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## INVESTIGATION ON CORPORATE DEMAND FOR INSURANCE

*This paper focuses on the investigation of corporate demand for insurance. On the basis of the research the authors identify and describe the factors influencing the demand for insurance of entrepreneurial entities. The validity of the chosen factors for the research sample based in Slovakia has been investigated.*

**Keywords:** insurance; corporate demand; determinants of demand.

**JEL classification:** G22; G32; M20.

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## ДОСЛІДЖЕННЯ КОРПОРАТИВНОГО ПОПИТУ НА СТРАХУВАННЯ

*У статті досліджено попит підприємств на послуги страхування. На основі аналізу літератури виділено фактори, що впливають на такий попит. На матеріалах авторської вибірки оцінено вплив виділених у джерелах факторів на попит на страхування в Словаччині.*

**Ключові слова:** страхування; корпоративний попит; детермінанти попиту.

Табл. 2. Літ. 21.

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## ИССЛЕДОВАНИЕ КОРПОРАТИВНОГО СПРОСА НА СТРАХОВАНИЕ

*В статье исследован спрос предприятий на услуги по страхованию. На основе анализа литературы выделены факторы, влияющие на такой спрос. На материалах авторской выборки оценено влияние выделенных в источниках факторов на спрос на страхование в Словакии.*

**Ключевые слова:** страхование; корпоративный спрос; детерминанты спроса.

**Introduction.** Despite the technological progress human society is exposed to random forces and unexpected occurrences, which arise from the nature (natural disasters) as well as from human actions (accidents, illnesses, injuries etc.). Both individuals and business entities perform in this volatile environment. Therefore, it is necessary to predict and effectively respond to situations, which can endanger each subject in the volatile environment. In the frame of responsible attitude to own business it is important to think forward and secure oneself against possible damages, which could endanger business activities. Historically proved and often used in the market environment tool for reduction of negative consequences of uncertainty is insurance, which can provide protection to any market entity. J. Danhel (2006) states that the nature of insurance is linked to accidentality and uncertainty. Insurance represents one of the forms of protection of human society against the negative consequences of unpredicted events. W.J. Kwon (2003) stated that insurance is traditionally termed as risk management tool where one party (the insured) transfers, for a front-loaded cost (the premium), part or all of specific loss to another party (the insurer) through a legally binding contract. The insurer in return promises to fulfil its obligations upon the occurrence of a qualified loss (the claim). This risk transfer in

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financial arrangement helps the insured be less subject to volatility in cash flow and preserve its current wealth (interchangeably, firm value). E.J. Vaughn (2000) defines insurance from the individual viewpoint as well as from the viewpoint of society. From the individual point of view, insurance is an economic device whereby individual substitutes a small certain cost (the premium) for a large uncertain financial loss that would exist if it were not for insurance. From the social point of view, insurance is an economic tool for reducing and eliminating risks through the process of combining a sufficient number of homogeneous exposures into a group to make losses predictable for a group as a whole. C. Olsson (2002) states that premiums are paid by companies to their insurers in order to protect them against financial consequences of events, which could have a significant impact on businesses – fire destroying a factory, floods damaging a restaurant, an accident to a ship, an aeroplane crash, a malpractice suit etc. Insurers cover this risk by taking a large number of small premiums and creating a pool of funds to pay claims. For larger risks, they take larger premiums and offload the risks to other insurers (re-insurance). M.S. Dorfman (2007) states that insurance involves risk transfer for a fee, insurance fund formation and subsequently cover of losses to those contributors who experienced particular damage. Thus, we can summarize that insurance is a tool that provides businesses protection from negative financial consequences of risk-taking and significantly reduces volatility related to business decisions. The primary function of insurance is the creation of the counterpart of risk, which is security. Insurance does not decrease uncertainty as to whether the event will occur, nor does it alter the probability of occurrence, but it does reduce the probability of financial loss associated with the event.

