

Effect of Initial Rating and Reaffirmed Rating Announcements on Stock Return - An Event Study Approach

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Abstract

This article examined the impact of initial bond rating and reaffirmed rating announcements on stock price in the Indian stock market. This study also demonstrates the market's effectiveness in terms of rating announcements. It could be quite helpful to watch rating announcements while making an investment choice, since empirical research demonstrates a substantial correlation between rating announcements and stock movements. The correlation between rating announcements and stock prices has been studied using the event study method. To examine the impact of an event on variables, this is frequently used in finance and economics. Data for the BSE 100 companies' initial rating and reaffirmed rating of bonds, market index/return, and stock price are taken from the Prowess IQ CMIE database between 2010 and 2018. The study's findings indicate that the market responds favourably immediately following an announcement, but no change in stock prices has been seen after a few days of announcements. Additionally, the abnormal return and cumulative abnormal return t-statistics were shown to be substantially different from zero. The conclusion drawn from the results is that the Indian bond market is in quite solid shape. Examining the impact of original and reinforced rating announcements on stock price provides a fresh perspective to the finance literature.

Keywords: Bond Rating, Stock Price, Probability of Default, Information Asymmetry, Rating Announcements

JEL Classification: G12, G14, G24

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1. Introduction

The Indian financial system is rapidly evolving, characterized by fast economic growth, more reliable systems, and increased efficiency. However, the country's bond markets must strengthen to complement its global equity markets and booming banking industry. While the size of the government and Corporate Bond Markets (CBM) has increased, they remain illiquid. Furthermore, the corporate market is highly arbitrage-driven and has a limited number of participants. To strengthen the bond market Indian government passed a new circular in 2019 stated that 25% of the capital financing needs to be done through Corporate Bonds (CBs) by large firms. Also, Credit Rating (CR) is mandatory for issuing bond in India called Bond Rating (BR). CR gained popularity in 2000s in Indian market and considered as prime source of information about 'creditworthiness' of instruments. The Credit Rating Agencies (CRAs) were criticised for the 1997 Asian financial crisis followed by dot.com bubble in 2000s, and 'global financial crisis' 2008. Despite of all the criticism, CR remain the most common and widely used measure of credit quality of securities. Investors use CR to screens investment and to allocate regulatory capital.

The recent case of IL&FS crisis, DHFL and RCom etc. has kept the CRAs in lens of regulators and government. CRAs are known for the protection of investors' investment but recent default raises a debate to know if mandatory BRs are appropriate for these purposes. This is just an example of bad quality rating and in addition, these cases have proven the guilt of the rating agencies. The debate of CR and criticism of CRAs forced people to question on the existence of CRAs and quality of rating. CR grades are awarded based on publicly accessible and private information of the firm. Once a rating has been issued, it will be reviewed on a regular basis and rating grades can be revised in accordance with the changes in financial and economic condition of firm. This means that all the information about the company is not available to everyone. Therefore, the rating should be valuable and should convey new information in the market. Still, the agencies are not able to maintain quality ratings. Rating agencies have become increasingly competitive in recent years. There is typically a huge range in their rates because there is no regulation on how much they charge. A few of the agencies have even deviated from the Reserve Bank of India's (RBI) recommended price for evaluating bank loans. Following the RBI's rule that banks must hold larger capital for unrated loans, the rating business has grown.

The liquidity of the issuing firms is used by CRAs to assign an initial rating to new bond issues. This is dependent on the firm's fundamentals, as well as aspects connected to the industry and the macroeconomic environment (Abad-Romero, P., & Robles-Fernandez, M. D., 2006). Following that, as some of these relevant factors change, agencies re-evaluate corporate bonds and announce new rating grades. Reaffirmed rating is the revised rating of bond having same grade what previously hold. Rating sensitivity should be explained in detail by credit rating agencies, also they should include the broad range of operating and financial performance levels that could result in a rating adjustment, both upward and downward. Such elements should, to the greatest feasible, be stated in quantitative

terms that are understandable to investors, and should not be regarded as a generic risk factor. Wakeman (1990) argued on the data used by CRAs. He concluded that CRAs summarizing the public information only; there is no new data set. To check the information asymmetry of rating, lots of studies done on the change in the rating of instruments and its impact on stock prices, bond prices, etc. The earliest study by Ederington, Yawitz, & Roberts (1987) found a mixed result for this question. The purpose of this paper is to examine the movement in stock price due to initial and reaffirmed rating announcements of a bond.

