How has Italian insurers' asset book value evolved from 1998 to 2012?

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Abstract: This research aims to analyse the dynamics of the book value of assets of a cross-section of Italian insurers in a medium/long period of time (from 1998 to 2012), correlating this with Italian nominal GDP. Subsequently, to permit more in-depth investigation of these dynamics, the research, based on a quantitative method, moves from an analysis of the absolute values to analysis of the rates of change of the assets book value with those of the Italian GDP. Lastly, for more analysis, attention has been focused on certain assets considered particularly significant. In this way, this research correlates macroeconomic variables with some of the most important financial variables (assets) in a medium/long period of time, that cover years both before and after the global crisis that started in 2007. This study may offer interesting suggestions both at theoretical and practical levels, mainly for managers (who frequently base their decisions only upon short-time data) and potential long-time investors.

Keywords: Italian insurance; balance sheet; GDP; technical provisions; liabilities; investment; Italy.

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1 Introduction

Similarly to any other company, insurers maintain relationships with the surrounding environment and can be represented by an 'input-output' model (Ferrero, 1987) according to which they obtain a set of inputs from the environment, consisting of factors of production, constraints and conditions and, through a process of transformation, generate a set of outputs. Together with banks, financial intermediaries and credit institutions, insurers form part of a so-called 'financial system'. The financial system links the entire economic system through financial relations (Onado, 2000). Within this system, insurers carry out their business according to a different methodology. In fact, in the insurance sector, the production cycle is inverted, i.e., they first of all sell their insurance products and then furnish the related services, incurring typical costs through payment of claims and payment of benefits in the form of annuities or payment of a capital sum.

This difference in their production cycle, compared with an industrial enterprise, has repercussions on all management aspects (Marchionne, 2006) of both non-life or life business. In fact, insurers may provide non-life and life coverage.

In non-life business, the insurance contract transfers a risk (so-called 'pure risk') from the insured to the company. Non-life business is usually divided into:

- personal insurance, offering protection against the risks of personal accident or illness
- property insurance, offering protection of property against various risks (fire, theft)
- liability insurance, offering protection against any reimbursements that the insured may be required to pay for third party damages.

In life business, the insurer promises to pay the insured a benefit in the form of an annuity or a capital sum on occurrence of a specific event affecting the life of the insured. Life insurance products generally cover pension schemes, protection, savings and investment.

This research aims to analyse the dynamics of the book value of assets of a cross-section of all Italian insurers between 1998 and 2012, correlating this with Italian nominal GDP in the same period. Subsequently, to permit more in-depth investigation of these dynamics, the research moves from an analysis of the absolute values to analysis of the rates of change of the book value of assets of the insurers included the sample with those of the Italian GDP. Lastly, for more detailed analysis, attention has been focused on certain items of assets considered particularly significant.

Regarding the methodology, the research is a quantitative one, based upon the positivistic paradigm, collecting and converting data into numerical form so that statistical calculations can be made and conclusions drawn.

More specifically, this research adopts a slightly different approach with respect to previous studies proposed in literature as regards empirical profile. More specifically, the

study has been carried out on a section of the balance sheet of insurers that is not frequently analysed and considering a much broader time frame. This has made it possible to highlight changes in the balance sheet items analysed following modifications in the external environment in the same period. In particular, this period was affected by a far-reaching worldwide crisis involving, in particular, the financial sector and, consequently, also companies operating on the Italian market. The sample considered is particularly representative as it comprises all insurance companies operating in Italy, both listed and unlisted.

The originality and the value of this research relies on the attempt to analyse in a long period of time (going beyond short period cycles) both macroeconomics and financial variables in a specific sector (insurance industry). Moreover, we focused our attention on one particular aspect of this sector that is the assets side of the companies.

This research may have many different implications, both at theoretical and practical levels. From a theoretical perspective, this study can be useful to understand better insurance companies' behaviour in medium/long-term. On the other hand, this research has practical implications both for managers, as it focuses attention on the dynamics of medium and long-term (while very frequently managers' decisions are driven by short-time variables), and for potential investors in the insurance sectors, as it suggests some points to understand the long-time period dynamics.

The main limits of this research can be considered the following:

- the need to consider not only the insurance sector, but also other companies of the entire financial sector (at least including the banking sector)
- the importance of comparing the Italian situation with that of other EU countries in order to verify similarities and differences.

2 Literature

In addition to banks, credit and financial intermediaries, the financial system also comprises insurers (Forestieri and Mottura, 2000) which have always been studied from many different angles. One of the main issues addressed by academics is the risk factor inherent in insurance business (Di Cagno and Adamo, 2000); in fact, final consumers transfer any negative economic effect of a specific risk to insurers (Bertini, 1987; Hedges, 1963). Certain researchers have, therefore, addressed and investigated theoretical models for optimisation of risk management at insurance companies (Browne, 1995; Cummins and Sommer, 1996; Fleming and Zariphopoulou, 1991) or developing an assets/liabilities management model using multistage stochastic programming able to determine an optimal investment strategy such as to permit correct definition of risks by insurers' governance structure (Carino et al., 1994) with problems also tied to reinsurance (Cao and Wan, 2009; Zhang and Siu, 2009).

