

## The Impact of Analysts' Recommendations on the Cost of Debt: International Evidence

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### Abstract

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We document the link between analysts' reviews and bonds ratings. This study took 12 years and was carried out on samples obtained from 26 countries. The focus is to point out the positive relationship between analysts' reviews commendations and bonds ratings. Thus, a probit regression analysis was done for this purpose. It was strongly noted that there is a great connection between the recommendation and the bond's rating. In other words, the more a company receives positive recommendations from financial analysts, the rating of its bonds increases. More verification to the creditors' rights shields was included through our outcomes, plus its impact on debt cost.

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**Keywords:** Analysts' recommendation, Credit ratings, Cost of debt

### 1. Introduction

For the stock market to function very well, it needs correct information. Once the right information about the firms is combined with the prices, the securities are reasonably priced. In fact, financial analysts function by focusing on new pieces information connected to the firm, which will assist them in this process, of which credit rating is one. The investment decisions are regularly taken by the stock market partakers using analysts' research reports, their projection, and suggestions as accurate information. Jensen and Meckling (1976) proposed that financial analysts, noted as information intermediaries, have the capacity to reduce the agency problems that firms are encountering. An enterprise market value is an increasing function of the width of investor thoughtfulness as Merton (1987) claims. In order to raise the awareness of an investor on a company, customary wisdom recommends one method to understand this, which is the optimism of analysts' recommendations. Satt (2016) states that the credit rating of a business is a positive function of the number of positive analyst recommendation on the same company

In this paper, we want to trace the association between analysts' recommendations and credit rating; we assume both analysts and credit rating agencies are financial experts of the same level. However, we have the instinct that recommendations from positive analysts' on a firm reduce its cost of debt. Finances from external sources costs companies to decline when analysts issue positive recommendations and this scenario is due to the realisation that the company is able to pay back creditors and shareholders at any given time; hence, they insist on lower return. A positive analyst recommendation might affect other sides of a company such as the positive impacts its bond ratings. A company with higher bonds rating consequently calls for lower returns by creditors. Generally, some studies have been conducted vis-à-vis on the effect of default risk levels on cost of debt of companies.

Still, no study was done to evaluate the following hypothesis: do rating agencies consider the positive analyst recommendation on a company when rating its bonds? If our outcomes up hold this hypothesis, then a positive analyst recommendation may cause the lowering of debt costs.

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The goal is to study the connection between the positive analyst recommendation and the debt cost of companies and how they affect each other, whether it is positive or negative.

### Literature review

Information is the major point to efficient performance of the stock markets. Securities are correctly priced when relevant information about companies get fused into the prices. Financial analysts play a vital role in this process by studying new information about companies. These analysts are able to reduce agency problems within the company, Jensen and Meckling (1976). Merton (1987) claimed that the market value of a firm is a growing function of the level of investor's knowledge.

Satt (2015) stated that when a company is seen to be performing highly in "the eyes" of the financial analyst, the default risk is very low. So, the more the company performs, the better is its credit quality and the higher the quality credit terms. It is also discovered that when the whole market believes in a company's good performance, it will mount pressure on it to maintain its positive performance.

Prior literature documents optimistic bias in analyst recommendations (Lin and McNichols, 1998; Barber et al., 2007; Lai and Teo, 2008). Jegadeesh et al. (2004), for example, describes that average analyst recommendation is close to a Buy recommendation. They also show that Underperform or Sell recommendations constitute less than five percent of all recommendations. In a related study, Jegadeesh and Kim (2006) recorded similar findings by revealing that nearly half of analyst recommendations are either Strong Buy or Buy in the G7 countries. They also reported that harsh recommendations (Underperform or Sell) form less than fifteen percent of total recommendations. Prior literature recognises many reasons why analyst recommendations are tilted towards favorable recommendations (Das et al., 1998; Lin and McNichols, 1998; O'Brien et al., 2005). Majority of these reasons are linked to certain features of the work environment that moves analysts to release favorable recommendations.<sup>2</sup> Jackson (2005), for example, argues that the pressure to create brokerage commissions can encourage analysts to release positive recommendations.<sup>3</sup> Given that favorable recommendations produce more brokerage commissions than unfavorable recommendations, analysts are under great pressure from their employers to release positive recommendations (Eames et al., 2002).<sup>4</sup>

### Analysts' recommendations and the Cost of Debt

A lot of characteristics are supposed to control a company's cost debt but we suspect that analysts' recommendations are one of the crucial variables that affect the cost of debt. Given many factors (check table 1 for further information about these factors), a scale from 0 to 5 was given to analysts' recommendations. Results showed that when there is an increase in the score, there is a decrease in the cost of debt.

