“Ensuring financial inclusion through insurance companies and credit unions”

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Ensuring financial inclusion through insurance companies and credit unions

Abstract

The article analyzes modern tendencies and broadening dynamics of insurance companies' and credit unions' services in terms of world regions. The correlation analyses for finding lag relation between access broadening to the insurance companies' and credit unions' services and financial and economic parameters is held. The distribution-lag models for force and direction interrelation between access level to non-banking financial services and financial and economic regions development are elaborated.

Keywords: financial inclusion, insurance company, credit union, lag, economic growth, regression.

Introduction

Information and digital technologies spread rapidly all over the world and influence greatly financial sector development. Financial technologies now reached the level, when they may be useful not only for developed countries, but also are able to make better life of citizens and functioning of entities from undeveloped countries of the world. Existing technologies usage, such as cell phones, Internet in most countries of Asia, Africa and Latin America let them reach new development level of national economy and have free access to different financial services (opening and usage of banking accounts, getting cash from cash machines, credit, accumulation of costs and insurance agreement execution).

Material presentation

Recently, the main attention of world community is concentrated on the sustainable global strategy development, where the key role takes the financial services access issue of great masses of population, tackling which indirectly influences poverty reduction and profits distribution unevenness, stimulation of economic development, and also providing stability and security. According to World bank statistics, about 2 milliards (38%) of people from working adult population all over the world cannot use official financial services (Sahay, R., Cihak, M., N'Diaye, P. et al., 2015). Absence of access to the official financial services is usually explained by a lack of bank departments and insurance companies in settlements, and also absence of wish of financial institutions to serve the poor layers of society. Besides, low income population doesn't demonstrate the wish to feel all the benefits of the official financial system, because they believe themselves to be too poor to get some benefits from it.

Analysis of latest works on this problem shows that the access level to financial services correlates directly proportionately with financial stability parameters. In particular, the authors Era Dabla-Norris, Yan Ji, Robert Townsend, D. Filiz Unsal, (2015) built the model of general equilibrium for relation determining between outcomes of state policy to the stimulation processes on access expansion to financial services and level of economic growth in the developing countries. Calculation results confirm that the government plays central role in financial services access expansion by introducing laws that protect property and rights of creditors and providing these laws were executed in appropriate ways. Besides, in the work of Han Rui and Martin Melecky (2013), the influence of access to banking deposits on deposits growth permanence is analyzed during 2008-2009 world financial crisis and it is found in average wider access to banking deposits of population lets rise the stability of deposit portfolio during financial crisis.

To provide sustainable development of world economy and accessibility of financial services for different layers of society independently from geographic regions it is necessary to form needed infrastructure, the important role of which insurance companies and credit unions play, functioning as key representatives of non-banking financial sector.

Insurance companies have crucial meaning for monitoring risks of individuals and legal entities, as their services are directed towards the protection of property interests in case of unpredictable insurance cases. Accessibility level of insurance services over the world is not high. For example, in developing countries, about 17% of adult population settled health insurance agreement and, in Africa, Latin America, Central Asia and South Asia – only 3-5% (Global Financial Development Report, 2014).

Access to financial and credit resources is an important source to provide functioning of individuals. Providing separate persons and families with definite financial support for realization of

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their needs leads to getting a synergetic effect for economy in a whole. Concerning credit unions, the majority of borrowings of adults in undevelopedcountries are realized due to unofficial sources, such as family and friends.

To analyze accessibility level to insurance companies' and credit unions' services in different regions of the world, the following indirect parameters were chosen: insurance density and credit unions penetration rate (Figure 1).

