between POP material maintenance and Visual Merchandising Investment Index and Visual Merchandising Area of Interests. In the figure 1, left-hand sides are associated with the results of correlation matrix, while right-hand results are associated with Visual Merchandising Investment Index and Visual Merchandising Area of Interests as a result of panel data regression analysis. The central part of the image is a compensation chamber in which results from correlation matrix are associated to coefficient of panel data regressions.

In the left-hand side POP material Maintenance is positively associated with Correct Usage of POP Material -0,9492-, New Position equal to 0,8643; Correct

Exposition of Different Formats with a correlation coefficient equal to 0,8341; with Pop Material Presence with a correlation coefficient equal to 0,8371; and with a correlation equal to -0,82861 with Position Towards Competitors.

Correct Usage of POP material has a positive association with Display Maintenance with a positive impact on Visual Merchandising Investment Index in the panel data regression with a coefficient equal to 0,0416. New position has a positive association with Display Maintenance with a positive effect on Visual Merchandising Investment Index with a level equal to 0,0416. Correct exposition has a negative association with Extra display Maintenance and has a negative impact on Visual Merchandising Investment Index with a level of coefficient equal to -0,0252. Position towards competitors has a negative association with Pop Material Maintenance with a positive effect on Visual Merchandising Area of Interests equal to 0,3107. Pop Material Presence has a positive association with POP material Maintenance with a positive impact of Visual Merchandising Area of Interests with a level of coefficient equal to 0,3107. In general, we can say that Correct Usage of Pop Material, New Position, Pop Material Presence have a positive impact on Visual Merchandising Investment Index and Visual Merchandising Areas of Interests, while Correct Exposition of Different Formats and Position Towards Competitors have a negative impact on Visual Merchandising Investment Index and Visual Merchandising Area of Interests.

Figure 1. Model 1-The relation among Pop Material Maintenance and Visual Merchandising Investment Index and Visual Merchandising Areas of Interests



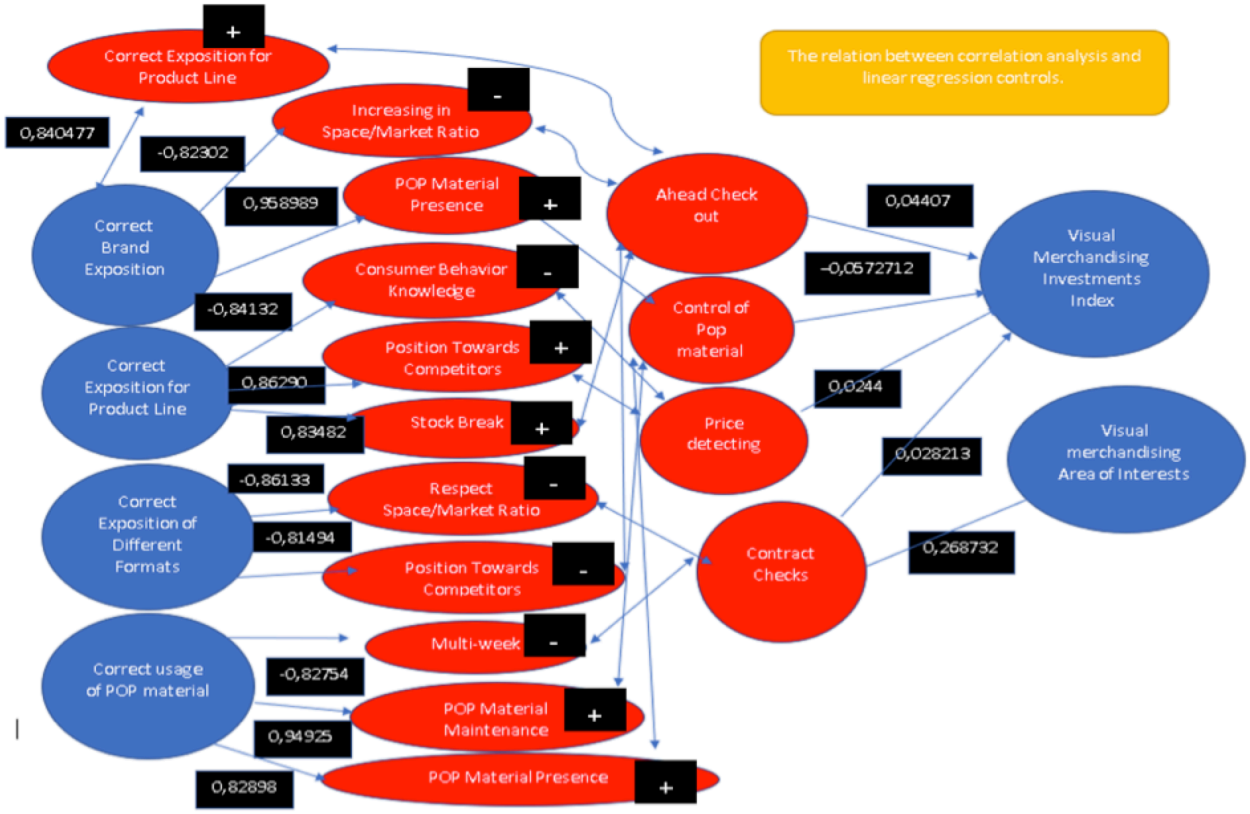
Model 2. The relation among variables describing Control and Visual Merchandising Investment Interests and Visual Merchandising Areas of interest.

