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Original Paper

The Effects of Insurances, Pensions and Mutual Funds on Economic Growth

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Abstract

Earlier studies on the impact of the insurance sectors activities on economic growth have largely failed. To examine the financial development market interaction of pensions and mutual funds linkages, through which insurance assets affects economic growth. This study re-examines the impact of life insurance premium volume, non-life insurance premium volume, insurance company assets, pension fund assets and mutual fund assets on economic growth. Using panel data of 33 countries over the period 2000-2016. The study applied the Autoregressive Distributed Lag (ARDL) model in panel setting using the PMG (Pooled Mean Group) and MG (Mean Group) estimators in this analysis. The study findings indicate that cointegration exists among all series and that insurances and mutual funds stimulate economic growth in both the short and long run.

Keywords

Insurance, Pension, Mutual Fund, Economic Growth, ARDL, PMG, and MG

1. Introduction

Individuals, companies, institutions and or the public sector seek protection against future financial losses, adverse events or the smoothing of incomes and consumptions, through the pooling or transferring of their risks. Which is the most basic role of insurances, pensions and mutual funds companies. The scope of protections and the associated conditions and financial commitments are normally defined between the provider and the policyholder and are typically transacted through a network of agents or brokers. Insurance is a promise to compensate or indemnify the consequences of a loss-producing event. Pension funds offer savings products very similar to those offered by insurers and may include risk-mitigating features such as guarantees on their principals and interests. Unlike banks and insurance companies, mutual funds do not assume credit and insurance risks. Whereas mutual funds offer corporations and households the means to invest in a diversified portfolio for a financial return.

In the insurance related literature, Skipper (1997) Rejda (2005) Skipper and Kwon (2007) and Dorfman (2008) emphasize that insurance markets act as, both a provider of risk transfers and indemnification and as institutional investors, which may contribute to economic growth in the following ways: (a) mobilizing domestic savings, (b) allowing different risks to be managed more efficiently, thereby encouraging the accumulation of new capital; (c) boosting financial stability; (d) facilitating trade and commerce; (e) supporting to reduce or mitigate losses; and (f) fostering a more efficient allocation of domestic capital. Whereas Zweifel and Eisen, (2012) indicated insurance influences production and consumption, internal and international trade, transaction payments in addition to conservation of existing and creation of new wealth (See also Ward & Zurbruegg, 2000; Kugler & Ofoghi, 2005; Haiss & Sümegi, 2008; and Richterkova et al., 2013).

Whereas pensions and mutual funds or contractual savings can positively affect economic growth. They do so by raising capital accumulation and productivity (Demirguc-Kunt & Levine, 1996; Levine & Zervos, 1998; Neusser & Kugler, 1998) and when their impact is not offset by government dissaving's (Samwick, 1998; and Bailliu & Reisen, 2000). They can also affect growth indirectly by reducing firms and banks vulnerability which in turn, can foster savings and investments growth. More particularly, they are associated with an increase in stock markets depth in countries where corporations depend on capital markets for financing their future investments (IMF, 2009).

The empirical studies on the insurance, financial development and economic growth nexus has being somewhat mixed regarding its complementarity and supplementarity effects. For example. Beenstock, Dickinson and Khajurja (1986) using cross-section and time-series data for ten industrialized countries for the period 1970-1981 found that life insurance demand has positive effects on GDP per capita. Webb, Grace and Skipper (2002) examined whether banking, life and nonlife insurers contribute to economic growth. They used cross-country data for 55 developed and developing countries for the period 1980-1996. They found that the penetration of life insurance is significantly positive and are correlated with economic growth. They also found that there is no link between economic development and non-life insurance. Kugler and Ofoghi (2005) used the components of net written insurance premiums to evaluate a long run relationship between development in insurance markets size and economic growth in the UK and found there is a long-term integration between development in insurance markets size and economic growth. Haiss and Sumegi (2008) examined the impact of insurances on economic growth, they found positive impacts of life insurance on GDP growth for the first group of countries. For the second group, they found a larger impact of liability insurance. Adams et al. (2009) explores the historical relationships between banking, insurances and economic growth in Sweden for period 1830-1998. They found that the development of banking, but not insurances, impact growth. Other influential studies such as Gertler (1988), Pagano (1993), King and Levine (1993b) Levine (1999), Levine and Zervos (1998), Beck and Levine (2004) have all showed that developed insurances and banking systems can have positive effects on growth.

