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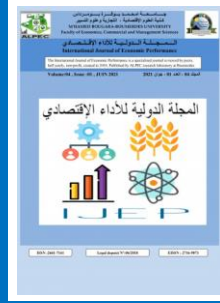
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Towards a new prudential framework solvency II, evaluation of the solvency system of insurance companies in Algeria for the period (2012-2021)

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Abstract:

This work aims to present the solvency system currently in the insurance sector in Algeria, more precisely the Solvency I Directive. To identify the shortcomings and limitations of the prudential regulation and finally, to offer recommendations necessary to ensure the development of the activity of insurance in Algeria, and consequently the economy in general. Thus, to present the transition from the Solvency I prudential standard to the Solvency II prudential standard, which was implemented on the insurance market in Europe on January 01, 2016.

Finally, the Algerian regulation cannot stay away from international reforms, including the Solvency II standard; it must adapt his system to comply with these standards.

Keywords: Insurance, solvency, prudential rules, solvency II, prudential standards.

JEL Classification Codes : G22 ; G28 ; M16.

* Corresponding author

Introduction:

The business of insurance consists of selling promises to a future state of the world. For example, the payment of compensation upon the occurrence of a loss (non-life insurance), or of an income stream linked to the survival of the insured (pension insurance). Prudential regulation is a response to the asymmetry of information between the insured and the insurer: its objective is to promote confidence in the insurer, a necessary condition for the existence of a market for insurance products. Its purpose is to provide the insured with a sufficient guarantee as to the financial health of the company with which he or she is taking out a contract. (François, 2021, p. 72)

For this purpose, the solvency of an insurance company has a great importance, it is the central factor that allows them to perform their function and honor their engagements to the insured.

Solvency II is an extension of the Basel II reform applied to the banking sector but for the insurance and reinsurance field, this new prudential regime was developed in the European Union based on the shortcomings of the solvency framework I, which came into force on **January 1, 2016** after a long preparation phase. Its purpose is to protect policyholders and ensure the financial stability of insurance and reinsurance companies.

These companies must comply with so-called "Prudential" principles that require them to have a minimum capital, called the solvency margin, so that they can meet their engagements and deal with unanticipated events in the insurance business.

In Algeria, the insurance sector has undergone many reforms in the legislative and regulatory aspects, the most important of which was the publication of the decree No. (07-95) on insurance, which was supplemented and amended by the law No. (04-06), and in the field of solvency, then the revision of this system under the complementary finance law of 2011 is aimed at adapting it to recent reformers of the sector. However, the insurance sector in Algeria is still experiencing structural and organizational deficiencies.

Study problem:

The problem of this study can be formulated in the following main question:

What is the reality of the solvency system of insurance companies in Algeria in the light of national and international reforms?

Study Hypothesis:

H1: The adoption of Solvency II in Algeria will require significant adjustments to insurance companies' risk and solvency management practices.

H2: The Algerian regulator will need to develop additional capacities to oversee the implementation of Solvency II, while taking into account the specificities of the Algerian insurance market.

H3: The adoption of Solvency II in Algeria may offer opportunities for insurance companies, such as improving their brand image and accessing international markets.

Study objectives:

This study aims to test the main hypothesis by:

- Presenting concept related to Solvency I and II;
- Shedding light on the evolution of the solvency system for insurance companies in Algeria and the developments of European solvency systems.
- Clarifying solvency rules applicable to insurance companies in Algeria.

Study importance:

The importance of the study derives from the importance of the solvency of insurance companies for supervisors, insurance companies and their policyholders, developments at international and local level, and the need to adapt to developments at international level, particularly in Europe, to the association of insurance companies in Algeria with European insurers through reinsurance.

Study Approach:

This study is based on two descriptive and comparative approaches: firstly, a descriptive overview of the solvency rules governing the insurance sector in the European Union and Algeria. Secondly, the documentary study and theoretical anchoring of the solvency rules governing the insurance sector in the European Union and Algeria. Comparative approach between the Solvency 1 and Solvency 2 systems and Algeria's solvency rules.

1. The prudential framework of solvency

1.1. The Solvency I

The solvency of an insurance company can be defined as its ability to meet its engagements to third parties and mainly to its policyholders. This ability is reflected in the determination of sufficient capital to face unfavorable situations. **(Melyon, 2007, p. 46)** The Solvency project was launched in the early 2000s and led to the codification of the 14 existing directives into a single one, which was published in the Official Journal of the European Union on 17/12/2009 under the name: 2009/138/EC. **(Mazzanti , 2012, p. 17)**

The first directives dates back to 1973 for non-life insurance and in 1979 for life insurance. This system, called Solvency I, derives from the European directive of July 24, 1973, updated on March 5, 2002 and it is applied by European insurers. These rules are based on the 3 main principles as below: **(Poret, 2014, p. 52)**

- ❖ Engagements (the largest component of liabilities) must be calculated conservatively;

- ❖ The assets that cover the insurers liabilities must be secure liquid and profitable;
- ❖ The insurer's solvency margin must always be higher than the maximum between the required solvency margin and the minimum guaranteed fund. (**Société de Calcul Mathématique, 2016, p. 18**)

The Solvency I regulation is subject to two categories of criticism: qualitative criticism and quantitative criticism:

❖ Qualitative criticism

- In the presence of an inversion of the production cycle and asymmetry of information, Solvency I cannot conceive of a prudential control characterized by close financial supervision that would make it possible to guarantee sound management of the company while, respecting the interests of the insured. In Solvency I, the qualitative aspect is neglected, there is no supervision of internal control;
- The system does not meet international standards such as IAS-IFRS.
- The European Union questioned the Solvency I directive because it proved to be less complete. This required a modernization and an international harmonization of the latter (same standards to be respected by all companies). (**Benro, 2008, p. 15**)