In model 2 we analyze a set of variables affecting Control of POP materials in respect with Visual Merchandising Investment Index and Visual Merchandising Areas of Interests. As in the previous model the left-hand side of the graph is based on correlation matrix results, while the right-hand side is based on panel data regressions coefficients. The central part of the graph is a compensation chamber able to associate correlation matrix results with panel data regression results.

Correct brand Exposition has a positive association with Correct Exposition for Product Line with a level of correlation equal to 0,840477; has a negative association with Increasing in Space/Market Ratio with a correlation coefficient equal to -0,82302; has a positive association with POP material Presence with a level of correlation coefficient equal to 0,958989. Correct Exposition for Product Line has a negative association with Consumer Behaviour Knowledge with a level of correlation coefficient equal to -0,94132; a positive association with the level Position Towards competitors with a coefficient of correlation equal to

0,86290; a positive association with the level of Stock Break with a correlation coefficient equal to 0,83482. Correct Exposition of Different Formats has a negative association with the level of Respect Space/Market Ration with a level of correlation coefficient equal to -0,81494; has a negative association with the level of Position Towards Competitors with a level of correlation coefficient equal to -0,8149. Correct Usage of POP Material has a negative association to Multi-week with a level of correlation coefficient equal to -0,82754; has a positive association the level of Pop Material Maintenance with a level of correlation coefficient equal to 0,94925; positively associated with the level of POP Material Presence equal to 0,82898. The relation between Correct Exposition for Product Line and Ahead Check Out is positive and let to an increase equal to 0,04407 in Visual Merchandising Investment Index; the relation between Increasing in Space/Market Region and Ahead Check Out is negative and led to a reduction in Visual Merchandising Investment Index with a panel data regression coefficient equal to -0,0572712; the relation between Consumer Behaviour Knowledge and Price detecting is negative and led to an increase in Visual Merchandising Investment Index equal to 0,0244; the relation between Position Toward Competitors and Price Detecting is positive and lead to an increase in Visual Merchandising Investment Index equal to 0,0244; the relation between Respect Space/Market Ratio and Contract Checks is negative and is associated to an increase in Visual Merchandising Area of Interests equal to 0,268732; the relation between Position Toward Competitors and Ahead Check Out is negative and is associated with an increase in Visual Merchandising Investment Index equal to 0,04407; the relation between Multi-Week and Ahead Check Out is positive and is associated to an increase in Visual Merchandising Investment Index equal to 0,04407; the relation between POP Material Maintenance and Ahead Check Out is positive and is associated to an increase in Visual Merchandising Investment Index equal to 0,04407; the association between POP Material Presence and Ahead Check Out is positive and is associated to an increase in Visual Merchandising Investment index equal to 0,04407.

Figura 2.Model 2- The relation among variables describing Control of POP Material and Visual Merchandising Investment and Visual Merchandising Areas of interest.



