Impact Of Capital Structure On Firm Value: Evidence From Nifty

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Abstract
This study examines the effect of capital structure on value of firm of automobile companies during 2009 to 2018. Variables including size, Profitability, Tangibility. Growth and age taken for examining value of firm .the study found that the relation indicates leverage, profit, size, tangibility, and liquidity age are significantly effect on value of firm. Moreover, fertilizer sector found insignificant. Other macro economic factors i.e. GDP found insignificant but inflation rate significant with price to book value.
Keywords: Indian companies, capital structure decision, determinants value of firm.

1- INTRODUCTION
Every business whether big or small needs fund for achieving target capital. It is necessary to understand the use of Debt and Equity to attain best and optimum leverage. Leverage is use of fixed assets to any organization with the help of best sources of fund. However the actual capital must be neither to low nor too high than it is required. It can be determined by long term capital and equity to be raised. Capital structure is composition of long term debt and equity of business. It encompasses fund raised with the help of ordinary and preference share, Bonds, Debenture, terms loans from financial institutions etc. Concerning with decision of financing it is important to have correct picture of need of capital and its utilization. Financing decision is most intense decision because it directly has impact on profitability and solvency of any firm where to be taken by any organization.

2- NIFTY
The National stock exchange is leading stock exchange of India located in Mumbai.NSE was established in year 1992.NSE was first exchange provided with fully automated screen based electronic trading system which offered easy trading facility.

Total market capitalization was US$2.27 trillion as of April 2018 making as 11th largest stock exchange. The NIFTY 50 index is used as the barometer of Indian Stock Market in all over the world. The NIFTY index was launched on 1966. In addition Vaidyanathan in 2016 estimates that 4% of GDP of India comes from stock exchange of India. NSE offers trading and investment in following segments i.e. Equity, Derivatives and Debt. We included NIFTY companies listed on NSE.

3- RESEARCH METHODOLOGY
3.1 POPULATION AND SAMPLE
The secondary data is obtained from money control database, panel data consisting of selected sample of 6 Indian media and entertainment industry companies listed on Nifty over a period of 5 years from 2013-14 to 2017-18. In this study we investigate the choice of leverage.

The previous empirical and theoretical study explores various variables which has noticeable impact on financial structure choice decision.

3.2 DATA AND SOURCES OF DATA

The panel data is set for five years to investigate the linkage between leverage and specific factors. The panel data analysis done for observations of five consecutive years. In this way, the sample of the study consists of 24 firm's year observation. The study consist of following set of nine variable and form the model to examined the relationship among dependent and independent variables.

3.3 THEORETICAL FRAMEWORK

A variety of variables have been used in the empirical studies of national as well as international companies and industries analyzed .this study focused on impact of capital structure on value of the firm. It directly test the Modigliani and Miller Approach. Following were our variables.

Dependent Variable

The three Dependent variable have been used in this study are:

EV (Enterprise Value) mostly research includes as combination of debt and equity. It has been used by Dhankar and Boora, Chandra & Sharma.

M Cap (market capitalization) it include market capital of firm and variable used by Dhankar and Boora ,Chadha & Sharma

PB (Price to book) It shows the ratio of market price of equity and book value. The measure is used by Ozkan , Antoniou and Bevan.

Independent Variable

The independent variables examined:

LEV (Leverage) various measures have been seen in various studies but this study includes total outside liabilities by total net Worth (TOL_TNW) and its best ratio to reflect the solvency. (Rajan and Zingales, Bevan, Feidakis & Rovolis, Antoniou, Bhaduri, Charalambakis & Psychoyios, Shah & Jam-e-Kausar).

Ho: There is no significant relation between Leverage and value of firm.

Profitability According to interest tax shield hypothesis formed by Modigilani and Miller (1963), firms with higher profit employ higher debt to gain the tax benefit. On the other hand pecking order theory,

asymmetric information hypothesis of Mayers (1984) and Mayers and Majluf (1984) refers that companies prefer internal financing than equity than debt. Firm with higher profitability employ more retained earnings than issuing debt. Most empirical study confirms pecking ordertheory and found negative relation between profitability and leverage.(Kester, 1986; Titman and Wessels, 1988, Rajan and Zingales, (1995) Michaelas et. al. (1999), Jayaraman (2013), kartik 2017, Chandrasekharan, (2012) , Friend and Lang (1988), Titman and Wessels (1988), Barton et al. (1989), Rajan andZingales (1995), Griner and Gordon (1995), Shyam-Sunder and Myers (1999), Michaelas et al. (1999),Booth et al. (2001), Chen (2004), and Murinde et al.(2004). On the other hand Bowen et al. (1982), Dammon and Senbet (1988), Givoly et al. (1992) and Petersen and Rajan (1994) have concluded that the relationship between Profitability and leverage is positive confirming the static tradeoff theory. With more profitability leading to higher retained earnings firms would use internal funds first, and then issue debt and then issue equity as a last resort. Hence, with higher Profitability the firm value should increase.

Ho: There is no significant relation between Profitability and value of firm.

Tangibility According to tradeoff theory assets act as collateral and provide security to the lenders in event of financial distress and expected to have positive relation. Collaterality also protects lenders from shareholders conflict (Jensen and Mekling, 1976). Thus, firm with higher tangible assets expected to have high level of debt (Titman and Wessels, 1988, Rajan and Zingales, 1995), Marsh (1982) and Walsh and Ryan (1997) Bennet and Donnelly (1993) debt Scott, 1977), Titman and Wessels (1988), Harris and Raviv (1990), Rajan and Zingales (1995), Ozkan (2001), Wiwattanakantang (1999), Frank and Goyal (2003), Chen (2004), Gaud et al. (2005) . Moreover some studies also

reflect negative relations opposite to earlier evidence drawn by Booth et al. (2001) and Huang and Song (2004).

Ho: There is no significant relation between Tangibility and value of firm.

Liquidity shows the availability of current assets to deal against the expected obligation. According to trade off theory high Cash flow creates agency problem in organization. After meeting debt obligation manager has less cash flows and it is expected that company should have high liquidity in order to meet high debt obligation. Hence, leverage positively related to liquidity. On other way, according to pecking order theory more liquid firm being possession of more internal funds and tends to borrow less. Therefore, leverage is expected as negative relation.

Ho: There is no significant relation between Liquidity and value of firm.

Size After examining the size of company it is found that with large size are likely to be large debt. Therefore positive association is expected between size and value of firm. Large firm are more diversified and expected positive relation with debt also. Size is measured by log of total assets. Harris M. and Raviv A. (1990), Song A (2005), Lima (2009) Vithessonthi and

Tongurai (2015) Nikolaus (2015) , Bevanand and Danbolt (2002).

Ho: There is no significant relation between Size and value of firm.

Growth shows prospective of companies opportunities. Growth oriented firm find difficult to rely on debt fund. Most of the time the companies retained earnings is not enough to finance the prospective project. It is expected that there is positive relation between debt and growth. Growth is measured by log of percentage change in growth of total assets.(Hall et al 2004,

Heshmati (2001), Kester (1986), Titman and Wessels (1988), Barton et al. (1989), Rajan and Zingalls (1995), Roden and Lewellen (1995).

Ho: There is no significant relation between Growth and value of firm.

Age Trade –off theory predicts that with passing of time past reputation and obligation will increase the value of firm. Age is considered as main factor as it is expected that older firm has higher weight age and lead to higher value. Age is measured by the current year minus establishment year.

Ho: There is no significant relation between AGE and value of firm.

Macro factors we have included two more factors i.e. inflation rate and gdp growth rate. Higher inflation firm raised more debt than raise equity. Since we studied period of 10 years, we expect significant and positive relation with value of firm.

Ho: There is no significant relation between Inflation growth and value of firm.

Ho: There is no significant relation between GDP growth and value of firm.

Industry classification may be having significant role on capital structure decision. Very few studies are conducted to refer industries and product effects. Somehow found significant effect (Bhaduri, S. 2002) (Mayer, 1985) (Harris and Raviv, 1991).

Ho: There is no significant relation between Industry and value of firm.

3.4 STATISTICAL TOOLS AND ECONOMETRIC MODELS

This section elaborates the proper statistical/econometric/financial models which are being used to forward the study from data towards inferences. The detail of methodology is given as follows.

ECONOMETRIC METHODOLOGY

The study has been used panel regression equation to examine the impact of capital structure variables on the form value. Themodel equation used

Equation 1

EVit = α + β1LEVit + β2PROFit + β3 S1 it + β4 TAN it + β5 GROW_ it +β6LIQ it +β7GDP it +β8 INF it+ β9 AGE2 it + β10 DUMMYSEC1 it+ β11 DUMMYSEC2 it+ β12 DUMMYSEC3 it+ β13 DUMMYSEC4 it+ β14 DUMMYSEC5 it+ β15 DUMMYSEC6 it+ β16 DUMMYSEC7 it+ β17 DUMMYSEC8 it+ β18 DUMMYSEC9 it+ β19 DUMMYSEC10 it+ β20 DUMMYSEC11it+ β21 DUMMYSEC12 it+ εit

Equation 2

MCAPit = α + β1 LEVit + β2 PROFit + β3 S1 it + β4 TAN it + β5 GROW_ it +β6 LIQ it +β7 GDP it +β8 INF it+ β9 AGE2 it + β10 DUMMYSEC1 it+ β11 DUMMYSEC2 it+ β12 DUMMYSEC3 it+ β13 DUMMYSEC4 it+ β14 DUMMYSEC5 it+ β15 DUMMYSEC6 it+ β16 DUMMYSEC7 it+ β17 DUMMYSEC8 it+ β18 DUMMYSEC9 it+ β19 DUMMYSEC10 it+ β20 DUMMYSEC11it+ β21 DUMMYSEC12 it+ εit

Equation 3

PBit = α + β1 LEVit + β2 PROFit + β3 S1 it + β4 TAN it + β5 GROW_ it +β6 LIQ it +β7 GDP it +β8 INF it+ β9 AGE2 it + β10 DUMMYSEC1 it+ β11 DUMMYSEC2 it+ β12 DUMMYSEC3 it+ β13 DUMMYSEC4 it+ β14 DUMMYSEC5 it+ β15 DUMMYSEC6 it+ β16 DUMMYSEC7 it+ β17 DUMMYSEC8 it+ β18 DUMMYSEC9 it+ β19 DUMMYSEC10 it+ β20 DUMMYSEC11it+ B21 DUMMYSEC12 IT+ EIT

HERE, EV=ENTERPISE VALUE, MCAP=MARKET CAPITALIZATION, PB=PRICE TO BOOK, LEV=LEVEARGE, PROF=PROFITABILITY, S1 = SIZE, TAN=TANGIBILITY, GRPW_=GROWTH, LIQ=LIQUIDITY, GDP=GROSS DOMESTIC PRODUCT, INF=INFLATION, AGE=AGE, DUMMYSEC1= AUTOMOBILE, DUMMYSEC2= CEMENT & CEMENT PRODUCTS, DUMMYSEC3= CONSTRUCTION, DUMMYSEC4= CONSUMER GOODS, DUMMYSEC5= ENERGY, DUMMYSEC6= FERTILISERS & PESTICIDES, DUMMYSEC7= FINANCIAL SERVICES, DUMMYSEC8=IT, DUMMYSEC9= MEDIA & ENTERTAINMENT, DUMMYSEC10= METALS, DUMMYSEC11= PHARMA, DUMMYSEC11= SERVICES, DUMMYSEC11= SERVICES, DUMMYSEC12=TELECOM.

4- RESULTS AND DISCUSSION

4.1 RESULTS OF DESCRIPTIVE STATICS OF STUDY VARIABLES

The preliminary analysis consist of descriptive statistics is given on table. It gives surprising result. The mean value of debt ratio is 2.627451, profitability is 9.537300, liquidity 1.632400, tangibility 59.08524, size 10.26335, Inf 4.956900, GDP 7.433300 , Age 1.512000. Jarque-bera test statistics fails the rejection of null hypothesis as not normal distributions of the entire variable expect Size.