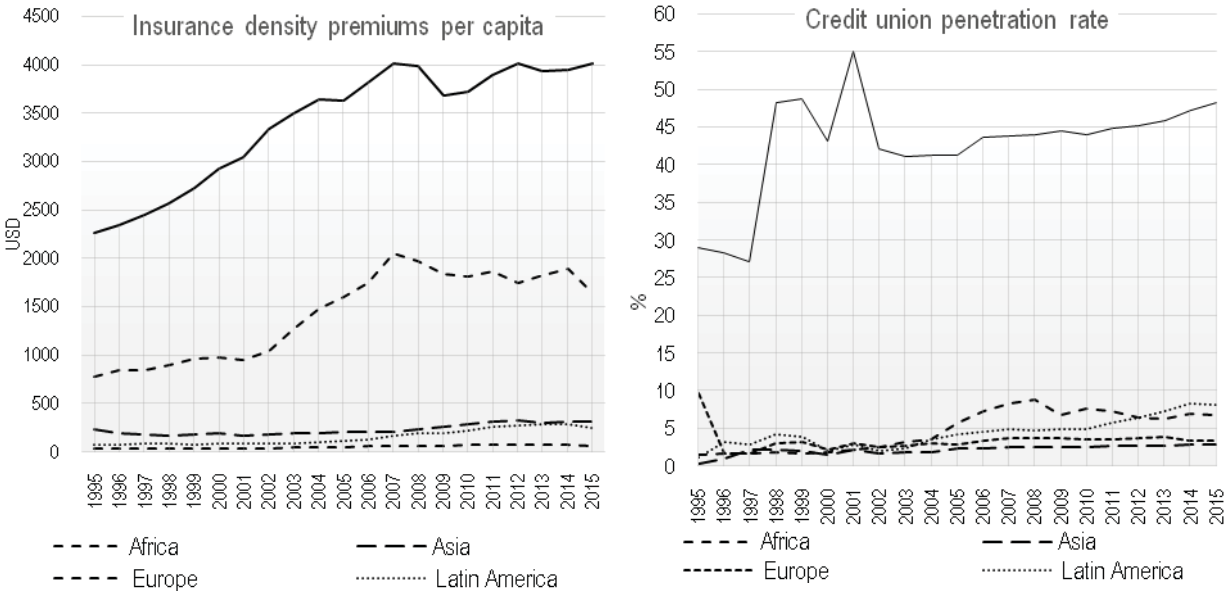

Fig. 1. Accessibility level dynamics to insurance companies and credit unions services during 1995-2015 among regions of the world

Source: The Global Findex Database (2014); Sigma explorer.

During 1995-2015, the citizens of North American region have the highest accessibility level to services of credit unions and insurance companies with the annual growth rate of 2.6 and 2.9%, respectively. The most intensive penetration rates of insurance services among citizens demonstrate the countries of Latin America, on average, the annual increase is near 6.6%, and the countries of Asia – only 1.7%. However, among access expansion to the services of credit unions, Asian region takes the leading position (annual growth rate is 11.4%).

Existing achievements of world union concerning increasing of insurance companies and credit unions representatives networks, financial products development according to the needs and profits of population, services' quality increase and financial knowledge level rise of population promotes synergetic effect appearance for national economies of this or that region. To find and evaluate the dependence relation between insurance and credit services and parameters of financial and economic development of regions is possible when constructing multifactor regressive model. Based on the fact the activity of insurance companies and credit unions acts as research object, then insurance companies' density level (FIIC) and credit unions penetration rate per capita (FICU) were chosen as effective variables. On the basis of previous analysis, into the list of factor features adjusted net national income per capita (NNI), household final consumption expenditure (HCE), foreign direct investment (FDI) were chosen. The research of regularities between parameters is executed in terms of key regions of the world (Asia, Africa, Europe, North America, Latin America). Time results of the research include 20 years (1995-2015).

The spreading results of access impact to financial services on the parameters dynamics of financial and economic development of the region may be implemented not at once, but with some delay – lag because of definite technical, psychological, governmental causes. That's why the correlation analysis for finding dominant relations, lag dependence between access expansion to the services of insurance companies and credit unions and financial and economic parameters was held within the framework of research (Tables 1, 2). In the work, the supposition is made that the maximum lag between effective parameter and factor features is 3 years. High correlation rate between parameters may serve the indicator of cause and effect relations or cooperation inside one process or between two processes, and the lag size indicates temporary delay in the cooperation transfer.

