

# Assimilation between Bond Market and Stock Market

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## Abstract

The research work deals with studying of the relation between shares and bonds and comparative analysis of stock (shares) which are listed on stock market exchange and bonds (Government Securities) which are listed in NSE Government security index, which issued in whole sale debt market. For evaluating the relation between stock and bond market to study the comparative analyses of both markets and also finds out the correlation and cointegration between both markets, whether these markets correct each other or not. The objective of this paper is to scrutinize the correlation and linkage structure of stock and bond return across different time-phase horizon between stock and Bond Market Indices over a period from January 2005 to Dec 2010. The findings outbuilding some light on the presence of mean deteriorating arrangement of correlation across changed economic environments. During the economic richness, there is an indication of positive and significant correlation between bond and stock returns. An insignificant positive correlation was also observed during the recession period. Conversely, in the course of the recovery period, negative and insignificant relation was observed. Conclusions on co-movement of stock and bond index recommend no evenness relationship with any short-term error correction. Results also indicate that the stock and bond markets of are independent of each other, with most of the variations in indices being explained by past value of each respective market Indian capital market.

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25 **Index terms**— Bond Index, Stock Index

## 1 Introduction

26 o analyses the co-movement between stock index and bond index varies with the uncertainty of stock market. They use to protect the volatility from equity index options to provide an objective, observable, and dynamic measure to analyses the stock market uncertainty. Here research examines the stock and bond returns tend to move together during periods of lower stock market uncertainty in different era of tenure. Stock and bond returns tend to exhibit which type of relation either positive or even a negative relation during periods of solid economic and pathetic economy i.e. in crises. The authors' findings have implications for understanding joint cross-market price formation. Diversification beneficial decreases the risk of portfolios which comprises of combination of different investment product that mainly includes stocks and bonds. As an investment, stock market typically is viewed as a financial asset that will fluctuate and influence through political, social, or economic distress and company's

37 Author : E-mail : roops1004@gmail.com performance and investors invest in different sectors and bonds to diversify the risk of losses. Comparative analysis of stock (shares) which are listed on stock market exchange and bonds which are listed in bond index, which issued in bond market. For evaluating the relation between stock and bond market to study the comparative analyses of both markets in different economic time horizons and the correlation between both markets that whether these markets correct each other or not. Is there any integration and adoption between stock market and bond market?

### 3 LITERATURE REVIEW

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43 Several studies tells about stock market behaviors which are too specific and the market behaves like a  
44 completely random walk which cannot be completely predictable with "full knowledge" theories of market where  
45 investors knows whole of the information while we may not know whole of it because of these observations we  
46 try to extract evidence that may disclose the prejudices and they acts predictably through observe and detect  
47 the sequence of past results and try to estimate the probability with approximation to select the number that  
48 has the maximum probability of result. The study analyses that whether the stock market uncertainty has some  
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55 has the maximum probability of result. The study analyses that whether the stock market uncertainty has some  
56 role to understand the comovements in stock market and bond market.

57 Macroeconomics analyzes long-run growth as well as the cyclic movements in total output, unemployment  
58 and inflation, the money supply and the budget deficit, and international trade and finance. It focused on the  
59 movement and trends in the economy as a whole. Economists evaluate the success of an economy's overall  
60 performance by how well it attains the following objectives: High levels and rapid growth of output and  
61 consumption (output is usually measured by the gross domestic product (GDP), which is the total Value of  
62 all final goods and services produced in a given year; also, GDP should be close to potential GDP, the maximum  
63 sustainable or high-employment level of output). Low unemployment rate and high employment, with an ample  
64 supply of good jobs.

65 In summary rates generally the stock market get boost or lift high in the condition of low interest rate.  
66 Correspondingly stock market has a tendency to goes down or slips as the rising of interest rates. It is not to say  
67 that this all things take place in perfect coordination. Because market takes time for changes in interest rates  
68 to work their way over and done with the markets in the manner as defined above. Aimed at an alert investor,  
69 though, changes in interest rates suggestion pointers to shift from equity market to the debt investments when  
70 interest rates gets rise and vice versa.

## 71 2 II.

## 72 3 Literature Review

73 The objective of this paper is to examine the correlation and linkage structure of stock and bond return across  
74 different time-phase horizon and cointegration relationship between stock and Bond Market Indices over a period  
75 from January 2005 to Dec 2010. Many studies conducted research on impact of macrovariable with the stocks  
76 and bond market. Study of integration of security and debt market is common among developed countries. a)  
77 Study related to bond market and stock market integration and relation:

78 Campbell and Aminer (1991) uses a log-linear asset pricing framework and a vector autoregressive model near  
79 to break down movements in stock and bond returns due to cause and changes in hopes of future stock dividends,  
80 short-term real interest rates, inflation , and excess returns on stocks and bonds. With the using of monthly  
81 postwar U.S. data, they found that excess stock yields are to be driven mostly by news almost about future  
82 excess stock yields, although excess of 10-year bond yields are driven mostly through news about future price  
83 rises or inflation. These results support to clarify why postwar excess stock and bond yields have been nearly  
84 uncorrelated.

