

# **THE FINANCIAL PERFORMANCE OF LIFE INSURANCE COMPANIES IN GHANA**

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## **ABSTRACT**

This study identifies the determinants of profitability in the life insurance industry of Ghana. The study also examines the relationship among the three measures of insurers' profitability, which are investment income, underwriting profit and the overall (total) net profit. The financial statements of ten (10) life insurance companies covering a period of eleven years (2000 to 2010) were sampled and analyzed through panel regression.

The findings indicate that whereas gross written premiums have a positive relationship with insurers' sales profitability, its relationship with investment income is a negative one. Also, the results showed that life insurers have been incurring large underwriting losses due to overtrading and price undercutting.

The results further revealed a setting-off rather than a complementary relationship between underwriting profit and investment income towards the enhancement of the overall profitability of life insurers.

The policy implications of this study for the stakeholders of the life insurance industry are enormous. For instance, insurers must have well resourced actuary departments to perform price validation of all policies in order to prevent overtrading and price undercutting by insurance marketing agents. In addition, the intention of the NIC to adopt a risk-based approach in its supervision is not only timely but a very significant move that will improve upon the accounting and records keeping standards of the industry as well as the governance and risk management structures of the sector.

This study is the first of its kind about the life insurance market of Ghana. It therefore adds more to literature and opens the debate for more empirical studies in this area of life underwriters.

**Key Words:** life insurance, financial performance, Ghana.

**Type of Paper:** Research Paper.

## 1 Introduction

Insurance companies provide unique financial services to the growth and development of every economy. Such specialized financial services range from the underwriting of risks inherent in economic entities and the mobilization of large amount of funds through premiums for long term investments. The risk absorption role of insurers promotes financial stability in the financial markets and provides a “sense of peace” to economic entities. The business world without insurance is unsustainable since risky business may not have the capacity to retain all kinds of risks in this ever changing and uncertain global economy (Ahmed et al., 2010). Insurance companies’ ability to continue to cover risk in the economy hinges on their capacity to create profit or value for their shareholders.

Indeed, a well-developed and evolved insurance industry is a boon for economic development as it provides long- term funds for infrastructure development of every economy (Charumathi, 2012). The National Insurance Commission, the regulatory body of the Ghanaian insurance sector, has therefore intensified its supervision, field visits, and has adopted a risk-based assessment of insurers’ activities. All of these regulatory measures are to ensure that the financial performance of insurance companies is in sound condition.

Insurers’ profitability is influenced by both internal and external factors. Whereas internal factors focus on an insurer’s-specific characteristics, the external factors concern both industry features and macroeconomic variables. The profitability of insurance companies can also be appraised at the micro, meso and macro levels of the economy. The micro level refers to how firm-specific factors such as size, capital, efficiency, age, and ownership structure affect profitability. The meso and macro levels refer to the influence of support-institutions and macroeconomic factors respectively. The three-level-factor determinants of insurers’ profitability are presented in Figure 1. At the micro level, profit is the essential pre-requisite for the survival, growth and competitiveness of insurance firms and the cheapest source of funds (Buyinza et al., 2010). Without profits no insurer can attract outside capital to meet its set objectives in this ever changing and competitive globalized environment.

Profit does not only improve upon insurers’ solvency state but it also plays an essential role in persuading policyholders and shareholders to supply funds to insurance firms. Thus, one of the objectives of management of insurance companies is to attain profit as an underlying requirement for conducting any insurance business.

The Ghanaian insurance industry has undergone significant changes such as: the transformation of the industry from state-led to a market-driven one due to the privatization<sup>2</sup> of state-owned insurance firms; the legal separation of insurance companies into life and non-life entities under Act 724 (2006); and the massive influx of foreign insurers onto the market. All of these changes

