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Innovations of Insurance Companies and Investment Funds

UDC: 005.591.6:368 ; 005.591.6:336.07
DOI: 10.7595/management.fon.2013.0014

XIII International Symposium SymOrg 2012, 05 - 09 June 2012, Zlatibor, Serbia

The aim of this paper is to review the recent progress in innovation activities of investment funds and insurance companies. The paper reviews the main innovation trends globally, their causes and consequences. The research has identified that innovations of insurance companies and invesmtnet funds are predominantly incremental and focused on products although they usually refer also to processes, marketing and overall organisation. In investment fund industry, the main innovations recently have been credit swap defaults (CDS), Exchange Traded Funds (ETF), hedge funds, social impact bonds and other innovative products. In insurance industry, in addition to incremental innovations such as amendments to contracts terms and conditions, recent innovations encompass microinsurance, enterprise risk management, e-businss applications, bancassurance, index insurance and alternative risk transfer. By summarizing the current state of knowledge of innovation activities among insurance companies and investment funds, the paper can be useful for domestic investment funds and insurance companies to identify possible areas for innovation as well as for government bodies to understand why fostering creation of innovation-friendly environment will bring benefits not only to financial services industry but to the society as a whole. Finally, the results presented in the paper are a good starting point for future research.

Keywords: innovation, insurance companies, investment funds

1. Introduction

Etymologicaly, to innovate means to renew, to restore and the word stems from Latin word *innovare*. It essentially means the introduction of something new or different. Innovations are usually classified into product and process innovations (e.g. Oslo Manual, 2005; Greenhalgh & Rogers, 2010; Allen & Yago, 2010; and Pain, 2011). The product innovation is the introduction of a new or significantly improved product or service that improves the range and quality of those currently offered. The process innovation is the introduction of a new or significatnly improved process of production or delivery of goods and services. In addition to product and process innovations, classifications can also encompass organisational innovations (e.g. Olso Manual, 2005; Allen & Yago, 2010 and Pain, 2011) as well as marketing innovations (e.g. Olso Manual, 2005 and Pain, 2011). According to Oslo Manual (2005) “an organizational innovation is the implementation of a new organizational method in the firm’s business practices, workplace organization or external relations” (p.51). Also, according to Oslo Manual (2005) “a marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing” (p. 49).

Furthermore, innovations can be classified by the degree of novelty. It is well known (e.g., Schumpeter, 1934 and Abernathy & Utterback, 1978; Oslo Manual, 2005; Greenhalgh & Rogers, 2010; Allen & Yago, 2010; and Pain, 2011) that innovation not necessarily means the introduction of radically new products and processes. In financial services, especially in insurance industry, innovations are more often incremental in their nature (Pain, 2011). In this regard, depending on the degree of radicalism, innovations can be divided into incremental, evolutionary and transformational (Pain, 2011).

Innovations have had a paramount importance throughout the human history. Innovations such as fire, wheel, agriculture, pottery, irrigation systems, use of metals, writing and so on, actually directed the history. Without innovations humans would never calculate, write, sail, drive, trade and improve their overall well-being. The success of Japan and Japanese companies after the Second World War is the obvious example of the importance of innovations. Namely, the success of Japanese companies in global markets is mainly attributed to continuous innovations by Nonaka & Takeuchi (1995) who pointrd out that their success originates in their „capability to create new knowledge, disseminate it throughout the organisation, and embody it in products, services, and systems".

Nowadays, innovation is the key driver of competitiveness, economic growth and prosperity (Chandra, et al, 2009). Marklund, Vonortas & Wessner (2009) point out that "innovation is essential to economic life, as it is the main determinant of economic productivity and productivity growth in firms, sectors, regions and nations and thus it is strategic issue for business of firms and public policy" (p.3). Innovation activities are especially important for companies doing business globally as confirmed by Knight & Cavusgil (2004). By investigating companies that expand into foreign markets and exhibit international business from or near their founding they highlight the critical role of innovative culture as well as knowledge and capabilities. Investments in research and development are common nowadays in order to foster innovations. However, it became obvious that new knowledge can generate economic growth and jobs only by its transformation through entrepreneurship in innovations (Audretsch, 2009).