The purpose of this paper is to empirically investigate the linkages between life insurance premium volume, non-life insurance premium volume, insurance company assets, pension fund assets and mutual fund assets towards economic growth. Different from previous studies in the literature, we employ a panel autoregressive distributed lag model based on two alternative techniques the Mean Group and Pooled Mean Group estimators. In addition, this study realizes that insurances, pensions and mutual funds not only act as a provider of risks and indemnification but also as an institutional investor having impact on capital accumulation. To the best of our knowledge, there has not been any studies that tried to estimate this financial development relationships with the selected variables for both developed and developing countries by panel ARDL approach based on the PMG and MG estimators.

The rest of the paper is organized as follows. Section 2 describes the data and methodology, while Section 3 provides the results of the estimates. Section 4 concludes.

2. Data and Methodology

In our model we use annual panel data for 33 developed and developing countries. The variables used are as follows: real GDP per capita as a proxy of economic growth; mutual fund assets percent of GDP, and pension fund assets percent of GDP as proxies of financial development; insurance company assets percent of GDP; life insurance premium volume percent of GDP; non-life insurance premium volume percent of GDP. All time-series are taken from the World Bank, World Development Indicator database and expressed in natural logarithms. The descriptive statistics of variables and the listed countries are presented in Appendix A.

The baseline ARDL (*p*,*q*) specification, *p* being the number of lags of the dependent variable and *q* the number of lags of the independent variable, is:

$$Y_{it} = \alpha_{it} + \sum_{j=1}^{p} \delta_{ij} Y_{i,t-j} + \sum_{j=1}^{q} \beta_{ij} X_{i,t-j} + \varepsilon_{it} \quad (1)$$

where *i* is the country index, *t* is the time index, *Y* is the dependent variable, *X* is the explanatory variable δ_{ij}, β_{ij} are the coefficients, and ε_{it} a random disturbance term. If the variables in (1) are I(1) and cointegrated so that all cross-sections have a long-run equilibrium relationship between the variables, a dynamic error correction model (ECM) can be derived from the ARDL through a simple linear transformation. The reparameterization of the ARDL model in EC form is:

$$\Delta Y_{it} = \alpha_{it}^{*} + \sum_{j=1}^{p-1} \delta_{ij}^{*} \Delta Y_{i,t-j} + \sum_{j=1}^{q-1} \beta_{ij}^{*} \Delta X_{i,t-j} + \emptyset_i \left(Y_{i,t-1} - \theta_i X_{i,t-1} \right) + \varepsilon_{it} \quad (2)$$

where the short-run dynamics of the variables in the system are influenced by the extent of any deviation from the long-run equilibrium with φ capturing the speed of adjustment, θ being the long-run coefficient, and δ*, β* the short-run coefficients.

After testing for unit roots, the hypothesis that cointegration is absent is tested. More specifically, the null hypothesis that the coefficients of lagged regressors (in levels) in the underlying ARDL error correction model are jointly equal to zero (no long run relationship exists) is tested against the alternative hypothesis that a long run relationship exists. Cointegration of nonstationary variables is equivalent to an EC process. Therefore,

$$\Delta ln(real\_gdp\_pc)_t = \alpha + \sum_{i=1}^{k} \beta_1 \Delta ln(mf)_{t-i} + \sum_{i=1}^{k} \beta_2 \Delta ln(insurance\_co\_assets)_{t-i} + \sum_{i=1}^{k} \beta_3 \Delta ln(li\_premium\_vol)_{t-i} + \sum_{i=1}^{k} \beta_4 \Delta ln(non\_li\_premium\_vol)_{t-i} + \sum_{i=1}^{k} \beta_5 \Delta ln(pension\_fund\_assets)_{t-i} + \emptyset ECM_{t-1} + \varepsilon_t \quad (3)$$

where ECM = Error Correction term (residual from the cointegration equation) φ = speed of adjustment parameter in response to previous period's deviation from the long-run equilibrium.

