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## Towards a new standard of solvency system (focus on the Algerian solvency ratio)

نحو معيار جديد لنظام الملاءة المالية (بالتركيز على هامش الملاءة في الجزائر)

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### Abstract Keywords

This paper tackles a broad topic by endeavouring to analyse the Algerian solvency regime, The maintenance of the solvency state of any insurance company requires it to have the ability to honour its obligations to policyholders and beneficiaries of the contracts. The importance of our research is underlined by the fact that this subject is highly relevant in regard to insurance companies who have been subject to increased market demands in a business environment. In our study, we will focus on the insurance Algerian prudential regime, by analysing the solvency margin index during the study period (2007-2017).

Solvency framework;  
Risk management;  
insurers; solvency margin.

JEL Classification Codes : G22 ; G28 ; G32.

### الكلمات المفتاحية

### الملخص

تتناول هذه الورقة إحدى المواضيع الواسعة حيث تسعى من خلالها إلى تحليل نظام الملاءة الجزائري. إذ تعتبر المحافظة على حالة الملاءة لأي شركة تأمين كون هذه الأخيرة قادرة على الوفاء بالتزاماتها اتجاه حاملي وثائق التأمين والمستفيدين من العقود. تبرز أهمية بحثنا في كون هذا الموضوع يعد من أبرز متطلبات شركات التأمين التي خضعت لطلبات السوق العالمية المتزايدة في بيئة الأعمال. سنركز من خلال دراستنا على التنظيم الاحترازي الجزائري، من خلال تحليل مؤشر هامش الملاءة المالية خلال فترة الدراسة (2007-2017).

تصنيف JEL: G22 ; G28 ; G32.

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**I.INTRODUCTION:**

Insurance companies play a key role in the economy, allowing businesses and individuals to exchange the risk of an uncertain and costly financial outcome for a fixed cost or premium. The failure of a large insurance company could disrupt the broader provision of financial services, causing stress to spread throughout the financial system and real economy. Therefore, insurance companies need to be sufficiently well capitalised and prudently managed so that they can withstand shocks.

The regulation of financial services has increased in the last decade. Since the financial crisis in 2007–2008, a large supervisory and regulatory reform has been put forward in the European Union (EU).

European legislation for the prudential regulation of insurance companies has existed since the 1970s. There have been several limited reforms to this legislation but the latest, Solvency II, represents a fundamental modernisation of European insurance regulation. The main purpose of Solvency II is to enhance the level of policyholder protection across Europe. The new regime should also improve the resilience of the insurance sector to shock and so reduce the probability of insurers failing.

**Objectives of the research:**

Generally, the objective of the study is to review the prospects and challenges of insurance regulations. However, the specific objectives of the study are:

- To characterize the insurance solvency regulations ;
- To assess the prospects and potentials of insurance sector in Algeria;
- To evaluate the key challenges of the prudential regulation in Algeria according to the solvency margin.

To achieve these objectives, the following research question is formulated:

**How can the solvency ratio improve a financial security in the Algerian insurance industry ?**

Under this question, some sub-questions are formulated as follows:

- What is the importance of the solvency directive at the insurance industry?
- What are the components of the European solvency regime?
- How can we explain the increase of the Algerian solvency margin during the period study?

The general hypothesis of the research is about the implementation of a new solvency system in Algeria and the strengthening of the institutional regulatory mechanism using the solvency margin.

**Research importance:**

The importance of this study is to try to understand the importance of the solvency regulation and their role in achieving a strong financial system, as well as to study the state of Algerian insurance companies and to identify the most important factors of success and failure.

**Research goals:**

Through our research, we aim at the following points:

- Identify insurance regulation concepts and solvency systems;
- Know the role of solvency ratio in achieving a strong financial position by dropping the study on the Algerian insurance sector.

**Research plan:**

This paper will start with some definitions and overview of our subject. Then, in order to increase our knowledge on this issue, this paper will be continued by analysing the case of the Algerian insurance sector. Lastly, this research will be ended with some results and recommendations.

**II. THEORETICAL FRAMEWORK AND PREVIOUS STUDIES:****1. THEORETICAL FRAMEWORK****A. Why we need a risk management of insurers?**

Managing risk is an integral part of good management and is something many managers do already in one form or another.

Risk management can be viewed as the first line of defense in a company or as a way to prevent the emergence of situations that could imperil the company. Capital supplements risk management, capital is required to support the financial costs to the company of situations where risk management is not a sufficient deterrent.

Risk Management provides a structured way of identifying and analysing potential risks, and devising and implementing responses appropriate to their impact. These responses generally draw on strategies of risk prevention, risk transfer, impact mitigation or risk acceptance. Within a single projector proposal, each of these strategies may have application for different individual risks<sup>1</sup>.

