Spring 2017

The Outlook Impact on A.M. Best Ratings

Ashley Holder
The University of Akron, aeh76@zips.uakron.edu

The Outlook Impact on A.M. Best Ratings

Ashley Holder

Department of Applied Mathematics

Honors Research Project

Submitted to

The Honors College

Approved:

Jill M Bisco Date 4-10-17
Honors Project Sponsor (signed)

Jill M. Bisco
Honors Project Sponsor (printed)

Curtis B. Clemons Date 4/6/17
Reader (signed)

Curtis B. Clemons
Reader (printed)

Sarah Allen Date 4-10-17
Reader (signed)

Sarah Coleman
Reader (printed)

Accepted:

T S Norfolk (ph) Date 4/6/17
Department Head (signed)

T.S. Norfolk
Department Head (printed)

Curtis B Clemons Date 4/6/17.
Honors Faculty Advisor (signed)

Curtis B Clemons Curtis B Clemons
Honors Faculty Advisor (printed)

_____ Date _____
Dean, Honors College

ABSTRACT

This paper examines the Financial Strength Rating for insurers conducted by A.M. Best. This study specifically analyzes if the Outlook, another financial stability measure assigned by A.M. Best, has any significant effect on the Financial Strength Rating. This is important because this is the first known study which looks to analyze the Outlook and any effect it may have on A.M. Best ratings and insurance companies. In order to examine the Outlook effect on A.M. Best Financial Strength Ratings, insurer specific financial and operational data are collected from the statutory annual statements filed with the National Association of Insurance Commissioners (NAIC) for the years 1996 through 2015. Various insurance variables such as the insurer's NAIC number, A.M. Best Financial Strength Rating, A.M. Best Outlook, financial size, and type of company (stock, mutual, or other) are used in t-test and regression analysis. This paper draws conclusions such as a negative Outlook will lead to a decrease in FSR in the current year, the following year, or two years after the negative Outlook is given while a positive Outlook can lead to an increase in FSR in the year following the Outlook or two years of receiving the positive Outlook, however, it is unlikely that the insurer will see an FSR increase in the same year the positive Outlook is given.

INTRODUCTION

When compiling a list of the most valuable possessions in a person's life, there are many items to take into consideration. For example, someone would most likely include his or her house, car, or personal property such as jewelry, fine art, or firearms. If any of the previous items were to be damaged, and in some cases, lost or stolen, an individual would have a large financial loss. The one thing that protects against this financial loss, and that is a common thread amongst all of the valuables, is insurance. Insurance has been provided for years in order to protect against the

possibility of a financial loss, and has provided consumers with the ease of knowing that the things they value most will be safeguarded.

With the reassurance of an insurance contract, consumers know that their assets will be safe. However, just because all insurance companies promise asset protection, does not necessarily mean that every insurance company is best equipped to fulfill that promise to all consumers. Amongst a wide variety of insurance companies and insurance contracts, it is often difficult to differentiate products. It is also strenuous to determine what characteristics of an insurance policy are most important in deciding what type of insurance to purchase. Often times, people can choose insurance companies based on coverage limit, deductible payment, monthly premium payment, or annual increase in rates. While all of these characteristics are important, none of those will make a difference if the insurance company cannot pay the claims of the insured. In order to pay out claims to the insured, it is imperative that insurance companies are in great financial standing. In order to understand and find the financial standing of an insurance company, the Financial Strength Rating (FSR) from A.M. Best may be the most helpful and widely used tool.

In this study, I will analyze if the Outlook, another financial stability measure assigned by A.M. Best, has any significant effect on the FSR. This is important because this is the first study to the best of my knowledge, which looks to analyze the Outlook and any effect it may have on A.M. Best ratings and insurance companies. The Outlook has been severely under-analyzed in any respect.

This paper will proceed as followers: The next section will present a brief history on the topic, followed by a section discussing previous literature. A section discussing the objective of this paper is next, followed by the data and hypothesis development sections. The results and interpretation are next, followed by a conclusion to the paper.

HISTORY

The A.M. Best Company get its name from Alfred Magilton Best, who incorporated the Alfred M. Best Company Inc. in New York, NY in December of 1899 (AM Best 2016b). The company first introduced its ratings to property and casualty insurance companies in 1905, and then followed with ratings for life insurance companies in 1928 (AM Best 2016b). In 2005, the U.S. Securities and Exchange Commission (SEC) identified A.M. Best as a Nationally Recognized Statistical Rating Organization (NRSRO), further certifying the ratings that A.M. Best had been publishing for roughly a century (AM Best 2016b).

According to A.M. Best (2015), a Best Financial Strength Rating can be defined as a "forward looking independent and objective opinion regarding an insurer's, issuer's or financial obligation's relative creditworthiness". These opinions rely on quantitative and qualitative analysis of many aspects of a company such as the balance sheet, operating performance, and business profile (A.M. Best, 2015).

The balance sheet is the most important rating component because it helps to evaluate a company's asset and capital base in comparison to its financing and operating practices (Zboron 2015). Evaluators hope to see companies with adequate capital in order to deal with "catastrophes, unexpected losses and adverse changes in underwriting results, fluctuating investment returns or investment losses, as well as changes in regulatory or economic conditions" (Zboron, 2015) which would result in a company that has a low risk of instability due to any condition affecting the firm. Operating performance is another key element in the evaluation process because it can be used to enhance the balance sheet in a positive way, bolstering the financial strength of the company. According to Zboron (2015), "A.M. Best reviews the components of a company's earnings over the past five-year period to make an evaluation of the sources of profits and degree and trends of

various profitability measures". Overall, A.M. Best tracks the volatility of the company's profits in order to determine the impact on the balance sheet and the company overall. Lastly, A.M. Best analyzes the business profile of insurance companies which helps to predict future company profits and trends, which again will strengthen the balance sheet in the next few years.

With all of these different reports available, a rating committee at A.M. Best will evaluate and review the recommended rating presented by the primary analyst on the insurer's account. Each primary analyst is responsible for "managing the ongoing relationship with company management and performing the fundamental credit analysis prescribed in AMBRS's rating criteria" (A.M. Best, 2015). AMBRS stands for A.M. Best Rating Services Inc. which is the group that sets the rules and standards upon which the analysts rate their companies. Once the primary analyst has presented his or her recommended rating, the committee, made up of senior members of the Rating Division of A.M. Best, will review and modify the recommended rating until the rating is deemed suitable by all committee members (A.M. Best, 2015).