National and international regulations have attempted to control and monitor the many risks inherent in insurance business. Controls applied on the insurance market have focused in particular on relationships between risk and solvency, reflected in the Solvency project and its last update, Solvency II, now being completed (Wagner, 2014; Schumacher and Barnhill, 2011). This issue has been investigated from several viewpoints (Gryglewicz, 2011; Sherris, 2006; Butsic, 1994), dedicating particular attention to insurers' economic capital, i.e., Solvency Capital Requirements, and many

observers have focused on evaluating insurers' balance sheets to verify compliance with the necessary capital requirements (Meyers, 2003; Mildenhall, 2002; Meyers and Read, 2001); the financial stability of insurers between different continents has also been verified (Siegel, 2013). Other studies have generally addressed insurers' balance sheets from the point of view of international (Floerani, 2008; Focarelli and Doni, 2006) and national (Bocchino et al., 2012; Cameran, 2000; Selleri, 1991) accounting standards. Others have concentrated on the way in which certain balance sheet items of insurers have been influenced by reporting or fiscal objectives (Gaver and Paterson, 2010) or by underestimation of technical provisions on the balance sheet (Petroni, 1992) or verifying the adequacy of reserves (liability adequacy test) (Giovando, 2006). Various observers have examined the relationship between a series of stochastic models used by insurers and the dividend distributed by these to their shareholders (Haili and Yijun, 2010; Lin et al., 2003; Taksar, 2000).

Our analysis concentrates on items of assets on the balance sheet of Italian insurers. Many studies of the business world have examined the relationship between balance sheet items and economic data or macroeconomic variables. At the start of the 1990s, (Gibrat, 1931) highlighted a relationship between growth and firm size; subsequently (Storey, 1994) included amongst the fundamental variables for analysis of a company, i.e., growth and performance, also size and age and the total assets variable as proxy for measuring the size of the company is used for 'modern companies' (Chen and Jaggi, 2000). However, none of these types of analyses has been carried out at insurers in the period considered. More specifically, our research considers the period 1998 to 2012, a broad time horizon that makes it possible to overcome short-term business cycle trends, and a sample of the entire Italian insurance sector, generating incremental results compared with existing literature from an empirical point of view. Consequently, the results obtained provide a 'snap-shot' of the economic situation of insurers.

3 Methodology

This study addresses certain elements of the balance sheet of Italian insurers, observed in the period between 1998 and 2012. This period selected represents one the most significant aspects of this study as, covering a time frame of 15 years, it permits representation of the phenomena irrespective of short-term economic trends and captures more in-depth structural dynamics. The data refer to the entire universe of Italian insurers, the number of which obviously varies over the years. For 2012, 235 insurers have been considered. Various comparisons have also been made with the universe of European insurers. The balance sheet data used are the aggregate data of the entire sector. The data of the balance sheets and of other insurance sector indicators have been taken from Associazione Nazionale fra le Imprese Assicuratrici (ANIA), Istituto per la Vigilanza delle Assicurazioni (IVASS) and European Insurance and Reinsurance Federation (CEA) databases, suitably integrated with data taken from the statutory accounts of the main insurers. Other data have been obtained mainly from Istituto Nazionale di Statistica (ISTAT) and EUROSTAT.

For this purpose, our main hypothesis is based on the consideration that the business of Italian insurers, according to the type of activity carried out, is substantially 'rigid' over the years and, compared with macroeconomic variables such as GDP, tends to

conform with these. Subsequently, it has been considered interesting to verify the composition of the book value of assets of insurers and how this has changed in the period considered. The schedule of the balance sheet – assets of insurers reflects items characterised by an increasing level of liquidity and collectability for both non-life and life business. the classification of items of the 'balance sheet – assets' section envisages a distinction between 'durable fixed assets' and 'non-durable fixed assets' whereby the former comprise assets held for the purpose of continued use in the business of the company consistently with company management strategy in accordance, therefore, with certain assumptions concerning long-term use (the investments set forth in class B 'intangible assets', CI 'land and buildings' and CII 'investments in group companies and other shareholdings' are considered to be durable fixed assets).

Debtors (receivables) are not classified according to a time criterion as in any other type of balance sheet but according to the nature of the transaction and related counterparty, making an initial distinction between debtors arising out of direct insurance operations (or direct business) and debtors arising out of reinsurance operations (inward reinsurance) followed by a subsequent distinction according to counterparty, i.e., insureds, intermediaries, insurance companies and reinsurers. The condensed balance sheet of an Italian insurance company (according to Italian GAAP) is shown in Table 1 indicating only the macro-classes.

Table 1 Condensed balance sheet of an Italian insurance company

Assets		*Liabilities and equity*	
A	Amounts owed by shareholders	A	Capital and reserves
B	Intangible assets	B	Subordinated liabilities
C	Investments	C	Technical provisions
D	Investments to the benefit of life policyholders who bear the investment risk and deriving from management of pension funds	D	Technical provisions for investments to the benefit of life policyholders who bear the investment risk and deriving from management of pension funds
D Bis	Technical provisions borne by the reinsurers	E	Provisions for risks and charges
E	Amounts owed by debtors	F	Deposits received from reinsurers
F	Other assets	G	Debts and other liabilities
G	Accruals and deferred income	H	Accruals and deferrals

Source: According to Italian GAAP

The research has been carried out in the following phases:

- Phase 1 – definition of the aims of the research and review of literature on the dynamics of the book value of assets of insurance companies.
- Phase 2 – analysis of the aggregate accounts of Italian insurers, with particular attention to the dynamics of the book value of assets compared with the trend of Italian GDP.
- Phase 3 – within the dynamics of the book value of assets, analysis of two groups of specific items: investments and reinsurers' share of technical provisions. These two items have been considered specifically because of the following reasons:

1 investments represent the most significant and relevant item among the assets of any insurance company
2 investments that face technical provisions are a specificity of the insurance sector
3 investments and reinsurers' share of technical provisions are assets deeply affected by managers' decisions.

- Phase 4 – analysis and interpretation of the data.