Recent advancements in credit risk models have prompted a closer examination of the usefulness of BR. This reflects recent breakthroughs in credit risk modelling technology. In India, the companies are dependent on banks for financing their capitals, resulting in a terrible condition of banks. To develop the CBM in Indian, Security Exchange Board of India (SEBI) made the BR compulsory (SEBI Regulations, 1999), and a new framework issued by SEBI in April 2019 for the bond, made the larger company compulsory to raise 25% of the capital fund through bond financing. CRAs rate debtors' ability to repay debt and the likelihood of default in debt financing. CR grades can also be interpreted as probability of default. Still, ratings are the poor predictor of corporate default/failure (Hilscher and Wilson, 2017). The debtors' ability reflected as CR grads. Occasionally, these assessments result in a rating change, indicating that the CRAs believes the firm's credit stability has improved or deteriorated. This could be a change in category or relative position within a category, or a change in the rating outlook. The latter entails a review of the firm's tendencies or dangers, as well as their prospective impact on the issuer's CR. A large amount of research has looked into the information content of changes in CR, as measured by abnormal stock returns in the period following of the announcement (Jorion and Zhang, 2007). We should expect a large stock price reaction if credit rating revisions are informative: good news regarding a company's cash flows should affect its bond and stock prices in the same direction. Hence, rating announcements must convey some information to the market.

The information content of CR has always been considered a point of debate in literature. The value of CR as a source of information for other investors cannot be overstated (Holthausen and Leftwich, 1986; Dichev and Piotroski, 2001). Investors, on the other hand, may be at danger of credit rating agencies' skewed informational role as a result of information asymmetry (Schipper, 1989; Tsui and Shieh, 2002; Berger and Hann, 2007) and their sluggishness in communicating informational changes to the public (Ederington et al., 1987). This article is focused on information content by initial rating and reaffirmed rating announcement. Most of the studies done on CR change (upgrade/downgrade) and its impact on the stock market, bond price, bond yield, etc., in UK and US. Few studies were done on Spain, China, and India but, that too is on the upgrade/ downgrade of CR and its impact. India has a very weak bond market and the rating of bond as well as the bond financing is mandatory (SEBI Regulations, 1999 and 2019). The result draws by authors on information content of CR and their impacts are contradictory. The results vary from country-to-country and industry-to-industry. Compared to US and UK, India has very weak bond market; also, the

geographical risk, political risk and industry risk are different for all the countries. The extensive research on initial bond rating and re-affirmed rating are lacking in the literature, especially in India. This paper will explore and enrich the bond rating literature in many ways by examining the impact of rating announcements (initial rating and re-affirmed rating) on stock prices. The upgrade/downgrade of bond rating is mostly treated as new information in the market and investors react accordingly. Section II will illustrate the literature and theoretical background of the paper and hypothesis development. Section III will explain and analyses the data used for the paper. The last section will conclude the result, limitation, and implications of the study.

2. Literature Review and Hypothesis Development

Empirical tests of market efficiency in the context of credit ratings look at price changes before, during, and after rating announcements using conventional event study methodology (Norden & Weber, 2004). Prices should react after a credit rating event if credit ratings provide additional information to the market. On the other hand, it's possible that CR simply reflect information that the market already has, implying that prices are unaffected by the rating event. According to the literature, CR serves two purposes: they certify a company's financial situation (initial CR) and signify a change in that condition (rating modifications, i.e. upgrades, downgrades and reaffirmed). CRAs do provide essential information to investors, but their utility has declined in recent years as a result of economic globalisation and rapid technological advancement (Li et. al., 2013).

A seminal paper on bond rating by Melicher & Rush (1974) found a negative relationship for lower bond ratings and higher common stock betas. They studies only the electric utility firm by using a multiple regression method which was contrary to Schwendiman & Pinches (1975) research. Schwendiman & Pinches (1975) found that common stock beta increases due to the downgrade of bond rating by using capital assets pricing model (CAPM). Apart from the impact of rating studies suggest the regulators to change the policy and model used by CRAs (Papaikonomou, 2010). Katz, (1974), tried to determine the bond market “efficiency” in the utility industry by using the event-oriented methodology. The bond market efficiency was measured with the movement of a change in a bond rating. Katz observed that the announcement of rating change does not necessarily convey any new information in the market. Change in bond rating done by assessing the information which is already available in the market publicly. He also suggested that there is no anticipation on capital market efficiency and there are six to ten lags exist after the change in CR and reached before full adjustment to the new rating. Contrary to this, Grier and Katz (1976) examined the industrial and public utility firms’ rating change effect on return. They concluded that in the industrial bond market, there was speculation about a bond rating downgrade, but there was none in the public utility bond market (Grier and Katz, 1976).

