

The Impact Of Analysts' Recommendations On The Cost Of Debt: International Evidence

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Abstract

The purpose of this paper is the determination of the link between analysts' recommendations and bonds' ratings. The study for this paper took 12 years and was based on a sample of 26 countries. The aim is to identify the positive relationship between analysts' recommendations and the rating of bonds. Thus, a probit regression analysis was made for this purpose. Therefore, it was strongly stated that there is an intense correlation between the recommendation and the bond's rating. In other words, the more the company is able to receive positive analysts' recommendations, the better is the rating of its bonds. More confirmation to the creditors' rights shields was added through our outcomes, in addition to its impact on the cost of debt.

Keywords: Analysts' recommendation, Credit ratings, Default risk

Introduction

For the stock market to function efficiently, it needs accurate information. Once the appropriate information concerning the firms is merged with the prices, the securities are fairly priced. In fact, financial analysts work on highlighting new information related to the firm which will

help them in this process, credit rating is one of them. The investment decisions are usually taken by the stock market participants using the research reports of analysts, their projections, and recommendations as precise information. Jensen and Meckling (1976) propose that financial analysts, regarded as information intermediaries, have the ability to lessen the agency problems that firms are facing. The market value of an enterprise is a growing function of the width of investor attentiveness as Merton (1987) claims. In order to raise the responsiveness of an investor concerning a company, conventional wisdom recommends one technique to realize this which is the positiveness of analysts' recommendations. Satt (2014) asserts that the credit rating of a business is a positive function of the number of positive analyst recommendation regarding the same company

In this paper, we trace the relationship between analysts' recommendations and credit rating; we assume that both, credit rating agencies and analysts are both financial specialists of the same level; however, we have the intuition that positive analysts' recommendations concerning a firm lessen its cost of debt. External financing costs for companies decline when analysts issue positive recommendations. And this scenario is due to the consciousness that the company is capable to pay back creditors and shareholders at any time and hence, they demand for lower return. A positive analyst recommendation might affect many other sides of the company such as the positive influence on the ratings of bonds. Company has higher rating bonds, consequently the call for lower returns by creditors. Generally, some studies have been directed vis-à-vis the effect of default risk levels on cost of debt of companies. Still, no study was conducted to assess the following hypothesis: Do rating agencies value the positive analyst recommendation on a company when rating firms' bonds? If our outcomes support this hypothesis, a positive analyst recommendation may cause then lowering the costs of debts.

The objective is to study the relationship between the positive analyst recommendation and the cost of debt for companies and how each affects the other. This means the correlation between the rating agencies decisions and

the analyst recommendation on a company, whether it is positive or negative.

Literature review

Information is significant to point to efficient functioning of the stock markets. Securities get priced correctly when pertinent information about companies get merged into the prices. Financial analysts play an essential role in this process by carrying out new information about companies. These analysts are capable to decrease agency problems within the company Jensen and Meckling (1976). Merton (1987) claims that the market value of a firm is an increasing function of the breadth of investor awareness.

Satt (2015) stated that when a company is perceived to be highly performing in “the eyes” of the financial analyst, the risk of default is very low, so the more the company is performing the better will be its credit quality, hence higher the quality credit terms. It is also found that when the overall market believes in the good performance of a company, this latter will have the pressure to keep its positive performance.

Prior literature documents optimistic bias in analyst recommendations (Lin & McNichols, 1998; Barber *et al.*, 2007; Lai & Teo, 2008). Jegadeesh *et al.* (2004), for example, report that average analyst recommendation is close to a Buy recommendation. They also show that Underperform or Sell recommendations make up less than five percent of all recommendations. In another related study, Jegadeesh and Kim (2006) document similar findings by reporting that almost half of analyst recommendations are either Strong Buy or Buy in the G7 countries. They also show that unfavorable recommendations (Underperform or Sell) constitute less than fifteen percent of total recommendations. Prior literature identifies numerous reasons behind why analyst recommendations are skewed towards favorable recommendations (Das *et al.*, 1998; Lin & McNichols, 1998; O’Brien *et al.*, 2005). Most of these reasons are related to certain features of the work environment that encourages analysts to issue favorable recommendations.⁹ Jackson (2005), for instance, argues that the