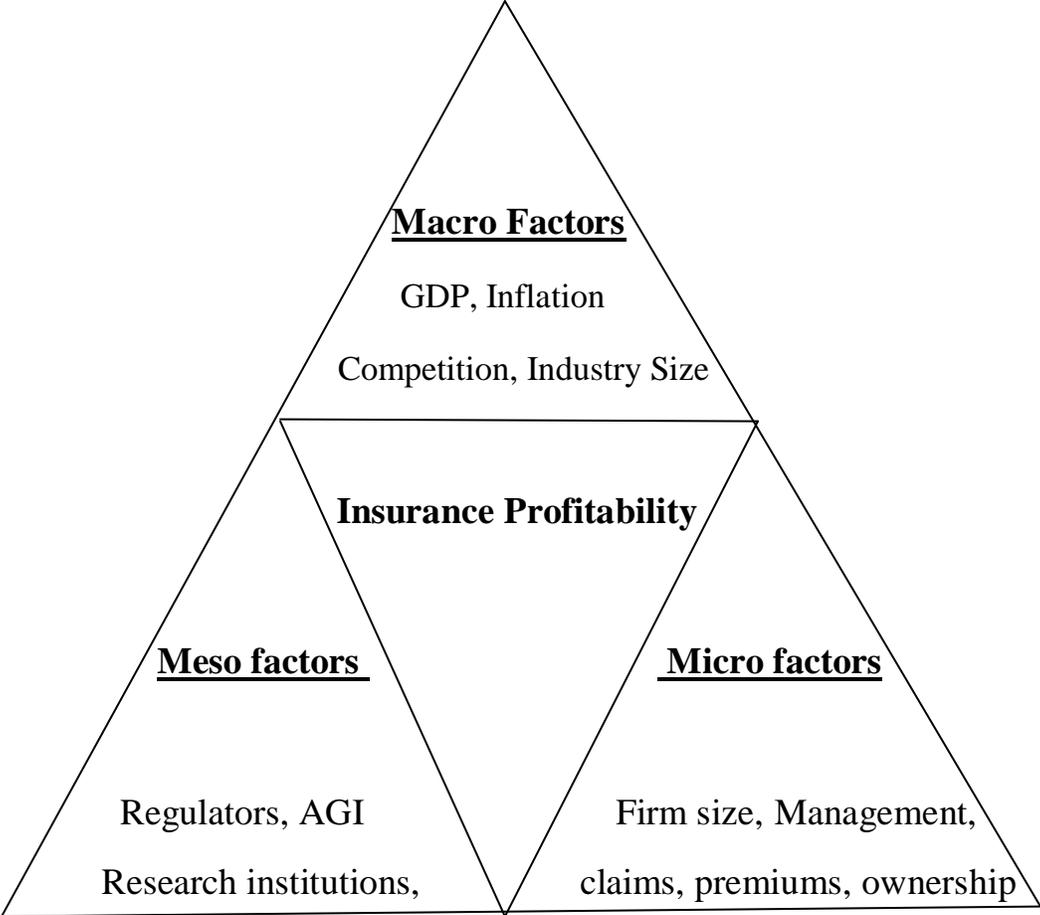
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<sup>2</sup> The State Insurance Company (SIC) which happens to be the market leader has been listed on the Ghana Stock Exchange.

have resulted in a keener competition in the industry. Thus, it is in the interest of every insurer to identify the critical factors that determine business success. Accordingly, this paper seeks to determine the direction and strength of the different factors that may influence insurers' financial performance.

Identifying the key success indicators of insurance companies facilitates the design of policies that may improve the profitability of the insurance industry. Hence, the determinants of insurers' profitability have attracted the keen interest of investors, scientific researchers, financial markets analysts and insurance regulators. The scientific knowledge of the determinants of insurers' profitability has further been reinvigorated by the 2007/2009 global economic and financial crises. Indeed, the 2007/2009 financial crises and the growing competition in the Ghanaian insurance industry have rekindled the need to assess the determinants of insurers' profitability on the premise that a sound and lucrative insurance industry is needed to create a resilient financial market.

Figure 1: The Three-Level-Factor Determinants of Profitability in the Insurance Industry



Source: Authors' own design

Much of the extensive empirical literature on the determinants of profitability is mostly focus on the banking industry. Very little is known about the insurance industry as far as the topic under consideration is concerned especially from the perspective of an emerging market like Ghana. This paper seeks to open the “flood gates” for more scientific research and academic debate into Ghanaian insurers’ financial performance.

## 2 An Overview of the Life Insurance Industry of Ghana

The global insurance market is forecasted to have a value of \$4,608.5 billion in 2012 – an increase of 24.9% since 2007. Life insurance dominates the global insurance market, accounting for 59.7% of the markets value. The performance of the Ghanaian insurance industry is in tandem with the global industry. Although a greater percentage of total industry premiums are generated from the non-life sector, the percentage growth in premiums from life assurers far outweighs that of the non-life sector. For instance, whereas the non-life sector grew by 23 percent in 2010, the life business recorded a remarkable growth of 52 percent. In other words, the growth rate of the life sector is more than twice that of the non-life business (NIC, 2010).

Despite the enhanced growth in premiums from both sectors of the industry, insurance penetration continues to be far below the desired benchmark. The contribution of total insurance premiums to GDP, which measures insurance penetration, in real terms, is 1.89 percent as against 14.8 percent in South Africa; 7.3 percent in Namibia; 2.8 percent in Kenya and 4.8 percent in Malaysia (Swiss Re, 2010). Table 1 represents the gross premium income and insurance penetration from 2001 to 2010.

Table 1: Gross Life and Non-Life Premium Income and Insurance Penetration.

Year	Premium Income (GH¢)	Growth Rate (%)	Insurance Penetration (%)
2001	32,251,600	26.0	0.85
2002	47,205,989	46.3	0.95
2003	71,283,978	51.0	1.08
2004	92,583,146	29.8	1.16
2005	122,925,795	24.7	1.26
2006	164,207,266	33.5	1.40
2007	209,554,718	27.6	1.49
2008	278,255,336	32.7	1.57
2009	342,703,760	23.0	1.58
2010	458,694,769	33.0	1.89

Source: National Insurance Commission Annual Reports for 2005, 2007 and 2010.

