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"INSURANCE INDUSTRY:  
CHALLENGES ON IFRS 17 DEVELOPMENT AND IMPLEMENTATION"

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## **ABSTRACT**

This thesis comes from the consultancy world and a practical problem-solving business case. The aim reflects the will of analyzing the main challenges the imminent financial report standard, the IFRS 17, will lead to the insurance industry. In the first section, it will be defined the general meaning of the argument, then it will be deeply analyzed how the consulting firm in which I have been working with, developed the project for a well-known Italian insurance company. The final part wanted to find a link between the project and the studied academic literature review.

## **KEYWORDS**

- *IFRS 17*
- *INSURANCE INDUSTRY*
- *CORPORATE STRATEGY*
- *IT CONSULTANCY*
- *BUSINESS CASE*
- *DEVELOPMENT AND IMPLEMENTATION*

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## **1) INTRODUCTION**

The thesis consists of three main parts, the Introduction, the Current Situation and Challenges and the Literature Review. Each of the mentioned parts was realized through differences in approaches and methodologies. The Introduction wanted to give a general idea of the topic and it was realized through an accurate analysis of the financial report standards for the insurance industry. Its main source was the International Financial Report Standards foundation, the IFRS, that is the organization responsible for the publication of these standards, moreover, also several scientific papers mainly made by consulting firms have been consulted.

The following section, the Current Situation and Challenges, was focused on the relationship between IFRS 17 and a practical example of implementation. In this case, resources and information were collected by the practical experiences matured in the last months working with the consulting firms responsible for the principle implementation.

In the end, the Literature review was realized through the academic experience and knowledge accumulated by several courses taught at NOVA SBE, besides, papers and scientific articles were consulted as well.

## **2) METHODOLOGY**

The report was realized through two main approaches, the desk research and the secondary data. These techniques refer to all the researches made by trustworthy sources that the reader collects to get needed information about a specific topic. It was required mainly for the first section of the Literature review which focused on the industry in which a personal in-depth knowledge of the analyzed argument was needed. The main sources were papers released by the International Accounting Standards Board, IASB, several consulting companies and my own working experience.

### 3) LITERATURE REVIEW: INDUSTRY

The International Financial Report Standard, IFRS, was created in 2000 with the objective to ensure transparency, efficiency and accountability to financial markets around the world. There are 17 financial standards which apply and standardize financial operations within different industries and in different business units, BUs, from financial instruments to fair value management or, from leases to business combinations (*IFRS, 2000*).

The first published international financial report standard regarding the insurance industry is the IFRS 4. It was issued in March 2004 after 4 years of studying process and then applied since January 1st, 2005 (*Fitch Ratings, 2004*). IFRS 4 was applied to all insurance contracts, issued or held reinsurance contracts as well as to investment contracts with Discretionary Participation Feature, DPF. Firstly, it is required to clarify what an insurance contract really means and which are its legal features. An insurance contract is “*a contract under which one part, named insurer, accepts significant **insurance risk** from another part, named policyholder, by agreeing to compensate the policyholder if a specified uncertain future event, the insured event, adversely affects the policy holder*” (*IFRS, 2000*). Hence, a contract implicates at least two parts, the insurer and the policyholder, which manage and transfer the “insurance risk” from the insurer to the policyholder. Generally, insurance risk can be defined, in the simplest scenario, as a situation in which if an unexpected event occurs, it involves two consequences, either a monetary gain or a loss. Focusing on the insurance industry, risks are then classified in three categories based on: *Outcome, Effect and Nature*. Moreover, each of those are defined by several subcategories: Pure and Speculative for the *Outcome risk*, Fundamental and Particular for *Effect risk* and Static or Dynamic for *Nature risk* ([Appendix 1](#)). Whereas the last two categories are affected by dimension and risk knowledge, respectively based on Large or Small scale for *Effect* category and Traditional

or New Kind of risk for *Nature*, *Outcome* risks require a more in-depth analysis. In this case, Risks are defined as “Pure” if the result does not concern and does not allow the possibility of getting a gain, at best, only a break-even situation. On the opposite, a possible gain event defines the “Speculative” risk. Using an example to clarify the concept, shares or trade investments falling into the speculation risk, whereas, on the other side, fire, theft or even earthquake are pure Risks. The brief analysis and differentiation was needed concerning the nature of insurance risk, indeed, this type of risk is only affected by pure risk, hence no possibility of gain is allowed. Moreover, in order to define a complete insurance risk situation, it needs to occur with other features which are shown in [Appendix 2](#).

The financial report, IFRS 4, in the insurance industry was planned to be implemented and split in 2 phases. The first phase started in 2005 and it was defined as an “interim” accounting standard which focused mainly on *disclosure*, subsequently, in 2011 phase II was introduced with the *valuation* process as the main goal (Witzel, 2010). As a matter of fact, in the following will be presented several points which, through an accurate analysis of the IFRS, might erase discrepancies and inconsistencies with IFRS nature: ensure financial reports to be easier to compare and analyze. Any of the analyzed points which will follow in the reports are focused on accounting policy in order to underline how changes on this aspect can affect financial reports.

The first point which can be easily criticized refers to section 22: “*Changes in accounting policies*”, where it clearly states that companies can change accounting policies, only if, these changes may make the economic decision-making process more relevant ([Appendix 3](#)). Despite changes ought to demonstrate the achieved purpose, consequences can be found in the market within different business units in the same company.

Even if justified and well-argued, these changes were allowed either for companies as a whole, or business units within the same company. In the first case it may cause a more difficult analysis and market comparison for investors and stakeholders looking for objective company reports, whereas, in the second case, the usage of input data with different accounting policy has arisen changed profitability results and distorted asset value for each BUs.

Inconsistency can also be found at paragraph 4 in the introduction section, IN 4, in which is explicated that insurance companies are exempt from requirements imposed by other financial reports and, in the brief list which follows the article, accounting policy is mentioned in the exempted section ([Appendix 4](#)). However, to analyze this point, it is here required to recall the history of the IFRS 4, where, as previously mentioned, this standard was published as an *interim solution* needed as a “bridge connection” to the improved second release. This aspect is indeed confirmed by the text where it states that this amendment is only allowed during phase I of the project.

Therefore, it is necessary to underline that the IASB provided much freedom of implementation to companies which has allowed to manage within better need the financial report based on their business, especially in its first release. This aspect is confirmed by the IABS which released IFRS 4 already aware that the financial standard would have caused contradictory reactions by preparing amendments to this standard. Hence, two main consequences can be raised regarding the freedom of implementation. Firstly, each company and accountant which implemented the IFRS pursuing to declare different assets value within the reports running out of publishing a “distorted” one applying a subjective accountant policy. Secondly, following the different attitude which has caused a broad and various insurance contracts definition, the meaning

and the analysis was often tough to get, thus also the comparison among different companies was hard to implement.

Therefore, in 2017 the IASB published a new financial accounting report, the IFRS 17, which was improved by received feedback. Its main aim was meant to establish an international principle-based accounting standard within the entire insurance. In addition, it would easily allow to analyze, compare and evaluate financial reports from different countries and continents. Through some of the already analyzed “large boundaries” within the text, the IFRS 4, has had a lack of comparability not only in the insurance industry, but also within different BUs (*Deloitte, 2018*).

IFRS 17 main aim is to ensure that only relevant and especially fateful assets will support the financial reports and not anymore expected ones as happened with the previous standard. Hence, it is needed to summarize which are the main functional differences with the former IFRS. The IFRS 17 has been defined as one of the biggest change the insurance industry has ever faced and, once again, this is also confirmed by the history-evolution process, published in 2017, with the first effectiveness starting from January 2021, 1<sup>st</sup>, after an amendment in June 2020, its operability has been postponed to January 2023. The five years period the IASB gave to the insurance industry, then, to all the insurance companies, it can be a proxy on the amount of work it required and will still require to implement its characteristics, features and the dramatic data management changing.