**B. Insurers risk types**

There is no single generally accepted classification system of insurance company risks. Insurance supervisory groups have attempted to develop classification systems for insurance companies in order to describe the risk profiles of insurance companies.

- **Underwriting risk :**

The loss occurs due to underwriting activities and is mainly related to the risk assessment process that is presented to and accepted by insurance companies. It also includes those risks that precede the issuance of the insurance policy.

- **Operational risk :**

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk<sup>2</sup>.

- **Credit Risk :**

Credit risk is the risk of default and change in the credit quality of issuers of securities in the company's investment portfolio), counter-parties (e.g., on reinsurance contracts, derivative contracts or deposits given) and intermediaries, to whom the company has an exposure. Within this category, we include<sup>3</sup>:

- Direct Default Risk - risk that a firm will not receive the cash flows or assets to which it is entitled because a party with which the firm has a bilateral contract defaults on one or more obligations
- Downgrade or Migration Risk - risk that changes in the possibility of a future default by an obligor will adversely affect the present value of the contract with the obligor today
- Indirect Credit or Spread Risk - risk due to market perception of increased risk (i.e., perhaps because of the business cycle or perceived credit worthiness in relation to other market participants)
- Settlement Risk-risk arising from the lag between the value and settlement dates of securities transactions
- Sovereign Risk - risk of exposure to losses due to the decreasing value of foreign assets or increasing value of obligations denominated in foreign currencies
- Concentration Risk - risk of increased exposure to losses due to concentration of investments in a geographical area or other economic sector
- Counterparty Risk - risk of changes in values of reinsurance, contingent assets and liabilities (i.e., such as swaps that are not otherwise reflected in the balance sheet).

- **Actuarial risk :**

The risk arises from raising funds via the issuance of insurance policies and other liabilities. It 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. If an insurer invests its funds in efficiently traded securities, it should expect to have, on average, a zero net economic profit. If the insurer pays too much for these funds it cannot expect to earn a satisfactory profit in the end<sup>4</sup>.

- **Liquidity risk :**

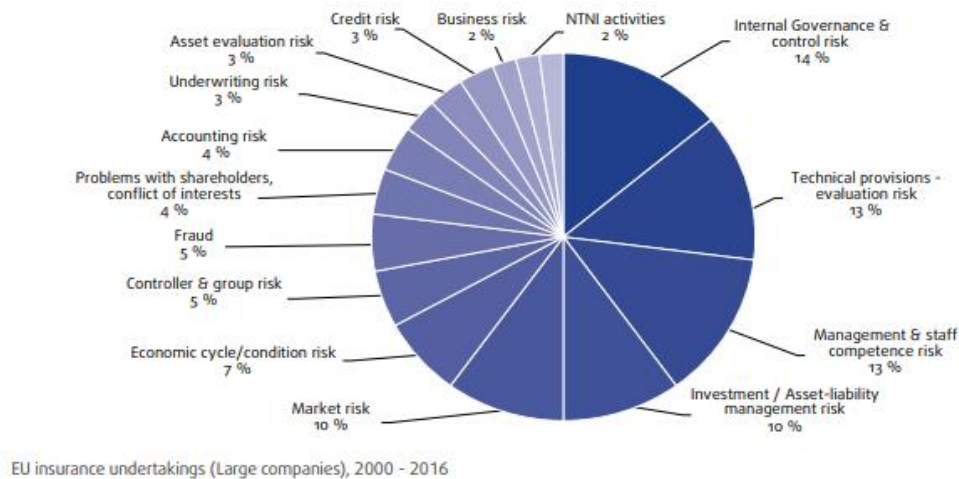
Liquidity risk can be described as the risk of a funding crisis. While some would include the need to plan for growth, the risk here is more correctly seen as the potential for a funding crisis. Such a situation would inevitably be associated with an unexpected event, such as a large claim or a

write-down of assets, a loss of confidence, or a legal crisis. Because insurers operate in markets where they may receive clustered claims due to natural catastrophes, or massive requests for policy withdrawals and surrenders due to changing interest rates, their liabilities can be said to be liquid. Their assets, however, are sometimes less liquid, particularly where they invest in private placements and real estate. Given this situation, it is important for an insurer to maintain sufficient liquidity to handle easily any demands for cash. Otherwise, an insurer that would be solvent without a sudden demand for cash may have to sell off illiquid assets at concessionary prices, leading to large losses, further demands for cash, and potential insolvency.<sup>5</sup>

