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Appendix A

Tools for Time Series Analysis

A.1 Test of Stationarity

Before estimating the VAR model, the unit root tests examine the stationary properties of the variables. In this study two unit root tests, viz. Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) tests have been conducted to examine the stationarity properties of the variables.

A.1.1 Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) Tests

Dickey and Fuller (1979) consider three different regression equations that can be used to test the presence of a unit root:

$$\Delta Y_t = \gamma Y_{t-1} + \varepsilon_t \tag{A.1}$$

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \varepsilon_t \tag{A.2}$$

$$\Delta Y_t = \alpha_0 + \gamma Y_{t-1} + \alpha_2 t + \varepsilon_t \tag{A.3}$$

In the above equations, the difference between the three regressions concerns the presence of the deterministic elements $a_0, a_2 t$. The first is a pure random walk model, the seconds adds an intercept or drift term, and the third equation includes both a drift and linear time trend. The parameter of interest in all the regression equation is

γ ; if $\gamma = 0$, the Y_t sequence contains a unit root. The test involves estimating one or more of the equations above using OLS in order to obtain the estimated value of γ and associated standard error. Comparing the resulting t-statistic with the appropriate value reported in the Dickey Fuller tables allows us to determine whether to accept or reject the null hypothesis $\gamma = 0$.

In conducting Dickey Fuller test as in Equations (A.1, A.2 and A.3), it was assumed that the error term ε_t was uncorrelated. But when the assumption of uncorrelated error term is ε_t is relaxed, Dickey and Fuller have developed another test of unit root which is known as the Augmented Dickey Fuller (ADF) test, where the lagged difference terms of the variable are included in the model to make the error term serially independent. This test is conducted by 'augmenting' the preceding three equations such as Equation (A.1, A.2 and A.3) by adding the lagged values of the independent variable ΔY_t. The ADF test may be specified as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \gamma Y_{t-1} + \sum_{i=1}^{k} \beta_i Y_{t-i} + \varepsilon_t \tag{A.4}$$

Where ε_t is a pure white noise error term and where Δ is difference operator, γ and β are the parameters.

In ADF test we still test whether $\gamma = 0$ and the ADF test follows the same asymptotic distribution as the DF statistics, so the same critical values can be used. It is worth while pointing out that the appropriate static to be used depends on the deterministic components included in the regression equation. When there is no intercept and trend, we use τ statistic; with only the intercept, use the τ statistic; and with both an intercept and trend, use τ_τ statistic. The statistics labeled τ, τ and τ_τ are the appropriate statistics to be used in Equations (A.1, A.2 and A.3) respectively. The DF test forms a special case of the ADF test when the summation part in the right hand side of Equation (A.4) is detected or when $K = 0$ [Dickey Fuller (1979)]. For ADF test, the value of K is determined, based on the Akaike Information Criteria (AIC) and Schwarz Information Criteria (SIC).

One advantage of ADF is that it corrects for higher order serial correlation by adding lagged difference term on the right hand side. If the simple unit root test is valid only if the series is an $AR(1)$ process. One of the important assumptions of DF test is that error terms are uncorrelated, homoscedastic as well as identically and independently distributed (iid).

A.2 Choice of Lag Length

In order to check lag length at first, the longest plausible length or longest feasible length is chosen given degrees of freedom consideration. For example, using quarterly data, lag length 12 is chosen. Second the VAR is estimated and variance and covariance matrixes of residuals are formed. Variance and covariance matrixes of residuals from 12-lag model can be called $\sum_{12}$. Now suppose, we want determine if 8 lag is appropriate. The restriction of model from 12 to 8 lags would reduce the number of estimated parameters by $4n$ in each equation.

A.3 Selection of Variables in the System

Now, we discuss some of the important steps, which are involved in VAR estimation. To begin with, the selection of appropriate variable to be included in the model is very important. There is no specific method for selection of the variable. The choice is purely based on the underlying economic theory. Testing the Stationarity of the variables is the next step. In time series literature, unit root tests are used to check whether a variable or series included in the model is stationary or not. For the VAR estimation, it is essential that all the variables included in the system should be stationary either at level or at first differences.

The last and vital step of VAR estimation is the selection of appropriate lag length of each variable in the system. The selection of the appropriate lag length is the biggest practical challenge in VAR modeling. It may be possible to use different lag length for each variable in the equation. Such type of VAR is called as NEAR VAR and can be estimated through seemingly unrelated regression (SUR). But for the sake of simplicity the same lag length is used for all equations. Various lag selection criteria are used to select the optimum lag length of the model. These are Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criteria (AIC), Schwarz Information Criteria (SIC) and Hannan-Quinn information criteria (HQ). Having set the lag length, the final step is to estimate the model.

The model is estimated through ordinary least squires (OLS). The most important thing is that the individual coefficients in estimated VAR models are often difficult

to interpret directly. To overcome this problem, we use innovation accounting techniques, which include impulse response function and variance decomposition. The variables to be included in the VAR are selected according to the relevant economic model. Otherwise no explicit attempt is made to 'pare down' the number of parameters estimates. Suppose a multivariate VAR is given as follows:

$$X_t = A_0 + A_1 X_{t-1} + A_1 X_{t-2} + ... + A_p X_{t-p} + e_t \tag{A.5}$$

Where,
X_t = the $(n \times 1)$ vector containing each of the n variables included in the VAR
A_0 = an $(n \times 1)$ vector of intercept terms.
A_i = an $(n \times n)$ matrix of coefficient.
e_t = an $(n \times 1)$ vector of error terms.

In the above example, matrix A_0 contains n intercept term and each matrix A_i contains n^2 coefficients, hence $n + pn^2$ terms need to be estimated. Unquestionably, a VAR will be over parameterized by which many of these coefficient estimates can be properly exclude.

A.4 ARDL Co-integration

The study adopts an Auto-Regressive Distributed Lag (ARDL) bounds testing approach developed by Pesaran et al (2001) to model the long run determinants. This approach has some econometric advantages over the Engle-Granger (1987) and maximum likelihood-based approach proposed by Johansen and Juselius (1990), and Johansen (1991) cointegration techniques. First, the bounds test does not require pre-testing of the series to determine their order of integration since the test can be conducted regardless of whether they are purely I(1), purely I(0), or fractionally integrated. Second, endogeneity problems and inability to test hypotheses on the estimated coefficients in the long-run associated with the Engle-Granger (1987) method are avoided. According to Pesaran and Shin (1999), modeling the ARDL with the appropriate lags will correct for both serial correlation and endogeneity problems. Jalil et al (2008) argues that endogeneity is less of a problem if the estimated ARDL model is free of serial correlation. In this approach, all the variables are assumed

to be endogenous and the long run and short run parameters of the model are estimated simultaneously (Khan et al, 2005). Third, as argued in Narayan (2004), the small sample properties of the bounds testing approach are far superior to that of multivariate cointegration (Halicioglu, 2007). The approach, therefore, modifies the Auto-Regressive Distributed Lag (ARDL) framework while overcoming the inadequacies associated with the presence of a mixture of I(0) and I(1) regressors in a Johansen-type framework. Fourth, the long and short-run parameters of the model in question are estimated simultaneously. Lastly, The ARDL has superior small sample properties compared to the Johansen and Juselius (1990) cointegration test (Pesaran and Shin, 1999). The procedure will, however crash in the presence of I(2) series.

Following Pesaran et al. (2001) as summarized in Choong et al. (2005), we apply the bounds test procedure by modelling the long-run equation as a general vector autoregressive (VAR) model of order p, in t Z_t :

$$Z_t = c_0 + \beta_t + \Sigma_{t-i}^{p} \Phi_i Z_{t-i} + \varepsilon_t, t = 1, 2, 3, ...T \tag{A.6}$$

With c_0 representing a $(k+1)$-vector of intercepts (drift), and β denoting a $(k+1)$-vector of trend coefficients. Pesaran et al. (2001) further derived the following vector equilibrium correction model (VECM) corresponding to equation (A.6).

$$Z_t = c_0 + \beta_t + \Pi_{z_{t-1}} \Sigma_{i=1}^{p} \Gamma_i \Delta Z t - i + \varepsilon_t, t = 1, 2, 3, ...T \tag{A.7}$$

Where the $(k+1) \times (k+1)$-matrices $\Pi = I_{K+1} + \Sigma_{i=1}^{p} \Psi_i$ and $\Gamma_i = -\Sigma_{j=i+1}^{p} \Psi j, i = 1, 2, 3.....p-1$ contain the long-run multipliers and short-run dynamic coefficients of the VECM. Z_t is the vector of variables y_t and x_t respectively. y_t is an I(1) dependent variable defined as lnY_t and $x_t = [y_{it}, i = 1, 2, 3..., T]$ is a vector matrix of 'forcing' I(0) and I(1) regressors as already defined with a multivariate identically and independently distributed (i.i.d) zero mean error vector $\varepsilon_t = (\varepsilon_{1t}, \varepsilon_{2t}^{'})'$, and a homoskedastic process. Further, assuming that a unique long-run relationship exists among the variables, the conditional VECM (equation (A.7)) now becomes

$$Y_t = c_{y0} + \beta_t + \delta_{yy} y_{t-1} + \delta_{xx} x_{t-1} + \Sigma_{i=1}^{p-1} \lambda_i \Delta y_{t-i} + \Sigma_{i=0}^{p-1} \xi_i \Delta x_{t-1} + \varepsilon_{yt}, t = 1, 2, 3, ...T \tag{A.8}$$

Where δ_i are the long run multipliers, c_0 is the drift, and ε_t are white noise errors.

A.4.1 Bounds Testing Procedure

The implementation of the ARDL approach involves two stages. First, the existence of the long-run nexus (cointegration) between the variables under investigation is tested by computing the F-statistics for analyzing the joint significance of the coefficients of the lagged levels of the variables. Pesaran and shin, 1999 and Narayan, 2004 have provided two sets of appropriate critical values for different numbers of regressors (variables). This model contains an intercept or trend or both. One set assumes that all the variables in the ARDL model are I(0), and another assumes that all the variables are I(1). If the F-statistic lies above the upper-bound critical value for a given significance level, the conclusion is that there is a non-spurious long-run level relationship with the dependent variable. If the F-statistic lies below the lower bound critical value, the conclusion is that there is no long-run level relationship with the dependent variable. If it lies between the lower and the upper limits, the result is inconclusive. The approximate critical values for the F-test were obtained from Pesaran and Pesaran (1997). The general form of the null and alternative hypotheses for the F-statistic test is as follows:
$H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$; Against the alternative
$H_1 : \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq 0$

Secondly, if the cointegration between variables is identified, then one can undertake further analysis of long-run and short-run (error correction) relationship between the variables.

A.5 Stability Test

A.5.1 CUSUM Test

The CUSUM test (Brown, Durbin, and Evans, 1975) is based on the cumulative sum of the recursive residuals. This option plots the cumulative sum together with the 5% critical lines. The test finds parameter instability if the cumulative sum goes outside the area between the two critical lines. The CUSUM test is based on the statistic:

$$W_t = \sum_{r=k+1}^{t} W_r/S\,, \qquad t = K+1.....,T \tag{A.9}$$

Where w is the recursive residual defined above, and s is the standard error of the regression fitted to all T sample points. If the b vector remains constant from period to period, $E[W_t] = 0$, but if β changes, W_t will tend to diverge from the zero mean value line. The significance of any departure from the zero line is assessed by reference to a pair of 5% significance lines, the distance between which increases with t. The 5% significance lines are found by connecting the points.

$$[k, \pm 0.948(T-k)^{1/2} \text{ and } [T, \pm 3 \times 0.948(T-k)^{1/2}]$$

Movement of W_t outside the critical lines is suggestive of coefficient instability.

A.6 VECM based Granger Causality

The Granger representation theorem suggests that there will be Granger causality in at least one direction if there exists a cointegration relationship among the variables, providing that they are integrated order of one. The direction of causality is investigated by applying Vector Error Correction Model (VECM) granger causality approach only after confirming the presence of co-integrating relationship among the variables in the study. Granger (1969) argued that VECM is more appropriate to examine the causality between the series at I(1). VECM is restricted form of unrestricted VAR and restriction is levied on the presence of the long run relationship between the series. The system of error correction model (ECM) uses all the series endogenously. This system allows the predicted values to explain itself both by its own lags and lags of forcing variables as well as the lags of the error correction term and by residual term. Engle and Granger (1987) caution that the Granger causality test, which is conducted in the first differences variables by means of a vector autoregression (VAR), will be misleading in the presence of co-integration. Therefore, an inclusion of an additional variable to the VAR system, such as the error correction term would help us to capture the long run relationship. To this end, an augmented form of the Granger causality test involving the error correction term is formulated in a multivariate p^{th} order vector error correction model. The VECM equation is as

follows:

$$\begin{pmatrix} \Delta x_{1t} \\ \Delta y_{1t} \\ \Delta y_{2t} \\ \Delta y_{3t} \\ ... \\ \Delta y_{nt} \end{pmatrix} = \begin{pmatrix} C_{1t} \\ C_{2t} \\ C_{3t} \\ C_{4t} \\ ... \\ C_{nt} \end{pmatrix} + \sum_{i=1}^{p} \begin{bmatrix} \beta_{11i} & \beta_{12i} & \beta_{13i} & \beta_{14i} & \dots & \beta_{1ni} \\ \beta_{21i} & \beta_{22i} & \beta_{23i} & \beta_{24i} & \dots & \beta_{2ni} \\ \beta_{31i} & \beta_{32i} & \beta_{33i} & \beta_{34i} & \dots & \beta_{3ni} \\ \beta_{41i} & \beta_{42i} & \beta_{43i} & \beta_{44i} & \dots & \beta_{4ni} \\ \vdots & \vdots & \vdots & \vdots & \dots & \vdots \\ \beta_{n1i} & \beta_{n2i} & \beta_{n3i} & \beta_{n4i} & \dots & \beta_{nni} \end{bmatrix} \begin{pmatrix} \Delta x_{1_{t-i}} \\ \Delta y_{1_{t-i}} \\ \Delta y_{2_{t-i}} \\ \Delta y_{3_{t-i}} \\ ... \\ \Delta y_{n_{t-i}} \end{pmatrix} + \begin{pmatrix} \gamma_{1t} \\ \gamma_{2t} \\ \gamma_{3t} \\ \gamma_{4t} \\ ... \\ \gamma_{nt} \end{pmatrix} ECM_{t-1} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \\ ... \\ \varepsilon_{nt} \end{pmatrix} \tag{A.10}$$

The C's, β's and γ's are the parameters to be estimated. ECM $t-1$ represents the one period lagged error-term derived from the co-integration vector and the ε's are serially independent with mean zero and finite covariance matrix. From the Equation *** given the use of a VAR structure, all variables are treated as endogenous variables. The F test is applied here to examine the direction of any causal relationship between the variables. The coefficients on the ECM represent how fast deviations from the long-run equilibrium are eliminated. Another channel of causality can be studied by testing the significance of ECM's. This test is referred to as the long run causality test.

A.7 Impulse Response Function

The Impulse Response Function (IRF) is one of the essential tools for interpreting VAR model results. The IRF allows researchers to examine the current and future behavior of a variable that following a shock to another variable within the system. The IRF is a useful tool for determining the magnitude, direction, and the length of time that the variables in the system are affected by a shock to another variable. To estimate IRFs, some practical issues need to be considered. The VAR model needs to be transformed into the vector moving average (VMA) representation. Enders (2010) advocate that this transformation is an essential feature of Sims's (1980) methodology since it allows for tracing out the effects of various shocks on variables contained in the VAR system. In the case of a VAR model with two variables included, the form of the IRFs can be written as shown in Enders (2004):

$$\begin{bmatrix} \frac{Y_t}{Z_t} \end{bmatrix} = \begin{bmatrix} \frac{\bar{Y}}{\bar{Z}} \end{bmatrix} + \sum_{i=0}^{\infty} \frac{A^i}{1 - b_{12}b_{21}} \begin{bmatrix} 1 & -b12 \\ -b_{21} & 1 \end{bmatrix} \begin{bmatrix} \varepsilon_{Y_{t-i}} \\ \varepsilon_{Z_{t-i}} \end{bmatrix} \tag{A.11}$$

$$\begin{bmatrix} \frac{Y_t}{Z_t} \end{bmatrix} = \begin{bmatrix} \frac{\bar{Y}}{\bar{Z}} \end{bmatrix} + \sum_{i=0}^{\infty} \begin{bmatrix} \theta_{11}^i & \theta_{12}^i \\ \theta_{21}^i & \theta_{22}^i \end{bmatrix} \begin{bmatrix} \varepsilon_{Y_{t-i}} \\ \varepsilon_{Z_{t-i}} \end{bmatrix} \tag{A.12}$$

And;

$$X_t = \mu + \sum_{i=0}^{\infty} \theta_i \varepsilon_{t-i} \tag{A.13}$$

Where θ_i is the IRFs of disturbances. Therefore, the IRF is found by reading off the coefficients in the moving average representation of the process. If the innovations $\varepsilon_{t\hat{a}\acute{L}\check{S}i}$ are contemporaneously uncorrelated, the interpretation of the impulse response is straightforward. For example, the i^{th} innovation of ε_t is simply a shock to the i^{th} endogenous variable in the system Enders (2004).

However, the residuals generated by the VAR models are usually contemporaneously correlated. This is because in a VAR model only lagged endogenous variables are admitted on the right-hand side of each equation (in addition to a constant term), and hence all the contemporaneous shocks which impact on X_t are forced to feed through the residuals, u_{it} (Kuszczak and Murray, 1986). While this may not cause a problem in the estimation of the VAR model, the impulse responses and variance decompositions derived from the initial estimates of the VAR model could be affected such that any adjustment to the order in which the variables are entered in the system could produce different results (Kuszczak and Murray, 1986). Thus, there is a need to impose some restrictions when estimating the VAR model to identify the IRFs. In this regard, a common approach is the Cholesky decomposition, which was originally applied by Sims (1980). The Cholesky decomposition overcomes the problem of contemporaneous relationships among the innovations error terms within the estimated VAR model by identifying the structural shocks such that the covariance matrix of the estimated residuals is lower triangular. In fact, the Cholesky decomposition suggests that there is no contemporaneous pass-through from Y_t to the other variable, z_t. More formally, in the VAR, the matrix error structure becomes left triangular, $\begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix} = \begin{bmatrix} 1 & -b_{12} \\ 0 & 1 \end{bmatrix} \begin{bmatrix} \varepsilon_{Y_t} \\ \varepsilon_{Z_t} \end{bmatrix}$. In practice, this means that the Cholesky decomposition attributes all the effect to the variable that comes first to the target variable in the VAR system.

A.8 Variance Decomposition Technique

For any variable, short run variations are due to its own shocks, but over time other shocks contribute to these changes as well. Forecast error variance decomposition

(FEVD) is a method available to examine this interesting phenomenon. In fact, while the IRFs analyze the dynamic behavior of the target variables due to unanticipated shocks within a VAR model, variance decompositions determine the relative importance of each innovation to the variables in the system. That is, variance decompositions can be considered similar to R^2 values associated with the dependent variables in different horizons of shocks. Enders (2010) show how to write FEVD to conditionally calculate n-period forecast error X_{t+n} considering the VMA representation of VAR presented in Equation (A.14) as:

$$X_{t+n} - E_t X_{t+n} = \mu + \sum_{i=0}^{n-1} \theta_i \varepsilon_{t+n-1} \tag{A.14}$$

Considering Y_t, the first element of the X_{t+n} matrix in Equation (A.15), the variance of the n-step-ahead forecast error can be calculated as:

$$\begin{aligned} Y_{t+n} - E_t X_{t+n} = \theta_{11}(0)\varepsilon_{yt+n} + \theta_{11}(1)\varepsilon_{yt+n-1} + ... + \theta_{11}(n-1)\varepsilon_{yt+1} \\ + \theta_{12}(0)\varepsilon_{zt+n} + \theta_{12}(1)\varepsilon_{zt+n-1} + ... + \theta_{12}(n-1)\varepsilon_{zt+1} \end{aligned} \tag{A.15}$$

or

$$\begin{aligned} \sigma_y(n)^2 = \sigma_y^2[\theta_{11}(0)^2 + \theta_{11}(1)^2 + ... + \theta_{11}(n-1)^2] \\ + \sigma_z^2[\theta_{12}(0)^2 + \theta_{12}(1)^2 + ... + \theta_{12}(n-1)^2] \end{aligned} \tag{A.16}$$

Where $\sigma_y(n)^2$ and $\sigma_z(n)^2$ denote the n-step-ahead forecast error variance of Y_{t+n} and Z_{t+n}, respectively. The first part of the Equation (A.16) shows the proportion of variance due to the variables own shock, Y_t, while the second part of the Equation (A.16) shows the proportion of variance due to the other variables shock, Z_t. Theoretically, the first part decreases over time while the second part of the variance increases. However, it is typical for a variable to explain almost all of its forecast error variance at a short horizon and smaller proportions at longer horizons (Enders, 2010). From this standpoint VDC is useful to assess the Granger causal relationships among variables when the variance decomposition results imply that one variable explains a high portion of the forecast error variance of another variable. That is, when a shock ε_z explains none of the forecast error variance of the sequence Y_t at all forecast horizons, i.e., $\frac{\delta\sigma_y^2}{\sigma_z^2} \approx 0$, we may say that Y_t evolves indecently of the Z_t shocks, ε_z. Also, when a shock to the Z_t sequence, ε_z, explains the entire forecast error variance of the sequence the Y_t at all forecast horizons, i.e., $\frac{\delta\sigma_y^2}{\sigma_z^2} \approx 100\%$, may say that Y_t sequence is totally endogenous (Enders, 2010).

A.9 Granger Causality Test

The short run dynamic relationship between the capital flows and economic growth may be examined by using the concept of Granger's (1969) causality test. Granger's causality [proposed by Granger (1969) and popularized by Sims (1972)] may be defined as the forecasting relationship between two variables. In short, Granger causality test states that if S & E are two time series variables and, if past values of a variable S significantly contribute to forecast the value of the other variable E, then S is said to be Granger causing E and vice versa. The test involves the following two regression equations:

$$S_t = \gamma_0 + \sum_{i=1}^{n} \alpha_i E_{t-i} + \sum_{j=1}^{n} \beta_j S_{t-j} + u_{1t} \tag{A.17}$$

$$E_t = \gamma_1 + \sum_{i=1}^{m} \lambda_i X_{t-i} + \sum_{j=1}^{m} \delta_j E_{t-j} + u_{2t} \tag{A.18}$$

Where, S_t and E_t are the are capital inflows and economic growth to be tested, and u_{1t} and u_{2t} are mutually uncorrelated white noise errors, and t denotes the time period. Equation (A.17) postulates that current S is related to past values of S as well as of past E. Similarly, Equation (A.18) postulates that E is related to past values of E as well as related to past values of S. Three possible conclusions can be adduced from such analysis viz, unidirectional causality, bi-directional causality and that they are independent of each other.

1. Unidirectional causality from E to S is indicated if the estimated coefficients on the lagged E in Equation (A.17) are statistically different from zero as a group (i.e., $\sum_{i=1}^{n} \alpha_i \neq 0$) and set of estimated coefficients on the lagged E in Equation (A.18) is not statistically different from zero (i.e., $\sum_{j=1}^{n} \delta_j = 0$).

2. Unidirectional causality from S to E exists if the set of lagged E coefficients in Equation (A.17) is not statistically different from zero (i.e., $\sum_{i=1}^{n} \alpha_i = 0$) and the set of the lagged S coefficients in Equation (A.18) is statistically different from zero (i.e., $\sum_{j=1}^{n} \delta_j \neq 0$).