Since the ancient societies of China, Mesopotamia, Egypt, Greece and Rome, financial innovations have always underpinned other innovations and made possible agriculture, especially the production of olive oil, wine and sugar and production of precious goods (Allen & Yago, 2010). The roots of insurance can be traced back to 5000 B.C. when traders in China dstributed their cargo into several ships in order to diversify risks of carrying the goods over the Jangce river. The development of modern insurance started with the first insurance company established in the U.K. in 1667 (Njegomir, 2011a). Finally, the first mutual fund has been invented in 1774 in the Netherlands (Allen & Yago, 2010). More recent studies (e.g., Ćirić & Njegomir, 2011) indicate that the development of financial services is indispensable for entrepreneurship and innovation. Insurance companies and investment funds facilitate innovations in other industries. By accumulating capital and providing risk diversification, on one hand, and by fostering technological progress, on the other, financial innovations facilitate economic growth and improve social welfare (Chou & Chin, 2004). The question that we are trying to answer in this paper refers to types of innovations that are present in the insurance and investment fund industry.

2. Insurance industry innovations

Historicaly, insurance companies have been conservative regarding innovations, especially those of radical character. Althought innovations in insurance as well as in other industries present the foundation of success, there are many studies that indicate to conservativity. Pearson (1997), on the basis of the analysis of insurance industry in Great Britain during the period between 1700 and 1914, points out that innovations in insurance are an important ingredient of success but have mainly counter-cyclical character and are relatively undynamic. Garth (2011) indicates that insurance companies were innovative during the sixtees and seventies of the twentieth century while after that they became less innovative.

Innovation is recognized to be especially important for market-oriented insurers. Lado and Maydeu-Olivares (2001) investigated the influence of competitive environments on the uses of market orientation in insurance companies in the EU and the USA and the effects of market orientation on innovations. They found that EU and US insurance firms analyze and react to their environment differently and this is reflected in a differential impact on their degree of innovation. However, there are no identified overall market-orientation differences between market orientation and innovation degree and performance. They also found a positive impact of overall market orientation on insurance firms' innovation degree and performance in both the US and EU markets.

The thesis of the relationship between innovation and long term success in insurance has been confirmed by many studies. Lehmann & Zweifel (2004) have confirmed the thesis for health insurance. By ascertaining that important motive for deregulating social health insurance were to encourage product innovation and analysing

risk selection in deregulated social health insurance, they found that cost savings achieved by non-US managed care plans are attributable to product innovation. Garth (2011) indicates that while insurers were innovative, they achieved growth, expanded customer access and became more efficient. Lee, Wang & Chang (2011) have found that marketing innovation cast a significantly positive impact upon the performance in the case of life insurance companies listed in Taiwan. By analyzing a panel data set of 12 private life insurance companies over the financial period 2006-2009 in India Dutta & Sengupta (2010) found that increasing investment on IT-infrastructure that resulted in technological innovation in business operation has a favourable impact on efficiency. Innovations in insurance also have a positive impact on financial intermediation, capital accumulation, risk diversification and increased economic efficiency (Pain, 2011).

Despite the traditional conservative approach to changes in products, processes, marketing and organisation, the pace of innovation activities in insurance industry has been identified recently. New regulations such as Solvency II in Europe, changing competitive environment not only among insurance companies but also with other industries such as an investment or pension fund industry, the changing nature of existing and emergence of new risks, such as environmental liability risks, an increasing probability and intensity of loss events because of external influences such as terrorism or climate changes, the need for constant influence on public confidence in insurance, the change in customer preferences, economy, politics and technology are all forcing insurance companies to innovate. The aforementioned and similar changes are happening all the time and are pushing insurers to constantly respond to them by innovations. Hereinafter we explain the most important recent innovations in the global insurance industry with no particular order.