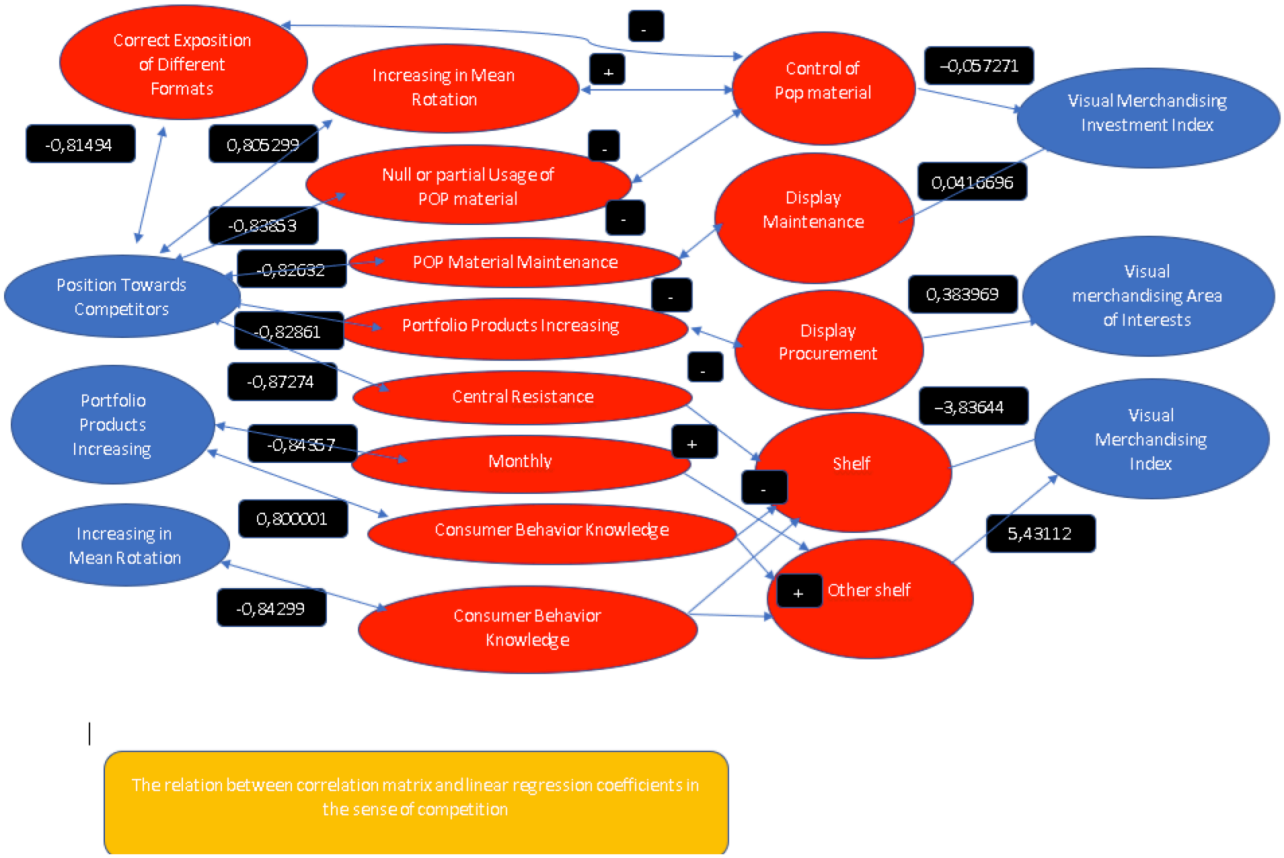
Model 3. The relation among correlation matrix results and panel data regressions results in the sense of competition.

In model 3 we analyze the level of relation between correlation matrix and linear regression coefficients in the sense of competition. The left-hand side of the graph is associated to the level of correlation matrix coefficients; the central part of the graph is a sort of compensation chamber based on the relation between correlation matrix results and panel data regression coefficients. Looking and the maps from left to right give a conceptual path of the complex set of relations generated by the match between Correlation Matrix Coefficient and Panel Data Regression Coefficients.