Insurance companies need to choose among 3 different approaches expected by IFRS 17 which need to be defined before drafting the final financial report:

- The Building Approach, BBA
- The Premium Allocation Approach, PAA
- The Variable Fee Approach, VFA (*GPPC, January 2020*).

BBA is the standard approach for insurance contracts, it is based on the following 5 main steps which are summarized in [Image 5](#). The first regards the total inflows amount a contract will lead, such as premium. The second, on the contrary, requires the total relevant outflows defined by the contracts such as claims. These 2 steps will get the future cash flow balance; thus, it needs to be discounted at the present value in a third phase. So, in the following phase, risk adjustment will be considered refereeing to retention, laps and expenses risks, which are commonly to happen as insurance risks. These calculations sum up the fulfillment cash flow which represents future obligations of the policyholder. The final step regards the Contract Service Margin computation, CSM, which basically represents the profit the insurance company will gain throughout the contract period.

This final step is probably the most important point which characterized IFRS 17: it does not admit to recognize the CSM in the immediate fiscal year in which it has been computed as the IFRS 4 did, rather, it will be only recognized throughout the entire contract period.

The PAA on the opposite is a simplified approach which regards mainly insurance contracts with a one-year lifetime duration such as car insurance. Under this approach insurers must recognize losses on a group of contracts which are classified as onerous at the inception. Insurers must identify and group these contracts through different *granular levels*, first grouping by portfolio based on risk or product, then in at least other three groups:

- contracts which are onerous at the inception,
- contracts with a low significant risk
- profitable contracts (*KPMG, 2017*).



The Variable Fee Approach, on the other hand, was designed for contracts with direct participation features, for example investment-related service contracts under which an entity gives a return to policyholders. This approach needs to be mandatory used when contracts need the following criteria:

- a. The contractual terms specify that the policyholder participates in the shares of a clearly identified pool of underlying items
- b. The entity expects to pay the policyholder a substantial share of the fair value returns on the underlying items
- c. The entity expects a substantial portion of any change in the amounts to be paid to the policyholder to vary with the change in fair value of the underlying items (PWC, December 2019).

#### **4) CURRENT SITUATION AND CHALLENGES**

The following section aims to analyze both the two mentioned concepts in the title. This choice is based on IFRS 17 nature itself considering the situation the company is currently facing, it exactly reflects the challenge due to the IFRS implementation. The section is organized on a brief definition of the platform in which all the data are maintained by the insurance company, the Actuarial Platform, then each part will be deeply analyzed.

The enterprise on which this report focuses, is a well-known insurance company listed in the Italian stock market, it carries out several activities within the insurance industry, so a huge number of contracts. Somehow, indeed, insurance companies can be assimilated to banks: enterprises try to get the higher profit over a medium-long period by managing and borrowing money, predicting and forecasting data.

Each contract is grouped by different *criteria* which are not absolute, but rather depend on the final usage and on the output the user wants to achieve, examples might be the accounting and the administrative ones. Hence, all possible criteria are associated with several characteristics named *Lines of Business, LoB*. To clarify the concept, two main characteristics are presented: Catastrophic and Not Catastrophic. The first occurs when an event as an act of vandalism breaks a window whereas, a Not Catastrophic event might be a hurricane which destroys a huge number of windows. Therefore, the same event “widows breaking” is grouped in two different but transversal LoBs.

The Actuarial Platform is the IT platform in which all the data and information about the insurance contracts are maintained. Its function is difficult to get as well as to manage, it consists of five different sections which are: Master Data, OCT Planning, OCT Actual, RA Life and RA Non-Life as shown in [Image 6](#). The mentioned sections are commonly called “tiles”, the first one is “Master Data”. It is defined as a pre-tile because the user needs to manage, create and edit features which are necessary for the entire actuarial platform in order to execute the calculation.

The second and the third tiles are on the Onerous Contract Test, OCT tile. The main output is the definition of the Loss component, indeed the purpose is to assess whether any loss shall be recognized through Profit and Loss, allowing to determine in a timely manner any Loss Component to be recognized in the Income Statement at the inception of the contract and for each reporting date. The Actuarial platform supports these tiles for two types of calculation: Risk Based or Product Based. Whereas in the first one the Loss Component is computed through a risk dimension, technically named “**MicroLob \***”, in the second one it is calculated on a product-based level, then distributed on Product “**SubMacro**” dimension (this concept is better analyzed in the following paragraph).

The principle behind the application is based on a reallocation mechanism of KPIs, received by modelling systems on a risk dimension, MicroLob dimension, then reallocated to a Risk dimension called MicroLob\* , which internally can be reallocated to a Product based risk, that is to a SubMacro dimension if the company manages risk on a Product base.

The last two tiles are about Risk Adjustment, respectively named Life or Non-Life, the first refers only to life contracts whereas the remaining tile specifies for other contracts with a lifetime duration of 12 months. The Risk Adjustment, both in the Life and in the Non-Life tile, is a reserve which allows to declare more prudent data which might be affected, for example, by an interest rate crisis or by an expected increase in costs and insurance claims. IFRS 17 allows the company to use the Risk Adjustment for each fiscal year and if no resource of the Risk Adjustment has been used, it can be released to profit by increasing inflows.

### **3.1) ONEROUS CONTRACT TEST, OCT**

The Onerous contract test, OCT, is divided in two different tiles, OCT Planning and OCT Actual. The mentioned distinction is related to three main aspects: first, OCT Planning manages planned data, hence, data have been estimated, on the other hand, OCT Actual uses uploaded data, thus real data.

Second, OCT Planning allows only Single-year contracts whereas OCT Actual concerns also Multi-year contracts. To clarify, the expression Single or Multi years contracts refers to the contract lifetime: car insurance contract is a clear example of single year contract whereas life insurance is an example of a multi-year contract.

Third, used data in OCT Planning are reported every three months, while OCT Actual annually. Therefore, the company uses OCT Actual data coming from a previous year forecasting it for the following year then, grouping it in four trimesters. Even though OCT Actual and Planning requires different input data and file, it has the initial aim to uniform the several LoBs which are managed by the company with different and specific criteria.

Indeed, by recalling the OCT definition, it allows two approaches, **Risk** or **Product** based depending on the company choice. This aspect is extremely important regarding OCT functioning and data management.

To begin with the Risk based approach, it is divided into 4 different levels of specificity called *granularity level* and each LoB is associated with a specific one.

#### Risk:

- **MacroLoB**
  - **SubMacro**
    - **MicroLob**
    - **MicroLob \***

The above list can be thought as a rising level of granularity list, starting from the broadest group, the MacroLob, hence with the lowest granularity level, reaching the narrowest and the most detailed grade of specificity reached at the bottom, the MicroLob \*.

The first level is the MacroLob one, it is the biggest category possible and, as shown in [Image Z](#), it counts 12 sections, in which are contained all the possible subsequent categories.

Each MacroLob has a specific alpha-numeric code, for example, looking at the “***Marine, aviation and transport insurance***” its MacroLob code is NA1000. However, looking at the following row, there are two other categories, *Marine and Transport* and *Aviation* respectively with NA1100 and NA1200 code. These two codes specify the SubMacro level. Regarding the

SubMacro level, it is important to underline that each of these categories specify a type of risk which might be common also for different Macro.

In the end, MicroLob and MicroLob\* define the last granular level of risk and these LoBs are contained each in a Macro.