	EV	MARKCAP	PRICE
Mean	161452.3	963.2909	5.021260
Median	72674.88	296.0100	3.370000
Maximum	3141292.	9478.690	50.71000
Minimum	0.000000	0.000000	0.000000
Std. Dev.	301564.7	1727.387	5.765012
Skewness	5.864157	2.854168	3.597743
Kurtosis	47.13525	10.78931	20.67392

Jarque-Bera	43447.36	1942.885	7586.302
Probability	0.000000	0.000000	0.000000
Sum	80726167	481645.5	2510.630
Sum Sq. Dev.	4.54E+13	1.49E+09	16584.45
Observations	500	500	500

(TABLE 1)

	LEV	PROF	LIQ	S1	TAN	INF	GDP	AGE
Mean	2.627451	9.537300	1.632400	10.26335	59.08524	4.956900	7.433300	1.512000
Median	0.970000	6.790000	1.220000	10.29476	3.647596	4.456000	7.256500	2.000000
Maximum	18.16281	77.61000	16.73000	15.04804	1132.983	8.984000	10.30000	2.000000
Minimum	0.000000	-20.44000	0.000000	6.024174	0.095333	2.039000	5.500000	1.000000
Std. Dev.	3.638682	10.24830	1.886369	1.612016	143.7372	2.732885	1.277196	0.500357
Skewness	2.091567	2.172258	3.740114	0.127138	3.978110	0.250474	0.758879	-0.048014
Kurtosis	6.875080	12.18723	23.13166	2.990591	22.42054	1.353021	3.215531	1.002305
Jarque-Bera	677.3927	2151.666	9609.113	1.348857	9176.222	61.73933	48.95928	83.33344
Probability	0.000000	0.000000	0.000000	0.509447	0.000000	0.000000	0.000000	0.000000
Sum	1313.725	4768.650	816.2000	5131.677	29542.62	2478.450	3716.650	756.0000
Sum Sq. Dev.	6606.763	52408.77	1775.635	1296.699	10309524	3726.861	813.9840	124.9280
Observations	500	500	500	500	500	500	500	500

Panel unit root test has been proposed by several researchers like Maddala and Wu (1999). It's mostly referred than single time series units because approximately the test statistics are approximately normally the test statistics are approximately normally distributed for the finite sample sizes. In this study we also used unit root test to examine data is stationary or not. Firstly, it is necessary to check the stationary. The series is said to be stationary when mean and auto covariance does not depend on time. All variable of unit root study it is found in our study at first difference. For unit root test Levin, Lin & Chu conducted. The hypothesis of this test are Null hypothesis process has unit root and Alternative hypothesis process has no unit root. Since our test has significant p-value as less than .05 indicates the rejection of Null Hypothesis which means data in not unit root and result is desirable. As table attach on appendix.

Panel Regression the result of pooled OLS, Fixed effect and Random effect each three equations is given on TABLE 6. After analyzing regression effect of all three fixed effect is fit for model as Hausman test is insignificant in case of equation 1 and 3 which indicates use of random effect whereas in case of 2nd model p value is significant and deliver the result of rejection of null hypothesis which indicates the use of fixed effect.

As all the dependent and independent variable has stationary data and can go for regression Analysis. As table attach on appendix. (TABLE)

Panel data Equation with dependent variable EV (1)….equation

Independent variable	Pooled OLS			Fixed Effect			Random Effect		
	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value
C	-1301646.	-9.456907	0.0000	-492410.2	-2.511194	0.0124	-794204.2	-5.289904	0.0000
LEV	32949.20	6.654123	0.0000	-16486.60	-2.164964	0.0309	8626.307	1.514264	0.1306
PROF	3999.814	3.529719	0.0005	1010.469	0.889349	0.3743	1587.415	1.475639	0.1407
S1	117405.7	11.71670	0.0000	71426.35	4.316854	0.0000	90497.72	7.354249	0.0000
TAN	-245.0110	-2.829798	0.0049	-45.02870	-0.303850	0.7614	-86.28350	-0.722056	0.4706
GROW_	-33.23989	-0.253375	0.8001	-30.18275	-0.342969	0.7318	-49.25902	-0.564224	0.5729
LIQ	15932.54	2.672306	0.0078	-703.6922	-0.159896	0.8730	2484.703	0.583874	0.5596
GDP	3767.430	0.513028	0.6082	-636.0194	-0.131344	0.8956	1156.497	0.242363	0.8086
INF	-3661.506	-0.993605	0.3209	-8924.764	-2.912607	0.0038	-7227.600	-2.634698	0.0087
AGE2	83550.46	3.597469	0.0004	5901.456	0.184218	0.8539	13261.68	0.480037	0.6314
DUMMYSEC1	39049.75	0.661354	0.5087						
DUMMYSEC2	2826.907	0.041894	0.9666						
DUMMYSEC3	-88598.71	-1.063898	0.2879						
DUMMYSEC4	105003.2	1.607317	0.1086						
DUMMYSEC5	-123652.6	-2.306350	0.0215						
DUMMYSEC6	56102.10	0.645638	0.5188						
DUMMYSEC7	-6249.711	-0.111763	0.9111						
DUMMYSEC8	19141.35	0.305141	0.7604						
DUMMYSEC9	131951.1	1.600731	0.1101						
DUMMYSEC10	-118353.9	-2.054595	0.0405						
DUMMYSEC11	69497.81	1.138809	0.2554						
DUMMYSEC12	15193.53	0.181743	0.8559						

R2	0.549901			0.831358			0.229440		
Adjusted R2	0.530127			0.809179			0.215287		
F-statistic	27.80899			37.48297			16.21121		
Prob (F-statistic)	0.000000			0.000000			0.000000		
D-W statistics	0.318864			0.723298			0.621909		
F test	16.21121 P value-1.0000 As fail to reject null hypothesis and random is best fit and we will use random effect model.								
Hausman test									

(TABLE 2)

TABLE describes the result of Housman (1978) test for the selection of Fixed effect model or random effects model. Housman test for cross section random effect has Chi-square test statistics=210.6 Chi-square d.f. =7 with p-value= 0.000. the null hypothesis of cross section random effect is rejected. In this case fixed effect estimations preferred to random effect model. The fixed effect regression equation can be expressed as:

In case of first equation where enterprise value is taken as dependent variable and other determinants of capital structure were analyzed on basis of Hausman p value found insignificant i.e. 1.0000 which means null value cannot be rejected and random effect has to be observed. Random effect reflects that size and inflation has significant effect but size is positively associated and inflation found negatively associated. Although, Hausman suggest random effect but R square found to be very low (22.94%) and model is not fit and can't explain the dependent variable. When we compare of three model fixed has best fit model explain 83.1% and   fixed effect drawn leverage ,size and inflation found significant where inflation and leverage found negatively associated and size is positively. Big firm is indicator of good growth of the firm this will give positive signal to the firm and leads to increase e in value of firm. In this study we have also included industry for examining the effect we tested regression model with OLS pooled effect. R2 is 53.99 found good fit and explain 27.8 % the dependent variable. The relation indicates leverage, profit, size, tangibility, liquidity age are significantly associated where tangibility shown negatively significant relation and other were positively associated. It is also seen that sector 5 (ENERGY) and sector 10 (METAL) are also negatively association.

Panel data Equation with dependent variable M cap (2)….equation

Independent variable	Pooled OLS			Fixed Effect			Random Effect		
	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value
C	-2792.560	-3.471320	0.0006	456.8658	0.695885	0.4869	-162.8629	-0.249972	0.8027
LEV	-55.91653	-1.932067	0.0539	-26.31313	-1.032019	0.3026	-30.57629	-1.283470	0.1999
PROF	52.55266	7.934708	0.0000	0.783457	0.205949	0.8369	1.727963	0.458184	0.6470
S1	385.3303	6.579387	0.0000	70.35073	1.269911	0.2048	124.5237	2.397315	0.0169
TAN	1.185683	2.343011	0.0195	-0.106528	-0.214700	0.8301	-0.303113	-0.637174	0.5243
GROW_	-1.356670	-1.769351	0.0775	-0.700878	-2.378673	0.0178	-0.721532	-2.453032	0.0145

LIQ	49.66749	1.425310	0.1547	11.59916	0.787185	0.4316	12.13031	0.828789	0.4076
GDP	11.40526	0.265728	0.7906	-16.01275	-0.987649	0.3239	-11.99402	-0.742494	0.4581
INF	17.34872	0.805485	0.4209	-21.62688	-2.108021	0.0356	-14.44389	-1.444946	0.1491
AGE2	-104.7449	-0.771644	0.4407	65.21481	0.608015	0.5435	73.37908	0.702511	0.4827
DUMMYS EC1	-1145.143	-3.318265	0.0010						
DUMMYS EC2	-1139.457	-2.889205	0.0040						
DUMMYS EC3	-1348.907	-2.771344	0.0058						
DUMMYS EC4	-1146.261	-3.002054	0.0028						
DUMMYS EC5	1558.324	4.972967	0.0000						
DUMMYS EC6	-577.5298	-1.137156	0.2560						
DUMMYS EC7	-1259.741	-3.854397	0.0001						
DUMMYS EC8	-1762.229	-4.806473	0.0000						
DUMMYS EC9	-1296.258	-2.690497	0.0074						
DUMMYS EC10	-340.2907	-1.010717	0.3127						
DUMMYS EC11	-1109.839	-3.111541	0.0020						
DUMMYS EC12	-979.9494	-2.005572	0.0455						
R2	0.531383			0.942382			0.074107		
Adjusted R2	0.510795			0.934805			0.057101		
F-statistic	25.81060			124.3606			4.357629		
Prob (F-statistic)	0.000000			0.000000			0.000000		
D-W statistics	0.148406			0.737158			0.642812		
F test									
Hausman test									P value-0.0476

Equation 2 is to know effect of market capitalization effect on leverage. Housman test shows significant value which indicates rejection of null hypotheses and acceptance of fixed effect model. When we compare all the three effect fixed R2 has highest 94.2 % value and good fit to model and found tangibility and inflation are significant negative impact on value of firm. In case of OLS pool effect leverage, profitability, tangibility, size and growth has significant value here leverage and growth shows negative result. In addition except sec 6 and 10 all has association with value of firm. In addition fertilizer and mental sector found insignificant.

Panel data Equation with dependent variable price to book (3)….equation

Independent variable	Pooled OLS			Fixed Effect			Random Effect		
	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value	Coefficient	t-statistics	P value
C	14.58940	5.518038	0.0000	-0.278324	-0.065582	0.9477	11.42972	3.591207	0.0004
LEV	0.291649	3.066181	0.0023	0.300721	1.824593	0.0687	0.180387	1.491414	0.1365
PROF	0.189060	8.685401	0.0000	0.149794	6.091536	0.0000	0.165874	7.164466	0.0000
S1	-1.022033	-5.309726	0.0000	0.491389	1.372198	0.1707	-0.587433	-2.253233	0.0247
TAN	-0.002008	-1.207388	0.2279	-0.000371	-0.115649	0.9080	0.001349	0.530810	0.5958
GROW_	-0.002128	-0.844475	0.3988	-0.000791	-0.415172	0.6782	-0.000513	-0.271765	0.7859
LIQ	-0.099419	-0.868083	0.3858	0.017270	0.181308	0.8562	-0.046795	-0.509478	0.6106
GDP	-0.159066	-1.127621	0.2600	-0.055433	-0.528923	0.5971	-0.129814	-1.258074	0.2090
INF	-0.355575	-5.023150	0.0000	-0.160517	-2.420406	0.0159	-0.294792	-5.000282	0.0000
AGE2	0.542789	1.216662	0.2243	-0.474255	-0.684016	0.4943	0.010592	0.017953	0.9857
DUMMYSEC1	0.791700	0.698019	0.4855						
DUMMYSEC2	-1.021207	-0.787860	0.4312						
DUMMYSEC3	0.260315	0.162728	0.8708						
DUMMYSEC4	8.690776	6.925461	0.0000						
DUMMYSEC5	-0.650668	-0.631790	0.5278						
DUMMYSEC6	-1.398459	-0.837819	0.4026						
DUMMYSEC7	0.941611	0.876600	0.3811						
DUMMYSEC8	-0.471594	-0.391370	0.6957						
DUMMYSE	1.792279	1.131883	0.2583						

C9								
DUMMYSE C10	-0.834069	-0.753766	0.4514					
DUMMYSE C11	1.112511	0.949019	0.3431					
DUMMYSE C12	0.952437	0.593097	0.5534					
R2	0.545549			0.783848		0.140142		
Adjusted R2	0.525584			0.755420		0.124348		
F-statistic	27.32474			27.57294		8.873469		
Prob (F-statistic)	0.000000			0.000000		0.000000		
D-W statistics	0.730521			1.455720		1.283684		
F test	0.000000 chi square							
Hausman test							P value-1.0000	

Equation 3 results adoption of random effect as Hausman shows positive significant result. Random effect shows not a good fit value as R square value is 14% R2 which is very low and delivers profitability, size and inflation were found significant at 5% significance level but size and age were negatively associated. On the other way, fixed effect get R2 value is 78.38 and F-statistics 27.5 % which shows the model is good fit and dependent variable explain the independent variable. Results indicate that inflation is negatively significant at 5% level where profit and leverage are positively significant at 5% and 10% respectively. Further when we include sector OLS pooled regression model discover leverage profitability and size were significant at 5% where size and leverage has negative effect.

The results shows that leverage has positive relation with enterprise value and price to book as support many empirical studies argued that price has positive relation with value of firm and market capitalization has negative effect but all the model failed to consider the insignificant relation with leverage and value of firm. Hence, we can say that there is relation between leverage and value of firm on Indian industries.

Profitability when measured with total assets on equations 1 and 2 indicates insignificant result but equation 3 shows positive significant result. This result provides the support to trade off theory refer that profitable firm enjoy the credit rating and due to higher profitability company follow more use of debt than equity.