- **Market Risk**

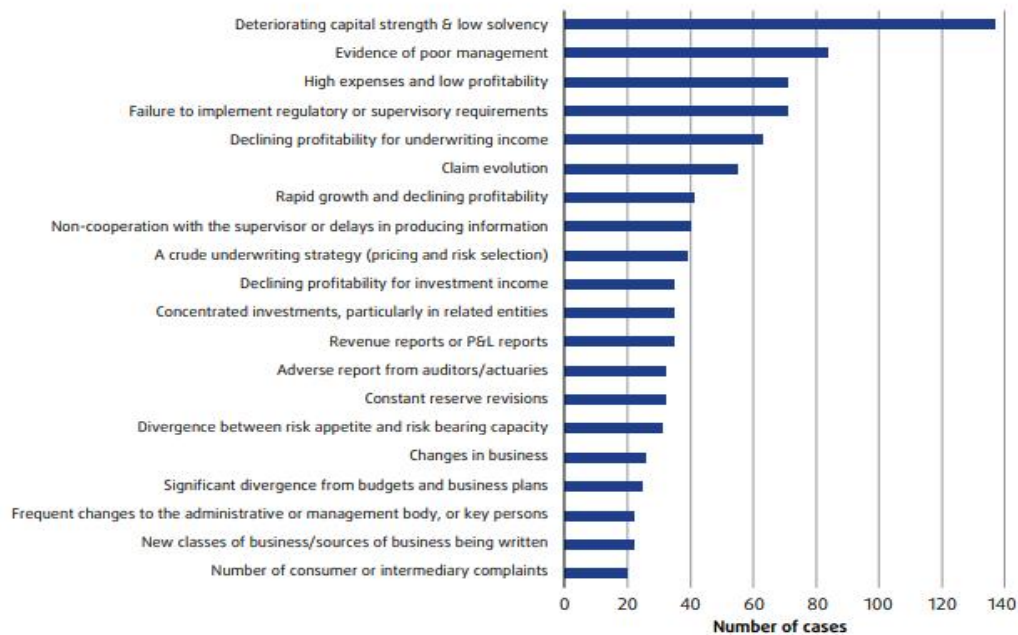
Market risk arises from the level or volatility of market prices of assets. Market risk involves the exposure to movements in the level of financial variables such as stock prices, interest rates, exchange rates or commodity prices. It also includes the exposure of options to movements in the underlying asset price. Market risk also involves the exposure to other unanticipated movements in financial variables or to movements in the actual or implied volatility of asset prices and options. Within this category, we include<sup>6</sup>:

- **Interest Rate Risk:** risk of exposure to losses resulting from fluctuations in interest rates.
- **Equity and Property Risk** risk of exposure to losses resulting from fluctuation of market values of equities and other assets.
- **Currency Risk:** risk that relative changes in currency values decrease values of foreign assets or increase the value of obligations denominated in foreign currencies.
- **Basis Risk:** risk that yields on instruments of varying credit quality, liquidity, and maturity do not move together, thus exposing the company to market value variation that is independent of liability values.
- **Reinvestment Risk:** risk that the returns on funds to be reinvested will fall below anticipated levels.
- **Concentration Risk:** risk of increased exposure to losses due to concentration of investments in a geographical area or other economic sector.
- **ALM Risk:** risk that fluctuations of interest and inflation rates have different impacts on the values of assets and liabilities.

**Figure (01):** Causes of failure of large insurers in the EU

**Source:** EIOPA, Failures and near misses in insurance, 2018, P33.

The study of the European Insurance and Occupational Pensions Authority (EIOPA, 2018) identifies all signals, which may act as indicators to help identify potential situations of distress in insurers, at an early stage of the crisis. In order, the best risk management system of European insurers.

**Figure (02):** Top 20 early identification signals reported on failures of insurers

EU insurance undertakings, 1999 - 2016

**Source:** EIOPA, Op.Cit, P40.

The key signal in early identification of failures and risks in insurance is the deteriorating capital strength and/or low solvency margin.

This underpins the importance of capital solvency requirement, which is calibrated in a way that the probability of failure of an insurer is no more than 1 in every 200 years. Nonetheless, it should be noted that most of the failures recorded in the database occurred before the entrance into force of Solvency system.

### **C. Solvency standards**

Solvency reflects the company's capacity to meet medium and long-term maturities, particularly from their own resources. Solvency is the main objective of the entrepreneur who wants to preserve financial autonomy and management flexibility, resulting from the balance between cash receipts and cash payments and from a positive net working capital, which implies a better adjustment between the needs for long term funding in tangible and financial assets and permanent financing resources, namely equity and term indebtedness<sup>7</sup>.

