

Solvency ii and a firm's financial performance report

[Business](#), [Company](#)



Abstract

This paper seeks to demonstrate the analytical process of determining insurance metrics by evaluating the effects or risks of location (country), type of industry and number of years on key financial metrics. This paper uses the Analysis of Variance approach to determine the effects of the above-mentioned variables on key financial metrics and identifies where these variables have an impact and where they do not. For simplicity, certain assumptions have been taken. These include the exclusion of the possible effect of sampling errors and the effects of other variables that have not been identified. In doing so, this paper focuses on the relationship between a particular variable and a financial metric. The relationship is measured using the F-statistic, the P-value and the R-squared value. These standard statistical calculations explain the differences of groups being examined and possible overlap between the observations.

The conclusion of this paper is that the identification and evaluation of risks and therefore the need for insurance and other financial safety nets is driven by various factors. The effect of these factors can be analyzed using statistical techniques and proven tools of analysis, by evaluating risk and profitability ratios. This paper focuses on determining possible insurance metrics using common profitability ratios such as total debt to total equity, net debt to total assets, times interest earned and return on cash and equivalent assets.

The results further suggest the validity of following the analytical process for important macroeconomic tasks such as crafting insurance policies or for specific business objectives such as determining risk factors.

Introduction

The Global Insurance Industry is foreseen to grow exponentially worldwide to a registered value of \$6. 1 trillion by way of insurance premiums by 2015.

Quicker processing methods, favorable demographics, technology, product innovation and new markets in Asia-Pacific would drive the global insurance growth. However, the biggest global insurance markets still are primarily the developed countries, such as Japan, the US, France, Germany and the UK.

The European market, being one of the largest insurance markets in the world, was a subject of interest in 2011. Europe offered financially stronger insurance markets last year, with an inflation rate of 1. 5% to 1. 6%.

European markets were showing signs of improvements in both equity and debt markets as well.

However, there are lingering questions on the European sovereign debt crisis, as well as macroeconomic conditions that will challenge insurers.

Recognizing this position, Europe is preparing for the implementation of the Solvency II program. The Solvency II program is a unified program for insurance industry players in Europe. The program will be adopted by all 27 European Union (EU) Members and three European Economic Area (EEA) countries. Solvency II will promote market consistent balance sheets; risk-

based capital; own risk and solvency assessment (ORSA); senior management accountability; and supervisory assessment.

Solvency II is also the biggest change in insurance regulation anywhere for the longest time. The program will have an impact on the forms of risk financing available, by renovating the framework that would demand more time and money from its people, the processes involved and the use of technology. According to the Financial Services Authority (FSA), an estimated £100 million will be needed to implement the new regulation. The roll-out period starts at January 2013 and people have been apprehensive already about how the program will be implemented.

Insurance companies have become more sophisticated in the last fifty years. Insurance companies now provide its clients more investment type of products and as a result is able to perform services that financial service companies can offer. Insurance companies are now keener towards financial performance of its clients as well, practicing financial analyses that are implemented by mutual funds and investment advisory firms.

The purpose of this paper is to examine the financial metrics that insurance companies typically examine when assessing risks. The information collected will be analyzed to address the question, is there an observable trend on key financial ratios across various industries that may serve as indicators to risk? For this purpose, we examine the following financial items:

Total assets

The choice of industry and the financial metrics selected were done so to demonstrate the usability of the analytical framework over all permissible data sets. In this instance, data from Middle Eastern companies were collated and organized. These figures are based on published data and are construed to be accurate.

Model

The ANOVA will be conducted using data collected from online resources. The standard calculation method shall be used in evaluating the data. A statistical package called StatPlus is employed to automate the calculations.

Medical industry

Electrical and power industry

Health care industry

Ship repairing and engineering industry

Business Holdings

Technology Industry

These companies are from the following countries:

An Analysis of Variance (ANOVA) is conducted to examine if there are differences between the groups being studied and if those differences are significant. The ANOVA table was calculated using a statistical package called “ StatPlus”. The results of the ANOVA tables for each analysis are shown in the succeeding section.

The volume of data collected and analyzed limits the analysis conducted. The selection of industries and the number of firms in these industries is kept to a minimum. If the number of firms and industries were increased, the results would provide a better cross-sectional perspective of the financial results and the correlation with risk management requirements would generally be more applicable.