β_1, β_2, β_3, β_4, and β_5 are the short-run coefficients of the independent variables Δ is the difference operator *k* is the lag length ε_t = uncorrelated white noise residuals.

PMG, MG Models without trend

$$\Delta ln(real\_gdp\_pc)_t = \alpha + \beta_1 \Delta ln(mf)_{t-1} + \beta_2 \Delta ln(insurance\_co\_assets)_{t-1} + \beta_3 \Delta ln(non\_li\_premium\_vol)_{t-1} + \varphi(ln(real\_gdp\_pc)_{t-1} - \theta_1 ln(mf)_{t-1} - \theta_2 ln(insurance\_co\_assets)_{t-1} - \theta_3 ln(non\_li\_premium\_vol)_{t-1}) + \varepsilon_t \quad (4)$$

where the error correction term = $(ln(real\_gdp\_pc)_{t-1} - \theta_1 ln(mf)_{t-1} - \theta_2 ln(insurance\_co\_assets)_{t-1} - \theta_3 ln(non\_li\_premium\_vol)_{t-1})$ and φ is the speed of adjustment parameter.

PMG, MG Models with trend

$$\Delta ln(real\_gdp\_pc)_t = \alpha + \beta_1 \Delta ln(insurance\_co\_assets)_{t-1} + \beta_2 \Delta ln(li\_premium\_vol)_{t-1} + \varphi(ln(real\_gdp\_pc)_{t-1} - \theta_1 ln(insurance\_co\_assets)_{t-1} - \theta_2 ln(li\_premium\_vol)_{t-1}) + \varepsilon_t \quad (5)$$

where the error correction term = $(ln(real\_gdp\_pc)_{t-1} - \theta_1 ln(insurance\_co\_assets)_{t-1} - \theta_2 ln(li\_premium\_vol)_{t-1})$, is the Error Correction Term (ECM) and φ is the speed of adjustment parameter.

3. Empirical Results and Analysis

Appendix A reports summary statistics for all the variables in order to determine the nature of the data distribution. The data of all the series are nearly normally distributed, as the values of the standard deviations of these distributions are within a reasonable range, which implies that application of standard estimation techniques is not likely to provide spurious findings. We also include without-trend and with-trend panel unit root tests, using the Im-Pesaran-Shin Panel Unit-Root W-stat (IPS) (1997) test presented in Table 1. The results without including time trend indicated that the null hypothesis of unit root cannot be rejected for real GDP per capita, mutual fund assets, insurance company assets, and non-life insurance premium volume in levels, whereas life insurance premium volume, and pension fund assets are level stationary. Where allowing for time trend we find that the null hypothesis of unit root cannot be rejected for real GDP per capita, insurance company assets, and life insurance premium volume in levels, whereas mutual fund assets, non-life insurance premium volume, and pension fund assets are level stationary. We further applied the unit root tests in the first differences for both with and without time tend specifications and conclude the first differences are all stationary, implying all variables are either I(0) or I(1). As none of the variables are I(2) or beyond the ARDL approach is applicable.