The industry has also witness tremendous growth in the number of insurance entities. The number of insurance entities excluding agents grew from 74 in 2007 to 97 in 2010. As at December 2010, the NIC has licensed twenty-one non-life insurance firms, seventeen life

assurance companies and two reinsurance companies. The industry also has forty-six brokerage firms, one reinsurance broking company and one loss adjuster. The details of all the licensed insurance entities are presented in Table 2.

Table 2: Licensed Insurance Entities as at December, 2010

Type of Insurance Entity	Number
Non-Life Companies	23
Life Companies	17
Reinsurance Companies	2
Insurance Brokers	46
Bancassurance	7
Reinsurance Brokers	1
Loss Adjusters	1
Agents	1,200

Source: National Insurance Commission, 2009 and 2010.

The enactment and the implementation of the new insurance regulation, Act 724 (2006) have resulted in remarkable changes in the structure, competition, efficiency and the growth of the industry. Apart from its compliance with the core principles of the International Association of Insurance Supervisors, it has strengthened the NIC to provide a robust insurance regulatory environment. The Act has also facilitated the entry of foreign insurance firms onto the Ghanaian market. This has resulted in keener competition especially among the top six companies. The market shares by gross written premiums of the top six life companies are presented in Table 3. Whereas the market share of the State Insurance Company (SIC Life) is declining, Enterprise Life Assurance has seen continuous growth at an average of two percent since 2003. Thus the growing competition is gradually eroding the dominance of SIC Life.

Table 3: Market Shares by Gross Written Premiums (Life Business)

Company	Percentage of Market Share (%)							
	2003	2004	2005	2006	2007	2008	2009	2010
State Insurance Company Limited	22	24	26	29	32	30	28	26
Gemini Life Insurance Company	18	16	15	14	16	13	14	11
Enterprise Life Assurance Ltd	8	10	12	13	15	17	19	21
Star Life Company Ltd	13	10	10	7	8	9	10	10
Metropolitan Life Insurance Ltd	14	10	9	7	7	7	6	6
Vanguard Life Insurance Ltd	6	8	4	9	6	6	7	9
Others	19	22	24	21	16	18	16	17
Total	100	100	100	100	100	100	100	100

Source: National Insurance Commission Annual Reports, 2007 and 2010

The growing competition has exposed the industry to harmful effects such as undercutting, unethical underwriting and marketing practices and the excessive dependence on credit to manage the competition (NIC, 2010). The industry has also witnessed increased complaints

against virtually every insurer from the general public. Over the past six years the Complaints and Settlements Bureau<sup>3</sup> has received an average of 295 complaints per year from the general public against various insurers for reasons such as: (i) differences between benefits promised by insurers and from what is stated in policy documents; (ii) insurers failure to stop deductions of premiums after policy has been surrendered; (iii) payment of rather low surrender values; and (iv) delays in paying claims (NIC, 2010). Table 4 shows the number of complaints from 2005 to 2010.

Table 4: Number of Complaints against Insurers

Year	Number Of Complaints
2005	312
2006	262
2007	245
2008	245
2009	260
2010	445
Total	<b>1769</b>
Average	<b>294.8</b>

*Source:* National Insurance Commission Annual Reports

In order to address these challenges confronting the industry, the NIC has intensified its supervision and field visits. It has initiated new prudential returns, new solvency framework, corporate governance and risk management code and an accounting manual. It has also proposed the re-capitalization of every insurance company from the current US\$1 million to US\$5 million by the end of 2013. The NIC has also taken significant steps to adopt a risk-based supervisory approach to evaluate the likelihood and severity of material risks affecting insurers and the robustness of the controls put in place by insurers to minimize the probability of the occurrence of such risk events or the severity of the impacts (NIC, 2010). It is envisioned that all of these initiatives will re-equip the industry to underwrite the emerging risks in the economy especially the risks associated with the oil and gas industry.

### 3 Literature Review

Theoretically, the level of a firm's profit is influenced by the level of revenue and expenditure. These two factors – revenue and expenditure – are intend influence by firm-specific characteristics, industry features and macroeconomic variables (Buyinza et al., 2010; Indranarain, 2009). The firm-specific features which are mostly under the direct control of management are size, sales growth, capital, efficiency and risk management. Demircuc-Kunt and Maksimovic (1998) and Akhavein et al., (1997) have all established a positive correlation between size and profitability. Asimakopoulos et al. (2009) found that the profitability of companies is positively impacted by size, sales growth and investment. They however discovered that leverage and current assets are inversely related to profitability. Adequately

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<sup>3</sup> The Complaints and Settlement Bureau is an arbitration organ of the NIC.

capitalized insurance companies are not only able to address regulatory capital needs but can have additional funds for lending to generate profits. Also, well capitalized insurers are able to increase their underwriting profits through the underwriting of large capital intensive investments such as investments in the oil and gas industry.

Another influence on the profitability of insurers is the retention ratio. The retention ratio is the percentage of the underwritten business which is not transferred to reinsurers. A higher retention ratio with lower claims ratio is likely to impact on the performance of insurers' positively. Through a dynamic panel model, Pervan et al (2012) investigated the underlying factors of Bosnia and Herzegovina insurance industry's profitability. Their findings indicated a strong negative influence of claims ratio on profitability. They further showed that age and market shares have significant positive impacts on insurers' financial performance.

