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Abstract

Public equity markets have increasingly become accessible to small and medium firms with the introduction of dedicated exchange that lower listing criteria to allow such firms to list their equity. We exploit the introduction of such a dedicated exchange in India to ask how listing impacts the financial constraints and growth prospects of small and medium firms. The causal impact is assessed using a difference-in-differences estimation based on a sample of firms that listed on these exchanges over a three year period, where we also observe matched firms that are not listed. We find that listing improves the asset size and capital structure of listed firms relative to firms that do not list. But we find no evidence that these firms are subsequently able to access higher debt finance from formal institutions, nor evidence of improvement in the performance of these firms, after listing.

Keywords: Public equity, IPO, reduced listing requirement, small and medium enterprises, transparency, access to finance, firm performance

JEL Code: G15, G24, G28, G41

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Public equity markets have increasingly become accessible to small and medium firms with the introduction of dedicated exchange that lower listing criteria to allow such firms to list their equity. We exploit the introduction of such a dedicated exchange in India to ask how listing impacts the financial constraints and growth prospects of small and medium firms. The causal impact is assessed using a difference-in-differences estimation based on a sample of firms that listed on these exchanges over a three year period, where we also observe matched firms that are not listed. We find that listing improves the asset size and capital structure of listed firms relative to firms that do not list. But we find no evidence that these firms are subsequently able to access higher debt finance from formal institutions, nor evidence of improvement in the performance of these firms, after listing.

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1 Introduction

In the recent literature and policy discourse, there is a focus on smaller firms and enterprises as being the drivers of growth in an economy. Such firms, referred to as small and medium enterprises, or SME, are identified as the vehicle of job creation, innovation and inclusive growth (Beck *et al.*, 2005; Ayyagari *et al.*, 2011). Also widely discussed in the literature is the limited access to external finance that such firms have. This limitation is seen as a key impediment to the growth of the SME sector, where these firms are unlikely to access either public credit and equity markets.

The reason discussed is the problem of information asymmetry. Informational opacity increases the costs of lenders who make credit decisions based on such information. In the case of the SME, the informational asymmetry is exacerbated compared to the case of larger firms because they typically have a shorter track record of maintaining audited balance sheets as well as possibly a lower quality of record keeping itself. Further, because of these costs to the lenders, the formal financial credit markets are likely to offer credit at higher rates than they would offer a firm with lower information asymmetry. This acts as a disincentive to the SME to approach formal financial institutions and, instead, makes them reliant on informal sources of financing such as friends and family where the challenges of the information asymmetry are dealt with in informal ways (Carpenter and Petersen, 2002). These arguments hold equally for equity markets which typically have even higher entry barriers, requirement of stricter disclosure and higher processing costs.

Over the years, the persistent lack of SMEs to more readily access the formal financial markets have been perceived by regulators globally as a market failure. In several countries, exchanges have set up alternative trading platforms so as to enable SMEs to raise equity capital through public markets. These platforms have similar micro-structure for issuance, trading, clearing and settlement processes as the main board platforms where large firms traditionally raise equity financing. The difference is that the entry criteria for listing on these alternative platforms are considerably lower than that for the main board exchange.

In India, the *Securities and Exchange Board of India* (SEBI) has a mandate which includes market development. As part of that objective, SEBI issued guidelines in 2010 for exchanges to set up dedicated platforms where SME would face a lower entry barrier to list their equity. In response, two equity exchanges, the Bombay Stock Exchange (BSE) and the National Stock

Exchange (NSE) introduced these dedicated platforms, which are jointly referred to as the SME equity exchanges. The BSE introduced its platform in March 2012 while NSE launched this platform in September 2012. Between 2012 and 2016, there were 54 firms that listed on the *SME* platforms of the BSE and the NSE, with a significantly larger fraction of the listings taking place at the BSE.

These listings gives us an opportunity to understand how access to equity through a formal financial market mechanism can impact the growth trajectory of smaller firms with higher information asymmetry with respect to their investors. We anticipate that an exchange listing reduces the asymmetry of information as well as the costs of collecting information. This is because exchange listing requires certain minimum disclosures in the form of balance sheet and financial statements in the listing agreement. If information asymmetry is a significant barrier to access to finance, we expect that listed firms are likely to gain better access to finance after listing because formal financial firms are expected to be more willing to lend to them compared to those firms that are not listed. This increased access to finance is one factor that is likely to lead to better performance of the listed firm (Beck and Demirguc-Kunt, 2006; Berger and Udell, 1998).

In this paper, we ask two questions. First, we ask whether listing on the SME exchanges improve access to finance, and eventually, improve the performance of listed firm relative to unlisted firms? Second, we ask whether lower standards of regulation and disclosure requirements attract firms of **low quality** on the SME platform?

In order to answer these questions, we attempt to set up a causal analysis framework. We exploit the fact that we have access to firm accounting data about not only the firms that satisfied the listing criteria of the SME exchanges and listed on these exchanges, but also for firms that satisfy the listing criteria but that did not list. We also have available the accounting data of firms that listed for the first time on the main board exchange where the listing criteria is much more stringent than those on the SME exchanges.