Once described Risk approach and its level of granularity is time to define the Product approach as well. However, to better clarify this concept it is first needed to introduce the last step which follows OCT calculation: FPSL which stands for Financial Product Subledger. All the data resulting from the Actuarial Platform are sent to FPSL and are here elaborated to sum up the final CSM, Contract Service Management.

Then, FPSL split its computation on the two mentioned approaches:

- If the company uses a **Risk based approach**, the granularity level needs to be extremely detailed, so it needs to be the **MicroLob\***
- If the company uses a **Product based approach**, on the other hand, FPSL works with a broader category which is the **SubMacro** level.

Therefore, this is the reason why this first step is extremely important for the final Loss Component computation. Indeed, based on the chosen approach by the business unit, data maintained within the platform need to be at the same level of granularity in order to be relevant for the final calculation of the Loss Component.

<b>RISK BASED APPROACH</b> and <b>FPSL Granularity</b>	<b>PRODUCT BASED APPROACH</b> and <b>FPSL Granularity</b>
➤ <b>MacroLoB</b> <ul style="list-style-type: none"><li>○ <b>SubMacro</b><ul style="list-style-type: none"><li>▪ <b>MicroLob</b></li><li>▪ <b>MicroLob *</b></li></ul></li></ul>	➤ <b>Product</b> <ul style="list-style-type: none"><li>○ <b>SubMacro</b></li></ul>

Insurance companies in the past have been included in the “*Too big to fail*” definition because of the economic stabilizer role they played within the society. This is, therefore, the reason behind the choice to accumulate in reserves an amount of business in case it will ever be asked to recompensate a huge part of consumers (CNBC, 2017).

It is, then, time to add and describe another step regarding the Actuarial Platform and its functioning: The Loss Component. It is a crucial linking point between IFRS 17 and the Platform.

To begin with its formula,

$$Loss\ Component = 100 * \frac{(Expences)}{(Premiums)}$$

This computation translates in 3 different cases:

1)  $Loss\ Component = 1$

In this case, Expenses are the same as Premiums, then it means that the company is not earning money as well as it is not losing, it is a Win-Win situation.

2)  $Loss\ Component > 1$

In this case, Expenses are higher than Premiums, then the company is losing money and the Loss Component is negative.

3)  $Loss\ Component < 1$

In this case, Expenses are lower than Premiums, then the company is making money and the Loss Component is positive.

Focusing, for example, on the second case with a LC negative, for the company this means that it must accumulate a reserve a higher amount of money, so it will be not possible to invest money in the market. However, these three cases define only theoretically the consequences of the

calculus. In practice, indeed, LoBs with different LC output can be mixed and, based on the weight of each, the resulting Loss Component can be higher or lower, that is, it will be create a portfolio with different LoBs and different LCs.

To clarify the concept, car insurance can be studied. The third-party motor-vehicle insurance, TPV insurance, that is the base insurance for cars, is generally not profitable for insurance companies, first because of the low cost they have to demands from clients affected by the competition within the market, second because of the high probability rate of the insured event. So, it can be thought of as a LoB with a negative LC: expenses higher than premiums.

However, often, with the simple TPV insurance, companies offer the “Kasko insurance” (also known as Compressive insurance) and in this case it is the opposite situation, that is a high profit LoB with a low LC output. Therefore, if these two mentioned contracts are mixed in only one “portfolio”, the result will be, presumably, an overall lower LC compared with the only Kasko one, but with a higher LC compared with the only TPV insurance contract. This mechanism is exactly what actuarial analysts are responsible to study and offer to the company. Other two points are missing in the OCT description to give an in-depth analysis, that is which of the three mentioned approaches allowed by IFRS 17 the company uses as well as, the reason behind this computation. First, the company decided to apply the Premium Allocation Approach, PAA approach because it was thought as the most appropriate method for the complexity of the calculation and the process. Second, the reason behind the OCT process needs to be found in the quality of loaded data in the Actuarial Platform which might be Technical Data or Accounting Data. The first is also known as Internal Model or Actuarial Model Data and it specifies for the MacroLob level. The other one, the Accounting Data, on the opposite requires a MicroLob level of granularity. In the end, OCT is probably the most difficult and complex tile within the Actuarial Platform. Its purpose is to uniform

data on the same level of aggregation in order to allow the final computation of the Loss Component.

### 3.2) RISK ADJUSTMENT NON-LIFE, RANL

In order to analyze RANL and its internal subdivision, it is first required to describe the insurance-claim cycle. To begin with, each claim is defined by four moments: Incurred, Reported, Due and Settled. As shown in [Image 8](#), each phase is characterized by a specific action the insurance company will go through. The first phase, the Incurred, can be thought as a notification for the happened event, indeed its main part is the Notice of Loss. The following step is the Reported phase, as anticipated by the name, this phase consists of the opening paperwork of the incurred accident which is followed by the calculus computation in the Due phase. In the end, the process finds the Settled part in which the insurance company will reimburse the client for the accident.

Once a generical insurance contract is signed, it means that the company just bought the possible risk against an unknown event, in accounting it translates into the definition of the **LRC, Liability for Remaining Coverage**. It is a fund for potential insurance, which becomes real if and only if an event happens. Once the mentioned event occurs, at the precise date in which the company will reimburse the customer for the damage, those amounts reflect the **LIC, Liability for Incurred Claims**. As shown below in [Table 1](#), the LIC is defined each fiscal year and every time a year starts, the Closing Balance of the previous year becomes the Opening value of the following one. Hence, the Opening value and its adjustment are maintained within the actuarial platform by the company. The other two fields Released, and Claims Incurred which are shown below, refer respectively to the number of past events effectively released by the company in the



current year, whereas the other one specifies the number of claims registered in current year.

Then, the LIC Closing Value is computed as shown below by the *Equation 1*:

$$LIC\ Closing = LIC\ Opening + LIC\ Adjustment + Amount\ Released + LIC\ Current\ Year$$

**Table 1: LIC Closing Value Computation**

LIC MOVEMENTS	Amount
<b>OPENING BALANCE</b>	<b>111,818,664</b>
<i>OPENING ADJUSTMENT</i>	288,552
<i>RELEASES</i>	-883,131
<i>CLAIMS INCURRED</i>	625,829
<b>CLOSING BALANCE</b>	<b>111,849,915</b>

The referred insurance company uses the LIC computation as a proxy and a base for the Risk Adjustment Non-Life.

However, before going into detail, one last distinction is required, that is the division of the Risk Adjustment Non-Life in Reserving and Pricing. *Reserving* uses the *LIC* for its computation, so it uses Claims, whereas *Pricing* uses the *LRC* so it uses Inflows. In the following will be presented and analyzed the process which led to the risk adjustment for Reserving.