3. Feedback or bilateral causality is suggested when the sets of E and S coefficients are statistically and significantly different from zero in both regression.

4. Finally, independence is suggested when the sets of E and S coefficients are not statistically significant in both regressions.

There are two important steps involved with the Granger's causality test. First, stationary data is required for Equation (A.17) and (A.18). Second, in addition to the need for testing the stationary property of the data, the Granger methodology somewhat sensitive to the lag ength used in Equations (A.17) and (A.18). It is better to use more rather than fewer lag length since the theory is couched in terms of the relevant past information. The chosen lag length must be matched with the actual lag length. If it is lesser than actual lag length, the omission of relevant lags can be cause bias and if it is more than the relevant lag length causes the equations to be insufficient. To deal with this problem, it developed a systematic autoregressive method for choosing appropriate lag length. Therefore, the appropriate lag length is one where Akaike's Final Prediction Error (FPE) is lowest. Akaike Information Criteria (AIC), or Schwarz Information Criteria (SIC), or Likelihood Ratio (LR) Criterion or Hannan-Quinn information Criterion (HQIC) is also useful for choosing the lag length.

A.9.1 GARCH (p,q) Model

The GARCH model can be extended to a GARCH (p, q) model in which p is the lagged term of the squared error term and q is lagged conditional variance. This may be represented as;

$$h_t = \alpha_0 + \alpha_1 u_{t-1}^2 + \alpha_2 u_{t-2}^2 + ... + \alpha_q u_{t-q}^2 + \beta_1 \sigma_{t-1}^2 + \beta_2 \sigma_{t-2}^2 + ... + \beta_p \sigma_{t-p}^2 \quad \text{(A.19)}$$

$$h_t = \alpha_0 + \sum_{i=1}^{q} \alpha_i u_{t-i}^2 + \sum_{j=1}^{p} \beta_j \sigma_{t-j}^2 \quad \text{(A.20)}$$

Where, $\alpha > 0$, $\alpha_i \geq 0$, $\beta_j \geq 0$

In both ARCH and GARCH models, restrictions are to be placed on the parameters to keep the conditional volatility positive. This also implies that any shock is always an indication of increase in conditional volatility forever. In order to check the presence of ARCH effects on the data, we have applied Lagrange Multiplier (LM) tests.

Appendix B

Policy Framework of Foreign Investment

Table B.1: FDI Limits in India

Sector	Limit	Entry Route
Agriculture & Animal Husbandry	100%	Automatic
Plantation Sector (Tea,Coffee,Rubber, Cardamom, Palm oil, Olive oil)	100%	Automatic
Mining	100%	Automatic
Petroleum & Natural Gas (Petroleum refining by the Public Sector Undertakings (PSU))	49%	Automatic
Petroleum & Natural Gas (All other activity)	100%	Automatic
Defence	100%	Automatic upto 49% Above 49% under Government route on case to case basis
Broadcasting Carriage Services	100%	Automatic upto 49% Government route beyond 49%

Broadcasting Content Services	49%	Government
Print Media [Publishing of newspaper and periodicals dealing with news and current affairs][Publication of Indian editions of foreign magazines dealing with news and current affairs]	26%	Government
Print Media [Publishing/printing of scientific and technical magazines/specialty journals/ periodical] [Publication of facsimile edition of foreign newspapers]	100%	Government
Civil Aviation	100%	Automatic
Airports[Greenfield projects]	100%	Automatic
Airports[Existing projects]	100%	Automatic up to 74% Government route beyond 74%
Construction Development	100%	Automatic
Industrial Parks	100%	Automatic
Satellites- establishment and operation	100%	Automatic
Private Security Agencies	74%	Automatic
Telecom Services	100%	Automatic up to 49% Government route beyond 49%
Trading[Cash & Carry Wholesale Trading/Wholesale Trading (including sourcing from MSEs)]	100%	Automatic
E-commerce activities	100%	Automatic
Single Brand product retail trading	100%	Automatic up to 49% Government route beyond 49%

Multi Brand Retail Trading	51%	Government
Processed Food Products	100%	Automatic
Duty Free Shops	100%	Automatic
Railway Infrastructure	100%	Automatic
Asset Reconstruction Companies	100%	Automatic
Banking- Private Sector	74%	Automatic up to 49% Government route beyond 49% and up to 74%.
Banking- Public Sector	20%	Government
Credit Information Companies (CIC)	100%	Automatic
Infrastructure Company in the Securities Market [in compliance with SEBI Regulations]	49%	Automatic
Insurance	49%	Automatic
Pension Sector	49%	Automatic
Power Exchanges	49%	Automatic
White Label ATM Operations	100%	Automatic
Non-Banking Finance Companies (NBFC)	100%	Automatic
Pharmaceuticals[Greenfield]	100%	Automatic
Pharmaceuticals[Brownfield]	100%	Government
Railway Infrastructure	100%	Automatic
Regulated Financial Services	100%	Automatic

Table B.2: FIIs Policy Changes

Date	Policy Changes
September 1992	FIIs allowed investing by the Government Guidelines in all securities in both primary and secondary markets and schemes floated by mutual funds. Single FIIs to invest 5 percent and all FIIs allowed investing 24 percent of a company's issued capital. Broad based funds to have 50 investors with no one holding more than 5 percent. The objective was to have reputed foreign investors, such as, pension funds, mutual fund or investment trustsand other broad based institutional investors in the capital market.
April 1997	Aggregated limit for all FIIs increased to 30 per cent subject to special procedure and resolution. The objective was to increase the participation by FIIs.
April 1998	FIIs permitted to invest in dated Government securities subject to a ceiling. Consistent with the Government policy to limit the short-term debt, a ceiling of US $1 billion was assigned which was increased to US $1.75 billion in 2004.
June 1998	Aggregate portfolio investment limit of FIIs and NRIs/PIOs/OCBs enhanced from 5 per cent to10 per cent and the ceilings made mutually exclusive. Common ceilings would have negated the permission to FIIs. Therefore, separate ceilings were prescribed.
June 1998	Forward cover allowed in equity.
February 2000	Foreign firms and high net-worth individuals permitted to invest as sub-accounts of FIIs. Domestic portfolio manager allowed to be registered as FIIs to manage the funds of subaccounts. The objective was to allow operational flexibility and also give access to domestic asset management capability.
March 2001	FII ceiling under special procedure enhanced to 49 percent. The objective was to increase FII participation.
September 2001	FII ceiling under special procedure raised to sectoral cap.
December 2003	FII dual approval process of SEBI and RBI changed to single approval process of SEBI. The objective was to streamline the registration process and reduce the time taken for registration.

November2004	Outstanding corporate debt limit of USD 0.5 billion prescribed. The objective was to limit short term debt flows.
April 2006	Outstanding corporate debt limit increased to USD 1.5 billion prescribed. The limit on investment in Government securities was enhancedto USD 2 bn. This was an announcement in the Budget of 2006-07.
November 2006	FII investment up to 23% permitted in infrastructure companies in the securities markets, viz. stock exchanges, depositories and clearing corporations. This is a decision taken by Government following the mandating of demutualization and corporatization of stock exchanges.
January and October, 2007	FIIs allowed to invest USD 3.2 billion in Government Securities (limits were raised from USD 2 billion in two phases of USD 0.6 billion each in January and October).
June 2008	While reviewing the External Commercial Borrowing policy, the Government increased the cumulative debt investment limits from US $3.2 billion to US $5 billion and US $1.5 billion to US $3 billion for FII investments in Government Securities and Corporate Debt, respectively.
October 2008	While reviewing the External Commercial Borrowing policy, the Government increased the cumulative debt investment limits from US $3 billion to US $6 billion for FII investments in Corporate Debt.
October 2008	Removal of regulation for FIIs pertaining to restriction of 70:30 ratio of investment in equity and debt respectively.
October 2008	Removal of Restrictions on Overseas Derivatives Instruments (ODIs) Disapproval of FIIs lending shares abroad.
March 2009	E-bids platform for FIIs
August 2009	FIIs allowed to participate in interest rate futures
April 2010	FIIs allowed offering domestic Government Securities and foreign sovereign securities with AAA rating, as collateral to the recognized stock exchanges in India, in addition to cash, for their transactions in the cash segment of the market.

November 2010	Investment cap for FIIs increased by US $5 billion each in Government securities and corporate bonds to US $10 billion and US $20 billion respectively.
March 2011	The limit of US $5 billion in corporate bonds issued by companies in the infrastructure sector with a residual maturity of over five years increased by an additional limit of US $20 billion, taking the total limit to US $25 billion
August 2011	The Non-Banking Financial Companies (NBFCs) categorised as Infrastructure Finance Companies (IFCs) by the RBI would be considered eligible issuers for the purposes of FII investment under the corporate debt long-term infra category.
January 2012	The Central Government announced its decision to allow qualified foreign investors (QFIs) to directly invest in the Indian equity market, in order to widen the class of investors, attract more foreign funds, reduce market volatility, and to deepen the Indian capital market.

June 2012	QFIs were allowed to invest in the schemes of Indian mutual funds and Indian equity shares, subject to the terms and conditions mentioned therein. Subsequently, vide the SEBI circular dated January 25, 2012, the eligibility criteria for a qualified DP were revised. Following a review by the SEBI, and in consultation with the Government of India (GoI) and the RBI, it was decided to revise the definition of a qualified foreign investor (QFI). A QFI would mean a person who fulfils the following criteria: 1. The person is resident in a country that is a member of the Financial Action Task Force (FATF) or a member of a group that is a member of FATF. 2. The person is resident in a country that is a signatory to IOSCO's MMOU or a signatory of a bilateral MOU with the SEBI. 3. The person is not resident in a country listed in the public statements issued by the FATF from time to time regarding (i) jurisdictions having strategic Anti-Money Laundering/ Combating the Financing of Terrorism (AML/ CFT) deficiencies to which counter measures apply; and (ii) jurisdictions that have not made sufficient progress in addressing the deficiencies or have not committed to an action plan developed with the FATF to address the deficiencies. 4. The person is not resident in India. 5. The person is not registered with the SEBI as an FII, sub-account, or foreign venture capital investor

July 2012	SEBI has now been decided to allow QFIs to invest in Indian corporate debt securities and the debt schemes of Indian mutual funds.The QFI transactions would be limited to the following debt securities: 1. Purchase and sale of corporate debt securities listed on recognised stock exchange(s). 2. Purchase of corporate debt securities through public issues, if the listing on the recognised stock exchange(s) is committed to be done as per the extant provisions of the Companies Act, 1956. 3. Sale of corporate debt securities by way of buyback or redemption by the issuer. 4. Purchase and sale of units of the debt schemes of Indian mutual funds.
March 2013	The SEBI has allowed FIIs to offer government securities, corporate bonds, cash, and foreign sovereign securities with AAA ratings as collateral (to meet their margin requirements) for their transactions in cash segments as well as futures and options (F&O) segments. The decision follows a proposal in the Union Budget 2013-2014 that permitted FIIs to use their investments in corporate bonds and government securities as collateral. Earlier, FIIs were allowed to provide only cash and foreign sovereign securities with AAA rating as collateral in the F&O segment; in the cash segment, only foreign sovereign securities with AAA rating, government securities, and cash were permitted as collateral.

May 2014	SEBI has come out with a risk management framework for FPIs pertaining to various aspects, including margin requirements. The FPI regime brings together all foreign investor classes such as Foreign Institutional Investors (FIIs), their sub-accounts and Qualified Foreign Investors (QFIs). All trades undertaken by FPIs in the cash market would be margined on a 'T+1' basis, which means settlement of trades with all the required payments one day after the execution of the trade order. However, the trades of FPIs who are corporate bodies, individuals or family offices would be margined on an upfront basis as per the extant margining framework for the non-institutional trades.
June 2014	SEBI has allowed eligible Foreign Portfolio Investors (FPIs) to trade in the currency derivatives segment of stock exchanges to facilitate hedging their currency risk emanating from their exposure to the Indian debt and equity markets
September 2014	In order to enhance the hedging facilities for the FPIs holding securities under the Portfolio Investment Scheme (PIS), RBI has permitted the FPIs to hedge the coupon receipts arising out of their investments in debt securities in India which are due in the next 12 months subject to the condition that the hedge contracts shall not be eligible for rebooking on cancellation. The contracts can however be rolled over on maturity provided the relative coupon amount is yet to be received.
August 2015	As per the agreement between India and U.S. to improve international tax compliance and to implement the Foreign Account Tax Compliance Act (FATCA) in India, foreign financial institutions operating in India will now be required to report tax information about U.S. account holders/ taxpayers directly to the Indian Government and the Indian government shall pass this information to the U.S. Internal Revenue Service (IRS).

December 2015	SEBI has decided to align the applicable eligibility and investment norms between Foreign Portfolio Investor (FPI) regime and subscription through the Offshore Derivative Instruments (ODI) route. A FPI shall issue ODIs only to those subscribers which meet the eligibility criteria as follows: a. The applicant is resident of a country whose securities market regulator is a signatory to International Organization of Securities Commission's Multilateral Memorandum of Understanding. b. The applicant being a bank, is a resident of a country whose central bank is a member of Bank for International Settlements; c. The applicant is not resident in a country identified in the public statement of Financial Action Task Force.
March 2016	RBI has amended the Foreign Exchange Management Regulations 2015 to allow FPIs to invest in REITs, InvITs and AIFs. These investments by FPIs will be subject to SEBI (FPI) Regulations, 2014.RBI has also allowed FPIs to acquire bonds under default, either fully of partly in repayment of principle on maturity or principal instalment in the case of amortising bond. Such bonds shall have a minimum maturity period of three years.
June 2016	With a view to bring about uniformity and to increase the transparency in the systems and procedures adopted by the ODI issuers to comply with regulatory conditions, SEBI has revised the KYC (Know Your Client) norms for offshore derivative instruments (ODI) subscription by foreign portfolio investors and modified ODI reporting format.

September 2017	Investments by FPIs in corporate debt securities. It has been decided to permit FPIs to invest inthe following: Unlisted corporate debt securities in the form of non-convertible debentures/bonds issued by public or private Indian companies subject to the guidelines issued by the Ministry of Corporate Affairs, Government of India from time to time and also subject to minimum residual maturity of three years and end use-restriction on investment in real estate business, capital market and purchase of land. The expression 'Real Estate Business' shall have the same meaning as assigned to it in Foreign Exchange Management (Transfer or issue of Security by a Person Resident outside India) Regulations, 2000 Notification No.FEMA.362/2016-RB dated February 15, 2016. The custodians of the FPIs should put in place an appropriate mechanism to ensure compliance with these conditions as prescribed by RBI from time to time. Securitised debt instruments as under any certificate or instrument issued by a special purpose vehicle (SPV) set up for securitisation of asset/s where banks, FIs or NBFCs are originators; and/or any certificate or instrument issued and listed in terms of the SEBI (Public Offer and Listing of Securitised Debt Instruments) Regulations, 2008. Investment by FPIs in the unlisted corporate debt securities and securitised debt instruments should not exceed INR 35,000 cr. within the extant corporate debt limit which currently is INR 2,44,323 cr. Further, investment by FPIs in securitised debt instruments should not be subject to the minimum 3-year residual maturity requirement

November 2017	FPIs are permitted to invest in REITs and InvITs, which are classified as hybrid securities and presently, the said investments are not reflected in the daily FPI net investment data or the monthly/fortnightly FPI AUC data. In order to capture FPI investment data in hybrid securities, a third category termed as "Hybrid Security" shall be created for the purpose of capturing and disseminating FPI investment data in hybrid securities. The depositories (NSDL and CDSL) shall put in place the necessary systems for the daily reporting by the custodians of the FPIs and shall also disseminate on their websites, the AUC of the FPIs in debt, equity and hybrid securities.

Appendix C

Evaluation Results of VECM Model

Table C.1: Correlation Matrix of Foreign Investment and Foreign Exchange Reserves

	FER	**FDI**	**FPI**
FER	1.000000	0.807032	0.142957
FDI	0.807032	1.000000	0.049163
FPI	0.142957	0.049163	1.000000

Table C.2: Vector Error Correction Estimates for Foreign Investment and Foreign Exchange Reserves

Vector Error Correction Estimates		
Standard errors in ( ) & t-statistics in [ ]		
Cointegrating Eq:	**CointEq1**	**CointEq2**
FER(-1)	1.000000	0.000000
LFDI(-1)	0.000000	1.000000
LFPI(-1)	2730943.	25.20138
	(454992.)	(3.68117)
	[6.00218]	[6.84602]
	-269054.8	-3.246295
	(246483.)	(1.99420)

LREER(-1)						
			[-1.09158]		[-1.62787]	
EXP(-1)			145.8983		0.001260	
			(27.5737)		(0.00022)	
			[5.29121]		[5.64924]	
IMP(-1)			-106.9119		-0.000933	
			(17.9426)		(0.00015)	
			[-5.95855]		[-6.43051]	
C			-25853484		-239.7477	
Error Correction:	**D(FER)**	**D(LFDI)**	**D(LFPI)**	**D(LREER)**	**D(EXP)**	**D(IMP)**
CointEq1	-2.26E-05	4.68E-06	7.95E-08	-7.42E-08	0.000530	0.002101
	(0.00589)	(7.3E-07)	(1.8E-07)	(3.9E-08)	(0.00180)	(0.00275)
	[-0.00384]	[6.40059]	[0.43336]	[-1.88102]	[0.29474]	[0.76316]
CointEq2	395.2494	-0.537972	-0.019678	0.010503	-126.9614	-90.89389
	(671.089)	(0.08344)	(0.02093)	(0.00450)	(204.856)	(313.974)
	[0.58897]	[-6.44755]	[-0.94020]	[2.33463]	[-0.61976]	[-0.28949]
D(FER(-1))	0.259438	9.49E-06	-8.26E-08	-6.81E-07	0.077916	0.067065
	(0.07239)	(9.0E-06)	(2.3E-06)	(4.9E-07)	(0.02210)	(0.03387)
	[3.58376]	[1.05393]	[-0.03659]	[-1.40387]	[3.52586]	[1.98009]
D(FER(-2))	0.116527	5.22E-06	1.18E-06	-3.90E-07	0.015039	0.029372
	(0.07347)	(9.1E-06)	(2.3E-06)	(4.9E-07)	(0.02243)	(0.03437)
	[1.58612]	[0.57105]	[0.51330]	[-0.79212]	[0.67059]	[0.85453]
D(LFDI(-1))	-1040.208	-0.22326	0.014751	-0.007333	24.47674	-204.8956
	(634.630)	(0.07891)	(0.01979)	(0.00425)	(193.727)	(296.916)
	[-1.63908]	[-2.82947]	[0.74526]	[-1.72368]	[0.12635]	[-0.69008]
D(LFDI(-2))	59.21863	-0.078545	0.000670	-0.00328	73.88292	91.03855
	(526.953)	(0.06552)	(0.01643)	(0.00353)	(160.857)	(246.539)
	[0.11238]	[-1.19884]	[0.04077]	[-0.92849]	[0.45931]	[0.36927]
D(LFPI(-1))	-6731.505	0.453495	-0.366282	-0.033896	723.3542	-2760.421
	(3091.92)	(0.38443)	(0.09643)	(0.02073)	(943.837)	(1446.58)
	[-2.17713]	[1.17967]	[-3.79843]	[-1.63534]	[0.76640]	[-1.90824]
D(LFPI(-2))	-5456.309	0.221112	-0.304202	-0.013015	276.3952	-3248.383
	(2243.94)	(0.27899)	(0.06998)	(0.01504)	(684.984)	(1049.84)
	[-2.43157]	[0.79253]	[-4.34678]	[-0.86522]	[0.40351]	[-3.09416]

D(LREER(-1))	12909.77	0.184542	0.175559	0.033136	-2889.038	-2679.302
	(9757.61)	(1.21319)	(0.30432)	(0.06541)	(2978.60)	(4565.17)
	[1.32305]	[0.15211]	[0.57690]	[0.50657]	[-0.96993]	[-0.58690]
D(LREER(-2))	-8591.928	2.868278	-0.158069	-0.027461	-430.989	-2803.243
	(9708.96)	(1.20714)	(0.30280)	(0.06509)	(2963.75)	(4542.41)
	[-0.88495]	[2.37609]	[-0.52202]	[-0.42192]	[-0.14542]	[-0.61713]
D(EXP(-1))	0.443199	1.67E-05	2.49E-05	1.55E-07	-0.547785	-0.114341
	(0.24167)	(3.0E-05)	(7.5E-06)	(1.6E-06)	(0.07377)	(0.11307)
	[1.83393]	[0.55429]	[3.30120]	[0.09594]	[-7.42550]	[-1.01128]
D(EXP(-2))	-0.098154	5.84E-06	1.55E-05	1.40E-06	-0.317254	0.165862
	(0.22541)	(2.8E-05)	(7.0E-06)	(1.5E-06)	(0.06881)	(0.10546)
	[-0.43546]	[0.20825]	[2.19931]	[0.92741]	[-4.61076]	[1.57278]
D(IMP(-1))	-0.177882	-1.92E-07	-1.82E-05	2.88E-07	-0.096935	-0.303827
	(0.16623)	(2.1E-05)	(5.2E-06)	(1.1E-06)	(0.05074)	(0.07777)
	[-1.07009]	[-0.00930]	[-3.50612]	[0.25841]	[-1.91028]	[-3.90661]
D(IMP(-2))	-0.211053	-5.83E-06	-6.19E-06	4.09E-07	0.082025	0.024028
	(0.14985)	(1.9E-05)	(4.7E-06)	(1.0E-06)	(0.04574)	(0.07011)
	[-1.40843]	[-0.31274]	[-1.32411]	[0.40758]	[1.79316]	[0.34272]
C	873.0460	-0.003965	0.002786	0.000810	5.031923	15.82713
	(277.864)	(0.03455)	(0.00867)	(0.00186)	(84.8204)	(130.001)
	[3.14199]	[-0.11476]	[0.32146]	[0.43483]	[0.05932]	[0.12175]
R-squared	0.304986	0.380472	0.344361	0.054384	0.374065	0.279888
Adj. R-squared	0.264611	0.344483	0.306274	-0.000548	0.337704	0.238056
Sum sq. resids	3.98E+09	61.48356	3.868619	0.178737	3.71E+08	8.71E+08
S.E. equation	4062.433	0.505093	0.126698	0.027233	1240.095	1900.640
F-statistic	7.553963	10.57186	9.041461	0.990024	10.28744	6.690742
Log likelihood	-2482.761	-180.6681	173.3636	566.9300	-2178.993	-2288.306
Akaike AIC	19.51376	1.528657	-1.237215	-4.311953	17.14057	17.99458

Schwarz SC	19.72148	1.736382	-1.02949	-4.104228	17.34830	18.20230
Mean dependent	1314.336	0.009623	0.004239	-0.00057	74.07344	116.5496
S.D. dependent	4737.266	0.623848	0.152116	0.027226	1523.803	2177.401
Determinant resid covariance (dof adj.)		1.49E+14		**Akaike information criterion**		50.09728
Determinant resid covariance		1.04E+14		**Schwarz criterion**		51.50981
Log likelihood		-6310.45				

Table C.3: Correlation Matrix of Foreign Investment and Wholesale Price Index

	FDI	**FPI**	**WPI**
FDI	1.000000	0.049163	0.773889
FPI	0.049163	1.000000	0.133321
WPI	0.773889	0.133321	1.000000

Table C.4: Vector Error Correction Estimate for Foreign Investment and Wholesale Price Index

Vector Error Correction Estimates		
Standard errors in ( ) & t-statistics in [ ]		
Cointegrating Eq:	**CointEq1**	**CointEq2**
WPI(-1)	1.000000	0.000000
LFDI(-1)	0.000000	1.000000
LFPI(-1)	-162.054	3.681155
	(30.1909)	(0.78515)
	[-5.36763]	[4.68846]
LCOP(-1)	12.32280	0.172228
	(7.28790)	(0.18953)
	[1.69086]	[0.90871]