Insurance is a type of financial service that can potentially help avoid high costs of other risk management approaches. Also, insurance can provide preservation of financial position in the event of a loss but also protect from poverty. However, insurance is usually seen as a luxury by poor or at least there is their distrust in the security of coverage as it cannot be felt, smelt or touched. As a result of expressed needs, microinsurance has been developed as a model for organisation of insurance activities for the poor. Microinsurance provides financial indemnification in the case of a loss event, provides avoidance of other cost-ineffective mechanisms of loss protection, which as a final result has reduced poverty (Njegomir, 2011b). The term “microinsurance“ appeared at the begining of ninetines and since the middle of ninetines it has been in use by the International Labour Organisation and UNCTAD. The motives of microinsurers creation are various. Microinsurance is essentially intended for the poor, unemployed or employed in the informal sector, or in other words, for persons that do not have access to traditional insurance and are excluded from social insurance programs. According to Brown (2009) the motives are: the loss protection of poor clients, reduction of own exposure to credit risk that stems from approved loans and the possibility to earn additional profit (p. 171). From the point of view of insurance companies, microinsurance is essentially a business model innovation that provide them with access to people that previously have not been served. The tremendous potential of this market segment is evident and that is particularly important for insurance companies that operate in mature markets.

One of the business model innovations that appeared during the previous decade was enterprise risk management (ERM). The idea of ERM is that companies, especially insurance companies, manage an aggregate level of risk. Basically, ERM means to holisticaly manage all risks that the insurance company is faced with. Insurers have traditionally managed insurance risks and that is their core business activity. However, insurance companies are not exposed only to insurance risks, or risks that they accept from the insured. They are exposed to many other risks such as market, credit and operational risks. Insurance companies firstly started to apply the ALM concept that meant simultaneous management of assets and liabilities. The main problem, however, was the fact that risks were managed individually in “silos“, that is, in isolation from one another. Then the concept of ERM appeared. The key intention is that the solvency position of insurance companies is better protected if risks are managed integrally, with all their interdependences. This concept provides adequate information for management decision making that seeks to optimise business operations through minimisation of expenses and thus profit maximisation at the given level of agregate risk, or in other words, to minimise agregate risk at the given level of capital (Njegomir, 2007a). The concept or ERM is now preferred by rating agencies and Solvency II, a new solvency regulation within the EU.

Marketing is the basic precondition for the development of insurance and reinsurance. One of the most famous management gurus of the twentieth century, Peter Drucker (1973) emphasised that enterprises basically have only two functions, marketing and innovation, and he concluded that only „marketing and innovation produce results, all the rest are costs." (p. 61). Marketing consists of individual and organisational activities that facilitate trade in dynamic environment through creation, distribution, promotion and valuation of goods, services and ideas (Njegomir, 2006). Although product, price and promotion are important, the most creative applications and the most of the innovations in insurance have been made in the distribution of insurance services. This is because the distribution channels are instruments that create the value of the place, ie. they facilitate the availability of insurance services at the time and place where customers want them (Njegomir, 2007b).

Insurers usually use a mix of distribution channels. Traditionally they have used their own representative offices as well as agents and brokers. They have also developed bancassurance and e-business. The basic idea of bancassurance is to provide access to a greater number of potential customers through an established network of bank branches. The idea of bancassurance has emerged in 1965 and has been utilised successfully mainly in continental Europe, particularly in France, Italy, Portugal and Spain. In these countries bancassurance facilitated insurance penetration and density and improved the structure of insurance giving the impetus for the increased share of life insurance. Althought the idea is relatively old, it is new in Serbia and it represents a striking example of how an old idea can represent innovation when it is not previously applied in a specific company or market. Insurance companies in Serbia only recently, in the last decade, have started to utilise bancassurance and insurance companies have signed long-term contracts with banks, such as insurance company DDOR Novi Sad with Razvojna banka Vojvodine (the Development Bank of Vojvodina), Delta Generali with the Intesa bank, Basler with the OTP bank, etc.

Althought bancassurance is an innovation on the Serbian insurance market, the most influental has been the utilisation of the Internet in insurance. The insurance companies presence on the Internet at first has been based on their static web site presentations. Later, e-commerce has developed. It represents a revolutionary accomplishment in the area of insurance sales and it provided insurance companies with ever greater access to potential customers, the improvement of sales services by providing insurance protection when and where customers want it, multimediality and interactivity. Later, the concept of e-business in insurance emerged. It is a sofisticated concept that means not only the sale of insurance but a full transition to virtual business. Most recently insurers have been developing a mobile internet access and a social media presence. The mobile internet access provides potential customers and insureds with online services that are available through mobile phones. Now insureds, potential and existing, can quate, pay bills and report claims through their mobile phones. Also, social media presence of insurers, especially in the US is increasing. Social networks such as Facebook or Twitter have an increasing impact on the marketing of insurance companies as they serve as special kind of „word-of-mouth" promotion.