Theoretically, a more efficient insurance company should have growth in profits since it is able to maximize on its net premiums and net underwriting incomes. For instance, Molyneux and Thornton (1992) identified a strong positive association between efficiency and profitability.

Deficiencies in the management of credit risk associated with lending result in high premiums outstanding and this can negatively gnaw at the profit maximizing force of an insurer. For example, Miller and Noulas (1997) identified an inverse connection between credit risk and profitability. In studying the impact of financial intermediation on the profitability of the Nigerian insurance industry, Agiobenebo and Ezirim (2002) showed that there is a significant positive relationship between the level of premiums to total assets and insurers' profitability.

Chen and Wong (2004) revealed that size, investment and liquidity are significant determinants of the profitability of insurers. However, Ahmed et al., (2011) in a similar study of the Pakistani life insurance industry, claimed that liquidity is not a significant determinant of insurers' profitability. They posited that, whereas size and risk (loss ratio) are significant and positively related to the profitability of insurance firms, leverage is negative and hence decreases the profitability of insurers significantly.

Still in Pakistan, Malik (2011) delved into the determinants of the financial performance of 35 listed life and non-life companies covering the period of 2005 to 2009. Although his study covers both sectors of the insurance business, much of his findings seem to confirm that of Ahmed et al (2011). Specifically, Malik found that whereas size and capital have strong positive association with insurers' profitability, loss ratio and leverage have strong inverse relationship with profitability.

Adams and Buckle (2003) argued that highly geared and low liquid Bermuda insurers perform better and that their underwriting risk is directly related to a resilient financial performance. This seems to suggest that actuarial risk and operational risks are properly managed by Bermuda insurers. Adams and Buckle further posited that insurers' size and scope of business do not have significant influence on financial performance. The findings of Adams and Buckle about the

Bermuda market confirm the results of an earlier study by Adams (1996) about the New Zealand insurance market. Specifically, Adams (1996) found that firm-specific factors such as leverage and underwriting risk were positive and significantly related to investment earnings of life insurers. However, the findings of Charumathi (2012) about the Indian life insurance sector contradict that of Adams and Buckle (2003) and Adams (1996). Charumathi claims that the profitability of life insurers is positive and significantly influenced by the size of an insurer as measured by net premiums. He further posited that leverage, premium growth and equity capital have strong inverse relationship with insurers' profitability. The findings of Charumathi (2012) confirms that of Chen et al., (2009) that, insurers' profitability decreases with an increase in equity ratio.

Chidambaran et al. (1997) and Shiu, (2004) conducted separate studies into the economic performance of the U.S. property-liability insurance industry and UK general insurance industry respectively. The analysis of Chidambaran et al revealed that the ratio of concentration and the share of direct underwriters are both significant determinants of insurers' financial performance. On his part Shiu revealed that liquidity, unexpected inflation, interest rate level and underwriting profits were statistically significant determinants of the insurers' performance.

Hrechaniuk et al. (2007) examined the financial performance of insurance companies in Spain, Lithuania and Ukraine. Their results showed a strong correlation between insurers' financial performance and the growth of the written insurance premiums.

Pervan and Pavic (2010) and Curak et al (2011) investigated into the impacts of firm-specific, industry-specific and macroeconomic variables on the financial performance of the Croatian non-life and composite insurance companies respectively. The results of Pervan and Pavic revealed an inverse and significant influence of ownership, expense ratio and inflation on profitability. In lending support to the findings of Pervan and Pevic (2010), Curak et al (2011) indicated that size, underwriting risk, inflation and equity returns have significant association with composite insurers' financial performance.

In Poland, a panel study of 25 non-life insurance companies by Kozak (2011) revealed that the value of gross premiums is positive and a significant parameter of the profitability and efficiency of insurance companies. He, however, identified a negative relationship between profitability and lack of specialization or expertise in few cost-effective products.

Other possible determinants of profitability in the insurance industry are foreign ownership, competition and GDP growth rate. Foreign ownership and GDP growth rate have been identified in other countries to contribute positively to insurers' profitability (see Kozak, 2011 and Ahmed et al., 2011). The evidence on the relationship between competition and insurers' profitability is scanty and mixed.

## 4 The Methodology

### *The Sources of Data*

We selected 10 out of the 17 life insurance companies from the database of the National Insurance Commission (NIC) of Ghana. The ten (10) companies were selected based upon the availability of data and the number of years that an insurer has been in operation. The annual financial statements of the ten (10) companies covering the period of 2000 to 2010 were used for the analysis. The market structure information about the insurance industry was gleaned from the annual reports of the NIC. The data on the macroeconomic conditions of the Ghanaian economy were taken from the databases of the Ghana Statistical Service and the Ministry of Finance and Economic Planning.