NEER(-1)			1.430571		-0.04444	
			(0.30306)		(0.00788)	
			[4.72041]		[-5.63800]	
IIP(-1)			-0.44344		-0.04767	
			(0.16778)		(0.00436)	
			[-2.64304]		[-10.9251]	
C			1312.393		-34.3789	
Error Correction:	**D(WPI)**	**D(LFDI)**	**D(LFPI)**	**D(LCOP)**	**D(NEER)**	**D(IIP)**
CointEq1	-0.00403	-0.00495	0.002106	-0.00067	-0.02188	-0.00076
	(0.00324)	(0.00257)	(0.00062)	(0.00040)	(0.00819)	(0.02745)
	[-1.24636]	[-1.92594]	[3.39521]	[-1.66784]	[-2.67167]	[-0.02760]
CointEq2	-0.33146	-0.43739	-0.02732	-0.02793	0.246958	1.314214
	(0.09430)	(0.07492)	(0.01807)	(0.01174)	(0.23864)	(0.79976)
	[-3.51492]	[-5.83796]	[-1.51157]	[-2.37972]	[1.03487]	[1.64326]
D(WPI(-1))	0.440402	-0.04126	-0.01333	0.006138	-0.04172	-3.45406
	(0.06612)	(0.05253)	(0.01267)	(0.00823)	(0.16731)	(0.56072)
	[6.66111]	[-0.78548]	[-1.05154]	[0.74591]	[-0.24936]	[-6.16007]
D(WPI(-2))	0.023122	-0.00186	0.001308	-0.0112	0.075707	1.299072
	(0.06251)	(0.04966)	(0.01198)	(0.00778)	(0.15819)	(0.53014)
	[0.36989]	[-0.03747]	[0.10916]	[-1.44002]	[0.47859]	[2.45041]
D(LFDI(-1))	0.156329	-0.28241	0.016689	0.025218	-1.31E-05	-1.40235
	(0.09533)	(0.07574)	(0.01827)	(0.01187)	(0.24124)	(0.80847)
	[1.63989]	[-3.72884]	[0.91339]	[2.12529]	[-5.5e-05]	[-1.73457]
D(LFDI(-2))	0.024613	-0.11207	0.001994	0.001176	0.003532	-0.43331
	(0.08109)	(0.06442)	(0.01554)	(0.01009)	(0.20520)	(0.68771)
	[0.30353]	[-1.73948]	[0.12830]	[0.11654]	[0.01721]	[-0.63008]
D(LFPI(-1))	-0.10186	0.532448	-0.31633	0.024120	-3.00466	-7.918
	(0.48128)	(0.38237)	(0.09224)	(0.05990)	(1.21790)	(4.08164)
	[-0.21165]	[1.39251]	[-3.42926]	[0.40264]	[-2.46708]	[-1.93990]
D(LFPI(-2))	0.222857	0.291513	-0.28102	0.019866	-1.65422	-4.22153
	(0.37368)	(0.29689)	(0.07162)	(0.04651)	(0.94563)	(3.16916)
	[0.59638]	[0.98190]	[-3.92365]	[0.42711]	[-1.74933]	[-1.33207]

D(LCOP(-1))	3.457588	-0.30659	0.009441	0.213710	0.832621	4.802483
	(0.53086)	(0.42176)	(0.10175)	(0.06608)	(1.34338)	(4.50216)
	[6.51318]	[-0.72693]	[0.09279]	[3.23432]	[0.61980]	[1.06671]
D(LCOP(-2))	-0.25052	0.210135	0.025145	0.038086	-1.51917	1.288448
	(0.57649)	(0.45801)	(0.11049)	(0.07175)	(1.45884)	(4.88910)
	[-0.43456]	[0.45880]	[0.22758]	[0.53078]	[-1.04135]	[0.26353]
D(NEER(-1))	-0.02306	-0.00503	0.004455	0.001756	0.201440	-0.25251
	(0.02569)	(0.02041)	(0.00492)	(0.00320)	(0.06500)	(0.21783)
	[-0.89790]	[-0.24663]	[0.90495]	[0.54911]	[3.09915]	[-1.15919]
D(NEER(-2))	0.044626	0.012921	-0.00745	0.000738	-0.11749	-0.18679
	(0.02550)	(0.02026)	(0.00489)	(0.00317)	(0.06452)	(0.21623)
	[1.75027]	[0.63788]	[-1.52392]	[0.23259]	[-1.82104]	[-0.86384]
D(IIP(-1))	0.016429	-0.01563	0.001962	-0.00199	0.048177	-0.66881
	(0.00822)	(0.00653)	(0.00158)	(0.00102)	(0.02080)	(0.06971)
	[1.99868]	[-2.39321]	[1.24505]	[-1.94385]	[2.31607]	[-9.59391]
D(IIP(-2))	-0.01261	-0.00339	0.003237	-0.00135	0.037821	-0.13673
	(0.00793)	(0.00630)	(0.00152)	(0.00099)	(0.02008)	(0.06729)
	[-1.58979]	[-0.53755]	[2.12876]	[-1.36995]	[1.88366]	[-2.03193]
C	0.227768	0.045550	0.006228	0.009066	-0.26856	1.726831
	(0.05185)	(0.04119)	(0.00994)	(0.00645)	(0.13121)	(0.43972)
	[4.39294]	[1.10577]	[0.62677]	[1.40482]	[-2.04683]	[3.92710]
R-squared	0.472630	0.351523	0.365236	0.114040	0.140208	0.457616
Adj. R-squared	0.441994	0.313852	0.328361	0.062574	0.090261	0.426108
Sum sq. resids	101.9583	64.35659	3.745448	1.579596	652.9168	7333.365
S.E. equation	0.650433	0.516759	0.124665	0.080959	1.645964	5.516240
F-statistic	15.42745	9.331419	9.904891	2.215813	2.807157	14.52388
Log likelihood	-245.41	-186.514	177.5052	288.0168	-483.091	-792.69
Akaike AIC	2.034451	1.574326	-1.26957	-2.13294	3.891337	6.310077

Schwarz SC	2.242176	1.782052	-1.06185	-1.92522	4.099062	6.517802
Mean dependent	0.456833	0.009623	0.004239	0.006643	-0.24097	0.497146
S.D. dependent	0.870730	0.623848	0.152116	0.083617	1.725687	7.281620
Determinant resid covariance (dof adj.)		0.000734		**Akaike information criterion**		10.24547
Determinant resid covariance		0.000511		**Schwarz criterion**		11.65800
Log likelihood		-1209.42				

Table C.5: Correlation Matrix of Foreign Investment and Exchange Rate

	FDI	**FPI**	**NEER**
FDI	1.000000	0.049163	-0.712854
FPI	0.049163	1.000000	-0.099221
NEER	-0.712854	-0.099221	1.000000

Table C.6: Vector Error Correction Estimate of Foreign Investment and Exchange Rate

Vector Error Correction Estimates		
Standard errors in ( ) & t-statistics in [ ]		
Cointegrating Eq:	**CointEq1**	**CointEq2**
NEER(-1)	1.000000	0.000000
LFDI(-1)	0.000000	1.000000
LFPI(-1)	-75.19891	1.860383
	(22.9928)	(2.38026)
	[-3.27054]	[0.78159]
LWPI(-1)	168.0663	10.14187
	(24.0419)	(2.48886)
	[6.99056]	[4.07491]
	-179.9174	-17.92958
	(26.0877)	(2.70064)

LEXP(-1)						
			[-6.89664]		[-6.63900]	
LIMP(-1)			123.0480		11.39947	
			(19.4549)		(2.01401)	
			[6.32477]		[5.66009]	
C			334.9864		-17.17651	
Error Correction:	**D(NEER)**	**D(LFDI)**	**D(LFPI)**	**D(LWPI)**	**D(LEXP)**	**D(LIMP)**
CointEq1	-0.038449	0.010566	0.004170	-1.03E-05	-0.000144	-0.001887
	(0.01363)	(0.00452)	(0.00105)	(4.6E-05)	(0.00076)	(0.00071)
	[-2.82082]	[2.33773]	[3.95267]	[-0.22367]	[-0.18869]	[-2.64016]
CointEq2	0.348049	-0.159208	-0.039501	-0.000654	0.009492	-0.001761
	(0.14279)	(0.04735)	(0.01105)	(0.00048)	(0.00797)	(0.00749)
	[2.43755]	[-3.36244]	[-3.57451]	[-1.35100]	[1.19096]	[-0.23531]
D(NEER(-1))	0.184277	0.002127	0.006994	-0.000272	-0.004143	0.000980
	(0.06503)	(0.02156)	(0.00503)	(0.00022)	(0.00363)	(0.00341)
	[2.83364]	[0.09863]	[1.38957]	[-1.23321]	[-1.14119]	[0.28747]
D(NEER(-2))	-0.085797	0.013175	-0.008535	0.000705	0.002691	0.001693
	(0.06390)	(0.02119)	(0.00495)	(0.00022)	(0.00357)	(0.00335)
	[-1.34278]	[0.62180]	[-1.72588]	[3.25433]	[0.75447]	[0.50556]
D(LFDI(-1))	-0.119478	-0.454109	0.022350	0.000171	-0.004548	-0.010289
	(0.20639)	(0.06844)	(0.01597)	(0.00070)	(0.01152)	(0.01082)
	[-0.57890]	[-6.63518]	[1.39925]	[0.24381]	[-0.39481]	[-0.95093]
D(LFDI(-2))	-0.087091	-0.220501	0.003688	-0.000452	0.000981	0.000988
	(0.19209)	(0.06370)	(0.01487)	(0.00065)	(0.01072)	(0.01007)
	[-0.45340]	[-3.46175]	[0.24806]	[-0.69363]	[0.09146]	[0.09815]
D(LFPI(-1))	-2.389819	0.801970	-0.331945	-0.003042	0.004082	-0.058428
	(1.13038)	(0.37484)	(0.08748)	(0.00383)	(0.06310)	(0.05926)
	[-2.11418]	[2.13951]	[-3.79438]	[-0.79397]	[0.06470]	[-0.98595]
D(LFPI(-2))	-1.509605	0.380036	-0.278302	-0.001272	0.007409	-0.076688
	(0.89706)	(0.29747)	(0.06943)	(0.00304)	(0.05007)	(0.04703)
	[-1.68284]	[1.27756]	[-4.00860]	[-0.41837]	[0.14796]	[-1.63067]
D(LWPI(-1))	-30.56416	-4.846729	-0.695401	0.426127	1.065648	3.411081
	(18.7940)	(6.23219)	(1.45453)	(0.06371)	(1.04906)	(0.98529)

	[-1.62627]	[-0.77769]	[-0.47810]	[6.68880]	[1.01581]	[3.46202]
D(LWPI(-2))	-3.673999	-7.777251	-0.506709	0.019043	1.384050	1.404602
	(18.8957)	(6.26590)	(1.46239)	(0.06405)	(1.05474)	(0.99062)
	[-0.19444]	[-1.24120]	[-0.34649]	[0.29731]	[1.31222]	[1.41791]
D(LEXP(-1))	3.963816	-0.819498	0.215412	0.013699	-0.407081	-0.181835
	(1.70693)	(0.56603)	(0.13210)	(0.00579)	(0.09528)	(0.08949)
	[2.32220]	[-1.44781]	[1.63063]	[2.36758]	[-4.27252]	[-2.03198]
D(LEXP(-2))	3.445409	-0.581738	0.048502	0.001285	-0.184531	-0.07978
	(1.47042)	(0.48760)	(0.11380)	(0.00498)	(0.08208)	(0.07709)
	[2.34315]	[-1.19307]	[0.42620]	[0.25774]	[-2.24826]	[-1.03493]
D(LIMP(-1))	0.071333	0.274718	-0.238649	0.002168	-0.27995	-0.423058
	(1.46589)	(0.48610)	(0.11345)	(0.00497)	(0.08182)	(0.07685)
	[0.04866]	[0.56515]	[-2.10356]	[0.43630]	[-3.42135]	[-5.50498]
D(LIMP(-2))	-0.40944	0.778684	-0.065602	0.002228	-0.013798	0.018687
	(1.38219)	(0.45834)	(0.10697)	(0.00469)	(0.07715)	(0.07246)
	[-0.29623]	[1.69892]	[-0.61327]	[0.47562]	[-0.17883]	[0.25789]
C	-0.129654	0.074142	0.009118	0.002217	0.005499	-0.003558
	(0.12841)	(0.04258)	(0.00994)	(0.00044)	(0.00717)	(0.00673)
	[-1.00966]	[1.74114]	[0.91742]	[5.09364]	[0.76713]	[-0.52857]
R-squared	0.171785	0.303130	0.361560	0.334460	0.350310	0.353822
Adj. R-squared	0.123673	0.262648	0.324472	0.295797	0.312569	0.316285
Sum sq. resids	628.9374	69.15922	3.767135	0.007227	1.959613	1.728596
S.E. equation	1.615456	0.535694	0.125025	0.005476	0.090173	0.084691
F-statistic	3.570511	7.488001	9.748769	8.650836	9.281863	9.425889
Log likelihood	-478.3016	-195.7262	176.7662	977.5678	260.4228	276.4789
Akaike AIC	3.853919	1.646299	-1.263798	-7.520061	-1.917366	-2.042804
Schwarz SC	4.061644	1.854024	-1.056073	-7.312336	-1.709641	-1.835078

Mean dependent	-0.24097	0.009623	0.004239	0.004057	0.008438	0.009488
S.D. dependent	1.725687	0.623848	0.152116	0.006526	0.108758	0.102424
Determinant resid covariance (dof adj.)		1.21E-11		**Akaike information criterion**		-7.67989
Determinant resid covariance		8.39E-12		**Schwarz criterion**		-6.267358
Log likelihood		1085.026				

Table C.7: Correlation Matrix of Foreign Investment and Economic Growth

	FDI	**FPI**	**IIP**
FDI	1.000000	0.049163	0.779384
FPI	0.049163	1.000000	0.165983
IIP	0.779384	0.165983	1.000000

Table C.8: Vector Error Correction Estimate of Foreign Investment and Economic Growth

Vector Error Correction Estimates							
Standard errors in ( ) & t-statistics in [ ]							
Cointegrating Eq:				**CointEq1**			
IIP(-1)				1.000000			
LFDI(-1)				-13.72089			
				(1.72640)			
				[-7.94769]			
LFPI(-1)				-47.18273			
				(13.0643)			
				[-3.61158]			
LIR(-1)				4.878619			
				(2.44605)			
				[1.99449]			
LNEER(-1)				8.954999			
				(22.2014)			
				[0.40335]			
LWPI(-1)				-70.74676			
				(26.9959)			
				[-2.62065]			
LEXP(-1)				-2.692716			
				(6.96624)			
				[-0.38654]			
C				745.8380			
Error Correction:	**D(IIP)**	**D(LFDI)**	**D(LFPI)**	**D(LIR)**	**D(LNEER)**	**D(LWPI)**	**D(LEXP)**
CointEq1	-0.219095	0.022143	0.002469	-0.00627	-0.000125	0.000168	-0.000373
	(0.05264)	(0.00524)	(0.00127)	(0.00272)	(0.00017)	(5.4E-05)	(0.00089)
	[-4.16215]	[4.22798]	[1.94602]	[-2.30238]	[-0.75091]	[3.11662]	[-0.41838]
D(IIP(-1))	-0.41963	-0.012366	-0.001133	0.003826	0.000393	-1.72E-05	-0.000891
	(0.08154)	(0.00811)	(0.00197)	(0.00422)	(0.00026)	(8.4E-05)	(0.00138)
	[-5.14626]	[-1.52433]	[-0.57634]	[0.90699]	[1.52351]	[-0.20556]	[-0.64566]
D(IIP(-2))	0.098500	-0.004204	0.003301	0.007658	0.000585	-0.000166	0.002426

	(0.08381)	(0.00834)	(0.00202)	(0.00434)	(0.00026)	(8.6E-05)	(0.00142)
	[1.17532]	[-0.50416]	[1.63435]	[1.76646]	[2.20808]	[-1.93185]	[1.71098]
D(IIP(-3))	0.241016	-0.000797	-0.00022	0.008237	0.000272	-1.14E-05	0.003698
	(0.07355)	(0.00732)	(0.00177)	(0.00380)	(0.00023)	(7.6E-05)	(0.00124)
	[3.27705]	[-0.10895]	[-0.12398]	[2.16498]	[1.16975]	[-0.15037]	[2.97217]
D(LFDI(-1))	-2.863345	-0.404381	0.019222	-0.144812	-0.000978	0.001436	-0.007212
	(0.80465)	(0.08006)	(0.01939)	(0.04162)	(0.00254)	(0.00083)	(0.01361)
	[-3.55851]	[-5.05127]	[0.99117]	[-3.47901]	[-0.38458]	[1.73866]	[-0.52984]
D(LFDI(-2))	-1.216691	-0.235667	0.017960	-0.07925	-0.001086	0.000298	0.003505
	(0.78886)	(0.07848)	(0.01901)	(0.04081)	(0.00249)	(0.00081)	(0.01334)
	[-1.54235]	[-3.00272]	[0.94467]	[-1.94204]	[-0.43545]	[0.36766]	[0.26270]
D(LFDI(-3))	-0.860176	-0.134919	0.015899	-0.010692	-0.000157	0.000290	0.002578
	(0.66435)	(0.06610)	(0.01601)	(0.03437)	(0.00210)	(0.00068)	(0.01124)
	[-1.29476]	[-2.04122]	[0.99298]	[-0.31113]	[-0.07472]	[0.42480]	[0.22941]
D(LFPI(-1))	-12.02734	0.613735	-0.53161	-0.220548	0.002823	0.003075	-0.021344
	(3.65695)	(0.36383)	(0.08814)	(0.18917)	(0.01156)	(0.00375)	(0.06186)
	[-3.28890]	[1.68686]	[-6.03166]	[-1.16584]	[0.24428]	[0.81910]	[-0.34504]
D(LFPI(-2))	-5.112891	0.289338	-0.382948	-0.196302	0.014469	0.004337	-0.020828
	(3.61660)	(0.35982)	(0.08716)	(0.18709)	(0.01143)	(0.00371)	(0.06118)
	[-1.41373]	[0.80412]	[-4.39339]	[-1.04925]	[1.26596]	[1.16795]	[-0.34045]
D(LFPI(-3))	2.311005	-0.209975	0.001985	-0.079805	0.027332	0.002758	0.019060
	(3.03438)	(0.30189)	(0.07313)	(0.15697)	(0.00959)	(0.00312)	(0.05133)
	[0.76161]	[-0.69553]	[0.02714]	[-0.50841]	[2.85029]	[0.88522]	[0.37133]
D(LIR(-1))	0.778763	-0.017326	0.039393	-0.314987	0.001962	-0.001748	0.010787
	(1.28408)	(0.12776)	(0.03095)	(0.06643)	(0.00406)	(0.00132)	(0.02172)
	[0.60647]	[-0.13562]	[1.27289]	[-4.74193]	[0.48356]	[-1.32585]	[0.49660]
D(LIR(-2))	2.609638	0.034539	0.001786	-0.244213	0.006182	-0.001016	0.033609
	(1.30569)	(0.12990)	(0.03147)	(0.06754)	(0.00413)	(0.00134)	(0.02209)
	[1.99867]	[0.26588]	[0.05675]	[-3.61564]	[1.49835]	[-0.75794]	[1.52169]
D(LIR(-3))	1.523355	-0.106572	-0.039639	-0.037918	-0.000786	-0.002348	-0.020496
	(1.28090)	(0.12744)	(0.03087)	(0.06626)	(0.00405)	(0.00132)	(0.02167)
	[1.18929]	[-0.83627]	[-1.28401]	[-0.57225]	[-0.19407]	[-1.78518]	[-0.94595]
D(LNEER(-1))	-34.93417	0.606462	0.612312	-2.066965	0.165635	-0.026603	-0.639685

	(21.7885)	(2.16776)	(0.52513)	(1.12712)	(0.06886)	(0.02237)	(0.36857)
	[-1.60333]	[0.27976]	[1.16602]	[-1.83384]	[2.40553]	[-1.18922]	[-1.73560]
D(LNEER(-2))	-13.66622	2.292261	-0.977749	-0.613521	-0.033001	0.071448	0.403893
	(21.5443)	(2.14347)	(0.51924)	(1.11449)	(0.06808)	(0.02212)	(0.36444)
	[-0.63433]	[1.06942]	[-1.88303]	[-0.55049]	[-0.48470]	[3.23012]	[1.10827]
D(LNEER(-3))	-11.81517	0.327811	-0.510526	-0.838664	-0.042914	-0.013166	-0.227816
	(21.7744)	(2.16636)	(0.52479)	(1.12639)	(0.06881)	(0.02236)	(0.36833)
	[-0.54262]	[0.15132]	[-0.97282]	[-0.74456]	[-0.62364]	[-0.58896]	[-0.61851]
D(LWPI(-1))	-285.3161	-7.153205	-1.248278	4.742548	-0.192309	0.462285	0.697824
	(64.4731)	(6.41451)	(1.55388)	(3.33521)	(0.20375)	(0.06619)	(1.09060)
	[-4.42535]	[-1.11516]	[-0.80333]	[1.42197]	[-0.94386]	[6.98386]	[0.63985]
D(LWPI(-2))	108.2894	-1.606452	-0.217153	-5.780665	0.086986	0.029596	0.832032
	(71.6685)	(7.13038)	(1.72730)	(3.70742)	(0.22649)	(0.07358)	(1.21232)
	[1.51098]	[-0.22530]	[-0.12572]	[-1.55921]	[0.38407]	[0.40223]	[0.68631]
D(LWPI(-3))	21.64048	2.629701	2.895911	5.331461	-0.221233	-0.047117	-0.570349
	(63.7542)	(6.34298)	(1.53655)	(3.29802)	(0.20148)	(0.06546)	(1.07844)
	[0.33944]	[0.41458]	[1.88468]	[1.61657]	[-1.09807]	[-0.71984]	[-0.52886]
D(LEXP(-1))	-8.76033	-0.290134	0.048397	-0.119242	0.039192	0.017846	-0.537863
	(4.40288)	(0.43805)	(0.10611)	(0.22776)	(0.01391)	(0.00452)	(0.07448)
	[-1.98968]	[-0.66233]	[0.45608]	[-0.52354]	[2.81676]	[3.94781]	[-7.22181]
D(LEXP(-2))	-10.30288	0.125159	-0.188187	-0.026345	0.016346	0.008907	-0.247928
	(5.08754)	(0.50617)	(0.12262)	(0.26318)	(0.01608)	(0.00522)	(0.08606)
	[-2.02512]	[0.24727]	[-1.53477]	[-0.10010]	[1.01670]	[1.70523]	[-2.88090]
D(LEXP(-3))	-4.620005	0.406920	-0.04773	0.228786	-0.014475	-0.001849	-0.057225
	(4.70369)	(0.46798)	(0.11336)	(0.24332)	(0.01486)	(0.00483)	(0.07957)
	[-0.98221]	[0.86953]	[-0.42103]	[0.94026]	[-0.97379]	[-0.38293]	[-0.71922]
C	1.225551	0.060678	-0.00371	-0.037917	-0.001764	0.002157	0.006957
	(0.47468)	(0.04723)	(0.01144)	(0.02456)	(0.00150)	(0.00049)	(0.00803)
	[2.58182]	[1.28483]	[-0.32430]	[-1.54413]	[-1.17570]	[4.42497]	[0.86646]
R-squared	0.504575	0.361044	0.370016	0.227247	0.198017	0.377309	0.378940
Adj. R-squared	0.457392	0.300191	0.310018	0.153652	0.121637	0.318005	0.319791