Position towards Competitors has a negative association with the level of Correct Exposition of Different Formats with a correlation matrix coefficient equal to -0,81494; Position Towards Competitors has a positive association with the level of Increasing Mean Rotation with a level of correlation coefficient equal to 0,805299 and is negatively associated with the level of Null or Partial usage of POP Material with a level of correlation coefficient equal to e-0,83683; has a negative association with the level of POP Material maintenance with a level of correlation coefficient equal to -0,82632; has a negative association with the level of Portfolio Products Increasing with a level of correlation coefficient equal to -0,828611; has a negative association with the level of Central Resistance with a level of correlation coefficient equal to -0,87274. Portfolio Products Increasing

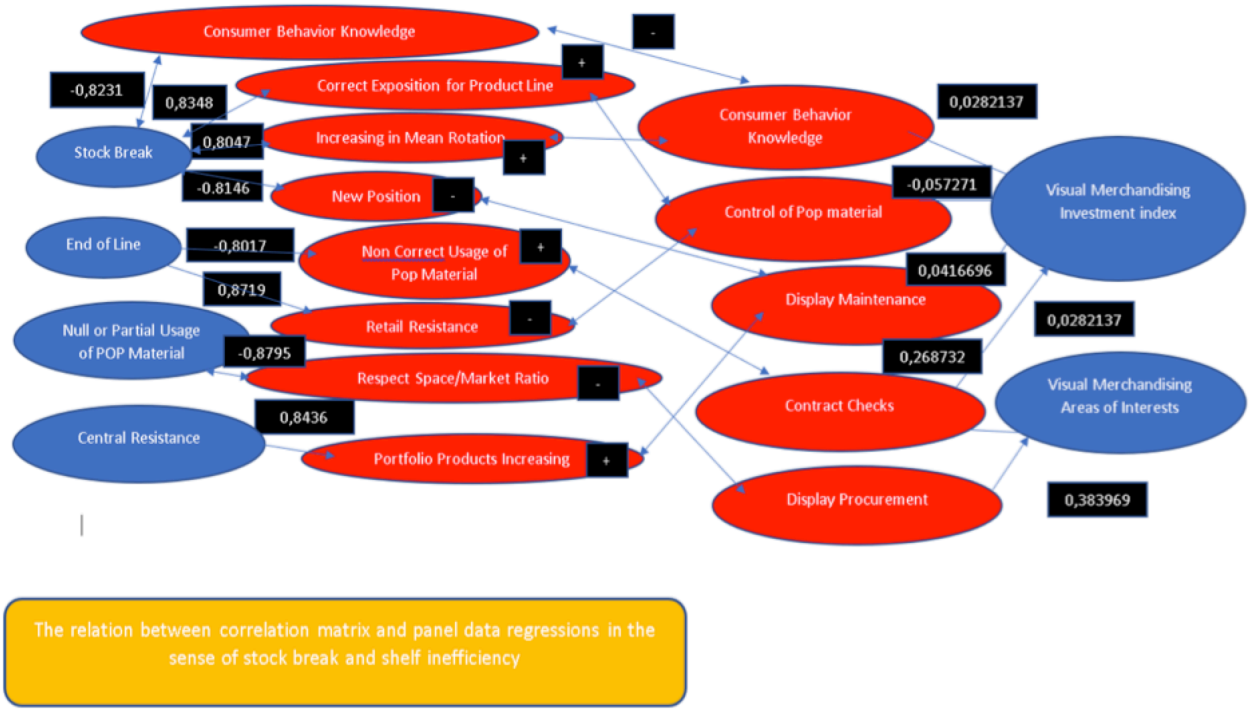
has a negative association with the level of Monthly with a correlation coefficient equal to -0,84357; and positively associated with the level of Consumer Behaviour Knowledge with a level of correlation coefficient equal to -0,84299.
There is a negative association between Correct Exposition of Different Formats and Control of POP Material with a negative impact on Visual Merchandising Investment Index equal to -0,057271; there is positive relation between Increasing in Mean Rotation and Control of POP Material with a negative impact on Visual Merchandising Investment index equal to -0,057271. There is a negative relation between Null or Partial Usage of POP Material and Control of POP Material with a negative impact on Visual Merchandising Investment Index equal to -0,057271. There is a negative relation between POP Material Maintenance and Control of POP Material with a negative impact on Visual Merchandising Investment Index equal to -0,057271. There is a negative relation between POP Material Maintenance and Display Maintenance with a positive impact on Visual Merchandising Investment Index equal to 0,0416696. There is a negative relation between Portfolio Products Increasing and Display Procurement with a positive impact on visual merchandising Area of Interests equal to 0,383969; there is a negative relation between Central Resistance and Shelf with a negative impact on Visual Merchandising Index equal to -3,83644; there is a positive relation between Monthly e and Other Shelf with a level of Visual Merchandising Index equal to 5,4; There is a negative relation between Consumer Behaviour Knowledge and Shelf with a negative impact on Visual Merchandising Index equal to -3,83644; there is a positive relation between Consumer Behaviour Knowledge and Other Shelf with a positive impact on Visual Merchandising Index equal to 5,43.