4 Major findings

The first phase of the study was dedicated to analysing the dynamics of the book value of assets over the 15 years considered. As seen in the review of literature, the book value of assets is commonly used as proxy of firm size. Between 1998 and 2012, the aggregate variable 'total assets', aggregated for all the Italian insurers studied, showed a marked growth trend, in nominal terms, with an almost threefold increase in value between the start and end of the period considered (+182%). The mean annual growth rate was 7.15%. The only two years in the entire period considered in which total assets decreased were 2007 and 2008 when the international crisis made its effects felt at international level (summer of 2007 with the sub-prime crisis mainly on the US market, summer/autumn 2008 with numerous bailouts of banking and insurance colossus (the case of AIG, according to Forbes 2000 the sixth world-wide insurance colossus, whose stock slumped by more than 40% in 2008 can be considered emblematic), the shrinkage of the stock market (on September 15th 2008 the Dow Jones index closed down just over 500 points, marking the largest drop from the period immediately after the September 11th attacks) and the Lehman Brothers bankruptcy (Grynbaum, 2008).

To discover the factors that affects the trend of the 'book value of total assets' variable of Italian insurers, an initial significant comparison can be made with nominal GDP.

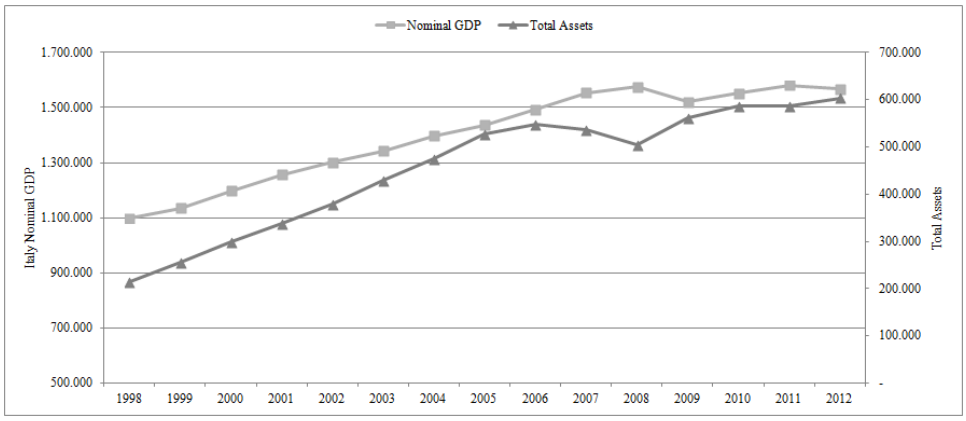
The graph highlights a noteworthy similarity between the trends of total assets of Italian insurers and Italian GDP. In particular, it can be seen that the trend of insurers' total assets apparently 'anticipates' GDP dynamics by around one year. This prompts a number of preliminary considerations. Firstly, as it is not possible to establish a direct cause-effect relationship between the two variables, the most plausible hypothesis for interpretation would seem to be that both variables depend on the macroeconomic and business cycle context. In other words, both variables (the 'size' of the insurers and Italian GDP) depend on an articulated, complex set of economic variables that constitute a 'proxy' of the situation of the economic system. By definition, albeit not without contestations and problems, a country's GDP is used as synthetic macroeconomic indicator to represent its 'state of health' (amongst others, a country's GDP also comprises the insurance sector although in terms of revenues and not of insurance assets; in other words, considering a country's GDP as the sum of the values added of all undertakings operating in a given economic system (Castellino, 2002).

Secondly, the fact that insurers' assets reflect the dynamics of GDP one year in advance could suggest that the financial and insurance market reacts more 'quickly' to changes in the economic context compared with GDP which, insofar as a global

macroeconomic indicator of the real economy, is structurally 'slower' in reflecting inversions of cycle as it considers the universe of all the production activities of an economic system (including industrial activities and those that, as opposed to services and in particular the financial sector, react more slowly to changes in demand. Consider, for example, the necessarily longer reaction times in terms of acceleration or slowing of the production activity of a large industrial enterprise that may also have backlogs of orders to be filled and work in progress).

Thirdly, the 'anticipatory capacity' of the size variable of insurers, which must necessarily be investigated in more depth in more specific, dedicated studies, could be used to forecast economic trend, as is the case in other sectors and categories (for example, luxury goods often used as economic cycle 'indicators').

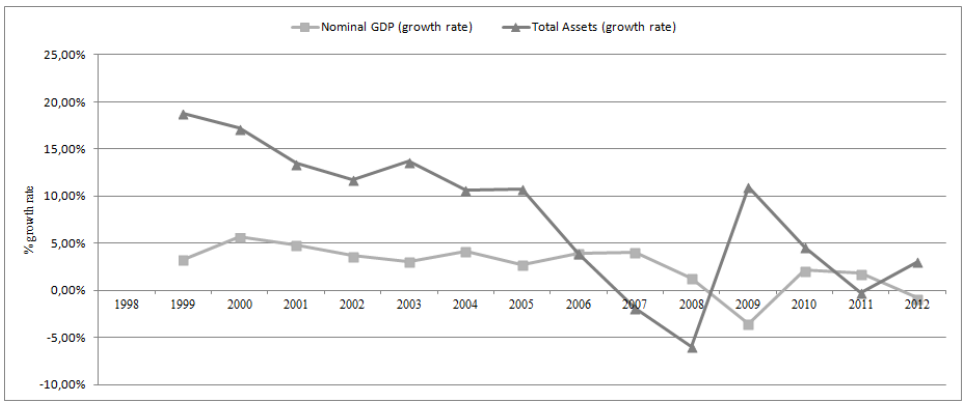
Figure 1 Nominal GDP and total assets evolution



Source: Personal elaboration on ANIA

For more in-depth observation of the dynamics considered, it is useful to move from examining absolute values to rates of change. Comparing the rates of change of the book value of assets of Italian insurers with those of Italian GDP, it is possible to observe the following dynamics.

Figure 2 Nominal GDP and total assets growth rates



Source: Personal elaboration on ANIA

As opposed to the long-term growth rate revealed by examining the absolute values, the rates of change of total assets of Italian insurers show an evident downturn between 1999 (compared with 1998) and 2008, a 'rebound' in 2009 and then a further decline in subsequent years.