Insurance companies can receive a rating of A++ (highest-level) to D (lowest-level).[1] A copy of the Best's Financial Strength Rating Guide taken directly from A.M. Best can be seen in Appendix A, Figure 1. In addition to the A.M. Best Financial Strength Rating (FSR), each

[1] A.M. Best also has four non-rating designations (E, F, S, and NR). An "E" is assigned impaired insurers that are publicly placed under a significant form of regulatory supervision, control or restraint (including cease and desist orders, conservatorship or rehabilitation. Insurer's placed in liquidation are not assigned an "E". An "F" is assigned to impaired insurers that are publicly placed in liquidation by a court of law or by a forced liquidation. An "S" is used to suspend the Financial Strength Rating when there is a sudden and significant event that impacts operations and rating implications cannot be evaluated because of time constraints or a lack of information. An "S" is also assigned when maintaining the previously published rating is in violation of the evolving regulatory requirements. Finally, an "NR" is assigned to insurers that are not rated. This category may include those that were previously rated or insurers that have never been rated by A.M. Best. The information reported in this table is obtained from the Best's Financial Strength Rating Guide (A.M. Best, 2015).

company is also given an additional rating tool referred to as the Outlook. The Outlook supplements the FSR because it gives insight as to what direction the Financial Strength Rating may be heading over an immediate period of time, which is typically 36 months (A.M. Best, 2015). The Outlook rating is one of three categories: positive, stable, or negative. A positive Outlook demonstrates the fact that an insurer is in great financial status with market trends better than the current Best Financial Strength Rating (A.M. Best, 2015). If these conditions hold true, the Financial Strength Rating could be upgraded to a higher rating category. In contrast, a negative Outlook indicates unfavorable financial status and market trends, which can potentially lead to a downgrade in the Financial Strength Rating in the next 36 months (A.M. Best, 2015). A stable rating means stable market conditions and financial position, therefore implying that a change in the Financial Strength Rating is unlikely in the immediate future (A.M. Best, 2015). Although the Outlook is an indicator of where the Best Financial Strength Rating is headed for each company, A.M. Best (2015) indicates that positive and negative Outlooks will not necessarily lead to a change while a stable rating does not guarantee that a company's FSR will remain the same.

LITERATURE REVIEW

There are two topics which address and discuss the relevance and importance of this study. The first one examines the affect that financial analyst forecasts have in the financial markets, and specifically insurers. The second analyzes the history of the insurance company ratings, especially the A.M. Best Financial Strength Rating.

Analyst Forecast

In order to provide sound investment advice and earnings forecast, there must first be significant research conducted. Many research papers demonstrate that investment advice and earnings forecast provided by analysts includes significant and pertinent information on the pricing

of securities (Elgers, Lo, and Pfeiffer, 2001). In terms of stock returns and prices, analysts' forecasts are "considered the best surrogate for the true, unobservable, market expectation" (Fried and Givoly, 1982). Fried and Givoly (1982) also proclaim that earnings forecasts "might be more representative of market expectation of earnings than some time-series models widely used in the financial literature." However, analysts can have differences in their forecasts. Forecast accuracy increases with the amount of analyst experience and employer size, with accuracy increasing as firm size increases (Clement 1999).

While there is plenty of research in regards to analysts' forecasts for stock companies in general, there is limited information on analysts' forecasts in the insurance industry. The insurance industry is regulated at the state level. Since insurers are highly regulated, the amount of information available to the public may be higher than for other companies, therefore reducing the value of the analysts' reports (Chen and Pottier, 2015). It is possible, however, that regulators could restrict the information that is released which would add value to the analyst's reports (Chen and Pottier, 2015).

The insurance industry is similar to the financial services industry because they are both extremely dynamic. In fact, the insurance industry is a subset of the financial services industry. However, there are some distinct characteristics which make an analysts' job much more difficult in the insurance industry. First, the "nature of insurance products is a contractual guarantee of future financial performance that is contingent on the occurrence of designated events that result in losses" (Fan, So, and Yeh, 2006). Because premiums can vary significantly from one policy to another and the volatile business of an insurance company, financial analysts and investors have a difficult time estimating value relative to other industries (Fan, So, and Yeh, 2006). In addition,

moral hazard and adverse selection[2] lead to additional problems. Each of these factors can cause significant variation in the financial books of the insurers, which then complicates the process of making accurate earnings forecasts and estimating the value of an insurer (Fan, So and Yeh, 2006).

When reviewing the quarterly and annual earnings forecasts for insurers, Fan, So and Yeh (2006), find that the analysts' forecasts outperform random walk time-series forecasts, with the largest variation between the forecasts for property and liability insurers. This research supports earlier work by Fried and Givoly (1982) and Brown et. al (1987a, b) which found that analyst forecasts should be used before other predictive models (i.e. time-series models) when considering earnings expectations.

Ratings

The role of rating agencies in the financial industry continues to be a controversial topic. Some believe that financial ratings are based mainly on historical accounting numbers and that most rating revisions are triggered by mergers, refinancing, or historical reviews and, therefore, it is unlikely that new information is conveyed to the market by such ratings (Weinstein, 1977). Additionally, specialized agencies might be more equipped to evaluate firms because the information used in these evaluations can be extremely costly to obtain (Ederington, Yawitz, and Roberts, 1987). These ratings, in turn, can be used to convey new and private information to investors and creditors (Griffin and Sanvicente, 1982).

[2] Moral hazard is defined as a situation where an individual amplifies a loss to collect money based on lack of moral reasoning (Sandu, 2015). Adverse selection is defined as "a tendency of persons with a higher-than-average chance of loss to seek insurance at standard (average) rates, which, if not controlled by underwriting, results in higher-than-expected loss levels" (Redja and McNamara, 2017).

There are many ways to evaluate an insurance carrier, and ratings are one of the most helpful tools available. A.M. Best provides the Financial Strength Rating (FSR) for insurance companies as mentioned previously. This Financial Strength Rating can be highly regarded because A.M. Best Company has been the leader for rating systems in evaluating insurers for decades (Singh and Power, 1992). Singh and Power (1992) also state that the objective of the A.M Best's Rating system is "to evaluate factors that affect the overall performance of an insurer and then provide an opinion of the company's relative financial strength and ability to meet its contractual obligations." The FSR not only helps consumers but also allows regulators to assess the financial strength of insurers (NAIC, 2002). A.M. Best's Financial Strength Rating (FSR) assigns letter grades that are determined by both quantitative and qualitative analysis (Eckles and Pottier, 2011). These types of analysis include factors related to capitalization/financial leverage, holding company issues, profitability, liquidity, reinsurance, loss reserves, asset quality, diversification and some other factors not listed (Eckles and Pottier, 2011).

The Financial Strength Rating by A.M. Best is useful in determining how fit an insurance company is to meet its policyholder obligations. Additionally, A.M. Best can be a helpful tool to identify property and liability, as well as life and health companies with insolvency risk (Denenberg, 1967). Denenberg (1967) analyzed a period from 1927-1965 and found that "if a continuous history of successful operations with top Best's ratings, had been required for some reasonable period, Best's rating system would have protected its user from all but one insurer involved in delinquency proceedings; and even in the case of that single exception, the user would have emerged financially unscathed" (Denenberg 1967). Ambrose and Seward (1988) also concluded that compared to other ratios, the A.M. Best Rating performed just as well in differentiating between solvent and insolvent insurers.

The A.M. Best Rating has also been determined to have a significant impact for publicly-traded stock insurers. This is because a downgrade in A.M. Best rating usually results in a decreased stock price (Wade, Liebenberg, and Blau, 2016). In fact, Doherty and Phillips (2002) conclude "that the costs of losing a high financial strength rating are substantial and that rating agencies do play a significant role in reducing what insurers must view as information asymmetry between themselves and insurance buyers". This means that insurance carriers market material to the buyers in order to differentiate themselves from the competition.