Figura 3.Model 3-The relation among correlation matrix results and panel data regressions results in the sense of competition.



Model 4-The relation among correlation matrix results and panel data regressions results in the sense of stock break and shelf inefficiency

Figura 4.Model 4-The relation among correlation matrix results and panel data regressions results in the sense of stock break and shelf inefficiency.

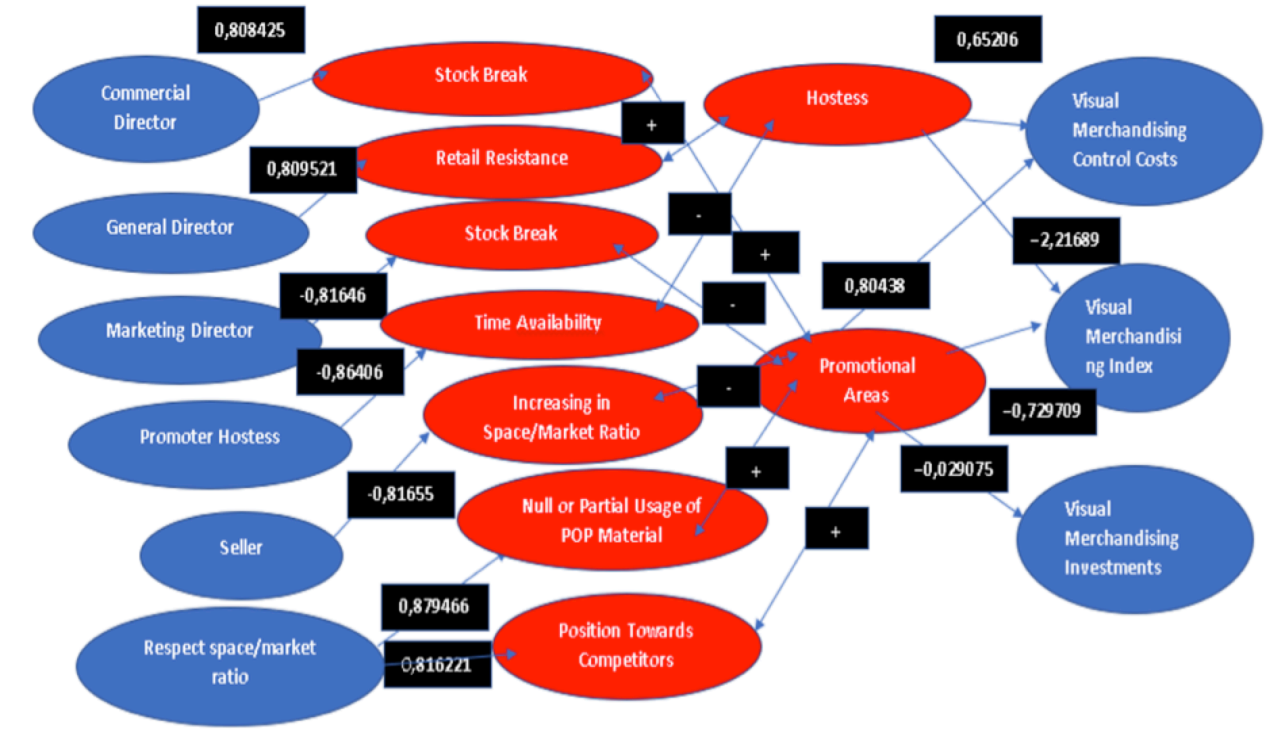


Stock Break has a negative association with the level of Consumer Knoweldge Behaviour with a level of the coefficient equal to -0,8231, with a level of Correct Exposition for Product Line equal to 0,8348; a with a level of Increasing in Mean Rotation equal to 0,8047; with a level of New Position equal to -0,8146. End of Line has a negative association with the level of Noncorrect Usage of Pop material with a level of the coefficient equal to -0,8017; and positive association with a Retail Resistance with a level of coefficient equal to 0,8 719. Null or practical Usage of Pop Material has a negative association with the level of Respect Space/Market Ratio with a coefficient equal to -0,8795. Central Resistance has a positive association with the level of Portfolio Product Increase with a level of coefficient equal to 0,83436. Consumer Behaviour Knowledge has a positive effects on visual Merchandising Investment Index equal to 0,0282137. Correct Exposition for Product Line is positively associated with the level of Control of Pop material with a negative impact on Visual Merchandising Index equal to -0,057271. Increasing in Mean Rotation is positively associated with the level of Consumer Behaviour Knowledge with an impact on Visual Merchandising Investment index, equal to 0,0282137. New Position is negatively associated to the level of Display Maintenance with a positive effect on Visual Merchandising Investment index equal to 0,0416696. Retail Resistance is negatively associated to the level of Control Pop Material with a negative impact on Visual Merchandising Investment Index equal to a level of -0,057271. Respect Space/Market Ratio is negatively associated with Display procurement with a positive impact on Visual Merchandising Areas of Interests equal to 0,383969. Portfolio Products Increasing is positively associated with the level of Display Maintenance with a positive impact of Visual Merchandising Investment Index equal to 0,0416696.