The rate of change of insurers' total assets is characterised by much greater volatility than GDP. This is fairly evident considering that GDP is a much broader indicator that reflects the dynamics and changes in the entire economic system. Insurers' assets are, therefore, much more 'dynamic' and tend to amplify economic changes.

Also in terms of rates of change, the around one year anticipation of total assets in relation to GDP is confirmed. The decline in GDP between 2007 and 2009 is in fact anticipated by total assets between 2006 and 2008, with a 'rebound' in 2009 (corresponding to the upswing in GDP in 2010).

To permit more in-depth analysis, the third phase of the research focused on certain items of the book value of assets of insurers considered particularly significant, i.e., investments and reinsurers' share of technical provisions. These two specific items have been selected as they represent two of the most important and relevant items of the asset side of any insurance company balance sheet. As is known, the balance sheet of an insurance company reflects the typical nature of insurance business, for example, with regard to the so-called 'inverted cycle' phenomenon deriving from the fact that revenues are anticipated compared with costs. On the one hand, this involves recording of 'technical provisions' under liabilities and, on the other, stresses the importance of the book value of investments used to 'cover' provisions. Therefore, the dynamics of the book value of investments of an insurance company reflect the company's asset management decisions regarding coverage of technical provisions, i.e., commitments assumed towards insured's. It must be stressed that, as the insurance sector is strictly regulated, the criteria adopted regarding investments covering technical provisions are not entirely at the discretion of the company and must comply with various requirements imposed by the regulator that are usually reflected in three conditions: liquidity (variable according to the type of insurance, as it is evident that the liquidity requisite must be weighted according to the specific characteristics of the type of insurance whereby, for example, for life business, it will be determined in a different measure from non-life business), profitability and safety.

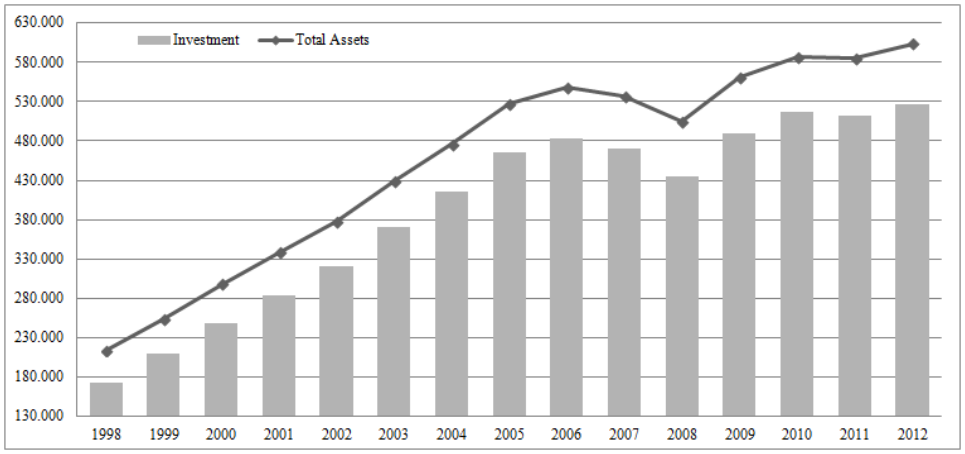
Another specific aspect of insurance business concerns the dynamics of the reinsurance phenomenon, according to which part of the risks are 'ceded' to other insurers, i.e., to specific reinsurers. The impact of this activity on the balance sheet concerns the recording under assets of provisions corresponding to portions of risk ceded in reinsurance. Therefore, the trend of the reinsurers' share of technical provisions reveals the dynamics and behaviour of insurers with regard to cession of risks in reinsurance. The investments and, subsequently, provisions ceded in reinsurance are examined and commented on below.

Examining the trend of investments, it can be observed that these reflect to a significant extent the trend of total assets, thereby confirming that these are the main, most significant item of assets on the balance sheet for an insurance company.

This means that the dynamics of total assets significantly reflect the dynamics of total investments (in other words, the other items of assets assume a secondary character) which, in turn, reflect the dynamics of technical provisions, i.e., of commitments assumed towards insureds in force at the end of the year.

In 2012, total investments of Italian insurers represented 87.3% of total book value while, 15 years ago (in 1998), they represented 'only' 80.6%. Therefore, although in absolute terms the other items of assets have increased in amount, their percentage weight has decreased. Therefore, investments reflect the dynamics highlighted previously with regard to considerations on the trend of the book value of total assets.

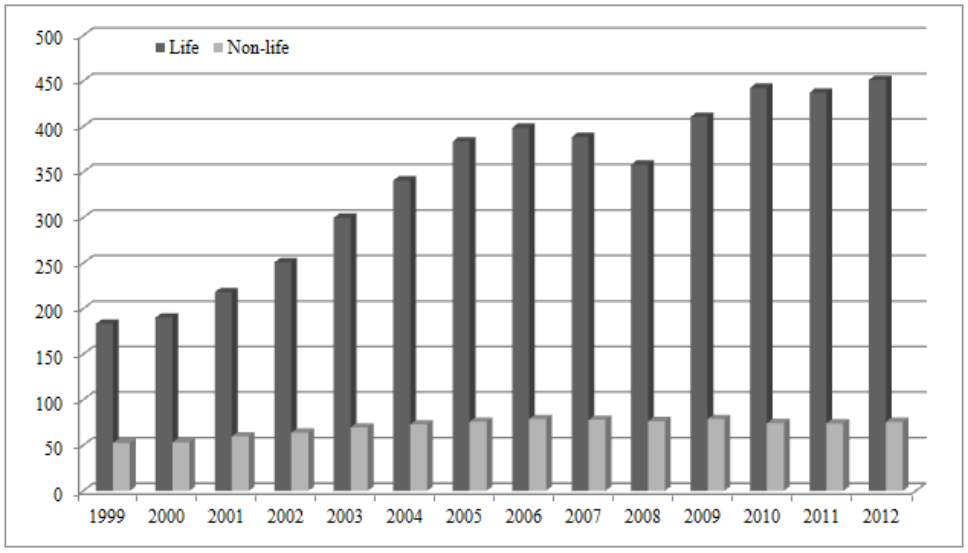
Figure 3 Total Italian insurers' investment portfolio (€m)



Source: Personal elaboration on ANIA

However, it is interesting, within the category of investments, to distinguish between the part of investments covering commitments under life contracts from those covering the non-life segment.