85 Bodart et al. ( ??999) found many answer such as what and how does the potential effects of the exchange  
86 rate on the bond and stock national equity index return series due to cause of conditional market volatilities and  
87 international correlations of the countries and here they also tell that if we find any little evidence find in bond  
88 index return or wholesale debt market while strong asymmetries in conditional volatility. Though, both bonds and  
89 equities reveal asymmetry in conditional correlation. ??eddy (2003) studied Integrated financial market which is  
90 playing very essential and necessary role for many years with many reasons. Integrated markets provide a channel  
91 for conveying or means of transmitting important price signals to auditors. Financial market integration is to  
92 promote the growth or development of being essential or compulsion condition for a countries financial sector to  
93 raise or come forth as an international financial center. Evidence from Bursa Malaysia Cheng et al (2002) are  
94 using Johansen Cointegration test, VECM-X and GARCH model through this he finds the linkage between stock  
95 and bond market through studies and observe the existence of long-term relation and volatility. He also finds  
96 co-movement of stock and bond indices where he suggests an equilibrium correlation with shortterm inaccuracy or  
97 error correction and as of volatility linkage bond market cannot provide a meaningful or significant explanation for  
98 conditional and uncertain volatility in stock market, thus, he is rejecting the mixture of distribution hypothesis  
99 and premises. Their finding or results sheds that in the course of the economic prosperity or wealth, there  
100 is an indication or evidence of positive, progressive, irrelevant and insignificant correlation between bond and  
101 stock returns. A significant positive correlation was also observed in the course of the crisis and disaster period.  
102 Though, in the course of the recovery period, negative, irrelevant and insignificant relation was saw or observed.  
103 Chen et al (2009) analyses in situation of high volatility state of the bond market and low volatility state of the

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104 stock market, the assessment or estimates of bond-stock correlation in both or in cooperation of high and low  
105 connection or correlations states are nonnegative. But when both bond and stock markets are in high volatility  
106 state, the bond-stock correlation has the maximum correlation predicted and estimate at its high correlation-state  
107 and almost lowermost correlation estimate at its low correlation-state.

108 Fight the Fed Model is very popular model to measure the US market fair value. Where this Fight Model  
109 compares the earnings yield (E/P) of stock market's with the long-term government bonds yield. When we  
110 compare it with traditional methods, it assesses the stock market only by its own without concern to the level of  
111 interest rates. The reason most behind habitually refer to in provision of the Fed Model is that cost will more  
112 and stocks should yield less when bond earnings are low, such as bonds and stocks are rival asset. Long term  
113 real stock return less when beginning P/E is more, and long term returns are more when beginning P/E is less,  
114 irrespective of nominal interest rate.

115 Clifford S. Asness (2000) suggested that long run difference in instability or volatility among stocks and bond  
116 are causal and driven of the difference between stocks yields and bond yields. He tries to explain the A portfolio  
117 should be well diversified and their assets should be well classified so this all things depend on the correct  
118 understanding and correlation between bond yield and equity yield across the European country. They emphasis  
119 on correlations between both stock and bond markets in the period 1980-2003 among the dominant trends of  
120 conditional cross-country. This assessment produces strong evidence of inordinate comovement diagonally the  
121 board for both stock markets and government bond markets. Dates of change and speeds of adjustment illustrate  
122 a discrepancy widely across the linkage of country. Stock market integration is an additional steady process than  
123 bond market integration. The impact of European monetary union (EMU) is rather limited, as it has mainly  
124 affected the timing of bond market correlation advantages (but hardly their size) and has had slight apparent  
125 consequence on stock market integration.

126 Sunday Brownson et al are used the some macroeconomic variables like inflation, external debt, domestic  
127 savings, nominal exchange rate value of total import, external reserves, industrial capacity utilization and  
128 liberalization and see their subjective effect and impact on the government stock, industrial/equities stock and  
129 total stock transaction in the Nigerian stock exchange market. He also discloses that inflation; nominal exchange  
130 rate of value of total import, domestic savings and liberalization period these all are significant macroeconomic  
131 variables which disturbing the value of industrial or equities trading in the stock exchange market of Nigeria. Also,  
132 external debt, nominal exchange rate, external reserves, and industrial capacity utilization rate are significant  
133 macroeconomic variables that affect the value of government stock transaction in the stock market.