### *The Data Analysis*

A panel data analysis approach was adopted for the evaluation of the determinants of insurers' profitability. A panel data is a longitudinal or cross-sectional data in which economic entities are observed across time (Ahiawodzi and Sackey, 2010). We adopted the econometric style of Kozak (2011), Buyinza et al., (2010), Ahmed (2011) and Ahiawodzi and Sackey (2010) with few modifications for the modeling of our econometric framework. The regression model for a panel data takes the form:

$$Y_{it} = F \{X_{it}, Z_t\} + \mu_{it} \quad (1)$$

Where  $Y_{it}$  denotes profitability of company  $i$  in year  $t$ ,  $X_{it}$  represents a vector of variables characteristic of company  $i$  in year  $t$  and  $Z_t$  is a vector of variables representing the insurance industry and macroeconomic factors in year  $t$ .  $\mu_{it}$  is the error term.

Equation (1) is expanded in the following model:

$$Y_{it} = \beta_o + \sum_{m=1}^m \beta_m L_{it} + \sum_{r=1}^r \alpha_r LI_t + \sum_{c=1}^c \phi_c MF_t + \mu_{it} \quad (2)$$

Where  $Y_{it}$  is a dependent variable and it measures the profitability ratios of technical activity and investment activity for an insurer  $i$  at time  $t$ . The first set of the explanatory variables  $L_{it}$  is the  $m$ -th root of life insurers' specific characteristics of insurer  $i$  at time  $t$ , while the second set of explanatory variables  $LI_t$  is an industry characteristic of the life business at time  $t$ .  $MF_t$  is an independent variable and a measure of the impact of macroeconomic factors such as the growth rate of the gross domestic product, inflation and interest rates on insurers' profitability.

### Specification of the Empirical Model

For robustness of results, our empirical model to investigate the determinants of life insurers' profitability has been estimated for three measures of profitability in equations 3, 4 and 5. In equation three, the *sales profitability (SAP)* measures the overall profitability of an insurer in relation to gross premiums written by a company. The next dependent variable is the *profitability of investment activities (INP)*, which evaluates the effectiveness of the investment portfolio of insurers. The *underwriting profit (UWP)* is the profit from the technical operations of an insurer. It measures efficiency of the core activities of an insurance company (Kozak, 2011).

$$SAP_{it} = \beta_0 + \beta_1 GWP_{it} + \beta_2 MGE_{it} + \beta_3 CLM_{it} + \beta_4 REI_{it} + \beta_5 LEV_{it} + \beta_6 SIZ_{it} + \beta_7 INR_t + \beta_8 GDP_t + \mu_{it} \quad (3)$$

$$INP_{it} = \beta_0 + \beta_1 GWP_{it} + \beta_2 MGE_{it} + \beta_3 CLM_{it} + \beta_4 LEV_{it} + \beta_5 SIZ_{it} + \beta_6 INR_t + \beta_7 GDP_t + \mu_{it} \quad (4)$$

$$UWP_{it} = \beta_0 + \beta_1 GWP_{it} + \beta_2 MGE_{it} + \beta_3 CLM_{it} + \beta_4 LEV_{it} + \beta_5 SIZ_{it} + \beta_6 INR_t + \beta_7 GDP_t + \mu_{it} \quad (5)$$

Table 5: Definitions of the dependent and the explanatory variables of the empirical model

Abbreviations	Variables	Definitions
SAP <sub>it</sub>	Sales profitability	Profit before tax of firm <i>i</i> divided by total assets at time <i>t</i> .
INP <sub>it</sub>	Investment income	Investment income of company <i>i</i> at time <i>t</i> .
UWP <sub>it</sub>	Underwriting profit	Underwriting profit of company <i>i</i> at time <i>t</i> .
GWP <sub>it</sub>	Gross written premiums	Natural logarithm of gross premiums written by insurer <i>i</i> at time <i>t</i> .
CLM <sub>it</sub>	Claims	Natural logarithm of total claims of company <i>i</i> at time <i>t</i> .
MGE <sub>it</sub>	Expenses on management	Natural logarithm of expenditure on managers of company <i>i</i> at time <i>t</i> .
REI <sub>it</sub>	Reinsurance	Total of gross premiums transferred by company <i>i</i> at time <i>t</i> to a reinsurance company.
LEV <sub>it</sub>	Total debts	Total debts of company <i>i</i> at time <i>t</i> .
SIZ <sub>it</sub>	Size of company <i>i</i>	Total assets of company <i>i</i> at time <i>t</i> .
INR <sub>t</sub>	Interest rate	The rate of the one year treasury security of Bank

		of Ghana.
GDP <sub>t</sub>	Gross domestic product	GDP growth rate at time <i>t</i> .

*Source: Authors' calculation*

A panel data can be analysed in two ways: fixed and random effects. Fixed effect models investigate the association between the outcome and the explanatory variables within an entity and assume that all other time invariant variables across entities that can influence the explanatory variables to be constant (Ahiawodzi and Sackey, 2010), however, random effects consider such time invariant as randomly related. A Hausman Test at five (5) percent confidence level is usually used to select either fixed or random effects for the analysis of panel regression. The random effect is used if the P-value ( $\text{prob} > \chi^2$ ) is greater than 0.05, otherwise the fixed effect becomes the ideal model for the empirical analysis (Torres-Reyna, 2007). Based on the Hausman Test result, we have used the random effects to estimate the parameters for equation 3 and 5 and the fixed effects for equation 4.