Sum sq. resids	6396.539	63.31609	3.715538	17.11720	0.063881	0.006742	1.830300
S.E. equation	5.262190	0.523541	0.126825	0.272214	0.016630	0.005403	0.089013
F-statistic	10.69392	5.933059	6.167097	3.087785	2.592543	6.362299	6.406573
Log likelihood	-770.135	-183.9827	176.1406	-17.85958	692.1745	977.7466	266.0621
Akaike AIC	6.245158	1.629785	-1.205831	0.321729	-5.269091	-7.51769	-1.913875
Schwarz SC	6.565467	1.950095	-0.885521	0.642039	-4.948781	-7.19738	-1.593565
Mean dependent	0.395515	0.011458	0.004052	-0.002613	-0.002487	0.004031	0.007292
S.D. dependent	7.143701	0.625837	0.152681	0.295894	0.017744	0.006542	0.107928
Determinant resid covariance (dof adj.)		3.38E-13		**Akaike information criterion**		-8.193093	
Determinant resid covariance		1.74E-13		**Schwarz criterion**		-5.853439	
Log likelihood		1208.523					

Table C.9: Correlation Matrix of Foreign Investment and Export

	FDI	**FPI**	**EXP**
FDI	1.000000	0.049163	0.761374
FPI	0.049163	1.000000	0.141230
EXP	0.761374	0.141230	1.000000

Appendix D

Stock Market Development Indicators

Table D.1: Correlation Matrix of Foreign Institutional Investment and BSE Sensex Return

	ASR	**FII**
ASR	1.000000	0.404798
FII	0.404798	1.000000

Table D.2: Correlation Matrix of Foreign Institutional Investment and NSE Nifty Return

	ANR	**FII**
ANR	1.000000	0.414353
FII	0.414353	1.000000

Table D.3: Name of Sector Specific BSE Indices

Sr. No	**Name of Index**	**Name of the Index considered in present study in various Table**
1	S& P BSE Auto	Auto
2	S& P BSE Bankex	Bankex
3	S& P BSE Basic Materials	Basic Materials
4	S& P BSE Capital Goods	Capital Goods
5	S& P BSE Consumer Discretionary Goods & Service	Consumer Discretionary Goods & Service
6	S& P BSE Consumer Durables	Consumer Durables
7	S& P BSE Energy	Energy
8	S& P BSE Finance	Finance
9	S& P BSE Fast Moving Consumer Goods	Fast Moving Consumer Goods
10	S& P BSE Healthcare	Healthcare
11	S& P BSE Industrials	Industrials
12	S&P BSE Information Technology	Information Technology
13	S& P BSE Metal	Metal
14	S& P BSE Oil & Gas	Oil & Gas
15	S& P BSE Power	Power
16	S& P BSE Reality	Reality
17	S& P BSE Teck	Teck
18	S& P BSE Telecom	Telecom
18	S& P BSE Utilities	Utilities
20	S& P BSE PSU	PSU

Table D.4: Correlation Matrix of Foreign Institutional Investment and Turnover of the Market

	FIIs	**TO**
FIIs	1.000000	0.231237
TO	0.231237	1.000000

Table D.5: Correlation Matrix of Foreign Institutional Investment and Market Capitaliation

	FIIs	**MC BSE**
FIIs	1.000000	0.280500
MC BSE	0.280500	1.000000

Table D.6: Correlation Matrix of Foreign Institutional Investment and P.E. Ratio

	FIIs	**P.E. Ratio**
FIIs	1.000000	0.137445
P.E. Ratio	0.137445	1.000000

Appendix E

Database

Table E.1: Macroeconomic Variables (US $ Million) - I

Year	FDI	FPI	FER	WPI	NEER	REER
1995M04	149.00	229.00	25037.00	62.44	131.16	148.24
1995M05	208.00	229.00	24707.00	63.13	131.16	150.21
1995M06	206.00	229.00	24153.00	63.35	132.16	149.81
1995M07	143.00	229.00	24347.00	63.70	131.54	151.56
1995M08	126.00	229.00	23449.00	64.11	131.59	153.78
1995M09	173.00	229.00	23477.00	64.39	133.94	147.82
1995M10	222.00	229.00	22200.00	64.50	129.05	140.93
1995M11	124.00	229.00	21782.00	64.82	122.79	140.73
1995M12	148.00	229.00	22063.00	64.46	122.27	140.18
1996M01	166.00	229.00	20945.00	64.39	122.23	138.06
1996M02	161.00	229.00	20652.00	64.50	120.64	134.55
1996M03	2144.00	229.00	21687.00	64.82	117.79	143.24
1996M04	278.00	276.00	21620.00	65.56	125.83	145.18
1996M05	143.00	276.00	21620.00	65.97	127.57	143.31
1996M06	170.00	276.00	22091.00	66.23	125.28	144.04
1996M07	190.00	276.00	22441.00	67.51	125.32	143.22
1996M08	187.00	276.00	22441.00	68.07	122.70	142.45
1996M09	153.00	276.00	22900.00	68.59	121.37	143.11
1996M10	215.00	276.00	23635.00	68.74	122.03	143.62

1996M11	320.00	276.00	23752.00	69.07	122.95	142.12
1996M12	292.00	276.00	24110.00	69.30	121.48	143.65
1997M01	262.00	276.00	23973.00	69.24	122.40	145.46
1997M02	359.00	276.00	23674.00	69.59	124.21	149.64
1997M03	2821.00	276.00	26423.00	69.43	127.59	150.46
1997M04	473.00	152.00	26667.00	69.78	128.39	151.90
1997M05	408.00	152.00	28096.00	69.80	129.15	150.18
1997M06	283.00	152.00	29331.00	70.02	128.02	150.74
1997M07	271.00	152.00	29789.00	70.26	128.00	153.15
1997M08	163.00	152.00	30228.00	70.58	129.89	155.56
1997M09	359.00	152.00	29435.00	71.15	131.74	152.66
1997M10	297.00	152.00	30022.00	71.77	128.63	152.53
1997M11	231.00	21.00	27893.00	71.79	128.26	147.35
1997M12	225.00	287.00	27355.00	72.40	124.06	143.01
1998M01	226.00	-57.00	27838.00	73.22	119.74	145.46
1998M02	203.00	-88.00	27461.00	73.03	120.58	145.76
1998M03	257.00	231.00	29367.00	72.92	121.53	144.10
1998M04	275.00	-31.00	29452.00	73.72	120.17	144.30
1998M05	210.00	-115.00	28671.00	74.44	119.55	141.95
1998M06	377.00	-269.00	27034.00	75.24	116.64	138.64
1998M07	117.00	-26.00	27088.00	76.08	112.53	139.25
1998M08	130.00	-48.00	27765.00	76.47	112.01	138.36
1998M09	141.00	-43.00	29182.00	77.23	111.61	134.90
1998M10	66.00	-140.00	29757.00	77.71	108.82	133.03
1998M11	93.00	-50.00	29667.00	77.62	106.38	135.24
1998M12	153.00	40.00	30056.00	76.97	107.57	133.92
1999M01	161.00	62.00	30445.00	76.67	106.68	134.09
1999M02	210.00	48.00	30758.00	76.93	107.53	137.40
1999M03	294.00	511.00	32490.00	76.58	109.69	139.40
1999M04	140.00	458.00	32538.00	76.90	111.31	138.05
1999M05	149.00	400.00	33475.00	77.25	111.27	139.07
1999M06	154.00	44.00	33265.00	77.58	111.67	139.75
1999M07	205.00	252.00	33422.00	77.86	111.71	139.98

1999M08	345.00	36.00	33269.00	78.18	111.57	137.82
1999M09	96.00	162.00	33203.00	79.31	109.19	137.53
1999M10	128.00	4.00	33805.00	79.98	108.69	137.59
1999M11	113.00	203.00	34359.00	79.83	107.70	139.97
1999M12	159.00	357.00	34935.00	79.11	109.33	139.85
2000M01	119.00	142.00	34896.00	79.11	109.91	139.50
2000M02	290.00	477.00	35903.00	79.38	109.62	142.15
2000M03	257.00	491.00	38036.00	81.06	111.61	145.66
2000M04	83.00	624.00	37896.00	82.26	112.36	146.55
2000M05	349.00	324.00	37245.00	82.31	112.81	148.84
2000M06	230.00	-159.00	36730.00	82.80	114.39	144.38
2000M07	254.00	-16.00	36231.00	83.02	110.65	145.14
2000M08	172.00	171.00	35619.00	83.18	110.97	144.81
2000M09	91.00	246.00	35438.00	83.88	110.44	147.55
2000M10	176.00	-231.00	34899.00	85.62	112.03	149.97
2000M11	113.00	78.00	39040.00	85.78	111.57	149.21
2000M12	181.00	116.00	40077.00	85.94	110.87	147.09
2001M01	335.00	451.00	41120.00	86.00	109.03	145.89
2001M02	193.00	670.00	41608.00	86.00	107.87	147.12
2001M03	162.00	486.00	42281.00	86.27	108.83	148.45
2001M04	191.00	247.00	42526.00	86.70	109.66	147.36
2001M05	258.00	280.00	42991.00	86.92	110.28	148.06
2001M06	159.00	423.00	43454.00	87.19	110.71	149.76
2001M07	228.00	131.00	43730.00	87.35	111.77	149.77
2001M08	633.00	289.00	45358.00	87.68	111.25	147.46
2001M09	376.00	-160.00	44877.00	87.68	109.05	144.27
2001M10	204.00	35.00	45256.00	88.11	106.88	144.67
2001M11	316.00	70.00	46891.00	88.01	106.52	146.29
2001M12	347.00	28.00	48112.00	87.73	107.58	146.96
2002M01	239.00	131.00	49479.00	87.30	107.99	146.14
2002M02	140.00	271.00	50776.00	87.19	107.83	145.90
2002M03	813.00	276.00	54106.00	87.79	107.87	145.70
2002M04	174.00	-73.00	55870.00	88.01	107.28	141.92

2002M05	491.00	107.00	56779.00	88.28	106.45	139.81
2002M06	400.00	-272.00	58693.00	89.31	104.46	139.04
2002M07	154.00	43.00	60607.00	89.79	102.70	137.25
2002M08	139.00	-33.00	62140.00	90.61	100.72	139.95
2002M09	204.00	-131.00	63620.00	90.77	101.81	140.37
2002M10	213.00	108.00	65159.00	90.83	102.04	140.77
2002M11	157.00	184.00	67578.00	90.99	102.37	140.08
2002M12	110.00	453.00	71110.00	90.66	101.61	139.22
2003M01	157.00	301.00	74256.00	90.99	101.16	137.79
2003M02	192.00	77.00	73547.00	91.86	99.66	97.90
2003M03	183.00	215.00	76100.00	93.05	99.93	99.13
2003M04	58.00	300.00	78325.00	93.86	100.89	98.85
2003M05	122.00	469.00	82308.00	94.02	98.78	97.40
2003M06	168.00	629.00	83221.00	94.08	99.10	97.87
2003M07	180.00	425.00	85551.00	94.02	101.33	100.02
2003M08	196.00	778.00	87306.00	94.19	102.92	101.74
2003M09	262.00	933.00	92339.00	95.22	102.56	102.29
2003M10	127.00	1622.00	93803.00	95.49	101.13	101.09
2003M11	142.00	889.00	97400.00	95.92	100.78	101.24
2003M12	270.00	1599.00	103151.00	95.87	98.44	99.08
2004M01	122.00	1161.00	106384.00	96.90	97.33	99.11
2004M02	382.00	738.00	109572.00	97.49	97.34	99.79
2004M03	168.00	1834.00	112959.00	97.49	99.37	101.52
2004M04	217.00	938.00	118490.00	98.09	104.16	102.11
2004M05	217.00	-314.00	119379.00	98.74	101.53	100.23
2004M06	380.00	-467.00	119511.00	100.42	100.15	99.25
2004M07	173.00	-410.00	118385.00	101.18	98.56	98.28
2004M08	601.00	450.00	118154.00	102.16	98.39	99.01
2004M09	282.00	424.00	119579.00	102.70	98.91	99.57
2004M10	214.00	848.00	121337.00	102.43	98.69	99.72
2004M11	186.00	3051.00	128226.00	103.13	98.26	99.06
2004M12	316.00	804.00	131178.00	102.37	99.20	99.37
2005M01	152.00	-130.00	129463.00	102.27	100.61	101.31

2005M02	238.00	2467.00	135900.00	102.37	101.23	101.55
2005M03	275.00	1654.00	141514.00	102.70	100.63	100.70
2005M04	268.00	-286.00	141841.00	102.70	101.43	101.79
2005M05	654.00	-123.00	138857.00	102.50	102.79	102.73
2005M06	264.00	1382.00	138370.00	102.90	104.48	104.21
2005M07	324.00	1809.00	140542.00	104.00	105.40	106.38
2005M08	399.00	1289.00	144079.00	104.10	103.99	105.24
2005M09	282.00	1342.00	143059.00	104.90	103.27	104.20
2005M10	412.00	88.00	143573.00	105.40	102.27	103.87
2005M11	746.00	271.00	142821.00	105.50	101.33	104.37
2005M12	342.00	2389.00	137206.00	104.90	101.26	103.96
2006M01	482.00	1545.00	140374.00	105.40	103.07	105.29
2006M02	127.00	1821.00	142400.00	105.60	103.88	106.03
2006M03	1240.00	966.00	151622.00	105.70	103.28	105.33
2006M04	661.00	3711.00	160677.00	107.80	101.11	103.48
2006M05	538.00	-3334.00	163868.00	108.70	97.94	101.51
2006M06	523.00	-903.00	162912.00	109.90	97.10	101.53
2006M07	1127.00	-309.00	164577.00	110.80	96.19	100.77
2006M08	619.00	1212.00	166244.00	111.50	95.50	100.78
2006M09	916.00	1238.00	165305.00	112.20	96.55	102.81
2006M10	1698.00	1755.00	167392.00	112.70	98.33	106.04
2006M11	1151.00	2236.00	174641.00	112.60	98.67	106.43
2006M12	5130.00	-429.00	177251.00	112.20	97.93	104.96
2007M01	1921.00	1602.00	180161.00	112.40	99.26	105.91
2007M02	698.00	2630.00	194563.00	112.60	99.40	106.15
2007M03	603.00	-2406.00	199179.00	112.80	99.12	105.48
2007M04	1643.00	1974.00	204409.00	114.50	102.62	109.70
2007M05	2120.00	1852.00	208068.00	114.70	106.05	113.92
2007M06	1238.00	3664.00	213362.00	114.80	106.29	114.21
2007M07	705.00	6713.00	227107.00	115.70	105.99	114.97
2007M08	831.00	-2875.00	228847.00	116.00	104.99	114.31
2007M09	713.00	7081.00	247762.00	116.00	105.29	114.77
2007M10	2027.00	9564.00	264692.00	116.30	106.47	116.38

2007M11	1864.00	-107.00	273520.00	116.80	104.91	114.32
2007M12	1558.00	5294.00	275316.00	116.70	105.31	114.57
2008M01	1767.00	6739.00	293240.00	117.50	104.80	113.39
2008M02	5670.00	-8904.00	301235.00	119.00	103.49	112.00
2008M03	4438.00	-1600.00	309723.00	121.50	99.27	108.74
2008M04	3749.00	-880.00	314155.00	123.50	99.35	109.59
2008M05	3932.00	-288.00	314614.00	124.10	94.86	104.68
2008M06	2392.00	-3010.00	312087.00	127.30	93.26	103.21
2008M07	2247.00	-492.00	306176.00	128.60	92.49	103.44
2008M08	2328.00	593.00	295309.00	128.90	94.33	107.36
2008M09	2562.00	-1403.00	286336.00	128.50	90.35	104.13
2008M10	1497.00	-5243.00	252883.00	128.70	86.86	102.23
2008M11	1083.00	-574.00	247686.00	126.90	88.08	104.62
2008M12	1362.00	30.00	255968.00	124.50	86.83	102.55
2009M01	2733.00	-614.00	248611.00	124.40	87.00	102.65
2009M02	1488.00	-1085.00	249278.00	123.30	87.66	103.33
2009M03	1956.00	-889.00	251985.00	123.50	84.00	99.53
2009M04	2339.00	2278.00	251702.00	125.00	85.28	101.79
2009M05	2095.00	5639.00	262306.00	125.90	86.48	104.65
2009M06	2471.00	353.00	265142.00	126.80	86.71	105.30
2009M07	3476.00	3032.00	271641.00	128.20	85.22	106.83
2009M08	3174.00	1574.00	277252.00	129.60	85.04	107.78
2009M09	1512.00	5095.00	281278.00	130.30	84.19	107.63
2009M10	2332.00	2922.00	284391.00	131.00	86.67	111.63
2009M11	1700.00	1274.00	288146.00	132.90	86.56	113.71
2009M12	1542.00	1533.00	283470.00	133.40	87.21	114.76
2010M01	2042.00	3139.00	280955.00	135.20	89.30	117.62
2010M02	1717.00	230.00	278357.00	135.20	90.03	117.24
2010M03	1209.00	5306.00	279057.00	136.30	92.19	119.85
2010M04	2179.00	3315.00	279633.00	138.60	94.43	122.86
2010M05	2213.00	88.00	273544.00	139.10	93.97	123.66
2010M06	1380.00	1250.00	275710.00	139.80	93.26	123.57
2010M07	1785.00	9114.00	284183.00	141.00	90.76	122.56

2010M08	1330.00	-440.00	283142.00	141.10	90.75	122.75
2010M09	2118.00	10577.00	292870.00	142.00	91.22	124.54
2010M10	1392.00	28704.00	297956.00	142.90	92.18	125.82
2010M11	1628.00	-19811.00	292389.00	143.80	91.37	125.15
2010M12	2014.00	-1502.00	297334.00	146.00	92.29	127.78
2011M01	1042.00	1691.00	299224.00	148.00	91.29	126.89
2011M02	1274.00	-1600.00	301592.00	148.10	90.21	124.18
2011M03	1174.00	-552.00	304818.00	149.50	90.29	124.26
2011M04	2782.00	3544.60	313511.00	152.10	90.12	124.19
2011M05	4074.00	-1583.87	311516.00	152.40	88.99	123.92
2011M06	5317.00	789.07	315715.00	153.10	88.97	124.91
2011M07	1235.07	1560.36	319090.00	154.20	89.95	127.60
2011M08	6177.07	-1796.71	321982.00	154.90	87.72	126.14
2011M09	1902.07	-1147.19	311482.00	156.20	84.61	122.96
2011M10	3035.00	-432.00	316210.00	157.00	81.88	119.29
2011M11	2570.00	76.00	307884.00	157.40	79.55	116.40
2011M12	1385.00	2302.00	296688.00	157.30	77.58	113.19
2012M01	1550.00	5422.00	292766.00	158.70	79.94	115.91
2012M02	1757.00	9228.00	295819.00	159.30	82.75	120.66
2012M03	1174.00	-552.00	294398.00	161.00	81.18	118.88
2012M04	2352.62	-1305.51	294846.00	163.50	78.73	116.40
2012M05	1822.62	11.56	286019.00	163.90	75.53	113.34
2012M06	1739.85	-318.17	289736.00	164.70	74.06	111.96
2012M07	2042.26	2207.99	288775.00	165.80	75.28	115.27
2012M08	2831.70	1565.83	290462.00	167.30	74.87	116.01
2012M09	4648.63	4214.71	294812.00	168.80	75.08	117.24
2012M10	2022.86	2944.99	295254.00	168.50	76.98	120.54
2012M11	1139.80	2026.24	294510.00	168.80	74.78	117.90
2012M12	1181.51	4882.10	295638.00	168.80	74.59	117.78
2013M01	2721.78	6117.44	295508.00	170.30	75.05	118.37
2013M02	2359.64	4176.34	290912.00	170.90	76.07	120.25
2013M03	2089.30	1245.84	292045.60	170.10	76.05	120.79
2013M04	2681.50	1542.00	293892.10	171.30	76.12	121.16

2013M05	1991.34	6703.00	287897.30	171.40	75.33	121.48
2013M06	1804.10	-8707.00	282452.80	173.20	70.37	114.50
2013M07	2166.85	-4703.03	277571.60	175.50	69.06	113.28
2013M08	1918.11	-2018.33	275491.60	179.00	64.81	107.83
2013M09	4643.63	157.29	277233.70	180.70	64.16	107.91
2013M10	1830.20	-366.15	281542.90	180.70	65.78	111.42
2013M11	2241.57	-34.66	290676.70	181.50	65.00	111.91
2013M12	1705.30	2934.49	293876.80	179.60	65.50	111.65
2014M01	2869.12	2615.80	291070.30	179.00	65.36	110.19
2014M02	2697.34	1508.50	294360.20	179.50	65.12	109.60
2014M03	4213.43	5396.84	304223.20	180.30	66.49	112.69
2014M04	2057.55	-68.50	310986.30	180.80	67.33	114.31
2014M05	3956.49	7709.21	312207.00	182.00	68.60	117.47
2014M06	2279.31	4824.13	316138.00	183.00	68.30	117.19
2014M07	3956.41	5416.79	319808.00	185.00	67.85	117.93
2014M08	1734.41	2091.42	318399.70	185.90	67.27	118.55
2014M09	3136.79	2364.22	313841.20	185.00	68.16	119.95
2014M10	3095.70	1721.87	315910.10	183.70	68.01	119.69
2014M11	1977.61	4832.22	315558.40	181.20	68.39	121.13
2014M12	2601.54	-404.23	320648.80	178.70	67.82	119.72
2015M01	4681.28	6634.37	328688.90	177.30	69.68	122.98
2015M02	3488.64	3768.79	337733.20	175.60	70.53	124.21
2015M03	2317.85	3303.07	341638.40	176.10	71.21	125.91
2015M04	4251.40	4244.18	351868.80	176.40	70.39	124.53
2015M05	4496.88	-1962.40	352478.90	178.00	68.49	122.33
2015M06	2700.49	-2224.91	356001.00	179.10	68.43	122.66
2015M07	2351.31	448.37	353460.50	177.60	69.03	123.66
2015M08	2564.76	-2503.78	351437.60	176.50	67.64	122.81
2015M09	3241.37	-1419.80	350288.60	176.50	66.34	121.29
2015M10	5610.72	5291.32	354176.80	176.90	67.50	123.88
2015M11	3302.55	-2970.09	350247.20	177.50	67.33	124.37
2015M12	5003.16	-1758.13	350381.40	176.80	67.02	123.63
2016M01	5250.52	-893.63	349608.90	175.40	66.71	122.82