134 Fama and French et al identifies elements which affect the returns on stocks and bonds; these are five common  
135 risk factors which are common factors for the returns on stocks and bonds. There are three factors which are  
136 related to stock-market factors as: an overall market factor, factors related to firm size and book-to-market equity.  
137 There are two factors which are related to bond-market factors as, related to maturity and default risks. Stock  
138 returns have mutual or shared variation due to the stock-market variables, and they are interrelated to bond  
139 returns through shared or mutual variation in the bond-market factors. Excluding low-grade corporates, the  
140 bond-market factors arrest the shared or common variation in bond yields or returns. The Most essential thing  
141 is that these five factors seem like to clarify the average returns on stocks and bond market.

142 Kenneth L. Smith studies show that world equity markets are gradually and increasingly connected and  
143 correlated; people take much interest in equity market. Correlation specifies that the co-movements between  
144 government bond markets are decreasing; leading to the decision is that investor's is getting beneficiation from  
145 international diversification. Equity markets show that major world equity markets share common factors that  
146 drive these markets. Their Outcomes described at this time approve that it is also happen in the situation for  
147 government bond markets where it is demonstrating that international diversification potential is lesser and that  
148 this information can be used to better forecast government bond market movements than if markets are not  
149 cointegrated.

150 Lingfeng li (Nov 2002) examines the correlation between stock and bond returns. He studied first G7  
151 countries where he finds major trends in stock-bond correlation, which is, follow a similar reverting pattern  
152 in the past forty years. Next, he uses an asset-pricing model to show that the correlation of stock and bond  
153 yields can be explained with collective disclosure to macroeconomic variables. By using three successively more  
154 realistic interpretations of asset return dynamics he is examined relation amongst the stock-bond correlation and  
155 macroeconomic variables. Their Observed outcomes show that the major trends in stock-bond correlation are  
156 resulted mainly by improbability about estimated inflation. The real interest rate and Un-estimated inflation are  
157 significant to some extent. Through using these macroeconomic variables he forecast the stock-bond correlation,  
158 which is also, helps to recover investors' asset allocation choices. He also finds link between trends in stock-bond  
159 correlation and inflation risk. b) Study related to effects of macro variables on bond market :

160 Kaiserstrasse (2001) found that a high degree of correlation take place among the long-term government bond  
161 return and the short-term Treasury Bills rate which lay down or tell us that there is significance or relation of the  
162 interest rates term structure in capital markets. Due to Integration and cause-effect and relation of the foreign  
163 exchange market with the money market and the government securities markets has helped them in liquidity  
164 management by the Reserve Bank. However, the equity market has relatively low correlation with other market  
165 segments. There is evidence of India's growing international integration through trade and cross border capital  
166 flows. India's trade and financial links with Asia are also growing among recent initiatives taken to promote

### 3 LITERATURE REVIEW

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167 regional cooperation. Emerging Asia has become the 'Growth Centre' of the world due to shifting of production  
168 base to the region. Which is likely to stimulate great? ??arr and Priestley (2003) has faith that the benefits  
169 of international bond market integration and economic costs are likely to be correlated and significant which is  
170 mainly leading to a extra or over cost of fiscal funding for government.

171 Suk-Jong Km et al ??2004) in EU Countries: this paper examines the time-varying level of integration of  
172 European government bond markets. We provide evidence for strong contemporaneous and dynamic linkages  
173 between existing EU member bond markets with that of 15 Germany. Our results have an important policy  
174 implication in that the government bond market convergence requires more than monetary and fiscal policy  
175 coordination. That is, bond market convergence requires policies designed specifically to address issues unique  
176 to this segment of the financial market.

177 Mohan (2005) promoting investment, domestic saving and outcome of economic growth these all variables are  
178 important vehicles for efficient and financial markets.

179 Journal of Monetary Economics by Fama, (1990) examines the ability to forecast one-year spot interest rates  
180 in the context of forecasting its components: the one-year inflation rate, and the real return on one-year bonds.  
181 It is found that the expected values of those two components move opposite to one another. Fama also finds that  
182 forecasts of these variables are related to the business cycle.

183 Xuan Vinh VO investigates the degree of international financial integration in Asia by examining the  
184 relationships amongst Asian bond markets by employing the advanced econometric technique of cointegration  
185 of error correction vectors. This study has a strong implication for investors paper analysis provides strong  
186 implication for international investors and fund managers in relation to international diversification whether they  
187 do benefit from investing in Asian bond markets. c) Study related to effects of macro variables on stock market:

188 Shahid Ahmed finds out the relationship and effects macro variables on stock prices. This study investigates the  
189 environment of the causative relationships among stock prices and the key macroeconomic factors demonstrating  
190 real and financial sector of the Indian economy. He took the quarterly data from 1995 to 2007. The study  
191 tells that the movement and fluctuation of stock prices occurs which is not only the result of behavior and  
192 performance of basic macroeconomic factors but it is also one of the reasons of movement and fluctuation in  
193 other macro measurement in the economy.