Product innovations are also very important for insurers but also for insureds and the society as they provide coverage for risks that was not covered before, offer more affordable coverage through innovative uses of bonuses, maluses and deductibles and improve the customer satisfaction through services such as guaranties, assistance and property replacements. One of the most prominent product innovations recently has been index insurance, the alternative mechanism to traditional indemnity based insurance. Hellmuth et al (2009) indicate that index insurance offers significant opportunities as a climate-risk management tool in developing countries. According to Skees (2008), index insurance provide payments that are based upon "an objective and independent *index* that serves as a *proxy* for significant losses to crops, livestock, or other property" (p. 1). In order to determine payouts that may be due to drought or flood, index insurance uses an index such as rainfall instead of possible weather consequences such as crop failure. In contrast to traditional indemnity based insurance where in the case of loss insurance company loss adjusters need to visit individual insureds in the case of index insurance for the loss payment insurance company only needs to know if index has reached the earlier agreed threshold. Because the used indices are usually publicly available the process of payment of losses is simplified and thus more cost effective.

3. Investment funds innovations

The one and the only thing that is certain is innovation, but it is hard to predict the form of innovations and the intensity of changes. Investor's demands are changing, regulations are passed, new technology has become available and in such an investment environment investment funds seek new profit opportunities

and adjust themselves to market changes. Innovations can also emerge without considerable changes in external market. Particular innovations happen as a response to the impact of non-market factors, such as changes in tax policy. Unlike innovative products and services in the real economic sectors, the output of innovations in the business of institutional investors depends on timing and market environment.

Since 1980, investment innovations have been realised in five distinct clusters: new asset classes, new asset allocation techniques, new risk and returns enhancing tools, new theme funds and new business models. Considering the value delivered by some kind of innovation, the most valuable innovations are: emerging market equities, emerging market bonds, high yield bonds, liability-driven investing and exchange traded funds (ETFs). At the same time, innovations that deliver the least value are: leverage, structured products, portable alpha, currency funds (Rajan, 2011, p. 6).

In the past period the most popular innovations in the investment funds industry were index funds and life-cycle funds which bear similarity in terms of automatic portfolio allocation, then socially responsible funds, funds of funds and one of the largest and most successful innovation are ETFs (exchange traded funds), as a new type of investment company.

ETFs are similar to index funds, because they are also passively managed with the main purpose to achieve returns above the stock market index (Tkac, 2007, p. 6). But the main difference is that ETF units can be purchased only through the stock market, like shares. ETFs provide individual investors access to diversified portfolios of assets that was previously been reserved for institutional investors. The ETFs reduce transaction costs and increase efficiency. A disadvantage of investing in ETFs is realized when their investors become unintentionally more exposed to risk because of an increasing participation of particular stocks in index, based on rising stock prices and market capitalization.

Additional type of innovation in mutual funds industry is improvement in providing financial information needed by current and potential investors in order to help them in decision making. There are a lot of companies indirectly connected to investment funds industry in terms of preparing, processing and presentation of financial information about performances of investment funds (Tkac, 2007, p. 8). Individual and institutional investors, but financial advisors and portfolio managers too, seek basic as well as for more complex and sophisticated information for planning, decision making and analysis. Investors need objective, relevant and easily understandable information about fund performances. Acquiring needed financial information should also be time and money efficient. Companies that support the investment funds industry by providing the needed financial information innovate their own business too, by implementing new types of rating, new funds' types, new methodologies, computer modelling and automated tools for decision making of their clients.

By investing in funds of funds investors acquire investment units in other mutual funds, not just in one fund and through this type of investment they diversify their portfolio more and reduce risk. The world's most famous fund families such as Vanguard and Fidelity offer "fund supermarkets" to their investors. In the term "fund supermarket" investors are "consumers", mutual funds are "producers" and the brokerage firm provides location for this special type of "supermarket" and also access to different mutual funds from various fund families. The main advantage of fund supermarket is possibility for investors to buy units of different funds in "families" and get common financial report for all funds together.