Size also had positive relation with firm's value as equation 1 and 2 supports empirical and theoretical base to tradeoff theory. But in case of 3rd equation size reflects negative relation but significant and give solid proof to pecking order theory as less asymmetry information makes equity assurance. Mixed result has been seen but it confirms that size has effect on value of firm. As thirteen companies included in industry and each has its own feature it's very difficult to estimate same result from each sector.

Tangibility is net fixed assets to total assets it is expected that tangibility has negative impact shows that firm is not able to utilize firm assets properly but we found expected result but insignificant. Growth has shown negative impact in all the three equation but 2nd equation has significant effect shows that Indian firm cannot utilize our assets efficiently. Liquidity and GDP also has insignificant relation and both positively and negatively associated whereas age has positive insignificant relation. The main finding of this paper is negative significant relation of inflation and value of firm.

Although, growth had positive impact on value of firm but against theory we found negative impact can be implied that rapid growth creates the confusion among the outsiders.

We also include industry to know the effective and appropriate result. For industry analysis we applied OLS pooled regression on all the equation. To identify the impact of industry classification on leverage total number of firm used   and categorized in thirteen industries. In our study reveals that all three model shows fertilizer industry is totally insignificant to value of firm. Above result also tally with Mayer (1985) and Harris and Raviv (1991) found significant result.

We have also done cross section test and found no cross section association shown in (TABLE 12) (TABLE 18) (TABLE 23) in appendix.

5- CONCLUSION

This study has aim to contribute to existing literature in various ways. It is one of the study enhance the understanding of factors effecting value of firm as very less study has been conducted on whole the index while mainly were conserved with specific sector mainly manufacturing. We include macroeconomic variable as for last few years we have seen higher fluctuation in inflation and GDP in India and now necessary to include the effect of economy to the value of firm of specific company. This is also seen that tangibility has

negative significant effect indicates that the company's assets are not utilized properly and it decreases the value of firm. Based on the findings we suggest government and economist has to reform the banks policies to provide the loan as soon as possible but due to ample of regulation companies neglected to have debt and we found positive relation with leverage as higher debt higher will be the value as bank only gave loan to the company which has higher signal or approach to government. Various cases of bad debt have been seen where companies raised fund without potential project and become sick. Government encouragement and proper analysis of prospective projects will be beneficial to developing country like India. We found negative relation of inflation and GDP with value of firm. As macro economic factors are uncontrollable but certain measures can be taken by policy holders to minimize the adverse effect. It is also seen that all sector has significant effect except fertilizer sector on financial structure decision. Perhaps, we can say that with decrease in inflation rate purchasing power of consumer increases and leads to increase in consumer demand which is directly and indirectly associated with all sectors. Demand of agricultural sector product also ignites the demand of fertilizer. Although, all sectors are interrelated and has directly or indirectly effect on value of firm depends on characteristic and trend. In addition we also found that size shown mixed effect as India has underdeveloped market where Larger and older firm face excessive cash inflow problem and due to mismanagement the value may decreased. Hence, result of the study supported tradeoff theory and agency theory.

The study suffers limitation as only analyzed companies listed on nifty and also had very limited value of firm measurement. In further study we can include the impact of stock return, dividend and also Tax variables. Moreover, more detail account of

financials over large frame is needed to understand the factors of financial structure decisions.

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APPENDIX

Dependent Variable: EV

Method: Panel Least Squares

Date: 10/11/18 Time: 09:23

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-492410.2	196086.1	-2.511194	0.0124
LEV	-16486.60	7615.187	-2.164964	0.0309
PROF	1010.469	1136.188	0.889349	0.3743
S1	71426.35	16545.93	4.316854	0.0000
TAN	-45.02870	148.1936	-0.303850	0.7614
GROW_	-30.18275	88.00423	-0.342969	0.7318
LIQ	-703.6922	4400.942	-0.159896	0.8730
GDP	-636.0194	4842.382	-0.131344	0.8956
INF	-8924.764	3064.183	-2.912607	0.0038
AGE2	5901.456	32035.25	0.184218	0.8539

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.831358	Mean dependent var	161452.3
Adjusted R-squared	0.809179	S.D. dependent var	301564.7
S.E. of regression	131732.8	Akaike info criterion	26.52538
Sum squared resid	7.65E+12	Schwarz criterion	27.02270
Log likelihood	-6572.344	Hannan-Quinn criter.	26.72052
F-statistic	37.48297	Durbin-Watson stat	0.723298
Prob(F-statistic)	0.000000		

(TABLE 8)

Dependent Variable: EV

Method: Panel EGLS (Cross-section random effects)

Date: 10/11/18   Time: 09:25

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-794204.2	150135.9	-5.289904	0.0000
LEV	8626.307	5696.698	1.514264	0.1306
PROF	1587.415	1075.748	1.475639	0.1407
S1	90497.72	12305.50	7.354249	0.0000
TAN	-86.28350	119.4969	-0.722056	0.4706
GROW_	-49.25902	87.30401	-0.564224	0.5729
LIQ	2484.703	4255.548	0.583874	0.5596
GDP	1156.497	4771.755	0.242363	0.8086
INF	-7227.600	2743.237	-2.634698	0.0087
AGE2	13261.68	27626.40	0.480037	0.6314

Effects Specification

	S.D.	Rho
Cross-section random	165677.1	0.6127
Idiosyncratic random	131732.8	0.3873

Weighted Statistics

R-squared	0.229440	Mean dependent var	39369.86
Adjusted R-squared	0.215287	S.D. dependent var	152728.6

S.E. of regression	135293.2	Sum squared resid	8.97E+12
F-statistic	16.21121	Durbin-Watson stat	0.621909
Prob(F-statistic)	0.000000		

<div align="center">Unweighted Statistics</div>

R-squared	0.423045	Mean dependent var	161452.3
Sum squared resid	2.62E+13	Durbin-Watson stat	0.213045

(TABLE 9)

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	9	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LEV	-16486.602768	8626.306589	25538714.223852	0.0000
PROF	1010.468569	1587.415416	133691.242329	0.1146
S1	71426.354780	90497.715427	122342418.823365	0.0847
TAN	-45.028698	-86.283496	7681.839806	0.6379
GROW_	-30.182750	-49.259020	122.754124	0.0851
LIQ	-703.692197	2484.702948	1258597.735927	0.0045
GDP	-636.019435	1156.496983	679010.002260	0.0296

INF	-8924.763729	-7227.600482	1863872.796577	0.2138
AGE2	5901.456324	13261.681136	263038869.018056	0.6500

Cross-section random effects test equation:

Dependent Variable: EV

Method: Panel Least Squares

Date: 10/11/18   Time: 09:25

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-492410.2	196086.1	-2.511194	0.0124
LEV	-16486.60	7615.187	-2.164964	0.0309
PROF	1010.469	1136.188	0.889349	0.3743
S1	71426.35	16545.93	4.316854	0.0000
TAN	-45.02870	148.1936	-0.303850	0.7614
GROW_	-30.18275	88.00423	-0.342969	0.7318
LIQ	-703.6922	4400.942	-0.159896	0.8730
GDP	-636.0194	4842.382	-0.131344	0.8956
INF	-8924.764	3064.183	-2.912607	0.0038
AGE2	5901.456	32035.25	0.184218	0.8539

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.831358	Mean dependent var	161452.3

Adjusted R-squared	0.809179	S.D. dependent var	301564.7
S.E. of regression	131732.8	Akaike info criterion	26.52538
Sum squared resid	7.65E+12	Schwarz criterion	27.02270
Log likelihood	-6572.344	Hannan-Quinn criter.	26.72052
F-statistic	37.48297	Durbin-Watson stat	0.723298
Prob(F-statistic)	0.000000		

xxxi.   (TABLE 10)
xxxii.

Dependent Variable: EV

Method: Panel Least Squares

Date: 10/11/18   Time: 09:29

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1301646.	137639.7	-9.456907	0.0000
LEV	32949.20	4951.696	6.654123	0.0000
PROF	3999.814	1133.182	3.529719	0.0005
S1	117405.7	10020.37	11.71670	0.0000
TAN	-245.0110	86.58249	-2.829798	0.0049
GROW_	-33.23989	131.1886	-0.253375	0.8001
LIQ	15932.54	5962.093	2.672306	0.0078
GDP	3767.430	7343.521	0.513028	0.6082
INF	-3661.506	3685.071	-0.993605	0.3209
AGE2	83550.46	23224.79	3.597469	0.0004
DUMMYSEC1	39049.75	59045.17	0.661354	0.5087

DUMMYSEC2	2826.907	67476.94	0.041894	0.9666
DUMMYSEC3	-88598.71	83277.45	-1.063898	0.2879
DUMMYSEC4	105003.2	65328.21	1.607317	0.1086
DUMMYSEC5	-123652.6	53613.98	-2.306350	0.0215
DUMMYSEC6	56102.10	86894.05	0.645638	0.5188
DUMMYSEC7	-6249.711	55919.18	-0.111763	0.9111
DUMMYSEC8	19141.35	62729.48	0.305141	0.7604
DUMMYSEC9	131951.1	82431.83	1.600731	0.1101
DUMMYSEC10	-118353.9	57604.50	-2.054595	0.0405
DUMMYSEC11	69497.81	61026.75	1.138809	0.2554
DUMMYSEC12	15193.53	83599.01	0.181743	0.8559

R-squared	0.549901	Mean dependent var	161452.3
Adjusted R-squared	0.530127	S.D. dependent var	301564.7
S.E. of regression	206714.4	Akaike info criterion	27.35907
Sum squared resid	2.04E+13	Schwarz criterion	27.54451
Log likelihood	-6817.767	Hannan-Quinn criter.	27.43183
F-statistic	27.80899	Durbin-Watson stat	0.318864
Prob(F-statistic)	0.000000		

(TABLE 11)

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: Untitled

Periods included: 10

Cross-sections included: 50

Total panel observations: 500

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	4091.654	1225	0.0000
Pesaran scaled LM	56.90500		0.0000
Pesaran CD	10.50249		0.0000

(TABLE 12)

Dependent Variable: MARKCAP

Method: Panel Least Squares

Date: 10/11/18   Time: 09:34

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	456.8658	656.5244	0.695885	0.4869
LEV	-26.31313	25.49674	-1.032019	0.3026
PROF	0.783457	3.804122	0.205949	0.8369
S1	70.35073	55.39815	1.269911	0.2048
TAN	-0.106528	0.496174	-0.214700	0.8301
GROW_	-0.700878	0.294651	-2.378673	0.0178
LIQ	11.59916	14.73499	0.787185	0.4316
GDP	-16.01275	16.21299	-0.987649	0.3239
INF	-21.62688	10.25933	-2.108021	0.0356
AGE2	65.21481	107.2586	0.608015	0.5435

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.942382	Mean dependent var	963.2909
Adjusted R-squared	0.934805	S.D. dependent var	1727.387
S.E. of regression	441.0603	Akaike info criterion	15.12668
Sum squared resid	85789593	Schwarz criterion	15.62400
Log likelihood	-3722.669	Hannan-Quinn criter.	15.32183
F-statistic	124.3606	Durbin-Watson stat	0.737158
Prob(F-statistic)	0.000000		

(TABLE 13)

Dependent Variable: MARKCAP

Method: Panel EGLS (Cross-section random effects)

Date: 10/11/18   Time: 09:34

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-162.8629	651.5242	-0.249972	0.8027
LEV	-30.57629	23.82314	-1.283470	0.1999
PROF	1.727963	3.771330	0.458184	0.6470
S1	124.5237	51.94297	2.397315	0.0169
TAN	-0.303113	0.475715	-0.637174	0.5243
GROW_	-0.721532	0.294139	-2.453032	0.0145
LIQ	12.13031	14.63618	0.828789	0.4076
GDP	-11.99402	16.15368	-0.742494	0.4581
INF	-14.44389	9.996147	-1.444946	0.1491
AGE2	73.37908	104.4525	0.702511	0.4827

Effects Specification			
		S.D.	Rho
Cross-section random		1469.798	0.9174
Idiosyncratic random		441.0603	0.0826

Weighted Statistics			
R-squared	0.074107	Mean dependent var	91.00207
Adjusted R-squared	0.057101	S.D. dependent var	458.8631
S.E. of regression	445.5699	Sum squared resid	97280943
F-statistic	4.357629	Durbin-Watson stat	0.642812
Prob(F-statistic)	0.000017		

Unweighted Statistics			
R-squared	0.092832	Mean dependent var	963.2909
Sum squared resid	1.35E+09	Durbin-Watson stat	0.046296

(TABLE 14)

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.071099	9	0.0476

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.