❖ Quantitative criticisms

- Solvency I is based on a retrospective vision under the assumption that the past reflects to predict the future, which is not the case in reality;
- It does not take into account the specific profiles of each type of risks and perceives them globally (no matter the quality of the portfolio, diversified or concentrated, the required margin is the same, whereas as it is known, a diversified portfolio presents less risk).
- Prudent provisioning: companies that over-provision as opposed to under-provision (the first category of companies ties up more capital in technical provisions as opposed to the second category). (**Benro, 2008, p. 16**)

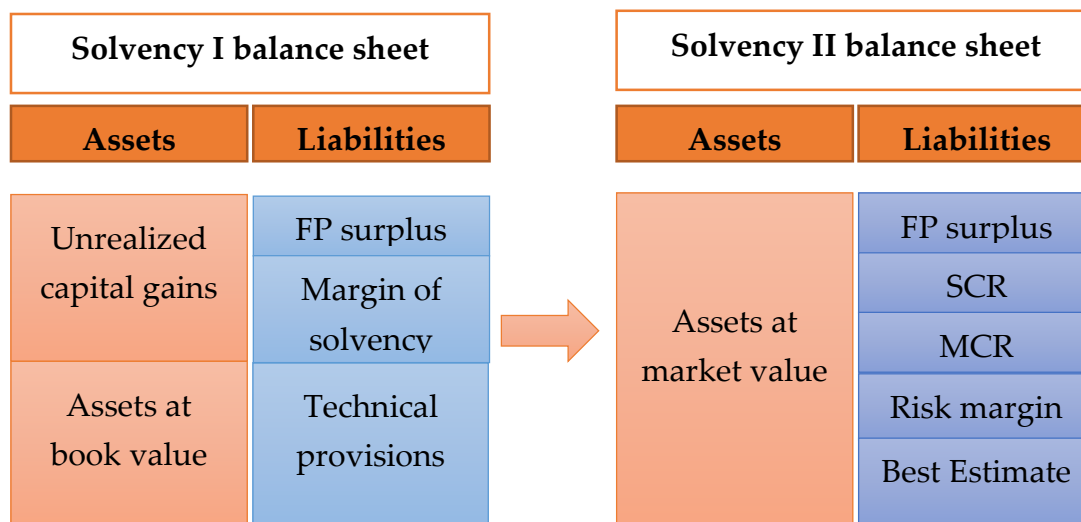
1.2. From Solvency I to Solvency II

In order to strengthen the insurance activity due to the evolution imposed by the competitive market, the supervisory authorities are facing several new challenges such

as the appearance of new technical, legal and financial risks, which strongly affect the management of the portfolios of insurance companies.

A change in the level of the balance sheet is becoming essential for the sector, in this case a more economic and non-accounting valuation. To this end, the balance sheet becomes:

Figure (1): From Solvency I to Solvency II: Economic balance sheet



Source: (BOURECHAK, 2020, p. 30)

The change in the balance sheet observed above reflects the necessary challenges.

Indeed:

At the asset level:

- Valuation of assets at market value and no longer at book value.
- Take into account the duration and the sensitivity of the assets in order to highlight a liability matching technique through the calculation of SCRs allowing a coherent evolution between the assets and the liabilities.

On the liabilities side

- Introduction of a new model for technical provisions Best Estimate.
- A considerable and more logical reform of the calculation of SCR, MCR and the risk margin.

1.3. Overview of the Solvency II project

The insurance company must be solvent, i.e., capable of assuming its engagements towards the insured and the beneficiaries of the contracts. It is therefore necessary, in addition to the constitution of technical provisions, to define sufficient capital to face unfavorable situations.

The growing interaction between the banking and insurance sectors, as well as the implementation of the Basel II Accord, have made insurance solvency a major concern for the European Union in the context of the Solvency II reform project.

1.3.1. Objectives of Solvency II

Solvency II aims to modernize and harmonize the solvency rules applicable by insurance organizations, in order: (Dreyfuss, 2015, p. 23)

- To improve the protection of the insured;
- To encourage companies to improve their risk management;
- To provide the supervisory authorities with the appropriate tools to assess the overall solvency of companies;
- To ensure harmonization between the countries of the European Union.

This new system should provide the supervisory authorities with the possibility of better assessing the solvency of insurance companies based on a prospective approach.

For this reason, the main issues of this reform are the following:

- ❖ To ensure a harmonized application of the reform in all countries of the European Economic Area;
- ❖ Strengthen the competitiveness of insurers to better protect policyholders;
- ❖ To lead the companies to better know and manage their risks;
- ❖ Facilitate the supervision of the solvency of insurance companies by the supervisory authorities.

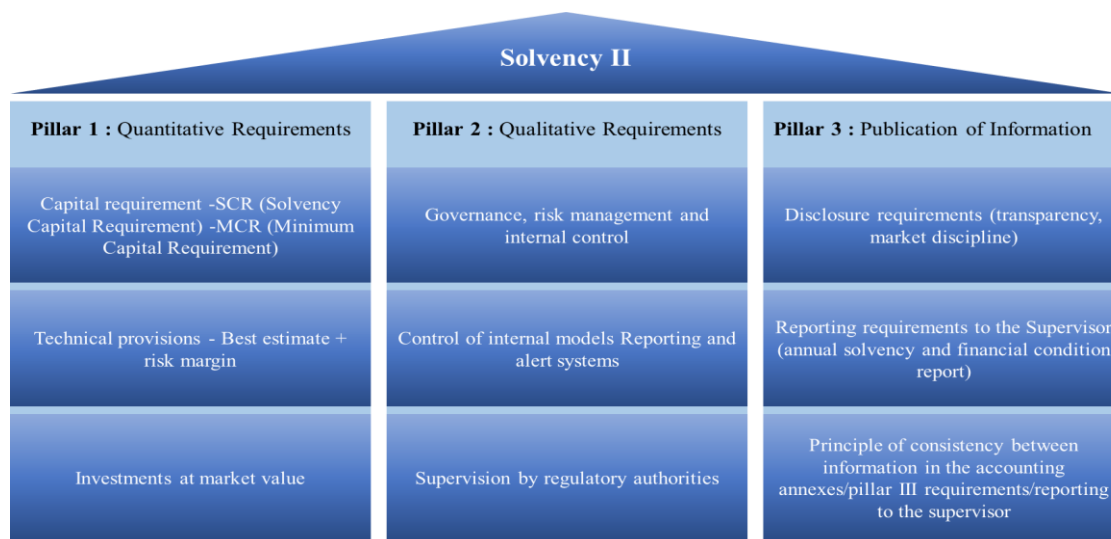
1.3.2 Structure of the Solvency II framework

The Solvency II directive is organized in three pillars:

- ❖ Pillar 1: Quantitative Requirements;
- ❖ Pillar 2: Quality Requirements;

❖ Pillar 3: Information dissemination (market discipline).