Accelerated development of information technology, Internet and modern web tools cause innovation and changes in traditional investment fund portfolio management. Investment fund families, financial advisors, information intermediaries, insurance companies and other related companies increasingly compete to satisfy changing demands of current and potential investors. Through continued education of financial advisers, portfolio managers and investors a way should be found to adjust non-traditional investment strategies to traditional fund portfolios.

Investment funds strategies and core portfolios are also exposed to changes and innovation in terms of choosing developed or emerging markets, taking long or short position, dollar vs. non-dollar investments. Considering new assets classes and asset allocation techniques, it is obvious that in the last decade investing in emerging markets, in bonds, as well as in real assets and infrastructure has been more popular. One asset allocation technique is GTAA (global tactical asset allocation), as a top-down investment strategy based on utilization of short-term mispricing among global set of assets. For example, until the global financial cri-

sis, many of the innovations included higher leverage, which has proved itself dangerous in terms of crisis. In addition to the leverage and using of hedging and derivatives, new enhancing tools that are also applied are shorting and portable alpha. A global trend of achieving sustainable economic development has an influence on an increasing interest of capital owners for investing in companies and projects in the fields of renewable energy, water, and environment. It can be noticed that all innovations, regarding new business models, enhancing tools, fields of investments and asset allocation techniques are represented in the financial market of the USA, as the world's most developed financial market. Financial markets of Asian countries as huge emerging markets are also interested in implementing innovation in mutual funds industry.

Very popular innovations in the modern financial era are credit-default swaps (CDS), interest-rate swaps (IRS), high frequency trading (HFT) and social-impact bonds. Financial innovation is the creation of new capital structures that align the interests of lots of different parties. By creating CDS as a securitisation instrument risk is transferred to the underwriting institution, most frequently insurance company. The borrower pays a premium to transfer risk. CDS protection may similarly blunt the incentives for creditors to be careful when they approve or extend a credit. Securitization that has been used for decades allows banks to free up capital, enabling them to approve more credit, and helps portfolio diversification. If everything was on banks' balance-sheets and capital there would not be enough credits for the needed purposes. For example, India has recently allowed using CDS as an instrument that will attract new creditors and support the development of India's bond market. Also, when CDS are used inappropriately or greedily, by taking on exposures that they should not, either without transferring risks, or by adding complexity in order to increase profit margins rather than to solve problems, they show their negative aspects. Unlike CDS, interest-rate swaps are a useful and big innovation based on betting and hedging against future changes and trends in interest rates.

Social-impact bonds are based on the concept of risk transfer from the government to financial investors who will get paid only if the social scheme is successful. By using social-impact bonds cash flows are created according to the needs of the sponsor, the provider and the investor. The main difference between the social-impact bonds and other financial instruments is that this type of bond has been created explicitly for social purposes (Palmer, 2012).

High-frequency trading (HFT) means using sophisticated technological tools in trading securities. It is characteristic that an investment position is held very shortly (an average holding period is about 11 seconds). HFTs now account for over 60% of equity trading. Average investment periods for shares have shortened from around 7 years to 7 months since 1940. HFT may damage the process of long-term capital accumulation and allocation and cause problems of potential market manipulation.

In the conditions of global financial crisis and in the years after that, mutual funds have faced challenge to be as efficient as possible, because of decreased amounts of assets under management and tighter profit margins. At the same time it was noticed that risk management systems of mutual funds had to be more flexible and be adjusted to the terms of crisis.

4. Innovation relationships between insurance companies and investment funds

The number of natural and man-made catastrophe events (Enz et al, 2008) and their financial impact (NatCatSERVICE, 2007) is constantly rising on a global level. This rise is influenced by the impact of the trend of climate change and concentration of people and material values (Njegomir, 2011c). As (re)insurers have been traditionally regarded as being in a stronger financial position to pay the losses than the insureds (Rejda, 2005), they are at the forefront of the catastrophe trends impact.