## 5 Results and Discussion

### *The Descriptive Statistics*

The summary statistics of the explained and the explanatory variables are presented in Table 6. The averages of the three measures of insurers' profitability – overall profitability (SAP), investment income (INP) and underwriting profit (UWP) – are GHC583.10, GHC579.76 and negative GHC28.64 respectively. Surprisingly, the underwriting profit recorded a negative mean of GHC28.64 over the eleven years under study. In 2010 the NIC reported that all the life insurers made underwriting losses. It also reported that the industry average for underwriting profit has been negative 16 percent (-16%) for both 2007 and 2008; negative 49 percent (-49%) for 2009 and negative 21 percent (-21%) for 2010 (NIC Annual Report, 2010). This persistent recording of underwriting losses may be attributed to undercutting, poor management of claims and weak structures for the management of actuarial risk.

The mean of management expenses far exceed the mean of the overall profitability by almost five times. An indication that the expenses incurred on management does not lead to a proportionate growth in insurers' profitability.

**Table 6: Descriptive Statistics**

Variable	Obs.	Mean	Std. Dev.	Min	Max
SAP	110	583.10	1828.42	-2752	10994.57
INP	110	579.76	717.05	0.207	2954.00
UWP	110	-28.64	1395.07	-4551	7413.28
GWP	110	7281.35	13420.60	1.33	68268.00
CLM	110	1642.12	2834.90	0.21	14333.00

MGE	110	2654.21	5369.92	0.64	29138.00
REI	110	1947.33	4315.90	0.06	19536.40
SIZ	110	12601.98	23305.14	37.28	137441.60
LEV	110	6828.24	10754.86	5.34	55550.05
INR	10	0.20	0.05	0.11	0.27
GDP	10	0.06	0.01	0.04	0.08

Source: Results was generated from STATA

### ***The Results of the Panel Regression***

Statistically, the overall predictive ability of a panel model is better if the P-value (that is, Prob > Chi<sup>2</sup> or Prob > F) is less than 0.0500. All the three estimated models have P-values of 0.0000, which shows that the independent variables altogether explains the dependent variables very well. The results of our empirical models are presented in Table 7.

**Table 7: Panel Regression Results**

INDEPENDENT VARIABLES	SAP	INP	UWP
GWP	0.1356*** (0.000)	-0.0316** (0.031)	0.0709** (0.029)
CLM	-0.5135*** (0.000)	0.1105** (0.022)	-0.5604*** (0.000)
MGE	-0.2163*** (0.000)	0.0527* (0.068)	-0.0495 (0.450)
REI	0.0881** (0.018)		
SIZ	0.0959*** (0.000)	-0.0256** (0.001)	0.0773*** (0.000)
LEV	0.0168 (0.415)	0.0638*** (0.000)	0.0323 (0.257)
INR	3808.4* (0.052)	-4100.59*** (0.000)	8399.88** (0.002)
GDP_GROWTH RATE	5301.499 (0.500)	-2066.47 (0.626)	9083.93 (0.405)
CONST	-1145.372 (0.129)	1214.29** (0.003)	-2448.44** (0.019)
R <sup>2</sup>			
<b><i>Within</i></b>	0.8207	0.6715	0.5441
<b><i>Between</i></b>	0.9763	0.8291	0.7921
<b><i>Overall</i></b>	0.8744	0.7021	0.5775
Wald chi <sup>2</sup> (9)	696.48		

Wald chi <sup>2</sup> (8)			138.06
Prob >chi <sup>2</sup>	0.0000		0.0000
F (8, 92)		23.51	
Prob > F		0.0000	

Notes: Significance level: \*\*\* is 1%, \*\* is 5% and \* is 10%. The P-values are in parenthesis.

Source: Results was generated from STATA

### ***Gross Premium Written and Life Insurers' Profitability***

The amount of the gross premium written has a significant impact on all the three measures of life insurers' profitability. It has a positive influence on the total net profitability ratio at 1 percent significant level and on the underwriting profit at 5 percent level. This means that, the growth in premiums improves the profitability of the core operations of insurers and their overall profitability. This result lends support to the findings of Hrechaniuk et al. (2007) about the insurance markets of Spain, Lithuania and Ukraine. It also confirms the results of Agiobenebo and Ezirim (2002) about the Nigerian insurance sector.

Surprisingly, the impact of the gross written premium on investment income is a negative one. This means that, the more premiums are underwritten, the less income insurance companies derive from their investment activities. Kozak (2011) found a similar relationship about the Polish insurance industry.

Two main reasons could account for this relationship between gross premiums written and investment income in the Ghanaian life insurance industry. The first possible reason is the overwhelming focus of most insurance companies on various marketing activities to generate more premiums to the detriment of their investment activities. That is, if more resources especially human and capital are directed towards the underwriting of more policies to grow premiums without a proportionate concentration of such resources on the management of their assets and liabilities, the investment income will decline despite an increase in the gross written premiums. Empirical findings indicate that rapid growth of premium volume is a major causal factor in insurers' insolvency (Kim et al., 1995). According to Chen and Wong (2004) being too obsessed with premium growth can lead to self-destruction as other important objectives (such as the effective selection of profitable portfolios to invest in) might be neglected. This is especially true during an economic downturn, such as the Asian, the Euro-zone and 2007/2009 global financial crisis.