Previous studies report the controversial result for effect on market return due to the change in rating. The early research didn’t find any evidence for the change market return before and after the rating change announcement for bond by using monthly bond returns and stock returns (Weinstein,

1977; Singleton and Pinches, 1978). A later study suggested that change in rating affects the stock prices. Rating downgrade has a significant negative impact on stock return but no evidence for an upgrade (Cornell et al., 1989; Hand et al., 1992). Hence, change in bond rating conveys information not already incorporated in the security price. They also go further and use excess daily returns, claiming daily data will isolate the announcement effect rather than using monthly excess return data. Other than stock price change in rating also affects the scale of under pricing at the time of equity issuance. The change in rating grades from speculative grade zone to investment grade zone have significant effect on the capital structure of firm (Aktan, Celik, Abdulla, & Alshakhoori, 2019).

Bond rating downgrade shows negative abnormal return on the stock, but no such changes in stock due to upgrade (Holthausen, Robert and Leftwich, 1986; Cornell, Landsman, and Shapiro, 1989; Griffin and Sanvicente, 1982; Hand et al., 1992; Ederington and Goh, 1993; Dichev & Piotroski, 2001). The downgrade shows that in different time periods, firms have poor returns, and it can be used as an important determinant as future profitability of the firm. This result also supports the previous researches of (Wansley et al., 1992; Hite and Warga, 1997). Another analysis by Vassalou and Xing (2003) concluded that “stock return in rating event studies should be adjusted by size, book-to-market and default risk, increase of default loss indicator before and decrease after downgrades.” Kim and Nabar (2003) concluded that stock return near the change in rating is significantly negative with high value for the firm having lower institutional ownership. They also found that the debt-to-equity ratio is negatively associated with stock returns.

May, (2010) concluded in his study that “the stock market reaction to rating changes during the sample period and find that daily abnormal stock returns are negative and statistically insignificant around upgrades.” Finnerty, Miller, & Chen (2013) suggested that the announcement of rating has a significant abnormal return, but the bank’s stock prices show a negative return on rating downgrade. The literature available on changes in ratings reported different effect on stock returns for different types of announcement (Bissoondoyal-bheenick and Brooks, 2015). Most of the prior studies on downgrade of rating for a bond by CRAs suggested that there is negative associated with stock returns, but for the upgrade announcements, there is little evidence to support the abnormal stock performance (Poornima, Umesh, & Reddy, 2015; Kenjegaliev, Duygun, & Mamedshakhova, 2016).

The latest study on rating change by Baum, Schäfer, & Stephan (2016) concluded that downgrade, outlook and watch list do not have any impact on the value of Euro. The study is conducted for sovereign rating change and an impact on the value of the euro. But the rating announcements of CRAs increase the volatility of the exchange rate. Reddy, Bosman, & Mirza (2019) reported that the upgrade of a rating does not any significant reaction to the stock return, but the stock return reacts negatively to the downgrade of rating. The result of Reddy et al., (2019) is similar to the previous study done by Choy, Gray, & Rangunathan, (2006); May, (2010); Freitas & Minardin Fonseca, (2013); Fatnassi & Ftiti, (2014); and Poornima et al., (2015). Study by Lopatta, Tchikov, & Körner,

(2019) found that downgrade have different effect on different sector and varies with CRAs too. From the above extensive literature review, we come up with this hypothesis.

H₀: Rating announcement has a no impact on stock return.

H₁: Rating announcement has a positive impact on stock return.

The hypothesis is supported by the result of data that includes a large sample of bond rating from 2010 to 2018. First, the literature suggested that bond rating are tightened after the global crisis 2008 but over again started giving a very high grade or liberal rating to the bond. Second, there is no warning/information before the default of the bond or companies by CRAs. But the upgrade of the rating announcement leads to positive changes in stock prices. Investors are more concerned with the rating compared to other market information (Dimitrov, Palia, & Tang, 2015). There is an information gap between lenders and investors, which leads to stock undervalued due to information uncertainty. There is no fixed time for CRAs to change the rating or announce the rating change. The valuation of rating grade is continuous process till the maturity of instrument. Hence, based on credit obligation changes rating grades can be revised anytime.