2016M02	3391.81	-1251.31	348418.10	174.10	65.22	119.35
2016M03	2741.54	1357.58	360176.20	175.30	66.19	121.18
2016M04	2794.00	3141.50	363049.00	177.80	66.12	122.11
2016M05	1415.71	-1621.85	361605.00	180.20	65.81	123.14
2016M06	1677.72	-279.10	363506.10	182.90	65.70	123.36
2016M07	4062.30	2266.56	366503.90	184.20	66.53	125.26
2016M08	4783.79	1558.02	366800.00	183.30	66.39	125.36
2016M09	5130.35	2884.02	371990.30	183.20	66.65	125.67
2016M10	5861.00	-40.30	366211.60	183.60	67.34	127.16
2016M11	4342.97	-6902.37	361121.00	183.50	67.36	127.17
2016M12	3012.62	-4371.39	358898.00	183.30	68.09	127.83
2017M01	4660.76	-388.79	362952.60	184.60	67.73	126.09
2017M02	2214.42	2454.45	364259.00	185.50	68.49	127.80
2017M03	2950.00	9046.00	369955.00	184.51	69.46	129.37
2017M04	3140.00	1945.25	373302.10	184.56	70.64	131.79
2017M05	3972.00	5726.72	380100.60	184.02	70.12	131.69
2017M06	3031.00	4251.26	386539.20	183.70	69.55	130.30
2017M07	4742.00	1010.32	393655.40	185.65	68.97	130.76
2017M08	7919.00	684.59	397822.10	187.12	68.62	131.38
2017M09	2031.00	743.12	400205.30	187.28	67.61	129.20
2017M10	1153.00	3887.02	399225.60	188.42	67.45	129.43
2017M11	1558.00	1627.48	401942.50	189.73	67.68	131.41
2017M12	3290.00	-84.33	409072.40	188.59	68.07	131.95
2018M01	2318.00	3504.65	422367.70	189.08	65.98	129.63
2018M02	4538.00	-2351.05	420963.80	188.75	65.98	125.75
2018M03	4000.00	1273.69	421987.30	189.08	65.31	124.56

Table E.2: Macroeconomic Variables (US $ Million) - II

Year	IIP	COP	EXP	IMP	IR	TO
1995M04	54.72	589.64	2494.00	2467.00	10.91	90.66
1995M05	54.53	579.00	2391.00	3016.00	13.39	99.15
1995M06	53.63	544.19	2418.00	2883.00	14.43	98.84
1995M07	55.34	503.94	2514.00	3086.00	11.28	101.19

1995M08	55.39	520.92	2576.00	3035.00	10.11	101.31
1995M09	56.95	557.81	2396.00	3027.00	12.09	95.22
1995M10	55.48	559.20	2512.00	2811.00	15.59	95.94
1995M11	58.42	584.45	2670.00	3278.00	34.83	101.81
1995M12	62.89	626.82	2939.00	3141.00	16.77	96.68
1996M01	64.12	636.28	2665.00	3410.00	14.53	94.74
1996M02	62.55	647.65	2668.00	2962.00	17.05	90.00
1996M03	68.44	670.30	3463.00	3480.00	28.75	101.45
1996M04	60.94	711.50	2908.00	3045.00	11.38	97.69
1996M05	61.60	669.02	2746.00	3348.00	10.88	98.92
1996M06	58.99	649.40	2636.00	2868.00	10.87	93.30
1996M07	59.33	694.88	2689.00	2937.00	3.59	94.83
1996M08	60.23	720.62	2698.00	3023.00	6.07	94.99
1996M09	59.18	791.08	2648.00	2959.00	8.36	94.74
1996M10	60.32	835.10	2665.00	3228.00	9.58	97.69
1996M11	59.71	795.13	2520.00	3424.00	6.26	99.56
1996M12	65.31	842.56	2804.00	3262.00	8.07	92.89
1997M01	65.07	835.47	2941.00	3882.00	4.84	104.86
1997M02	63.98	737.15	2745.00	3570.00	5.08	98.71
1997M03	70.48	696.59	3466.00	3564.00	4.35	99.75
1997M04	63.50	644.03	2635.00	3180.00	1.22	91.57
1997M05	63.98	697.34	3045.00	3503.00	5.90	102.35
1997M06	62.84	645.30	2825.00	3347.00	5.16	98.22
1997M07	64.17	659.33	2988.00	3553.00	3.77	101.94
1997M08	63.46	675.05	2819.00	3060.00	5.86	92.65
1997M09	64.26	682.06	3007.00	3175.00	6.71	96.20
1997M10	64.55	728.94	3014.00	3586.00	6.25	102.25
1997M11	66.02	711.84	2600.00	3299.00	6.13	89.35
1997M12	69.96	676.18	2913.00	3717.00	8.21	94.77
1998M01	70.24	593.12	2949.00	3575.00	28.70	92.88
1998M02	68.49	551.79	2944.00	3703.00	9.70	97.06
1998M03	73.18	523.03	3241.00	3716.00	8.75	95.06
1998M04	66.63	530.97	2714.00	3585.00	6.73	94.53

1998M05	66.73	564.00	2518.00	3748.00	6.75	93.90
1998M06	66.26	527.25	2485.00	3162.00	6.42	85.23
1998M07	66.59	540.73	2781.00	3922.00	6.02	100.66
1998M08	66.45	533.82	2985.00	3410.00	7.59	96.24
1998M09	66.30	586.79	2673.00	3692.00	8.41	96.00
1998M10	64.55	561.49	2609.00	3445.00	8.42	93.79
1998M11	69.48	503.44	2775.00	3484.00	8.00	90.08
1998M12	72.95	442.99	2786.00	3533.00	8.33	86.62
1999M01	73.85	481.19	2743.00	3445.00	10.04	83.79
1999M02	70.91	456.56	2854.00	3282.00	8.86	86.54
1999M03	76.51	545.74	3278.00	3693.00	8.49	91.12
1999M04	69.77	672.08	2735.00	3328.00	8.02	86.90
1999M05	71.67	689.47	2672.00	3657.00	8.76	88.31
1999M06	69.44	700.55	2764.00	3673.00	8.10	92.71
1999M07	70.72	811.62	3143.00	4207.00	8.21	103.94
1999M08	71.29	878.35	3169.00	4175.00	9.38	103.02
1999M09	71.14	973.95	3170.00	4629.00	9.67	109.62
1999M10	69.96	964.25	3138.00	4147.00	10.95	104.14
1999M11	72.14	1051.10	2937.00	4117.00	8.07	97.78
1999M12	78.83	1087.55	3068.00	4615.00	7.74	97.46
2000M01	77.46	1097.94	2748.00	3879.00	7.87	85.56
2000M02	76.70	1184.09	3404.00	4344.00	10.31	101.02
2000M03	82.82	1198.25	3860.00	4871.00	9.39	105.42
2000M04	74.28	1023.34	3310.00	4401.00	6.79	103.82
2000M05	75.94	1197.32	3577.00	4371.00	7.48	104.67
2000M06	73.52	1323.75	3455.00	4028.00	11.08	101.79
2000M07	74.23	1260.95	3526.00	4487.00	7.77	107.95
2000M08	74.75	1343.80	3670.00	3993.00	13.06	102.51
2000M09	75.27	1472.12	3848.00	4249.00	10.32	107.57
2000M10	74.61	1455.51	3719.00	4264.00	9.07	107.00
2000M11	77.41	1512.47	3604.00	4698.00	9.28	107.25
2000M12	81.59	1181.85	3657.00	3976.00	8.76	93.56
2001M01	80.78	1207.71	3666.00	4007.00	9.89	94.99

2001M02	78.78	1267.18	3695.00	3457.00	8.51	90.78
2001M03	84.05	1166.45	4309.00	4625.00	7.78	106.29
2001M04	76.13	1200.53	3115.00	4094.00	7.49	94.70
2001M05	77.12	1292.57	3629.00	4674.00	8.03	107.66
2001M06	75.46	1267.73	3612.00	4017.00	7.24	101.10
2001M07	76.13	1169.12	3433.00	4923.00	7.19	109.76
2001M08	76.98	1216.33	3647.00	4372.00	6.94	104.17
2001M09	76.74	1192.58	3702.00	3902.00	7.30	99.08
2001M10	76.98	995.46	3718.00	4093.00	7.40	101.47
2001M11	79.26	897.07	3576.00	4158.00	6.97	97.58
2001M12	84.05	887.42	3250.00	4079.00	7.08	87.19
2002M01	83.96	925.63	4253.00	4243.00	6.63	101.19
2002M02	80.83	972.86	3535.00	3759.00	6.73	90.24
2002M03	87.42	1152.20	4141.00	4433.00	6.97	98.08
2002M04	79.26	1244.02	4035.00	4207.00	6.58	103.99
2002M05	80.30	1258.81	4080.00	5181.00	6.90	115.32
2002M06	78.88	1199.06	3963.00	4251.00	6.04	104.13
2002M07	81.54	1255.67	4583.00	4874.00	5.75	115.98
2002M08	81.73	1301.25	4522.00	4861.00	5.72	114.81
2002M09	81.54	1369.92	4484.00	5086.00	5.75	117.37
2002M10	82.39	1331.61	4752.00	5593.00	5.73	125.56
2002M11	82.53	1196.25	4049.00	5072.00	5.45	110.51
2002M12	89.23	1342.56	3985.00	4972.00	5.58	100.39
2003M01	89.61	1474.81	4850.00	5571.00	5.66	116.30
2003M02	86.47	1569.55	4286.00	4631.00	5.71	103.12
2003M03	92.55	1446.38	5151.00	5891.00	5.86	119.31
2003M04	82.58	1207.65	4314.00	5764.00	4.87	122.04
2003M05	85.43	1226.99	4696.00	6175.00	4.87	127.25
2003M06	84.15	1303.98	4398.00	5727.00	4.91	120.32
2003M07	86.90	1321.85	4637.00	5784.00	4.90	119.92
2003M08	86.43	1363.37	4516.00	5785.00	4.83	119.19
2003M09	87.66	1232.46	5481.00	6305.00	4.50	134.45
2003M10	87.52	1316.78	5609.00	7019.00	4.64	144.29

2003M11	89.32	1325.54	4902.00	6467.00	4.38	127.28
2003M12	95.87	1365.45	6120.00	7450.00	4.40	141.54
2004M01	96.77	1427.10	5216.00	6898.00	4.43	125.18
2004M02	93.64	1417.91	6227.00	6844.00	4.33	139.59
2004M03	100.00	1515.65	7863.00	8034.00	4.37	158.97
2004M04	100.00	1480.99	5643.00	6987.00	4.29	126.30
2004M05	100.00	1702.46	5963.00	8073.00	4.30	140.36
2004M06	100.00	1617.64	6068.00	8717.00	4.35	147.85
2004M07	100.00	1746.44	5819.00	7872.00	4.31	136.91
2004M08	100.00	1950.09	5983.00	8132.00	4.41	141.15
2004M09	100.00	1919.99	6919.00	9420.00	4.45	163.39
2004M10	100.00	2145.88	6519.00	8989.00	4.63	155.08
2004M11	100.00	1905.09	7086.00	9358.00	5.62	164.44
2004M12	100.00	1719.20	7357.00	10457.00	5.28	178.14
2005M01	100.00	1876.73	8194.00	11009.00	4.72	192.03
2005M02	100.00	1946.25	8046.00	10357.00	4.76	184.03
2005M03	100.00	2225.13	10155.00	12369.00	4.72	225.24
2005M04	99.10	2215.05	7680.00	11336.00	4.77	191.89
2005M05	103.10	2079.33	7977.00	13232.00	4.99	205.71
2005M06	104.00	2348.85	7893.00	11803.00	5.10	189.38
2005M07	102.40	2454.20	7492.00	11509.00	5.02	185.56
2005M08	104.10	2699.14	8571.00	12760.00	5.02	204.91
2005M09	104.40	2707.45	8457.00	12896.00	5.05	204.53
2005M10	107.30	2608.22	8622.00	11883.00	5.12	191.10
2005M11	104.60	2514.02	7293.00	11326.00	5.79	178.00
2005M12	116.80	2578.31	9235.00	12390.00	6.00	185.15
2006M01	118.50	2768.69	9168.00	12894.00	6.83	186.18
2006M02	112.40	2647.01	9055.00	11535.00	6.95	183.19
2006M03	126.70	2709.89	11561.00	14314.00	6.58	204.22
2006M04	108.80	3056.56	8625.00	12924.50	5.62	198.07
2006M05	114.80	3115.52	10109.70	15106.00	5.54	219.65
2006M06	114.20	3145.13	10420.00	14400.10	5.73	217.34
2006M07	117.60	3368.54	10600.10	14985.40	5.86	217.56

2006M08	114.30	3341.97	10769.50	15326.70	6.06	228.31
2006M09	118.20	2858.12	10756.90	17351.10	6.33	237.80
2006M10	117.70	2634.90	9928.60	17512.40	6.75	233.14
2006M11	125.50	2607.54	9979.40	16381.20	6.69	210.04
2006M12	132.80	2722.71	10834.50	15679.60	8.63	199.65
2007M01	134.90	2367.73	10967.00	14446.90	8.18	188.39
2007M02	127.80	2542.87	10561.20	14484.70	7.16	195.98
2007M03	144.90	2667.95	12862.40	17136.60	14.07	207.03
2007M04	128.20	2744.03	11326.80	18370.60	8.33	231.65
2007M05	136.86	2655.56	12455.70	21149.50	6.96	245.55
2007M06	136.74	2779.56	12101.00	20016.00	2.42	234.88
2007M07	136.65	2977.47	12513.30	21128.60	0.73	246.20
2007M08	134.60	2862.54	12640.60	20365.90	6.31	245.22
2007M09	133.98	3102.55	12521.40	18217.50	6.41	229.42
2007M10	140.72	3246.01	14674.70	21832.60	6.03	259.43
2007M11	137.92	3599.69	12909.30	22104.10	6.98	253.86
2007M12	150.73	3527.12	14625.50	20116.90	7.50	230.49
2008M01	152.52	3575.83	14889.10	22844.40	6.69	247.40
2008M02	149.32	3724.64	15116.20	20804.40	7.06	240.56
2008M03	161.88	4109.92	17254.00	23573.70	7.37	252.20
2008M04	142.33	4365.33	18460.40	30316.90	6.11	342.71
2008M05	146.75	5171.75	18686.60	29443.60	6.62	327.98
2008M06	148.38	5631.69	19180.90	28950.60	7.75	324.39
2008M07	144.30	5677.98	19030.40	31625.50	8.76	351.05
2008M08	141.87	4919.52	17759.30	33523.20	9.10	361.49
2008M09	148.59	4524.05	15789.10	31135.70	10.52	315.81
2008M10	146.17	3535.80	14130.80	25869.30	9.90	273.65
2008M11	139.65	2648.14	11163.30	23488.20	7.57	248.13
2008M12	148.28	2020.10	13368.20	19456.30	5.92	221.36
2009M01	144.37	2144.56	12869.00	18228.20	4.18	215.40
2009M02	138.51	2055.52	11940.90	15062.20	4.16	194.96
2009M03	153.53	2407.13	12916.30	16596.60	4.17	192.22
2009M04	139.59	2517.58	12475.70	19340.70	3.28	227.93

2009M05	144.27	2819.83	12316.50	20036.40	3.17	224.25
2009M06	145.74	3302.59	13606.30	23055.00	3.21	251.55
2009M07	146.72	3136.03	14341.30	21723.50	3.21	245.81
2009M08	149.42	3461.09	13586.30	22448.70	3.22	241.16
2009M09	151.01	3312.26	14624.20	21527.20	3.31	239.40
2009M10	149.65	3461.10	14806.00	25935.80	3.17	272.25
2009M11	148.50	3611.89	14932.70	24996.50	3.19	268.89
2009M12	162.38	3491.65	16493.50	28251.40	3.24	275.56
2010M01	163.62	3541.88	15557.10	25267.00	3.23	249.51
2010M02	157.52	3461.46	15757.70	26163.80	3.17	266.14
2010M03	176.47	3607.99	20254.10	29626.90	3.51	282.65
2010M04	157.85	3744.14	18139.10	31674.90	3.49	315.59
2010M05	156.54	3457.51	17282.00	29747.10	3.83	300.42
2010M06	156.55	3479.77	20667.10	28648.60	5.16	315.01
2010M07	161.30	3492.91	16954.50	29669.90	5.54	289.05
2010M08	156.10	3533.47	17750.40	27107.70	5.17	287.37
2010M09	160.30	3503.86	18984.20	29511.80	5.50	302.53
2010M10	166.60	3629.80	19080.80	32461.70	6.39	309.38
2010M11	158.00	3793.46	22575.00	28842.30	6.81	325.43
2010M12	175.60	4068.37	23349.40	31511.10	6.67	312.42
2011M01	175.90	4205.30	22691.80	33353.60	6.54	318.62
2011M02	168.00	4442.32	23243.50	32973.40	6.69	334.62
2011M03	193.10	4888.11	30418.50	34267.00	7.15	334.98
2011M04	166.20	5162.95	23469.52	36595.86	6.58	361.40
2011M05	166.20	4856.74	26521.93	45254.24	7.15	431.87
2011M06	171.40	4747.57	26536.13	40849.47	7.38	393.15
2011M07	167.20	4791.52	26426.54	41105.88	7.51	403.90
2011M08	161.40	4548.23	24768.35	39984.69	7.97	401.20
2011M09	164.30	4812.40	26561.20	39756.07	8.11	403.64
2011M10	158.30	4920.06	23632.02	41175.06	8.26	409.39
2011M11	167.50	5340.76	23269.71	39102.48	8.58	372.37
2011M12	180.30	5488.30	25365.69	40044.06	9.04	362.78
2012M01	177.60	5475.69	25379.05	42952.47	8.92	384.75

2012M02	175.20	5540.75	25194.42	40118.54	8.81	372.79
2012M03	187.60	5927.55	28839.37	42380.69	9.17	379.64
2012M04	164.10	5892.63	23791.86	38171.04	8.62	377.59
2012M05	170.30	5659.74	24821.44	42187.32	8.27	393.47
2012M06	168.00	5083.60	24924.26	36157.37	8.14	363.58
2012M07	167.10	5372.19	23099.88	40619.44	8.05	381.32
2012M08	164.70	5849.31	23134.47	37307.27	7.99	366.98
2012M09	163.10	5800.66	24902.00	42051.45	7.92	410.51
2012M10	171.60	5475.37	24032.90	44243.75	8.00	397.88
2012M11	165.80	5536.01	23250.94	40454.01	8.04	384.23
2012M12	179.30	5525.53	25457.54	43050.57	8.05	382.09
2013M01	182.00	5705.06	25775.19	44754.68	8.00	387.53
2013M02	176.20	5786.01	26668.77	40791.99	7.80	382.86
2013M03	194.20	5580.74	30541.41	40947.79	7.90	368.12
2013M04	166.50	5375.04	24524.54	41577.15	7.53	397.01
2013M05	166.00	5467.56	24922.94	43987.10	7.29	415.12
2013M06	164.90	5817.69	23998.41	35304.36	7.24	359.63
2013M07	171.40	6289.39	25835.08	38326.45	7.76	374.34
2013M08	165.40	6830.35	26337.98	37026.02	9.90	383.10
2013M09	167.50	6928.11	28135.90	34258.24	9.97	372.50
2013M10	169.60	6499.62	27480.13	38075.02	9.03	386.53
2013M11	163.60	6432.65	24201.83	33772.92	8.45	354.37
2013M12	179.50	6534.90	26393.06	36580.09	8.16	350.83
2014M01	184.00	6353.32	26891.58	36346.32	8.19	343.68
2014M02	172.70	6528.65	25353.24	33665.55	8.21	341.74
2014M03	193.30	6343.00	30341.03	41294.46	8.37	370.59
2014M04	172.70	6333.82	25827.54	35795.64	8.36	356.82
2014M05	175.30	6274.31	28019.24	39058.85	8.00	382.65
2014M06	172.00	6471.05	25926.63	38352.39	8.08	373.72
2014M07	173.00	6319.91	25815.70	40068.01	8.27	380.83
2014M08	166.20	6092.56	26825.30	37472.78	7.98	386.87
2014M09	171.80	5838.13	28889.65	43341.75	7.80	420.44
2014M10	165.10	5283.91	25914.72	39468.76	7.94	396.02

2014M11	172.10	4746.68	26503.04	42722.49	7.83	402.24
2014M12	185.90	3797.15	26172.79	35333.27	8.11	330.86
2015M01	189.20	2948.32	24415.17	32265.37	7.89	299.58
2015M02	181.00	3407.19	22008.04	28725.38	7.69	280.30
2015M03	198.10	3299.23	24034.18	35428.72	7.58	300.17
2015M04	177.90	3603.29	22137.21	33506.51	7.44	312.78
2015M05	179.70	3988.14	22529.08	32837.76	7.47	308.11
2015M06	179.30	3914.66	22323.72	33536.23	7.11	311.54
2015M07	180.50	3464.24	23281.21	36372.07	7.04	330.49
2015M08	176.60	2975.11	21582.68	33981.73	7.07	314.63
2015M09	178.20	3065.09	21869.35	32035.32	7.14	302.50
2015M10	181.40	3055.95	21456.11	31148.33	6.71	289.99
2015M11	166.30	2848.76	19560.92	29896.40	6.78	297.40
2015M12	184.20	2434.73	22593.35	34096.49	6.73	307.76
2016M01	186.20	2013.42	21199.03	28866.53	6.81	268.88
2016M02	184.50	2118.95	20845.72	27418.98	6.77	261.60
2016M03	198.70	2503.95	22911.74	27310.28	6.93	252.75
2016M04	175.50	2708.63	20891.17	25805.61	6.47	266.08
2016M05	182.00	3075.42	22396.43	28349.74	6.44	278.83
2016M06	183.20	3208.66	22655.37	30841.90	6.33	292.02
2016M07	175.90	2972.33	21682.32	29349.71	6.36	290.12
2016M08	175.30	3001.48	21596.71	29348.91	6.40	290.62
2016M09	179.50	3007.39	22905.57	31760.37	6.50	304.55
2016M10	178.00	3290.46	23349.36	34486.69	6.40	324.92
2016M11	175.60	3057.64	20058.96	33480.00	6.36	304.89
2016M12	184.00	3572.16	24037.51	34493.46	6.41	318.10
2017M01	192.30	3652.61	22285.58	31924.26	6.44	281.90
2017M02	182.30	3647.70	25543.50	33231.40	6.50	322.41
2017M03	214.45	2891.07	29144.68	39668.25	5.95	2891.07
2017M04	188.85	750.70	24569.03	38092.16	5.93	750.70
2017M05	200.92	911.06	23947.15	37927.45	6.04	911.06
2017M06	192.07	859.35	23018.55	36822.23	6.08	859.35
2017M07	189.98	883.95	22257.63	34277.89	6.06	883.95

2017M08	196.58	790.64	23177.45	36054.54	5.90	790.69
2017M09	198.19	843.49	28367.44	37918.26	5.88	843.49
2017M10	197.22	770.63	22852.67	37454.46	5.87	770.63
2017M11	202.53	1227.09	26087.14	40416.96	5.87	1227.09
2017M12	209.78	956.89	27676.06	41909.73	5.91	956.89
2018M01	212.84	1225.37	24956.33	40661.70	5.88	1225.37
2018M02	205.59	817.58	25834.11	37813.53	5.93	817.58
2018M03	202.58	783.59	24878.58	39100.21	5.95	783.59

Table E.3: Macroeconomic Variables (Rs. Billion) - III

Year	**GP (US $ Million)**	**FII**	**NIFTY Return**	**SENSEX Return**	**MC BSE**	**TO BSE**	**P.E RATIO**
1995M04	4850	1.87	-1.22	-1.32	4553.15	20.24	29.84
1995M05	4740	2.03	-5.10	-4.56	4567.81	23.48	28.51
1995M06	4740	3.61	3.45	4.07	4622.38	42.80	23.16
1995M07	4697	6.48	-1.29	-0.05	4651.45	48.36	19.15
1995M08	4705	5.48	0.78	2.04	5036.30	41.49	18.87
1995M09	4770	4.10	-0.68	-0.19	5308.19	50.19	18.67
1995M10	4960	3.21	4.00	3.88	5186.23	46.57	18.83
1995M11	5035	1.91	-10.39	-10.09	4351.07	38.50	16.45
1995M12	5043	4.12	-2.85	-3.53	4472.97	38.17	15.76
1996M01	5289	7.38	-3.11	-2.64	4363.96	43.25	15.34
1996M02	5454	16.13	15.63	14.31	4997.05	67.46	17.70
1996M03	5158	10.89	-1.72	-2.30	5264.76	40.12	17.29
1996M04	5310	14.73	9.18	8.19	5859.19	70.52	18.39
1996M05	5239	10.36	2.49	3.68	5186.40	91.56	19.30
1996M06	5070	10.42	4.54	4.68	5308.15	120.41	20.17
1996M07	5114	8.74	-5.38	-6.25	5015.38	148.63	18.58
1996M08	5175	1.48	-5.92	-5.83	4971.13	76.09	14.89
1996M09	5112	3.65	-2.98	-1.71	4768.05	62.48	13.83
1996M10	5157	3.66	-8.04	-6.79	4558.05	88.69	12.71
1996M11	5102	4.03	-3.97	-3.66	4167.50	65.95	12.00