⁹ Lin and McNichols (1998) note that investment banking pressures result in optimistic bias

pressure to generate brokerage commissions can induce analysts to issue optimistic recommendations.¹⁰ Given that favorable recommendations generate more brokerage commissions than unfavorable recommendations, analysts are under considerable pressure from their employers to issue optimistic recommendations (Eames *et al.*, 2002).¹¹

Analysts' recommendations and the Cost of Debt

Many characteristics are supposed to influence the company's cost debt, we suspect that analysts' recommendations are one of the important variables that affect the cost of debt. Giving numerous factors (refer to table 1 for more information about these factors), a scale from 0 to 5 was given to the analysts' recommendations. Results revealed that when there is a rise in the score, there is a decline in the cost of debt.

We have the following hypothesis:

H1: Generating positive analyst recommendation will lower the company's cost of debt financing.

H2: Generating positive analyst recommendation leads to higher bonds ratings.

The study we are conducting is going to bring more value since the existing one is very limited. The first goal is to evaluate the perception of the

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.

¹⁰ Analyst's compensation, partly, depends on trade generated by him.

¹¹ 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.

corporate bond market of the quality of the company's liquidity. The second objective, the study we are making is not the same as Jenzazi (2010) and the other studies because it will stress on the international framework when it comes to this issue. That is to say that not only we will have a better understanding of the functioning of the different debt markets around the world, but this will enable us to perceive in a way the external governance mechanisms (such as the legal and extra-legal institutions) relate to the semi-internal mechanisms (in our case analysts' recommendations) in order to improve the entire governance quality in one country.

Methodology

Specifications

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

Bond Rating = f (Analysts' Recommendations, Issuer Characteristics, Issue Characteristics)

The determinants used to make the study are the three following: Analysts' recommendations, Issuer Characteristics, Issue Characteristics. Issue Characteristics variable refers to the profitability of the company computed using the company's return on assets, the company size which measured by the company total assets, the company risk that is measured by the company variability of earnings, and the leverage that is measured by the debt to equity ratio. This variable is composed of issue size or the size of the bonds, the bonds maturity, and the convertible provision (an option enabling a bondholder to exchange the bonds for shares).

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

Data Sources and Variables

Our sample is made of 600 companies selected from 26 different

countries. Table 2 represents the description of this sample between year 2002 and 2014. The ratings bonds used have a range from AAA to D, taken from S&P credit rating and they represent companies' credit worthiness. This enable to distinct between the companies that can repay back their loans at due dates and those who cannot. Appendix reveals that the proposed ratings obtained from S&P have been converted to ordering numbers ranging from 1 to 7, 1 representing the lowest rating and 7 the highest one. To convert the ratings we used the research that was conducted by Ashbaugh, Collins, and LaFond (2006). The data of bonds ratings were obtained from F- Database. See Table 2 in annex.

The value of 1 is given to the dummy variable that is the analyst recommendation if it is positive (buy or strong buy) and 0 otherwise.

To provide more clarification about the bonds ratings, to control variables were added to the model that are the issue and issuer variables. More details concerning these variables are provided in Table 1. The control variables data were acquired from W.S Database.

Following the research papers of Anderson, Mansi and Reeb (2003) and Boukhari and Ghouma (2008), the computation of the bonds ratings, the convertible provision, and the issue size (the issue characteristics) was based on a portfolio approach. We collected the entire company issues associated to each year, and the size of the issue to the total issues represented the weight used in the computation of the average bonds ratings, the convertible provision, and the issue size related to each company over every year of the duration of our research.