194 Malcolm Baker and Jeffrey Wurgler studied and measure the investor sentiments and its effect on the firms and  
195 stock market. And also studies that effect on stock market by speculator when they attract particular stock and  
196 get the limited arbitrage opportunity. Sentiments also affect the cost of capitals. So it may have consequences  
197 for the corporate firms for allocation of investment capital between safer and more speculative firms.

198 Jangkoo Kanga et al paper contributes to the evidence on the linkage between financial markets and the  
199 macroeconomic. We construct a conditioning variable from a set of macroeconomic variables and address one  
200 of the most compelling issues in finance, the time and cross-sectional variations in risk premium based on the  
201 suggested variable. We demonstrate that our proposed measure contains important information for predicting  
202 future stock returns and explaining the cross-section of average equity returns.

203 Oliver Bogutha et al identify a novel source of alpha bias that may occur any time uses a conditional risk  
204 proxy not entirely contained in the investor information set. This potential empirical problem is the complement  
205 of under conditioning, and over conditioning. While the concept is general, we focus on the over conditioning  
206 bias generated by using contemporary realized beta as a proxy for conditional beta. All empirical realized betas  
207 contain some degree of estimation error, and thus cannot be fully anticipated by investors. Ologunde et al  
208 (2006) examined the relationships between stock market capitalization rate and interest rate in Nigeria. They  
209 used the ordinary leastsquare (OLS) regression method and they found that the prevailing interest rate exerts  
210 positive influence on stock market capitalization rate. Also, they are finding that Government development stock  
211 rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative  
212 influence on government development stock rate. He also studied the volatility behavior of Nigerian insurance  
213 stock price. They evaluate the risk volatile and information measures of insurance stock. They are relevant to the  
214 investing community as a whole who invest their hard-earned money on corporate insurance business expecting  
215 reasonable return. ??urihara (2006) suggests that stock market capitalization rate is significantly influenced by  
216 the macroeconomic environment factors such as gross domestic product, exchange rates, interest rates, current  
217 account and money supply.

218 Evidence from Jordan examines the effect of interest rates on the stock market capitalization rate in Stock  
219 Exchange. This study suggests the importance of government intervention to encourage investment in ASE by  
220 reducing rate of personal taxation thus, granting incentive for creation of wealth, controlling interest rate so as to  
221 aid the growth of the stock market and improving the regulatory environment and decreasing The paper shows  
222 that the short-term (up to 3 month) money markets in India are getting progressively integrated with those in  
223 the USA even though the degree of integration is far from perfect. Analysis of RBI interventions in response to  
224 foreign exchange shocks suggests that these may play a role in the deviations from interest parity.

225 Wan Mansor et al (2009) deals with four economic factor such as inflation rate, industrial production output,  
226 stock prices and foreign exchange rates and also finds there has linkage and dynamic relationship between stock  
227 prices and these economic variables in six Asian-Pacific selected countries like Malaysia, Korea, Thailand, Hong  
228 Kong, Japan and Australia. He used monthly data for 10 years from January1993 to December 2002. His results  
229 explain the long run equilibrium relationship exiting between variables only in four countries like Japan, Korea,

230 Hong Kong and Australia, and short run relationship between all countries except Hong Kong and Thailand they  
231 shows some interaction. ??ama (1981) explains that there is negative relationship between stock returns and  
232 inflation through a hypothesized chain based on the quantity theory of money and the money.

233 Ajayi and Mougoue (1996) tells that there is a long-run relationship and significant relationship between stock  
234 market and exchange market where we finds have a positive effect exit on domestic currency with increase in  
235 stock prices. ??u (1996) results studied relation between stock market and Tokyo and Hong Kong markets and  
236 Singapore market based on the Granger causality test, he explain in his study that the changes we have seen  
237 stock prices are affected because of changes in exchange rates in Tokyo and Hong Kong markets. However, no  
238 any such causativeness was seen for the Singapore market.

239 Shih-Jen Lia and Jin Ting Che (2005) focused on the relationship among oil prices, gold prices, and individual  
240 Industrial Sub-Indices instead of the popular Taiwan Stock Exchange Capitalization Weighted Stock Index  
241 (TAIEX). The authors believe that commodity prices should have different degrees of influences to individual  
242 industries instead of the whole market. According to previous research, stock returns have leptokurtic, volatility  
243 clustering, and volatility asymmetric characteristics; this research further applies the TGARCH models to describe  
244 the relationship among oil prices, gold prices, and individual Industrial Sub-Indices.