Variable	Coefficient		Std. Error	Prob.
LEV	-26.313131	-30.576291	82.541799	0.6389
PROF	0.783457	1.727963	0.248416	0.0581
S1	70.350734	124.523657	370.883416	0.0049
TAN	-0.106528	-0.303113	0.019884	0.1633
GROW_	-0.700878	-0.721532	0.000301	0.2342
LIQ	11.599164	12.130315	2.901982	0.7552
GDP	-16.012752	-11.994016	1.919650	0.0037
INF	-21.626883	-14.443893	5.330859	0.0019
AGE2	65.214807	73.379081	594.078594	0.7377

(TABLE15)

Cross-section random effects test equation:

Dependent Variable: MARKCAP

Method: Panel Least Squares

Date: 10/11/18   Time: 09:36

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	456.8658	656.5244	0.695885	0.4869
LEV	-26.31313	25.49674	-1.032019	0.3026
PROF	0.783457	3.804122	0.205949	0.8369
S1	70.35073	55.39815	1.269911	0.2048
TAN	-0.106528	0.496174	-0.214700	0.8301
GROW_	-0.700878	0.294651	-2.378673	0.0178
LIQ	11.59916	14.73499	0.787185	0.4316

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-16.01275	16.21299	-0.987649	0.3239
INF	-21.62688	10.25933	-2.108021	0.0356
AGE2	65.21481	107.2586	0.608015	0.5435

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.942382	Mean dependent var	963.2909
Adjusted R-squared	0.934805	S.D. dependent var	1727.387
S.E. of regression	441.0603	Akaike info criterion	15.12668
Sum squared resid	85789593	Schwarz criterion	15.62400
Log likelihood	-3722.669	Hannan-Quinn criter.	15.32183
F-statistic	124.3606	Durbin-Watson stat	0.737158
Prob(F-statistic)	0.000000		

(TABLE 16)

Dependent Variable: MARKCAP

Method: Panel Least Squares

Date: 10/11/18   Time: 09:31

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2792.560	804.4664	-3.471320	0.0006
LEV	-55.91653	28.94131	-1.932067	0.0539
PROF	52.55266	6.623138	7.934708	0.0000
S1	385.3303	58.56630	6.579387	0.0000

TAN	1.185683	0.506051	2.343011	0.0195
GROW_	-1.356670	0.766762	-1.769351	0.0775
LIQ	49.66749	34.84680	1.425310	0.1547
GDP	11.40526	42.92087	0.265728	0.7906
INF	17.34872	21.53823	0.805485	0.4209
AGE2	-104.7449	135.7425	-0.771644	0.4407
DUMMYSEC1	-1145.143	345.1028	-3.318265	0.0010
DUMMYSEC2	-1139.457	394.3843	-2.889205	0.0040
DUMMYSEC3	-1348.907	486.7339	-2.771344	0.0058
DUMMYSEC4	-1146.261	381.8255	-3.002054	0.0028
DUMMYSEC5	1558.324	313.3590	4.972967	0.0000
DUMMYSEC6	-577.5298	507.8720	-1.137156	0.2560
DUMMYSEC7	-1259.741	326.8323	-3.854397	0.0001
DUMMYSEC8	-1762.229	366.6366	-4.806473	0.0000
DUMMYSEC9	-1296.258	481.7915	-2.690497	0.0074
DUMMYSEC10	-340.2907	336.6825	-1.010717	0.3127
DUMMYSEC11	-1109.839	356.6846	-3.111541	0.0020
DUMMYSEC12	-979.9494	488.6133	-2.005572	0.0455

R-squared	0.531383	Mean dependent var	963.2909
Adjusted R-squared	0.510795	S.D. dependent var	1727.387
S.E. of regression	1208.189	Akaike info criterion	17.07464
Sum squared resid	6.98E+08	Schwarz criterion	17.26008
Log likelihood	-4246.659	Hannan-Quinn criter.	17.14740
F-statistic	25.81060	Durbin-Watson stat	0.148406
Prob(F-statistic)	0.000000		

(TABLE 17)

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: Untitled

Periods included: 10

Cross-sections included: 50

Total panel observations: 500

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	3233.855	1225	0.0000
Pesaran scaled LM	39.57485		0.0000
Pesaran CD	4.941192		0.0000

(TABLE 18)

Dependent Variable: PRICE_TO_BOOK

Method: Panel Least Squares

Date: 10/11/18   Time: 09:38

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.278324	4.243887	-0.065582	0.9477
LEV	0.300721	0.164815	1.824593	0.0687
PROF	0.149794	0.024591	6.091536	0.0000
S1	0.491389	0.358103	1.372198	0.1707
TAN	-0.000371	0.003207	-0.115649	0.9080
GROW_	-0.000791	0.001905	-0.415172	0.6782

LIQ	0.017270	0.095249	0.181308	0.8562
GDP	-0.055433	0.104804	-0.528923	0.5971
INF	-0.160517	0.066318	-2.420406	0.0159
AGE2	-0.474255	0.693338	-0.684016	0.4943

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.783848	Mean dependent var	5.021260
Adjusted R-squared	0.755420	S.D. dependent var	5.765012
S.E. of regression	2.851090	Akaike info criterion	5.043716
Sum squared resid	3584.763	Schwarz criterion	5.541040
Log likelihood	-1201.929	Hannan-Quinn criter.	5.238866
F-statistic	27.57294	Durbin-Watson stat	1.455720
Prob(F-statistic)	0.000000		

(TABLE 19)

Dependent Variable: PRICE_TO_BOOK

Method: Panel EGLS (Cross-section random effects)

Date: 10/11/18   Time: 09:38

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.42972	3.182696	3.591207	0.0004
LEV	0.180387	0.120950	1.491414	0.1365

PROF	0.165874	0.023152	7.164466	0.0000
S1	-0.587433	0.260707	-2.253233	0.0247
TAN	0.001349	0.002542	0.530810	0.5958
GROW_	-0.000513	0.001888	-0.271765	0.7859
LIQ	-0.046795	0.091850	-0.509478	0.6106
GDP	-0.129814	0.103185	-1.258074	0.2090
INF	-0.294792	0.058955	-5.000282	0.0000
AGE2	0.010592	0.590001	0.017953	0.9857

Effects Specification

	S.D.	Rho
Cross-section random	3.392581	0.5861
Idiosyncratic random	2.851090	0.4139

Weighted Statistics

R-squared	0.140142	Mean dependent var	1.289658
Adjusted R-squared	0.124348	S.D. dependent var	3.131367
S.E. of regression	2.930217	Sum squared resid	4207.223
F-statistic	8.873469	Durbin-Watson stat	1.283684
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.297550	Mean dependent var	5.021260
Sum squared resid	11649.75	Durbin-Watson stat	0.463593

(TABLE 20)

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	9	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LEV	0.300721	0.180387	0.012535	0.2825
PROF	0.149794	0.165874	0.000069	0.0523
S1	0.491389	-0.587433	0.060270	0.0000
TAN	-0.000371	0.001349	0.000004	0.3792
GROW_	-0.000791	-0.000513	0.000000	0.2645
LIQ	0.017270	-0.046795	0.000636	0.0111
GDP	-0.055433	-0.129814	0.000337	0.0001
INF	-0.160517	-0.294792	0.000922	0.0000
AGE2	-0.474255	0.010592	0.132616	0.1831

Cross-section random effects test equation:

Dependent Variable: PRICE_TO_BOOK

Method: Panel Least Squares

Date: 10/11/18   Time: 09:39

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.278324	4.243887	-0.065582	0.9477
LEV	0.300721	0.164815	1.824593	0.0687
PROF	0.149794	0.024591	6.091536	0.0000
S1	0.491389	0.358103	1.372198	0.1707
TAN	-0.000371	0.003207	-0.115649	0.9080
GROW_	-0.000791	0.001905	-0.415172	0.6782
LIQ	0.017270	0.095249	0.181308	0.8562
GDP	-0.055433	0.104804	-0.528923	0.5971
INF	-0.160517	0.066318	-2.420406	0.0159
AGE2	-0.474255	0.693338	-0.684016	0.4943

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.783848	Mean dependent var	5.021260
Adjusted R-squared	0.755420	S.D. dependent var	5.765012
S.E. of regression	2.851090	Akaike info criterion	5.043716
Sum squared resid	3584.763	Schwarz criterion	5.541040
Log likelihood	-1201.929	Hannan-Quinn criter.	5.238866
F-statistic	27.57294	Durbin-Watson stat	1.455720
Prob(F-statistic)	0.000000		

(TABLE 21)

Dependent Variable: PRICE_TO_BOOK

Method: Panel Least Squares

Date: 10/11/18   Time: 09:32

Sample: 2009 2018

Periods included: 10

Cross-sections included: 50

Total panel (balanced) observations: 500

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.58940	2.643948	5.518038	0.0000
LEV	0.291649	0.095118	3.066181	0.0023
PROF	0.189060	0.021768	8.685401	0.0000
S1	-1.022033	0.192483	-5.309726	0.0000
TAN	-0.002008	0.001663	-1.207388	0.2279
GROW_	-0.002128	0.002520	-0.844475	0.3988
LIQ	-0.099419	0.114527	-0.868083	0.3858
GDP	-0.159066	0.141063	-1.127621	0.2600
INF	-0.355575	0.070787	-5.023150	0.0000
AGE2	0.542789	0.446129	1.216662	0.2243
DUMMYSEC1	0.791700	1.134210	0.698019	0.4855
DUMMYSEC2	-1.021207	1.296178	-0.787860	0.4312
DUMMYSEC3	0.260315	1.599693	0.162728	0.8708
DUMMYSEC4	8.690776	1.254902	6.925461	0.0000
DUMMYSEC5	-0.650668	1.029881	-0.631790	0.5278
DUMMYSEC6	-1.398459	1.669165	-0.837819	0.4026
DUMMYSEC7	0.941611	1.074162	0.876600	0.3811
DUMMYSEC8	-0.471594	1.204983	-0.391370	0.6957
DUMMYSEC9	1.792279	1.583449	1.131883	0.2583
DUMMYSEC10	-0.834069	1.106536	-0.753766	0.4514
DUMMYSEC11	1.112511	1.172275	0.949019	0.3431
DUMMYSEC12	0.952437	1.605870	0.593097	0.5534

R-squared	0.545549	Mean dependent var		5.021260
Adjusted R-squared	0.525584	S.D. dependent var		5.765012

S.E. of regression	3.970817	Akaike info criterion	5.638824
Sum squared resid	7536.812	Schwarz criterion	5.824266
Log likelihood	-1387.706	Hannan-Quinn criter.	5.711591
F-statistic	27.32474	Durbin-Watson stat	0.730521
Prob(F-statistic)	0.000000		

(TABLE 22)

Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Equation: Untitled

Periods included: 10

Cross-sections included: 50

Total panel observations: 500

Note: non-zero cross-section means detected in data

Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	3346.371	1225	0.0000
Pesaran scaled LM	41.84802		0.0000
Pesaran CD	27.34963		0.0000

(TABLE 23)

Null Hypothesis: Unit root (common unit root process)

Series: D(MARKCAP)

Date: 10/15/18   Time: 11:45

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 315

Cross-sections included: 40 (10 dropped)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-208.936	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(MARKCAP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.		Dropped from Test					
Eicher Motors Ltd.	-0.99920	0.0010	22.127	0	1	0.0	8
Hero MotoCorp Ltd.		Dropped from Test					
Mahindra & Mahindra Ltd.	-0.62078	0.1828	6.3583	0	1	1.0	8
Maruti Suzuki India Ltd.		Dropped from Test					
Tata Motors Ltd.	-0.72885	442.91	155.99	0	1	7.0	8
Grasim Industries Ltd.	-1.12510	0.2353	0.0702	0	1	7.0	8
UltraTech Cement Ltd.	-1.14375	2393.0	698.80	0	1	7.0	8
Larsen & Toubro Ltd.	-1.38995	1120.8	1235.5	0	1	2.0	8
Asian Paints Ltd.		Dropped from Test					
Hindustan Unilever Ltd.	-1.10258	0.0003	0.1787	1	1	7.0	7
I T C Ltd.	-1.33756	25925.	9805.0	0	1	7.0	8