Additionally, Wade, Liebenberg, and Blau (2016) conclude that stock returns begin to decrease approximately two days before the A.M. Best rating downgrade. In addition, short sellers can anticipate the A.M. Best rating changes because short selling is "abnormally high" prior to a rating downgrade (Wade. Liebenberg, and Blau, 2016). Also, "unusually high predowngrade short selling is inversely related to balance sheet opacity" (Wade, Liebenberg, and Blau, 2016). This means that high level short selling will occur for those stock insurers with the most transparent balance sheets (Wade, Liebenberg, and Blau, 2016).

Singh and Power (1992) also looked at the impact that the A.M. Best rating has on the stock of insurers, and if a change in this rating caused abnormal stock returns. They concluded that "Best acts as a certification agency and does not reveal previously unavailable information on insurer financial soundness to the financial markets" (Singh and Power, 1992). Therefore, because A.M. Best only releases known public information, the A.M. Best Financial Strength Rating would not change the investment strategy of investors.

A large increase in insurer insolvencies in the late 1980s and early 1990s increased the demand for more accurate information that forewarns against insurer insolvency (Halek and Eckles, 2010). A.M. Best "added to the volume of their ratings in 1995 by posting an 'under

review' rating whenever an insurance company encountered a significant change in its financial conditions" (Halek and Eckles, 2010). Following these changes, Halek and Eckles (2010) took another look at whether changes in the A.M Best Financial Strength Rating impacted stock returns. They find that downgrades "are associated with negative abnormal stock returns, but they find little evidence of abnormal stock performances associated with announced upgrades" (Halek and Eckles, 2010). These results may indicate that information is released to the public and that the downgrade is a signal of financial instability. Also, Halek and Eckles (2010) concluded that "the rating of a particular insurer has been shown to hold considerable sway in the purchasing decisions of insureds"

In another study, Epermanis and Harrington (2006) analyzed premium growth in reaction to an A.M. Best rating upgrade or downgrade. They found "economically and statistically significant premium declines in the year of and the year following rating downgrades." They also discovered that premium declines were greater for firms with low pre-downgrade ratings, which include an A.M. Best's FSR of either A- or a rating of B++ or below. Premium declines were especially significant for firms downgrading from an A- rating or higher to a rating below A- (Epermanis and Harrington, 2006). In contrast, they also found that A.M. Best FSR upgrades had low impact on positive premium growth. Additionally, many premium declines occurred in the commercial lines segment, which is consistent with a "weaker guaranty fund protection and greater rick sensitivity of demand for commercial insurance" (Epermanis and Harrington, 2006).

Additional research has shown that firm characteristics also impact A.M. Best Financial Strength Ratings. Larger insurers and those that are better capitalized have been shown to have higher A.M. Best ratings (Pottier and Sommer, 1999, 2002). This means that these large insurers have more of an ability to absorb more of the risk, which gives them lower rates of insolvency.

Insurers that make better choices in terms of costs and benefits are expected to receive higher ratings (Eckles and Pottier, 2011).

OBJECTIVE

There are a multitude or reasons that the Outlook may be important to analyze. I will look at different ways that the Outlook relates to and affects the A.M. Best Financial Strength Rating, and how that, in turn, affects different aspects of the insurance industry. As previously mentioned, forecast analysts can be more important than time-series data and the information that it pertains to (Fried and Givoly, 1982). The Outlook is another forecasting tool that can have an implication on the insurance market. If predictions can be made based on the Outlook, it will help insurers, consumers, and regulators better analyze information available to them, and they can rely on these predictions to make informed decisions.

The Outlook is also extremely important because of the rarity and difficulty that lies within the insurance industry for forecasting purposes. Insurer information can be even more difficult to predict because there has been limited research specific to analysts' forecasts in the insurance industry. Also, there are many factors and uncertainties that can happen that will directly impact the prediction that was made. As previously mentioned, premiums can vary significantly from one policy to another, adverse selection and moral hazard impact the financial predictions, and the future financial performance is dependent on the occurrence of covered losses (Fan, So, and Yeh, 2006). Each of these causes significant variation in the financial statements of the insurer, making the prediction of future solvency for insurers much more difficult. The Outlook can be used to assist in the financial forecasts to make them more accurate.

The Outlook may be able to help predict insurer insolvency and better predict insurer forecasts. This can be of interest to insurers, regulators, consumers, and even investors. If the

Outlook can be found to be a valid predictor of upcoming changes in the A.M. Best Financial Strength Rating, then insureds may be able to use the Outlook as an indicator of an insurance company's financial strength before there is an actual change in the A.M. Best rating itself. In addition, if my analysis can show that the negative Outlook leads to a negative A.M. Best Financial Strength Rating, then these insurers can look at the negative Outlook and make a decision regarding their financial structure before the A.M. Best rating actually changes.

In addition to insurers, financial strength ratings are extremely beneficial to regulators. Regulators use the strength ratings, especially the A.M. Best Financial Strength Rating, to monitor which companies are in trouble of financial insolvency. Again, if significance is established between the Outlook and the A.M. Best FSR, regulators can look to the Outlook to more quickly identify which insurance companies may be in financial trouble. Regulators can then keep closer watch on these firms before it becomes too late and the firm becomes insolvent. The Outlook could help to reduce the number of insurance companies that face difficulty and also help the regulators more closely and accurately monitor these firms in order to provide consumers with better protection.

Financial strength ratings, in addition to insureds and regulators, also help the insurance companies themselves, especially the publicly traded stock insurers. As Wade, Liebenberg, and Blau (2016) concluded, a downgrade in the A.M. Best rating usually results in a decreased stock price. Also previously mentioned was the fact that insurance companies tailor their marketing techniques in order to differentiate themselves from competition (Doherty and Phillips, 2002). The Outlook can help insurance companies because it can give an indication as to the future direction of the A.M. Best rating, which can help the insurer to avoid a negative A.M. Best downgrade before the downgrade happens. This can save the insurance company because if they can prevent

a downgrade, then they can avoid a negative impact on their stock price, which would avoid a negative impact on the equity value of the firm. Also, understanding the impact that the Outlook has on the future A.M. Best Financial Strength Rating will allow insurance companies the ability to strategically market its products and will allow them to work to reduce the likelihood of a rating downgrade or minimize the effects of such downgrade, if unavoidable. In other words, insurance companies will be able to know sooner where their rating may be heading and act on that information in order to get the desired outcome.

The Outlook can impact all insurance companies, not just those that are publicly traded. Epermanis and Harrington (2006) researched premium growth and concluded that A.M. Best downgrades resulted in premium declines in the year of the downgrade and in the following year. This impacts all insurance companies that are being graded by A.M. Best because premiums are the main monetary influx for the company. With decreased premiums, companies do not have as much money to invest and cover potential losses. The Outlook may give insurance companies an earlier indication of where the A.M. Best rating is headed. With the threat of two years of decreased premiums, insurance companies can proactively work to prevent this situation before the A.M. Best rating is actually decreased, avoiding the potential decline.

As seen throughout this paper, the A.M. Best Financial Strength Rating can have huge implications on insurers, regulators, investors, and insurance companies. While there has been research on the A.M. Best Financial Strength Rating, there has been no studies that research the implication that the Outlook has on the A.M. Best FSR and how that affects these groups. The Outlook could provide an earlier and more efficient indication on where the A.M. Best Financial Strength Rating is headed, and therefore could provide valuable information for each party involved. This study intends to examine the Outlook and the implications involved for insureds,

regulators, and different types of insurance companies. With better insight on the Outlook, there can be clearer and more concise decisions made by each group previously mentioned.