Consider the following hypothesis:

**H1:** Issuing positive analyst recommendation will reduce the company's cost of debt financing.

**H2:** Issuing positive analyst recommendation leads to higher bonds ratings.

The study we are carrying out is going to bring more value since the current one is very inadequate. The first objective is to assess the perception of the corporate bond market on the quality of the company's liquidity. The second objective, which is not the same as that of Jenzazi (2010) and the other studies, is to stress on the international framework when it comes to this issue.

This means we will not only have a better understanding of the performance of the different debt markets around the world, but also allow us perceive which way the external governance mechanisms (such as the legal and extra-legal institutions) connect to the semi-internal mechanisms (in our case analysts' recommendations) so as to improve the entire governance quality in one country.

<sup>2</sup> Lin and McNichols (1998) note that investment banking pressures result in optimistic bias in analyst recommendations. They show that lead underwriter analysts issue more favorable recommendations than unaffiliated analysts. McNichols and O'Brien (1997) argue that analysts are tempted to be optimistic because firms select those underwriters that are more optimistic.

<sup>3</sup> Analyst's compensation, partly, depends on trade generated by him.

<sup>4</sup> A competing strand of literature associates behavioral biases with optimistic bias in analyst recommendations. Cornell (2001), for example, finds that analysts are reluctant to recognize negative changes in corporate fundamentals. He argues that cognitive processing biases affect formation of analyst recommendations. Similarly, Abarbanell and Lehavy (2003) consider cognitive obstacles as the main reason behind analyst's reluctance to downgrade his opinion.

## Methodology and Descriptive Statistics

### Specifications

The aim of the research is to find out the relationship between analysts' recommendations and bonds' ratings. The following general specification will be used for this purpose.

$$\text{Bond Rating} = f(\text{Analysts' Recommendations, Issuer Characteristics, Issue Characteristics})$$

The determinants used to conduct the study are the following: Analysts' recommendations, Issuer Characteristics and Issue Characteristics. Issue Characteristics variable represents the profitability of the company calculated using the company's return on assets, the company size as calculated by the company's total assets, the company risk that is calculated by the company variability of earnings, and the leverage that is calculated by the debt to equity ratio. This variable is made up of issue size or the size of the bonds, the bonds maturity, and the convertible provision (an option allowing a bondholder to trade the bonds for shares).

The rating bonds used are from seven separate ordering categories (exemplified by the S&P ratings). The last statement indicates that since the bond rating is an ordinal variable, we can use the Ordered Probit Model.

### Data Sources and Variables

Our sample consists of 600 companies chosen from 26 different countries. Table 2 stands for the description of this sample between year 2002 and 2014. The ratings bonds utilised have a range from AAA to D, obtained from S&P credit rating and they stand for companies' credit worthiness. This allows us to differentiate between the companies that can pay back their loans at the due dates and those who can't. Appendix shows that the projected ratings obtained from S&P have been changed to ordering numbers ranging from 1 to 7, with 1 signifying the lowest rating and 7 the highest one. To change the ratings, we made use of the research that was conducted by Ashbaugh, Collins, and LaFond (2006). The data of bonds ratings were obtained from F- Database.

**Table 2: Sample Description**

The panels below provide an account of the sample that was used to obtain the outputs. Panel A identifies the countries that companies in the sample operate in. Panel B provides the distribution of the study on a yearly basis (starting from 2002 to 2014). Panel C provides an account of the observations based on the industry.