Figure 4 Life vs. non-life insurers' investment portfolio (€b)



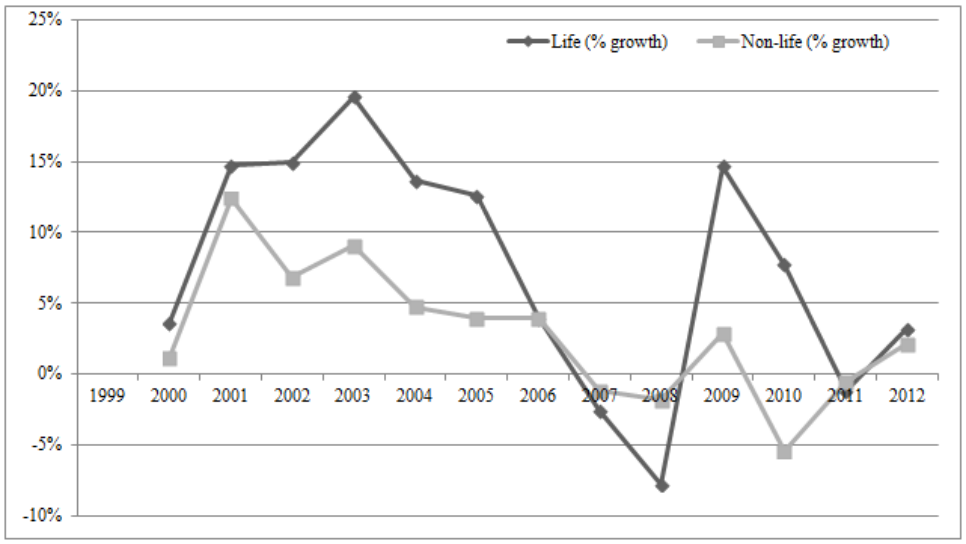
Source: Personal elaboration on ANIA

Various interesting conclusions can be drawn from the graph of life and non-life investments (processing of ANIA data). Firstly, the growing weight of life business investments that reflects an expansion of this type of business (in particular in Italy but not only), also spurred by pension system reforms and greater sensitivity to private pension schemes (so-called 'second and third pillar'). While, in 1999, the ratio between the life business and non-life business investments was equal to 3.5, in the last three years (2010 to 2012) life business investments have, on the average, been equal to six times those of non-life business.

Also, the dynamics of non-life investments seem to be less accentuated compared with life business that, apparently, reflects to a greater extent the dynamics highlighted previously with regard to the trend of total assets and GDP. Between 1999 and 2012, non-life investments increased by 44% compared with an upswing of 146% in life business. To investigate this latter aspect, it may be interesting to analyse the annual growth rates of investments according to business line.

Figure 5 shows and confirms that the growth rate of non-life investments is mainly constantly lower than that of life business, with less marked fluctuations. Therefore, life business, also presumably due to the different type of investments and time horizon (longer in life business), is decidedly more 'volatile' compared with the greater stability of other business lines. This is evidently consistent, as already mentioned, also with the specific characteristics and differences between life and non-life business, characterised by different time horizons, expected returns and risk profiles.

Figure 5 Life and non-life insurers' investment portfolio growth rate



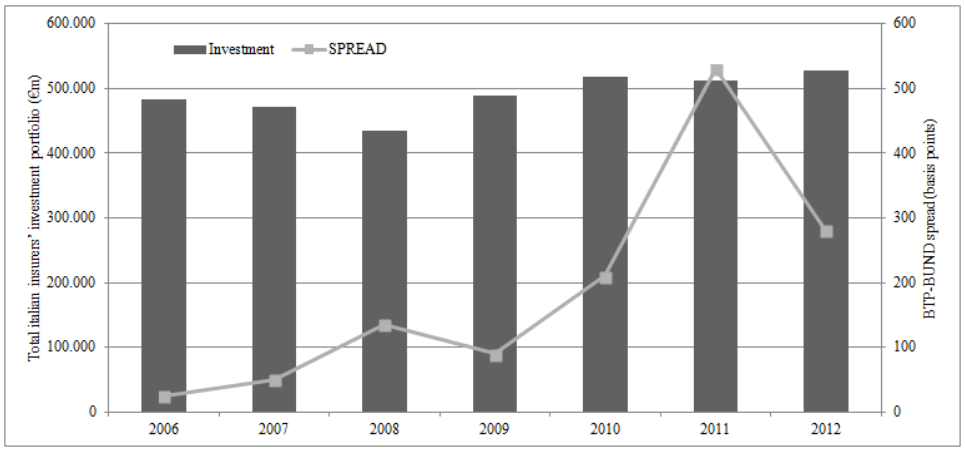
Source: Personal elaboration on ANIA

The sharp downswing in 2007 and 2008 was forged by two main causes: the fall in stock markets triggered in the second half of 2007 and the rise in sovereign yields (as is known, as sovereign bond yields increase, the price of the stock decreases).