Secondly, the interest rate paid to policyholders on life products also tends to reduce life insurers' investment income. That is, as more premiums are underwritten, the demand to pay interest rates on life products with savings components also increases.

Thirdly, much of the gross premiums written are outstanding<sup>4</sup>, which sometimes turns out as bad debt. Indeed, the large outstanding premiums on the books of insurance companies have compelled the NIC to stop the usage of gross premiums as the benchmark for the calculation of insurers' market shares (NIC, 2007). Large outstanding premiums have the tendency to disrupt the risk pooling mechanism of insurance, and this can deplete the investment income for the payment of large claims.

### ***Claims Payments and Profitability***

The level of claims payments has a negative relationship with both the underwriting profit and the total net profit but has a positive association with investment income. The implication of this unusually positive relationship between claims and investment income is this: if more of the insurance products<sup>5</sup> which are sold lead to moral hazard, adverse selection and high outstanding premiums, then high claims will have to be financed through other sources of revenue such as investment income. As such, investment performance becomes critical to the financial solidity of an insurer. Kim et al. (1995) and Kramer (1996) found that investment performance is negatively correlated to insolvency rate. That is, in the absence of investment income, huge claims can lead to insolvency in the insurance industry.

This finding also shows ineffective management of actuarial risk. Actuarial risk according to Santomero and Babbel (1997:8) "is the risk that the firm is paying too much for the funds it receives or, alternatively, the risk that the firm has received too little for the risks it has agreed to absorb". Our findings show that Ghanaian insurance firms pay too much for the funds that they received due to underwriting losses. Underwriting losses reduce underwriting profit as explained by the inverse relationship between claims payments and underwriting profitability. According to the NIC (2008:25), "Almost all the life companies made underwriting losses... and this underscore the utmost importance of ensuring the adequacy and efficient management of investments by life insurance companies." This is a recognition of this unusual trend in the Ghanaian life insurance industry by the NIC.

### ***Management Expenditure and Profitability***

The expenditure on management is statistically significant to both the level of the total net profit and the investment income at 1 percent and 10 percent respectively. However, whereas its relationship with the total net profit is an inverse one, that of the investment income is positive. This means that an increase in expenses on management operations has a direct influence on the capacity of an insurer to identify and invest in profitable portfolios in order to increase

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<sup>4</sup> This refers to the period preceding 2006 when composite insurance business was lawful.

<sup>5</sup> Insurance sales agents in their attempts to sell more in order to get higher commissions sometimes do not undertake proper due diligence of prospective policyholders. (Giesbert, and Steiner, 2011 )

investment income; however, it has a declining impact on the overall profitability of insurers. Our result lends support to that of Kozak (2011).

### ***Total Assets and Insurers' Profitability***

Insurers' assets have a significant positive link with both the total net profit and the underwriting profit at the 1 percent confidence level. That is an increase in total assets such as the establishment of more branches and the adoption of new technologies enables an insurer to underwrite more policies which may increase the underwriting profit and the total net profit. This is in confirmation of similar discoveries by Chen and Wong (2004) and Ahmed et al (2011) about the Pakistani insurance industry.

However, total assets are inversely correlated with investment income at 5 percent significance level. The implication of this finding is that if assets (especially new branch offices, technology, cars, etc) which are acquired to underwrite more policies do not realize their desired results because of inefficient management of actuarial risks leading to underwriting losses and high outstanding premiums, then investment income and equity capital will have to be used to finance the acquisition of assets. Thus, an increase in assets reduces investment income. Although, our result confirms the findings of Adams and Buckle (2003), it disagrees with the findings of Charumathi (2012) and Malik (2011).

### ***Leverage and Profitability***

Insurance firms leverage consists of unearned premiums, contingency reserve or life fund, outstanding claims, deferred tax, unpaid dividends, trade and other payables (eg. Due to re-insurers). Our findings show that, even though leverage has a positive relationship with all the three measures of insurers' profitability its association is statistically significant with only investment income. This is a reflection of the ability of insurers to convert their liabilities such as unearned premiums, contingency reserves or the life fund into profitable income earning assets. Whereas this result corroborates the findings of Adams and Buckle (2003) and Adams (1996), it contradicts the claims of Ahmed et al (2011) and Malik (2011).

### ***Interest Rate and Insurers' Profitability***

The rates of treasury securities such as the 91-day Treasury bill rate and the 1-year treasury securities are used as benchmarks by insurers to determine the rates that they (insurers) pay policyholders on their life products. Most of the life products on the Ghanaian insurance market have savings and investment components. This means that policyholders benefit from being

indemnified and from capital gains (that is, increase in the value of the investment components) of the policy as a result of increase in rates. Our results indicate that interest rate has a positive relationship with underwriting profit and the sales profitability. This means that prospective policyholders take up more insurance cover if they are offered attractive interest rates by the insurer. This however, reduces the investment income of life insurers.