An insurance company is solvent if it is able to fulfil its obligations under all contracts under all reasonably foreseeable circumstances<sup>8</sup>. Nevertheless, in order to come to a practicable definition, it is necessary to make clear under which situation the appropriateness of the assets to cover claims is to be considered.

Insurance regulatory authorities require insurers to maintain assets or surplus capital in excess of liabilities, that is, a solvency margin<sup>9</sup>.

The purpose of solvency regulation in theory is to limit the degree of insolvency risk in accordance with regulators preference for safety. Regulators may achieve this objective by requiring insurers to maintain a minimum amount of capital and meet other financial requirements. Insurance regulators may also balance various goals in maximizing social welfare. Regulation affects the range of possible values of the risk-return trade off involved with insurance transactions<sup>10</sup>.

A solvency standard may be defined in terms of a wind-up. In this case, the object would be to ensure the insurer had sufficient funds on hand to pay outstanding claims and unearned premiums and to satisfy all other creditors. This standard might be appropriate for very short-tail types of insurance business<sup>11</sup>.

### **D. Solvency II framework**

In 2002, the first Life and General Insurance Directives - Solvency I - was adopted by the European Union, in an attempt of imposing a more flexible legislation for incorporating the developments from the financial services more quickly. However, Solvency I did not established at European level an appropriate harmonized definition of financial requirements, capitals and provisions. Therefore, in many countries, national regulators have set additional rules beyond the Solvency I minimal requirements for considering the advances in risk management<sup>12</sup>.



The Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) was approved on 25 November 2009 and shortly is called Solvency II. The European Commission believes that Solvency II is an ambitious proposal that will completely overhaul the way of ensuring the financial soundness of insurers and will contribute to the modernization of the European insurance sector and to its competitiveness<sup>13</sup>.

Solvency II is a world-leading standard that requires insurers to focus on managing all the risks they face and enables them to operate much more efficiently. It is positive news for consumers, for the insurance industry and for the EU economy as a whole.

Solvency II directives integrate internal risk control and enterprise risk management systems, which must be promoted and regularly challenged and examined. A risk management function is essential to ensure effective internal risk governance of insurance undertakings. Sustainable asset and liability management is an important component of sound risk management in insurance sector. Liquidity management is also stronger as a complement to capital adequacy

Solvency II sets forth rules on access to the (re)insurance activity, prudential rules of this activity, and rules on the coordination between national authorities about the supervision on the activity above. These rules, while aspiring to reach a discipline of maximum harmonization among Member States<sup>14</sup>.

### **E. Directive with three pillars**

Pillar I solvency capital requirements is based on a market-consistent, total balance sheet approach. Based on Pillar I, a number of capital treatments have to be tested for each main risk category/module, the simple one, which is designed for small and medium sized companies and the other one somewhat more risk sensitive, which is designed for large sized companies. Solvency II experts have proposed two capital level requirements: a main target level solvency requirement and a minimum capital. The target capital should reflect the economic capital that a company needs to operate safely and the minimum capital level should serve as a trigger level (safety margin) for severe regulation action<sup>15</sup>.

The Solvency II system bases on a more risk-based capital than the current one (Solvency I). Furthermore, solvency requirements focuses on capturing most essential risks to which an insurance undertaking is exposed. Solvency II directives have proposed two capital level requirements: a main target level solvency requirement (SCR) and a minimum capital requirement (MCR). The target capital should reflect the economic capital that a company needs to operate safely and the minimum capital level should serve as a trigger level (safety margin) for severe regulation action<sup>16</sup>.

The SCR (Solvency capital Requirement) reflects the capital an insurer must have available to cover its risk. It can be calculated using either the European Standard Formula or an internal model,



The result of the Solvency Capital Requirement standard formula calculation SCR is calculated as follows:

$$SCR = BSCR - Adj + SCR_{OP}$$

Where:

BSCR = Basic SCR (Basic Solvency Capital Requirement), it is calculated as follows<sup>17</sup>:

$$BSCR = \sqrt{\sum_{i,j} Corr SCR_i, j \times SCR_i \times SCR_j} + SCR_{incorporels}$$

$SCR_i, SCR_j$  = Lines and columns of the correlation matrix according to the SCR calculated for the risk modules.

Adj = Adjustment necessary to consider the risk absorbing, technical compensations and deferred tax

$SCR_{op}$  = Capital reserved for operational risk

The MCR is a part of the SCR and is the absolute minimum of the capital level. If the capital level fell below the MCR an ultimate supervisory action will be triggered, which would lead to closure to new business or withdrawal with authorities.