245 Wen-Rong et al (2010) established the understanding of the interactive relationship among the Amex gold  
246 BUGS index, the New York gold spot and the New York gold futures in the gold market, as well as the Commodity  
247 Research Bureau (CRB) futures price index, the Dow Jones industrial average, the OPEC crude oil spot, and the  
248 dollar index. To do so, the study adopted the Vector Error Correction Model (VECM), the Granger causality  
249 test, the state space model and several other time series research methods. The research results indicate that  
250 co-integration exists among gold futures, gold indices and the overall economy, meaning there is a long-term  
251 equilibrium relationship with gold futures.

252 Cuneyt Aka (2011) investigated the relationships between the stock exchange, gold, and foreign exchange  
253 returns in Turkey. The monthly data of the Istanbul Stock Exchange (ISE), foreign exchange and gold prices  
254 for the period 1990-2010, are used for the analysis by means of the dynamic conditional correlations GARCH  
255 (DCC-GARCH) model. The results show that the conditional correlations between investments are time varying,  
256 and the 2001 crisis was a significant turning point in the dynamic relationships between various investment.

257 Suhana binti Mohamed Alizah binti Ali et al studied a stock market indices movement explains the overall  
258 market sentiment and Investors use these to estimate the forthcoming market trend. The aims of this research are  
259 to observe the kith and kinship between the consumer product and industrial product index with macroeconomic  
260 factors like Inflation rate (consumer price index), interest rate (base lending rate) and Money supply (M2). He  
261 studies the Malaysia economy, where the consumer product and industrial product sector play a significant role in  
262 driving the development of the Malaysia; whether as a strategic sector or as a mobiliser of funds for investment.  
263 They have taken 15 years' time period for sample data collection, which was calculated with the help of SPSS and  
264 their results, show that there has significance correlation between all variables and the indices. Whilst BLR and  
265 CPI have negative relationship with consumer product and industrial product index in Bursa Malaysia. Results  
266 also show that M2 has a positive relationship with consumer product and industrial product index in Bursa  
267 Malaysia it means that all variables and factors have significant correlation with the stock market indices.

268 Doong et al (2005) studied the six Asian countries (Malaysia, Indonesia, South Korea, Thailand, Philippines  
269 and Taiwan) over in the era of 1989-2003 to analyses and finds that dynamic relationship among stocks and  
270 exchange rates. According to their work, these financial factors are not cointegrated. He used Granger causality  
271 test which shows that in Malaysia, Indonesia, Thailand, and Korea bidirectional causality can be identified and  
272 also, there has found significantly negative relation among the contemporary variation in the exchange rates and  
273 the stock returns for all countries excluding Thailand.

274 This research work deals with studying the relation between shares and bonds and comparative analysis of  
275 stock (shares) which are listed on stock market exchange and bonds, which issued in bond market. Is there any  
276 integration and adoption between stock market and bond market? How closely the equity return and bond return  
277 are related with each other in India.

## 278 4 III.

### 279 5 Objective

280 To find out the correlation or bonding among stock market and bond market, whether one markets corrects  
281 another or not and study the comparative analysis of bond index return and stock index return in different  
282 economic time horizons, either they move together or not and their impact on index. Study the closeness  
283 between the equity return and bond return are related with each other in India.

### 284 6 a) Rationale of Study

285 Rationale of Study to analyzes the relationship between Indian Bond Market and Stock Market. As an investment,  
286 stock market typically is viewed as a financial asset that will fluctuate and influence through political, social, or  
287 economic distress and company's performance and investors invest in bond market to diversify the risk of losses.  
288 There are several studies tells about stock market behaviors which are too specific and the market behaves like a  
289 completely random walk which cannot be completely predictable with "full knowledge" theories of market where

## 9 B) TOOLS FOR DATA ANALYSIS

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290 investors knows whole of the information while we may not know whole of it because of these observations he try  
291 to extract evidence that may disclose the prejudices and they acts predictably through observe and detect the  
292 sequence of past results and try to estimate the probability with approximation to select the number that has  
293 the maximum probability of result. The study analyses that whether the stock market uncertainty has some role  
294 to understand the comovements in stock market and bond market in comparative time horizons.

295 The research work deals with studying of the relation between shares and bonds and comparative analysis of  
296 stock (shares) which are listed on stock market exchange and bonds which are listed in bond index, which issued  
297 in bond market. For evaluating the relation between stock and bond market to study the comparative analyses  
298 of both markets in different economic time horizons and also finds out the correlation between both markets.  
299 This study also analyzes that, whether these markets correct each other or not. How closely the equity return  
300 and bond return are related with each other in India. The price of Indian government bonds tends to increase,  
301 relative to stocks or not. To compares the trends and prize fluctuation in stock market and bond market. The  
302 utility of this research is to know the relationship of Indian stock market and Indian bond market and to find  
303 how much the Stock Market linked with the bond market of India. Thus paper analyze that there is any impact  
304 of stock market on bond market of India and vice a versa. How much theirs comovement follow each other or not.  
305 If there are any relation exists, then it is positive relation or negative relation. Here I took dependent variable  
306 is stock market of India and the independent variable are government securities index return, treasury bill index  
307 return, below 3 year maturity period bond index return, between 3 and 8 year maturity period index return,  
308 above 8 year maturity period bond index return and whole government NSE bond index return in correlation  
309 and regression.