Table 1. The results of lag correlation determining between access expansion to insurance services and financial and economic parameters

Region	NNI				HCE				FDI			
	t	t+1	t+2	t+3	t	t+1	t+2	t+3	t	t+1	t+2	t+3
Africa	**0.897**	0.864	0.802	0.733	**0.897**	0.849	0.809	0.777	**0.888**	0.848	0.846	0.835
Asia	**0.964**	0.953	0.934	0.916	**0.953**	0.940	0.923	0.912	0.800	0.854	0.906	**0.948**
European Union	0.840	0.911	**0.962**	0.770	**0.980**	0.905	0.837	0.771	0.602	0.651	**0.653**	0.630
Latin America	**0.989**	0.977	0.938	0.892	**0.998**	0.976	0.941	0.904	0.950	**0.972**	0.884	0.864
North America	**0.905**	0.904	0.889	0.873	**0.908**	0.895	0.878	0.864	0.328	0.315	0.359	**0.435**

Table 2. The results of lag correlation determining between access expansion to the credit unions services and financial and economic parameters

Region	NNI				HCE				FDI			
	t	t+1	t+2	t+3	t	t+1	t+2	t+3	t	t+1	t+2	t+3
Africa	**0.743**	0.693	0.631	0.567	**0.742**	0.692	0.646	0.610	**0.824**	0.725	0.681	0.648
Asia	**0.842**	0.830	0.812	0.786	0.822	**0.832**	0.809	0.785	**0.842**	0.800	0.751	0.736
European Union	0.812	0.825	**0.830**	0.775	**0.826**	0.822	0.824	0.774	0.347	**0.604**	0.571	0.489
Latin America	**0.906**	0.913	0.888	0.869	0.887	**0.920**	0.898	0.885	**0.877**	0.859	0.849	0.816
North America	-0.054	-0.032	-0.045	-0.055	**-0.062**	-0.039	-0.042	-0.037	0.110	**0.365**	0.100	-0.183

The findings of the research include important information on the force of connection between variables and indicate time delays, when this connection is realized. The executed analysis showed the existence of such peculiarities:

- direct connection between the insurance services' access and the parameters of financial and economic development of countries, that is, usage expansion of insurance services stimulates the rise of adjusted net national income per capita, household final consumption expenditures and foreign direct investments notwithstanding the world region;
- access expansion to insurance services for the majority of world regions is accompanied by activation of investment processes with a definite delay, especially for the countries of Asia and North America in 3 years, the European Union – 2 years and Latin America – 1 year;
- preferably direct connection between access to services of credit unions and economic development of countries of the world, only this regularity cannot be found for the countries of Northern America.

On the basis of cross-correlation analysis, the distribution-lag models are built, that characterize the relation between access expansion to insurance companies' and credit unions' services and financial-economic development parameters of different regions of the world (Table 3).

Table 3. Distribution-lag models for cooperation evaluation between expansion of access to insurance companies' and credit unions' services and financial and economic development parameters of the world regions

Insurance companies	
Africa	$\mathrm{FI}_{\mathrm{IC}}^{\mathrm{AF}} = \beta_0 + \beta_1 \cdot NNI_t^{AF} + \beta_2 \cdot HCE_t^{AF} + \beta_3 \cdot FDI_t^{AF}$
Asia	$\mathrm{FI}_{\mathrm{IC}}^{\mathrm{AS}} = \beta_0 + \beta_1 \cdot NNI_t^{AS} + \beta_2 \cdot HCE_t^{AS} + \beta_3 \cdot FDI_{t+3}^{AS}$
European Union	$\mathrm{FI}_{\mathrm{IC}}^{\mathrm{EU}} = \beta_0 + \beta_1 \cdot NNI_{t+2}^{EU} + \beta_2 \cdot HCE_t^{EU} + \beta_3 \cdot FDI_{t+2}^{EU}$
Latin America	$\mathrm{FI}_{\mathrm{IC}}^{\mathrm{LA}} = \beta_0 + \beta_1 \cdot NNI_t^{LA} + \beta_2 \cdot HCE_t^{LA} + \beta_3 \cdot FDI_{t+1}^{LA}$
North America	$\mathrm{FI}_{\mathrm{IC}}^{\mathrm{NA}} = \beta_0 + \beta_1 \cdot NNI_t^{NA} + \beta_2 \cdot HCE_t^{NA} + \beta_3 \cdot FDI_{t+3}^{NA}$
Credit unions	
Africa	$\mathrm{FI}_{\mathrm{CU}}^{\mathrm{AF}} = \beta_0 + \beta_1 \cdot NNI_t^{AF} + \beta_2 \cdot HCE_t^{AF} + \beta_3 \cdot FDI_t^{AF}$
Asia	$\mathrm{FI}_{\mathrm{UC}}^{\mathrm{AS}} = \beta_0 + \beta_1 \cdot NNI_t^{AS} + \beta_2 \cdot HCE_{t+1}^{AS} + \beta_3 \cdot FDI_t^{AS}$
European Union	$\mathrm{FI}_{\mathrm{CU}}^{\mathrm{EU}} = \beta_0 + \beta_1 \cdot NNI_{t+2}^{EU} + \beta_2 \cdot HCE_t^{EU} + \beta_3 \cdot FDI_{t+1}^{EU}$