Panel A: Sample Distribution per Country			Panel B: Sample Distribution per Years		
Country	Number	Percent	Years	Number	Percent
Argentina	8	1.33	2002	2	0.33
Australia	11	1.83	2003	23	3.83
Austria	8	1.33	2004	22	3.67
Brazil	23	3.83	2005	55	9.17
Canada	136	22.67	2006	80	16.67
Chile	7	1.17	2007	120	20.00
Colombia	1	0.17	2008	100	20.33
Denmark	7	1.17	2009	55	9.17
Finland	7	1.17	2010	45	7.50
France	23	3.83	2011	43	7.17
			2012	22	5.23
Germany	35	5.83	2013	20	5.43
			2014	13	2.17
Hong Kong	12	2.00	Total	600	100
Indonesia	3	0.50			
Israel	4	0.67			
Italy	27	4.50			

Japan	12	2.00
Korea (South)	22	3.67
Malaysia	2	0.33
Mexico	14	2.33
Netherlands	13	2.17
New Zealand	1	0.17
Norway	6	1.00
Philippines	6	1.00
Poland	2	0.33
Portugal	10	1.67
Singapore	10	1.67
South Africa	1	0.17
Spain	8	1.33
Sweden	19	3.17
Switzerland	15	2.50
Taiwan	13	2.17
Thailand	4	0.67
Turkey	1	0.17
United Kingdom	123	20.50
United States	6	1.00
Total	600	100.00

Industry	Number	Percent
Manufacturing	230	38.33
Transport	10	1.67
Trades	40	6.67
Financial Services	243	40.50
Utility	77	12.83
Total	600.00	100.00

The value of 1 is assigned to the dummy variable that is the analyst average recommendations if it is positive (buy or strong buy) and 0 otherwise. To provide more explanation on the bonds ratings, two control variables were added to the model, which are the issue and issuer variables. More details on these variables are given in Table 1. The control variables data were obtained from W.S Database.

Following the research papers of Anderson, Mansi and Reeb (2003) and Boukhari and Ghouma (2008), the calculation of the bonds ratings, the convertible provision, and the issue size (the issue characteristics) was done on a portfolio approach. We compiled the whole company issues for each year, and the size of the issue to the entire issues represented the weight used in the calculation of the average bonds ratings, the convertible provision, and the issue size associated with each company over every year of the duration of our study.

The formula of the bond rating can be presented as thus:

*Prob. (Bonds Ratings=X) = F (b<sub>1</sub>. Analysts' Recommendations + b<sub>2</sub>. Company Profitability + b<sub>3</sub>. Company Size + b<sub>4</sub>. Company Risk + b<sub>5</sub>. Bonds Maturity + b<sub>6</sub>. Convertible Provisions + b<sub>7</sub>. Issue Size + b<sub>8</sub>. Leverage + Institutional variables + Year Dummies + Industry Dummies + ei); Where X belongs to {1, 2, 3, 4, 5, 6, 7}*

## Empirical Results

Panel (A), table 3 stands for the descriptive statistics connected to the variables used in our study, which begins with the credit rating variable with a mean equal to 4.432 and that signifies an S&P rating of BBB+.

**Table 3: Summary Statistics**

The table is divided into three panels. Panel (A) shows the descriptive statistics, Panel (B) shows the correlation analyses, and panel (C) provides a mean test comparison using the T-test and the Wicoxon-Mann-Whitney tests. The variables used are as followings: Bond Ratings, which is an ordinal number that ranges from 1 to 7, with the latter being the highest rating and the former the lowest rating. Analysts average recommendations: a dummy variable that allocates the value 1 to companies with positive average recommendation for a given year and 0 if otherwise. Company Profitability: the company's profitability is measured in term of its return on assets. Company Size: the total assets were used to calculate the size of the companies included in the sample.

Company Risk: it is calculated by the standard deviation of net income. Bonds Maturity: the average maturity for the bonds portfolio released by a company; weights were given on the basis of the size of the issuance to the total issuances. Convertible Provisions: a dummy variable that assigns the value 1 to companies with convertible option and 0 if otherwise. Issue Size: it stands for the size of the issuance in term of dollars. Leverage: the company leverage is

calculated by its debt to its equity ratio. The stars that show in the tables signify the following: \*\*\* for a significance that is lesser than 1%, \*\* and \* are for a significance that is lesser than 5% and 10% respectively.