The second pillar provides principles for the regulatory process as well as for the internal auditing and management of the policyholder's risks. This pillar incorporates the risk-management processes (including the mixed mechanisms), the rules for managing investments, the rules for managing assets and liabilities, etc. In addition, this pillar includes capital requirements regarding risks, which are difficult to quantify and are hence not included in Pillar

The Pillar III is concerned to regulate the market disclosure in terms of the information availability as well as in terms of the new accounting standards basing on the fair value assumptions. The purpose is to provide investors, rating agencies and any other stakeholders with comprehensive view over the risks of the insurers.

## **2. PREVIOUS STUDIES**

There are not many research papers on prudential regulation in insurance industry and most of the papers on solvency directives are focused on banks and listed companies. Most of the studies on the solvency in insurance industry are recent, being performed after 2002. The solvency ratio of a company is an important tool used by supervisors in the process of decision-making on underwriting and investment activities of any insurance company.

In their paper, V. Peleckienė and K. Peleckis (2013) aim to analyze Solvency II quantitative impact study made under conditions of undergoing legislative changes in the insurance market of European Union, called Solvency II regime. The main contribution of this study was to present the analysis of quantitative and qualitative requirements, which insurers have to meet under the Solvency II regime. Finally the authors conclude that the practice of Solvency II Directive will help

to increase the international competitiveness of EU insurance industry as they could reallocate own funds according the results of potential decrease or increase in solvency requirement relative to the standard formula.

A study conducted by KPMG in 2011 in an international level has identified the major reasons of providing a solvency prudential regulation, namely:

- Alignment of economic and regulatory capital including giving appropriate recognition to diversification benefits within companies and between subsidiaries.
- Freedom for companies to choose their own risk profile and match it with an appropriate level of capital.
- An early warning system for deterioration in solvency by active capital management.
- By better aligning risk and capital management, encouraging an improvement in the identification of risks and their mitigation.
- According to the EU Commission, the Directive will “also streamline the way that insurance groups are supervised and recognize the economic reality of how groups operate. The new regime will strengthen the powers of the group supervisor, ensuring that group wide risks are not overlooked, and demand greater cooperation between supervisors.

Also, another study presented by R. Meda Antala and L.Simionescu (2015) underlined that the subject of solvency is highly relevant in regard to insurance companies who have been subject to increased market demands in a business environment that have become difficult to navigate. Through the study conducted, built on relevant opinions from academic literature, the authors chose as the objective of the research, the identification of the influence variables and the intensity with which they affect the degree of exposure of the Romanian insurance company's solvency. Their analysis led to the identifications of new elements that can optimize the effects of the insolvency law as applied to insurance companies in Romania

Our study is focused on analysing the Algerian solvency ratio. The data has been retrieved from the Insurance Annual Reports and from the web sites of the insurance companies. A sample of all insurance companies over an Eleven years period, 2007-2017, is used in the analysis. The rest of this paper is organized as follows: the second section describes facts, data and methodology used. The third section is results and discussion. The last section summarizes some of our findings.

### **III.METHOD AND PROCEDURES:**

In our study, applying the descriptive methodology, we use Algerian insurance market data for the period 2007-2017. Our aim is to measure how far is the current regulatory solvency margin (ratio), as originally calculated, from its theoretical size, keeping the approach unchanged. Using the database ‘annual reports’ published by the Insurance Directorate of the Ministry of Finance in Algeria.

The group of insurance companies under consideration as a sample of our study consists of all insurance companies active in the Algerian market. In order to make the results of the study comprehensive and sufficient to make proposals for the sector. The insurance companies were divided according to the principle type of activity into two groups:

**Group A:** are the damage insurance companies, represented by: National Insurance Company (SAA), Algerian Insurance and Reinsurance Company (CAAR), Algerian Total Insurance Company (CAAT), Trust Algeria Company (TRUST), Algerian Insurance Company (2A), International Insurance and Reinsurance Company (CIAR), General Insurance Company of the Mediterranean (GAM), Alliance Insurance (ALLIANCE ASSURANCE), Fuel Insurance Company (CASH), Salama Insurance (SALAMA ASSURANCE ALGERIE), AXA Damage Insurance (AXA Dommage), National Fund Agricultural Cooperation (CNMA), Algerian Association for Education and Culture Workers (MAATEC).

**Group B:** consists of personal insurance companies, represented by: Individuals, Reserves and Health Insurance Company (SAPS), Karaama company (CARAAMA), Life Insurance (Taamine Life Algérie), Cardiff Algeria (Cardif El Djazair), Macir Life Insurance (MACIR VIE), axa life insurance (AXA Vie), Mutualiste, Algeria Gulf Life Insurance (AGLIC).