Figure (2): The three pillars of Solvency II



Source : (Juillard, 2013, p. 76)

a. The first pillar: Quantitative requirements

The objective of the first pillar is to define the quantitative requirements for the calculation of capital and technical provisions. These thresholds ensure solvency by imposing a minimum level of equity capital.

Two levels of thresholds are then defined: (Doff , 2008, p. 195)

-The Solvency Capital Requirement (SCR) represents the capital requirement to ensure the solvency of the insurance company. In other words, as soon as the insurer no longer covers its SCR, the supervisory authorities will have to establish a recovery plan for the entity to readjust its coverage rate;

-The Minimum Capital Requirement (MCR) is the minimum level of capital that an insurer must maintain in order to meet its obligations. The Minimum Capital Requirement (MCR) is the minimum level of capital that the insurer must hold at all times. (HULL, 2010, p. 256), Its role is to absorb shocks related to unforeseen events. In fact, below this threshold, the supervisor will intervene systematically and may decide to withdraw the insurer's license or not.

b. The second pillar: The qualitative requirements

The focus of this pillar of the Solvency II framework has been on these specific requirements, confirming the importance of good governance in the risk management of insurance companies, as well as the importance of the supervisory process, with supervisors attaching great value to this pillar because of the need for insurance companies to develop systematic controls and procedures for assessing the risks to which they are exposed and the corresponding risks. Private capital requirements and therefore the main objective of the qualitative requirements is to enable insurance and reinsurance undertakings to implement practices not only to improve their monitoring and control of risks, but also to improve their ability to control the requirements of the insurance business. It includes the ORSA system, which obliges an insurer to carry out its own prospective self-assessment of its risks. The corresponding required capital and the sufficiency of capital resources. (Frédéric , 2017, p. 31)

c. The third pillar: Information dissemination

The third pillar aims to define all the rules of transparency to be respected. It aims at better communication of the information held by insurance companies to the public, insured and to the supervisory authorities. (Dreyfuss, 2015, p. 26)

In conclusion, the main financial risks are reflected in the capital requirements and the existing formulas are sufficiently risk sensitive, except for non-life and health risks. However, an important area for further development is the development of frameworks that estimate (but do not necessarily measure in quantitative terms) a number of other risks such as liquidity risks, operational risks and business risks. Pillars II and III of the Solvency II framework are the most logical mechanisms for covering these gaps.

2. Legal bases of the solvency system of Algerian insurance companies

The Algerian regulation in terms of insurance activity refers to the system of solvency I and is based on the following regulatory framework:

- The Ordinance n° 95-07 of January 25, 1995 relating to insurance, amended and completed by the law n°06-04 of February 20, 2006, and its application texts;

This ordinance aims at reinforcing the provisions relating to the financial security of insurance companies by widening the prerogatives of the control Administration by instituting the "Insurance Supervision Commission" in charge of verifying all operations relating to the insurance and/or reinsurance activity.

- Executive Decree No. 95-342 of October 30, 1995 relating to the regulated engagements of insurance and/or reinsurance companies (**OJ No. 65 of October 31, 1995**) as amended by Executive Decree No. 13-114 of March 28, 2013.

- Executive Decree No. 95-343 of October 30, 1995 on the solvency margin of insurance companies (OJ No. 65 of October 31, 1995) as amended by Executive Decree No. 13-115 of March 28, 2013;

- The Executive Decree n°95-344 of October 30, 1995 relating to the minimum share capital of insurance companies (JO n° 65 of October 31, 1995);

- The Order of 2-10-1996, setting the minimum proportions of allocation for each type of investment made by insurance and/or reinsurance companies, amended and supplemented in 2001 and in 2016 by Order No. 30 of May 14, 2016 on the representation of regulated engagements.

2.1. Solvency standards applicable to Algerian insurance companies:

The solvency of insurance and/or reinsurance companies must be materialized by the justification of the existence of a supplement to the technical debts or solvency margin. This supplement or solvency margin is made up of: (**Executive Decree n°95-07, 1995, p. 102**)

2.1.1. The solvency margin in Algeria

In spite of the good provisioning of its engagements, it can happen that the loss experience exceeds largely its forecasts or/and an unfavourable performance of its investments, the insurance company can find itself in a situation of insolvency, from where the impossibility to honour its engagements. The Algerian legislator, in a concern to reinforce the protection of the insured and to guarantee the financial solidity of the insurance companies, imposed the constitution of a solvency margin being used to face the unexpected events.

The solvency margin of insurance companies corresponds, therefore, to all the resources free of all foreseeable engagements that the insurance company has at its disposal to face an unfavorable evolution of certain unforeseen events. (Rassaa, 2007, p. 42)

Thus, the solvency of a company can be defined as the ability of the insurance company to meet its engagements to its customers. It depends on: (Société de Calcul Mathématique, 2016, p. 16)

- The importance of its engagements (the guarantees and protections offered to the insured).
- Resources at its disposal to face them: equity and assets it holds (shares, bonds, etc.).