Data Analysis

What the ANOVA does is it decomposes the variability of the group being examined in the response to the different factors. Depending upon the type of analysis, the ANOVA determines which factors have significant effects on the observations and how much variability is attributed to each of those factors.

For the purpose of this analysis, certain assumptions are made. One, sampling error is not taken into account. Other variables that affect the results of the ANOVA are also discounted. By assuming these two conditions, we are focusing on the effect of the variables that are under consideration only.

F-statistic measures the difference between the groups under examination. The rule of thumb is that if the F-statistic is bigger than 1, then the null hypothesis, that of the groups being similar is rejected. An F-statistic greater than 1 means that the groups under question are “different” or that the variable being considered has made the groups different. The bigger the F-

statistic, the greater the effect of the variable on the financial metric being examined.

The P-value measures the overlap between the groups that are being measured. If the P value is small (normally less than 0. 5) then it supports the F-statistic's relevance that the groups are different. The higher the P-value, the greater the overlap. A big overlap means that the effect of the causal variable may not be significant and the difference between the groups examined may just be caused by sampling error.

The R-square value is a goodness of fit. If a line were drawn to characterize the behavior or trend of the data, the R-squared value would say if the line captures the behavior well enough to make it relevant. A higher R-squared value is desired because it means that the line predicts the behavior of the observations accurately.

The three statistical results were computed using an excel add-in tool called StatPlus. The results are consolidated and shown below. A sample ANOVA test is also attached.

For country analysis, the difference between groups is only significant when we look at Net debt/total equity and Times interest earned. This means that for all the groups we have analyzed, the effect of being located in a different country is only significant if we are looking at net debt/total equity and times interest earned. All other variables are not significant. The P-value of the two variables is found to be the two lowest, which means that the overlap between the groups under consideration is very small. Lastly, if we were to

plot a straight line through the data, that straight line would not capture the linear relationship of the variables under examination.

For the effect of industry, the type of industry does not influence only return on cash. The P-value is also high, compared to the others and has the highest linear regression line “fit”. This is a highly intuitive result. While the liquidity of a company is highly associated with the type of industry it is in, the cash policy is not. Therefore, it follows that the results of this ANOVA test may be true.

For years collected and observed, only total debt is affected by number of years. The other variables in question are not affected by years. Again, this is highly intuitive result. Terms for commercial loans are normally dictated by financial projections and performance. The size of the loans and the length of the repayment are therefore time specific.

Conclusion

Risk and analyzing risk is nothing new to an insurance professional. The main principle behind insurance is that it recognizes the presence of risks and assigns those risks through to someone else. In globally converging markets and in advanced economies, the contribution and effect of insurance and in light of the recent financial failures, risk mitigation has taken a front seat such that governments are trying to find synergies or associations that would help.

Such is the case in Europe. Because of the global financial crisis a few years back, policy makers have decided to unify the insurance systems of different

countries under the Solvency II program. The program is currently being implemented, with promises of better risk management environments in these countries. Essentially, Solvency II will ensure that insurance providers have enough capital assets to cover their exposures.

Banks, mutual funds, investment companies and insurers report financial information differently from business managers. These risk management professionals know what aspects of a business or an industry or a country is critical in managing risks. Traditionally, insurance companies look at two types of financial ratios, underwriting ratios and profitability ratios.

Underwriting ratios look at the cost of underwriting, dealing with losses and underwriting costs with respect to premiums earned or paid-out. Financial profitability ratios are the commonplace return on revenues, assets, equity and investment yields.

In this exercise, we attempt to examine financial profitability risks. We do that in this exercise by looking at how statistically key financial items vary depending on certain variables. The variables that we examined are country, industry and year. The financial metrics are total debt, total assets and ratios such as total debt to total equity, total debt to total assets, net debt to total equity, times interest earned and return on cash.

An analysis of variance (ANOVA) was conducted to determine if there is any significance between groups of data collected with respect to both the variables in question and the financial metrics and ratios. The analysis indicated that country makes a difference if we are examining net debt to

total equity and times interest earned. The type of industry makes the difference significant except for return on cash.

The number of years is only significant if we were looking at total debt.

A risk management professional, using this type of analytic approach, would be able to assess economic, financial and operating performances of companies, industries or even countries by comparing groups within groups and between groups. This exercise demonstrates the applicability of the ANOVA technique, and the relevance of such an analysis in ensuring sustainable business operations and in crafting relevant trans-national policies.

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