3. Data and Methodology

The sample for the study has been extracted from prowest IQ CMIE database from 2010 to 2018 of Bombay Stock Exchange-100 (BSE 100) listed company. The companies, whose data is not available for this study period is omitted, our final sample considered sixty companies out of a hundred. The forty firms excluded from the study due to non-availability of bond rating data or stock price data and not qualified for required features. Our investigation was focused on four major credit agencies which are CRISIL, ICRA, CARE and INDIA RATING. Rating agencies provide multiple ratings for the single bond over the maturity, so only initial rating/re-affirmed is considered for the study. The change in rating announcement are not examined and excluded in the final sample. The rating announcements made in the period, when firms gone for any strategic change like M&A, dividend declaration, expansion etc., are excluded. The day of announcement considered as event day and only one rating is considered for analysis in one event window; others are omitted.

Event study method has been used for the analysis following previous studies like Norden & Weber (2004); Huang et. al. (2018). It is widely used in finance to check the effect of an event on another event. Here rating announcements are an event having impact on stock prices of particular firm. Hence, this is the perfect method to apply for this study, where the impact of the rating announcement will be checked for the stock price. This will help to find the abnormal return (AR) caused by a change in ratings (Boehmer, Musumeci, & Poulsen, 1991). AR represents the return, which was not forecasted and occurred due to a rating change announcement event in stock price (Armitage, 1995). The event widow used for the study is 61 days. Event day is considered as "0" days and 30 days pre-event as '-30' and 30 days post event as '+30'. Abnormal return on different days shows the difference between the actual return of stock on the same day and normal stock return. The

normal return (also called expected return) is predicted from the two inputs, (i) relationship between companies' stock return and (ii) its index called α and β parameters of the regression line.

To Calculating AR we need to calculate the Normal Return (NR) and expected return. Sharpe, (1964) develop a model called market model, which is used to find the NR. The formula used for calculation of NR is given below:

$$E(R_{at}) = \alpha_a + \beta_a R_m$$

Where, $E(R_{jt})$ is the expected return on security a, R_m is the expected market return, and α_a and β_a are the intercept and slope of the regression line.

Calculation of Actual Return

$$R_{at} = \{P_{at} - (P_{at-1})\} / (P_{at-1})$$

Where, R_{at} - daily stock return on security a for day "t". P_{at} - Adjusted price for the security 'a' on a daily basis at the end of the period "t." and P_{at-1} - Daily adjusted price for the security 'a' at the end of period t-1'.

Calculation of Market Return

$$R_{mt} = \{I_t - (I_{t-1})\} / (I_{t-1})$$

Where, R_{mt} - the daily return of stock on a market index, on day 't', I_t and I_{t-1} - Closing index for the day 't' and 't-1'

Calculation of AR

$$AR_{jt} = R_{jt} - E(R_{jt})$$

Average Abnormal Returns (AARs): The returns associated with the event at different times are different. To calculate the effect of an event on a different time, we need to find out the AAR with the help of the below formula:

$$AAR = \frac{1}{N} \sum_{i=1}^n AR_{i,t}$$

Cumulative Abnormal Returns (CAR)

To check the total impact of rating announcement event on a different point of time need to calculate CAR

$$CART = \sum_{t=1}^T AR_{it}$$

And Cumulative Average Abnormal Return (CAAR) is estimated to know the mean value of a different event.

$$CAART = \sum_{t=1}^T AAR_t$$

Parametric Significance test

To check the statistical significance, z-statistic is used for AARs and CAARs.

The Z Statistic test for AARs

$$Z = AAR_t / \sigma AAR_t$$

Where $AAR_t = AAR$ at a time 't.', $\sigma AAR_t =$ Standard error of average AR.

Calculation of Standard Error (S.E.)

$$S.E. = \sigma / \sqrt{n}$$

Where, $\sigma =$ standard deviation, $n =$ number of observations

4. Results and Discussion

The effect of initial and reaffirmed ratings on stock returns around the period of the rating announcement is shown in the table (result of analysis). There is no indication of statistically significant response to the announcement of an initial and reaffirmed rating, which is consistent with prior studies. Initial rating is the first and new rating grade awarded to the instrument by CRAs on or before issue. Whereas, reaffirmed rating is the revised rating awarded same grade by CRAs. As per methodology information CRAs uses hidden or private information of firms. Hence, the rating should convey new information to the semi-strong market. The result of the study shows negative abnormal return in the last 8 days before event whereas, after event abnormal return found positive. But the t-statistic of the cumulative abnormal return and abnormal return found different than zero. The statistical report of abnormal report and cumulative abnormal report are presented in table 1.1. The result indicates that the abnormal return is negative just before event and positive just after event. But, after few days there is no difference in the return. Hence, it can be concluded that initial and reaffirmed rating is significantly different than zero and did not convey any new information to the market. The graphical representation of AAR and CAAR presented in figure.