The usefulness of the solvency margin can be assessed at different stages of the insurance company's existence, as follows:

- At the time of its incorporation, the company must have enough equity to finance its investments and operations.
- Over its lifetime, the solvency margin is used to: (Rassaa, 2007, p. 43)
 - To compensate for an accidental shortfall in technical reserves,
 - To deal with the depreciation of certain assets resulting, for example, from a fall in the value of prices,
 - Cover losses due to mispricing,
 - To finance the company's new investments.

This supplement or solvency margin consists by: (Marami, 2010, p. 12)

- The share capital or establishment fund, paid up:
- Regulated or non-regulated reserves;
- Regulated provisions;
- Retained earnings, debit or credit.

The minimum regulatory solvency margin for EMS must be: (Décret exécutif N°13-115, 2013, p. 9)

- ✓ For general insurance companies (non-life): at least equal to:
 - 15% of technical provisions;
 - 20% of written and/or accepted premiums, net of taxes and cancellations.
- ✓ For life insurance companies:

- For life insurance, death insurance, marriage insurance and capitalization: at least equal to the sum of 4% of the mathematical reserves and 0.3% of the non-negative capital at risk. Capital at risk is defined as the difference between the amount of insured capital and the amount of mathematical reserves.

- For other branches: at least equal to:

- 15% of the technical provisions ;
- 20% of written and/or accepted premiums, net of taxes and cancellations.

When the solvency margin is lower than the minimum required above, the insurance and/or reinsurance company is required, within a period of six (6) months at the latest, to restore its situation:

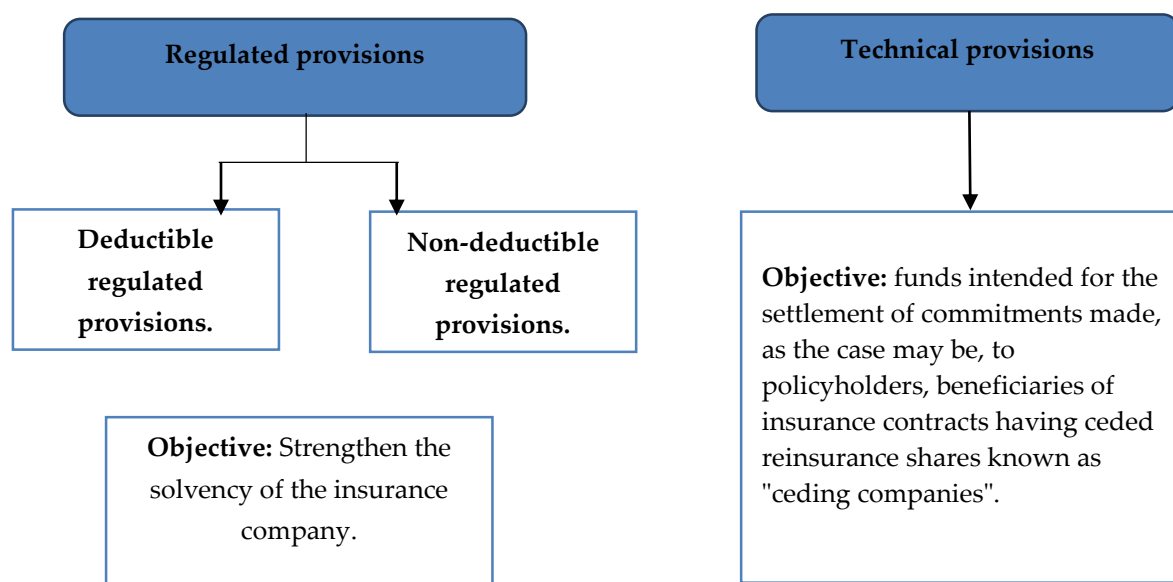
- Either, by an increase in its share capital,

- Or, by depositing with the Treasury, a guarantee to restore the balance

2.1.2. Regulated engagements

Insurance companies must record regulated liabilities on their balance sheet, consisting of regulated provisions and technical provisions, in order to strengthen the company's solvency.

Figure (3): Regulated engagements of Algerian insurance companies



Source: Established by ourselves from the executive decree N° 13-114 of 16 Jomada El Oula 1434 corresponding to March 28, 2013 relating to the regulated engagements of insurance and/or reinsurance companies P:05.

a. The regulated provisions of insurance companies in Algeria

The purpose of Regulated provisions is to strengthen the solvency of the insurance company. (**Décret exécutif N°13-114, 2013, p. 5**), we can cite:

❖ **Provision of guarantee**

The guarantee provision is set up to strengthen the insurance company's capacity to cover its engagements to policyholders and/or beneficiaries of insurance contracts. The guarantee provision is funded by a levy of 1% of the amount of premiums or contributions issued and/or accepted during the financial year, net of cancellations and taxes.

❖ **Reserve for mandatory supplement to reserves for claims payable**

The reserve for mandatory additions to the reserves for losses and loss adjustment expenses is set aside to make up for any shortfall in the reserves for losses and loss adjustment expenses resulting, in particular, from the underestimation of claims reported after the end of the financial year and the related expenses.

This reserve is funded by a deduction of 5% of the amount of the reserves for claims payable referred to in the provisions of this decree.

b. Technical provisions

Technical provisions are funds intended for the full settlement of engagements made, as the case may be, to policyholders, beneficiaries of insurance contracts and insurance companies having ceded reinsurance shares, known as ceding companies. (**Décret exécutif N°13-114, 2013, p. 6**)

❖ **Equalization provision**

The equalization reserve is intended to cover fluctuations in claims rates relating to group or collective insurance operations, in particular against the risk of death. The equalization reserve is used to offset underwriting losses for the year. It is calculated for each group or collective insurance contract, in particular for the risk of death.

❖ Reserve for claims payable

The reserve for losses and loss adjustment expenses is intended to cover claims outstanding at the balance sheet date.

❖ Provisions for profit sharing

Provision for technical and financial profit sharing represents the amount of profit sharing allocated to the beneficiaries of insurance contracts in the event that these profits are not paid immediately after the end of the financial year in which they were generated.