DATA

The initial sample includes all U.S. domiciled property- casualty insurers. The original data set began with a sample size of 37,222 firm-year observations. From there, I drop all entries that did not have an A.M. Best rating[3]. Also, consistent with Epermanis & Harrington (2006), I do not include entries with a rating of D, E, F, and S. Because of this, 9,498 data entries were not included in the sample, which means the final sample size is 27,652. The insurer's Financial Strength Ratings and Outlook are obtained from the A.M. Best's Annual Reports. Insurer specific financial and operational data are collected from the statutory annual statements filed with the National Association of Insurance Commissioners (NAIC)[4]. The data has been obtained for the years 1996 through 2015 and includes various insurance variables such as the insurer's NAIC number, A.M. Best Financial Strength Rating, A.M. Best Outlook, financial size, and type of company (stock, mutual, or other). Customary with risk management literature, size and direct premiums written were winsorized at the 1 percent level.

HYPOTHESIS DEVELOPMENT

First, I start by making the Outlook the dependent variable. This dependent variable is a dummy variable measuring whether or not a firm had a negative, stable, or positive Outlook based on the independent variables. To understand the impact that the A.M. Best Outlook may have on the predictability of a change in the A.M. Best Financial Strength Rating (FSR), I include various measures of the changes following a positive or negative Outlook. I then control for other aspects

[3] Refer to Footnote 1 for the reasons that insurers may not be assigned an A.M. Best Rating.
[4] The NAIC data is pulled using the SNL database.

of the insurer's operation by including control measures used in previous literature. Refer to Appendix B, Table 1 for an explanation of all the variables used in this analysis.

A.M. Best Rating Variables

In order to correctly record a change in the FSR, each rating was assigned a numerical value. A++ was rated as a 16, A+ was rated a 15, and that pattern continued with S ratings having a value of 0. Refer to Appendix B, Table 2 to see the breakdown of the various A.M. Best Financial Strength Ratings and the number of observations associated with each.

Next, I create variables in order to indicate whether an insurer has an Outlook of N for a negative Outlook, S for a stable Outlook, and P for a positive Outlook. I also use variables to check for an increase in the FSR in the same year as the Outlook, in the following year, and two years after the Outlook. The same variables were created to check for a decrease in FSR and no change in the FSR. It is important to note that even though A.M. Best provides the FSR, it is uncertain whether this Outlook will impact the FSR in the same year, the following year, or two years following.

A positive Outlook demonstrates the fact that an insurer is in great financial status with market trends better than the current Best Financial Strength Rating (A.M. Best, 2015). If these conditions hold true, the AM. Best Financial Strength Rating could be upgraded to a higher rating category. In opposition, a negative Outlook indicates unfavorable financial status and market trends, which can potentially lead to a downgrade in FSR in the next 36 months (A.M. Best, 2015). A stable rating means stable market conditions and financial position, therefore implying that a change in FSR is unlikely in the immediate future (A.M. Best, 2015). Although the Outlook is an indicator of where the Best Credit Rating is headed for each company, A.M. Best (2015) indicates

that positive and negative Outlooks will not necessarily lead to a change while a stable rating does not guarantee that a company's Financial Strength Rating will remain the same.

I predict that a positive Outlook will result in an increase in FSR. Although this increase may not happen in the same year as the Outlook, I would expect that an increase would result in the year following or two years after the Outlook. I anticipate the same results in terms of the negative Outlook. I predict that a firm with a negative Outlook will see a downgrade in FSR in the current year, following year, or two years after the Outlook rating. For stable Outlooks, I forecast that there will be no change in the FSR in any of the years.

Control Variables

Size

One characteristic of the firm that may impact the Outlook is the size of the insurer. Larger insurers are considered to have a lower level of insolvency risk (BarNiv and Hershbarger, 1990; Sommer, 1996; and Grace, Harrington, and Klein, 1998). Therefore, larger firms are considered more financially stable and safer. In contrast, smaller insurers have a greater probability for insolvency. Consistent with these studies, larger insurers are more likely to remain solvent over an extended period of time. Because large firms have a better chance of being solvent and remaining solvent, I hypothesize that there will be a positive (negative) correlation between the size of the insurance company and the positive (negative) Outlook. The measure of size is calculated as the log of total assets.

Net assets, Net premiums written, Direct premiums written, Surplus

Direct premiums written (DPW) is the aggregate of premiums written during the year, less reinsurance and returned premiums, whether the premiums are collected or not (A.M. Best, 2017). The surplus of an insurance firm is the assets less the liabilities (A.M. Best, 2017). Net premiums

written compares the net premiums earned to the gross premiums written. It measures the current net premium income, corrected for reinsurance and losses (Van Gestel, Martens, Baesens, Feremans, Huysmans, and Vanthienen, 2007).

The primary objective of the Financial Strength Rating is to provide an opinion of the insurer's ability to meet its ongoing insurance policy and contract obligations (Halek and Eckles, 2010). In early research, Denenberg (1967) found that an A.M. Best FSR provides a signal for eventual solvency in property and liability insurers. With each of the variables mentioned above, an increase leads to an increase in assets and capital to meet contract obligations and liquidation if necessary. I predict that each of these variables will have a positive (negative) correlation with a positive (negative) Outlook rating, and an increase in each of these shows an increase in financial strength and stability.

Stock, Mutual, Other

The company organizational structure may have an impact on the Outlook and FSR. Stock companies seek profit for their shareholders where mutual companies operate for the benefit of their own policyholders (Spiller, 1972). In addition, mutual insurers are limited in their ability to raise new capital (Cummins, Tennyson, and Weiss, 1999). This limited access to capital by mutual insurers may lead to a lower FSR because of less capital to liquidate. A negative correlation between mutual ownership and a positive Outlook is expected. In contrast, I predict that stock companies will show a positive (negative) relationship with a positive (negative) Outlook because of the incentive to have capital on hand by shareholders.

Combined Ratio

The combined ratio is a key summary indicator which distinguishes between more and less efficient non-life insurance companies (Van Gestel, Martens, Baesens, Feremans, Huysmans, and

Vanthienen, 2007). The combined ratio measures the incurred losses and expenses divided by the total earned premium. A combined ratio less than one means that the company is profiting because earned premium is larger than the losses and expenses. I forecast that the combined ratio will have negative (positive) correlation with a positive (negative) Outlook. I speculate that as the ratio becomes smaller (larger), the chances for a positive (negative) Outlook will increase.

Regulation

In the insurance industry, the degree of regulatory scrutiny varies by state. Companies chartered to operate in certain states face particularly stringent regulatory and capital adequacy requirements (Brewer III, Monschean, and Strahan, 1997). A state is classified as having a stringent rate regulation if it has state-made rates, a prior-approval law, or a file-and-use law where insurers are required to receive prior approval for deviations from rates filed by a rate advisory organization (Harrington, 2002). Strict regulatory laws may suppress rate making for the company. I expect regulation to have a negative correlation with a positive Outlook. As regulation tightens, it restricts insurance companies from maintaining higher profits. This could ultimately lead to poor financial standing, indicated by a negative Outlook.