Titan Company Ltd.	Dropped from Test						
Bharat Petroleum Corporation Ltd.	Dropped from Test						
GAIL (India) Ltd.	Dropped from Test						
Hindustan Petroleum Corporation Ltd.	Dropped from Test						
Indian Oil Corporation Ltd.	0.39192	1.E+06	2.E+06	0	1	1.0	8
NTPC Ltd.	Dropped from Test						
Oil & Natural Gas Corporation Ltd.	-1.33333	762464	285924	0	1	7.0	8
Power Grid Corporation of India Ltd.	-1.31998	45849.	22474.	0	1	5.0	8
Reliance Industries Ltd.	-1.23879	1.E+06	2.E+06	0	1	0.0	8
UPL Ltd.	-1.07926	35.651	9.6798	0	1	7.0	8
Axis Bank Ltd.	-1.29506	310.77	260.62	0	1	7.0	8
Bajaj Finance Ltd.	-1.06206	309.42	83.073	0	1	7.0	8
Bajaj Finserv Ltd.	-1.14331	5.5822	1.6290	0	1	7.0	8
HDFC Bank Ltd.	-1.01719	36.670	142.58	0	1	0.0	8
Housing Development Finance Corporation Ltd.	-1.47966	30.397	64.571	0	1	0.0	8
ICICI Bank Ltd.	-1.69278	1476.5	1716.3	0	1	1.0	8
Indiabulls Housing Finance Ltd.	-1.16999	390.66	128.64	0	1	7.0	8
IndusInd Bank Ltd.	-2.31058	310.84	200.29	1	1	6.0	7
Kotak Mahindra Bank Ltd.	-1.16963	28869.	8050.3	0	1	7.0	8
State Bank of India	-1.38647	868.66	920.77	0	1	2.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Yes Bank Ltd.	-1.44498	277.24	411.66	0	1	1.0	8
HCL Technologies Ltd.	-1.15250	2094.9	617.72	0	1	7.0	8
Infosys Ltd.	-0.75467	39485.	15266.	0	1	7.0	8
Tata Consultancy Services Ltd.	-0.99363	3.7780	1034.1	0	1	0.0	8
Tech Mahindra Ltd.	-0.81357	6696.8	2247.7	0	1	7.0	8
Wipro Ltd.	-1.12687	4222.9	1210.9	0	1	7.0	8
Zee Entertainment Enterprises Ltd.	-1.05089	0.0396	92.646	1	1	7.0	7
Coal India Ltd.		Dropped from Test					
Hindalco Industries Ltd.	-2.19119	24.222	33.579	1	1	7.0	7
JSW Steel Ltd.	-1.27379	149.69	58.894	0	1	6.0	8
Tata Steel Ltd.	-0.78492	0.0313	1480.2	1	1	1.0	7
Vedanta Ltd.	-1.15230	4671.0	1344.9	0	1	7.0	8
Cipla Ltd.	-1.00872	0.0053	2.8762	0	1	0.0	8
Dr. Reddy's Laboratories Ltd.	-1.06615	0.7142	0.1885	0	1	7.0	8
Sun Pharmaceutical Industries Ltd.	-1.24661	1118.3	1047.1	0	1	1.0	8
Adani Ports and Special Economic Zone Ltd.	-1.14728	18.943	5.5538	0	1	7.0	8
Bharti Airtel Ltd.	-1.14383	1069.7	310.43	0	1	7.0	8
Bharti Infratel Ltd.	-1.13798	185394	51590.	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.97761	-193.617	2.489	-0.554	0.919		315

(TABLE 24)

Null Hypothesis: Unit root (common unit root process)

Series: D(PRICE_TO_BOOK)

Date: 10/15/18   Time: 11:46

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 382

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-28.2153	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(PRICE_TO_BOOK)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-1.12818	0.1193	4.2156	0	1	1.0	8
Eicher Motors Ltd.	-2.56162	114.21	170.29	1	1	2.0	7
Hero MotoCorp Ltd.	-1.06870	1.8920	8.9829	0	1	0.0	8
Mahindra & Mahindra Ltd.	-1.48972	0.0376	0.5465	1	1	2.0	7
Maruti Suzuki India Ltd.	-1.24719	0.9850	0.4325	0	1	7.0	8
Tata Motors Ltd.	-1.47543	7.8140	2.4064	0	1	7.0	8
Grasim Industries Ltd.	-1.30070	0.2773	1.0259	0	1	1.0	8

UltraTech Cement Ltd.	-1.54783	0.0555	0.4886	0	1	0.0	8
Larsen & Toubro Ltd.	-1.73839	0.4075	0.8811	1	1	7.0	7
Asian Paints Ltd.	-1.17508	3.9367	2.2159	0	1	7.0	8
Hindustan Unilever Ltd.	-1.23451	92.534	116.88	0	1	1.0	8
I T C Ltd.	-0.44845	1.0507	0.2092	0	1	6.0	8
Titan Company Ltd.	-0.79955	11.807	14.225	0	1	2.0	8
Bharat Petroleum Corporation Ltd.	-1.71177	0.0917	0.1261	0	1	1.0	8
GAIL (India) Ltd.	-1.17598	0.0360	0.2714	1	1	3.0	7
Hindustan Petroleum Corporation Ltd.	-0.17640	0.1142	0.2387	1	1	1.0	7
Indian Oil Corporation Ltd.	-1.58715	0.0841	0.1440	0	1	1.0	8
NTPC Ltd.	-1.09563	0.0852	0.0903	0	1	1.0	8
Oil & Natural Gas Corporation Ltd.	-2.10046	0.0434	0.0685	1	1	7.0	7
Power Grid Corporation of India Ltd.	-1.35581	0.0957	0.2948	0	1	0.0	8
Reliance Industries Ltd.	-1.12730	0.0834	0.1280	1	1	7.0	7
UPL Ltd.	-0.86529	1.4331	0.5792	0	1	5.0	8
Axis Bank Ltd.	-1.17592	0.3807	0.7180	0	1	2.0	8
Bajaj Finance Ltd.	-1.19111	0.6809	0.7910	0	1	1.0	8
Bajaj Finserv Ltd.	0.97947	13.972	11.225	1	1	2.0	7
HDFC Bank Ltd.	-1.28576	0.0623	0.2890	1	1	1.0	7
Housing Development Finance Corporation Ltd.	-1.39449	0.8556	1.0888	0	1	1.0	8

ICICI Bank Ltd.	-1.82378	0.0613	0.2258	1	1	5.0	7
Indiabulls Housing Finance Ltd.	-1.11110	0.4948	0.1906	0	1	7.0	8
IndusInd Bank Ltd.	-1.32550	0.4706	1.0240	0	1	3.0	8
Kotak Mahindra Bank Ltd.	-1.47108	0.7642	2.1250	0	1	2.0	8
State Bank of India	-1.48309	21.796	7.0613	0	1	7.0	8
Yes Bank Ltd.	-1.22176	0.1804	0.5284	0	1	1.0	8
HCL Technologies Ltd.	-1.40586	0.3162	0.2755	1	1	7.0	7
Infosys Ltd.	-1.58520	0.2422	1.3578	1	1	5.0	7
Tata Consultancy Services Ltd.	-1.59566	1.7928	5.0157	1	1	4.0	7
Tech Mahindra Ltd.	-1.18306	0.8031	0.6822	1	1	7.0	7
Wipro Ltd.	-1.33010	0.1365	1.2198	1	1	4.0	7
Zee Entertainment Enterprises Ltd.	-0.90746	7.5235	1.9814	0	1	7.0	8
Coal India Ltd.	-1.47786	1.2040	5.2789	1	1	7.0	7
Hindalco Industries Ltd.	-1.76008	0.0418	0.1038	1	1	7.0	7
JSW Steel Ltd.	-3.14784	39.926	19.143	1	1	7.0	7
Tata Steel Ltd.	-0.96924	0.0742	0.2140	0	1	2.0	8
Vedanta Ltd.	-1.37693	1.0366	2.8731	0	1	4.0	8
Cipla Ltd.	-1.59570	0.6802	0.9274	0	1	1.0	8
Dr. Reddy's Laboratories Ltd.	-0.66952	0.5400	0.2172	0	1	7.0	8
Sun Pharmaceutical Industries Ltd.	-1.11697	10.957	2.3652	0	1	7.0	8
Adani Ports and Special Economic Zone Ltd.	-1.30398	1.1811	5.8655	0	1	2.0	8
Bharti Airtel Ltd.	-1.15065	0.1009	0.0407	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Bharti Infratel Ltd.	-1.17102	0.7034	0.6754	0	1	2.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.25947	-34.739	1.091	-0.554	0.919		382

(TABLE 25)

Null Hypothesis: Unit root (common unit root process)

Series: D(EV)

Date: 10/15/18 Time: 11:47

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 374

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-6.73495	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(EV)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-1.01060	3.E+07	1.E+07	0	1	7.0	8
Eicher Motors Ltd.	-1.54396	4.E+08	2.E+08	0	1	7.0	8
Hero MotoCorp Ltd.	-1.56094	3.E+07	8.E+07	0	1	2.0	8

Company	Value	B	C	D	E	F	G
Mahindra & Mahindra Ltd.	-1.98390	8.E+06	3.E+07	1	1	2.0	7
Maruti Suzuki India Ltd.	-0.53523	1.E+09	3.E+08	0	1	7.0	8
Tata Motors Ltd.	-1.44521	1.E+09	4.E+08	0	1	7.0	8
Grasim Industries Ltd.	1.22843	1.E+07	4.E+07	1	1	1.0	7
UltraTech Cement Ltd.	-1.65657	1.E+07	2.E+07	0	1	1.0	8
Larsen & Toubro Ltd.	-2.15308	5.E+08	6.E+08	1	1	7.0	7
Asian Paints Ltd.	-1.67022	4.E+07	6.E+07	0	1	2.0	8
Hindustan Unilever Ltd.	-2.55329	5.E+08	3.E+08	1	1	7.0	7
I T C Ltd.	-1.34199	1.E+09	6.E+08	0	1	6.0	8
Titan Company Ltd.	-5.90085	1.E+08	1.E+08	1	1	3.0	7
Bharat Petroleum Corporation Ltd.	-0.13540	4.E+07	2.E+08	1	1	0.0	7
GAIL (India) Ltd.	-1.84640	3.E+07	5.E+07	1	1	7.0	7
Hindustan Petroleum Corporation Ltd.	-4.62399	3.E+07	3.E+07	1	1	7.0	7
Indian Oil Corporation Ltd.	-3.19750	8.E+08	4.E+08	1	1	7.0	7
NTPC Ltd.	-0.94473	5.E+08	5.E+08	0	1	1.0	8
Oil & Natural Gas Corporation Ltd.	-1.99135	1.E+09	9.E+08	1	1	7.0	7
Power Grid Corporation of India Ltd.	-0.66720	5.E+07	1.E+08	1	1	1.0	7
Reliance Industries Ltd.	-0.70315	5.E+09	3.E+09	0	1	7.0	8
UPL Ltd.	-0.14617	2.E+07	3.E+07	1	1	1.0	7
Axis Bank Ltd.	-1.46674	9.E+08	4.E+08	0	1	6.0	8

Company							
Bajaj Finance Ltd.	0.23663	1.E+07	5.E+07	0	1	2.0	8
Bajaj Finserv Ltd.	3.25493	1.E+07	8.E+07	1	1	1.0	7
HDFC Bank Ltd.	0.57430	9.E+08	1.E+09	1	1	1.0	7
Housing Development Finance Corporation Ltd.	-1.27100	2.E+09	1.E+09	0	1	1.0	8
ICICI Bank Ltd.	-3.00247	3.E+08	5.E+08	1	1	7.0	7
Indiabulls Housing Finance Ltd.	-1.53038	2.E+09	2.E+09	0	1	1.0	8
IndusInd Bank Ltd.	0.70762	4.E+07	7.E+07	1	1	2.0	7
Kotak Mahindra Bank Ltd.	-0.40173	6.E+08	1.E+08	0	1	7.0	8
State Bank of India	-1.42023	4.E+11	1.E+11	0	1	7.0	8
Yes Bank Ltd.	1.85782	1.E+08	3.E+08	1	1	2.0	7
HCL Technologies Ltd.	-1.46326	2.E+08	7.E+07	1	1	7.0	7
Infosys Ltd.	-1.65598	3.E+08	5.E+08	1	1	7.0	7
Tata Consultancy Services Ltd.	-1.56760	1.E+09	6.E+08	1	1	7.0	7
Tech Mahindra Ltd.	-1.68447	7.E+07	5.E+07	1	1	7.0	7
Wipro Ltd.	-1.07706	6.E+07	3.E+08	1	1	4.0	7
Zee Entertainment Enterprises Ltd.	-1.13605	2.E+07	6.E+06	0	1	7.0	8
Coal India Ltd.	-1.16430	5.E+09	2.E+09	0	1	7.0	8
Hindalco Industries Ltd.	-2.11854	1.E+07	6.E+07	1	1	7.0	7
JSW Steel Ltd.	-3.22150	2.E+10	8.E+09	1	1	7.0	7
Tata Steel Ltd.	-1.11935	8.E+07	3.E+08	1	1	2.0	7
Vedanta Ltd.	-2.57251	7.E+08	5.E+08	1	1	6.0	7
Cipla Ltd.	-1.60087	8.E+07	1.E+08	0	1	1.0	8
Dr. Reddy's	-0.57808	7.E+07	2.E+07	0	1	7.0	8

Laboratories Ltd.