**Table 2: RANL Closing Value - Reserving**

RANL	Amount
<b>RA OPENING</b>	<b>108</b>
<i>OPENING ADJUSTMENT</i>	10
<i>EXPECTED RELEASES</i>	4.7181
<i>VARIANCES</i>	-13.2983
<b>RA CLOSING</b>	<b>109.42</b>

The Risk Adjustment Closing for the Reserving, [Table 2](#) , is computed with a similar process as the LIC is done. It needs the Opening Value which is gave by the company and which represents the Closing value of the previous year; the Expected release which identifies the amount which

will be released to profit; the Variances which reflect the effect of the discount rate on the stock of the RA; hence the Closing value is computed as the *Equation 2* below:

<p><i>RANL Closing value RESERVING</i></p> <p><i>= RANL Opening Adjustment + Expected Releases + Variances</i></p>
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It is interesting to underline how the Released portion is calculated. As in [Table 3](#), it is first required the % Released as the ration of the Release over the *Total Opening*, so the result is multiplied for the Risk Adjustment *Total Opening value*, hence following the previous shown data in [Table 2](#):

**Table 3: RANL Reserving Computation**

INFLOWS			
Release	Tot Opening	% Released	% Released
-883,131	112,107,217	Released / Tot Opening	-0.00788
RANL			
% Released	Tot Opening	Expected Release	Expected Release
-0.00788	118.000	% Inflows Released * Tot Opening	-0.930

Following the presented process which has been analyzed for the Reserving part, using the LRC instead of the LIC, it will be computed the Risk adjustment also for the Pricing part as in [Images 9,10,11](#). Once the Risk Adjustment has been computed, both for the Reserving and Pricing one, it is associated for each LoB to a specific portfolio going to increase its previous value. It is important to underline that, as happened with the last step of the Onerous Contract Test as well, each portfolio might contain several and different line of businesses, [Image 12](#), in which each LoB might have a specific weight.

One last point which needs to be mentioned refers to the quality of data which is imposed by the company headquarter: the percentile level. Indeed, each General Head Office, GHO, sets for each country a minimum level of confidence.

The Italian one fixed it, at least, at the 75<sup>th</sup> , however, each business unit can also impose to give evidence of a more precise and more accurate granular level of confidence computing a deeper level reaching, in some cases, also the 99<sup>th</sup> ([Image 13](#)).

The last step of the RA Non-Life calculus regards the distinction in the two approaches model allowed by the IFRS 17. Among the three approaches previously presented, the company uses *both* the PAA as and the BBA approach. This choice depends on the company itself, it means that once data has been uploaded within the platform the user cannot edit or change the established approach, rather it can only manage the following step. A possible justification can be found within the quality of data, meaning that the Premium Allocation Approach is a more practical and easy to implement approach compared to the Building Block Approach, therefore, probably, LoBs which use the first one might be easier to be maintained and to be computed.

### **3.3) RISK ADJUSTMENT LIFE, RAL**

Risk adjustment life is the last section of the Actuarial Platform, it consists of two models, the Internal Model (IM) and the Standard Formula (SF). The Risk Adjustment computation, either in the IM and in SM approach, is the same, however minor changes are allowed in the two models. The Standard Formula, indeed, is defined as a preset template made by the GHO in which the company needs to maintain only a few input data and any other operations are not allowed. In the other case, the IM, the model is more flexible allowing the company and actuaries to edit input data as better needed for the business, however, the last steps for the calculus are the same. Before to analyze in detail the model it is required to underline the major difference with the other two tiles within the actuarial platform. It is the absence of any line of businesses, LoBs, which are

substituted by four vectors: *Opening, Portfolio Transferring, Model Changes Perimeters and Closing* ([Image 14](#)).

Contrary to the other tiles, each of the mentioned vectors is already organized and divided in different portfolios, thus those are not anymore output or results of the calculation exactly as happened before, rather those are input data for the final Risk Adjustment calculus. As for the Risk Adjustment Non-Life in which the Opening value referred to the Closing value of the previous year, this is common in the RA Life part, the only difference can be found within the other two vectors considering that those are mainly defined as adjustments for the Opening values. Therefore, if any new portfolio is added to the existing list, it will compare only in the Closing value because of the absence within the Opening vector.

It is important to underline that the main mathematical operation which is used in the RANL is the Transpose matrix product, basically an operation which returns the matrix product of two arrays. This is common both for the IM as well as for the SF model, using the four mentioned vectors with a matrix of correlation. The calculus which led to the risk adjustment is organized in three steps, first it is done at a portfolio level, then at a company level and in the end, it is realized as an analysis of movements. The company level aggregation is done throughout the aggregation of the different portfolios of the same business unit with the impact of preset Exchange Rate ([Image 15](#)). Once this first step is done, the RA can be calculated for the company level as well, however, considering that different portfolios can be managed in different currencies, it needs first to be converted in the currency functional used by the company GHO.

#### 4) LITERATURE REVIEW: COMPANY

This section aims to analyze the relationship between IFRS 17 implementation and company capabilities to fulfill this requirement. This subparagraph wants to give evidence of the company's *value* that will be analyzed through a specific approach. It wants to suggest how company's culture, strategy and capability to adapt and rethink itself during its history, will support the challenge of IFRS 17 implementation. It will be needed a company analysis to assess the competitive advantage attributed to it and its corporate strategy, therefore, the analysis will be led through the "Corporate Strategy Triangle" which is considered as the foundation of the corporate strategy. As shown in [Image16](#), the triangle consists of three parts, *Strategic Resources*, *Scope of Business and Organizational*. To begin with the **Strategic Resources** which can be divided in *Tangible, Intangible, and Organizational* (Collis & Montgomery, 2005).

*Tangible resources* are defined as the assets that appear on the balance sheet, production facilities, raw materials or real estate are its main examples. As can be seen in [Image 17](#), the company's geographical presence is its greatest strength, it is present in more than *50 Countries* with more than *73 thousand* employees. This concept helps to introduce and analyze the following type of resource, the *Intangible*, which are defined by the brand name, culture, knowledge or patents and trademarks. Therefore, an international presence, hence a huge number of employees and branches, allows the company to increase its awareness, brand name as well as image and recognition in the entire world. Another point which adds value to the intangible resources and to the company, is the experience. On what regards this aspect, the experience comes from the 185 years within the insurance industry which led the examined company to be one of the largest companies worldwide for number of employees, branches and premiums. Besides, to increase visibility and brand notability, the company sponsored many activities, for example it was one of

the main investors in the Munich, Berlin, Frankfurt and Milan marathons. The company is also present in several social initiatives within the culture, environment and social dimension.

Moving on analyzing the next dimension of resources, there is the *Organizational*. It is defined as a complex combination of assets and input such as people or processes the organization can transform in valuable outputs (Collis & Montgomery, 2005). These types of resources are often common within the same industry, however its singularity relies on the way they are managed. As a matter of fact, referring to the analyzed company, the relationship between people and processes is found in the training program known as “Group Corporate University”. It is defined as the fulcrum of the strategy and transformation of the group, indeed, in financial terms it consists of **60.3 million Euro** invested in training program, training 97.7% of employees with an overall average of 36.4 hours training per person. Moreover, the company decided to differentiate its internal training process based on the hierarchical role and capabilities of each employees. Therefore, for managerial levels it was realized the MAP, Managerial Acceleration Program, an e-learning platform with the purpose to share and strength managerial culture that in 2017 trained more than 240 manager, in 2018 it reached 4000 and the objective for 2019 was established at 8000 employees. On the other hand, the company also prepared training programs for internals, local trainers or company ambassador through a common learning experience which aimed to share three main components. First, the company foundation, that is an overall vision of the company defining its culture, history, mission and values. Second, the program was thought as a mini master which specified, based on the role of each, competencies and ability needed not to manage but rather to success each daily challenge. At least, a practical part aiming to spread new tech skills needed in a digital era. To conclude, a final point which can be analyzed, that is the rotation program that company allows and encourages. Indeed, as already mentioned as the intangible and tangible

resources, the company allows each employee to take advantage of the mobility program giving the possibility to learn in different borders, cultures and communities.