**Factors affecting corporate demand for insurance.** Market economy is based on free business and free competition. Its functioning is ensured through market mechanisms. Market mechanism is a summary of relationships and processes that facilitate the coordination of liberal decisions on production and consumption, where the most important carrier of information is the price of a good. Market mechanisms can be applied to such diverse markets as car market, fruit market, the market for football players, and insurance market as well. In any given case, the quantity and the price of produced (offered) goods is determined by the interaction of supply and demand. Supply and demand at the insurance market are characterized by certain specific features typical for this market only. The paper is primarily devoted to the demand for insurance and point out the factors that affect it, particularly for business entities. W. Boyes and M. Melvin (2011) characterize in general the demand for a good or service as the quantity of a well-defined good or service that people are willing and able to purchase during a particular period of time. Demand for a good or service decreases as the price of that good or service rises and increases as the price falls. The demand for a good or service depends on the price, income, tastes, prices for similar good or service, expectations and the number of potential buyers. A. Majtanova (2009) states, that insurance market is different from other markets, because many market entities are quite unaware of their demand for insurance. The reason is the lack of sufficient information about potentially hazardous situations. Due to particular differences of insurance market will vary the factors affecting corporate demand for insurance. These factors we have specified on the basis of other studies of the authors, who focus on corporate demand for insurance as well as on insurance in ge-

neral. We will discuss the following factors: insurance premium, price and availability of substitutes, attitude to risk, experience with damage occurrence in the past, size of business, available funds, number of owners and capital structure.

**Insurance premium** as the price of insurance in our opinion does not affect the demand for this good as much as at other submarkets. In general, the reduction in good price results in increased demand. Reduction of the price of insurance does not directly affect the demand because, as already mentioned, market entities do not quite realize their demand for insurance. Premium thus affects the demand for insurance after recognizing the need for insurance as one of the important factors for evaluation of supply by commercial insurance companies.

Demand for insurance is affected by the **price and availability of insurance substitutes**. In the narrow sense, as substitutes for insurance can be considered own funds, loan and in some cases also leasing. Under own resources (that is self-insurance) as the substitute for insurance, we mean the creation of a material or monetary reserves to cover unexpected losses. As another substitute for insurance can be considered a bank loan. Using a bank loan to cover possible losses does not require creating reserves from own cash resources, which can be used for investment purposes. However, this approach does not lead to systematic risk management, as the company starts to get interested in covering risks after damage occurs, thereby preventive actions are significantly underestimated. Leasing can be considered as a substitute for insurance primarily in relation to risks arising from property ownership. R. Watt (2007) states as a substitute of insurance market strategy (commercial insurance) non-market strategy, which is divided into self-insurance (reducing the severity of damage) and self-protection (reducing the likelihood of damage occurrence). In a broader sense, as substitutes for insurance can be considered all other risk management tools, for example, G.E. Rejda (2005) states as a risk management tools: damage prevention, risk avoidance, retention and transfer of risk.

The decision to underwrite insurance is largely influenced by the **decision maker's attitude to risk**. Decision-maker with risk aversion is trying to avoid significant risk scenarios, looks for low-risk scenarios or try to ensure the selected scenario with appropriate tools. W.J. Kwon (2003) states that in case of a risk-averse person it is more likely to underwrite insurance as in the case of a risk taker, as such insurance is available at a reasonable price (the price corresponding to the cost of expected damage in that risk). Y. Nobuyoshi (1999) on the other hand states that risk aversion is not an important factor in relation to business demand for insurance, because in his view, companies can reduce insurable risks through diversification. We cannot disagree with the views of both authors. However, we also believe that the attitude to risk is an important factor when deciding for insurance especially for small businesses, which have one or a small number of owners who are committed to business with their own equity.

**Preferences** are another factor affecting the demand for insurance. This is particularly the preference for insurance among other tools of risk management, those role is to most efficiently manage identified risks. Business entity may prefer insurance as an instrument of risk transfer based on various factors such as affordability and geographical accessibility, experience, relative speed of acquisition etc.

An important factor affecting the demand for insurance is **experience with damage occurrence in the past**. Based on personal experiences, interviews with experts,

as well as the views of national and foreign authors we can state, that past damages "remind" the possibility of risk, and thus affect the demand of businesses for insurance. Similar view is presented by L. Regan and Y. Hur (2007), who observe that current demand for insurance is affected by experience with damage occurrence in the past.