1996M12	5060	4.22	-3.56	-4.13	4392.31	65.56	11.51
1997M01	4840	3.40	15.94	16.84	4582.61	160.05	13.46
1997M02	4885	4.24	0.93	1.23	4846.24	128.68	13.52
1997M03	4695	4.94	8.77	8.99	4639.15	164.22	14.57
1997M04	4788	6.25	-3.77	-2.15	5020.82	122.55	14.19
1997M05	4785	8.89	1.06	1.61	5063.91	114.39	14.27
1997M06	4641	14.04	8.01	6.96	5884.96	181.77	15.20
1997M07	4469	10.03	6.55	6.36	5953.46	212.27	16.32
1997M08	4512	4.94	0.72	0.47	5508.83	183.43	15.80
1997M09	4442	5.99	-6.79	-7.75	5477.28	189.11	14.66
1997M10	4400	6.42	1.23	1.19	5261.42	167.06	14.89
1997M11	4136	-2.90	-8.65	-9.52	4935.73	153.26	13.50
1997M12	3995	-1.82	-1.92	-2.67	5037.16	180.74	13.04
1998M01	4009	-3.75	-0.65	-1.21	4695.13	173.81	13.23
1998M02	3995	6.29	-2.48	-2.01	5263.57	164.97	13.55
1998M03	3995	4.72	11.38	12.16	5603.25	233.10	15.29
1998M04	4210	1.69	7.29	7.80	5802.38	266.84	16.55
1998M05	4143	-5.57	-4.74	-4.93	5618.49	234.40	15.74
1998M06	4215	-8.96	-15.02	-15.20	4854.61	224.96	13.32
1998M07	4271	1.05	-1.13	-1.38	4834.20	212.42	12.91
1998M08	4189	-3.91	-8.02	-8.66	4648.87	182.11	11.46
1998M09	4234	1.11	3.16	3.40	4797.11	276.47	11.50
1998M10	4302	-5.52	-7.06	-7.26	4527.79	223.71	10.27
1998M11	4330	0.47	1.18	1.64	4467.28	202.20	10.91
1998M12	4295	3.07	0.96	1.15	4770.10	266.87	11.65
1999M01	4330	3.70	11.06	11.17	5024.51	325.16	12.95
1999M02	4367	3.54	0.51	0.43	5042.33	311.42	12.99
1999M03	4260	2.04	11.38	12.16	5453.61	393.44	14.59
1999M04	4435	8.15	-6.27	-6.49	4882.29	270.03	13.77
1999M05	4250	15.24	11.59	12.48	5609.65	362.35	15.76
1999M06	4120	5.04	5.00	4.81	5847.88	332.39	16.53
1999M07	4060	15.08	11.18	11.30	6489.32	466.39	18.40
1999M08	4045	-0.12	3.74	3.02	7109.56	499.97	19.87

1999M09	4150	-8.78	3.06	1.33	7045.68	465.78	20.41
1999M10	4645	-7.35	3.57	2.34	6734.62	576.99	21.01
1999M11	4663	11.97	-4.84	-5.11	7096.13	491.21	19.99
1999M12	4530	15.71	5.24	4.67	8033.53	784.48	20.91
2000M01	4533	1.84	11.94	12.59	9273.83	731.64	23.34
2000M02	4700	27.27	4.90	4.50	10292.57	1018.42	24.32
2000M03	4390	13.60	-4.80	-6.88	9128.42	850.63	22.69
2000M04	4453	24.38	-8.51	-6.77	7559.14	446.01	27.79
2000M05	4313	1.72	-10.64	-13.30	7027.77	578.91	27.68
2000M06	4108	-9.86	10.60	9.93	7932.30	862.77	29.39
2000M07	4051	-15.69	-0.45	-0.60	7208.84	803.46	28.51
2000M08	4086	16.26	-6.53	-6.82	7666.42	925.63	25.27
2000M09	4178	-4.54	1.50	1.99	6926.57	1144.32	24.47
2000M10	4749	0.76	-12.37	-13.52	6534.37	763.04	19.57
2000M11	4615	10.90	3.24	2.84	6992.30	869.71	19.90
2000M12	4473	-4.62	4.10	3.90	6911.62	991.99	20.84
2001M01	4509	39.72	1.98	1.74	7366.31	1148.49	21.42
2001M02	4707	15.74	4.17	3.80	7161.73	1014.27	22.30
2001M03	4393	22.05	-11.48	-11.66	5715.53	451.70	19.72
2001M04	4412	16.95	-8.07	-8.41	5677.29	238.76	18.09
2001M05	4398	10.31	3.85	3.62	5959.38	318.68	18.86
2001M06	4399	8.09	-4.51	-4.84	5532.30	254.51	17.49
2001M07	4382	7.73	-2.64	-2.68	5315.76	172.44	16.28
2001M08	4448	2.70	-0.83	-1.25	5230.36	174.44	16.69
2001M09	4617	-2.29	-11.19	-11.70	4562.63	215.93	15.20
2001M10	4691	6.05	0.47	0.52	4818.51	219.22	14.29
2001M11	4602	1.62	8.14	7.86	5357.24	244.02	14.89
2001M12	4581	2.79	4.29	4.76	5323.28	300.33	15.59
2002M01	4895	3.70	1.05	1.16	5443.97	391.69	16.35
2002M02	4965	20.24	4.69	5.23	5967.16	285.72	17.28
2002M03	4985	4.84	1.86	1.48	6122.24	257.19	17.55
2002M04	5050	-0.82	-3.33	-4.07	6255.87	288.75	16.83
2002M05	5235	-1.54	-3.65	-3.85	6050.65	281.38	16.19

2002M06	5311	-1.83	-1.29	-1.39	6377.53	233.20	15.92
2002M07	5188	3.05	-2.93	-1.29	5840.42	267.24	15.34
2002M08	5129	1.92	-5.52	-5.03	6053.03	237.80	13.63
2002M09	5243	4.22	0.97	1.06	5702.73	244.10	13.13
2002M10	5298	-4.44	-3.24	-4.40	5637.50	276.41	12.68
2002M11	5241	3.42	3.89	3.68	6012.89	259.81	13.22
2002M12	5253	4.57	8.24	8.42	6281.97	305.82	14.37
2003M01	5326	10.88	-0.05	0.36	6114.72	308.98	14.43
2003M02	5469	4.33	-1.64	-1.47	6198.73	234.61	14.22
2003M03	5589	2.93	-3.74	-3.76	5721.98	202.65	13.74
2003M04	5623	5.72	-5.05	-3.77	5725.26	208.23	13.21
2003M05	5724	12.33	-0.19	-0.11	6609.82	225.10	13.21
2003M06	5864	25.93	10.94	11.65	7343.89	249.33	14.61
2003M07	5962	24.96	7.62	8.23	7759.96	329.76	14.73
2003M08	5569	20.58	9.66	8.52	9051.93	363.34	15.33
2003M09	5863	40.48	8.56	8.47	9330.87	446.98	15.76
2003M10	5423	69.40	10.01	9.91	10004.94	526.31	17.07
2003M11	5632	32.82	4.91	4.40	10658.53	450.29	16.28
2003M12	5763	62.91	10.13	9.56	12733.61	548.16	17.30
2004M01	6150	24.93	9.54	9.76	12068.54	656.20	19.39
2004M02	5950	31.83	-3.01	-2.14	11962.21	514.64	18.71
2004M03	6160	88.12	-3.73	-3.67	12012.07	507.86	18.55
2004M04	5710	42.08	3.87	3.49	12553.47	448.64	19.31
2004M05	6865	-31.51	-11.27	-10.40	10231.29	459.38	17.28
2004M06	6080	5.11	-8.17	-7.32	10472.58	369.90	14.76
2004M07	5995	12.93	4.11	3.09	11355.89	394.49	14.82
2004M08	6265	28.50	3.01	3.44	12165.67	381.95	15.28
2004M09	6270	28.16	4.75	5.43	13093.18	396.03	16.10
2004M10	6435	39.52	6.09	5.13	13371.90	346.08	17.31
2004M11	6745	63.45	4.40	4.55	15395.95	357.42	18.04
2004M12	6450	58.90	7.90	7.27	16859.89	502.26	18.15
2005M01	6110	13.24	-2.18	-1.36	16615.32	438.88	16.11
2005M02	6260	74.94	4.53	4.57	17309.40	496.86	15.75

2005M03	6210	78.86	1.40	1.28	16984.28	595.28	16.05
2005M04	6230	-9.46	-5.21	-4.49	16357.66	378.09	15.25
2005M05	6005	-5.87	0.76	1.62	17832.21	433.59	14.94
2005M06	6235	56.99	6.59	6.84	18503.77	584.79	15.75
2005M07	6250	73.91	4.80	5.93	19871.70	618.99	16.01
2005M08	6310	40.85	5.40	5.31	21239.01	759.33	16.00
2005M09	6805	32.58	6.54	7.07	22543.78	812.91	17.11
2005M10	7000	-38.08	-0.99	-0.63	20656.12	591.02	16.77
2005M11	6900	45.59	3.53	4.03	23230.65	526.94	16.75
2005M12	6950	96.15	7.69	7.13	24893.86	773.65	18.07
2006M01	8110	51.77	4.33	4.12	26161.94	793.16	18.60
2006M02	8090	78.59	4.39	5.77	26955.43	700.70	18.64
2006M03	8240	63.48	7.17	7.60	30221.91	1187.65	20.05
2006M04	9325	7.22	7.96	8.15	32555.65	874.87	21.35
2006M05	9805	-89.30	-1.62	-1.21	28420.50	958.20	20.41
2006M06	8800	17.82	-15.20	-14.35	27216.78	720.13	17.90
2006M07	9000	10.73	6.08	6.26	27121.44	546.98	19.02
2006M08	9350	39.98	6.90	7.08	29937.80	630.84	19.60
2006M09	9065	46.24	5.64	6.46	31856.80	716.29	20.73
2006M10	8910	58.05	4.50	5.00	33706.76	696.27	21.56
2006M11	9315	70.29	6.01	6.16	35773.08	1018.40	22.07
2006M12	9195	-18.69	1.07	1.58	36243.57	855.12	22.51
2007M01	9295	31.85	3.24	2.61	37797.42	876.05	22.73
2007M02	9865	42.79	1.16	1.13	34892.14	888.44	21.56
2007M03	9445	20.57	-8.63	-9.09	35450.41	780.28	19.84
2007M04	9150	47.53	5.79	4.82	38283.37	786.93	20.75
2007M05	8720	32.42	6.01	5.04	40745.52	988.21	20.84
2007M06	8720	72.10	0.90	1.26	41682.72	952.68	20.67
2007M07	8660	195.15	5.97	6.41	45297.72	1250.54	21.78
2007M08	8765	-64.76	-3.86	-3.11	45380.06	1060.42	19.99
2007M09	8950	198.23	8.34	8.57	52029.55	1231.44	21.69
2007M10	9691	163.76	17.10	15.30	63320.93	1990.89	24.86
2007M11	10340	-30.52	5.35	4.10	63854.75	1706.23	25.44

2007M12	10311	50.55	3.74	2.95	71699.85	1635.16	26.94
2008M01	11291	-130.01	-3.47	-2.53	57960.79	1856.42	25.53
2008M02	11888	77.84	-9.64	-8.27	58884.48	1219.75	22.23
2008M03	12632	13.54	-8.31	-10.66	51380.15	1109.91	20.18
2008M04	11810	14.76	2.78	2.86	57942.93	1154.54	20.71
2008M05	12143	-33.78	2.59	4.02	54288.79	1216.70	20.66
2008M06	12369	-104.29	-11.23	-11.50	43750.22	1136.05	18.22
2008M07	13055	-16.54	-7.60	-8.54	47325.45	1239.16	17.06
2008M08	11855	-28.08	7.09	7.33	47788.65	999.24	18.25
2008M09	12214	-75.49	-4.76	-5.29	41653.88	1080.90	17.36
2008M10	12766	-134.61	-23.69	-24.34	29972.61	782.27	13.19
2008M11	12207	-26.07	-11.70	-10.39	28189.65	636.94	11.88
2008M12	12923	22.08	2.15	0.63	31447.68	808.66	12.16
2009M01	13508	-38.97	-1.43	-1.72	29972.61	705.09	12.21
2009M02	14781	-17.59	-1.23	-1.74	28628.73	543.30	12.82
2009M03	15255	5.22	-0.60	-2.10	30860.76	697.89	12.68
2009M04	14501	81.23	19.90	21.30	35869.79	889.43	15.23
2009M05	14610	211.15	17.80	19.57	48650.46	1285.42	17.88
2009M06	14620	43.32	12.09	13.31	47499.35	1591.95	19.75
2009M07	14749	119.87	-2.10	-1.00	51399.43	1389.86	19.10
2009M08	14996	38.47	5.25	5.33	52856.58	1223.19	20.08
2009M09	15723	203.35	6.30	5.99	57083.38	1242.20	21.20
2009M10	15864	85.58	2.77	2.98	53759.21	1140.07	21.66
2009M11	17040	57.28	-0.81	-0.84	57952.10	1051.42	21.23
2009M12	17138	106.01	2.95	2.43	60813.09	980.82	21.82
2010M01	16684	-24.35	1.11	1.00	59257.26	1170.84	21.99
2010M02	16535	27.34	-6.14	-6.24	59049.30	825.10	19.97
2010M03	16603	199.77	7.00	6.91	61656.20	997.79	21.05
2010M04	16679	89.67	2.25	2.17	62831.97	939.29	21.28
2010M05	17997	-86.47	-4.57	-4.72	60912.65	866.80	19.96
2010M06	18741	94.47	2.67	2.70	63940.02	924.93	20.57
2010M07	18300	170.18	3.31	3.17	65107.78	929.57	21.20
2010M08	18490	103.97	1.82	1.84	65620.26	1128.82	21.61

2010M09	19087	295.07	6.49	6.47	71258.07	1088.85	22.99
2010M10	19493	246.34	4.90	4.63	72249.08	1184.97	23.89
2010M11	20174	178.74	-0.67	-0.61	70678.45	1060.00	23.03
2010M12	20496	21.70	-1.39	-0.99	72967.26	815.60	22.93
2011M01	20212	-61.47	-3.16	-3.21	65952.79	698.58	22.00
2011M02	20345	-38.78	-6.60	-6.49	63430.73	688.30	19.67
2011M03	20842	94.17	2.55	2.33	68390.84	708.96	20.04
2011M04	21374	32.49	5.43	5.38	69080.90	696.26	21.05
2011M05	22123	-25.46	-5.94	-5.78	67318.69	594.94	19.59
2011M06	22344	55.13	-0.36	-0.53	67309.47	593.37	19.37
2011M07	22662	56.21	2.26	2.13	66172.73	593.37	19.60
2011M08	26117	-89.44	-9.29	-9.29	60616.26	533.01	18.36
2011M09	27520	28.53	-1.20	-1.14	59551.67	543.60	18.35
2011M10	26680	27.98	0.89	0.77	62401.55	435.15	18.20
2011M11	28545	-39.29	-1.10	-0.94	56722.55	438.72	17.61
2011M12	28069	-0.17	-4.43	-4.23	53486.45	394.92	16.92
2012M01	27573	113.39	2.88	2.49	60593.47	525.71	17.09
2012M02	28069	251.92	9.94	9.04	63566.97	696.17	18.32
2012M03	27918	87.87	-2.04	-2.36	62149.12	624.99	17.85
2012M04	28478	-12.18	-0.83	-0.76	61776.85	423.05	17.63
2012M05	28845	-13.32	-5.48	-5.13	58174.22	416.55	16.49
2012M06	29779	40.72	2.17	2.08	61556.47	443.15	16.37
2012M07	29468	78.00	2.91	2.83	60813.89	444.75	16.71
2012M08	30141	98.66	2.06	2.17	60807.98	427.89	16.68
2012M09	31673	209.38	2.92	3.08	65590.50	455.01	17.04
2012M10	31056	103.46	3.71	3.29	64710.51	510.30	17.31
2012M11	31548	110.96	-0.16	-0.26	67387.13	477.83	16.90
2012M12	30833	234.90	3.72	3.71	69218.15	503.77	17.43
2013M01	30520	224.16	2.24	2.63	70245.77	566.62	17.88
2013M02	29963	220.95	-2.15	-2.07	65380.38	421.38	17.43
2013M03	29514	110.56	-1.89	-1.63	63878.87	397.45	17.19
2013M04	27743	61.41	-1.43	-1.73	66457.85	409.80	16.85
2013M05	26769	207.84	6.40	6.12	66791.34	499.96	17.43

2013M06	27178	-93.74	-4.66	-4.20	64051.18	363.77	16.97
2013M07	26928	-63.10	2.20	3.03	62631.06	415.35	17.47
2013M08	30216	-58.05	-6.75	-5.42	60300.78	408.76	16.81
2013M09	30473	130.62	5.21	5.29	63861.34	398.98	17.27
2013M10	30710	183.24	4.94	4.41	68442.33	410.18	17.77
2013M11	30740	76.26	0.74	0.71	68104.75	407.68	17.53
2013M12	29904	157.16	1.93	1.63	70442.58	435.66	17.78
2014M01	29582	3.24	-0.38	-0.14	67443.98	496.73	17.78
2014M02	30211	29.59	-2.00	-2.02	68930.83	348.52	16.79
2014M03	29832	220.75	6.71	6.31	74152.96	621.25	17.87
2014M04	29329	79.23	3.79	3.46	74947.91	497.16	18.26
2014M05	28738	168.44	4.86	5.21	84078.34	921.22	17.94
2014M06	27427	112.60	6.49	6.24	90200.00	841.41	18.58
2014M07	28008	110.72	1.78	1.97	90102.70	751.19	18.52
2014M08	28080	68.29	1.44	1.30	92594.81	539.18	18.17
2014M09	26963	60.62	3.42	3.27	93822.49	823.11	18.52
2014M10	26991	3.87	-1.25	-1.02	96846.91	510.78	18.31
2014M11	26115	137.09	5.83	5.65	99825.64	678.92	19.21
2014M12	26678	-9.10	-1.27	-1.73	98363.77	671.35	18.84
2015M01	27403	180.63	2.50	2.01	103462.82	736.86	19.20
2015M02	27075	87.76	2.73	2.62	104666.61	784.09	19.68
2015M03	26168	102.28	-0.99	-4.54	101492.90	795.88	19.51
2015M04	26683	77.61	-1.62	1.71	99680.15	674.21	19.39
2015M05	27093	-4.75	-2.62	-2.44	103266.86	606.05	19.85
2015M06	26646	-58.01	-1.27	-1.05	101435.11	603.70	20.74
2015M07	25539	59.80	3.46	3.23	104793.96	702.54	22.50
2015M08	25729	-163.34	-2.00	-2.24	98279.30	611.68	21.85
2015M09	26246	-50.61	-5.96	-6.14	96481.22	519.27	20.58
2015M10	26577	51.04	4.57	5.08	98333.59	581.43	21.79
2015M11	25648	-50.81	-3.48	-3.70	98882.27	453.55	20.61
2015M12	25207	10.98	-1.08	-1.37	100377.34	617.41	19.88
2016M01	25998	-100.60	-3.42	-3.42	93921.33	635.76	18.49
2016M02	28252	-76.26	-4.46	-4.40	85831.45	571.58	17.48

2016M03	28794	256.13	4.86	4.74	94753.28	617.73	18.64
2016M04	28818	69.29	3.13	2.54	97105.39	491.74	19.27
2016M05	29639	25.61	1.10	0.99	99286.78	595.20	19.01
2016M06	29745	51.33	4.06	3.99	102855.49	607.40	19.52
2016M07	30942	109.93	3.84	3.73	108635.80	680.33	20.25
2016M08	31270	102.54	1.55	1.03	110994.23	740.84	20.59
2016M09	31178	100.64	1.69	1.80	110736.48	759.15	21.23
2016M10	30071	-50.50	-1.33	-1.76	114066.93	645.09	21.10
2016M11	29796	-173.55	-4.80	-4.58	107887.09	701.78	20.57
2016M12	27754	-86.24	-1.66	-1.29	106233.47	539.05	20.56
2017M01	28746	-13.73	3.35	3.01	112563.30	647.64	21.19
2017M02	29265	111.11	5.09	4.76	117593.67	683.30	21.86
2017M03	29566	336.86	2.66	2.85	121545.25	2891.07	22.37
2017M04	29514	-17.40	1.84	1.46	124849.75	750.70	22.63
2017M05	28986	109.30	2.42	2.44	125801.19	911.06	22.72
2017M06	29569	36.67	1.80	2.38	125968.12	859.35	22.85
2017M07	28592	45.92	2.53	2.36	132622.46	883.95	23.35
2017M08	29893	-118.24	0.52	-0.34	131897.63	790.64	23.77
2017M09	30428	-117.76	0.78	0.36	131813.53	843.49	23.79
2017M10	29945	-11.10	1.61	1.60	143915.46	770.63	24.16
2017M11	29720	157.98	1.84	3.08	145966.56	1227.09	24.62
2017M12	29209	-14.32	-0.02	0.09	151738.67	956.89	24.67
2018M01	30454	144.66	4.35	4.68	153209.36	1225.37	25.69
2018M02	30828	-118.34	-2.21	-2.01	147655.83	817.58	24.04
2018M03	30927	59.78	-2.85	-2.81	142249.97	783.59	24.67

Table E.4: BSE Indices Return I

S& P BSE INDICES RETURN					
Year	**Auto**	**Bankex**	**Basic Materials**	**Capital Goods**	**Consumer Discretionary Goods & Services**
2007M04	0.78148	7.32038	2.15342	7.04647	4.69915

2007M05	0.27147	10.52552	3.827613	12.88949	7.318129
2007M06	-5.44084	5.292119	4.350364	10.2687	-1.60631
2007M07	4.098684	1.732098	8.743902	8.31279	2.422847
2007M08	-1.13056	-3.55751	0.940349	0.77287	-3.03111
2007M09	9.311303	20.49259	17.79856	9.349157	9.656809
2007M10	3.280223	12.52548	16.15974	34.84697	7.658632
2007M11	-0.68402	2.022931	0.690342	-0.79787	1.441871
2007M12	3.619161	5.032895	9.779177	0.600946	17.00081
2008M01	-14.7327	-6.16649	-23.0043	-17.0469	-19.7644
2008M02	1.131717	-5.60188	5.170062	-1.63647	-2.62015
2008M03	-7.41533	-23.6918	-14.1908	-13.0928	-11.5994
2008M04	4.447298	14.27994	10.99314	-0.55514	7.696298
2008M05	-7.83411	-12.5298	0.888017	-5.6033	-8.93254
2008M06	-17.681	-23.3144	-20.9899	-23.3445	-22.2955
2008M07	2.618515	10.14929	0.764147	15.90278	4.204588
2008M08	8.743556	7.569812	-2.71969	1.735908	2.654162
2008M09	-8.15374	-7.57295	-21.914	-10.9829	-15.9622
2008M10	-26.9215	-22.6523	-35.8856	-33.6781	-29.8722
2008M11	-13.2208	-7.30039	-15.8606	-8.98155	-11.9279
2008M12	4.897964	17.41809	18.41362	8.200622	14.89873
2009M01	2.271026	-10.1655	-1.49637	-9.47039	-9.0246
2009M02	7.290529	-13.4684	-3.90097	-5.73298	-3.69061
2009M03	14.13452	5.916606	17.438	9.632379	8.126189
2009M04	14.25921	26.59225	15.82304	22.3123	15.79467
2009M05	31.79799	45.2614	42.27288	50.73672	42.49167
2009M06	-1.13174	-0.56851	-0.78625	7.34713	-2.74921
2009M07	25.34316	3.09664	15.05289	-1.57323	16.98558
2009M08	2.87993	-1.43094	-0.22067	4.407849	4.630748
2009M09	13.37171	18.10724	10.7934	4.608266	8.95608
2009M10	-5.35769	-5.27051	-5.07705	-6.42362	-7.79596
2009M11	11.24841	7.565209	12.59096	3.477537	5.411027
2009M12	5.973925	-0.11611	7.808947	5.971927	5.150326
2010M01	-6.4906	-3.75553	-6.28071	-7.02452	-4.29347