Table 1. Im-Pesaran-Shin Panel Unit-Root Test Results

Variable		without Trend				with Trend			
		IPS test statistic	**p-value**	**Conclusion**		**IPS test statistic**	**p-value**	**Conclusion**	
ln_real_gdp_pc	Level	-1.0989	0.1359	Non-stationary	I(1)	0.3910	0.6521	Non-stationary	I(1)
	1st Difference	-7.1644***	0.0000	Stationary		-4.4536***	0.0000	Stationary	
ln_mf	Level	-0.6315	0.2639	Non-stationary	I(1)	-2.8851***	0.0020	Stationary	I(0)
	1st Difference	-14.7936***	0.0000	Stationary		-12.4293***	0.0000	Stationary	
ln_insurance_co_assets	Level	2.3619	0.9909	Non-stationary	I(1)	2.9765	0.9985	Non-stationary	I(1)
	1st Difference	-10.2343***	0.0000	Stationary		-7.9411***	0.0000	Stationary	
ln_li_premium_vol	Level	-2.3339***	0.0098	Stationary	I(0)	-0.4596	0.3229	Non-stationary	I(1)
	1st Difference	-14.5454***	0.0000	Stationary		-12.0833***	0.0000	Stationary	
ln_non_li_premium_vol	Level	-0.6534	0.2568	Non-stationary	I(1)	-2.3325***	0.0098	Stationary	I(0)
	1st Difference	-10.2494***	0.0000	Stationary		-7.0763***	0.0000	Stationary	
ln_pension_fund_assets	Level	-8.0794***	0.0000	Stationary	I(0)	-9.7991***	0.0000	Stationary	I(0)
	1st Difference	-14.4283***	0.0000	Stationary		-11.9229***	0.0000	Stationary	

Null: Unit root (assumes individual unit root process in each panel), ***, ** and * denote significance at the 1%, 5%, and 10% levels respectively.

To determine whether a cointegrating relationship exits, we used the Pedroni (1999, 2001 and 2004) panel cointegration test using four panel statistics. Which is v-statistic, p statistic, PP-statistic and ADF-statistic (within dimension) and three group panel statistics which are group p-statistic, group PP-statistic and group ADF-statistic (between dimension) to test the null hypothesis of no cointegration against the alternative hypothesis of cointegration. The results are reported in Table 2 for both within and between dimension panel cointegration test statistics. These statistics are based on averages of the individual autoregressive coefficients associated with the unit root tests of the residuals for each country in the panel. All six of the seven panel cointegration tests reject the null hypothesis of no cointegration at the 1% significance level for the panel. While the panel v-statistic is significant at the 5% level. Consequently, the evidence suggests that in the panel data sets there is a long run equilibrium relationship between all variable and economic growth.

Table 2. Pedroni Panel Cointegration Test Results

Within Dimension Test Statistics			Between Dimension Test Statistics		
	Statistic	p-value		Statistic	p-value
Panel v-Statistic	-1.687**	0.04580	Group rho-Statistic	7.098***	0.00001
Panel rho-Statistic	5.005***	0.00001	Group PP-Statistic	-10.16***	0.00001
Panel PP-Statistic	-8.003***	0.00001	Group ADF-Statistic	5.2***	0.00001
Panel ADF-Statistic	5.444***	0.00001			

***, ** and * denote significance at the 1%, 5%, and 10% levels respectively. All of the 7 statistics are highly significant which leads us to reject the null hypothesis of no cointegration.

On finding that cointegration exists, following Pesaran and Smith (1995), Pesaran et al. (1999), we consider the PMG, and MG estimation and Banerjee et al. (1998) the VECM, estimators for the cointegration vectors as shown Tables 3 and 4. Whereas the Hausman test is used to determine the efficiency between the PMG and MG estimation. The empirical results in Table 3 for the PMG model indicates in the long run, a 1% increase in mutual fund assets percent of GDP, insurance company assets percent of GDP and non-life insurance premium volume percent of GDP would lead to a 0.22%, 0.02% increase and 0.28% decrease respectively to economic growth. Whereas in the short run a 1% increase in mutual fund assets percent GDP and non-life insurance premium volume percent of GDP would lead to a 0.05% and 0.02% increase in growth.