Once clarified the type of resource which defines the value of the company that can increase its competitive advantage, the second part of the Corporate strategy triangle can be analyzed, **the Scope of Business**. Within the “Strategy 2021 Program” the company declared its main goal, that is to be the leader into the insurance market, not only for individuals, but also for professionals and SMEs. Financial results can better sum up the overall company growth, at the end of 2019, the company had 69.7 Million Euro as for the Gross Written Premiums, moreover, this amount represents a 4.63% increase compared to 2018 results. As shown in [Image 18](#) in which the 2019 Gross Written Premiums is reported, it can be easily seen that the Italian market so far was the most profitable one with an overall ratio of 28 % ([Image 19](#)). However, a more accurate analysis needs to be conducted, in fact, it is interesting to underline that more than 60% of the overall profit, that is more than 40 Million Euro, comes from foreign boundaries. Hence, once again is confirmed how the tangible and intangible resources added value, in this case economic value, to the company.

The last point which needs an accurate analysis on the Triangle of corporate strategy regards the **Organizational** part. Referring to the mentioned 2021 Strategy Program in which the purpose is the creation of a “Life-Time Partner”, so not anymore a simple insurance company offering contracts but rather, something more to outline itself from competitors, it will be used on of the Michael Porter’s research in which he identified four concepts of corporate strategy: *portfolio management, restructuring, transferring skills and sharing activities* (Porter, 1987). These 4 concepts mainly apply for diversified companies, therefore, it should not be applied for the referred company considering that so far it has only been analyzed as an insurance company. It is required, therefore, to sum up the last acquisitions the company did during the last 10 years through which the company shifted its nature from a *pure portfolio* focused only in the insurance market, to

become an *industrial holding* acquiring several companies within the financial market. The company started acquiring leaders and /or undervalued enterprises in the **asset management industry** in different countries. It is here possible to underline a double strategy pursued by the company, firstly the diversification process pursuing the “Strategy 2021” mission, secondly the company was able to strengthen its foreign market share or, if it was not present before, to open new markets never reached earlier. (As a matter of fact, the company arrived in Poland, France, Portugal). The asset management market, in fact, is expected to reach up to 145.4 Trillion \$ in 2025 starting from, as Shown in [Image 20](#), by 37 Trillion \$ in 2004, with a 290% growth (PWC, 2017). In this extraordinary increase, the insurance industry grew from 17.7 Trillion \$ in 2004, up to 29 Trillion \$ in 2016 and with 2020 expected data reaching the highest value it has ever had to 38.4 Trillion \$, with a 116% growth, [Image 21](#). This is also the reason why, in the beginning of this thesis, insurance companies were assimilated to banks because of their ability to manage, to borrow and predict data.

Portfolio management is the most common approach used to create the concept of corporate strategy, it consists of processes of diversification through acquisition. The referred company decided to acquire and to invest in this market because of the willing to have inside its holding, own companies dedicated to their financial resources management and at the same time, to create and add value for shareholders (Porter, 1987). Besides, the acquisitions allowed the company to define other two concepts of the corporate strategy, transferring skills and sharing activities that mainly specify on the interrelation of each business unit. The first was made through a combination of skills, ability and know-how of each company with specific feedback on each market. The other one, instead, gave the company the possibility to share activities creating for example, synergies of cost creating economies of scale processes creating a uniform management (Porter, 1987).



This analysis was made mainly through Porter's 4 concepts of corporate strategy that best applied to the referred company giving a deep idea of how the company and its strategy has evolved in the past and how it will evolve in the future. The company was able to survive in difficult times by rooting its presence not only in its headquarter, Italy, but rather reaching new markets. Only one last point can be raised, and it is about the relationship with the IFRS 17 implementation. The company decided to invest in the asset management industry not only because pursuing a straight strategy which required this type of investment, rather and more deeply, because it was an industry in which the company was comfortable with, in which skills, activities, and resources could have been shared and transferred, therefore, it represented an added value to the company.

IFRS 17 implementation requires a huge back-office work with interaction of actuaries, developers and analysts, often its work is based on demos released by the IT consulting firm. This is the reason why the company decided not to directly invest in this process implementation by acquiring itself capabilities and resources, human resources for example, to implement the principle, but rather, to start a partnership with the IT consulting firm for the implementation as well as, for the software maintenance.

## 5) CONCLUSION

The report wanted to present and deeply analyze the process and challenges related to the IFRS 17 implementation. It did not want to be a simple list of the needed requirements, rather it wanted to compare the theoretical and the approved reality by the IFRS with a real business case project within the insurance industry. Moreover, the aim was to use company experience and share how the company changed in the past, wishing to pursue a constant competitive advantage. Hence, based on the personal experience I matured working in the consulting firm implementing the project, the purpose is to assess if the insurance company will be able to successfully implement the project. It might be evident that the company will be ready by 2023 to implement the principle, a failure would mean that a company with 70 Million Euro for GWP might be in bankruptcy, however, on the opposite it is interesting to underline competences and consequences the project will lead. In this case, competences are defined as technical skills needed for the implementation and the general knowledge of the “back-office” project.

The company, in fact, assigned the IFRS 17 project as one of the several projects it used to, probably without considering the principle as the huge change it really is, indeed, as presented in the report, it will radically change the way insurers define contracts and the way those are managed. The insurance company interacted rarely, one or twice a month with the company, mainly because it was worried for the delivery and for the project deadlines, rather than being interested and worried about all the several mechanics behind the simple output presented within the platform. In practice, it means that the referred insurance company will be constantly dependent by the consulting firm for any possible doubts so, in future, a possible partnership is suggested. To conclude, considering the difficulty of the project and its challenges, the successful implementation will be only defined as a group victory between the consulting IT firm and the company itself.

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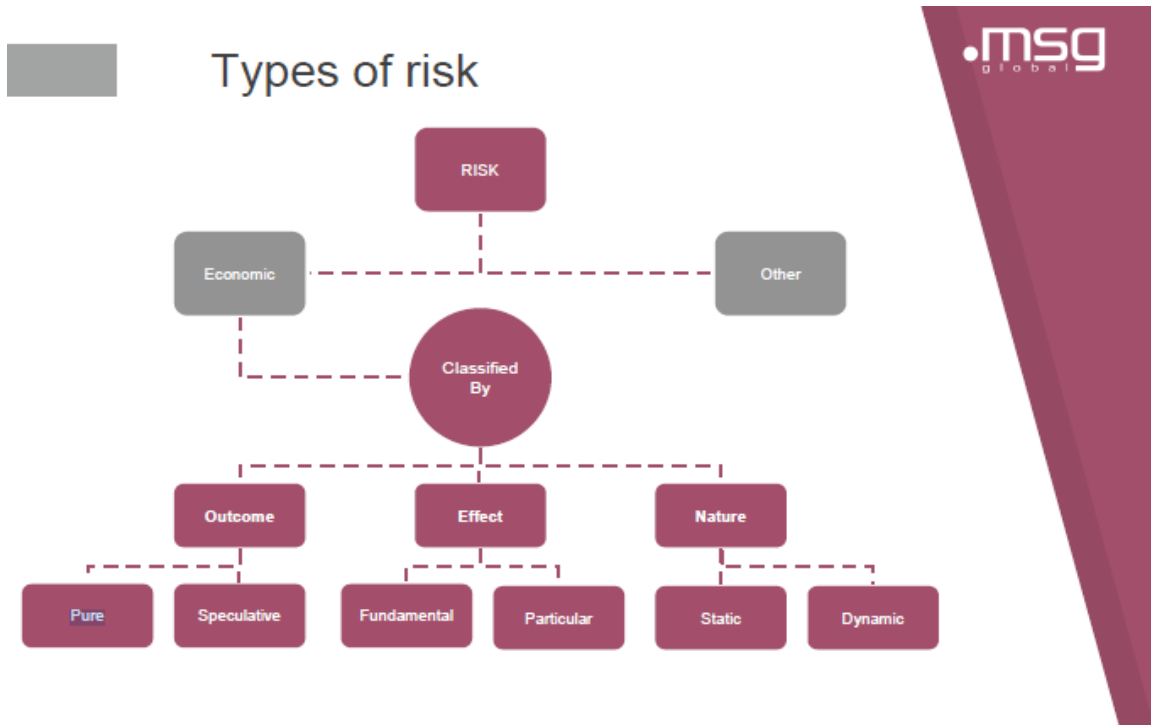
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## Appendix 1: Type of risks



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## Appendix 2: Characteristics of an Insurance risk

What is Insurance?