**Panel A: Descriptive Statistics**

Variable	Observations	Mean	Standard Deviation
Bonds Ratings	600	5.234	0.467
Average Recommendations	600	0.223	0.84
Company Profitability	600	5.322	18.855
Company Size (in million of U.S Dollars)	600	188.65	4.43
Company risk	600	676,332.6	78,653.9
Bonds Maturity (in years)	600	5.56	0.677
Convertible Provisions	600	0.122	0.877
Issue Size	600	988,332.5	8,544,334
Leverage	600	232.989	1,564.909

The first variable in the issuer characteristics variables stands for analysts' recommendations with a mean equal to 0.71. This signifies that about 71% of the companies of the sample are having positive recommendations - a result that confirms what Jegadeesh et al. (2004) presented, claiming that most of analysts' recommendations are close to "buy" recommendations, which is the same phenomenon as discussed by Satt (2015). The average mean for the return on assets regarding the profitability of the company is 5.32. 88 million dollars, which was calculated by averaging the total assets of the 600 companies in the sample, represent the mean of the company size. 4.43 years represents the mean average for the bonds maturity based on the issuance variables. The second variable, represented by the convertible bonds option, has a mean equal to 5.6%, meaning that 5.6% of the companies offered this option to their bondholders.

Panel (B1) from table 3 shows the correlation between the bond rating taken as the dependent variable and the other independent variables that, which are the analysts' recommendation, the issue characteristics variables, and the issuer characteristics. Consequently, there is a strong relationship between the dependent variable and the various other independent variables. The analysts' recommendation, the company performance, the company size, and the convertible option are really connected to the dependent variable at important levels of less than 1 percent.

In addition, it was revealed that the company leverage is interconnected positively at a significant level of 5 percent. Nevertheless, only one variable that is replaced by Bonds maturity was found to be negatively related to the Bond Ratings at an important level of less than 1 %. On the other hand, it was discovered that there is no significant association between the two variables, the issue size and the company and the bonds ratings.

**Panel B1: Correlation between the average analysts recommendation and Bonds Ratings**

Variable	Bonds Ratings	Average recommendation	Company Profit	Company Size	Company risk	Bonds Maturity	Convertible Provisions	Issue Size	Leverage
Bonds Ratings	1.000								
Average recommendation	0.0239 (0.0023)***	1.000							
Company Profitability	0.232 (0.0044)**	0.0654 (0.0004)***	1.000						
Company Size	0.3688 (0.0005)***	0.0543 (0.0334)*	-0.1433 (0.887)	1.000					
Company risk	0.0223 (0.0323)	-0.04334 (0.6551)	0.00233 (0.0032)**	0.5655 (0.0023)**	1.000				
Bonds Maturity	-0.6754 (0.0034)**	0.5422 (0.0042)**	-0.0008 (0.4346)	-0.0344 (0.0000)***	-0.0032 (0.0067)*	1.000			
Convertible Provisions	0.6766 (0.0004)***	0.0542 (0.6340)	0.0554 (0.0074)**	-0.0122 (0.0004)***	0.0233 (0.3978)	0.0232 (0.0a56)**	1.000		
Issue Size	0.0343 (0.0023)**	-0.0332 (0.6996)	0.0344 (0.6675)	0.0342 (0.6534)	0.4323 (0.0043)**	0.2322 (0.0082)***	0.3432 (0.3432)	1.000	
Leverage	0.0233 (0.0343)**	-0.0323 (0.0088)**	-0.0023 (0.6545)	0.2334 (0.0003)***	0.0454 (0.9043)	0.3233 (0.0554)**	-0.03453 (0.0034)***	0.0323 (0.4554)	1.000

To verify the first hypothesis, a mean comparison tests was carried out and the sample was separated into sub groups. The first one stands for companies with positive recommendation and the second for the remaining. A T-test confirms the hypothesis, knowing that the first group's mean has a higher value (5.2) compared with the second group's mean (3.1). Moreover, both the T-Test and the Wilcoxon-Mann-Whitney test support the difference between the two means that is considerably different from zero (5% significance level). This information indicates that this company is one of those with positive recommendations that profits from higher credit ratings.