To assess the impact of the sovereign debt 'crisis', in particular that of Italy, it may be useful to compare the trend of Italian insurers' investments and that of spread between

Italian ten-year BTP and German bunds maturing on the same date. This spread (expressed in basis points) is commonly used to measure market 'perception' of the sovereign risk of a country (in our case, Italy). The values indicated in Figure 6 refer to the values of BTP-Bund spread at year end. As can be noted, although Italian insurers' investments mainly comprise bonds and fixed-income securities, no significant relationship is revealed (at least by an analysis of this type) between the trend of spread and the total value of investments. In fact, an increase in spread is accompanied by a decline in value (market price) of government bonds. A reasonable hypothesis for interpretation (to be verified through more extensive analysis) could be that insurers have increased their purchases in order to 'offset' the reduction in the market value of sovereign bonds. In this way, the total value of investments (in Euro) would not have been affected by significant variations.

Figure 6 Total Italian insurers' investment portfolio (€m) and BTP-BUND spread (basis points)



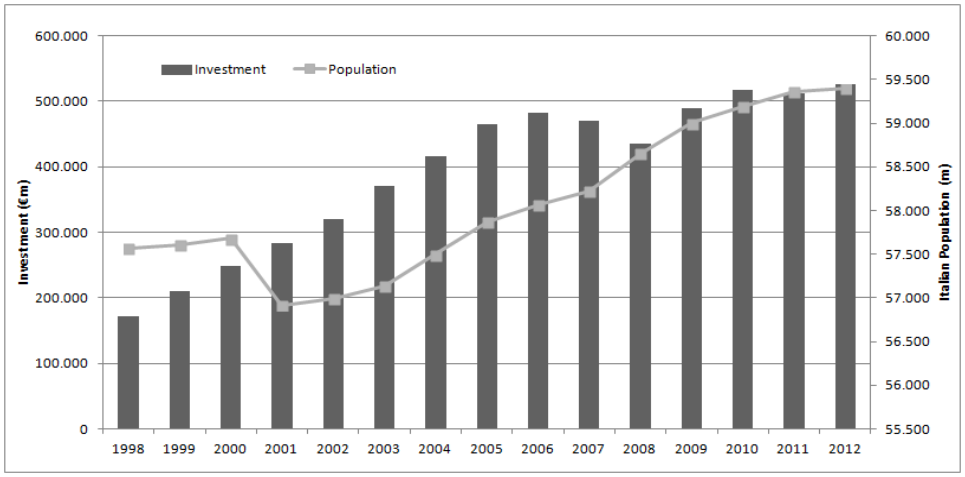
Source: Personal elaboration on ANIA, ISTAT, Bloomberg

Furthermore, there is apparently no significant relationship between the trend of Italian insurers' investments and that of the Italian population (in the graph above, the value of the Italian population refers to December 31 of each year). Although insurance business is correlated with demographic trend (especially as regards life business but also to a lesser extent for non-life business), the data, especially in the last ten years, do not, apparently, highlight a particularly evident link. In fact, in the last 12 years, the Italian population has been characterised, substantially, by continuous, constant growth. However, such dynamics, as highlighted previously, are not apparently reflected in insurers' investments.

A further interesting comparison can be made analysing the trend of insurers' investments at European level. According to Insurance Europe data (the European insurance and reinsurance federation) which cover an even longer time frame (20 years, from 1993 to 2012 inclusive), a completely similar trend to that of Italian companies can be observed, leading to two main considerations. The first is that the trend of Italian insurers' investment portfolios is similar and aligned with that of other European companies. The second consideration is that, presumably, the factors that have generated certain dynamics in Italian insurers' investments are the same as those that have determined the same dynamics at European level. In other words, the 'causes' of the

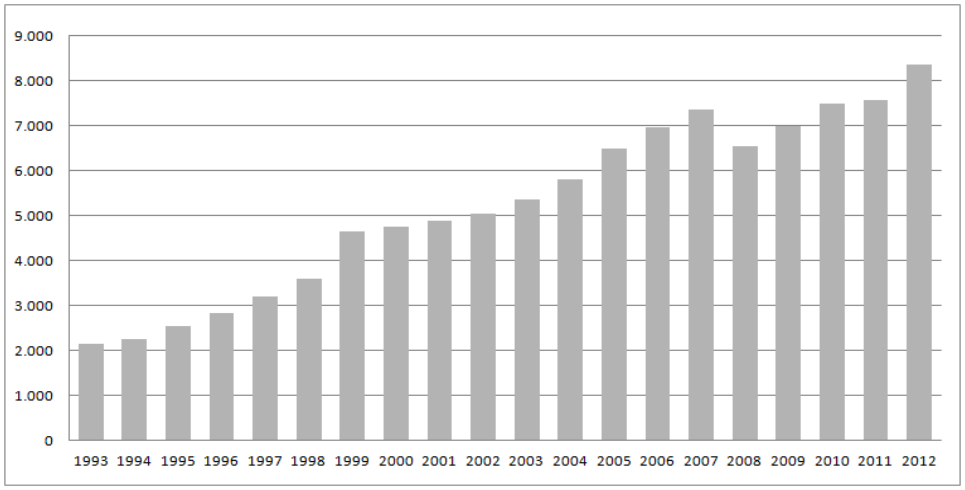
trends highlighted here cannot be attributed to national dynamics or exclusively to the Italian context, but to an international macroeconomic perspective, of at least European but also reasonably much broader scope.