### Risk and Insurance – Insurable Risk

- The characteristics of an insurable risk:
  - The risk must be a **pure** risk - no possibility of gain
  - The loss must **occur by chance** – it is not intentionally caused by the insured person
  - The loss must be **definite** in time and amount – the insurer must be able to determine when to pay benefits and how much those benefits would be
  - The loss must be **significant** - caused serious damage to the insured
  - The loss rate must be **predictable** – an insurer can predict the probable rate of loss
  - The loss **cannot be catastrophic** to the insurer – must not cause catastrophic financial damage to the insurer



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### Appendix 3: *IFRS 4, Article 22*

*An insurer may change its accounting policies for insurance contracts if, and only in, the change makes the financial statements more relevant to the economic decision-making need of users and no less reliable or more reliable and no less relevant to those needs*

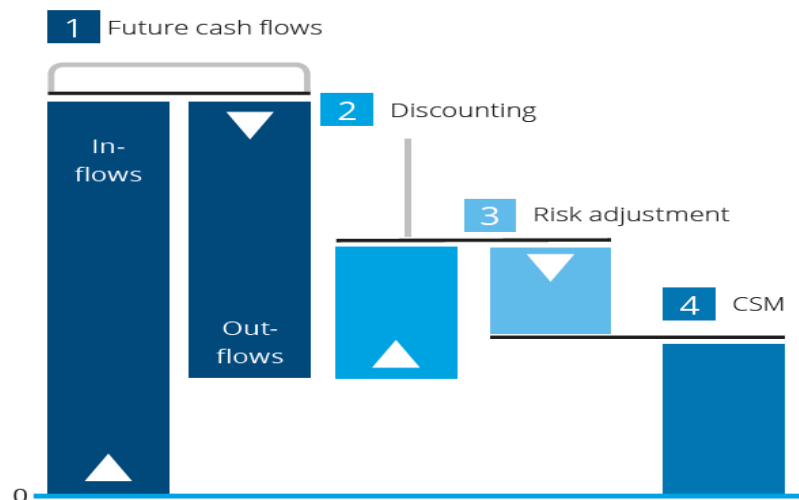
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### Appendix 4: *IFRS 4, Section IN4*

*“the IFRS exempts an insurer temporarily from some requirements of other IFRSs, including the requirement to consider the framework in selecting accounting policies for insurance contracts”*

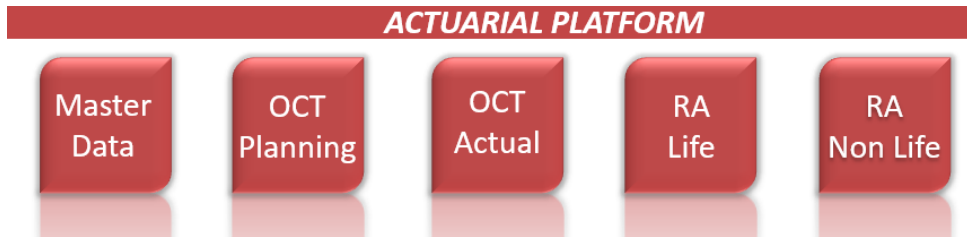
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Image 5: *The BBA approach*



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Image 6: *The Actuarial Platform*



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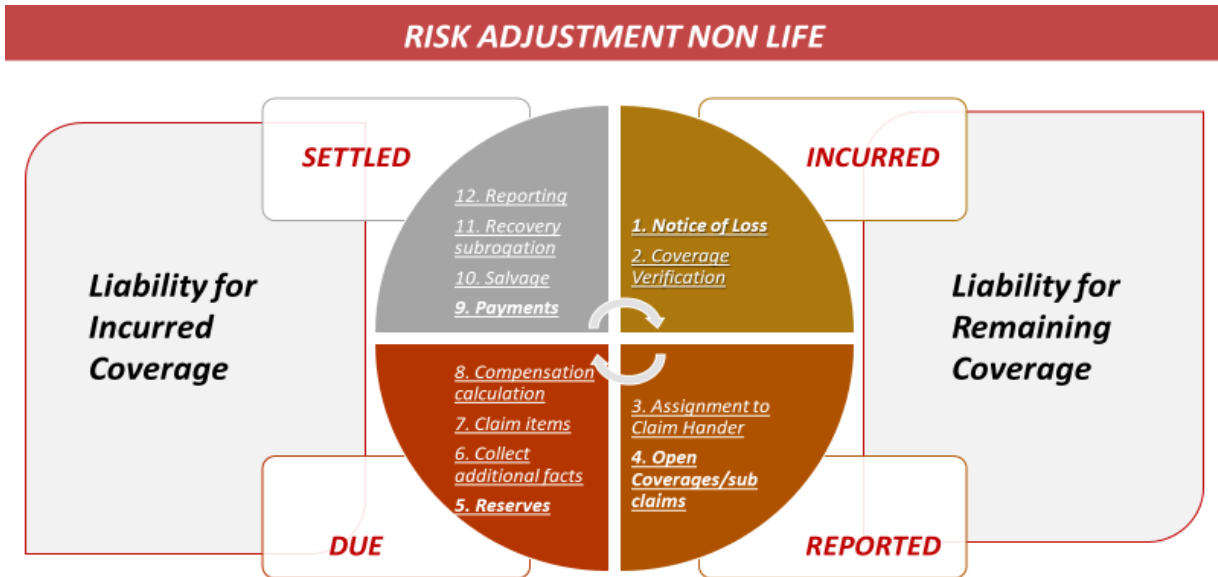
Image 7: *LoBs Onerous Contract Test*

Description	MacroLob	SubMacroLob
Line of Business		
<b>Motor vehicle liability insurance</b>	<b>NM1000</b>	
Motor vehicle liability insurance		NM1100
<b>Other motor insurance</b>	<b>NM2000</b>	
Other motor insurance		NM2100
<b>Marine, aviation and transport insurance</b>	<b>NA1000</b>	
Marine and Transport		NA1100
Aviation		NA1200
<b>Fire and other damage to property insurance</b>	<b>NA2000</b>	
Fire		NA2100
Other Property Damage		NA2200
Engineering		NA2300
Cyber_FDPI		NA2400
<b>General liability insurance</b>	<b>NA3000</b>	
General liability		
Cyber_GLI		
Professional Liability & Director and Officers		NA3300
<b>Credit and suretyship insurance</b>	<b>NA 4000</b>	
Credit and suretyship insurance		NA4100
<b>Legal expenses insurance</b>	<b>NA5000</b>	
Legal expenses insurance		NA5100
<b>Assistance</b>	<b>NA6000</b>	
Assistance		NA61000
<b>Miscellaneous financial loss</b>	<b>NA7000</b>	
Miscellaneous financial losses		NA7100
<b>Medical Expenses</b>	<b>NZ1000</b>	
Medical Expenses		NZ1100
<b>Income protection insurance</b>	<b>NZ2000</b>	
Income protection insurance		NX2100
<b>Funeral expenses</b>		NZ2200
<b>Workers` compensation insurance</b>	<b>NX3000</b>	
Workers` compensation insurance		NZ3100

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Image 8: Risk Adjustment Non-Life phases



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Image 9: Inflows Closing Value Computation