Concentration Variables (Herfindahl-Hirschman measures)

Some firms may want to diversify across multiple lines of business so that there will be an increased number of products to consumers and this can result in a potential increase in customers (Fier and Pooser, 2016). I account for the line of business concentration by using the line-of-business Herfindahl-Hirschman Index (HHI), which is calculated as follows with firm *i* in year *t* for each line of business *j*[5] (Fier and Pooser, 2016).

[5] The following lines of business are considered in the calculation of the line-of-business HHI: industrial life; ordinary life insurance; ordinary individual annuities; ordinary supplemental contracts; credit life for groups and individuals; group life insurance; group annuities; group

$$\text{LOB HHI}_{i,t} = \sum_{i=1}^{11} \left(\frac{\text{DPW}_{i,j,t}}{\text{DPW}_{i,t}} \right)^2$$

Additionally, there is a measure of geographic concentration for each insurer. Therefore, I also include a geographic HHI as a variable. It is calculated as follows with firm *i* in year *t* for each state in the United States., *s.* (Fier and Pooser, 2016).

$$\text{GEO HHI}_{i,t} = \sum_{i=1}^{51} \left(\frac{\text{DPW}_{i,s,t}}{\text{DPW}_{i,t}} \right)^2$$

I do not make *a priori* predictions for these control variables.

A summary of predictions is listed below:

1. A positive Outlook will result in an increase in the FSR in either the current year, following year, or two years after the Outlook.
2. A negative Outlook will result in a decrease in the FSR in either the current year, following year, or two years after the Outlook.
3. A stable Outlook will not change the FSR in any of the years.
4. There will be a positive (negative) correlation between size of insurance company and the positive (negative) Outlook.
5. Net assets, net premiums written, direct premiums written, and surplus will have positive (negative) correlation with a positive (negative) Outlook.
6. Mutual companies will have a negative (positive) correlation with a positive (negative) Outlook.

accident and health contracts; credit accident and health contracts (for both groups and individuals); "other" accident and health contracts; and the aggregate of all other lines of business.

7. The combined ratio will have a negative (positive) correlation with a positive (negative) Outlook.
8. Regulation will have a negative (positive) correlation with a positive (negative) Outlook.

RESULTS AND INTERPRETATION

First, I ran a summary statistical analysis. These results indicate that 73 percent of companies in the sample are stock companies while 20 percent are mutual companies. The remaining companies are classified as other, which includes risk retention groups, reciprocal exchanges, and Lloyd syndicates. Net total assets were on average 592,739,600, with the maximum reaching up to 11,100,000,000. See Appendix B, Table 3 for the Summary Statistics.

Next, I ran a T-test to evaluate if there was a statistically significant difference between the insurers that had an increase in their A.M. Best Financial Strength Rating (FSR) and those that did not. T-tests are standard in the Risk Management and Insurance literature and are used to compare two groups. In this paper, I decided to use T-Tests to compare insurers that had an AM Best increase to those that had an AM Best decrease. The T-tests are considered univariate results because I am looking at each variable separately and determining whether the difference in the variable between the groups is statistically significant.

Before turning to the results of the T-test, it is important to note that the likelihood of A.M. Best changing an insurer's Financial Strength Rating is small. Of the sample used for this research, only 5.16 percent of insurers had an increase in the FSR rating and 4.83 percent had a decrease. Turning to the results of the T-tests, which can be seen in Appendix B, Table 4, some important conclusions can be drawn from the data. As expected, mutual insurers are more likely to see a decrease than an increase. Those insurers that have a higher combined ratio are more likely to see a decrease in their FSR than an increase. Increases are also more likely than decreases for

those companies that have a higher line of business HHI and geographical HHI indicating more concentration in these areas. Lastly, firms that receive an increase in their A.M. Best rating will write more premium in highly regulated states than those firms that receive a decrease.

Appendix B, Table 5 depicts the breakdown of what happens to a firm's FSR with a positive, negative, or stable Outlook in the current year, the following year, and two years later. For example, given a negative Outlook, the A.M. Best Financial Strength Rating (FSR) decreased in the current year 510 times, decreased one year after the negative Outlook 491 times, and 176 times the FSR decreased two years later. Similarly, a positive Outlook resulted in an increase to the company's FSR 93 times in the current year, 479 times the year after the Outlook, and 215 times two years after the positive Outlook. It is important to acknowledge that when a firm had a negative Outlook, there were 31 occurrences of the A.M. Best rating increasing in the current year, and 80 times it increased in the following year. In addition, there were decreases to the FSR in all years (current (24), one year in the future (29) and two years in the future (31)) when the Outlook was positive. One reason to account for this might be mergers and acquisitions. Companies that acquire or are being acquired by other firms may receive an Outlook, and then the merger results in a different financial status than originally perceived. This could cause the A.M. Best rating to move in the direction opposite of the Outlook.

To increase the accuracy of the data, I check for correlation amongst variables. The correlation matrix can be found in the Appendix B, Table 6. Positive correlation among variables would result in one variable increasing as another variable is increasing, resulting in the two variables moving in the same direction. Additionally, variables could have a negative correlation, meaning as one variable decreases the other variable increases. The correlation matrix showed that none of the variables are highly correlated with each other

It is important to note that there are only certain conclusions you can see through these univariate results. In order to determine how the various aspects of an insurers business might play a role in an A.M. Best increase or decrease – or in this case, whether various aspects of the business impact the Outlook, I have to utilize a multivariate approach. The multivariate approach will analyze the impacts of all the controls (variables) at the same time. A multivariate approach and is customary in insurance literature.

I ran a Probit model, which is a type of regression where the dependent variable can only have two responses. The results of this analysis can be seen in Appendix B, Table 7. Some of the important conclusions were found from running this regression test. If the Outlook is negative, firms are more likely to see a decrease to the FSR in the current year, following year, and two years after the Outlook. A stable Outlook is likely to result in an increase in the FSR only in the current year. All other indications are that a change in FSR is not likely when the Outlook is stable. Firms with a positive Outlook are more likely to see an increase in A.M. Best rating in the year following a positive Outlook and two years after that Outlook. In other words, a firm should not expect to see an increase in the FSR during the first year their Outlook is changed to positive. Mutual companies are more likely to have a negative Outlook. In accordance with the hypothesis, those with a larger combined ratio are more likely to receive a negative Outlook. Firms that operate in states with stricter regulation are more likely to have a positive Outlook.

A summary of the multivariate results is listed below:

1. A negative Outlook will lead to a decrease in FSR in the current year, the following year, or two years after the negative Outlook is given.

2. A positive Outlook can lead to an increase in FSR in the year following the Outlook or two years of receiving the positive Outlook, however, it is unlikely that the insurer will see an FSR increase in the same year the positive Outlook is given.
3. A stable Outlook is not likely to lead to a decrease in FSR, however, there is a possibility that insurers with a stable Outlook will see an increase to the FSR in the current year.
4. Smaller insurers are more likely to see a negative Outlook.
5. Mutual Insurance companies are more likely to have a negative Outlook.
6. A company with a larger combined ratio are more likely to receive a negative Outlook.
7. Firms that operate within states that have stricter regulation are more likely to have a positive Outlook.
8. Insurers that are more diversified in the lines of business they write are more likely to receive a negative Outlook. On the other hand, insurers that are more geographically diversified are more likely to receive a positive Outlook.