❖ Mathematical provisions

The mathematical reserves represent the difference, at the inventory date, between the current values of the engagements respectively taken by the insurer and by the insured. These reserves are valued by taking into account the expenses for acquisition costs in the premium payer's commitment and determined according to the mortality tables and the minimum guaranteed rate, set by the regulations in force.

❖ Balancing provision

The balancing provision is intended for the insurance company operating in the "Credit" and/or "Surety" insurance lines.

This technical provision is set up to cover the possible technical loss appearing in these two insurance branches at the end of the financial year.

2.1.3. Representation of regulated engagements

Assets must represent regulated liabilities, and these investments differ according to the legislation, since each country provides for a list of assets accepted to represent technical liabilities according to its own economic and legal considerations and imperatives.

However, there are a certain number of common denominators with regard to the categories of assets accepted, the conditions that these assets must meet and the rules for the dispersion and allocation of these investments. (**Décret exécutif N°13-114, 2013, p. 8**)

Figure (4): Representation of regulated engagements

Asset classes	Element
State values	<ul style="list-style-type: none"> ✓ Treasury bills and bonds ; ✓ Deposits with the Treasury ; ✓ Securities issued by the State.
Other securities issued by entities meeting financial solvency requirements	<ul style="list-style-type: none"> ✓ Securities and bonds issued by insurance or reinsurance companies and other financial institutions licensed in Algeria; ✓ Securities and bonds issued, under governmental agreements, by insurance or reinsurance companies not established in Algeria; ✓ Securities and bonds issued by Algerian economic companies.
Property assets	<ul style="list-style-type: none"> ✓ Built buildings and land in Algeria. not encumbered by real rights ✓ Other real estate rights, in Algeria.
Other investment	<ul style="list-style-type: none"> ✓ Monetary market; ✓ Term deposits at banks.

Source: Established by ourselves from the executive decree N° 13-114 of 16 Jomada El Oula 1434 corresponding to March 28, 2013 relating to the regulated engagements of insurance and/or reinsurance companies.P:8

The assets listed above represent regulated engagements in the following proportions: **(Arrêtè du 14 mai 2016, 2016, p. 23)**

- 50% minimum for government securities, of which at least half for medium and long-term securities;
- The rest of the regulated engagements is to be distributed between the other assets according to the opportunities offered by the market without the share of investments in transferable securities and similar securities issued by Algerian companies not listed on the stock market not exceeding the rate of 20% of regulated engagements.

Are considered as real estate investments admitted to the representation of regulated engagements, all real estate assets belonging to the insurance and/or reinsurance

company, located on the national territory and providing the said company with financial income. (Didane, 2010, p. 146)

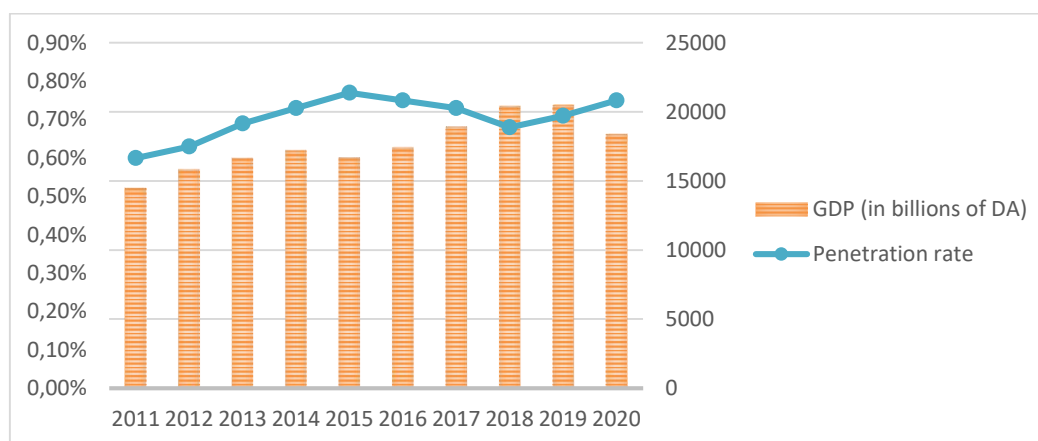
3. Evaluation of the solvency system of insurance companies in Algeria

3.1. The penetration rate

This indicator is defined as the ratio of overall sales excluding international acceptance to gross domestic product (GDP) (Conseil National des Assurances, 2011a). It represents the percentage of insurance activity in the economy.

The figure below shows the evolution of the penetration rate as well as the GDP:

Figure (5): Evolution of GDP and penetration rate (2011-2020)



Source: Established by ourselves from ONS (2011-2020), statistical notes (CNA, 2011a, 2012a, 2013a, 2014a, and 2015-2016-2017) and The Algerian insurance sector's conjuncture notes

From this diagram, we notice that:

- The GDP shows a continuous evolution until 2015, when it shows a slight decrease, then it continues to evolve until 2020, when it decreased by almost 2,000 billion DA due to the decrease in oil prices following the spread of COVID-19.

- The penetration rate in 2020 is only 0.75% of GDP, this rate evolved from 2011 to 2015 between 0.6% and 0.77%, (evolution that is due practically to the decrease of GDP), is followed by a regression reaching 0.68% in 2018.