**Panel B2: Correlation between the Bonds Ratings and the Institutional Variables**

Variable	Bonds Ratings	Creditors' Rights	Public Registry	Efficiency of Bankruptcy Process	News Circulation
Bonds Ratings	1.000				
Creditors' Rights	0.232 (0.0001)***	1.000			
Public Registry	0.4343 (0.0023)**	-0.5443 (0.0001)***	1.000		
Efficiency of Bankruptcy Process	0.0032 (0.0123)*	0.7666 (0.0001)***	-0.4554 (0.0011)**	1.000	
News Circulation	0.3223 (0.0001)**	0.5445 (0.0022)**	-0.3444 (0.0000)***	0.7567 (0.0000)***	1.000

Panel A from Table 4 stands for the results of the ordered Probit estimation on bonds rating. These results are the same as those we expected from the study. The results clearly show that there is a positive connection between bonds ratings and analysts' recommendations with +0.7 at a significance level of 5%. Thus, this corroborates the first hypothesis made about the study saying that there is a positive correlation between analysts' recommendations and bonds ratings. Both the company's profitability and size have positive impact on the bonds ratings. Nevertheless, regarding the convertible bonds option, it is the only variable that is capable of having a meaningful impact on companies' bonds ratings. On the other hand, no major effect on the bonds ratings is caused by the other issue and issuer variables.

**Table 4: The Effect of company's positive recommendation on Bond ratings**

The table provides the output for the Ordered Probit Regression of the Bond Ratings as being the dependent variable. The variables that are listed below are: Bond Ratings, which is an ordinal number that ranges from 1 to 7, with the latter being the highest rating and the former, the lowest rating. Company's recommendation: a dummy variable that gives the value 1 to companies with positive average recommendations and 0 if otherwise. Company Profitability: the company profitability calculated in terms of its return on assets. Company Size: the total assets were used to calculate the size of the companies included in the sample. Company Risk: it is calculated by the standard deviation of net income. Bonds Maturity: the average maturity for the bonds portfolio released by a company; weights were given on the basis of the size of the issuance to the total issuances. Convertible Provisions: a dummy variable that assigns the value 1 to companies with convertible option and 0 if otherwise. Issue Size: it stands for the size of the issuance in term of dollars. Leverage: the company leverage is calculated by its debt to its equity ratio. The stars that show in the tables signify the following: \*\*\* for a significance that is lesser than 1%, \*\* and \* are for a significance that is lesser than 5% and 10% respectively.

Dependent Variable =Bonds ratings	Expected Sign	Model
Analysts average recommendation	+	0.0231 (0.0033)**
Company Profitability	+	0.0233 (0.0000)***
Company Size (in billions of U.S Dollars)	+	98.6 (0.0001)***
Company risk (in millions of U.S Dollars)	-	-445 (0.988)
Bonds Maturity	-	-0.677 (0.064)*
Convertible Provisions	+	0.787 (0.0001)***
Issue Size	-	4.34×10 (0.0334)
Leverage	-	-0.0001 (0.434)
Creditors Rights	+	0.544 (0.0000)***
Public Registry	+	1.332 (0.0000)***
Bankruptcy Efficiency	+	0.0454 (0.0000)***
News Circulation	+	0.3444 (0.0000)***
Manufacturing		0.665 (0.899)
Trades		-0.0343 (0.998)
Finance		0.122 (0.0000)***
Utility		0.344 (0.0001)***
N		600
Pseudo R <sup>2</sup>		19.47%
LR – Chi <sup>2</sup>		432.45
Significance		(0.0000)***

The study confirmed that there is a significant positive link between analysts' recommendations and bonds ratings on an international framework. A company that could produce a positive analyst's recommendation will directly experience higher rating bonds. This further explains that the costs of debt, in the form of bonds, are decreased as a result of creditors asking for lower premium to lend their money.