Model 5-The relation among correlation matrix results and panel data regressions results in the context of Human Resource and Space Store Management in Visual Merchandising.

Commercial Director is positively associated with the level of Stock Break with a coefficient equal to 0,808425 positively associated with Promotional Areas with a negative impact on Visual Merchandising Investments. General Director has a positive impact on Retail Resistance with a coefficient equal to 0,809521 on Retail Resistance with a positive impact on Hostess and a negative impact equal to -2,21689 in respect of Visual Merchandising Index. Marketing Director is negatively associated to Stock Break with a negative value equal to -0,91646 and a negative relation with Promotional Areas with a negative impact on Visual Merchandising Investments. Promoter and Hostess is negatively associated with the level of time Availability and negatively associated with the level of Hostess with a positive impact on Visual Merchandising with a level of Control Costs equal to 0,65206. Seller is negatively associated with the level of Increasing in Space Market Ration with a negative level equal to -0,81665 and negatively associated to Promotional Areas with a negative impact equal to -0,029075 on Visual Merchandising Investments. Respect space/market ratio is positively associated to Null or Partial Usage of Pop Material, with a positive impact on Promotional Areas and a negative impact on Visual Merchandising Index equal to -0,729709. Respect Space/market ratio is positively associated with the level of Position Towards Competitors is positively associated with the level of Promotional Areas with an impact on Visual Merchandising Index equal to -0,729709.

Figura 5.Model 5-The relation among variables among correlation matrix and panel data regressions in the context of Human Resource and Space Store Management in Visual Merchandising.



Relation among correlation matrix and panel data regression coefficient in the contest of Human Resource and Space Store Management in Visual Merchandising.