CONCLUSION

After running the t-test, results showed that the size of the insurer does not have any statistically significance with the Outlook. Additionally, increases are more likely than decreases for companies with higher line of business HHI and higher geographical HHI. From the regression analysis, I concluded that positive Outlooks are more likely to result from firms with higher direct premiums written and firms that operate in states with stricter regulations. Firms are likely to receive negative Outlooks if the company has a larger combined ratio or the company is a mutual insurance company.

As I have shown, a negative Outlook leads to a decrease in A.M. Best Financial Strength Rating in the current year, the following year, and two years after a negative Outlook. Also, stable Outlook is likely to increase FSR in the current year only. However, when a firm is given a positive Outlook, it is not likely that a firm will receive an increase in FSR in the same year. In the year following the positive Outlook, and two years from the Outlook, the firm will be more likely to see an increase in FSR. This is important to conclude that firms are likely to get downgraded more quickly than upgraded. A negative Outlook can lead to an immediate decrease in FSR while a positive Outlook is likely to see a delay in an FSR increase.

This research is important to insurers, regulators, and consumers. While many people are aware of the A.M. Best FSR, people may not have been paying attention to, or know about the Outlook. This is important because it has been proven that the Outlook can help predict the change (positive or negative) to the FSR. Consumers can have an insight about the Financial Strength Rating just by examining the Outlook. In addition, by knowing that decreases in FSR happen more quickly from negative Outlooks while positive Outlooks have a delay in increasing FSR, consumers may keep closer attention to the negative Outlook for each company. Similarly, the Outlook can give insurers better insight into the direction of the FSR. Insurers can take steps to either prevent downgrade (or encourage upgrade) by looking at their Outlook. Lastly, regulators can use the Outlook to keep a closer watch on struggling firms. Regulators can more quickly identify and monitor firms based on the Outlook, which can allow for a better regulatory system.

References

A.M. Best Company. 2015. *Understanding Best's Credit Ratings*. Accessed September 8, 2016 at http://www.ambest.com/ratings/ubcr.pdf

A.M. Best Company. 2016a. Best's Financial Strength Rating Guide. Accessed September 8, 2016 at http://www.ambest.com/ratings/guide.pdf

A.M. Best Company. 2016b. "The A.M. Best Company Chronology of Events." Accessed September 26, 2016 http://www.ambest.com/about/events.html

A.M. Best Company. 2017. "Glossary of Insurance Terms". Accessed February 14, 2017 at http://www.ambest.com/resource/glossary.html#N

Ambrose, Jan Mills, and J. Allen Seward, 1988, Best's Ratings, Financial Ratios and Prior Probabilities in Insolvency Prediction, *The Journal of Risk and Insurance*, 55: 229-244.

BarNiv, Ran and Robert A. Hershbarger, 1990, Classifying Financial Distress in the Life Insurance Industry, *Journal of Risk and Insurance,* 57 (1): 110-136.

Brewer III, Elijah, Thomas S. Mondschean, and Philip E. Strahan, 1997, The Role of Monitoring in Reducing the Moral Hazard Problem Associated with Government Guarantees: Evidence from the Life Insurance Industry, *Journal of Risk and Insurance*, 64 (2): 301-322.

Brown, Lawrence D., Paul A. Griffin, Robert L. Hagerman and Mark E. Zmijewski, 1987a, Security Analyst Superiority Relative to Univariate Time-Series Models in Forecasting Quarterly Earnings, *Journal of Accounting and Economics*, 9: 61-87.

Brown, Lawrence D., Paul A. Griffin, Robert L. Hagerman and M. E. Zmijewski, 1987b, An Evaluation of Alternative Proxies for the Market's Expectations of Earnings, *Journal of Accounting and Economics*, 9: 159-193.

Chen, Leon and Steven W. Pottier, 2015, The Relative Informativeness of Analysts' Stock Return Forecasts and Rating Changes for Insurance Companies, *The Geneva Papers*, 40: 516-537.

Clement, Michael B., 1999, Analyst Forecast Accuracy: Do Ability, Resources, and Portfolio Complexity Matter?, *Journal of Accounting and Economics*, 27 (3): 285-303.

Cummins, J. David, Sharon Tennyson, And Mary A. Weiss, "Consolidation and Efficiency in the US Life Insurance Industry," Journal of Banking and Finance, 1999, 23: 325-357.

Denenberg, Herbert S., 1967, Is A-Plus Really a Passing Grade?, *The Journal of Risk and Insurance*, 34: 371-384.

Doherty, Neil A., and Richard D. Phillips. "Keeping Up with the Joneses: Changing Rating Standards and the Buildup of Capital by U.S. Property-Liability Insurers." *SSRN Electronic Journal SSRN Journal* 21.1/2 (2002): 55-78. Web.

Eckles, David L. and Steven W. Pottier, 2011, Is Efficiency an Important Determinant of A.M. Best Property-Liability Insurer Financial Strength Ratings?. *Journal of Insurance Issues,* 34 (1): 18-33.

Ederington, Louis H. and Jess B. Yawitz, 1986, The Bond Rating Process, in *Handbook of Financial Markets and Institutions*, 6th edition, E. Altman, editor, New York: John Wiley and Sons.

Elgers, Pieter T., May H. Lo and Ray J. Pfeiffe Jr., 2001, Delayed Security Price Adjustments to Financial Analysts' Forecasts of Annual Earnings, *Accounting Review*, 76: 613-632.

Epermanis, Karen and Scott E. Harrington, 2006, Market Discipline in Property/Casualty Insurance: Evidence from Premium Growth Surrounding Changes in Financial Strength Ratings, *Journal of Money, Credit and Banking*, 38 (6): 1515-1544.

Fan, Dennis K. K., Raymond W. So, and Jason J. Yeh. "Analyst Earnings Forecasts for Publicly Traded Insurance Companies." *Review of Quantitative Finance and Accounting* 26.2 (2006): 105-36. Web.

Fier, Stephen G. and Pooser, David M., 2016, Advertising Effectiveness for Financial Services Firms: Evidence from the Life Insurance Industry. *Journal of Insurance Issues,* 39 (2): 137-168.

Fried, Dov and Dan Givoly, 1982, Financial Analysts' forecasts of Earnings: A Better Surrogate for Market Expectations, *Journal of Accounting and Economics*, 4: 85-107.

Grace, Martin F., Scott E. Harrington and Robert W. Klein, 1998, Risk-Based Capital and Solvency Screening in Property-Liability Insurance: Hypotheses and Empirical Tests, *Journal of Risk and Insurance,* 21: 229-247.

Griffin, Paul A. and Antonio Z. Sanvicente, 1982, Common Stock Returns and Rating Changes: A Methodological Comparison, *Journal of Finance,* 37: 103-120.

Halek, Martin, and David L. Eckles. "Effects of Analysts' Ratings on Insurer Stock Returns: Evidence of Asymmetric Responses." *Journal of Risk and Insurance* 77.4 (2010): 801-27. Web.