The solvency ratio is one of the most important tools used to measure the efficiency of insurance companies and their ability to meet their obligations. We have relied on this index for all insurance companies under study. The data studied were obtained from the annual reports issued by the Insurance Directorate of the Ministry of Finance in Algeria during the period between 2007 and 2017. This duration is divided into two periods:

- First period: from 2007 to 2012;
- Second period: from 2013 to 2017.

The basis that we have adopted in this division is the issuance of a precautionary regulation related to the solvency of insurance companies that played a major role in regulating the insurance sector; this legislation was represented in Executive Decree No. 13-115 of March 28, 2013.

The solvency margin ratios of the insurance companies under study were as follows:

- Solvency margin ratio based on technical provisions;
- Solvency margin ratio based on premiums.

#### **IV. STUDY RESULTS (ANALYSIS AND DISCUSSION) :**

##### **1. Evaluating the Solvency margin during the First Period (2012-2007)**

The solvency margin is an objective indicator that serves the insurance industry. The solvency margin for the insurance companies under consideration is reflected in the presence of an additional amount of technical provisions, which the Algerian legislator called "the capacity to fulfill". The solvency margin of Algerian insurance companies consists of:

- a) The capital released or the founding funds released;
- b) Regulated and unregulated precautions;
- c) Guarantee provision;
- d) Mandatory supplementary provision of technical debt;
- e) Other regulated or unregulated provisions.

The results of table (01) indicate the solvency margin during the first period (2007-2012), where the solvency margin of the insurance companies represented 96% of the total solvency margin, due to the small number of insurance companies, which were During the period 2007-2009 represented by one insurance company specialized in persons insurance, was represented by CARDIF EL DJAZAIR whose participation rate in the solvency margin did not exceed 1% (see table 01 in the appendix).

The solvency margin based on technical provisions should be at least equal to:

- 15% of the total technical provisions of the insurance companies for damage,

The insurance companies under study (Group A) achieved this number in the period of 2007 to 2012 with more than 80%.

- 04% of the mathematical provisions + 0.3% of the capital under non-negative risk for the insurance companies for persons.

The insurance companies under study (Group B) achieved significant ratios exceeded the required ratio.

Instead of that, the solvency margin based on premiums should exceed 20% of the total accepted net premiums of fees and cancellations. The two groups achieved this percentage in the first period with varying values, where Group A achieved a total solvency margin of 441 million DZD.

During the first period, the solvency margin based on premiums reached 143% during 2012. This is due to the increase in the turnover (Business number) of companies of 'Group A' from 36

billion DZD in 2007 to 92 billion DZD in 2012, while the share of the second group's turnover did not exceed 7% of the total turnover of Algerian insurance companies during 2012 (see figure 3 in the appendix).

## 2. Evaluating the Solvency margin during the Second (2013-2017)

After the Algerian legislator issued the prudential regulation related to the formation of the solvency margin, which was represented in Executive Decree No. 13-115 (Executive Decree N°13-115, 2013) the insurance companies under study were able to maintain their margin of solvency, as shown in Figure (05)

As shown in Fig (05), there is a noticeable increase in the solvency margin of life insurance companies, where Group "B" recorded a solvency margin of: 9.7 billion DZD in 2016, which is the highest percentage recorded for this group during the studied years. This is due to the increase in the solvency margin components, which was added to a new element represented in the "carry over" account.

Thus, the new solvency margin is composed of following:

- the capital released or the founding assets;
- Regulated or unregulated reserves;
- Regulations provisions;
- Report again.

It is worth mentioning that there was an establishment of a life insurance company during 2015 with a total turnover of 01 million DZA and a solvency margin estimated at 01 billion DZA, which led to a rise in the solvency margin of Group "B."

For Group 'A', a slight increase of 02% was recorded between 2015 and 2016 (see Table 02 in appendix).

**Based on the results obtained during the period from 2007 to 2017, we conclude the following:**

- The Algerian legislature's modification of the prudential regulation related to the formation of the solvency margin has enhanced the ability of Algerian insurance companies to fulfil their obligations towards the insured;
- Although most Algerian insurance companies recorded a significant solvency margin during the study period, which reflects the strength of the financial position of these companies, but the insurance industry in Algeria has not yet reached the required level, where the proportion of its contribution to the (PIB) during The length of the study period is 02%, which is very small compared to the developed countries where insurance is an important resource of the national economy;
- The weak investment of solvency margin components (underwritten obligations) of the insurance companies under study despite the continuous rise in this margin, where it

exceeded the solvency margin several times (in some years up to 10 times higher than the regulatory margin);