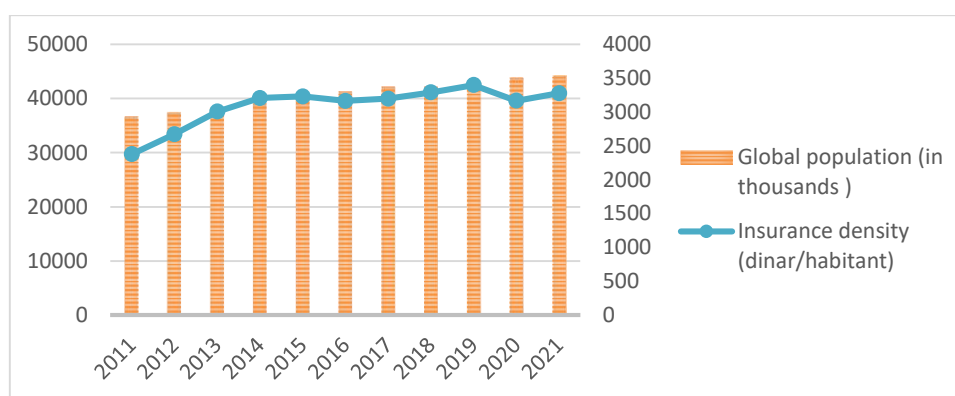
We note then that the insurance penetration rate (premiums/GDP) in Algeria is still low and far from the world average of 7.4%, and lower than that of neighboring countries (2.3% in Tunisia). (Comité général des assurances, 2020)

The evolution between the period (2020-2021) does not exceed 0.1%, which shows us that the insurance market in Algeria suffers from an under-exploitation, and a low contribution in the GDP of the country.

3.2. Insurance density

The figure below shows the evolution of insurance density, which is the ratio between the turnover excluding international acceptance and the number of inhabitants (insurance premiums / total population). (CNA, 2011a)

Figure (6): Evolution of insurance density (2011-2021)



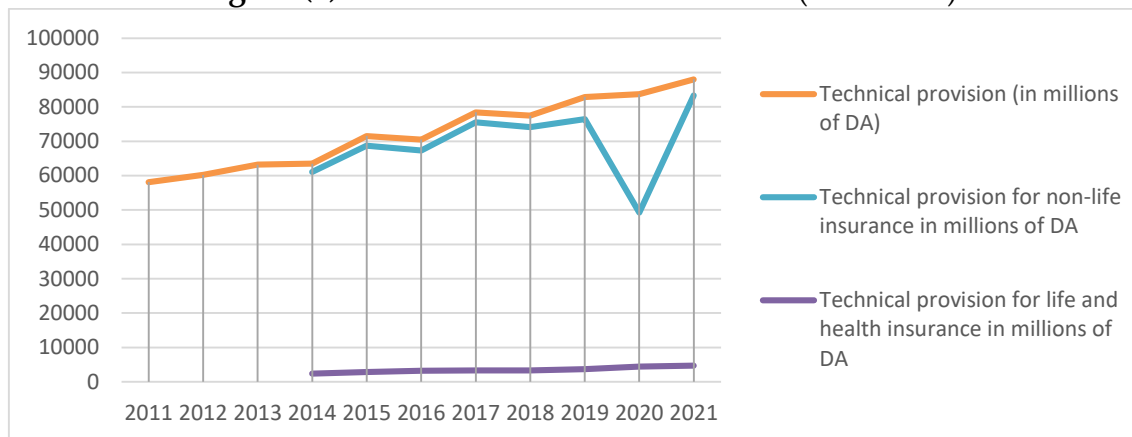
Source: Established by ourselves from statistical notes (CNA, 2011a, 2012a, 2013a, 2014a, 2015-2016-2017), world bank data (worldbank, 2021), and (countrymeters, 2021)

From this figure, we can see that the insurance density has not recorded a large variation between 2011 and 2021. In 2021, it reaches 3279 dinar/capital (or 22.95 dollars/capital) which is a figure very far from the world average (809 \$) and low compared to the country Tunisia (77.8 \$). (CGA, 2020)

3.3. Technical provisions

The figure below illustrates the evolution of claims payable (technical reserves) between 2011 and 2021:

Figure (7): Evolution of technical reserves (2011-2021)



Source: Established by ourselves from statistical (CNA, 2011a, 2012a, 2013a, 2014a, 2015-2016-2017) and insurance sector's conjuncture notes (CNA, 2011-2021)

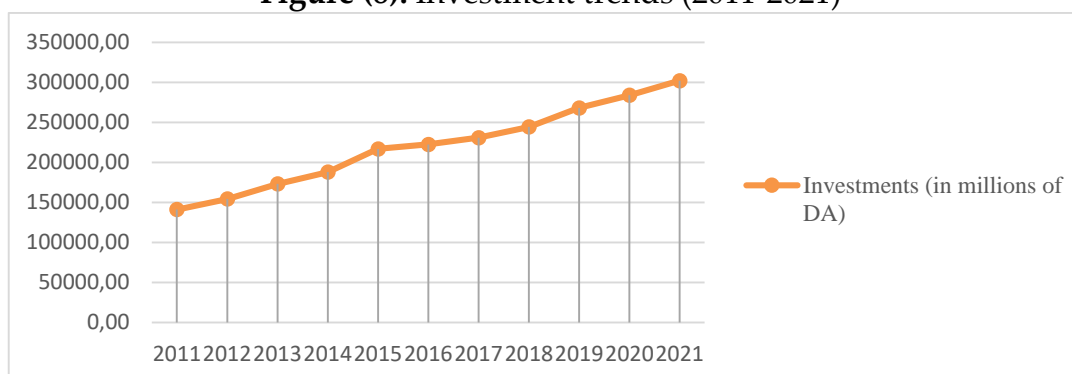
The technical reserves assessed by insurance and reinsurance companies in order to meet their engagements to their policyholders, have been characterized by an average growth of about 4.3% between 2011 and 2021. The year 2016 is the only one that has marked a decrease of the SAP by 1.5%.

From this figure, we can see that the GAPs for property and casualty insurance are almost double those for life insurance.