**Size of business**, according to D. Mayers and C.W. Smith (1982), is also a factor affecting demand for insurance. At small enterprises it is mainly the impact of higher relative transaction costs of bankruptcy (bankruptcy transaction costs/enterprise value). The authors report that small businesses are burdened with higher relative transaction costs of possible bankruptcy compared to large enterprises. Therefore, small corporations are more likely to purchase insurance to reduce the probability of incurring these costs than large firms are. The second reason for higher demand for insurance of small business is fewer opportunities to diversify risks. On the other hand, factor, which boosts the demand for insurance of large firms is the agency problem. Large companies usually have complex organizational structure which cannot be adequately monitored by owners. For this reason, many owners are willing to underwrite different types of insurance products to transfer risks. L. Regan and Y. Hur (2007) state that regardless firm size, a firm with relatively less liquidity or greater leverage in its capital structure, and thus a relatively higher probability of bankruptcy, may be more likely to purchase insurance. This is because its ability to fund uninsured losses through cash flow, borrowings, or other capital market sources will be more restricted. If the company has a small number of owners, we can assume that these owners invested a relatively large portion of their assets into the company and this has reduced the ability to diversify risk through further investments. If owners have relatively fewer opportunities to diversify risk, they will be more likely to use insurance. Large enterprises with more shareholders (or members) are expected to have lower demand for insurance because shareholders can diversify risk by purchasing shares of different companies.

**Testing of the selected factors.** In the next part of the article we present the results of our own research. Our intention was to verify the validity of the selected factors affecting the demand for insurance on a specified sample of enterprises. Financial, human and technical reasons did not allow us include in the review of businesses all the sectors of national economy. Therefore, we have set a sector on which we have focused our attention – furniture production in Slovakia. When choosing this industry we used both own conclusions about the amount of potential damage (especially natural) and fire statistics, for which furniture industry experiences one of the largest fire damages in whole industrial production in Slovakia.

When examining the selected factors that affect firms' demand for insurance protection, we did not have any evidence base, which we could use. Therefore, we had to obtain primary data by ourselves. The research sample of companies we have specified as follows. Through the website of the Ministry of Economy, we entered and registered into a database [www.kompass.com](http://www.kompass.com), where we found the list of companies operating in production and sales of furniture in Slovakia.

After reviewing all categories and sub-categories we acquired 542 businesses. Then, we have been looking for each of these businesses in the business register (database contains only trading companies), where we explored the subject of their work,

because we have established, that in the survey sample will be only furniture manufacturers. This is how we shaped the research sample containing 91 firms of furniture production. Of these 91 companies we have managed to contact 67 by phone. During the phone calls we briefly explained to the managing director the aims of our research and asked them to provide necessary data. We were particularly interested in information on the number of acquired insurance products, costs of insurance premiums for commercial insurance, sales of enterprises or the experience with damage occurrence in the past. We must say that we have experienced considerable problems in obtaining the abovementioned data, many businesses treated this information as confidential and were not willing to provide it. Finally, we managed to get information from 24 companies, but only 15 of them provided the complete information required.

Based on the data, we decided to test on our sample two factors, which, according to the above authors, have impact on the demand for insurance protection by businesses – it is the enterprise size and experience with damage occurrence in the past.

When examining the factor of firm size we used the following assumptions – to express the size of the company we used the criteria of sales. Variable, which in this case reflect the demand for insurance, we have established as the number of acquired insurance products. Thus, we examined the relationship between sales and the number of acquired commercial insurance products. To measure the interdependence of the two abovementioned variables we used the correlation coefficient. This relationship we could test only on the sample of 15 companies, because other 9 companies did not provide the necessary data. The existence of this relationship was verified at the chosen significance level of 0.05 (p-value), based on testing the hypothesis  $H_0: \rho = 0$  and  $H_1: \rho \neq 0$ , where  $\rho$  is Pearson correlation coefficient. Our intention was to test whether under the conditions of our sample, there is a statistically significant relationship. To quantify Pearson correlation coefficient, we used the statistical software SAS.

Table 1. **Pearson correlation coefficient, SAS software, authors' calculations**

Pearson Correlation Coefficients, N = 15 Prob >  r  under H0: Rho = 0		
	Premium	Sales
Premium	1.00000 0.0001	0.83656 0.0001
Sales	0.83656 0.0001	1.00000

As shown in Table 1, the P-value (0.0001) is less than the chosen significance level (0.05). We can state that the calculated correlation coefficient can be considered statistically significant, and that under the conditions of our sample, the turnover of enterprises and the number of acquired commercial insurance products are positively correlated. Based on the test result we rejected the null hypothesis against the alternative hypothesis. The authors mentioned also pointed out a relationship between the company size and its demand for insurance. However, this relationship cannot be generalize in the form "the bigger the company, the greater the demand for insurance"

because there are factors increasingly forcing small and middle business to buy insurance, on the other hand, there are also specific reasons for acquisition of insurance typical for large enterprises. But under the conditions of our sample, we confirmed this relationship – the larger is the company (measured by revenues), the more acquired products of commercial insurance it has.