310 The element of the Stock Market is the Index of stock market 'S & P CNX Nifty index' and the element of  
311 the Indian Bond Market is the Index of Indian bond market 'NSE Bond index'. We take the secondary data of  
312 the stock index return; treasury bills index return, government security index return, different maturity period  
313 of bond index return and overall bond index return. The Stock Market is the dependent variable and treasury  
314 bills index return, government security index return, different maturity period of bond index return and overall  
315 bond index return of India are the dependent variable.

## 316 7 IV.

## 317 8 Research Methodology

318 Secondary Data is used in this research, because we used the historical data. The sources of the Indian stock  
319 Market data is 'S & P CNX Nifty index' and the source of the Indian Government Security Market is the Index  
320 of Indian bond market 'NSE Bond index' of NSE web sites. The data is unobtrusive data because the sources of  
321 the data are the historical data. So we get the real data. The technique is used for data collection in the research  
322 is observational studies, because we use the secondary data for the research.

323 The Data of Indian Stock Market is collected from <http://www.nseindia.com>, the data of Bond Market  
324 is collected from <http://www.debttonnet.com>, [http://www.nse\\_bondindex.com](http://www.nse_bondindex.com) and <http://www.rbi.org.in> etc.  
325 NIFTY is taken as representing Index of Indian Stock Market and NSE Bond Index is taken as representing Index  
326 of Debt Market. The sample size for this research is the data of Stock Market Index return and Government  
327 Security index return of India on monthly basis for 5 year that is the Jan 2006 to December 2010. The research  
328 consist the monthly data of variables because it helps to make it more manageable.

329 In Research first of all finds the skewness and kurtosis of the Data, through it we can find that our data is  
330 normally distributed or not. If the skewness and Kurtosis of the data is between -1 to +1, it represent that our  
331 data is normal distributed. Then we apply the parametric test on the data and will find correlation between  
332 Stock Market Index return and Indian Bond Market index return of India. For Data analysis the research uses  
333 SPSS software for regression and correlation.

## 334 9 b) Tools for Data analysis

335 Various statistical tools can be applied to study the relation of Indian stock Market and bond market. In this  
336 study, Data is analyzed using tools like Correlation, Regression, T-test and Durbin Watson test and software used  
337 for the analysis is SPSS. Monthly Data of 'S & P CNX Nifty index' as stock index return and 'NSE Government  
338 Security Index' of India as treasury bills index return, government security index return, different maturity  
339 period of bond index return and overall bond index return is taken for this study from 1st of Jan 2006 to 31st of  
340 December 2010. Correlation is applied to find the relation between stock market and bond market, and find the  
341 coefficient (r) between these two.

342 To study and analyses the impact of bond market on stock market of India. NSE Government security index  
343 return is taken as independent variable and S&P CNX NIFTY index return taken as the dependent variable.  
344 Regression Model is applied to find the impact of bond market on stock market of India. Following Regression  
345 equation is used to find the impact.

346 + a Where, a-represents the coefficients -refers to change in monthly index return of NSE securities of India  
347 -refers to change in monthly movement of index return of NSE Government securities index of India. e-Represents  
348 the error term c) Hypothesis

349 The research begins with the assumption that the null hypothesis ( $H_0$ ) is true. The goal is to determine  
350 whether there is enough evidence to infer that the alternative hypothesis ( $H_1$ ) is true.

351 There are two possible decisions: Conclude that there is enough evidence to support the alternative hypothesis.  
352 Conclude that there is not enough evidence to support the alternative hypothesis. ??o Recession Period:

353 The value of R-square is 0.003 and the t-value is -0.247 at 0.807 as level of significance. It has suggested that  
354 the independent variable reveals only 0.3% of the reason for change in dependent variable due to independent  
355 variable in Post-Recession Period. Beta value of change in security index return i.e. negative; this shows that  
356 stock market has negative impact on bond market.

## 357 **10 VI.**

## 358 **11 Findings and Discussions**

359 From the output of various tools applied on variables, it is found that:

360 There is positive correlation between stock market and bond market of India. But this relation is very weak  
361 between stock market and government bond market.