3.4. Investments

Investments have shown a remarkable evolution as shown in the following figure:

Figure (8): Investment trends (2011-2021)



Source: Established by ourselves from BDCS (CNA, 2022) and Activity Report 2021

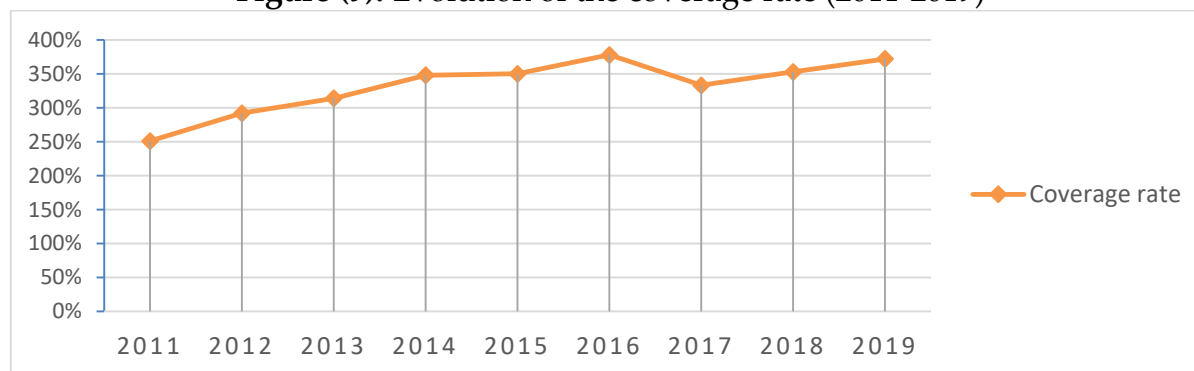
These premium investments on the assets side of the balance sheet reached a level of 301,206 million DA in 2019, increasing by an average growth rate of 9.7% between 2011 and 2019. They represent the second role of the insurer. This role consists in investing

and financing the national economy with a significant part of the premiums collected by the insured.

3.5. The coverage rate

This rate, which is equal to the ratio between investments representing technical liabilities and technical reserves (Comar assurance, 2016), changes between 2011 and 2021 as follows:

Figure (9): Evolution of the coverage rate (2011-2019)



Source: Established by ourselves from the BDCS (CNA, 2019)

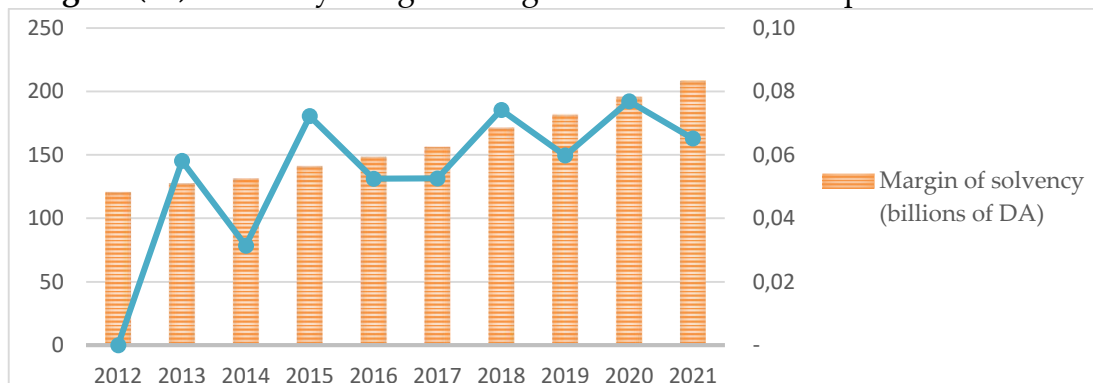
From this figure, we can see that the assets representing the technical provisions have enabled us to cover the engagements of insurance companies at an average coverage rate that amounts to 332% between 2011 and 2019.

During these 9 years, the coverage rate is in continuous evolution except for the year 2017 which marked a decrease of 11.9% followed by a recovery in 2018 and then in 2019. The average growth rate is 5.36% for the entire period.

3.6. Solvency margin

Each insurance and reinsurance company is required to establish a solvency margin equal to at least 15% of the technical reserves and 20% of the premiums written and/or accepted, net of taxes and cancellations. For life and health insurance companies, the solvency margin for the life and death, nuptial and capitalization branches must be at least equal to the sum of 4% of the mathematical reserves and 0.3% of the written premiums. Of the mathematical reserves and 0.3% of the non-negative capital at risk.

Figure (10): Solvency margin of Algerian insurers for the period 2012-2021



Source: Established by ourselves from Activity reports of insurance companies in Algeria (2012-2021).

According to the figure above, the solvency margin of direct insurance companies, with an amount of 174 billion DA in 2019, marked an increase of 3.7%, or a depreciation of 4% compared to the year 2018.

Solvency has been characterized by an average growth of about 5.4% between 2012 and 2019.

Discussion

The insurance sector has known many legislative and regulatory reforms, the most important of which is the publication of the decree N° (07-95) relating to insurance, which was completed and modified by the law n° (04-06). Thus, it presents some structural and organizational insufficiencies.

The contribution of this sector to economic growth is obvious. Indeed, this low contribution in the GDP informs about the development capacities that have not yet been exploited.

The insurance sector has known many reforms in order to give the insurance companies the necessary financial solidity and to be in conformity with the international standards, the minimum share capital has been increased by four times for the damage insurance companies, and five times for the life insurance companies, and each insurance branch has its own solvency margin.

The solvency system of insurance companies in Algeria is still based on accounting rules, which meant the solvency system I, it is calculated on the basis of turnover, depends on

a minimum capital, so their valuation and presentation. Therefore, it is not fully compliant with the Solvency II system, which is based on the criteria of risk capital.

Conclusion

The Solvency I regime has now reached its limits and lost its effectiveness in the face of the progressive complexity of the economic and financial environment in terms of the assessment of insured risks, which has led to a neglect of the qualitative requirements on risk management.

Indeed, in Algeria, the solvency regime in force, inspired by the standards of Solvency I considered outdated and insufficient, requires imperatively the passage to the more recent regime based on the vision: "risk" is necessary to allow for the development of the world market of insurance. Thus, the adhesion to the new solvency regime entitled Solvency II already implemented in Europe seems indispensable in order to compensate for the inadequacies of the Solvency I regime.

Solvency under the Solvency II regime is designed to ensure better coverage of the various risks that may affect the financial health of an insurer, in order to strengthen the solvency rules, through the introduction of new quantitative requirements, namely:

- The constitution of a solvency capital requirement (SCR),
- A minimum capital requirement (MCR) involving the revaluation of the balance sheet, according to the fair value rule (economic balance sheet).