Insurers and reinsurers have traditionally managed their exposures to insurance-related risks on the basis of the application of central limit theorem and the law of large numbers. Anything above their retention levels, determined on the basis of their available capital, was transferred to reinsurance or, in the case of reinsurers, to retrocession market. However, due to an increased frequency and severity of catastrophe events it became obvious that the underwriting capacity of global insurance and reinsurance market is limited, especially for risks with catastrophe potential. The solution for additional capacity has been found in transfer of insurance risks to capital markets (see Figure 2).

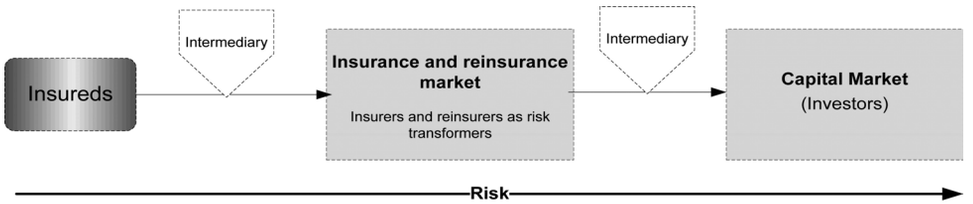

Figure 1: Insurance risk transfer to capital market

Source: Njegomir (2008).

For the development of alternative risk transfer solutions that provide insurance risk transfer to capital market in addition to insurance and reinsurance companies' demand the interest from institutional capital market investors, above all insurance and reinsurance companies and investment funds, especially hedge funds, was critical. The interest from investment management community for investments in insurance risk stemmed from the fact that these investments are uncorrelated with other risks in investor's portfolio, relatively high returns offered and an absence of exposure to other risks of insurance companies (Njegomir & Maksimović, 2009). Although alternative risk transfer solutions emerged under conditions of the hard reinsurance/retrocession market, the continuation of (re)insurers interest for their application during the soft reinsurance/retrocession market and investors interest despite the financial crisis lead us to the conclusion that they are a sustainable solution for managing exposures to catastrophes. Additionally, having factored in the continuation of the trend of increased frequency and severity of catastrophic events and ever increasing the demand for additional underwriting capacity, it is reasonable to expect the increased future usage of alternative risk transfer as a complementary solution to traditional risk transfer.

Another innovation that links insurance companies and investment funds is unit linked insurance. This is a special type of life insurance that provide the insureds with the option to have risk protection together with the opportunity for investing in investment units, similarly to the case of investments in investment funds. There is usually a guaranteed sum assured but returns beyond are determined by cyclical movements of the unit values. Basically, the actual returns are determined by the investment managers' abilities. These investments are considered riskier than ordinary life insurance but less risky than investments in investment funds. The developed countries have developed this type of life insurance during the sixtes. This type of insurance is applied relatively recently in this region, only in Slovenia and Croatia. This innovation is still undeployed in Serbia.

Conslusion

Innovations have always been of paramount importance in human history, in all human activities but especially in business. They are also recognised as crucial for the success of insurance companies and investment funds, which on the other hand have great influence on facilitation of innovations in other industries.

Although innovations are crucial not only for the success but for the long-term survival of insurance companies, especially those that are market oriented, traditionally, they were reluctant to introduce drastic innovations. However, the increased pace of changes in the external environment has changed insurers behavior towards a deeper recognition of an increasing importance of innovations. The most intensified innovation in the insurance industry is related to processes, marketing and products while organizational changes are slower and less represented. Incremental innovation has been the specific of insurance industry but this will have to change if insurance companies want to successfully cope with growing pressures such as increased competition from other industries and changing customer preferences.

Insurers are not absolutely free in innovation as they always need to consider limits of insurability and other basic premises of insurance business as well as regulatory constraints. Solvency, price and product regulation in insurance can hamper innovation. This is especially the case in the countries with product regulation where innovation regarding product can be allowed only if all insurance companies have adopted that particular product, which in turn hampers individual insurers' innovation efforts as they cannot gain competitive advantage.