The model of the bond rating can be presented this way:

Prob. (Bonds Ratings=X) = F (b₁. Analysts' Recommendations + b₂. Company Profitability + b₃. Company Size + b₄. Company Risk + b₅. Bonds Maturity + b₆. Convertible Provisions + b₇. Issue Size + b₈. 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 represents the descriptive statistics related to the variables used in our study that starts with the credit rating variable with a mean equal to 4.432 and that represents an S&P rating of BBB+. See Panel A in annex. The first variable in the issuer characteristics variables represents analysts' recommendations with a mean equal to 0.71. This means that approximately 71% of the companies of the sample are having a positive recommendations. A result that confirms what Jegadeesh *et al.* (2004) presented, claiming that most of analysts' recommendations are close to "buy" recommendations, the same phenomenon was discussed by Satt (2014). The average mean for the return on assets concerning the profitability of the company is 4.03. 65 million dollars, which was calculated by averaging the total assets of the 600 companies composing the sample, represent the mean of the company size. 5.44 years state the mean average for the bonds maturity based on the issuance variables. The second variable is represented by the convertible bonds option; it has a mean equal to 8.5% which means that 8.5% of the companies gave this option to their bondholders.

Panel (B1) from Table 3 illustrates the relationship between the bond rating taken as the dependent variable and the other independent variable that 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 positively correlated to the dependent variable at important levels of less than 1 percent.

Additionally, it was shown that the company leverage is interrelated positively at a significant level of 5 percent. Nevertheless, only one variable that is represented by Bonds maturity was found negatively related to the Bond Ratings at an important level of less than 1 %. On the other hand, it was revealed that there is no significant relationship between the two variables, the issue size and the company and the bonds ratings. See Panel

B1 in annex.

To verify the first hypothesis a mean comparison tests was conduct and the sample was divided into sub groups. The first one represents companies with positive recommendation and the second was about the remaining. A T-test affirms the hypothesis knowing that the first group's mean has a higher value (4.7) compared with the second group's mean (4.1). Moreover, both the T-test and the Wilcoxon-Mann-Whitney test approve the difference between the two means that is significantly different from zero (5% significance level).

This information indicates that this company is one of those with positive recommendations that benefits from higher credit ratings. See Panel B2 in annex.

Panel A from Table 4 represents the results of the ordered Probit estimation about bonds rating. These results are the same as the results we expected from the study. The results clearly state that there is a positive relationship between bonds ratings and analysts' recommendations with +0.4 at a significance level of 5%. Thus, this confirms the first hypothesis made about the study saying that there is a positive correlation between analysts' recommendations and bonds ratings. Both the company profitability and size impact positively the bonds ratings. Nevertheless, concerning the convertible bonds option, it is the only variable that is capable to have a meaningful positive effect on companies' bonds ratings. On the other hand, no significant effect on the bonds ratings is caused by the other issue and issuer variables. See Table 4 in annex.

The study showed that there is a significant positive relationship between analysts' recommendations and bonds ratings on an international context. A company that was able to generate a positive analyst's recommendation will automatically experience higher rating bonds. This explains that the costs of debt, in the form of bonds, are reduced because creditors request quite lower premium to lend their money.

Limitations

One major limitation was observed about the sample chosen. In point of fact, F-Database and W-Database provided us with the bonds ratings data and recommendations' data, respectively. These two databases enabled us to gather 600 observations that follow the distribution presented in Table 2. In fact, this statement could have affected our sample representativeness.

Conclusion

The study in this paper aims to show that there is a positive relationship between analysts' recommendations and the bonds rating. For this purpose, a sample of 600 companies picked from 26 different countries is used. The data used for the sample is from 2002 to 2014, a period of 12 years. Our expectations go with the results of the Ordered Probit regression. Consequently, a company able to generate a positive analyst's recommendation is able to have higher bonds rating. In other words, a good performing company is a company with high level of bonds ratings and this affect also the cost of debt by making it lower. Knowing that there are no previous studies done to explain the purpose discussed in our paper, the research done will bring more value even in the international context. When the firm is generating positive analysts' recommendations, it gives a positive signal about the company translating the faith of analysts by issuing a positive recommendation to the faith of creditors, making the firm under talk benefiting from a low cost of debt.