### Limitations

One major drawback was noticed about the sample selected. In point of fact, F-Database and W-Database gave us the bonds ratings data and recommendations' data, respectively. These two databases allowed us to assemble 600 observations that followed the distribution presented in Table 2. In fact, this statement could have influenced our sample representativeness.

### Conclusion

The study carried out in this paper seeks to show that there is a positive connection between analysts' recommendations and the bonds rating. For this reason, a sample of 600 companies selected from 26 different countries was used. The sample data is from 2002 to 2014, a period of 12 years. Our expectations agree with the results of the Ordered Probit regression. Consequently, a company that's able to produce a positive analyst's recommendation is able to have higher bonds rating. In other words, a company with good performance is one with high level of bonds ratings and this has an effect on the debt cost by reducing it. Bearing in mind that there are no previous studies carried out to explain the purpose discussed in our paper, this research done will bring more value on this, even in the international context. When the firm is producing positive analysts' recommendations, it gives a favorable signal about the company interpreting the faith of analysts by releasing a positive recommendation to the faith of creditors, and thus making the firm under review benefit from a low debt cost.

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**Table 1: Variables Description and Sources**

Variable	Description	Source
Bonds Ratings	Appendix A provides detailed information about this ordinal variable. The bond ratings that are used by S&P are changed to a range from 1 to 7 where 1 represents the lowest rating and 7 the highest rating. Bond rating depends on the company bonds portfolio.	F-Database
Company' average recommendation	A dummy variable that is given the value 1 if the company's yearly average recommendations is positive and 0 if otherwise.	W-S Database
Company Profitability	A variable that calculates the profitability of the company by dividing its net income by its total assets.	W-S Database
Company Size	The company size is calculated by its total assets in dollars.	W-S Database
Company risk	The company's risk is calculated by the standard deviation of the net income of every company in the sample.	W-S Database
Bonds Maturity	A variable that calculates the log maturity in years. The weights are measured by the size of the issuance of the maturity class to the total size of the issuance for a given year. Then, the weights are multiplied by the respective maturity and added to get the bonds weighted average maturity.	W-S Database
Convertible Provisions	A dummy variable that gives the value 1 to companies with convertible provisions and 0 to companies with no convertible provisions. These provisions let the bondholder change his or her bonds to shares.	W-S Database
Issue Size	A variable that represents the size of the issuance.	W-S Database
Leverage	A variable that represents the influence of the company; calculated by dividing the company debts by its equity.	W-S Database
Creditors Rights	This variable is an index that ranges from 0 to 4. When a country enforces restrictions in favor of creditors, 1 is added to its score. When the secured creditors make sure they get their investment back, the score changes to 2. When the secured creditors are the first to collect their money in case of bankruptcy, the score changes to 3. At the end, when	Djankov et al. (2005)

Public Registry	the secured creditors do not wait for the problems to get resolved in order to get their money back, the score changes 4. Public registry is a database developed by public authorities. This database contains all the debt profiles of borrowers in the economy. The assembled information is available to all financial institutions. The variable is given the value 1 if the country has a public registry and 0 if otherwise.	Djankov et al. (2005)
Efficiency of Bankruptcy Process	When a company exposes itself to bankruptcy costs, these costs are subtracted from the company's terminal value, which is discounted to find the present value. The greater the value, the better the company.	Djankov et al. (2007)
News Circulation	Daily newspapers sold, which is divided by the population.	Dyck and Zingales (2004)
Manufacturing	Dummy variable that equals 1 if the company functions in the Manufacturing industry and 0 if otherwise.	
Trades	Dummy variable that equals 1 if the company functions in the Trades industry and 0 if otherwise.	
Finance	Dummy variable that equals 1 if the company functions in the Finance industry and 0 if otherwise.	
Utility	Dummy variable that equals 1 if the company functions in the Utility industry and 0 if otherwise.	

#### Appendix A: S&P Credit Ratings Conversion

S&P Bonds Ratings	From D to CCC+	From B- to B+	From BB- to BB+	From BBB- to BBB+	From A- to A+	From AA- to AA+	AAA
New Ratings	1	2	3	4	5	6	7