Figure 7 Total Italian insurers' investment portfolio (€m) and Italian population (m)



Source: Elaboration on ISTAT and Insurance Europe Datas

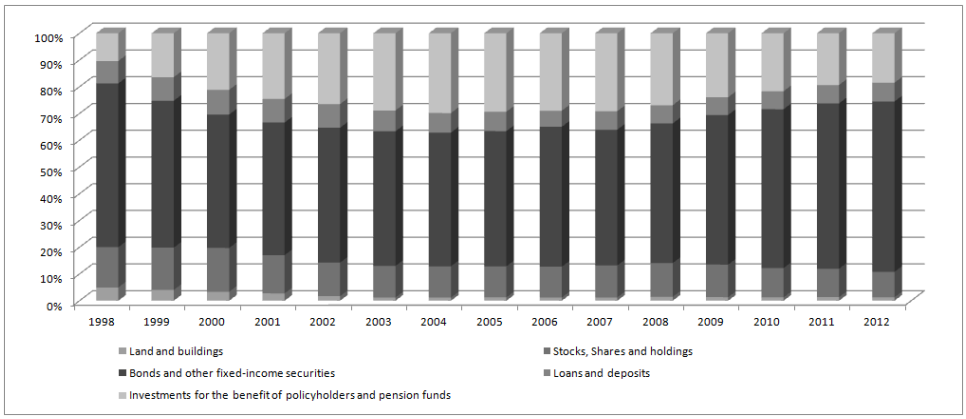
Figure 8 Total European insurers' investment portfolio (€bm) from 1993 to 2012



Source: Insurance Europe, February 2014

Moving to a further level of detail, the structure of Italian insurers' investment portfolios is analysed. As can be noted, insurers invest the largest proportion of their portfolio in debt securities and other fixed-income securities. This can also be ascribed to the indications and constraints of the Supervisory Authority and application of the principles of healthy, prudent management referred to above. However, certain dynamics, summed up in Figure 9, are particularly interesting especially if analysed in the time series of the period considered.

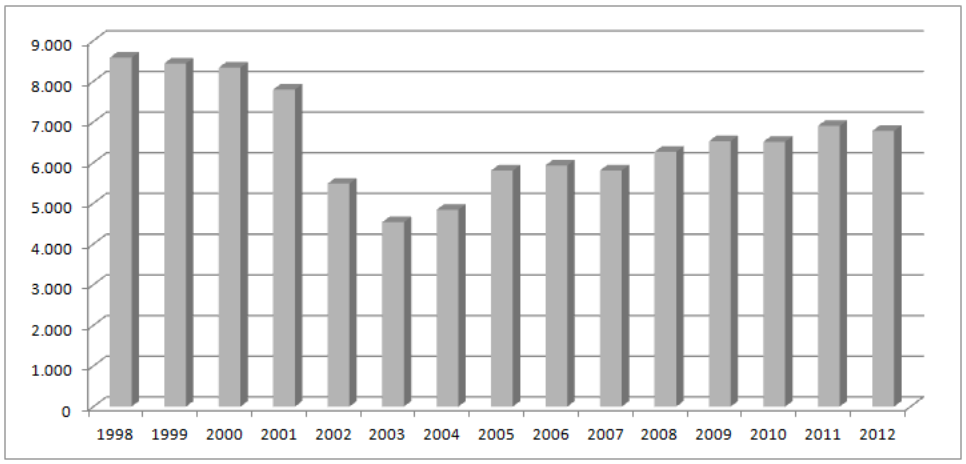
Figure 9 Structure of Italian insurers' investment portfolios from 1998 to 2012



Source: Personal elaboration on ANIA and Insurance Europe, February 2014

An initial significant consideration concerns the percentage decline in the weight of investments in tangible assets in the last 15 years and, in particular, in the 'land and buildings' category, which have moved from 5% (of total investments) in 1998 to 1.3% in 2012. This item comprises land and buildings intended for 'industrial' use, i.e., in the business of the company, and for residential use (for use by third parties). Real estate investments (e.g., high class properties for rental) have always been one of the most typical, traditional forms of investment widely used by Italian insurers, as these investments offered various 'guarantees' in terms of reduced risk (and in terms of changes in the value of the property and returns). However, the gradual, constant reduction over the 15 years considered is only in relative terms. The absolute trend of the book value of 'land and buildings' is more specific and is shown in Figure 10.

Figure 10 Land and buildings (€m)



Source: Personal elaboration on ANIA and Insurance Europe, February 2014

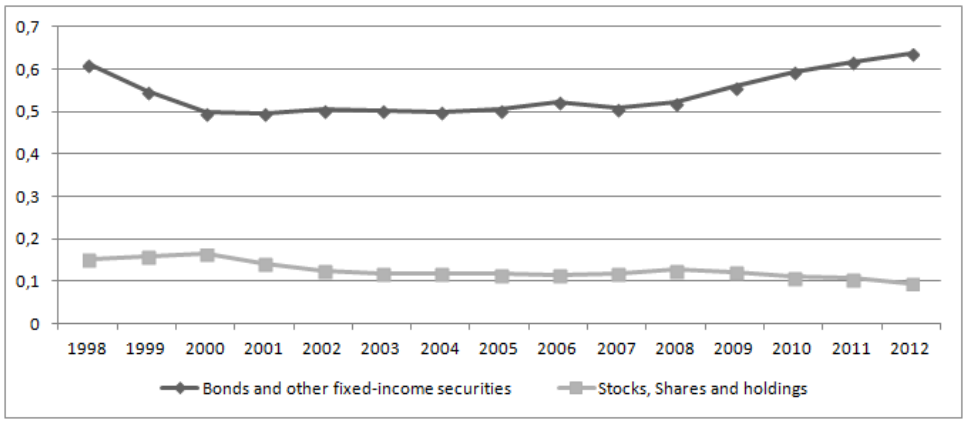
In the last 15 years, the minimum value was recorded in 2003, also in line with the trend of the real estate market. However, in 2012, in absolute terms, this item remained at a value around 20% lower than the maximum of 1998.