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Table 1: Variables Description and Sources

Variable	Description	Source
Bonds Ratings	Appendix A gives detailed information about this ordinal variable. The bond ratings that are used by S&P are converted to a range from 1 to 7 where 1 is the lowest rating and 7 the highest rating. The rating of bonds depends on the company bonds portfolio.	F-Database
Company’ average recommendation	A dummy variable that is assigned 1 if the company’s yearly average recommendations is positive and 0 otherwise.	W-S Database
Company Profitability	A variable that measures the profitability of the company by dividing its net income to its total assets	W-S Database
Company Size	The company size is determined by its total assets in dollar amounts.	W-S Database
Company risk	The company’s risk is measured by the standard	W-S Database

	deviation of the net income of every company in the sample.	
Bonds Maturity	A variable that measures the log maturity in years. The weights are determined 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 to the respective maturity and added to get the bonds weighted average maturity.	W-S Database
Convertible Provisions	A dummy variable that gives 1 to companys with convertible provisions and 0 to companys with no convertible provisions. These provisions allow the bondholder to convert his or her bonds to shares.	W-S Database
Issue Size	A variable that identifies the size of the issuance.	W-S Database
Leverage	A variable that identifies the leverage of the company; measured by dividing the company debts to its equity.	W-S Database
Creditors Rights	This variable is an index that ranges from 0 to 4. When a country imposes restrictions in the favor of creditors, 1 is added to its score. When the secured creditors ensure that they will get their investment back, the score becomes 2. When the secured creditors are the first to receive their money in case of bankruptcy, the score becomes 3. At the end, when the secured creditors don't wait till the problems are solved to get their money back, the score becomes 4.	Djankov et al. (2005)
Public Registry	Public registry is a database that is developed by public authorities. This database includes all the debt positions of borrowers in the economy. The collected information is available to all financial institutions. The variable is assigned 1 if the country has a public registry and 0 otherwise.	Djankov et al. (2005)
Efficiency of Bankruptcy Process	When a company incurs bankruptcy costs, theses costs are deducted from the company terminal value and this value is discounted to get the present value. The higher the value, the better the company.	Djankov et al. (2007)
News Circulation	Daily newspapers sold divided by the number of citizens	Dyck and Zingales (2004)
Manufacturing	Dummy variable that equals 1 if the company operates in the Manufacturing industry; 0 otherwise	
Trades	Dummy variable that equals 1 if the company operates in the Trades industry; 0 otherwise	
Finance	Dummy variable that equals 1 if the company operates in the Finance industry; 0 otherwise	
Utility	Dummy variable that equals 1 if the company operates in the Utility industry; 0 otherwise.	

Table 2: Sample Description

The panels below give a description of the sample that was used to derive the outputs. Panel A specifies the countries that companies in the sample operate in. Panel B gives the distribution of the observation on a yearly basis (starting from 2002 to 2014). Panel C gives a description 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
Germany	35	5.83	2012	22	5.23
Hong Kong	12	2.00	2013	20	5.43
Indonesia	3	0.50	2014	13	2.17
Israel	4	0.67	Total	600	100
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			

Panel C: Sample Distribution per Industries		
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

Table 3: Summary Statistics

The table is split into three panels. Panel (A) illustrates the descriptive statistics, Panel (B) illustrates the correlation analyses, and panel (C) gives a mean test comparison using the T-test and the Wicoxon-Mann-Whitney tests. The variables that are used are the following: Bond Ratings which is an ordinal number that ranges from 1 to 7 as the later being the highest rating and the former the lowest rating. Analysts average recommendations: a dummy variable that assigns 1 to companies that have a positive average recommendation for a given year and 0 otherwise. Company Profitability: the company profitability measured in term of its return on assets. Company Size: the total assets were used to get the size of the companies that are included in the sample. Company Risk: it is measured by the standard deviation of net income. Bonds Maturity: the average maturity for the bonds portfolio issued by a company; weights were assigned on the basis of the size of the issuance to the total issuances. Convertible Provisions: a dummy variable that gives 1 to companies with the convertible option and 0 otherwise. Issue Size: it represents the size of the issuance in term of dollars. Leverage: the company leverage is measured by the debt to equity ratio. The stars that appear in the tables mean the following: *** for a significance that is lower than 1%, ** and * are for a significance that is lower than 5% and 10% respectively.