- The Algerian Stock Exchange does not play its role as a receptacle for mobilizing financial liquidity, as in developed countries or even neighbouring Tunisia and Morocco, where insurance companies employ codified obligations as shares in the stock market and banks. However, the Algerian legislator requires insurance companies to allocate 50% of Investments in the form of bonds with the public treasury;
- Algerian insurance companies do not take advantage of the strength of their financial position and good solvency, the high solvency margin does not reflect the quality of insurance services provided, for example, many of the insured still suffer from the delay in obtaining compensation by insurance companies despite meeting all the conditions for compensation;
- The high solvency of all the Algerian insurance companies did not contribute effectively to the development of the insurance industry in Algeria;
- The prudential regulation in Algeria did not pay attention to the establishment of a unified national information system for the insurance sector.

## **V.CONCLUSION:**

**Through this study, we have reached the following results:**

1. The study of financial solvency, which expresses the ability of insurance companies to meet their obligations, has become necessary to protect the interests of the various beneficiaries of the insurance activity (insurers, insured, shareholders, regulatory systems) ;
2. The solvency margin is considered as a supplementary reserve for technical provisions, which enables insurance companies to remain and continue their activities in case of unexpected losses ;
3. Limited insurance companies under study in the use of components and elements of solvency margin, this is due to lack of efficiency in the management of assets and liabilities as well as the lack of optimal use of available resources to ensure the highest returns ;
4. Acquisition of the Algerian insurance market by insurance companies of damage, which represent the largest share of the total solvency, so that confirms the weakness of the activity of life insurance companies ;
5. Despite the regulatory reforms introduced by the Algerian legislator, the reality of these reforms is narrower than the implementation of the EU solvency decisions of quantitative requirements (asset and liability valuation, investment, solvency margin, and funds). Moreover, other qualitative (oversight, internal audit, corporate governance, risk management, actuarial function), as well as advertising and transparency requirements.

**Based on the findings of this study, the following recommendations may be proposed:**

1. The necessity of issuing laws concerned with insurance activity and allowing the creation of a competitive environment with more dynamic policies in providing services;
2. Enhancing the financial capabilities of the Algerian insurance companies, as well as keeping up with the international standards to meet them in the fields of solvency, technical reserves and financial investments;
3. Updating the precautionary rules related to the insurance sector in accordance with the international developments;
4. Developing the levels of representation of technical obligations under the values of the State to raise the efficiency of investment in insurance companies;
5. The need to prepare legislative frameworks for Takaful insurance companies, especially in the field of calculating the margin of solvency, consistent with the specificity of these companies;
6. Strengthening the framework of solvency in line with the reality of risks to which insurance companies (technical and non-technical);
7. Developing supervisory and control structures in line with modern international standards to be able to explore weaknesses and deficiencies and take the necessary efficiency.

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### **Appendices:**

**Table (01): Solvency margin during the First period (on million DZD)**

<i>Years</i>	<i>Group A</i>	<i>Group B</i>	<i>Total</i>
<b>2007</b>	48 725	450	49 175
<b>2008</b>	56 265	450	56 715
<b>2009</b>	70 748	455	71 203
<b>2010</b>	79 693	1 098	80 791
<b>2011</b>	91 083	6 172	97 255
<b>2012</b>	95 407	6 990	102 397
<b>Total</b>	<b>441 921</b>	<b>15 615</b>	<b>457 536</b>

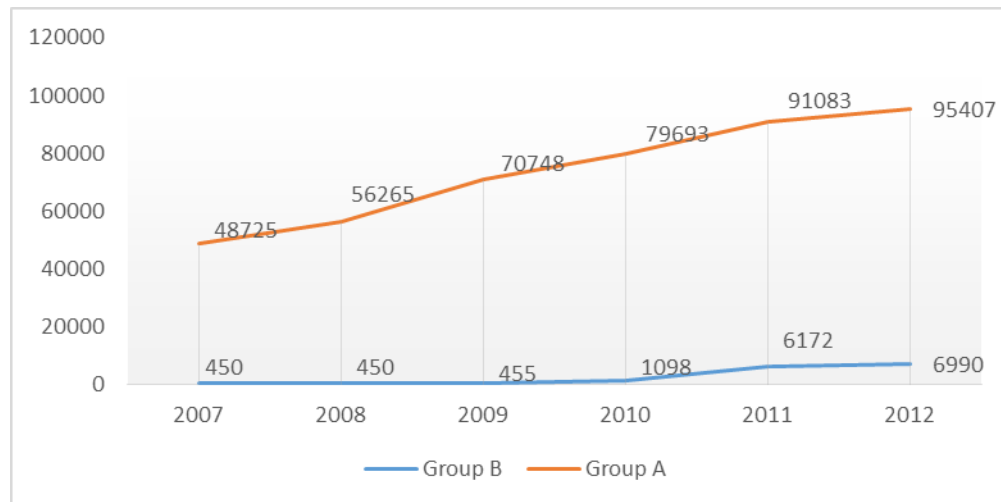
**Source:** Annual reports issued by the Insurance Directorate of the Ministry of Finance in Algeria during the period between 2007 and 2012