## 6 Key Performance Indicators of the Industry

The financial performance of the industry is mostly assessed by the NIC through financial ratios such as the claims ratio, the retention ratio, underwriting profit and investment income ratios. The average ratios of the life industry from 2007 to 2010 are presented in Table 8 and discussed in turns.

### The Combined Ratio

This comprises the claims and the management expense ratios. Whereas the claims ratio measures underwriting efficiency, the expense ratio evaluates managerial competency and efficiency. The lower the rates of these ratios, the better the financial health of an insurer. The industry performed abysmally in 2009 as it used as high as 98 percent of its written premiums for claims payments and managerial expenses. As such only 2 percent of the total industry gross written premiums contributed towards the growth in its profits. The industry's performance has however begun to witness some improvement especially in 2010. It witnessed a 21 percent (98% to 77%) reduction in its claims and managerial expenses in 2010.

**Table 8: Life Industry Average Ratios**

<b>RATIO</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Claims (%)	31	36	39	34
Expense (%)	32	40	59	43
Combined (%)	63	76	98	77
Retention (%)	98	96	96	98
Investment income as % of premiums (%)	16	18	26	16
Investment income as % of investment (%)	6	11	16	12
Gross premium to Equity	1.2x	2.0x	3.9x	2.4x
Underwriting profit as % of gross premiums	-16	-16	-49	-21
Return on Equity (%)	7	16	-12	10
Gross Premium to Equity Ratio	1.2	2.0	2.9	2.4
Return on Assets (%)	7	4	-5	2

*Source:* National Insurance Commission Annual Report, 2010

## **The Investment Income Ratios**

Two main ratios are considered under investment income: the investment income as a percentage of gross written premiums and the investment income as a proportion of the total proceeds from an insurer's investment activities. They measure the degree of quality, adequacy and the profitability of the investment portfolios of an insurer. The investment income as a proportion of the premiums income evaluates the performance of an insurer's technical ability (underwriting strength) in relation with its asset allocation capacity to viable investment portfolios. Although the industry average grew quite remarkably from 16 percent in 2007 to 26 percent in 2009, it slumped in 2010 by 10 percentage points to 16 percent. The percentage growth recorded over the four year period is also far less than one-third of the premium incomes. Considering the fact that life insurers have been incurring huge underwriting losses, making adequate returns on investment portfolios is very critical for the survival, growth and profitability of life insurers. It is therefore very essential that insurers diversify their investment operations into unexploited areas such as the real estate market.

## **The Equity Ratios**

The NIC uses the return on equity and the gross premium to equity ratios for the assessment of life insurers' profitability and capital adequacy levels respectively (NIC, 2010). The industry's return on equity grew very significantly from 7 percent in 2007 to 16 percent in 2008. It, however, recorded a negative growth of 12 percent in 2009. This decline in growth may be due to the global financial crisis of 2009 and the negative returns that the Ghana Stock Exchange recorded in 2009.

The industry's best practice for gross premium to equity ratio is usually 2 percent (NIC, 2010). A ratio which is significantly greater than 2 percent is a sign of overtrading or excessive underwriting. Such a situation can lead to higher underwriting losses and possible insolvency of an insurance company. Though the industry averages for the four years are within manageable limits, some individual insurers undertook excessive underwriting between 7.7 percent to as high as 26.6 percent. Such a situation is a clear recipe of disaster especially during multiple claims demands and surrenders.

## **7 Conclusions and Policy Recommendations**

This study has delved into the financial performance of life assurance companies in Ghana through an in-depth analysis of the determinants of their profitability. Life insurers' financial performance was measured by three parameters: investment income, underwriting profit and overall sales profitability. These parameters capture the key operations of life insurers. Usually,

the overall profitability is a summation of the investment income and the underwriting profit. That is the investment income must complement the underwriting profit towards the enhancement of the overall profitability of a life insurance company. The findings revealed that life insurers have been incurring underwriting losses which detract from their financial performance. The high underwriting losses as the results showed is due to overtrading, high claims payments and high managerial expenses.

The study further showed that gross written premiums and total assets have a negative effect on investment income. This may be due to the excessive attention on marketing to grow premiums without a proportionate allocation of resources towards the management of their investment portfolios. This is evidenced in the low levels of investment income in the industry.

It is the recommendation of this paper that life insurance companies should have separate departments with requisite personnel for their investment operations and underwriting activities. And that the activities of these departments must be managed closely together in a complementary manner. In particular their underwriting/actuary departments must insist on the validation of all policies in order to prevent price undercutting and overtrading by insurance marketing agents.

It will also be necessary for the companies to properly re-capitalize in order for them to take on large businesses especially in the emerging oil and gas sector without compromising their solvency state. The intention of the NIC to adopt a risk-based approach in its supervision is not only timely but a very significant move that will improve upon the accounting and records keeping standards of the industry as well as the governance and risk management structures of the sector.

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