The second factor affecting the demand for insurance protection whose validity was verified on our sample is experience with damage occurrence in the past. To examine this factor we used the data for 24 companies. Exactly half of 24 companies indicated that in the last 2 years they experienced some damage. We set the hypothesis:  $H_0: \mu_1 - \mu_2 \leq 0$  and  $H_0: \mu_1 - \mu_2 > 0$ , where  $\mu_1$  represents the average number of acquired insurance products of companies that in the past period experienced some damage occurrence and  $\mu_2$  represents the average number of insurance products in establishments that did not experienced any damage in the last 2 years. We tested this hypothesis through Student's two samples t-test. The test is typically used to verify if detected difference in means in the samples can only be random (equal to 0), or statistically significant, while the decision of validating, respectively rejecting the null hypothesis is made on the basis of P-value. If P-value is below the set level of significance (in this case 0.05), the null hypothesis is rejected in favor of an alternative hypothesis. To perform this test, we used "Minitab" software.

*Table 2. T-test, authors' calculations in "Minitab"*

<b>Two-Sample T-Test and CI: Number of insurance products (IP); Damage occurrence (DO)</b>				
Two-sample T for Number of insurance products				
DO	N	Mean	StDev	SE Mean
1	12	3.92	1.31	0.38
2	12	2.67	1.56	0.45
Difference = mu (1) – mu (2)				
Estimate for difference: 1.25000				
95% lower bound for difference: 0.24093				
T-Test of difference = 0 (vs>): T-Value = 2.13; P-Value = 0.022; DF = 22				
Both use Pooled StDev = 1.4394				

As evident from the results, the average number of insurance products at enterprises, which experienced damage in the recent past is greater (3.92) than at enterprises in which the damage did not occurred (2.67). Statistical significance is confirmed by P-value (0.022), which is under the set significance level (0.05). Based on the results of this test, the null hypothesis is rejected in favor of the alternative hypothesis. Thus we can say that under the conditions of our research sample, there is a positive relationship between the number of acquired insurance products and experience with damage occurrence in the previous period.

The authors who study demand of businesses for insurance protection argue that experience with damage occurrence in the company in the previous period affect the current demand of such enterprises for products of commercial insurance as a risk management tool. Based on the results of own research we can say that under the



conditions of our sample we have come to similar conclusions as many theorists and practitioners. It can be concluded on this basis that the average number of commercial insurance products was higher in the companies that recently had the experience with damage as compared to those companies, which did not have such experience.

**Conclusion.** Insurance is a defensive form of protection against risks – it can mitigate damages, but cannot prevent their occurrence. Both individuals and businesses acquire insurance at the insurance market which is the place where supply and demand for insurance meet. The supply side is made of insurance companies and the demand side is made of individuals, businesses, NGOs etc. In this paper we focused primarily on the demand for insurance by businesses. Based on the work of the selected authors we have specified and described several factors influencing the demand for commercial insurance by businesses. It is insurance premium, price and availability of substitutes, attitude to risk, experience with damage occurrence in the past, business size, amount of available funds, number of owners and capital structure. Subsequently, we tried to test the selected factors under the condition of our research sample of enterprises. We have selected one specific industry – furniture production and tested the influence of factors of firm size and experience of damage occurrence on the corporate demand for insurance on the sample of 24 and respectively 15 companies.

According to the test results we can conclude that quantified correlation coefficient can be considered as statistically significant, and that under the condition of our sample there is a positive relationship between company size and the number of acquired insurance products. In the second test, we examined the impact of experience damage occurrence in the past to demand for insurance. To test the impact of this factor we had to verify on our sample the relationship between the number of currently acquired insurance products and the occurrence of the insured event in the past. According to the test, we can say, that the average number of insurance products in enterprises, which experienced some damage in the recent past is greater, than in companies where the damage events did not occurred.

Thus, we can conclude that in the context of assessing the impact of factors of firm size and experience of damage occurrence on corporate demand for insurance we have under the condition of our samples came to similar conclusions as the authors of insurance theory.

The size of our research sample on which we examined the abovementioned factors do not allow us generalize the obtained results. In this, we see an incentive for further research and testing of these and other factors on a larger sample of businesses, not just from one but several sectors of national economy. As we have already mentioned, the data on such research is very difficult to obtain. Despite some limitations, however, we consider the results of the above study as original and useful, because as of today we do not know any other author dealing with this problem set in Slovak Republic.

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