<b>INFLOWS MOVEMENTS</b>	<b>Amount</b>
<b>OPENING BALANCE</b>	<b>130</b>
<i>CHANGE IN PERIMETER</i>	2
<i>RELEASES</i>	-30
<i>NB CONTRIBUTION</i>	20
<b>CLOSING BALANCE</b>	<b>122</b>

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Image 10: RANL Closing Value Computation - Pricing

<b>RANL</b>	<b>Amount</b>
<b><i>RA OPENING PRICING</i></b>	6
<i>NEW BUSINESS</i>	0.001149681
<i>UNWINDING</i>	0.0017997
<i>EXPECTED RELEASED</i>	-1.363636364
<i>VARIANCE</i>	-4.632299963
<b><i>RA PRICING</i></b>	<b>0.007013054</b>

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Image 11: RANL Pricing Computation

<b>INFLOWS</b>			
<b>Release</b>	<b>Tot Opening</b>	<b>% Released</b>	<b>% Released</b>
-30	132	Released / Tot Opening	-0.22727
<b>RANL</b>			
<b>% Released</b>	<b>Tot Opening</b>	<b>Expected Release</b>	<b>Expected Release</b>
-0.22727	6.000	% Inflows Released * Tot Opening	-1.364

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Image 12: Risk Adjustment Non-Life LOBs

Description
<b>Line of Business</b>
<b>Workers` compensation</b>
<b>Medical Expenses</b>
<b>Income protection</b>
<b>Motor vehicle liability</b>
<b>Other motor</b>
<b>Marine, aviation and transport</b>
<b>Fire and other damage to property</b>
<b>General liability</b>
<b>Credit and suretyship</b>
<b>Legal expenses</b>
<b>Assistance</b>
<b>Miscellaneous financial loss</b>
<b>Life portfolios</b>
<b>General liability</b>
<b>Cyber_GLI</b>
<b>Professional Liability &amp; Director and Officers</b>
<b>Credit and suretyship insurance</b>

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Image 13: RANL Percentile levels

		Retail								
Percentile		60th	65th	70th	75th	80th	85th	90th	95th	99.5th
LINE OF BUSINESS	Workers compensation	-	-	-	-	-	-	-	-	-
	Medical expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Income protection	0.26	0.38	0.16	0.56	1.07	1.44	1.58	1.74	1.91
	Motor vehicle liability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other motor	16.02	22.89	29.77	51.64	81.06	156.31	171.95	189.14	208.05
	Marine, aviation and transport	0.94	1.35	1.66	4.30	5.71	12.60	13.86	15.25	16.77
	Fire and other damage to property	3.37	4.82	7.23	14.52	21.69	41.87	46.06	50.66	55.73
	General liability	(0.74)	(1.06)	37.04	56.57	82.92	194.38	213.82	235.20	258.72
	Credit and suretyship	9.64	13.77	31.35	45.11	69.69	148.27	163.09	179.40	197.34
	Legal expenses	0.06	0.09	0.24	0.16	0.36	1.14	1.26	1.38	1.52
	Assistance	-	-	-	-	-	-	-	-	-
	Miscellaneous financial loss	-	-	-	-	-	-	-	-	-
	Life portfolios	0.00	0.00	0.00	5.00	6.00	7.00	8.00	9.00	10.00
	<b>Total*</b>	29.57	42.24	107.45	177.85	268.51	563.02	619.62	681.78	750.06

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Image 14: RAL four Vectors

**Opening Risk Adjustment**

Life UWR									
<i>Confidence</i>	85	85	85	85	85	85	85	85	85
<i>Actuarial</i>	1	2	3	4	5	6	7	8	9
<i>plf/currently/</i>									
<i>LRC-LIC ID</i>									
<i>Actuarial plf</i>	Pool1	Pool1	Pool2	Pool3_NLA	Pool 4				
<i>Name</i>									
<i>Business</i>	Life	Life	Life	Non Life	Life				

**Portfolio transferring and change in perimeter**

Life UWR									
<i>Confidence</i>	85	85	85	85	85	85	85	85	85
<i>Actuarial</i>	1	2	3	4	5	6	7	8	9
<i>plf/currently/</i>									
<i>LRC-LIC ID</i>									
<i>Actuarial plf</i>	Pool1	Pool1	Pool2	Pool3_NLA	Pool 4	Pool5			
<i>Name</i>									
<i>Business</i>	Life	Life	Life	Non Life	Life	Life			

**Model changes/refinements - Impact on futures service**

Life UWR									
<i>Confidence</i>	85	85	85	85	85	85	85	85	85
<i>Actuarial</i>	1	2	3	4	5	6	7	8	9
<i>plf/currently/</i>									
<i>LRC-LIC ID</i>									
<i>Actuarial plf</i>	Pool1	Pool1	Pool2	Pool3_NLA	Pool 4	Pool5			
<i>Name</i>									
<i>Business</i>	Direct business	Direct business	Accepted	Direct business	Direct business	Direct business			

**Closing Risk Adjustment**

Life UWR									
<i>Confidence</i>	85	85	85	85	85	85	85	85	85
<i>Actuarial</i>	1	2	3	4	5	6	7	8	9
<i>plf/currently/</i>									
<i>LRC-LIC ID</i>									
<i>Actuarial plf</i>	Pool1	Pool1	Pool2	Pool3_NLA	Pool 4	Pool5	Pool1_NBQ1	Pool1_NBQ1	Pool5_NBQ1
<i>Name</i>									
<i>Business</i>	Direct business	Direct business	Accepted	Direct business	Direct business	Direct business	Direct business	Direct business	Direct business

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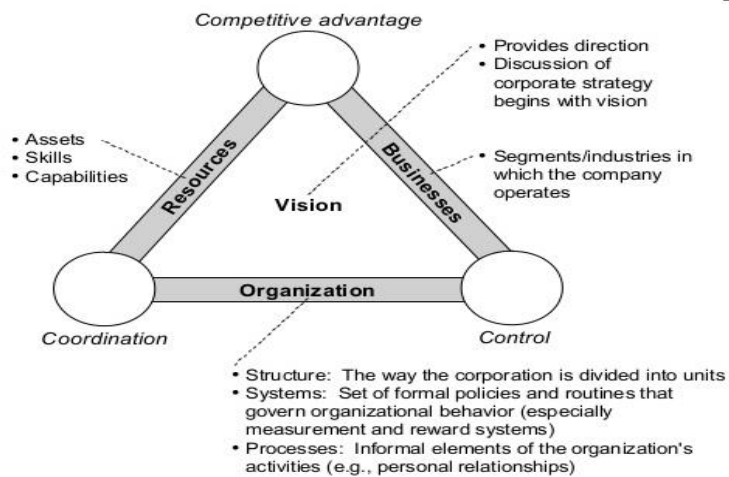
Image 15: RAL Final computation

Opening Risk Adjustment							
Life UWR							
Confidence level	85	85	85	85	85	85	85
PTF ID	SK999_A_L_D_ACCLD1_2018_SK999_A_L_D_ACCI	SK999_A_L_D_ACCI	SK999_A_L_D_ACCI	SK999_A_N_D_ACC	SK999_A_L_D_ACCI	SK999_A_L_D_ACCLD1_2019_POOLS_T	
Actuarial ptf/currenty/LRC-LIC ID	1	2	3	4	5	6	7
Actuarial ptf Name	Pool1	Pool1	Pool2	Pool3_NLA	Pool 4		
Business segment	Life	Life	Life	Non Life	Life		
Business type	Direct business	Direct business	Accepted	Direct business	Direct business		
Risk Adjustment							
NSLT Health	0.0	0.0	200.0	0.0	0.0		
SLT Health UWR	1,602.2	352.5	1,890.6	0.0	1,121.5	0.0	0.0
Health CAT	400.0	88.0	472.0	0.0	280.0		
DIV Health	1,745.7	384.1	2,169.9	0.0	1,222.0	0.0	0.0
Operational	0.0	0.0	0.0	0.0	0.0		
Level 1 RA	3,290.0917	723.8202	3,961.3779	1,313.9254	2,303.0642	0.0000	0.0000
Level 2 RA	3,166.7181	696.6780	3,812.8320	1,264.6551	2,216.7026	0.0000	0.0000
Exchange rate	Eur USD	Eur USD	Eur USD	Eur USD	Eur USD	Eur USD	Eur USD
	100.00%	70.00%	100.00%	100.00%	100.00%	100.00%	100.00%