362 Study of correlation and regression presents correlation structure of stock and bond return over the period  
363 from Jan 2006 to Dec 2010 both at weekly and monthly observation. Findings show some interesting mean-  
364 reverting pattern in the correlation structure of stock and bond indices across different economic setting from  
365 small positive to negative correlation. The results confirm that there exists positive and significant correlation  
366 between stock and bond return during economic booming (pre-recession period). In contrast, correlation during  
367 the Recession period appears to be relatively lower positive recording 0.243 and Insignificant. Lastly correlation  
368 structure for Postrecession period appears to be negative and insignificant, recording -0.053 for monthly return  
369 series. As we can see from the findings that there is a clear pattern in correlation structure of stock and bond  
370 returns. Positive and stronger correlation for prerecession period is followed by positive and weaker correlation  
371 for during recession and finally reporting negative and insignificant correlation for post-recession period. This  
372 outbuilding some significant light about mean-reverting pattern of correlation between stock and bond returns.  
373 The exhibition of negative correlation for post-recession period provides vital vision about the careful allocation  
374 of fund across stock and bond that may increase portfolio performance.

375 The value of R-square is 23% higher in economic booming (i.e. pre-recession period) and in contrast value of  
376 R-square during recession period appears to be relatively lower recording 5.9%. Lastly the value of R-square for  
377 post-recession period appears to be relatively very low recording 0.3% for monthly series of bond return indices  
378 and stock return indices. As we seen from the findings that there is clear pattern in value of R-square structure  
379 of stocks and bond returns. Stronger impact of stock market on bond market for prerecession period is followed  
380 by lower and negligible impact for post-recession period.

## 381 **12 VII.**

## 382 **13 Conclusion**

383 The objective of this paper is to scrutinize the correlation and linkage structure of stock and bond return across  
384 different time-phase horizon and cointegration relationship between stock and Bond Market Indices over a period  
385 from January 2005 to Dec 2010. The findings outbuilding some light on the presence of mean deteriorating  
386 arrangement of correlation across changed economic environments. During the economic richness, there is an  
387 indication of positive and significant correlation between bond and stock returns. A significant positive correlation  
388 was also observed during the recession period. Conversely, in the course of the recovery period, negative and  
389 insignificant relation was observed. Conclusions on co-movement of stock and bond index recommend no evenness  
390 relationship with any short-term error correction. Results also indicate that the stock and bond markets of are  
391 independent of each other, with most of the variations in indices being explained by past value of each respective  
392 market Indian capital market, therefore hypothesis of cointegration test has not been rejected therefor, No long  
393 term equilibrium exist between stock market and debt market.

## 394 **14 VIII.**

## 395 **15 Limitation**

396 The limitation is that the number of observations has taken is low i.e. only 60 that is monthly observation from  
397 year Jan 2006 to Dec 2010 in these study which shorter span of time and in data of bond market through which  
398 analysis of correlation between bond market and stock market of India. Only NSE Government Securities Index  
399 of whole sale debt market has been taken and there has no consideration of bonds of retail debt market and  
400 corporate debt market.

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Figure 1: 4 )

red tape because there is significant and positive relationship between government prevailing interest rate and stock market capitalization rate.

Litterman et al (1991) publish Journal of Fixed Income Use principal components analysis to determine the important factors that affect term structure movements.

Vipul Bhatt et al (2005) studied Interest Rate Parity in India:

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ear Y  
2

and Business Research Volume XII Issue XX Version I  
Global Journal of Management

Figure 2:

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### Assimilation between Bond Market and Stock Market