Sun Pharmaceutical Industries Ltd.	-0.60946	2.E+09	1.E+09	0	1	2.0	8
Adani Ports and Special Economic Zone Ltd.	-1.52081	1.E+08	2.E+08	0	1	2.0	8
Bharti Airtel Ltd.	-1.00224	3.E+08	8.E+07	0	1	6.0	8
Bharti Infratel Ltd.	-1.10934	2.E+08	5.E+08	0	1	0.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.88055	-12.455	1.568	-0.554	0.919	374

(TABLE 26)

Null Hypothesis: Unit root (common unit root process)

Series: D(LEV)

Date: 10/15/18   Time: 11:48

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 389

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-20.0648	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LEV)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-0.88186	0.0056	0.0346	1	1	5.0	7
Eicher Motors Ltd.	-1.40555	0.2048	0.0622	0	1	7.0	8
Hero MotoCorp Ltd.	-1.71589	0.0475	0.1709	1	1	7.0	7
Mahindra & Mahindra Ltd.	-0.87741	0.0076	0.0337	0	1	0.0	8
Maruti Suzuki India Ltd.	-1.29373	0.0030	0.0095	0	1	0.0	8
Tata Motors Ltd.	-2.43175	0.1071	0.0968	1	1	7.0	7
Grasim Industries Ltd.	-0.91793	0.0053	0.0229	0	1	0.0	8
UltraTech Cement Ltd.	-1.57042	0.0272	0.0168	0	1	6.0	8
Larsen & Toubro Ltd.	-1.91921	0.0080	0.0125	1	1	7.0	7
Asian Paints Ltd.	-1.28521	0.1208	0.1264	0	1	1.0	8
Hindustan Unilever Ltd.	-1.29954	0.4608	0.4812	0	1	1.0	8
I T C Ltd.	-1.31067	0.0086	0.0093	0	1	7.0	8
Titan Company Ltd.	-1.13548	0.1536	0.0679	0	1	4.0	8
Bharat Petroleum Corporation Ltd.	-1.05353	0.1069	0.0710	0	1	3.0	8
GAIL (India) Ltd.	-1.23840	0.1058	0.0429	0	1	6.0	8
Hindustan Petroleum Corporation Ltd.	-0.71985	0.0885	0.0534	1	1	5.0	7
Indian Oil Corporation Ltd.	-0.68853	0.1376	0.0387	0	1	7.0	8
NTPC Ltd.	-0.93907	0.1163	0.0367	0	1	7.0	8
Oil & Natural Gas Corporation Ltd.	-1.23392	0.0238	0.0140	0	1	3.0	8

Power Grid Corporation of India Ltd.	-2.03475	0.0202	0.0197	1	1	5.0	7
Reliance Industries Ltd.	-1.18707	0.0040	0.0016	0	1	7.0	8
UPL Ltd.	-1.36851	0.1059	0.0375	0	1	7.0	8
Axis Bank Ltd.	-1.27996	0.9014	0.8870	0	1	7.0	8
Bajaj Finance Ltd.	-1.12660	1.1854	0.4084	0	1	6.0	8
Bajaj Finserv Ltd.	-1.13135	0.0094	0.0030	0	1	7.0	8
HDFC Bank Ltd.	-1.31645	0.4139	0.8995	0	1	2.0	8
Housing Development Finance Corporation Ltd.	-1.34511	0.6581	0.4175	0	1	4.0	8
ICICI Bank Ltd.	-1.35108	0.0708	0.1957	0	1	1.0	8
Indiabulls Housing Finance Ltd.	-1.27143	3.2281	0.9598	0	1	7.0	8
IndusInd Bank Ltd.	-1.17006	3.5879	0.6889	0	1	7.0	8
Kotak Mahindra Bank Ltd.	-2.31484	0.3331	0.2937	1	1	5.0	7
State Bank of India	-1.51524	1.8091	7.6362	0	1	0.0	8
Yes Bank Ltd.	-1.26555	5.0431	13.170	0	1	0.0	8
HCL Technologies Ltd.	-1.86873	0.0032	0.0023	1	1	7.0	7
Infosys Ltd.	-1.56709	0.0016	0.0005	1	1	7.0	7
Tata Consultancy Services Ltd.	-2.27330	0.0043	0.0052	1	1	7.0	7
Tech Mahindra Ltd.	-0.69799	0.0069	0.0182	0	1	0.0	8
Wipro Ltd.	-0.96089	0.0056	0.0109	0	1	1.0	8
Zee Entertainment Enterprises Ltd.	-0.96609	0.0014	0.0027	0	1	0.0	8
Coal India Ltd.	-0.86647	0.0120	0.0152	0	1	1.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Hindalco Industries Ltd.	-0.26942	0.0098	0.0104	0	1	1.0	8
JSW Steel Ltd.	-0.94298	0.1449	0.0832	0	1	5.0	8
Tata Steel Ltd.	-1.11767	0.0376	0.0242	0	1	7.0	8
Vedanta Ltd.	-1.19632	0.1607	0.3904	0	1	0.0	8
Cipla Ltd.	-1.01900	0.0863	0.0232	0	1	7.0	8
Dr. Reddy's Laboratories Ltd.	-0.93375	0.0035	0.0011	0	1	7.0	8
Sun Pharmaceutical Industries Ltd.	-1.29802	0.0552	0.0168	0	1	7.0	8
Adani Ports and Special Economic Zone Ltd.	-2.00426	0.0484	0.0298	1	1	5.0	7
Bharti Airtel Ltd.	-1.09055	0.0115	0.0405	0	1	0.0	8
Bharti Infratel Ltd.	-1.42328	0.0163	0.0072	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.16658	-26.012	1.101	-0.554	0.919	389

(TABLE 27)

Null Hypothesis: Unit root (common unit root process)

Series: D(PROF)

Date: 10/15/18   Time: 11:48

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 384

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-18.0036	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(PROF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-1.02021	56.294	15.628	0	1	7.0	8
Eicher Motors Ltd.	-2.72888	100.83	83.865	1	1	7.0	7
Hero MotoCorp Ltd.	-2.25280	2.5997	6.5161	1	1	7.0	7
Mahindra & Mahindra Ltd.	-1.21906	0.4526	5.3307	1	1	3.0	7
Maruti Suzuki India Ltd.	-1.21326	3.4086	9.8160	1	1	4.0	7
Tata Motors Ltd.	-1.70472	13.647	18.928	0	1	1.0	8
Grasim Industries Ltd.	-1.41920	8.1463	31.403	0	1	5.0	8
UltraTech Cement Ltd.	-2.17748	1.2832	2.1058	1	1	7.0	7
Larsen & Toubro Ltd.	-1.47488	0.1207	0.2163	1	1	7.0	7
Asian Paints Ltd.	-1.32508	1.1659	12.284	0	1	3.0	8
Hindustan Unilever Ltd.	-1.15967	10.305	15.271	0	1	1.0	8
I T C Ltd.	-0.22890	0.7423	0.2121	0	1	7.0	8
Titan Company Ltd.	-1.31518	3.1841	3.2444	0	1	7.0	8
Bharat Petroleum Corporation Ltd.	-0.80791	1.7910	0.7560	0	1	5.0	8
GAIL (India) Ltd.	-1.94614	1.5949	0.8268	1	1	7.0	7

Hindustan Petroleum Corporation Ltd.	-0.74291	1.3406	2.0305	0	1	0.0	8
Indian Oil Corporation Ltd.	-0.91229	1.2372	3.2403	1	1	7.0	7
NTPC Ltd.	-1.47958	0.5328	0.2507	0	1	6.0	8
Oil & Natural Gas Corporation Ltd.	-0.86337	3.3189	0.8735	0	1	7.0	8
Power Grid Corporation of India Ltd.	-1.00159	0.0947	0.1029	0	1	2.0	8
Reliance Industries Ltd.	-0.87219	0.1379	0.0414	0	1	4.0	8
UPL Ltd.	-1.58540	5.3233	23.155	0	1	0.0	8
Axis Bank Ltd.	2.64600	0.0639	0.0377	1	1	3.0	7
Bajaj Finance Ltd.	-0.43461	0.0796	0.1205	0	1	1.0	8
Bajaj Finserv Ltd.	-1.87884	4.5153	7.3997	1	1	7.0	7
HDFC Bank Ltd.	-0.19821	0.0022	0.0005	0	1	7.0	8
Housing Development Finance Corporation Ltd.	-2.70290	0.0440	0.1098	0	1	1.0	8
ICICI Bank Ltd.	0.16953	0.0234	0.0191	1	1	1.0	7
Indiabulls Housing Finance Ltd.	-1.43942	0.4219	0.4075	0	1	5.0	8
IndusInd Bank Ltd.	-0.50656	0.0034	0.0092	0	1	1.0	8
Kotak Mahindra Bank Ltd.	-1.34471	0.0777	0.0392	0	1	7.0	8
State Bank of India	-1.40370	0.0517	0.0229	0	1	7.0	8
Yes Bank Ltd.	-1.33132	0.0098	0.0085	0	1	1.0	8
HCL Technologies Ltd.	-0.82816	16.119	6.8243	0	1	6.0	8
Infosys Ltd.	-2.13645	2.9089	1.9244	1	1	7.0	7

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Tata Consultancy Services Ltd.	-1.12894	6.3481	4.2234	0	1	4.0	8
Tech Mahindra Ltd.	-1.03249	18.554	100.40	0	1	0.0	8
Wipro Ltd.	-1.38905	0.5229	2.4220	1	1	7.0	7
Zee Entertainment Enterprises Ltd.	-1.30907	9.8058	15.611	0	1	2.0	8
Coal India Ltd.	-1.13878	236.80	192.74	0	1	1.0	8
Hindalco Industries Ltd.	-0.92987	0.4837	0.1404	0	1	7.0	8
JSW Steel Ltd.	-2.89623	12.845	13.539	1	1	3.0	7
Tata Steel Ltd.	-0.79876	2.4999	0.9582	0	1	5.0	8
Vedanta Ltd.	-1.27382	59.954	26.157	0	1	7.0	8
Cipla Ltd.	-1.61684	2.9955	2.6738	0	1	7.0	8
Dr. Reddy's Laboratories Ltd.	-1.08581	5.9953	1.8497	0	1	6.0	8
Sun Pharmaceutical Industries Ltd.	-1.13314	137.49	35.192	0	1	7.0	8
Adani Ports and Special Economic Zone Ltd.	-1.17994	2.8978	0.6078	0	1	7.0	8
Bharti Airtel Ltd.	-2.02839	9.4703	13.630	1	1	7.0	7
Bharti Infratel Ltd.	-2.61955	2.0195	2.1718	1	1	5.0	7

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.15369	-23.847	1.206	-0.554	0.919		384

(TABLE 28)

Null Hypothesis: Unit root (common unit root process)

Series: D(S1)

Date: 10/15/18   Time: 11:49

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 380

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-13.5339	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(S1)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-2.56162	0.0009	0.0013	1	1	5.0	7
Eicher Motors Ltd.	-0.46429	0.0147	0.0167	0	1	4.0	8
Hero MotoCorp Ltd.	-1.10486	0.0084	0.0056	0	1	7.0	8
Mahindra & Mahindra Ltd.	-0.91253	0.0019	0.0005	0	1	7.0	8
Maruti Suzuki India Ltd.	-2.02903	0.0013	0.0015	1	1	6.0	7
Tata Motors Ltd.	-2.18758	0.0022	0.0066	1	1	4.0	7
Grasim Industries Ltd.	-0.37707	0.0859	0.0911	0	1	0.0	8
UltraTech Cement Ltd.	-1.11068	0.0471	0.0307	0	1	5.0	8
Larsen & Toubro Ltd.	-0.15295	0.0007	0.0021	1	1	1.0	7
Asian Paints Ltd.	-1.37661	0.0060	0.0030	0	1	6.0	8

Hindustan Unilever Ltd.	-1.35125	0.0399	0.0386	0	1	1.0	8
I T C Ltd.	-1.40765	0.0089	0.0045	0	1	7.0	8
Titan Company Ltd.	-2.21897	0.0252	0.0199	1	1	6.0	7
Bharat Petroleum Corporation Ltd.	-1.54693	0.0098	0.0043	1	1	7.0	7
GAIL (India) Ltd.	-0.99062	0.0136	0.0031	0	1	7.0	8
Hindustan Petroleum Corporation Ltd.	-1.32755	0.0154	0.0078	1	1	7.0	7
Indian Oil Corporation Ltd.	-0.94503	0.0134	0.0040	0	1	6.0	8
NTPC Ltd.	-1.43157	5.E-05	7.E-05	1	1	7.0	7
Oil & Natural Gas Corporation Ltd.	-1.45327	0.0043	0.0136	0	1	0.0	8
Power Grid Corporation of India Ltd.	-0.20759	0.0013	0.0011	0	1	1.0	8
Reliance Industries Ltd.	-4.23472	0.0077	0.0125	1	1	7.0	7
UPL Ltd.	-1.11556	0.0399	0.0108	0	1	7.0	8
Axis Bank Ltd.	-0.76383	0.0004	0.0047	1	1	0.0	7
Bajaj Finance Ltd.	-1.38772	0.0118	0.0129	0	1	2.0	8
Bajaj Finserv Ltd.	-1.06652	0.0284	0.0079	0	1	7.0	8
HDFC Bank Ltd.	-1.69668	0.0001	9.E-05	1	1	6.0	7
Housing Development Finance Corporation Ltd.	-1.06693	0.0094	0.0026	0	1	7.0	8
ICICI Bank Ltd.	-1.17996	0.0005	0.0037	1	1	0.0	7
Indiabulls Housing Finance Ltd.	-0.95864	0.1893	0.1499	0	1	1.0	8
IndusInd Bank Ltd.	-0.97356	0.0007	0.0002	0	1	7.0	8