2010M02	3.132227	1.808456	3.29598	2.665131	-1.22877
2010M03	6.976024	8.380271	9.821654	4.503794	5.636693
2010M04	1.676522	4.719334	-0.34109	-0.37609	1.876369
2010M05	-1.28092	-4.46891	-12.7613	-2.64713	-3.87085
2010M06	8.095647	1.017871	-0.39444	7.707312	7.224579
2010M07	1.21226	7.194778	3.799991	-0.80469	2.20467
2010M08	4.624653	5.642248	0.57046	-0.46013	1.563364
2010M09	8.09924	15.04761	10.90303	10.12721	7.8851
2010M10	4.012221	-0.06296	0.065195	-1.10413	0.682459
2010M11	1.917676	-2.83557	-5.55265	-4.82848	-5.06883
2010M12	1.341195	-1.75522	8.940092	2.391491	0.020742
2011M01	-13.0999	-9.83368	-9.85547	-12.2546	-13.1596
2011M02	-7.21406	-1.85403	-5.39401	-8.32669	-6.64592
2011M03	12.57531	12.32591	7.412965	6.726985	10.31115
2011M04	2.897398	-1.67522	1.812845	-1.48845	3.511398
2011M05	-6.56071	-4.08329	-4.92285	0.423643	-1.6734
2011M06	-1.50301	2.216774	-2.61905	6.213499	-0.41425
2011M07	-0.45065	-2.91099	-3.34223	-6.54275	1.306156
2011M08	-4.14062	-12.4005	-10.6865	-7.30435	-4.01098
2011M09	1.217938	-0.49073	-4.66534	-10.8212	-0.49122
2011M10	11.51708	5.559995	6.712054	2.106215	5.512488
2011M11	-11.0044	-14.0003	-12.214	-11.8635	-10.5291
2011M12	-3.44582	-7.07624	-7.95338	-16.5524	-6.68782
2012M01	13.48449	24.44242	18.78607	22.27532	10.36926
2012M02	8.145942	5.122249	6.436653	5.693522	7.346406
2012M03	1.403456	-1.86218	-3.09939	-3.82156	-1.27413
2012M04	5.038442	0.659083	-4.14471	-6.17107	1.101438
2012M05	-16.6503	-7.98148	-6.99649	-6.29381	-6.9156
2012M06	6.591901	9.409501	6.651343	13.70606	5.629484
2012M07	-3.63548	0.014695	-1.5443	-4.24075	-0.86947
2012M08	1.386099	-3.31238	-3.65099	-1.59038	-0.32036
2012M09	12.69198	14.09151	10.09503	15.98314	12.75281
2012M10	-1.01727	-1.45692	-2.41063	-0.8532	-0.60398

2012M11	4.920803	7.759075	1.246123	1.989683	6.233735
2012M12	5.656778	2.817613	5.532786	-1.91414	2.305794
2013M01	-3.78332	1.640085	-4.0472	-3.42737	-1.77203
2013M02	-4.86915	-9.44009	-11.1316	-12.4921	-7.23135
2013M03	-4.44017	-1.29144	-4.08224	-1.8173	-2.93574
2013M04	9.642063	10.20758	0.730137	7.776024	5.938011
2013M05	1.902375	-0.7136	-1.8041	-3.20431	0.095518
2013M06	-4.03507	-7.03641	-5.78971	-3.14647	-5.24105
2013M07	-1.37153	-13.7037	-9.17049	-9.70588	-1.90228
2013M08	-3.46898	-9.93457	3.931984	-13.8795	-7.75533
2013M09	7.786775	6.403509	8.028894	8.769726	6.337667
2013M10	9.805858	19.36057	9.277301	18.75607	9.290583
2013M11	2.044406	-2.72501	2.053869	7.264564	0.105086
2013M12	-0.51072	2.133807	3.43739	4.557998	3.492785
2014M01	-5.62827	-9.91875	-7.6553	-7.57609	-5.60164
2014M02	8.901993	4.883409	-1.19655	9.370767	3.502693
2014M03	5.409593	18.62699	15.524	15.7642	10.78888
2014M04	0.692456	0.920915	-0.1821	0.891582	-1.60354
2014M05	8.387083	15.28015	18.76638	21.44266	13.74346
2014M06	5.212722	3.074344	9.021367	10.07963	9.676588
2014M07	1.583156	0.060257	-0.84303	-9.55901	-0.67079
2014M08	11.63885	2.962836	-1.20117	1.785126	4.545806
2014M09	2.620904	-2.15634	-1.64053	-4.32798	4.778786
2014M10	4.689101	10.72751	2.568127	11.612	2.805581
2014M11	3.450011	8.751069	-2.08137	2.80781	4.211844
2014M12	-3.0656	1.159906	-2.78223	-5.67689	-0.63085
2015M01	7.273209	5.859836	2.688631	10.70751	5.696526
2015M02	-0.01581	-0.62754	1.706763	3.999598	-2.19816
2015M03	-3.62353	-7.56507	-6.57244	-2.73619	-2.66403
2015M04	-4.79867	0.793518	0.3842	-4.4758	-3.60353
2015M05	4.06496	2.286019	0.871462	1.713239	5.421205
2015M06	-1.92675	-2.46132	-4.03927	4.26074	-0.23607
2015M07	2.114186	2.464282	-2.3492	3.216196	6.558687

2015M08	-6.50264	-8.66119	-8.90848	-10.6815	-6.43554
2015M09	-2.65426	0.226102	-3.29443	-6.43067	0.950117
2015M10	4.457055	0.46912	5.984601	-1.09388	0.975358
2015M11	4.393597	0.720243	-2.77367	-2.39975	3.19722
2015M12	-2.34798	-2.95015	2.684113	-3.14737	1.021301
2016M01	-7.95423	-8.92376	-6.5907	-12.4592	-6.42955
2016M02	-7.00738	-10.1629	-6.24884	-9.12569	-7.93096
2016M03	13.56467	16.29573	18.33086	14.43096	9.268334
2016M04	2.597746	3.930359	6.302645	2.653769	3.2867
2016M05	4.839627	5.215375	2.96737	9.561194	3.588088
2016M06	1.969659	2.085647	7.171743	2.833189	3.900138
2016M07	6.81942	5.588129	8.140774	4.054847	6.088659
2016M08	4.347993	4.511703	5.996216	-1.71657	2.797621
2016M09	1.015578	-2.69661	-0.87967	-4.14455	2.04712
2016M10	-0.20813	1.463601	5.548901	2.325164	1.180086
2016M11	-9.19871	-4.7043	-5.54169	-5.87307	-9.71119
2016M12	0.560001	-2.66124	-4.31168	-2.70575	-1.40741
2017M01	7.660449	7.534096	13.79095	8.187786	6.854088
2017M02	-1.48185	5.245929	2.278926	3.721559	4.181971
2017M03	2.450891	3.995879	3.385413	7.255622	5.096498
2017M04	3.496806	3.703814	4.295049	8.632722	4.99165
2017M05	6.055332	4.825536	0.697207	-1.50953	2.773406
2017M06	-3.1197	-1.01475	0.709402	-2.956	0.186371
2017M07	4.506888	8.024139	6.831902	5.251073	3.88448
2017M08	-3.1659	-3.33158	2.621934	-3.57077	0.514429
2017M09	2.074283	-1.51439	-1.37092	-0.91588	0.214095
2017M10	5.10636	4.657643	10.39342	7.285938	5.469587
2017M11	-0.82389	1.228327	-3.40253	0.17429	4.312374
2017M12	6.132939	0.787072	6.280384	3.675785	6.020189
2018M01	-3.01258	7.379066	-0.20802	6.427487	-2.98579
2018M02	-4.28941	-8.62412	-3.5657	-6.32399	-4.91717
2018M03	-3.12153	-3.94143	-8.08363	-3.14042	-1.06671

Table E.5: BSE Indices Return II

S& P BSE INDICES RETURN					
Year	**Consumer Durables**	**Energy**	**Fast Moving Consumer Goods**	**Finance**	**Healthcare**
2007M04	7.88478	4.86235	2.32760	7.68244	4.55275
2007M05	13.8155	9.224041	5.933187	10.84367	3.758079
2007M06	1.324647	-2.26623	-4.092	6.668932	-0.9407
2007M07	-1.84866	6.876566	7.862441	2.46245	-2.29761
2007M08	3.042375	0.54781	0.039024	-2.70889	-3.91151
2007M09	11.7525	16.50606	9.494764	21.30799	5.916615
2007M10	9.973274	22.87843	-1.60825	12.55275	3.824576
2007M11	1.560554	6.662356	1.327007	3.171491	-2.69895
2007M12	29.64984	7.160862	7.662393	5.896754	15.58372
2008M01	-26.6348	-19.4749	-6.57695	-8.97443	-18.4475
2008M02	-7.92577	3.350964	4.939234	-4.25292	9.026174
2008M03	-17.3652	-9.48603	0.689416	-22.2179	-2.05331
2008M04	16.99126	15.33068	7.480557	14.48162	11.0961
2008M05	-4.8929	-9.25952	-1.3659	-11.6628	2.82777
2008M06	-19.5153	-12.8881	-14.3107	-23.6331	-5.2698
2008M07	5.988038	6.666286	2.828878	10.66918	-0.05523
2008M08	4.203926	-1.28946	3.572397	5.993638	3.596803
2008M09	-23.735	-7.76425	-2.47518	-9.33304	-14.8328
2008M10	-29.23	-31.7634	-16.7038	-23.4671	-24.3327
2008M11	-13.4787	-9.61769	7.599051	-9.84597	3.92962
2008M12	6.700045	7.363684	2.622121	14.64657	2.713456
2009M01	-7.10128	3.637309	2.279886	-8.26336	-8.50755
2009M02	-13.2278	-3.04096	0.520001	-13.491	-4.30534
2009M03	5.366021	15.77888	-0.34357	6.699583	8.976126
2009M04	8.128826	15.82774	2.885711	25.75723	8.404974
2009M05	56.92429	28.91138	0.078282	44.40691	11.99389
2009M06	7.2645	-10.0399	7.919815	0.679091	3.373739
2009M07	5.430583	0.643962	21.01304	4.084403	7.128076

2009M08	5.650687	4.051123	-6.74287	-0.742	2.519809
2009M09	6.434541	6.964949	0.873304	15.12022	12.90282
2009M10	-4.53815	-9.46195	9.051487	-5.21634	-0.61441
2009M11	4.217776	7.508412	2.247443	7.489839	8.914603
2009M12	8.481614	2.243775	-2.80457	-0.2074	5.263235
2010M01	0.367201	-4.83678	-2.37037	-4.76688	-5.0453
2010M02	5.32968	-3.38778	-2.32371	1.742783	3.102532
2010M03	5.470815	5.810367	6.35112	7.495713	8.45495
2010M04	10.06063	-2.83358	1.647405	5.002588	0.30666
2010M05	-3.08201	2.184176	3.571875	-3.02842	2.723441
2010M06	5.189275	7.031256	8.376977	2.675134	4.708512
2010M07	11.79716	-5.60708	-0.01145	6.149421	-2.63691
2010M08	7.079247	-2.46633	4.805471	5.152834	-0.95155
2010M09	11.00753	5.291821	9.880741	13.84723	8.149093
2010M10	3.990403	4.574017	-3.07672	0.485301	7.297384
2010M11	-1.68142	-8.68017	-0.62106	-3.85626	2.325733
2010M12	-1.20399	5.639401	2.830539	-1.16892	2.298849
2011M01	-5.68353	-11.1048	-8.62947	-11.4283	-7.38485
2011M02	-6.07205	-0.0563	1.967203	-1.62856	-8.32019
2011M03	10.79762	8.538962	4.768647	11.34128	5.345788
2011M04	2.455891	-2.31263	4.423125	-1.40123	3.468341
2011M05	2.437224	-3.80676	2.74236	-4.02527	2.574709
2011M06	1.603056	-4.17355	4.854153	1.485595	0.077272
2011M07	1.532226	-5.23518	1.179111	-2.29174	0.356051
2011M08	-7.28736	-5.29381	-3.5071	-10.9613	-7.14061
2011M09	1.565454	0.776619	-0.99201	-1.55583	-1.5843
2011M10	3.669941	5.566813	7.318963	5.895755	4.574628
2011M11	-14.4154	-9.09174	-3.71182	-12.2788	-1.3171
2011M12	-6.37576	-8.2493	-0.13636	-6.66517	-3.0533
2012M01	11.77179	14.20888	0.967955	21.29201	7.929451
2012M02	11.08596	2.940814	2.269799	4.564668	0.006155
2012M03	-2.41847	-6.83799	7.829655	-1.60003	4.56615
2012M04	2.958693	-0.12787	6.208854	-0.30467	2.563487

2012M05	-5.92225	-5.31504	-4.14516	-7.06629	-2.21143
2012M06	0.117713	6.272903	9.133062	7.688455	3.590201
2012M07	1.417658	1.162175	1.071107	0.29976	3.744249
2012M08	-0.88632	0.425958	6.146864	-1.60339	4.956285
2012M09	11.19685	5.046047	2.832901	12.55171	0.437723
2012M10	-0.03084	-3.06932	3.267264	-1.15505	1.223233
2012M11	15.76228	-0.81209	6.164788	8.337158	4.277672
2012M12	-3.88657	2.958247	-2.01543	2.591017	2.339023
2013M01	-1.78259	9.927195	0.095838	0.033176	-1.41927
2013M02	-5.39985	-8.25883	-4.26874	-8.91986	-2.57705
2013M03	-1.08141	-3.62827	4.411459	-0.48498	2.532031
2013M04	4.762811	4.034848	10.63203	7.920561	8.530249
2013M05	3.532483	0.016828	3.414665	0.316322	1.791582
2013M06	-20.2765	1.874211	-4.63724	-6.24717	-0.01865
2013M07	2.080943	-3.97326	5.167008	-12.5718	2.585792
2013M08	-10.325	-5.33569	-6.618	-9.55433	-1.19451
2013M09	2.799784	1.23926	7.816092	6.492102	5.557024
2013M10	9.241437	8.08835	-0.34879	16.27599	1.535005
2013M11	-8.90093	-3.08464	-3.70023	-1.97366	-1.12623
2013M12	1.325457	2.5165	0.075891	1.768062	4.898504
2014M01	-4.69239	-5.40242	-0.74737	-7.98354	1.439858
2014M02	7.266888	-0.56528	-0.52118	3.635355	7.222624
2014M03	9.657961	13.50977	7.511768	15.90135	-6.97715
2014M04	-0.13607	0.955131	-2.98321	1.379007	6.681126
2014M05	18.35434	15.02491	1.494442	13.83025	-4.10808
2014M06	14.99431	1.967078	-2.738	5.586424	11.11754
2014M07	-3.53065	-3.51668	7.392839	0.215156	7.669101
2014M08	7.291802	3.471088	3.236236	1.564823	8.229211
2014M09	7.297061	-4.40027	3.096417	-1.8535	7.452569
2014M10	0.247189	3.466411	-1.75469	9.033045	0.011914
2014M11	-2.31481	-2.22095	3.156033	7.856694	4.197851
2014M12	0.281553	-7.8366	0.425283	0.685928	-1.76257
2015M01	10.14806	2.279648	6.552185	5.91538	6.626035

2015M02	-2.50785	-3.00542	-0.64129	0.413756	1.200586
2015M03	0.286192	-4.26364	-5.45998	-6.28946	9.021609
2015M04	-0.38626	1.224401	-2.13612	-1.75734	-6.35484
2015M05	2.779825	4.115047	3.154696	2.120301	4.409783
2015M06	0.745445	6.589943	-0.74318	-0.97787	-1.98801
2015M07	3.172083	0.77744	4.4221	2.977514	2.91814
2015M08	-0.34474	-12.6346	-4.24885	-8.81012	5.361958
2015M09	-2.16007	-2.69521	-0.46482	1.115774	-1.01666
2015M10	9.834027	5.966096	1.23005	1.116832	1.615767
2015M11	4.997882	1.591273	0.827443	-0.42339	-9.78627
2015M12	-3.75822	2.798611	-0.50771	-0.96677	3.723001
2016M01	1.546238	-1.22577	-5.50457	-8.13882	-3.55051
2016M02	-9.26683	-8.25766	-4.35665	-10.0128	-6.72978
2016M03	3.857956	7.722454	8.122483	12.88159	-0.38428
2016M04	2.671225	-1.36061	0.06578	3.21799	2.858755
2016M05	-0.21888	-1.22768	4.516472	6.367721	-2.15738
2016M06	1.8003	3.463478	5.068098	2.467029	1.619031
2016M07	3.604744	8.055845	3.225219	7.707528	5.203318
2016M08	0.649834	4.158126	1.112731	4.366742	-0.84305
2016M09	0.506515	2.284805	-4.09693	-1.42461	0.119913
2016M10	3.019151	3.407281	0.585036	1.624208	1.797589
2016M11	-12.7549	-3.66713	-5.16713	-6.63631	-4.47833
2016M12	-0.36725	2.795804	0.744663	-3.06876	-6.39831
2017M01	12.35895	2.927312	5.371012	8.009152	0.47136
2017M02	9.130114	8.801787	2.711501	5.391298	3.973505
2017M03	10.73159	1.930365	5.345067	5.481454	-0.47169
2017M04	1.424364	4.495349	1.532213	4.814468	-1.91348
2017M05	-0.4815	-2.63905	7.371851	2.923699	-9.69147
2017M06	3.977624	-3.40536	3.186377	0.195612	4.620976
2017M07	2.836622	10.74019	-3.20593	8.336395	0.033966
2017M08	7.493686	3.056121	0.795237	-1.43729	-7.36957
2017M09	-0.8251	-1.95713	-3.9454	-1.37933	2.574289
2017M10	5.188022	14.68392	5.024297	3.283122	5.885633

2017M11	16.21934	-3.2035	0.559836	0.206485	-2.03983
2017M12	5.726072	0.625944	3.623617	1.009797	5.783587
2018M01	-0.93731	3.24854	0.152312	5.918404	-1.62189
2018M02	-5.73739	-2.82576	-1.91486	-7.31348	-3.06593
2018M03	5.072353	-6.68642	-2.05799	-2.40685	-6.76957

Table E.6: BSE Indices Return III

S& P BSE INDICES RETURN					
Year	**Industrials**	**Information Technology**	**Metal**	**Oil & Gas**	**Power**
2007M04	5.16782	2.015548	3.39463	5.16899	5.624706
2007M05	9.789426	-3.99463	5.797949	9.254359	7.204169
2007M06	6.730548	0.397821	1.912456	-2.168	9.604706
2007M07	7.015933	-0.16856	9.673927	6.606299	7.265352
2007M08	-0.34148	-5.69376	-0.5598	0.36443	2.114369
2007M09	10.87451	0.919606	20.57426	17.17889	16.0516
2007M10	26.71448	-0.19685	28.24977	21.92576	33.42507
2007M11	0.979375	-9.11724	-0.8633	6.014935	-0.09957
2007M12	7.028126	7.908529	12.91383	7.620474	4.710397
2008M01	-16.8436	-18.0917	-23.5127	-19.5195	-17.7535
2008M02	-4.17746	4.106078	9.316316	3.054217	-1.87984
2008M03	-13.968	-8.1513	-16.2308	-9.20346	-13.1065
2008M04	3.904055	20.13525	14.91768	14.8647	4.671125
2008M05	-6.93668	8.959791	4.965931	-9.6381	-12.0573
2008M06	-23.3334	-13.4367	-21.9179	-13.3472	-23.29
2008M07	11.16768	-8.21554	-2.23127	7.995418	14.2906
2008M08	1.526083	7.512529	-4.37239	-0.71967	1.159164
2008M09	-14.8126	-21.9744	-27.1781	-6.42044	-13.2037
2008M10	-35.1385	-7.5326	-40.3073	-31.4589	-29.9477
2008M11	-10.6627	-10.5872	-18.3363	-9.32046	3.051719
2008M12	10.95162	-12.9343	18.95729	7.687214	12.11137
2009M01	-9.75779	0.383759	-2.1903	3.345763	-2.02207
2009M02	-6.68591	-6.27496	-8.02272	-3.01241	-2.26355

2009M03	9.958576	9.040774	23.53671	16.30792	5.443128
2009M04	24.74817	16.52331	18.82186	15.30659	14.38255
2009M05	52.18963	12.54811	57.98316	28.11947	36.37895
2009M06	4.225322	9.662891	-0.43683	-9.87881	-1.35422
2009M07	3.374592	20.53176	14.44349	0.957812	4.507554
2009M08	4.974584	5.310288	-0.09955	3.107987	0.72312
2009M09	5.26943	9.547947	14.48527	7.171349	2.811219
2009M10	-5.92027	-3.18077	-1.66789	-9.93995	-5.24796
2009M11	6.193985	7.496294	16.8711	8.991746	2.223961
2009M12	6.449162	9.019459	6.7959	1.830444	7.018433
2010M01	-5.78515	-4.02287	-8.25997	-5.08043	-3.98394
2010M02	1.324379	3.943179	2.753218	-3.44864	-3.26504
2010M03	5.895081	1.227486	9.586246	5.865839	4.192385
2010M04	3.032278	2.29747	-1.71945	-2.31742	2.75106
2010M05	-5.41726	-3.41799	-14.2549	2.589455	-4.35184
2010M06	6.318389	2.792626	-2.92091	6.811431	3.873536
2010M07	1.124375	2.92581	4.730333	-6.51087	-1.26536
2010M08	1.130218	-1.81229	-2.74231	-2.41498	-2.4818
2010M09	8.060509	10.6304	12.60164	5.305717	6.66293
2010M10	0.247425	0.768446	-1.08705	4.803685	-3.61592
2010M11	-4.42483	1.689202	-6.32716	-8.09895	-7.26967
2010M12	0.899274	11.99245	12.6055	5.360124	3.35745
2011M01	-12.3421	-6.64809	-8.41215	-10.56	-8.17651
2011M02	-7.41825	-4.14826	-4.75847	-0.23687	-8.05007
2011M03	8.167547	7.226195	5.294091	8.258303	7.483088
2011M04	-0.54656	-6.1653	0.180678	-2.2691	-1.81261
2011M05	-2.3496	-2.44093	-4.8131	-4.13908	-4.02298
2011M06	1.938106	1.766479	-2.26736	-4.02084	2.198512
2011M07	-5.45922	-4.34175	-6.93917	-4.43917	-5.97777
2011M08	-10.075	-13.2571	-13.6952	-5.0712	-9.08965
2011M09	-4.82628	4.215867	-9.10574	1.69036	-4.80283
2011M10	3.563568	10.48352	8.262691	5.804614	3.749865
2011M11	-14.0494	-5.64783	-14.1093	-9.28944	-12.1862