Panel A: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation
Bonds Ratings	600	4.432	1.321
Average Recommendations	600	0.423	0.342
Company Profitability	600	4.134	23.543
Company Size (in million of U.S Dollars)	600	89.89	1.54
Company risk	600	435,534.7	654,087.3
Bonds Maturity (in years)	600	6.43	0.543
Convertible Provisions	600	0.034	0.457
Issue Size	600	746,923.4	4,687,234
Leverage	600	432.367	1,432.674

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	0.1305 (0.0016)***	1.000							
Company Profitability	0.1156 (0.0006)***	0.0568 (0.02340)**	1.000						
Company Size	0.3688 (0.0005)***	0.0543 (0.0334)*	-0.1433 (0.887)	1.000					
Company risk	0.0209 (0.4534)	-0.0432 (0.3645)	-0.0366 (0.5976)	0.6789 (0.0004)***	1.000				
Bonds Maturity	-0.2345 (0.0003)***	0.321 (0.2342)	-0.0033 (0.8766)	-0.3456 (0.0000)***	-0.0854 (0.4434)	1.000			
Convertible Provisions	0.2345 (0.0000)***	0.0322 (0.6300)	0.0543 (0.5324)	-0.0543 (0.0065)***	0.0654 0.3324	0.0432 (0.0322)**	1.000		
Issue Size	0.0480 (0.1690)	-0.0212 (0.5431)	0.0057 (0.8700)	0.0268 (0.4432)	0.1655 (0.0000)***	-0.0751 (0.0312)**	-0.0174 (0.6175)	1.000	
Leverage	0.0865 (0.0345)**	-0.0643 (0.0778)*	-0.0083 (0.6753)	0.1045 (0.0123)***	0.0001 (0.8654)	-0.1144 (0.0064)***	-0.0539 (0.1345)	0.0045 (0.9753)	1.000

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	0.1567 (0.0000)***	1.000			
Public Registry	0.1556 (0.0003)***	-0.3453 (0.0000)***	1.000		
Efficiency of Bankruptcy Process	0.0554 (0.4325)	0.5643 (0.0000)***	-0.8765 (0.0000)***	1.000	
News Circulation	0.1255 (0.0000)***	0.6543 (0.0000)***	-0.1245 (0.0000)***	0.6543 (0.0000)***	1.000

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

The table gives 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 as the later being the highest rating and the former the lowest rating. Company's recommendation: a dummy variable that assigns 1 to companies that have a positive average recommendations and 0 otherwise. Company Profitability: the company profitability measured in term of its return on assets. Company Size: the total assets were used to get the size of the companies that are included in the sample. Company Risk: it is measured by the standard deviation of net income. Bonds Maturity: the average maturity for the bonds portfolio issued by a company; weights were assigned on the basis of the size of the issuance to the total issuances. Convertible Provisions: a dummy variable that gives 1 to companies with the convertible option and 0 otherwise. Issue Size: it represents the size of the issuance in term of dollars. Leverage: the company leverage is measured by the debt to equity ratio. Concerning the other variables, more description is given in table 1. The stars that appear in the tables mean the following: *** for a significance that is lower than 1%, ** and * are for a significance that is lower than 5% and 10% respectively.

Dependent Variable = Bonds ratings	Expected Sign	Model
Analysts average recommendation	+	0.341 (0.044)**
Company Profitability	+	0.0123 (0.005)***
Company Size (in billions of U.S Dollars)	+	55.6 (0.000)***
Company risk (in millions of U.S Dollars)	-	-232 (0.765)
Bonds Maturity	-	-0.543 (0.345)
Convertible Provisions	+	0.600 (0.000)***
Issue Size	-	3.65×10^9 (0.678)
Leverage	-	-0.000 (0.234)
Creditors Rights	+	0.244 (0.056)**
Public Registry	+	1.432 (0.000)***
Bankruptcy Efficiency	+	0.006 (0.003)***
News Circulation	+	0.235 (0.075)*
Manufacturing		0.344 (0.333)
Trades		-0.008 (0.876)
Finance		0.788 (0.003)***
Utility		0.624 (0.054)*
N		600
Pseudo R ²		13.67%
LR – Chi ²		234.77
Significance		(0.0000)***

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