Table 3. Panel PMG, MG Estimation Results without Trend

Dependent Variable: D.ln_real_gdp_pc	**Coefficient**	
Explanatory Variable	**Pooled Mean-Group (PMG)**	**Mean-Group (MG)**
	Long Run estimate	
ln_mf (-1)	0.2170006*** (0.000)	0.0709962 (0.433)
ln_insurance_co_assets (-1)	0.018928 (0.335)	0.184209 (0.197)
ln_non_li_premium_vol (-1)	-0.2793109*** (0.000)	-0.3357993 (0.277)
	Short Run estimate	
Error Correction Term	-0.1118773*** (0.000)	-0.2917803*** (0.000)
D(ln_mf (-1))	0.0466015*** (0.000)	0.014674 (0.333)
D(ln_insurance_co_assets (-1))	0.0012762 (0.965)	0.0438995 (0.164)
D(ln_non_li_premium_vol (-1))	0.0175906 (0.523)	0.0185409 (0.636)
Constant	1.095283*** (0.000)	2.695707*** (0.000)
	Hausman Test	
Chi-square	**p-value**	
2.52	0.4716	

p-values are in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels respectively.
Lag orders have been chosen based on the Bayesian Information Criterion (BIC).
Life Insurance Premium Volume, Pension Fund Assets are not included as these are I (0) processes as per IPS Panel Unit Root Test results without Trend.

The error correction term is -0.1118, and negative at 1% significance level. This indicates that the speed of adjustment of PMG model is around 11% per annum and confirms the existence of a stable long-run relationship. The calculated Hausman Test is 2.52 with p-value of 0.4716 of which we conclude that a null hypothesis cannot be rejected, and the PMG estimator is preferred.

The empirical results in Table 4 based on the unit root test results with time trend from the PMG model indicate in the long run, a 1% increase in insurance company assets percent of GDP, and life insurance premium volume percent of GDP would lead to a 0.43% increase and 0.12% decrease respectively to economic growth. Whereas in the short run a 1% increase in insurance company assets percent of GDP would lead to a 0.05% increase in growth. The error correction term is at 1% significant level with a negative sign. Thus, a stable long-run relationship exists. The Hausman Test revealed the null hypothesis cannot be rejected indicating that the PMG estimator is more appropriate than the MG model.

Table 4. Panel PMG, MG Estimation Results with Trend

Dependent Variable: D.ln_real_gdp_pc	**Coefficient**	
Explanatory Variable	**Pooled Mean-Group (PMG)**	**Mean-Group (MG)**
	Long Run estimate	
ln_insurance_co_assets (-1)	0.429576*** (0.000)	1.460761 (0.250)
ln_li_premium_vol (-1)	-0.1245482*** (0.000)	0.0631897 (0.918)
	Short Run estimate	
Error Correction Term	-0.1134916*** (0.000)	-0.3248132*** (0.000)
D(ln_insurance_co_assets (-1))	0.0506496** (0.019)	0.037818* (0.086)
D(ln_li_premium_vol (-1))	-0.0284484 (0.206)	-0.0364722** (0.039)
Constant	1.048817*** (0.000)	3.166902*** (0.000)
	Hausman Test	
Chi-square	**p-value**	
0.36	0.8350	

p-values are in parentheses. ***, ** and * denote significance at the 1%, 5%, and 10% levels respectively.
Lag orders have been chosen based on the Bayesian Information Criterion (BIC).
Mutual Fund Assets, Pension Fund Assets are not included as these are I (0) processes as per IPS Panel Unit Root Test results with Trend.

4. Conclusion and Policy Implications

In this paper, based on the difference panel ADRL, PMG, and MG approach using annual panel data for 33 develop and developing countries over the period 2000–2016, we have attempted to examine the relationships between financial development market interaction of pensions and mutual funds linkages, through which insurance assets affects economic growth. Our empirical findings are as follows: (i) mutual fund assets percent of GDP, insurance company assets percent of GDP and non-life insurance premium volumes percent of GDP all have positive effects on growth in the long and short run; (ii) life insurance premium volumes have negative effects on growth, whereas pension fund assets are level stationary. Overall, our findings suggest that policy makers should focus on investing in the development of the insurances and mutual fund sectors, thereby enhancing sustainable economic growth and employment.