2011M12	-11.3396	4.597852	-9.1089	-7.64612	-7.25267
2012M01	24.0145	0.448197	23.73453	12.89647	15.57671
2012M02	6.36224	6.634982	4.813782	2.48733	9.861252
2012M03	-2.06695	-1.28533	-5.85842	-7.16518	-8.30647
2012M04	-1.04212	-6.20796	-2.46565	-1.51926	-3.75472
2012M05	-11.5947	-0.67019	-8.67569	-4.73079	-9.86603
2012M06	8.051381	1.748652	6.717789	6.429102	9.573242
2012M07	-4.56077	-7.28757	-2.85359	1.021711	-4.56137
2012M08	-2.03185	7.426352	-7.54056	0.653945	-1.37435
2012M09	14.77946	3.146661	8.678054	5.481195	9.514494
2012M10	-1.73426	-3.44357	-3.60099	-3.53964	-4.71928
2012M11	3.729412	2.967987	2.030523	-1.23147	1.444056
2012M12	2.255991	-3.4702	6.908999	3.228738	0.534254
2013M01	-3.71322	12.48311	-4.19579	9.867607	-1.99356
2013M02	-9.87328	5.641553	-14.5027	-7.5979	-10.6164
2013M03	-3.8479	1.941421	-3.41455	-3.71713	-5.59439
2013M04	7.6952	-17.0769	-1.22478	4.61677	7.010021
2013M05	-1.39161	6.229815	-1.71124	-0.6455	-0.38594
2013M06	-6.2885	3.128596	-8.81159	2.837966	-7.55333
2013M07	-7.23286	19.23375	-11.2371	-3.61568	-7.82657
2013M08	-7.01388	7.634024	13.11203	-5.00303	-7.28557
2013M09	8.775638	-2.34555	7.53177	0.821286	9.821145
2013M10	14.20819	8.144519	9.614836	8.760227	5.355337
2013M11	6.084027	-0.74879	2.558818	-3.19412	1.708501
2013M12	1.98468	7.933327	5.880196	2.123995	4.229228
2014M01	-7.65904	4.347606	-8.15633	-4.31675	-10.3137
2014M02	9.93737	3.330618	-5.36236	-0.32024	0.209789
2014M03	11.08807	-10.2415	16.14476	12.57692	12.82008
2014M04	2.752205	-0.42779	-0.77611	0.661521	-2.20122
2014M05	17.97444	-3.38697	23.16054	13.6736	28.46716
2014M06	8.789462	10.53462	6.566992	2.734453	7.018669
2014M07	-4.38471	4.239629	-0.27237	-3.59666	-7.98587
2014M08	5.452667	3.526155	-6.21229	4.047227	-4.30269

2014M09	-2.69834	5.96597	-6.88241	-4.0771	-3.11938
2014M10	7.268666	0.134736	3.86129	4.019991	9.521956
2014M11	2.658959	4.723047	-4.58821	-2.20319	-0.01246
2014M12	-3.62613	-5.563	-4.89605	-9.3372	-3.39913
2015M01	9.889625	5.619153	-5.23116	2.506162	6.308691
2015M02	2.980714	7.073893	3.723774	-4.51061	2.00223
2015M03	-3.46359	-4.72335	-10.4451	-3.85858	-6.24267
2015M04	-3.92361	-8.70861	3.542493	-1.16517	-1.51593
2015M05	0.60123	4.797531	-0.74095	4.778208	-1.20993
2015M06	-2.13017	-4.22531	-4.04036	2.240125	-2.30311
2015M07	2.612617	5.964142	-7.14407	0.435531	2.097778
2015M08	-8.51881	0.800801	-14.1007	-10.3429	-11.1481
2015M09	-5.64077	3.73181	-8.2238	-2.06488	0.39795
2015M10	3.745173	-2.71276	6.936486	4.269507	4.094587
2015M11	1.158414	-2.78557	-2.59095	2.895355	-0.79599
2015M12	-2.37584	1.016345	3.927287	2.43579	2.935563
2016M01	-11.0103	0.937864	-6.81201	-3.11388	-6.0919
2016M02	-10.7838	-8.37936	-1.95489	-11.2747	-13.9217
2016M03	16.44203	11.32471	11.5621	11.53326	12.21184
2016M04	3.57575	-0.50738	5.545602	2.123535	3.976393
2016M05	5.211193	2.170929	-0.10743	-0.36553	1.37407
2016M06	2.398396	-3.2497	7.16079	4.280108	6.643123
2016M07	5.504546	-3.45314	10.40496	8.993771	4.034468
2016M08	1.642349	-3.45735	5.672559	4.506556	1.051248
2016M09	-2.24951	-2.01411	-1.77138	2.753075	-5.18583
2016M10	3.496722	-1.91972	5.672975	8.25538	0.830322
2016M11	-9.10196	-1.80579	3.380163	-2.86186	1.127555
2016M12	-0.76929	3.293898	-5.22168	1.565655	-2.02836
2017M01	8.438165	-5.79508	15.46075	5.649608	9.063283
2017M02	0.298076	8.238389	1.891055	5.423752	1.294448
2017M03	5.91558	-0.10206	-0.74489	0.21545	3.581415
2017M04	5.445194	-7.20196	-4.24484	6.571987	2.432708
2017M05	-0.14554	6.347132	-0.49339	-1.4386	-4.68548

2017M06	-1.69785	-3.87174	1.124772	-7.33084	0.222914
2017M07	4.920507	6.14565	9.247924	7.47812	4.406571
2017M08	-4.3301	-3.58275	6.905365	6.957736	-2.67472
2017M09	0.513022	-1.16486	2.106662	-2.2054	-2.44223
2017M10	8.960508	4.178513	8.599075	11.52	6.480285
2017M11	0.017499	3.557635	-5.62087	-3.77281	-1.21403
2017M12	5.369846	5.096884	7.459054	2.23099	2.628971
2018M01	1.030222	11.34236	3.267092	0.521394	-2.61201
2018M02	-4.25485	-0.40814	-1.64357	-5.26877	-4.15352
2018M03	-6.2299	-3.23995	-12.2037	-5.74844	-4.37714

Table E.7: BSE Indices Return IV

S& P BSE INDICES RETURN					
Year	**PSU**	**Reality**	**Teck**	**Telecom**	**Utilities**
2007M04	3.56720	7.53119	1.14902	3.78265	2.25631
2007M05	5.247452	19.18604	-0.52827	4.810293	4.026877
2007M06	0.9123	-5.90203	0.486281	0.482045	5.486871
2007M07	5.262585	13.27015	2.327255	6.681955	14.48501
2007M08	-0.89531	-7.79725	-4.82317	-2.81937	-2.28332
2007M09	15.59635	26.74639	3.844393	8.300799	26.34545
2007M10	17.39024	14.42758	5.802974	16.29628	28.41937
2007M11	-0.15693	1.176261	-7.93793	-7.7678	5.114146
2007M12	8.892037	19.77272	9.453554	10.47633	14.707
2008M01	-21.7941	-22.4426	-18.2826	-18.7805	-19.5623
2008M02	3.633454	-3.09379	-0.50229	-4.15412	-4.84715
2008M03	-12.4624	-21.0217	-7.36315	-5.52499	-13.251
2008M04	8.815336	12.58392	14.82608	10.52737	12.62911
2008M05	-12.397	-17.5984	4.109731	-1.86851	-10.0769
2008M06	-19.962	-35.1735	-15.8002	-19.1646	-24.576
2008M07	18.3488	11.78703	-1.43167	10.51582	16.4947
2008M08	0.610336	-1.64914	2.439	-5.24472	0.847219
2008M09	-7.42604	-29.7579	-17.1682	-9.33829	-12.999
2008M10	-26.9149	-43.6201	-15.1011	-23.2389	-28.6441

2008M11	0.458058	-21.091	-7.39411	-0.3135	3.056504
2008M12	15.12878	45.68324	-2.72728	9.359792	15.39082
2009M01	-3.10629	-26.6498	-6.59206	-13.1663	-1.12631
2009M02	-2.55336	-15.2804	-4.52084	-1.65171	-3.61638
2009M03	4.918365	10.44729	6.355422	2.818443	6.226683
2009M04	12.11031	36.49212	17.1196	18.01665	13.33616
2009M05	43.72565	79.30304	16.50301	19.30249	33.82756
2009M06	-5.99079	-16.0397	3.311957	-3.43616	-4.27032
2009M07	5.593135	21.87522	12.52314	1.634388	8.156346
2009M08	0.199505	12.91506	4.006895	0.872785	0.006874
2009M09	6.284253	2.176686	7.021396	2.036501	4.147497
2009M10	-5.71267	-15.1348	-12.4324	-31.3891	-6.48938
2009M11	8.799552	-4.35522	6.008328	1.337428	6.084318
2009M12	4.292961	5.336229	8.262827	7.148653	4.332457
2010M01	-0.6064	-9.22148	-3.82266	-4.05758	-6.56467
2010M02	-2.74068	-7.52896	0.870622	-6.94824	-3.74089
2010M03	-1.91019	1.139127	3.174059	8.620839	4.573063
2010M04	0.827371	6.647809	1.031974	-3.86951	4.429127
2010M05	0.229232	-11.2644	-5.4397	-12.3808	-3.53533
2010M06	4.102392	3.192465	4.619779	9.643148	3.650094
2010M07	0.714612	5.508912	3.724908	8.228138	-2.34929
2010M08	0.675918	-1.2206	-0.75634	2.110324	-1.07102
2010M09	6.61973	11.8586	10.1195	8.67284	4.628007
2010M10	-1.35794	-2.46159	-0.95227	-6.32391	-2.94487
2010M11	-8.37251	-19.524	1.201847	0.905786	-5.74896
2010M12	1.825745	-2.3648	8.630316	0.404363	3.711836
2011M01	-7.96723	-21.9696	-7.73857	-10.4454	-10.3338
2011M02	-3.74727	-11.0857	-4.30498	-4.29674	-8.69281
2011M03	6.914413	17.93253	7.929244	10.56123	8.835563
2011M04	1.230011	-6.71413	-3.83465	4.846093	-0.5958
2011M05	-5.37921	-0.0977	-2.27761	-2.90843	-5.29698
2011M06	-0.46188	-7.26043	1.949048	2.898244	1.179142
2011M07	-2.75345	1.067411	-1.39642	9.897418	-0.93934

2011M08	-8.3286	-14.785	-12.0315	-8.52303	-9.66559
2011M09	-2.78113	1.344003	1.466031	-5.96308	-3.00231
2011M10	2.042999	8.889595	8.417524	2.872909	4.845391
2011M11	-9.21909	-18.1551	-4.89185	-2.1198	-10.2921
2011M12	-7.198	-12.4437	0.818719	-10.7829	-5.17969
2012M01	15.5822	24.16312	2.852156	11.20062	13.13851
2012M02	5.53728	14.49314	4.1816	-3.45412	6.476572
2012M03	-5.82905	-9.13479	-1.64631	-3.87215	-5.52365
2012M04	-0.85496	-4.74912	-6.63371	-9.19881	-5.19999
2012M05	-6.74386	-6.71582	-1.46538	-4.56462	-8.58733
2012M06	7.368382	5.634936	2.045555	1.107619	9.920021
2012M07	-2.11099	-1.81249	-5.44105	-1.11734	-3.4479
2012M08	-2.3309	-7.73858	2.839914	-15.1515	-0.76869
2012M09	6.865599	22.24421	5.069752	9.703348	8.728153
2012M10	-4.19563	-4.08121	-2.93962	-1.26898	-4.90813
2012M11	1.027212	12.79846	6.368455	22.10236	1.533018
2012M12	2.188181	5.626614	-2.834	-3.51772	1.072538
2013M01	4.459072	6.053155	10.80895	6.854068	-2.52944
2013M02	-10.433	-10.1949	2.596869	-5.78409	-8.19144
2013M03	-5.55577	-11.4537	0.099562	-8.4559	-5.27841
2013M04	5.916379	6.81033	-10.9384	14.82887	7.67109
2013M05	-3.04125	-11.3816	3.692606	-3.66438	-4.21844
2013M06	-7.40478	-10.321	2.124896	0.03913	-5.78078
2013M07	-11.572	-12.8436	16.75066	17.31402	-7.14605
2013M08	-8.44048	-10.8797	3.889555	-11.2253	-3.19172
2013M09	9.142614	-0.28458	-0.56987	8.690639	9.20031
2013M10	6.576729	14.79412	8.513655	9.684107	4.718094
2013M11	0.088212	0.926705	-1.58285	-6.24432	-0.78062
2013M12	1.728777	5.714939	6.601203	-0.38369	2.732893
2014M01	-6.00365	-15.4743	2.300384	-6.21676	-8.69151
2014M02	-0.72116	-0.66854	1.80744	-7.64431	-0.63222
2014M03	15.22662	22.0108	-6.77105	10.3764	9.579398
2014M04	2.178733	-4.87674	-0.50502	1.522922	-0.19548

2014M05	24.04829	35.62096	-1.01149	7.610303	25.37516
2014M06	7.189495	9.649271	9.021277	2.054933	8.917848
2014M07	-7.19931	-8.86319	4.211068	5.672694	-7.36124
2014M08	1.051416	-8.74735	1.934721	-1.36015	-4.89341
2014M09	-3.87573	-8.46165	5.798213	5.961845	-0.92834
2014M10	7.20681	-1.76124	0.320511	-0.1839	8.927481
2014M11	0.812382	8.345457	3.722011	-2.0467	-2.27452
2014M12	-2.19161	-7.6046	-5.14447	-5.38518	-4.36055
2015M01	-0.26438	16.48093	5.043976	3.772851	3.646771
2015M02	-1.24947	0.582987	4.683467	-3.40247	0.869485
2015M03	-6.10414	-8.63979	-2.6017	8.278365	-5.87668
2015M04	-0.55021	-5.49411	-7.36549	-1.61722	-2.7206
2015M05	3.300384	-2.24912	5.630177	9.671914	-1.49737
2015M06	-2.27795	-8.09141	-3.2235	-2.23749	-2.22389
2015M07	1.062746	-1.83335	4.966345	0.805888	-1.56903
2015M08	-10.4148	-9.1318	-1.96925	-13.2779	-10.4277
2015M09	-3.18481	10.78324	2.607493	-4.17386	3.195329
2015M10	1.23499	-1.78791	-2.2479	3.385401	4.662823
2015M11	1.538627	-2.02241	-2.81619	-1.40265	4.155077
2015M12	-0.98928	0.032741	1.852999	4.973589	4.945967
2016M01	-8.49953	-10.0704	-2.05967	-17.8612	-3.04605
2016M02	-11.3668	-13.0584	-6.99448	1.862643	-12.5012
2016M03	10.5102	16.86551	10.72367	8.240366	11.22805
2016M04	2.644822	10.44979	0.276665	3.633701	2.894873
2016M05	-0.18139	4.744566	1.720913	-2.97986	1.431506
2016M06	7.348656	7.863034	-2.54179	0.332188	6.790508
2016M07	6.990909	4.844013	-1.93909	1.92123	2.487367
2016M08	4.448152	-4.04276	-3.32508	-7.5883	3.210089
2016M09	-0.57742	-1.93956	-2.12836	-4.1163	-5.02394
2016M10	6.34377	2.906381	-1.87877	0.284954	3.299031
2016M11	-0.70868	-17.6282	-2.05882	1.243448	1.736899
2016M12	-2.3901	-1.39489	1.611821	-6.11575	-0.76015
2017M01	8.400823	8.369859	-2.91735	10.98212	8.302032

2017M02	1.521697	9.149978	8.004563	3.872285	0.921007
2017M03	1.564695	7.01711	0.105804	-3.96325	2.490189
2017M04	4.921999	20.24725	-5.566	2.98629	3.351517
2017M05	-3.7994	0.373716	4.778881	0.065742	-3.20265
2017M06	-6.50595	5.805987	-3.27351	2.068734	-0.79538
2017M07	7.077624	7.00117	6.757909	10.62291	4.965194
2017M08	-0.479	-2.22341	-3.18889	-0.61303	-0.26985
2017M09	-3.73549	-3.38032	-1.7765	-4.9387	0.642557
2017M10	12.96093	11.42001	6.546151	19.53839	7.665814
2017M11	-2.31819	6.274334	1.773158	-3.95665	-0.35409
2017M12	-0.10509	6.647667	5.388293	6.968472	3.245076
2018M01	-0.61843	0.032206	6.607129	-11.7508	-4.73496
2018M02	-8.56254	-5.3946	-1.30525	-2.94547	-3.41728
2018M03	-5.6964	-9.65912	-3.39906	-7.8597	-3.80817

Table E.8: S& P BSE Cap

Year	**LargeCap Return**	**MidCap Return**	**SmallCap Return**
2007M04			
2007M05	5.267524	7.361984	5.993703
2007M06	1.353938	4.895699	4.281245
2007M07	5.410051	2.927059	4.401195
2007M08	-1.62446	-1.63231	-0.12527
2007M09	12.91205	12.31777	12.89507
2007M10	16.10795	9.603055	7.65863
2007M11	-1.53607	5.142461	7.442793
2007M12	6.04667	14.44931	26.81308
2008M01	-14.8439	-20.6637	-24.1524
2008M02	0.317743	-1.11026	-4.90191
2008M03	-11.55	-16.3087	-18.5551
2008M04	10.6933	11.06005	11.88466
2008M05	-5.20905	-5.29785	-7.30068
2008M06	-18.2453	-20.3247	-17.5959

2008M07	6.057083	3.358223	3.145796
2008M08	1.708613	3.141878	-0.30595
2008M09	-11.2823	-16.4394	-19.069
2008M10	-25.1837	-33.3092	-32.4943
2008M11	-7.05944	-9.82056	-12.2307
2008M12	7.562231	12.10392	11.4537
2009M01	-2.63114	-9.07498	-9.34156
2009M02	-5.64607	-6.2275	-6.97923
2009M03	9.588962	7.176185	4.527352
2009M04	17.25299	18.86288	21.38433
2009M05	29.11434	43.90841	51.91504
2009M06	-0.66393	0.387601	-4.12205
2009M07	8.025726	9.744816	8.114752
2009M08	0.56227	5.599513	12.7493
2009M09	8.515346	7.499443	8.475167
2009M10	-6.82559	-4.89962	-7.00023
2009M11	6.546281	6.670269	6.577113
2009M12	3.21632	4.712827	11.09454
2010M01	-5.83661	-3.09654	-1.49492
2010M02	0.557211	-1.72018	-2.00761
2010M03	6.302446	6.382799	5.330466
2010M04	0.61723	5.562592	8.352055
2010M05	-3.6035	-4.87016	-7.16813
2010M06	4.429275	4.599063	6.131159
2010M07	1.136883	3.618582	3.062109
2010M08	0.822836	2.550382	2.049317
2010M09	10.95833	6.414509	7.390971
2010M10	-0.16537	2.701833	3.434514
2010M11	-2.95159	-6.48643	-8.04787
2010M12	4.222636	0.498324	-0.76349
2011M01	-10.2387	-11.9748	-12.3315
2011M02	-2.98174	-7.20872	-7.79092
2011M03	9.130668	7.847983	4.586866

2011M04	-1.37809	3.213257	6.597692
2011M05	-3.25039	-2.59393	-5.50284
2011M06	1.43142	-0.81314	-0.96069
2011M07	-2.82108	0.893778	1.826496
2011M08	-8.55881	-9.27956	-14.1363
2011M09	-1.22409	-2.29549	-3.51119
2011M10	7.071187	2.747329	1.359234
2011M11	-9.26178	-10.6431	-12.5792
2011M12	-4.3861	-8.75386	-8.97321
2012M01	12.48785	14.34553	16.45292
2012M02	3.763398	8.772928	6.137267
2012M03	-1.89985	-0.63318	-3.36138
2012M04	-0.93411	-0.48106	2.04001
2012M05	-6.09396	-6.45835	-7.29708
2012M06	6.95366	4.159988	4.349386
2012M07	-1.12025	-2.29845	-1.46491
2012M08	0.499147	-0.12075	-0.81887
2012M09	8.295134	10.02944	9.738721
2012M10	-1.35729	-0.62507	-0.40924
2012M11	4.602945	5.117279	4.098913
2012M12	0.737865	3.05564	1.433411
2013M01	2.333409	-1.99652	-4.14461
2013M02	-5.67665	-9.58416	-12.268
2013M03	-0.70192	-2.54999	-6.47044
2013M04	4.104841	3.288473	3.729941
2013M05	0.845488	0.716105	-1.29045
2013M06	-2.57542	-6.6511	-5.04656
2013M07	-1.27328	-7.06463	-5.891
2013M08	-4.40876	-4.37893	-2.25586
2013M09	4.949977	5.765225	5.297183
2013M10	9.15867	8.943485	7.864089
2013M11	-1.52527	3.573236	3.449902
2013M12	1.954502	6.007038	7.404025

2014M01	-3.54481	-5.92807	-4.39283
2014M02	2.919426	3.049595	2.900844
2014M03	7.090088	8.960036	9.72717
2014M04	-0.12834	3.396933	5.909394
2014M05	8.828364	15.61775	20.37232
2014M06	5.407063	10.76776	13.17098
2014M07	1.233226	-2.03392	-2.09513
2014M08	2.922226	1.204916	2.753213
2014M09	-0.14593	2.489004	4.062663
2014M10	4.223722	3.192433	2.335729
2014M11	3.02941	4.433429	3.10897
2014M12	-3.49709	0.992833	-1.63005
2015M01	6.621715	3.52863	2.184436
2015M02	1.055272	0.6729	-0.55449
2015M03	-4.42837	-2.02232	-3.33726
2015M04	-3.48699	-1.66094	0.491991
2015M05	3.045658	2.878184	3.075101
2015M06	-1.16842	-0.33688	-1.81923
2015M07	1.813894	5.552721	6.821003
2015M08	-6.33756	-4.77778	-7.26519
2015M09	-0.7002	0.603479	0.451725
2015M10	1.552876	1.624194	2.672757
2015M11	-1.58747	0.138137	2.837728
2015M12	0.174924	1.395117	1.720622
2016M01	-5.29514	-6.51364	-8.1684
2016M02	-7.38456	-8.08428	-12.1576
2016M03	10.62557	10.90171	10.40339
2016M04	1.418245	3.992579	4.543014
2016M05	3.858189	2.926038	1.105476
2016M06	1.7763	3.08973	5.913437
2016M07	4.604737	8.055153	4.309942
2016M08	1.470034	4.393392	2.75257
2016M09	-1.6552	-0.38306	1.043657

2016M10	0.653755	2.327314	6.277698
2016M11	-4.76941	-7.23285	-9.22828
2016M12	-0.76983	-3.73865	-2.2995
2017M01	5.073897	6.866484	7.384363
2017M02	3.907456	5.403474	5.837738
2017M03	3.307177	4.017275	5.427363
2017M04	1.607352	4.978488	6.503111
2017M05	2.938841	-1.17012	-1.90145
2017M06	-0.69979	0.131211	2.190354
2017M07	5.874021	5.087856	4.432297
2017M08	-1.48864	0.976116	-0.63336
2017M09	-1.57066	-0.66783	0.763212
2017M10	5.871326	7.462874	9.227005
2017M11	-0.92561	1.986137	3.570242
2017M12	2.909837	5.349273	5.495952
2018M01	4.122736	-2.57092	-2.67255
2018M02	-4.68021	-4.61645	-3.14606
2018M03	-3.42151	-3.62262	-6.25317