Glob&H : No bonding effect on return configuration among Stock Market and Year Jour-Bond Market of India in Pre-recession Period. H : Bonding effect on return nal configuration between Stock Market and Bond Market of India in Pre-recession of Period. H : No bonding effect on return configuration among Stock Market Man-and Bond Market of India in Recession Period. H : Bonding effect on return age- configuration among Stock Market and Bond Market of India in Recession mentPeriod H : No bonding effect on return configuration among Stock Market and and Bond Market of India in Post-recession Period. H : Bonding effect on return Busi-configuration among Stock Market and Bond Market of India in Post-recession ness Period. V. Data Analysis Tables Presents the result of the correlation and Re- regression of stock and Government bond index returns during the period of searchJanuary 2006 -December 2006. The period of analyses is divided into three sub- Vol- periods, the first Pre-recession period starts from Jan 2006-Dec2007, and the ume second Recession period is Jan 2008-Dec 2008, and lastly third Post-recession XII start from January 2009-Dec 2010. Regression of Stock Market and Bond Is- Market in India Pre-recession Period: Jan 2006-Dec 2007 Correlations ?Ni ?Bi sue Pearson Correlation ?Ni 1.000 .479 ?Bi .479 1.000 Sig. (1-tailed) ?Ni . .009 XX ?Bi .009 . N ?Ni 24 24 ?Bi Coefficients Data has been taken for this pre- Ver- recession period from Regression Model for Pre-Recession Period 0.108+ 0.462 sion The value of R-square is 0.23 and the t-value of is 2.561 at 0.018 as level of I 2 significance. It has suggested that the independent variable reveals 23.0% of 2012 the reason for change in dependent variable due to independent variable. Level ear of significance is at 0.018, so it can be concluded stock market has impact on Y bond market. Beta value of change in security index return i.e. impact on 50 bond market. Both these markets are in-depended market and they both are influenced by their individual existence i.e. depended and correct on each other by some. Recession Period: Jan 2008 -Dec 2008 Correlations Model Summary Coefficients a. Predictors: (Constant), b. Dependent Variable: a. Dependent Variable: Model R R Square Adjusted R Square Std. Error of the Estimate Durbin-Watson 1 .479 .230 .195 1.97545 1.159 Model Unstandardized Coefficients Standardized Coefficients T Sig. B Std. Error Beta 1 (Constant) .108 .462 .233 .818 ?Bi .003 .001 .479 2.561 .018 ?Ni ?Bi Pearson Correlation ?Ni 1.000 .243 ?Bi .243 1.000 Sig. (1-tailed) ?Ni . .224 ?Bi .224 . N ?Ni 12 12 ?Bi 12 12 Model R R Square Adjusted R Square Std. Error of the Estimate Durbin-Watson 1 .053 a .003 -.043 3.35125 1.994 a. Predictors: (Constant), b. Dependent Variable: Model Unstandardized Coefficients Standardized Coefficients t Sig. B Std. Error Beta 1 (Constant) .137 .791 .173 .864 ?Bi ?Bi .002 -.053 -.247 .807 24 Model Summary a. Dependent Variable:

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Figure 3:

D	Date	1	Total	Total	Total	Bibliography
1-Dec-05			Re-	Returns	Returns	1. Adlai Fisherb, , Mikhail Simutin, Murray Carlson
1-Jan-06			turns	Index	Index of	
1-Feb-06			Index	of T-	1-3 yrs.	
1-Mar-06			of GS	bills	ma-	
1-Apr-06			index	index	turity	
1-May06		245.46	205.51	205.51	bond	
1-Jun-06		246.38	210.73	210.73	index	
1-Jul-06		244.66	207.17	207.17	197.21	
1-Aug-06		244.18	208.04	208.04	197.74	
1-Sep-06		244.38	209.78	209.78	197.35	
1-Oct-06		242.77	210.73	210.73	197.81	
1-Nov-06		238.6	211.39	211.39	199.99	
1-Dec-06		235.28	212.74	212.74	200.89	
1-Jan-07		238.05	213.86	213.86	200.51	
1-Feb-07		242.88	214.97	214.97	200.41	
1-Mar-07		245.35	215.92	215.92	201.74	
1-Apr-07		250.13	217.59	217.59	204.39	
1-May07		250.98	218.33	218.33	202.34	
1-Jun-07		250.36	219.72	219.72	204.34	
1-Jul-07		248.26	220.78	220.78	204.42	
1-Aug-07		245.38	222.7	222.7	206	
1-Sep-07		246.87	223.45	223.45	205.43	
1-Oct-07		247.71	224.83	224.83	206.31	
1-Nov-07		248.93	226.45	226.45	206.8	
1-Dec-07		254.22	228.31	228.31	207.69	
1-Jan-08		254.88	229.32	229.32	210.13	
1-Feb-08		256.05	230.69	230.69	213.7	
1-Mar-08		257.44	232.09	232.09	212.51	
1-Apr-08		258.51	233.32	233.32	214.3	
1-May08		260.62	234.77	234.77	214.87	
1-Jun-08		268.11	236.62	236.62	215.23	
1-Jul-08		269.37	237.9	237.9	216.5	
1-Aug-08		254.43	227.14	227.14	219.88	
		263.41	240.5	240.5	220.46	
		265.45	241.77	241.77	209.88	
		260.6	242.7	242.7	221.73	
		249.84	244.25	244.25	222.32	
		252.1	246.1	246.1	221.74	
					219.6	
					220.96	
1-Sep-08		262.88	248.19	248.19	224.72	258.76
						2619207155.47
						248.03
1-Oct-08		272.89	250.45	250.45	229.43	266.92
						2709533971.71
						1183.7
1-Nov-08		280.73	252.45	252.45	233.46	274.36
						2777933477.28
						494.44

Figure 4:

401 Data has been taken for this recession period from January 2008 to December 2008. From the output table it  
402 is observed that there is a positive correlation between government bond market and stock market. The negative  
403 correlation between these two comes out to be 5.3%, which means these two have negative and insignificant  
404 correlation.

405 Regression Model for Pre -

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