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References

Bailliu, J., & Reisen, H. (2000). Do Funded Pensions Contribute to Higher Aggregate Savings? A Cross-country Analysis. In H. Reisen (Ed.), *Pensions, Savings and Capital Flows—From Ageing to Emerging Markets, OECD* (pp. 113-131).

Banerjee, A., Dolado, J. J., & Mestre, R. (1998). Error-Correction Mechanism Tests for Cointegration in a Single-Equation Framework. *Journal of Time Series Analysis*, *19*, 267-283. https://doi.org/10.1111/1467-9892.00091

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, *28*(3), 423-442. https://doi.org/10.1016/S0378-4266(02)00408-9

Beenstock, M., Dickinson, G., & Khajuria, S. (1986). The Determination of Life Premiums: An International Cross-Section analysis 1970-1981. *Insurance, Mathematics and Economics*, *5*(4), 261-270. https://doi.org/10.1016/0167-6687(86)90020-X

Demirguc-Kunt, A., & Levine, R. (1996). Stock Markets, Corporate Finance, and Economic Growth: An Overview. *The World Bank Economic Review*, *10*(2). https://doi.org/10.1093/wber/10.2.223

Dorfman, M. S. (2008). *Introduction to Risk Management and Insurance*. Upper Saddle River, NJ: Pearson Education, Inc.

Gertler, M. L. (1988). Financial Structure and Aggregate Economic Activity: An Overview. *Journal of Money, Credit and Banking*, *20*(3), 559-588. https://doi.org/10.2307/1992535

Haiss, P., & Sumeg, K. (2008). The Relationship between Insurance and Economic Growth in Europe: A theoretical and empirical analysis. *Empirica*, *35*(4), 405-431. https://doi.org/10.1007/s10663-008-9075-2

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, *115*(1), 5374. https://doi.org/10.1016/S0304-4076(03)00092-7

Impavido, G., and Tower, I. (2009). *WP/09/151, How the Financial Crisis Affects Pensions and Insurance and Why the Impacts Matter* (IMF Working Paper).

King, R. G., & Levine, R. (1993b). Finance and Growth: Schumpeter Might be Right. *Quarterly Journal of Economics*, *108*(3), 717-738. https://doi.org/10.2307/2118406

Kugler, M., & Ofoghi, R. (2005). Does insurance promote economic growth? Evidence from the UK. In *Money Macro and Finance Research Group/ Money Macro and Finance (MMF) Research Group Conference 2005, 1-3 September, University of Crete, Rethymno, Greece*.

Levine, R. (1999). Financial Development and Growth: Where Do We Stand? *Estudios de Economia*, *26*(2), 113-136.

Levine, R., & Zervos, S. (1998). Stock Markets, Banks, and Economic Growth. *American Economic Review*, *88*(3), 537-558.

Neusser, N., & Kugler, J. (1998). Manufacturing Growth and Financial Development: Evidence from OECD Countries. *Review of Economics and Statistics*, *80*, 638-646. https://doi.org/10.1162/003465398557726

Njegomir, V., & Dragan, S. (2010). *Does Insurance Promote Economic Growth: The Evidence from Ex-Yugoslavia Region*. EKON. MISAO I PRAKSA DBK. GOD XIX. (2010) BR. 1. (31-48).

Pagano, M. (1993). Financial markets and growth: An overview. *European Economic Review*, *37*(2-3), 613-622. https://doi.org/10.1016/0014-2921(93)90051-B

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics*, *61*(S1), 653-670. https://doi.org/10.1111/1468-0084.61.s1.14

Pedroni, P. (2001). Fully modified OLS for heterogeneous cointegrated panels. *Advances in Econometric*, 93-130. https://doi.org/10.1016/S0731-9053(00)15004-2

Pedroni, P. (2004). Panel cointegration; asymptotic and finite sample properties of pooled time series tests with an application to the purchasing power parity hypothesis. *Econometric Theory: Cambridge University Press*, *20*, 597-325. https://doi.org/10.1017/S0266466604203073

Pesaran, M. H & Smith, R, (1995). Estimating long-run relationships from dynamic heterogeneous panels. *Journal of Econometrics. Elsevier*, *68*(1), 79-113. https://doi.org/10.1016/0304-4076(94)01644-F

Pesaran, M. H., Shin, Y., & Smith, R. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, *94*, 621-634. https://doi.org/10.1080/01621459.1999.10474156

Piljan I., Cogoljević D., & Piljan T. (2015). Role of Insurance Companies in Financial Market. *International Review*, 1-2.