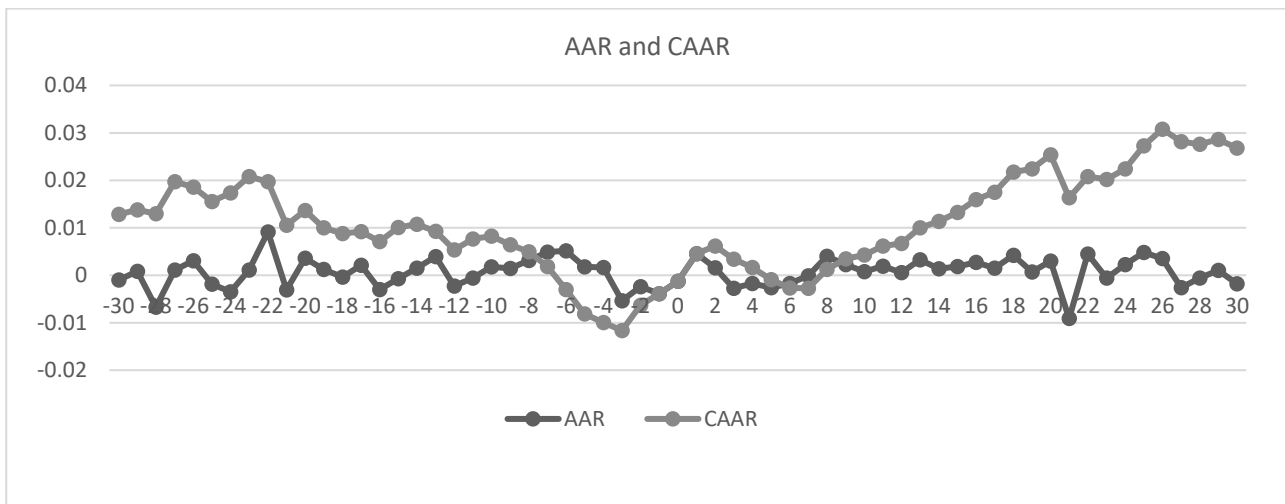


Figure 1. AAR and CAAR of stock prices

Source: Prepared by author

As we can see in the figure, CAAR were negative before the event and also started decreasing 20 days pre-event. Whereas it is found positive post event and started increasing from T+7 days of event. Our empirical analysis of bond rating suggests that the impact of the initial bond rating announcement has a positive effect on the stock price means our alternate hypothesis is accepted. Through the analysis results, we have enough support to say that the bond rating announcement explains the direct changes in the stock price (Poornima et al., 2015; Bissoondoyal-bheenick & Brooks, 2015; Kumari & V., 2019). Companies listed in BSE 100 have a significant effect on rating announcements on their stock price. This is maybe because of different instruments and different rating grades. Also, companies taken for the study are rated by multiple credit rating agencies (CRAs). So, the difference in stock price has been seen because of different agencies' ratings and this is supported by Lopatta et al., (2019).

All the CRAs have their own methodology to give a rating. Sometimes the difference in stock price for the same level of the announcement is because of a different instrument rating. If two agencies gave the same rating grades to two different banks for the same type of instrument may have a different stock price. This difference is maybe because of the methodology or amount of instrument. There should be a standard rating methodology for all CRAs. It will be able to create more trust among investors. The companies is acting as a mediator between the public and the corporate borrower. The stock return of the companies is affected by many financial and non-financial factors. Credit Rating agencies provide rating to the companies 'instrument, that rating convey some news to the market. Investors perceived that information or news and influence their investment decision. So, we can say that rating has influence on investment decision of investors and it impacts the stock return. Hence, the rating has significant impact on stock price.

The results show that ethical investments in this particular type of company have a big impact on stock performance around the time that initial ratings and re-affirmation ratings are announced. This is a unique finding that is important information for market participants in capital market.

Because they don't provide any new information, new and affirmation ratings are thought to be less significant, but our findings prove the opposite. Individual investors may benefit from the reported findings because they will be aware of CRA rating changes, which will reveal an increase in values if the change is positive and a decrease in values if the change is negative. A company might use initial and re-affirmation ratings to convince current investors of their funding choice and to entice new ones based on its strong financial standing and promising future. Asymmetry in information between issuers and investors is decreased through the announcements of rating grades. This study aims to close the gap between theory and practise in this regard. As reliable and educational tools for investment decisions, it is important to study the impact of stock returns around rating releases.