Table 3 (cont.). Distribution-lag models for cooperation evaluation between expansion of access to insurance companies' and credit unions' services and financial and economic development parameters of the world regions

Credit unions	
Latin America	$\mathrm{FI}_{\mathrm{CU}}^{\mathrm{LA}} = \beta_0 + \beta_1 \cdot NNI_t^{LA} + \beta_2 \cdot HCE_{t+1}^{LA} + \beta_3 \cdot FDI_t^{LA}$
North America	$\mathrm{FI}_{\mathrm{CU}}^{\mathrm{NA}} = \beta_0 + \beta_1 \cdot NNI_t^{NA} + \beta_2 \cdot HCE_t^{NA} + \beta_3 \cdot FDI_{t+1}^{NA}$

On the basis of indicated regularities between effective and factor features taking into account the existence of lag, practical testing of methodical approaches was created and the following findings were obtained and presented in Tables 4 and 5.

Table 4. Evaluation results of cooperation between expansion access to insurance services (FIIC) and financial and economic parameters (NNI, HCE, FDI) on the basis of distribution-lag models construction

Region	Constant	β_1	β_2	β_3	R-squared
		NNI	HCE	FDI	
Africa	22.3596	0.0368	-0.0279	0.4874	0.8380
Asia	154.6412	0.0946	-0.0755	1.1714	0.9875
European Union	43.3173	-0.0130	0.2091	0.0915	0.9694
Latin America	-27.8022	0.0050	0.0650	0.0096	0.9972
North America	1497.8105	0.0183	0.1371	0.0168	0.8257

Calculation results show the most important impact of FDI parameter (foreign direct investments) on the access level to insurance services among less developed regions of the world is appeared to be with chronological delay. In particular, in the countries of Asian region in average with the lag of 3 years, 1% increase in foreign direct investment volume leads to 1.17% increase of insurance premiums per capita. For the countries of the European Union, North and Latin America the greatest relation is found between expansion level of insurance services and consumption expenditure volume.

The meaning of determination coefficient (0.83-0.99) tells that included to the model economic factors explain 83-99% of regional access variation level to insurance services, determined by the combined criteria.

Table 5. Evaluation results between access expansion of credit unions' services and financial and economic parameters

Region	Constant	β_1	β_2	β_3	R-squared
		NNI	HCE	FDI	
Africa	-0.2168	0.0123	-0.0169	0.2127	0.7167
Asia	1.8536	0.0001	0.0000	0.0113	0.7808
European Union	1.7209	0.0000	0.0000	0.0003	0.7557
Latin America	0.2968	0.0004	0.0014	-0.0005	0.8534
North America	28.9795	0.0017	-0.0053	0.0018	0.2425

The main factor of access level expansion to credit unions became the volume increasing of foreign direct investments. For example, in the countries of European Union, the access expansion to credit unions' services leads in short-time perspective (lag=1) to costs increase of foreign investors. The most important impact on the access level of population to credit unions' services in the countries of Latin America has the volume of consuming expenses.

The check of constructed models on adequacy witnesses for the countries of African, Asian, European and Latin American regions the chosen factors explain from 71% to 85% of all changes of resultative parameter. Just received calculations on North American region cannot be considered to be statistically significant, as determination coefficient constitutes only 24%.

Conclusion

Significant regional and international differentiation in the access to non-banking financial services leads to the appearance of disequilibriums in financial and economic development of countries of the world. To prove the hypothesis on the existence of latent relations between access level to insurance companies and credit unions services and basic financial and economic features of world regions evelopment the correlation regressive analysis is used with the construction of multifactor regressive

models. Calculation results of parameter models gave the opportunity to confirm that there are time lags between the access to financial services and investigated financial and economic parameters. Constructed distribution-lag models show the existence of close relation between investigated parameters and the importance of research problem of access to non-banking financial services in the frames of sustainable global economic development.

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