Rejda, G. E. (2005). *Principles of Risk Management and Insurance*. Upper Saddle River, NJ: Pearson Education, Inc.

Richterkova, A., & Korab. P. (2013). Impact of insurance sector activity on economic growth—A metaanalysis. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *LXI*(7), 2677-2683. https://doi.org/10.11118/actaun201361072677

Samwick, A. (1998). Is Pension Reform Conducive to Higher Saving? *Paper presented at the World Bank Saving Workshop, September (1998)*.

Skipper, H. D. (1997). *Foreign Insurers in Emerging Markets: Issues and Concerns. Center for Risk Management and Insurance* (Occaisional Paper).

Skipper, H. D., & Kwon, W. J. (2007). *Risk Management and Insurance: Perspectives in a Global Economy*. Oxford: Blackwell Publishing, Ltd.

Ward, D., & Zurbruegg, R. (2000). Does Insurance Promote Economic Growth? Evidence from OECD Countries. *The Journal of Risk and Insurance*, *67*(4), 489-506. https://doi.org/10.2307/253847

Webb, I., Grace, M. F., & Skipper, H. D. (2002). *The Effect of Banking and Insurance on the Growth of Capital and Output, Center for Risk Management and Insurance* (Working Paper).

Zweifel, P., & Eisen, R. (2012). *Insurance Economics* (1st ed.). Berlin: Springer New York.

Appendix A

Table 1. Summary of Descriptive Statistics

	Real GDP Per Capita	**Mutual Fund Assets**	**Insurance Company Assets**	**Life Insurance Premium Volume**	**Non-Life Insurance Premium Volume**	**Pension Fund Assets**
Mean	10.0267	2.50414	2.94050	0.70263	0.54123	2.36793
Std. Deviation	0.7687	1.73025	1.23551	1.19416	0.40703	1.58799
Minimum	7.4775	-3.50656	0.32208	-3.21888	-0.49430	-3.91202
Maximum	11.2500	6.65471	4.97280	2.75874	1.60744	5.21336
Skewness	-0.5540	-0.86410	-0.44155	-0.87801	-0.48057	-0.42334
Kurtosis	2.3806	3.97374	2.02251	3.27345	2.83891	3.30398
Percentiles						
25%	9.3721	1.6094	2.0176	0.0862	0.3221	1.3987
50%	10.0992	2.9288	3.2531	0.9932	0.5988	2.1798
75%	10.7276	3.6636	4.0685	1.6696	0.8329	3.8593
90%	10.8435	4.1965	4.3563	1.9359	0.9632	4.4762

Correlations						
Real GDP Per Capita	1.0000					
Mutual Fund Assets percent of GDP	0.6842	1.0000				
Insurance Company Assets percent of GDP	0.7763	0.8159	1.0000			
Life Insurance Premium Vol. percent of GDP	0.6181	0.7717	0.9156	1.0000		
Non-Life Insurance Premium Vol. percent of GDP	0.5759	0.5122	0.6673	0.6517	1.0000	
Pension Fund Assets percent of GDP	0.5084	0.5824	0.5995	0.5717	0.4042	1.0000

The countries included are: Australia, Brazil, Canada, China, France, Germany, Italy, Japan, Mexico, Russia, South Africa, South Korea, Turkey, USA, United Kingdom, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, Hungary, Ireland, Latvia, Lithuania, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden. All variables are expressed in their logarithms.