However, the most significant item of Italian insurers' investments in percentage terms is 'bonds and other fixed-income securities' which, in 2012, accounted for more than 60% of total investments. The percentage weight of this item has varied with a very different trend from that of 'land and buildings' and, as can be observed in the graph below, has been antithetical to that of stocks and shares. In fact, it can be noted that when the percentage of fixed-income securities in the portfolio decreases, that of full risk securities increases and vice versa. In the three-year period 1998 to 2000, the percentage of bonds in insurance portfolios has decreased, presumably due to expansion of equity markets and an increase in stock exchange prices. Vice versa, between 2001 and 2003, when the net economy and 'dot-coms' bubble burst, the percentage weight of shares decreased, accompanied by an increase in that of fixed-income securities. From 2007 onwards, with the financial and economic crisis, the percentage of bonds increased once again. Evidently, this percentage is affected by two factors: not only the 'quantity' of securities present in the portfolios of Italian insurers but also the change in their prices, in particular end of period 'write-downs' when the impairment in value is considered permanent.

The last item of assets on the balance sheet of Italian insurers examined concerns the reinsurers' share of technical provisions, i.e., the part of technical provisions ceded to reinsurers. In fact, for greater clarity, the gross amounts are stated in technical provisions under liabilities on the balance sheet, recording at the same time the quota of provisions corresponding to reinsurance cessions under assets.

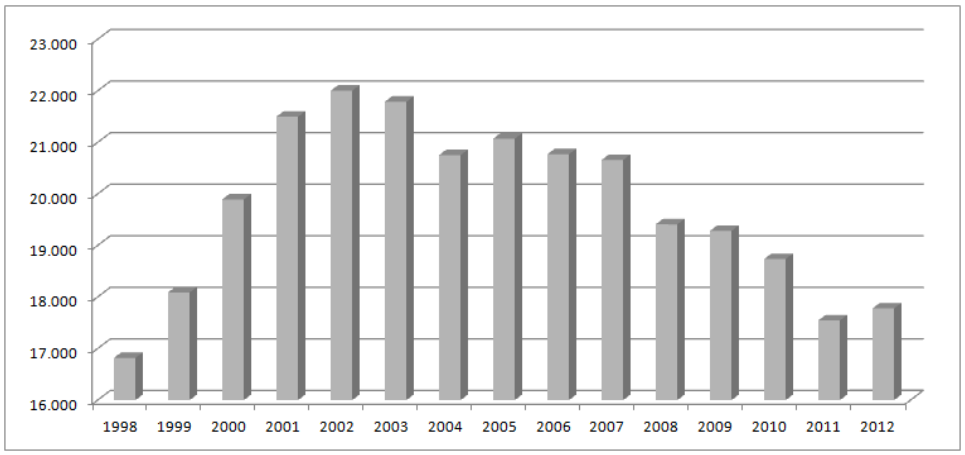
As can be noted from the graph, the trend of reinsurers' share of technical provisions in the 15 years considered by this study, increased considerably between 1998 and 2002, reaching the maximum value in the entire period considered. A decrease in 2004, followed by a short upswing in 2005, was followed by a trend decline that resulted, in 2011, in a level lower than that of 1999.

Figure 11 Investment portfolio percentage composition



Source: Personal elaboration on ANIA and Insurance Europe, February 2014

Figure 12 Technical provisions borne by reinsurers (€m)



Attempting a possible interpretation of this phenomenon, it could be assumed that Italian insurers, in the period of crisis from 2007 onwards, in an attempt to increase their earnings, maintained higher margins of risk inside the company and therefore reduced reinsurance cessions.

5 Conclusions

Between 1998 and 2012, the Italian insurance industry has shown that a close correlation exists between its firm size proxy and GDP. The period considered, intentionally broad in order to capture medium- and long-term trends, reflects very different, heterogeneous economic situations, ranging from a period of growth to a period of recession induced by the 2007/2008 economic-financial crisis.

Our analysis has revealed that the firm size proxy apparently anticipates the economic trend of GDP by around one year.

This would demonstrate, as opposed to the initial hypothesis, that the Italian insurance market adapts very quickly to the surrounding economic context and even anticipates this. This would indicate that the sector analysed is an important 'signpost' factor in anticipating the macroeconomic variables of the rest of the country. This could be explained by the fact that, insofar as an indicator of the global economy, GDP is structurally 'slower' in reflecting on-going changes compared with the insurance sector and probably the financial sector in general This is consistent with theories of rational expectations according to which, in the medium- and long-term at macroeconomic level, the expectations of stakeholders in the economic system tend to be correct. This can also be asserted with regard to the short-term; for this reason, our research considers, as already indicated above, a time horizon of 15 years that makes it possible to go beyond economic trends.

All the considerations regarding information furnished 'a priori' are also confirmed when analysing the growth rate of the book value of assets of the companies of the sample with Italian GDP.

Lastly, a more detailed analysis of the book value of investments in the period considered reveals that these are particularly significant as regards all assets on the insurance balance sheet. Inside the investments category, an analysis has been made of how investments covering life business exceed those relating to non-life business, thereby demonstrating the consequent increase in the life business of insurers. Also, correlating this with the demographic trend of the country, it has been seen that although the business of insurers is correlated with demographic trend, it does not seem to be particularly influenced by this. A reduction, in particular in percentage terms, in investments in tangible assets in the investment portfolio can be noted in the years considered.

The last consideration concerns the reinsurers' share of technical provisions that increased until 2002 and then declined constantly. Our interpretation of this phenomenon is that the crisis that occurred in these years induced insurers, in order to increase their earnings, to maintain increasingly higher portions of risk inside the company, ceding increasingly fewer risks to reinsurers.

The limitations of this research include, on the one hand, the need to verify impact on the entire financial sector, extending this at least to the banking sector while, on the other, it would be extremely useful to compare the Italian situation with that of other countries in and outside the Euro zone in order to verify similarities and differences.

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