Krishnaswami, Sudha and Steven Pottier, "Agency Theory and Participating Policy Usage Evidence from Stock Life Insurers," The Journal of Risk and Insurance, 2001, 68 (4): 659-683.

NAIC (National Association of Insurance Commissioners), 2002 (March 17), *Framework for Insurance Holding Company Analysis*, Kansas City, MO.

Pottier, Steven W. and David W. Sommer, 1999, Property-Liability Insurer Financial Strength Ratings: Differences across Rating Agencies, *The Journal of Risk and Insurance*, 66: 621-642.

Pottier, Steven W. and David W. Sommer, 2002, The Effectiveness of Public and Private Sector Summary Risk Measures in Predicting Insurer Insolvencies, *Journal of Financial Services Research*, 21: 101-116.

Rejda, George E. and Michael J. McNamara, 2017, "Principles of Risk Management and Insurance," Book; Thirteenth Edition, Prentice Hall, pg. 659.

Sandu, Carmen, 2015 (July 1), Contemporary Implications of Moral Hazard and Adverse Selection for Insurance Firms, *Annals of the University of Oradea, Economic Science Series.*

Singh, Ajai K., and Mark L. Power, 1992, The Effects of Best's Rating Changes on Insurance Company Stock Prices, *The Journal of Risk and Insurance*, 59: 310-317.

Sommer, David W., 1996, The Impact of Firm Risk on Property-Liability Insurance Prices, *Journal of Risk and Insurance*, 63 (3): 501-514.

Spiller, Richard, "Ownership and Performance: Stock and Mutual Life Insurance Companies," The Journal of Risk and Insurance, 1972, 39 (1): 17-25.

Van Gestel, Tony, David Martens, Bart Baesens, Daniel Feremans, Johan Huysmans, and Jan Vanthienen. "Forecasting and Analyzing Insurance Companies' Ratings." *International Journal of Forecasting* 23 (2007): 513-29. Science Direct.

Wade, Chip, Andre Liebenberg, and Benjamin M. Blau, 2016, Information and Insurer Financial Strength Ratings: Do Short Sellers Anticipate Ratings Changes?, *The Journal of Risk and Insurance*, 83 (2): 475-500.

Weinstein, Mark I., 1977, The Effect of a Rating Change Announcement on Bond Price, *Journal of Financial Economics*, 329-350.

Zboron, Michael. 2015. "Reputational Risk in the Context of A.M. Best's Rating Analysis." *The Geneva Papers on Risk and Insurance* 31 (2006): 500-11. Web. 29 Sept. 2016.

Appendix A

Figure 1: Best's Financial Strength Rating Guide

BEST'S FINANCIAL STRENGTH RATING GUIDE – (FSR)

A Best's Financial Strength Rating (FSR) is an independent opinion of an insurer's financial strength and ability to meet its ongoing insurance policy and contract obligations. An FSR is not assigned to specific insurance policies or contracts and does not address any other risk, including, but not limited to, an insurer's claims-payment policies or procedures; the ability of the insurer to dispute or deny claims payment on grounds of misrepresentation or fraud; or any specific liability contractually borne by the policy or contract holder. An FSR is not a recommendation to purchase, hold or terminate any insurance policy, contract or any other financial obligation issued by an insurer, nor does it address the suitability of any particular policy or contract for a specific purpose or purchaser.

Best's Financial Strength Rating (FSR) Scale

Rating Categories	Rating Symbols	Rating Notches*	Category Definitions
Superior	A+	A++	Assigned to insurance companies that have, in our opinion, a superior ability to meet their ongoing insurance obligations.
Excellent	A	A-	Assigned to insurance companies that have, in our opinion, an excellent ability to meet their ongoing insurance obligations.
Good	B+	B++	Assigned to insurance companies that have, in our opinion, a good ability to meet their ongoing insurance obligations.
Fair	B	B-	Assigned to insurance companies that have, in our opinion, a fair ability to meet their ongoing insurance obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
Marginal	C+	C++	Assigned to insurance companies that have, in our opinion, a marginal ability to meet their ongoing insurance obligations. Financial strength is vulnerable to adverse changes in underwriting and economic conditions.
Weak	C	C-	Assigned to insurance companies that have, in our opinion, a weak ability to meet their ongoing insurance obligations. Financial strength is very vulnerable to adverse changes in underwriting and economic conditions.
Poor	D	-	Assigned to insurance companies that have, in our opinion, a poor ability to meet their ongoing insurance obligations. Financial strength is extremely vulnerable to adverse changes in underwriting and economic conditions.

**Each Best's Financial Strength Rating Category from "A+" to "C" includes a Rating Notch to reflect a gradation of financial strength within the category. A Rating Notch is expressed with either a second plus "+" or a minus "-".*

Appendix B

Table 1: Explanation of Variables

Variable	Definition
Rating Variables	
Outlook N	A dummy variable of 1 if the insurer had at least one negative "outlook" in the year and 0 otherwise
Outlook S	A dummy variable of 1 if the insurer had at least one stable "outlook" in the year and 0 otherwise
Outlook P	A dummy variable of 1 if the insurer had at least one positive "outlook" in the year and 0 otherwise
Increase	A dummy variable of 1 if the insurer had an increase in Best Rating in the year and 0 otherwise
Increase F1	A dummy variable of 1 if the insurer had an increase in Best Rating in the next year and 0 otherwise
Increase F2	A dummy variable of 1 if the insurer had an increase in Best Rating two years in the future and 0 otherwise
Decrease	A dummy variable of 1 if the insurer had a decrease in Best Rating in the year and 0 otherwise
Decrease F1	A dummy variable of 1 if the insurer had a decrease in Best Rating in the next year and 0 otherwise
Decrease F2	A dummy variable of 1 if the insurer had a decrease in Best Rating two years in the future and 0 otherwise
Control Variables	
Size*	Log of net total assets
DPW*	Direct premiums written
Mutual	A dummy variable of 1 for mutual insurers and 0 otherwise.
Other	A dummy variable of 1 for other organization structures (not mutual or stock) and 0 otherwise.
Com Ratio	Insurers combined loss ratio (loss ratio + expense ratio)
LOB HHI	Line of business Herfindahl Index
GEO HHI	Geographical Herfindahl Index
Regulation**	Percentage of business written subject to stringent rate regulation

*Winsorized at the 1 and 99 percentile.
**A state is classified as having a stringent rate regulation if it has state-made rates, a prior-approval law, or a file-and-use law where insurers were required to receive prior approval for deviations from rates filed by a rate advisory organization (Harrington, 2002; Grace and Leverty, 2012).

Table 2: Breakdown of A.M. Best Financial Strength Ratings (full sample)

AM Best FSR Rating	# of Observations
A++	1595
A+	4268
A	8687
A-	7011
B++	2536
B+	1890
B	963
B-	389
C++	147
C+	82
C	63
C-	21
D	30
E	34
F	8
S	0

Observations where there is not AM Best Rating are dropped (9,498). For the analysis, also dropped are those rated D (30), those rated E (34), those rated F (8) and there were no observations with S ratings.