5. Implications, Limitations and Future Scope

The study helps in knowing that CR acts as a factor, affecting stock prices. It is helpful for both commercial and economic people. The individual investors will get a positive approaching from the rating announcement information. The decision of investment, de-investment, and hold of securities decisions also depends on this. The upgrade and re-affirmed gives a positive vibe in the market, whereas downgrade and watch give negative vibes. Similarly, the initial rating fall in investment-grade has a positive impact and rating fall in speculative-grade have a negative effect or vibe. Hence, this study is more useful to the individual investor.

The regulators should investigate the change of ratings. The difference in changes of rating grades for different sectors questioned on CRAs methodology. The Policy maker should work on this and need to maintain the peace and integrity in market. Also, it should not mislead the investors with wrong or false information. The quality of ratings is questionable since global crisis 2009 (Lopatta et al., 2019; Yu, Chi, & Jiang, 2019).

This study is done for a limited time and for a specific data set. It can be extended by using the extensive data set for a more extended period with the availability of accurate data. Mostly the financial data is not available to the public. Hence, data availability and accuracy or fairness of data is the main limitation of the study. Further study can be carried about by adding different financial and non-financial factor which is impacting the stock prices. Also, it can be extended to the other instruments' rating announcement and their impact on various factors like, dividend, capital structure, profitability, CDS etc. Influencing variables of the stock prices and rating grades of different instruments of the same firm would extend the future literature in this area.

APPENDIX

Table 1.1 Result of Analysis

Window	AAR	CAAR	t-statistic CAAR	Window	AAR	CAAR	t-statistic CAAR
-30	-0.0010	0.0128	0.1300	1	0.0045	0.0045	0.2527
-29	0.0008	0.0138	0.1425	2	0.0016	0.0062	0.2418
-28	-0.0067	0.0130	0.1366	3	-0.0028	0.0034	0.1085
-27	0.0011	0.0197	0.2106	4	-0.0017	0.0017	0.0461
-26	0.0031	0.0186	0.2027	5	-0.0026	-0.0009	-0.0229
-25	-0.0018	0.0155	0.1726	6	-0.0017	-0.0027	-0.0601
-24	-0.0035	0.0174	0.1970	7	-0.0001	-0.0027	-0.0574
-23	0.0011	0.0208	0.2412	8	0.0040	0.0013	0.0247
-22	0.0091	0.0197	0.2335	9	0.0022	0.0035	0.0645
-21	-0.0031	0.0106	0.1282	10	0.0008	0.0043	0.0748
-20	0.0036	0.0136	0.1693	11	0.0019	0.0062	0.1033
-19	0.0012	0.0100	0.1279	12	0.0005	0.0067	0.1075
-18	-0.0004	0.0088	0.1154	13	0.0033	0.0100	0.1538
-17	0.0021	0.0092	0.1238	14	0.0014	0.0114	0.1690
-16	-0.0030	0.0071	0.0985	15	0.0019	0.0132	0.1899
-15	-0.0007	0.0101	0.1446	16	0.0027	0.0160	0.2217
-14	0.0015	0.0108	0.1600	17	0.0015	0.0175	0.2358
-13	0.0039	0.0092	0.1425	18	0.0042	0.0217	0.2845
-12	-0.0023	0.0053	0.0856	19	0.0007	0.0224	0.2858
-11	-0.0006	0.0076	0.1279	20	0.0030	0.0254	0.3158
-10	0.0018	0.0082	0.1447	21	-0.0091	0.0163	0.1979
-9	0.0015	0.0064	0.1194	22	0.0045	0.0208	0.2467
-8	0.0031	0.0050	0.0978	23	-0.0006	0.0202	0.2343
-7	0.0049	0.0018	0.0384	24	0.0022	0.0224	0.2546
-6	0.0051	-0.0030	-0.0685	25	0.0048	0.0273	0.3029
-5	0.0018	-0.0082	-0.2027	26	0.0036	0.0308	0.3358
-4	0.0017	-0.0100	-0.2770	27	-0.0026	0.0282	0.3014
-3	-0.0053	-0.0116	-0.3732	28	-0.0006	0.0276	0.2900
-2	-0.0024	-0.0063	-0.2470	29	0.0010	0.0286	0.2954
-1	-0.0039	-0.0039	-0.2142	30	-0.0018	0.0268	0.2721

Source: Prepared by author

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