**Table (02): Solvency margin during the Second period (on Million DZD)**

<i>Years</i>	<i>Group A</i>	<i>Group B</i>	<i>Total</i>
<b>2013</b>	98 963	7 607	106 570
<b>2014</b>	101 716	7 501	109 217
<b>2015</b>	107 233	9 484	116 717
<b>2016</b>	112 156	9 747	121 903
<b>2017</b>	117 786	11 237	129 023
<b>Total</b>	<b>537 854</b>	<b>45 576</b>	<b>583 430</b>

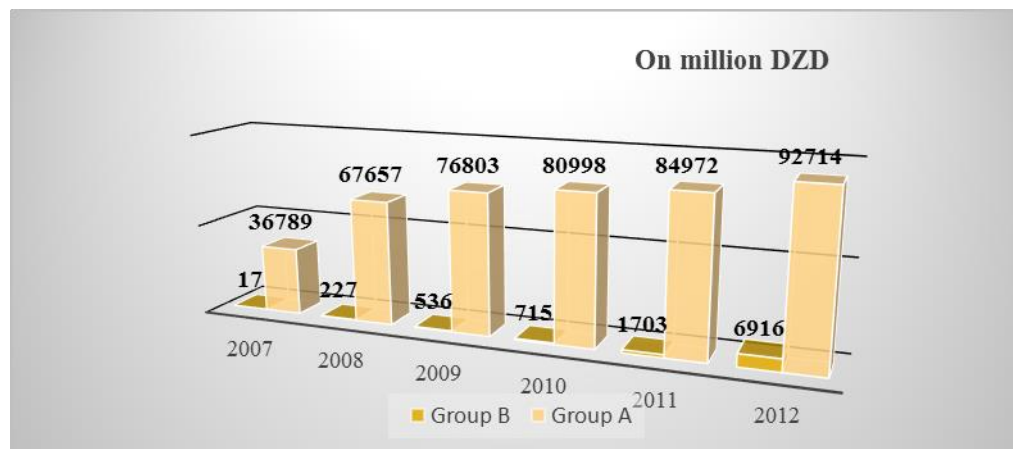
**Source:** Annual reports issued by the Insurance Directorate of the Ministry of Finance in Algeria during the period between 2013 and 2017

**Figure (03): A curve illustrating the evolution of the solvency margin of the Algerian insurance companies (2007/2012)**



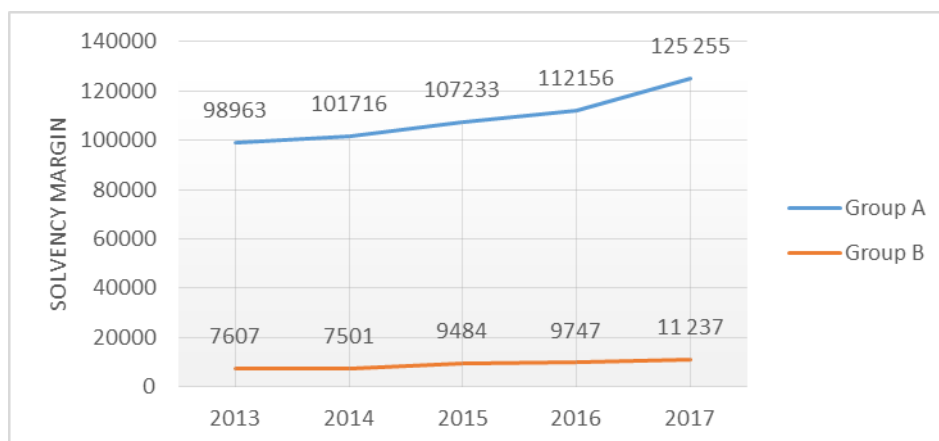
**Source:** Prepared by the authors based on Table (1)

**Figure (04): Growth of the Algerian insurance companies' turnover (2007/2012)**



**Source:** Annual reports issued by the Insurance Directorate of the Ministry of Finance in Algeria during the period between 2007 and 2012

**Figure (05): A curve illustrating the evolution of the solvency margin of the Algerian insurance companies (2013/2017)**



**Source:** Prepared by the authors based on Table (02)