Table 3: Summary Statistics

	Mean	Std. Dev.	Min.	Max.
Net Total Assets*	592,739.60	1,637,572.00	1,020.62	11,100,000.00
Size*	11.62262	1.789873	6.92816	16.22447
DPW*	191,317.30	411,553.40	24.17	2,561,543.00
Mutual	0.2027340	0.4020432	0	1
Stock	0.7372704	0.4401247	0	1
Other	0.0599957	0.2374831	0	1
Com Ratio	105.1572000	66.9787500	0.15682	1,944.39200
LOB HHI	0.5901397	0.3015248	0.09117	1
GEO HHI	0.5353273	0.3816753	0.03030	1
Regulation	0.5951245	0.3681340	0	1

*Winsorized at the 1 and 99 percentile.

Table 4: Comparison between insurers with an Increase and those with Decrease in the A.M. Best Financial Stability Rating (FSR)

	AM Best Change				
Variable	**Increase**	**Decrease**	**Difference**	**P-Value**	
Full sample, percentage	**0.0516**	**0.0483**			
Size	11.47132	11.4941	0.0227839	0.3620	
DPW	176970.9	199636.7	22665.88	0.1547	
Mutual	0.1744919	0.2050898	0.0305979	0.0201	**
Other	0.0721794	0.0568862	-0.0152932	0.0514	
Com Ratio	101.5142000	119.9475000	18.43334	0.0000	***
LOB HHI	0.6009107	0.5782974	-0.0226133	0.0241	**
GEO HHI	0.5577927	0.5306035	-0.0271892	0.0288	**
Regulation	0.603232	0.5850394	-0.0181926	0.0977	*

This table shows T-test results between insurers that had an increase in AM Best Rating and those that had a decrease in the rating.
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Change by Outlook

	Decrease	Decrease F1	Decrease F2	Increase	Increase F1	Increase F2
Outlook N	**510**	**491**	**176**	31	80	0
Outlook S	863	701	764	1369	671	808
Outlook P	24	29	31	**93**	**479**	**215**

Observations: 27,652 from 1996 - 2015
Number of observations where the insurer had the designated Outlook during the calendar year and then had an AM Best change in the current year (increase or decrease), one year in advance (F1), or two years in advance (F2).

Table 6: Correlation Matrix

	Outlook N	Outlook S	Outlook P	Decrease	Dec. F1	Dec. F2	Increase	Inc. F1	Inc. F2
Outlook N	1.000								
Outlook S	-0.488	1.000							
Outlook P	-0.075	-0.335	1.000						
Decrease	0.208	-0.057	-0.035	1.000					
Dec. F1	0.198	-0.119	-0.031	0.071	1.000				
Dec. F2	0.043	-0.015	-0.020	0.002	-0.046	1.000			
Increase	-0.062	0.115	0.015	-0.053	-0.030	0.016	1.000		
Inc. F1	-0.034	-0.146	0.301	-0.018	-0.053	-0.044	0.026	1.000	
Inc. F2	-0.016	-0.048	0.120	-0.003	-0.040	-0.044	0.034	-0.051	1.000
Size	-0.034	0.075	-0.002	-0.020	-0.023	-0.015	-0.021	-0.031	-0.032
DPW	-0.007	0.022	-0.011	-0.010	-0.010	-0.006	-0.014	-0.015	-0.016
Mutual	0.040	-0.003	0.009	0.001	0.001	-0.002	-0.016	-0.017	-0.019
Other	-0.002	0.005	0.005	-0.003	-0.003	0.000	0.012	0.013	0.007
Com Ratio	0.060	-0.048	-0.015	0.054	0.048	0.018	-0.013	-0.019	-0.012
LOBHHI	-0.020	-0.019	0.003	-0.008	-0.007	-0.004	0.008	0.010	0.009
GEOHHI	0.010	-0.031	-0.009	-0.001	0.001	0.006	0.014	0.022	0.017
Reg.	-0.004	-0.011	0.010	-0.005	-0.014	-0.013	0.004	0.002	-0.004

	Size	DPW	Mutual	Other	Com Ratio	LOBHHI	GEOHHI	Reg.
Outlook N								
Outlook S								
Outlook P								
Decrease								
Dec. F1								
Dec. F2								
Increase								
Inc. F1								
Inc. F2								
Size	1.000							
DPW	0.404	1.000						
Mutual	-0.048	0.022	1.000					
Other	-0.034	0.009	-0.127	1.000				
Com Ratio	-0.054	-0.014	-0.004	0.016	1.000			
LOBHHI	-0.228	-0.076	-0.163	0.117	0.023	1.000		
GEOHHI	-0.439	-0.180	0.205	0.008	0.015	0.210	1.000	
Reg.	-0.019	-0.007	-0.065	0.016	-0.002	0.048	0.080	1.000

(observations=27,652)

Table 7: Regression Analysis Results

VARIABLES	(1) Outlook N	(2) Outlook N	(3) Outlook S	(4) Outlook S	(5) Outlook P	(6) Outlook P
Rating Variables						
Decrease	0.877663***		-0.176486***		-0.448709***	
	[0.045]		[0.043]		[0.088]	
Decrease F1	1.065863***		-0.638684***		-0.394913***	
	[0.039]		[0.036]		[0.079]	
Decrease F2	0.506323***		-0.102465**		-0.292602***	
	[0.052]		[0.045]		[0.082]	
Increase		-0.821789***		1.223937***		0.019472
		[0.088]		[0.068]		[0.065]
Increase F1		-0.279591***		-0.859555***		1.525902***
		[0.057]		[0.037]		[0.040]
Increase F2		-0.149513**		-0.348274***		0.991750***
Control Variables		[0.059]		[0.042]		[0.048]
Size	-0.037820***	-0.040959***	0.043070***	0.044824***	0.005894	0.012018
	[0.009]	[0.009]	[0.007]	[0.007]	[0.010]	[0.011]
DPW	0.000000	0.000000	-0.000000**	-0.000000**	-0.000000**	-0.000000**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Mutual	0.164107***	0.141461***	-0.000700	-0.011648	0.05252	0.114315***
	[0.029]	[0.028]	[0.023]	[0.023]	[0.034]	[0.037]
Other	0.003866	-0.002345	0.021391	0.03045	0.047218	-0.005083
	[0.051]	[0.049]	[0.038]	[0.039]	[0.056]	[0.061]
Com Ratio	0.000894***	0.001116***	-0.000539***	-0.000763***	-0.000444	-0.000235
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LOB HHI	-0.156440***	-0.153824***	-0.017553	-0.012801	0.009073	0.027438
	[0.042]	[0.040]	[0.032]	[0.032]	[0.048]	[0.053]
GEO HHI	-0.025568	-0.019799	-0.014809	-0.00878	-0.096855**	-0.164285***
	[0.036]	[0.035]	[0.027]	[0.028]	[0.040]	[0.045]
Regulation	-0.001337	-0.006920	-0.010000	-0.006428	0.082268**	0.074392*
	[0.032]	[0.031]	[0.024]	[0.025]	[0.038]	[0.042]
Constant	-1.034802***	-0.828341***	-0.453750***	-0.433947***	-1.679776***	-2.110584***
	[0.127]	[0.122]	[0.095]	[0.097]	[0.142]	[0.156]

Observations: 24,079

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1