Kotak Mahindra Bank Ltd.	-4.42505	0.0344	0.2479	1	1	2.0	7
State Bank of India	-0.88301	0.0021	0.0019	0	1	1.0	8
Yes Bank Ltd.	-0.70434	0.0109	0.0137	0	1	2.0	8
HCL Technologies Ltd.	-1.21984	0.0095	0.0072	1	1	7.0	7
Infosys Ltd.	-3.80940	0.0051	0.0034	1	1	7.0	7
Tata Consultancy Services Ltd.	-3.00971	0.0099	0.0099	1	1	7.0	7
Tech Mahindra Ltd.	-1.21016	0.0215	0.0926	1	1	3.0	7
Wipro Ltd.	-0.95081	0.0107	0.0137	0	1	1.0	8
Zee Entertainment Enterprises Ltd.	-0.86932	0.0043	0.0016	0	1	7.0	8
Coal India Ltd.	-0.97341	0.0115	0.0032	0	1	5.0	8
Hindalco Industries Ltd.	-0.33597	0.0038	0.0035	0	1	3.0	8
JSW Steel Ltd.	-0.99924	0.0102	0.0034	0	1	6.0	8
Tata Steel Ltd.	-1.23279	0.0119	0.0041	0	1	7.0	8
Vedanta Ltd.	-1.51261	0.4654	0.5582	0	1	1.0	8
Cipla Ltd.	-1.01553	0.0057	0.0037	0	1	1.0	8
Dr. Reddy's Laboratories Ltd.	-0.87352	0.0036	0.0016	1	1	7.0	7
Sun Pharmaceutical Industries Ltd.	-1.07822	0.1154	0.0330	0	1	7.0	8
Adani Ports and Special Economic Zone Ltd.	-1.96226	0.0112	0.0114	1	1	7.0	7
Bharti Airtel Ltd.	-1.80053	0.0095	0.0059	1	1	7.0	7
Bharti Infratel Ltd.	-1.23442	0.0063	0.0057	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.15209	-20.371	1.196	-0.554	0.919		380

(TABLE 29)

Null Hypothesis: Unit root (common unit root process)

Series: D(TAN)

Date: 10/15/18   Time: 11:50

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 385

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-14.2854	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(TAN)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-0.57762	9.E-05	0.0004	0	1	1.0	8
Eicher Motors Ltd.	-0.87984	0.0059	0.0018	0	1	7.0	8
Hero MotoCorp Ltd.	-1.06359	0.0391	0.0093	0	1	7.0	8
Mahindra & Mahindra Ltd.	-1.16692	0.0008	0.0009	0	1	2.0	8
Maruti Suzuki India Ltd.	-0.75972	0.0024	0.0006	0	1	7.0	8
Tata Motors Ltd.	-1.50942	0.0023	0.0014	0	1	3.0	8

Grasim Industries Ltd.	-0.35799	0.6763	1.9349	1	1	1.0	7
UltraTech Cement Ltd.	-0.48969	0.0779	0.0820	0	1	0.0	8
Larsen & Toubro Ltd.	-0.83894	0.3855	0.5995	0	1	0.0	8
Asian Paints Ltd.	-1.31320	0.4935	0.2445	0	1	6.0	8
Hindustan Unilever Ltd.	-1.93376	0.1614	0.1651	0	1	3.0	8
I T C Ltd.	-0.73837	0.0950	0.0180	0	1	7.0	8
Titan Company Ltd.	-3.78045	0.3798	0.5434	1	1	6.0	7
Bharat Petroleum Corporation Ltd.	-1.11160	0.2842	0.1913	0	1	4.0	8
GAIL (India) Ltd.	-1.86108	0.0231	0.0123	1	1	7.0	7
Hindustan Petroleum Corporation Ltd.	-1.00771	0.0527	0.1412	1	1	1.0	7
Indian Oil Corporation Ltd.	-0.69785	0.2431	0.2848	0	1	0.0	8
NTPC Ltd.	-0.56275	0.1092	0.1187	0	1	0.0	8
Oil & Natural Gas Corporation Ltd.	-2.79270	2.6144	2.7066	1	1	5.0	7
Power Grid Corporation of India Ltd.	-1.87119	0.0621	0.0987	1	1	0.0	7
Reliance Industries Ltd.	-2.12052	0.2019	0.1220	1	1	7.0	7
UPL Ltd.	-5.96457	1.0760	1.9965	1	1	2.0	7
Axis Bank Ltd.	-1.29721	629.36	187.59	0	1	7.0	8
Bajaj Finance Ltd.	-0.69251	274.92	426.93	0	1	1.0	8
Bajaj Finserv Ltd.	-1.13825	20.207	13.198	0	1	4.0	8
HDFC Bank Ltd.	-0.51491	173.98	53.376	0	1	7.0	8
Housing Development	-1.45994	9612.6	3924.3	1	1	7.0	7

Finance Corporation Ltd.							
ICICI Bank Ltd.	-1.26998	175.75	56.825	0	1	7.0	8
Indiabulls Housing Finance Ltd.	-1.32485	63094.	17357.	0	1	7.0	8
IndusInd Bank Ltd.	-0.65669	243.90	183.57	0	1	4.0	8
Kotak Mahindra Bank Ltd.	-1.96509	2178.0	2078.6	1	1	5.0	7
State Bank of India	-1.15939	201.06	73.469	0	1	7.0	8
Yes Bank Ltd.	-0.87736	4303.0	4796.5	0	1	1.0	8
HCL Technologies Ltd.	-1.19941	2.8425	1.0428	0	1	7.0	8
Infosys Ltd.	-0.92567	0.6575	0.1901	0	1	6.0	8
Tata Consultancy Services Ltd.	-2.40517	0.5315	0.2871	1	1	7.0	7
Tech Mahindra Ltd.	-1.21379	0.6324	3.3557	0	1	2.0	8
Wipro Ltd.	-1.04455	0.2597	0.7683	1	1	0.0	7
Zee Entertainment Enterprises Ltd.	-1.72832	5.1145	6.6896	0	1	1.0	8
Coal India Ltd.	-1.28989	2187.5	6425.3	0	1	0.0	8
Hindalco Industries Ltd.	-0.99923	3.4521	0.8963	0	1	7.0	8
JSW Steel Ltd.	-1.45738	0.0111	0.0196	0	1	2.0	8
Tata Steel Ltd.	-1.28516	2.3005	0.7112	0	1	7.0	8
Vedanta Ltd.	-1.01185	14.592	24.474	0	1	1.0	8
Cipla Ltd.	-1.33127	0.0359	0.0323	1	1	7.0	7
Dr. Reddy's Laboratories Ltd.	-1.81293	0.1324	0.0759	1	1	7.0	7
Sun Pharmaceutical Industries Ltd.	-1.63616	0.3770	0.2157	1	1	6.0	7
Adani Ports and Special Economic	-0.79759	0.1937	0.0424	0	1	7.0	8

Zone Ltd.

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Bandwidth	Obs
Bharti Airtel Ltd.	-1.03482	0.0346	0.0261	0	1	1.0	8
Bharti Infratel Ltd.	-1.31022	0.0354	0.0687	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.10724	-20.878	1.134	-0.554	0.919		385

(TABLE 30)

Null Hypothesis: Unit root (common unit root process)

Series: D(GROW_)

Date: 10/15/18   Time: 11:50

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 382

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-29.6721	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GROW_)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-2.75517	15.742	39.133	1	1	6.0	7
Eicher Motors Ltd.	-2.40236	233.02	270.84	1	1	5.0	7

Company							
Hero MotoCorp Ltd.	-1.15033	188.68	6946.1	0	1	2.0	8
Mahindra & Mahindra Ltd.	-1.77700	27.178	58.364	1	1	7.0	7
Maruti Suzuki India Ltd.	-2.40119	32.678	61.610	1	1	6.0	7
Tata Motors Ltd.	-1.12512	109.06	419.37	1	1	2.0	7
Grasim Industries Ltd.	-1.01837	2769.0	90096.	0	1	1.0	8
UltraTech Cement Ltd.	-1.54873	1816.5	722.65	0	1	7.0	8
Larsen & Toubro Ltd.	-1.16042	60.589	156.08	0	1	0.0	8
Asian Paints Ltd.	-1.84176	154.08	454.28	0	1	2.0	8
Hindustan Unilever Ltd.	-1.54700	1074.0	1693.6	0	1	1.0	8
I T C Ltd.	-1.94891	198.73	307.93	0	1	7.0	8
Titan Company Ltd.	-2.74291	814.35	909.65	1	1	6.0	7
Bharat Petroleum Corporation Ltd.	-1.33156	173.10	3475.9	1	1	2.0	7
GAIL (India) Ltd.	-1.59457	216.73	110.06	0	1	7.0	8
Hindustan Petroleum Corporation Ltd.	-1.05084	306.82	3917.4	0	1	2.0	8
Indian Oil Corporation Ltd.	-1.33129	209.42	82.888	0	1	4.0	8
NTPC Ltd.	-1.73799	2.0319	4.9021	1	1	7.0	7
Oil & Natural Gas Corporation Ltd.	-1.56539	9.1362	68173.	1	1	1.0	7
Power Grid Corporation of India Ltd.	-1.15109	18.763	16.579	0	1	1.0	8
Reliance Industries Ltd.	-1.68824	1102.2	1531.2	0	1	7.0	8

UPL Ltd.	-1.64703	960.64	976.41	0	1	5.0	8
Axis Bank Ltd.	-1.75688	22.707	82.152	0	1	2.0	8
Bajaj Finance Ltd.	-1.51805	445.47	1439.0	0	1	2.0	8
Bajaj Finserv Ltd.	-1.41310	864.61	261.78	0	1	7.0	8
HDFC Bank Ltd.	-1.25162	5.2805	18.235	0	1	7.0	8
Housing Development Finance Corporation Ltd.	-2.18186	21.454	60.909	1	1	7.0	7
ICICI Bank Ltd.	-0.93631	40.900	14.102	0	1	7.0	8
Indiabulls Housing Finance Ltd.	-1.57284	14804.	15517.	0	1	1.0	8
IndusInd Bank Ltd.	-1.18846	18.676	26.621	0	1	2.0	8
Kotak Mahindra Bank Ltd.	-3.09782	619.32	515.17	1	1	7.0	7
State Bank of India	-1.25948	31.206	100.70	0	1	2.0	8
Yes Bank Ltd.	-1.32682	288.80	331.01	0	1	1.0	8
HCL Technologies Ltd.	-0.87044	334.60	15097.	0	1	1.0	8
Infosys Ltd.	-2.93478	77.905	31.431	1	1	7.0	7
Tata Consultancy Services Ltd.	-3.50615	161.82	167.38	1	1	7.0	7
Tech Mahindra Ltd.	-1.47264	3041.6	4187.4	0	1	5.0	8
Wipro Ltd.	-1.41093	165.46	288.28	0	1	2.0	8
Zee Entertainment Enterprises Ltd.	-1.46698	75.468	34.961	0	1	7.0	8
Coal India Ltd.	-2.55812	81.084	65.514	1	1	5.0	7
Hindalco Industries Ltd.	-1.46135	39.922	39.492	1	1	7.0	7
JSW Steel Ltd.	-2.40299	95.210	109.09	1	1	5.0	7
Tata Steel Ltd.	-2.16936	89.115	200.22	0	1	4.0	8
Vedanta Ltd.	-1.58182	113222	68724.	0	1	4.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Cipla Ltd.	-1.76741	66.338	161.89	0	1	2.0	8
Dr. Reddy's Laboratories Ltd.	-1.02874	77.127	23.045	0	1	7.0	8
Sun Pharmaceutical Industries Ltd.	-1.42374	6555.8	2028.1	0	1	7.0	8
Adani Ports and Special Economic Zone Ltd.	-1.57059	1010.1	387.92	0	1	7.0	8
Bharti Airtel Ltd.	-2.21583	393.62	144.76	1	1	7.0	7
Bharti Infratel Ltd.	-2.79154	37.479	366.40	1	1	7.0	7

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.23426	-39.046	1.312	-0.554	0.919		382

(TABLE 31)

Null Hypothesis: Unit root (common unit root process)

Series: D(LIQ)

Date: 10/15/18   Time: 11:51

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total number of observations: 374