Notwithstanding its current necessity, the passage towards the regime: Solvency II in Algeria, still records a slowness, constraint due to the requirements of this regime, which require among others:

- ❖ The mobilization of additional capital,
- ❖ Accounting reform (the fair value),
- ❖ Technological development,
- ❖ The strengthening of risk management resources and tools,
- ❖ The presence of quality personnel.

Referrals and references

- Conseil National des Assurances. (2016). Note de conjoncture de marché des assurances quatrième trimestre 2016. Alger.
- Conseil national des assurances. (2022). La Base de Données Centralisée des Statistiques (BDCS). Consulté le 10 2, 2022, sur <https://www.bdcs.dz/>
- Alrikabi, A. (2023). Evaluation of Financial Performance Indicators and Their Impact on the Solvency of the Iraqi General Insurance Company for the Period (2016-2020). 45. Iraq: Journal of Economics, Finance and Management Studies.
- Arrêtè du 14 mai 2016. (2016, 05 2016). La représentation des engagements règlementè des sociétés d'assurance et/ou de réassurance. JOURNAL OFFICIEL N°66, du 9 novembre 2016.
- assurances, C. n. (2012-2021). Notes de conjoncture. Alger. Récupéré sur www.cna.dz
- Banque mondiale. (2022). Banque mondiale. Consulté le 11 15, 2022, sur <https://donnees.banquemondiale.org/>
- Benro, E. (2008). Solvabilité II : Calibrage des MCR/SCR dans le contexte QIS4, rapport de stage final. Paris, France.
- BOURECHAK, I. (2020). Exigences en fonds propres en Assurance non vie sous SOLVABILITE II Formule Standard avec calibrage des USP « Cas de la SAA ». Tunis, Tunisie: Institut de financement du développement du Maghreb Arabe.
- Comar assurance. (2016). Principaux indicateurs de performance de la COMAR. Tunis.
- Comité général des assurances. (2020). Le marché tunisiens des assurances en 2020. [rapport annuel]. Rapport annuel.
- Conseil national des assurances. (2011-2021). Note de conjoncture du marché des assurances. Alger. Récupéré sur <https://cna.dz/>
- Conseil national des assurances. (2011-2021). Notes statistiques. Alger.
- Conseil National des Assurances. (2011a). Le marché algérien des assurances en 2011. [notes statistiques du secteur algérien des assurances]. Alger.
- Conseil National des Assurances. (2012a). Le marché algérien des assurance en 2012. [notes statistiques du secteur algérien des assurances]. Alger.
- Conseil National des Assurances. (2013a). Le marché algérien des assurances en 2013. [notes statistiques du secteur algérien des assurances]. Alger.
- Conseil National des Assurances. (2014a). Le marché algérien des assurance en 2014. [notes statistiques : le secteur algérien des assurances]. Alger.
- Conseil National des Assurances. (2015). Note de conjoncture du marché des assurances quatrième trimestre. Alger.

- Conseil National des Assurances. (2017). Note de conjoncture de marché des assurances : quatrième trimestre et année 2017. Alger.
- Conseil National des Assurances. (s.d.). Le marché algérien des assurances entre 2015-2016-2017. [notes statistiques 2015-2016-2017]. Alger.
- Countrymeters. (2022). Algérie population. Consulté le 03 15, 2022, sur <https://countrymeters.info/fr/Algeria>
- Décret exécutif N°13-114. (2013, 03 28). Engagements règlementés des sociétés d'assurance et/ou de réassurance. JOURNAL OFFICIEL N° 18, 31 mars 2013.
- Décret exécutif N°13-115. (2013, 03 28). La marge de solvabilité des sociétés d'assurance.
- Didane, M. (2010). Droit Algérien des Assurances. Algérie: Belkeise.
- Doff , R. (2008). A Critical Analysis of the Solvency 2 Proposals. The Geneva papers, Vol 33, pp 193-206.
- Dreyfuss, M. (2015). Les grands principes de Solvabilité 2 (éd. 3ème). France: L'Argus de l'assurance.
- Executive Decree n°95-07, A. b.-0. (1995, octobre 30). La marge de solvabilité des sociétés. (102).
- François, P. (2021). Financiariser l'assurance: Enquête sur Solvabilité II. Presses de Sciences Po.
- Frédéric , M. (2017). Solvency 2 Impacts stratégiques et de marché. Paris, France: RB.
- HULL, J. (2010). Gestion des risques et institutions financières (2e (éd. 2e édition). Paris, France: Pearson éducation.
- Juillard, M.-M. (2013). Gestion et Mesure des risques. (76). France: Cours dispensés à l'Institut Européen d'Actuariat, Jean Dieudonné.
- Marami, K. (2010). Séminaire : Système de solvabilité des sociétés d'assurance en Algérie .
- Mazzanti , A. (2012). La formule standard (version QIS5), leviers et/ou leviers incertitudes pour des garanties épargne et retraite. (Thèse professionnelle). 17. France: Ecole nationale d'assurance.
- Melyon, G. (2007). Gestion financière. France: Bréal.
- Office National des Statistiques. (s.d.). Consulté le 12 15, 2022, sur <https://www.ons.dz/>
- Poret, P. (2014). Impact de la directive Solvabilité II sur le risque dépendance (Mémoire du diplôme universitaire d'actuariat de l'ISFA). 52. Lyon, France: Université Lyon 1.

- Rassaa, I. (2007). La surveillance de la solvabilité des entreprises d'assurances » Gestion et approche d'audit. Mémoire présenté en vue de l'obtention du diplôme national d'expert comptable, 43.
- Réassurance, U. A. (2012-2021). Rapports d'activités des assurances en Algérie. Récupéré sur www.uar.dz
- Société de Calcul Mathématique. (2016, Avril). Livre Blanc, Solvabilité II : Une réforme inutile et dangereuse.