In the aftermath of the financial crisis of 2008 investors faced the negative aspects of some financial innovations. Asymmetry of information and knowledge between users of financial services and producers is obvious and increasing. Although some financial innovations have no general economic benefit, individuals and institutions which innovate can earn

large returns. Most financial innovation is deliberately designed to conceal risk and reduce transparency. Efficiency and transparency is not consistent with the high profit margins on the stock markets. Financial products usually need to be blurred and priced inefficiently to produce excessive profits.

The innovations by investment funds and insurance companies presented in the paper are present globally but not sufficiently and in many cases not used at all. Additionally, despite the scientific research results and economic development evidence, the innovation benefits are still not fully recognized by many countries, especially in the developing world (e.g., Juma, C. & Yee-Cheong, L., 2005 and Bolay, et al, 2012). Thus the aim of the paper was to review the recent progress in the innovation activities of investment funds and insurance companies and their relationship with long-term success in order to foster innovation activities among domestic insurance companies and investment funds as well as facilitate the recognition of innovation importance by governments, which will result with the creation of innovation-friendly environment. The results presented in the paper suggest that with greater innovation by insurance companies and investment funds there is a possibility for cheaper financing, a more efficient risk management, a greater availability of insurance coverage and thus economic growth. Additionally, research results can provide insurance companies and investment funds with a useful comparison of globally available innovations and provoke them to try to implement the already available solutions that are not developed within domestic markets but also to start to develop their own innovation approaches.

The limitation of our study is that it is focused on the review of the main globally available innovations in insurance and investment fund industry. It does not, however, precisely determine the influences of the innovation applications on specific national markets and individual companies. Thus, it gives the basis for a number of future research studies as all mentioned innovations can be a basis for separate quantitative studies for micro as well as macroeconomic impact.

REFERENCES

[1] Abernathy, W.J. & Utterback, J.M. (1978). Patterns of Industrial Innovation. M. L. Tushman & W. L. Moore, eds. *Technology Review*, 80(7), 40-47.
[2] Allen, F. & Yago, G. (2010). Financing the Future: Market-based Innovations for Growth. Upper Saddle River, NJ: Pearson Education, Inc.
[3] Bolay, J-C., Schmid, M., Tejada, G. & Hazboun, E. (eds) (2012). Technologies and Innovations for Development: Scientific Cooperation for a Sustainable Future. Paris: Springer-Verlag France.
[4] Brown, W. (2009). Microinsurance – The Risks, Perils and Opportunities, in Hulme, D. and Arun, T.: Microfinance: A reader. Oxon, UK: Routlege.
[5] Chandra, V., Erocal, D., Padoan, P.C. & Braga, C.A.P. (eds) (2009). Innovation and Growth: Chasing a Moving Frontier. OECD and the International Bank for Reconstruction and Development/The World Bank.
[6] Chou, Y.K. & Chin, M.S. (2004). Financial Innovations and Technological Innovations as Twin Engines of Economic Growth. Mimeo University of Melbourne.
[7] Ćirić, J. & Njegomir, V. (2011, May). The supportive role of investment funds and insurance companies to entrepreneurship and innovations. Paper presented at the International Conference for Entrepreneurship, Innovation and Regional Development (ICEIRD, Skopje, FYRM).
[8] Drucker, P. (1973). Management: Tasks, Responsibilities, Practices. New York, NY: HarperCollins Publishers, Inc.
[9] Dutta, A. & Sengupta, P.P. (2010). Impact of technological innovation on efficiency — An empirical study of Indian life insurance industry. Paper presented at International Conference on Education and Management Technology. doi: 10.1109/ICEMT.2010.5657608
[10] Enz, R., Karl, K., Mehlhorn, J. and Schwarz, S. (2008). Natural catastrophes and man-made disasters in 2007: high losses in Europe. Sigma No. 1. Zurich: Swiss Reinsurance Company.
[11] Garth, D. (2011). The insurance tipping point: Innovation and transformation. The Journal of Insurance Operations. Retrieved from http://www.jiops.com
[12] Greenhalgh, C. & Rogers, M. (2010). Innovation, Intellectual Property, and Economic Growth. Princeton, NJ and Oxford, UK: Princeton University Press.
[13] Hellmuth, M.E., Osgood, D.E., Hess, U., Moorhead, A. & Bhojwani, H. (eds.) (2009). Index Insurance and Climate Risk: Prospects for development and disaster management. Columbia University, New York, NY: International Research Institute for Climate and Society.
[14] Juma, C. & Yee-Cheong, L. (2005). Innovation: Applying Knowledge in Development. UN Millennium Project Task Force on Science, Technology, and Innovation.