Cross-sections included: 49 (1 dropped)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-21.8791	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(LIQ)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-2.01064	0.0766	0.4334	0	1	2.0	8
Eicher Motors Ltd.	-1.40326	0.8245	0.3103	0	1	7.0	8
Hero MotoCorp Ltd.	-0.94477	0.0124	0.0127	0	1	2.0	8
Mahindra & Mahindra Ltd.	-1.65026	0.0123	0.0115	0	1	3.0	8
Maruti Suzuki India Ltd.	-1.51121	0.2968	0.1505	0	1	7.0	8
Tata Motors Ltd.	-1.37477	0.0087	0.0027	1	1	7.0	7
Grasim Industries Ltd.	-2.23414	0.0621	0.6900	1	1	3.0	7
UltraTech Cement Ltd.	-2.31620	0.1114	0.0718	1	1	6.0	7
Larsen & Toubro Ltd.	0.59667	0.0014	0.0047	1	1	3.0	7
Asian Paints Ltd.	-2.74218	0.0117	0.0500	1	1	7.0	7
Hindustan Unilever Ltd.	-1.32160	0.0300	0.0122	0	1	7.0	8
I T C Ltd.	-1.73146	0.2816	0.3726	0	1	5.0	8
Titan Company Ltd.	-0.88571	0.0196	0.0050	0	1	7.0	8
Bharat Petroleum Corporation Ltd.	-1.20374	0.0055	0.0227	0	1	2.0	8
GAIL (India) Ltd.	-1.25719	0.0094	0.0058	1	1	7.0	7
Hindustan Petroleum Corporation Ltd.	-0.93566	0.0229	0.0243	0	1	4.0	8
Indian Oil Corporation Ltd.	-0.62352	0.0064	0.0050	0	1	5.0	8
NTPC Ltd.	-0.58937	0.0109	0.0333	1	1	1.0	7

Oil & Natural Gas Corporation Ltd.	-2.07910	0.1332	0.1362	1	1	5.0	7
Power Grid Corporation of India Ltd.	-1.87618	0.0088	0.0080	1	1	7.0	7
Reliance Industries Ltd.	-0.93537	0.0887	0.0225	0	1	7.0	8
UPL Ltd.	-1.64395	0.0530	0.3503	1	1	7.0	7
Axis Bank Ltd.	Dropped from Test						
Bajaj Finance Ltd.	-1.58178	0.1321	0.1647	0	1	7.0	8
Bajaj Finserv Ltd.	-1.94724	18.127	8.5138	1	1	7.0	7
HDFC Bank Ltd.	-3.40837	6.E-05	7.E-05	1	1	7.0	7
Housing Development Finance Corporation Ltd.	-1.19660	5.8825	1.9446	0	1	7.0	8
ICICI Bank Ltd.	-1.50324	0.0005	0.0002	0	1	7.0	8
Indiabulls Housing Finance Ltd.	-0.67245	8.3719	2.0399	0	1	7.0	8
IndusInd Bank Ltd.	-1.37736	0.0002	6.E-05	0	1	7.0	8
Kotak Mahindra Bank Ltd.	-1.37681	0.0003	0.0001	0	1	7.0	8
State Bank of India	-0.93750	0.0001	2.E-05	0	1	7.0	8
Yes Bank Ltd.	-2.50000	6.E-05	3.E-05	1	1	7.0	7
HCL Technologies Ltd.	-1.03048	0.2877	0.0766	0	1	7.0	8
Infosys Ltd.	-1.12390	0.3791	0.1043	0	1	7.0	8
Tata Consultancy Services Ltd.	-2.05949	0.7336	0.8580	1	1	7.0	7
Tech Mahindra Ltd.	-1.04297	0.2026	0.1280	0	1	3.0	8
Wipro Ltd.	-1.95591	0.1439	0.1128	1	1	7.0	7
Zee Entertainment Enterprises Ltd.	-1.07134	0.5784	0.1650	0	1	7.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*			
Coal India Ltd.	-1.19735	1.1805	0.5176	0	1		5.0	8
Hindalco Industries Ltd.	-1.53548	0.0602	0.0619	0	1		4.0	8
JSW Steel Ltd.	-1.55352	0.0169	0.0219	0	1		1.0	8
Tata Steel Ltd.	-1.01455	3.6203	0.9041	0	1		7.0	8
Vedanta Ltd.	-1.95062	3.1332	2.0571	1	1		7.0	7
Cipla Ltd.	-0.80029	0.4958	0.1583	0	1		7.0	8
Dr. Reddy's Laboratories Ltd.	-0.85267	0.0458	0.0949	0	1		0.0	8
Sun Pharmaceutical Industries Ltd.	-1.23089	2.3392	2.2770	0	1		1.0	8
Adani Ports and Special Economic Zone Ltd.	-1.60900	0.2823	0.2594	1	1		7.0	7
Bharti Airtel Ltd.	-2.82800	0.0100	0.0204	1	1		7.0	7
Bharti Infratel Ltd.	-1.67332	8.8968	10.075	0	1		3.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.44771	-27.736	1.150	-0.554	0.919		374

(TABLE 32)

Null Hypothesis: Unit root (common unit root process)

Series: D(GDP)

Date: 10/15/18   Time: 11:52

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 350

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-30.6867	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(GDP)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Eicher Motors Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Hero MotoCorp Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Mahindra & Mahindra Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Maruti Suzuki India Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Tata Motors Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Grasim Industries Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
UltraTech Cement Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Larsen & Toubro Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Asian Paints Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Hindustan Unilever Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
I T C Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Titan Company Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7

Bharat Petroleum Corporation Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
GAIL (India) Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Hindustan Petroleum Corporation Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Indian Oil Corporation Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
NTPC Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Oil & Natural Gas Corporation Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Power Grid Corporation of India Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Reliance Industries Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
UPL Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Axis Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Bajaj Finance Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Bajaj Finserv Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
HDFC Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Housing Development Finance Corporation Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
ICICI Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Indiabulls Housing Finance Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
IndusInd Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Kotak Mahindra Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
State Bank of India	-1.14433	0.3301	1.4323	1	1	7.0	7
Yes Bank Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7

	Coefficient	t-Stat	SE Reg				Obs
HCL Technologies Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Infosys Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Tata Consultancy Services Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Tech Mahindra Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Wipro Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Zee Entertainment Enterprises Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Coal India Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Hindalco Industries Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
JSW Steel Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Tata Steel Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Vedanta Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Cipla Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Dr. Reddy's Laboratories Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Sun Pharmaceutical Industries Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Adani Ports and Special Economic Zone Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Bharti Airtel Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7
Bharti Infratel Ltd.	-1.14433	0.3301	1.4323	1	1	7.0	7

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-1.14433	-39.811	1.000	-0.554	0.919		350

(TABLE 33)

Null Hypothesis: Unit root (common unit root process)

Series: D(INF)

Date: 10/15/18   Time: 11:54

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 400

Cross-sections included: 50

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-12.1341	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(INF)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Eicher Motors Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Hero MotoCorp Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Mahindra & Mahindra Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Maruti Suzuki India Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Tata Motors Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Grasim Industries Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
UltraTech Cement Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Larsen & Toubro	-0.83902	1.9490	3.6574	0	1	1.0	8

Ltd.

Asian Paints Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Hindustan Unilever Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
I T C Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Titan Company Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Bharat Petroleum Corporation Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
GAIL (India) Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Hindustan Petroleum Corporation Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Indian Oil Corporation Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
NTPC Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Oil & Natural Gas Corporation Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Power Grid Corporation of India Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Reliance Industries Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
UPL Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Axis Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Bajaj Finance Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Bajaj Finserv Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
HDFC Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Housing Development Finance Corporation Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
ICICI Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Indiabulls Housing	-0.83902	1.9490	3.6574	0	1	1.0	8

Finance Ltd.

IndusInd Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Kotak Mahindra Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
State Bank of India	-0.83902	1.9490	3.6574	0	1	1.0	8
Yes Bank Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
HCL Technologies Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Infosys Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Tata Consultancy Services Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Tech Mahindra Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Wipro Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Zee Entertainment Enterprises Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Coal India Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Hindalco Industries Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
JSW Steel Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Tata Steel Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Vedanta Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Cipla Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Dr. Reddy's Laboratories Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Sun Pharmaceutical Industries Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Adani Ports and Special Economic Zone Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Bharti Airtel Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8
Bharti Infratel Ltd.	-0.83902	1.9490	3.6574	0	1	1.0	8

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.83902	-22.481	1.000	-0.554	0.919		400

(TABLE 34)

Null Hypothesis: Unit root (common unit root process)

Series: D(AG1)

Date: 10/15/18   Time: 11:55

Sample: 2009 2018

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 266

Cross-sections included: 38 (12 dropped)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-31.3656	0.0000

** Probabilities are computed assuming asympotic normality

Intermediate results on D(AG1)

Cross section	2nd Stage Coefficient	Variance of Reg	HAC of Dep.	Lag	Max Lag	Band-width	Obs
Bajaj Auto Ltd.		Dropped from Test					
Eicher Motors Ltd.		Dropped from Test					
Hero MotoCorp Ltd.	-0.00635	5.E-17	1.E-08	1	1	2.0	7
Mahindra & Mahindra Ltd.		Dropped from Test					
Maruti Suzuki India	-0.00559	2.E-17	9.E-09	1	1	2.0	7

Ltd.							
Tata Motors Ltd.		Dropped from Test					
Grasim Industries Ltd.		Dropped from Test					
UltraTech Cement Ltd.	-0.00595	3.E-17	1.E-08	1	1	2.0	7
Larsen & Toubro Ltd.		Dropped from Test					
Asian Paints Ltd.		Dropped from Test					
Hindustan Unilever Ltd.		Dropped from Test					
I T C Ltd.		Dropped from Test					
Titan Company Ltd.	-0.00635	5.E-17	1.E-08	1	1	2.0	7
Bharat Petroleum Corporation Ltd.	1269.93	0.0003	0.0009	1	1	0.0	7
GAIL (India) Ltd.	-0.00635	5.E-17	1.E-08	1	1	2.0	7
Hindustan Petroleum Corporation Ltd.	1815.92	0.0005	0.0014	1	1	0.0	7
Indian Oil Corporation Ltd.	-0.00232	1.E-19	6.E-10	1	1	2.0	7
NTPC Ltd.	-0.00379	2.E-18	3.E-09	1	1	2.0	7
Oil & Natural Gas Corporation Ltd.	-0.00173	2.E-20	2.E-10	1	1	2.0	7
Power Grid Corporation of India Ltd.	-0.00910	4.E-16	4.E-08	1	1	2.0	7
Reliance Industries Ltd.	-0.00420	4.E-18	3.E-09	1	1	2.0	7
UPL Ltd.	-0.00286	3.E-19	1.E-09	1	1	2.0	7
Axis Bank Ltd.	-0.01283	4.E-15	1.E-07	1	1	2.0	7
Bajaj Finance Ltd.	-0.00782	2.E-16	2.E-08	1	1	2.0	7
Bajaj Finserv Ltd.	-17.8855	0.0142	0.0238	1	1	0.0	7

HDFC Bank Ltd.	-0.01414	7.E-15	2.E-07	1	1	2.0	7
Housing Development Finance Corporation Ltd.	-0.00420	4.E-18	3.E-09	1	1	2.0	7
ICICI Bank Ltd.	-0.01414	7.E-15	2.E-07	1	1	2.0	7
Indiabulls Housing Finance Ltd.	-0.07275	2.E-10	3.E-05	1	1	1.0	7
IndusInd Bank Ltd.	-0.01414	7.E-15	2.E-07	1	1	2.0	7
Kotak Mahindra Bank Ltd.	-0.04733	1.E-11	7.E-06	1	1	1.0	7
State Bank of India	-0.00167	1.E-20	2.E-10	1	1	2.0	7
Yes Bank Ltd.	-0.05790	4.E-11	1.E-05	1	1	1.0	7
HCL Technologies Ltd.	-0.00399	3.E-18	3.E-09	1	1	2.0	7
Infosys Ltd.	-0.00526	1.E-17	7.E-09	1	1	2.0	7
Tata Consultancy Services Ltd.	-0.00274	3.E-19	9.E-10	1	1	2.0	7
Tech Mahindra Ltd.	-0.00728	1.E-16	2.E-08	1	1	2.0	7
Wipro Ltd.	Dropped from Test						
Zee Entertainment Enterprises Ltd.	-1237.55	0.0081	0.0204	1	1	0.0	7
Coal India Ltd.	-0.00379	2.E-18	3.E-09	1	1	2.0	7
Hindalco Industries Ltd.	-0.00186	2.E-20	3.E-10	1	1	2.0	7
JSW Steel Ltd.	-0.00559	2.E-17	9.E-09	1	1	2.0	7
Tata Steel Ltd.	Dropped from Test						
Vedanta Ltd.	-0.00162	1.E-20	2.E-10	1	1	2.0	7
Cipla Ltd.	Dropped from Test						
Dr. Reddy's Laboratories Ltd.	-0.00635	5.E-17	1.E-08	1	1	2.0	7
Sun Pharmaceutical	92.4801	6.E-06	2.E-05	1	1	0.0	7

Industries Ltd.

Adani Ports and Special Economic Zone Ltd.	-214.078	0.0028	0.0065	1	1	0.0	7
Bharti Airtel Ltd.	-0.01565	1.E-14	2.E-07	1	1	2.0	7
Bharti Infratel Ltd.	-0.09478	9.E-10	9.E-05	1	1	1.0	7

	Coefficient	t-Stat	SE Reg	mu*	sig*		Obs
Pooled	-0.00221	-30.180	14.772	-0.554	0.919		266

(TABLE 35)