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Image 16: The Triangle of Corporate Strategy

THE TRIANGLE OF CORPORATE STRATEGY (1/2)



Source: Collis and Montgomery, 1998

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Image 17: **Insurance company geographical presence**



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Image 18: Company financial key 2019 at a glance

	FY18	FY19	Δ (LFL <sup>1</sup> )
<b>VOLUMES</b>			
Gross written premiums (Euro m)	66,691	69,785	+4.3%
of which Life	46,084	48,260	+4.5%
of which P&C	20,607	21,526	+3.9%
Life Net Inflows	11,369	13,632	+19.6%
<b>PROFITABILITY</b>			
Operating results (Euro m)	4,857	5,182	+6.9%
Operating RoE	11.3%	12.4%	+1.1 pts
Net result (Euro m)	2,309	2,670	+15.7 %
New Business Margin (PVNBP)	4.35%	3.89%	-0.49 pts
Combined Ratio	93.0%	92.6%	-0.4 pts
<b>CASH &amp; DIVIDENDS</b>			
Net operating cash generation (Parent view, Euro m)	1,952	2,142	+9.7%
Dividend per share (Euro)	0.90	0.96	+6.7%
<b>CAPITAL</b>			
Shareholder's equity (Euro m)	23,601	28,360	+20.2%
Solvency II ratio Regulatory view	217%	224%	+8% pts

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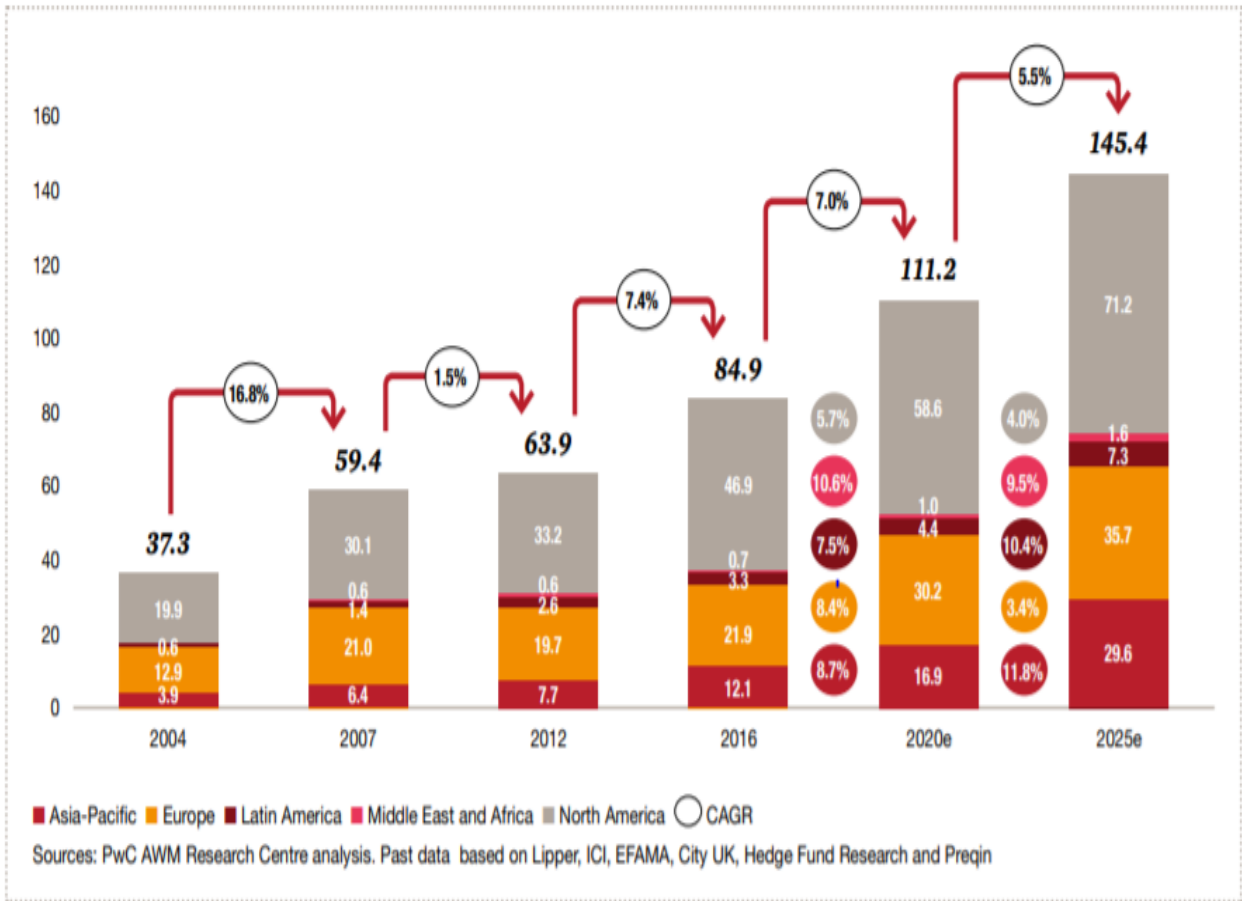
Image 19: Financial results per region: Italy

ITALY

Gross written premiums	Total operating result	Our people
<b>€ 24,166 mln</b>	<b>€ 1,772 mln</b>	<b>13,150</b>
Life market share	P&C market share	Ranking
<b>17.3 %</b>	<b>14.1 %</b>	<b>1<sup>ST</sup></b>

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Image 20: Asset & Wealth Management progresses



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## Image 21: Asset & Wealth Management progresses: Insurance Industry

**Figure 1: Total client assets in USD trillion**

Clients	2004	2007	2012	2016	2020e	2025e	CAGR 2016-2025e
Pension funds	21.3	29.4	33.9	38.3	53.1	64.6	6.0%
Insurance companies	17.7	21.2	24.1	29.4	38.4	44.7	4.8%
Sovereign wealth funds (SWF)	1.9	3.3	5.2	7.4	10.0	13.6	7.0%
HNWI	37.9	50.1	52.4	72.3	93.4	119.9	5.8%
Mass affluent	42.1	55.8	59.5	67.2	84.4	102.2	4.8%
<b>Total client assets</b>	<b>120.9</b>	<b>159.7</b>	<b>175.1</b>	<b>214.6</b>	<b>279.3</b>	<b>345.0</b>	<b>5.4%</b>
Global AuM	37.3	59.4	63.9	84.9	111.2	145.4	6.2%
Penetration rate	30.9%	37.2%	36.5%	39.6%	39.8%	42.1%	0.7%

Sources: PwC AWM Research Centre analysis. Past data based on Lipper, ICI, Prequin, Hedge Fund Research, EFAMA, City UK, Insurance Europe, Financial Stability Board, Credit Suisse, Towers Watson, OECD and World Bank.

Note: Foundations and Endowments assets were not included as their total global assets represent less than 1% of all client assets.

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