The main quantitative relation among correlation matrix results and panel data regression coefficient.		
Model	**Main quantitative relation**	**Explanation of the main results**
Model 1	Pop material maintenance has a positive effect with POP material presence with a level of coefficient equal to 0,837 and a positive effect on Visual Merchandising Areas of Interests with a level equal to 0,3107.	POP material maintenance is positively associated with the level of Visual Merchandising Area of Interest. The final objective of a Visual Merchandiser is the transformation of the entire shopping mall in a Point of Purchase to increase impulsive buying behaviour and profits. POP material maintenance can be effectively realized by the means of the element that constitute Visual Merchandising Area of Interest. The increase in 1 euro the expenditure for Visual Merchandising Areas of Interest generate an increase in 1,37 euro in the level of POP Material Maintenance.
Model 2	Correct Exposition of Different Formats has a negative impact on Respect of Space/Market Ratio with a level of coefficient equal to -0,86133 with a negative impact on Contract Checks and a positive impact on Visual Merchandising Area of Interest with a coefficient equal to 0,287.	The increase in 1 euro in Visual Merchandising Area of Interests by the mean of Contract Checks generates a reduction of 0,25 euro in the Correct Exposition of Different Formats by the mean of Respect Space/Market Ratio. The reason is in the fact that the increasing expenditure in visual Merchandising area of interest generates a dynamism in the shelf marketing and can induce in error in the phase of Correct Exposition of Different Formats.
Model 3	There is a positive relation between Visual Merchandising Index and Other Shelf that has a positive relation with Montly control and a negative impact equal to -0,84357 in respect to Portfolio Product Increasing.	The investment in Visual Merchandising increases the level of Other Shelf and this is correlated positively with the level of Monthly control whit a reduction in Portfolio Product Increasing. The increase in Visual Merchandising Index generates an increase in Other Shelf Marketing with an increasing of Monthly Control Costs that ends in a reduction in the Portfolio Product increasing. The increasing in other shelf increase the cost of monthly control and induce at a reduction in Portfolio Products Increasing.
Model 4	There is a positive relation between Visual Merchandising Area of Interest and Display Procurement with a level of coefficient equal to 0,38 with a negative impact on Respect for Space/Market Ration and a reduction in Null or Partial Usage of POP material equal to -0,8795.	An increase in Visual Merchandising Area of Interests is positively associated to Display Procurement with a negative impact on Respect of Space/Market Ratio and a Null or Partial Usage of Pop Material. The increase in efficiency of Display Procurement generates a reduction in Null or Partial Usage of Pop Material due to the fact that the increasing level of Display Procurement works as an optimization of Null or Partial Pop Material.
Model 5	Visual Merchandising Index is negatively affected by Promotional Areas with a level of panel data coefficient equal to -0,729 and with a positive effect on Null or Partial Usage of Pop Material and a positive impact equal to 0,879466 with Respect space/market ratio.	The increasing level in Visual Merchandising Index generates a reduction in Promotional areas with a positive impact on Null or Partial Usage of Pop material having a positive effect on Respect Space/Market Ratio equal to 0,879. If visual Merchandiser increases the expenditure in Promotional areas this increase an increase in Null or Partial Usage of Pop material reducing the degree of Respect of Space/Market Ratio.

6. Conclusion

This paper analyses the determinants of Visual Merchandising. The paper presents a correlation matrix to individuate strategies for visual merchandising devoted to triggering impulsive and compulsive consumption devoted to increase profits. Visual Merchandising Index has been estimated using the sequent dependent variables: Visual Merchandising Investment, Visual Merchandising Area of Interest, Visual Merchandising Control Costs. The paper presents data from (Zaghi, 2013) based on an inquiry of 177 italian firms. Visual Merchandising Index is positively associated with Visual Merchandising Areas of Interest and negatively associated with Visual Merchandising Control Costs. The relation between Visual Merchandising Index and Visual Merchandising Investment misses statistical significance. The paper presents 5 models devoted to integrate correlation matrix results with panel data regression results to map the effect of

shopping mall choices in the sense of Visual Merchandising. Models show five propositions: an increase in visual merchandising area of interest is associated with a decrease in Pop Material Maintenance; an increase in visual merchandising area of interests is associated with a decrease in Correct exposition of different formats; an increase in Visual Merchandising Index is associate to an increase in Portfolio Product Increasing; an increase in Visual Merchandising Areas of Interest is associated with a reduction in Null or partial Usage of Pop Material; an increase in Visual Merchandising Investments is associated with an increase in Respect space/market ratio.

ACKNOWLEDGMENT

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