[15] Knight, G.A. & Cavusgil, S.T. (2004). Innovation, organizational capabilities, and the born-global firm. Journal of International Business Studies, 35(2), 124-141.
[16] Lado, N. & Maydeu-Olivares, A. (2001). Exploring the link between market orientation and innovation in the European and US insurance markets. International Marketing Review, 18(2), 130-145.
[17] Lee, Y-J., Wang, G-L. & Chang, L-Y. (2011). The influence of intellectual capital and marketing innovation strategies upon marketing performance: Taking Taiwan-listed life insurance firms as an example. African Journal of Business Management 5(22), 9240-9248.
[18] Lehmann, H. & Zweifel, P. (2004). Innovation and risk selection in deregulated social health insurance. Journal of Health Economics, 23(5), 997–1012.
[19] Marklund, G., Vonortas, N.S. & Wessner, C.W. (eds.) (2009). The Innovation Imperative: National Innovation Strategies in the Global Economy. Cheltenham, UK and Northampton, MA: Edward Elgar.
[20] NatCatSERVICE (2007). Geo Risks Research, Munich Re, Munich, http://www.munichre.com/en/ts/geo_risks/natcatservice/default.aspx
[21] Njegomir, V. & Maksimović, R. (2009). Risk transfer solutions for the insurance industry. Economic annals, 54(180), 57-90.
[22] Njegomir, V. (2006). Osiguranje života – marketing aspekti i specifičnosti. Marketing, 37(1), 29-35.
[23] Njegomir, V. (2007a). Minimiziranje rizika osiguravajućih društava. Industrija, 35(3), 83-102.
[24] Njegomir, V. (2007b). Kanali distribucije usluga osiguranja i reosiguranja. Marketing, 38 (1-2), 47-53.
[25] Njegomir, V. (2008). Uloga tržišta kapitala u upravljanju rizikom osiguranja. Industrija, 36(4), 95-118.
[26] Njegomir, V. (2011a). Osiguranje. Novi Sad, Serbia: Ortomedics book.
[27] Njegomir, V. (2011b). Mikroosiguranje. Industrija, 39(3), 295-314.
[28] Njegomir, V. (2011c). Tržište osiguranja i uloga države - stanje i perspektive finansiranja katastrofa. Finansije, 66 (1-6), 256-288.
[29] Nonaka, I. & Takeuchi, H. (1995). The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation. New York, NY: Oxford University Press.
[30] Oslo Manual (2005). The Measurement of Scientific and Technological Activities: Proposed Guideliness for Collecting and Interpreting Technological Innovation Data (Oslo Manual). Paris: Organisation for Economic Co-operation and Development.
[31] Pain, D. (2011). Product innovation in non-life insurance markets: Where little “i” meets big “I”. Sigma No. 4. Zurich: Swiss Reinsurance Company.
[32] Palmer, A. (Feb. 2012). Playing with fire. Retrieved April 15, 2012 from http://www.economist.com/node/21547999
[33] Pearson, R. (1997). Towards an Historical Model of Services Innovation: The Case of the Insurance Industry, 1700–1914. The Economic History Review, 50(2), 235-256.
[34] Rajan, A., (2011). Investment innovation: raising the bar, CREATE-Research, United Kingdom.
[35] Rejda, G. E. (2005). Principles of Risk Management and Insurance. Boston: Addison Wesley.
[36] Schumpeter, J. (1934). The Theory of Economic Development. Cambridge, MA: Harvard University Press.
[37] Skees, J.R. (2008). Innovations in Index Insurance for the Poor in Lower Income Countries. Agricultural and Resource Economics Review, 37(1), 1-15.
[38] Tkac, P., (2007). Mutual fund innovation: Past and future, Federal Reserve Bank of Atlanta, USA.

Receieved: June 2012.
Accepted: August 2013.)

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