The sample of firm balance sheets selected covers the period from 2009 to 2015. We filter the firms listed on the SME exchange by selecting only those firms that have accounting data for three years prior to listing. We call these as *treated* firms. For each treated firm, we select a *control* where the matched, unlisted firms are selected using a matched propensity score which is calculated based on three key variables: *size*, *age* and *industry*. We then carry out an event study study analysis and a DiD regression to estimate the causal impact of listing on financing constraints and performance measures.

We find that a listing on the exchange platform has a positive impact on the equity capital of the listed firms. However, we find no significant impact on better access to finance in terms of higher debt finance for the listed firms. In our sample, some firms are observed for a short time post listing, and some for a longer period of time.[1] But on average, we find no significant change in the amount of the debt of newly listed firms.

One explanation for this finding could be that there is too little data available about these firms post listing, and that there is a delay between the availability of improved information disclosure and the ability of the formal financial system to incorporate this into credit decisions. This suggests that it could be too early to assess the impact on firm's finances and performance. However, there could also be other reasons for this finding as pointed out in the literature. For example, a firm could decide to go public to rebalance its balance sheet (reduce leverage) following periods of large capital expenditure (Pagano *et al.*, 1998). Or it could be that the new equity is raised for liquidating owners' / promoters wealth as is indicated by the portfolio rebalancing theory (Rydqvist and Hogholm, 1995). In such cases, there may not be any impact on the overall debt capital and performance of the firm even after listing.

Another hypothesis for this finding is that a firm that is able to satisfy the listing criteria of the SME exchanges have inherently poor credit quality and as a consequence are unable to raise debt finance from the formal financial system. This suggests that there is a different information signal in the *choice of the firm* in listing on the SME exchanges. It suggests that these are firms that listed on the exchange because they were unable to access other forms of financing from the informal markets. Here, the explanation could be that they have poor business models or uncertain reputation of the existing shareholders and management. There are concerns that low disclosure requirements and regulations on SME platform have a higher probability of attracting 'lemons' on these markets (Nielsson, 2013).

We attempt to find evidence in favour of this argument by presenting a counter-factual from the main board listings. On the main board, the listing criteria are more stringent. If higher listing requirements do identify firms of higher quality, then we expect that firms that list on the main board are likely to have higher access to debt finance post listing. We set up a treated set (firms that satisfied the listing criteria on the main board *and* listed on the main board) and a matched set where the matching is done using the same propensity score approach as before.

[1] This arises because of differences in the year of listing.

We find that impact of listing on the main board firms is similar to that of the SME platform firms, when we analyse either access to debt finance or performance post listing. There is no significant change in debt financing from formal financial institutions such as banks after a listing on the main board. Neither does there appear to be evidence of improved performance measures for these firms. Thus, the most plausible explanation appears to be that the benefits of listing that ought to accrue to a firm because of higher information symmetry is likely to accrue over a longer period after the listing event than can be examined using our sample.

Thus, this study contributes to the existing literature by providing new evidence on how a listing impacts SMEs growth prospects. Though there has been a tremendous interest in examining the impact of financial constraints on the growth of small and medium enterprises, few studies are available that investigate the impact of equity listing of SME. One of the reasons could be the limited success of these exchanges around the world. Several countries attempted specialised platforms with lower listing criteria. However, only a few were able to generate any volumes by way of number of firms that listed or traded the shares after. Most of the existing literature is from developed markets. This study aims to provide new evidence on how the existence of these specialised platforms improve the SME financing in an emerging economy where the need for public markets and the supporting institutional infrastructure is likely to be higher than those of the developed economies due to weak legal structures and regulatory governance.

The paper is structured as follows: Section 2 explains the context of India and the setting of the intervention. Section 2.1 describes the measures for access to finance and firm performance variables. The research design is explained in Section 3. Section 4 describes the data and the sample characteristics, while Section 5 presents the results. In Section 6, we summarise our preliminary findings and discuss future work in this area.

2 The research design

The paper exploits a policy intervention by the securities market regulator, Securities and Exchange Board of India (SEBI) to fix the market failure faced by SMEs due to information asymmetry. In 2010, SEBI issued guidelines to setup dedicated nationwide trading platforms for SMEs in India, with the objective to create a transparent and efficient platform for SMEs to raise equity capital. The rationale for such intervention is that increased infor-

Table 1 Eligibility criteria at the SME platform and the main board

The table presents listing criterion on the SME platform of BSE and NSE, as well as the Main Board.

	Main Board	**BSE SME**	**NSE Emerge**
Net Worth	> Rs.10 million in each of the preceding 3 years	> Rs.30 million as per the latest audited results	>0
Track Record	Distributable profits in 3 out of 5 preceding years	Distributable profits in 2 out of 3 preceding years	Track record of at least 3 years & >0 EBDT in at least 2 preceding years
Post issue paid up capital	> Rs.100 million	> Rs.30 million	< Rs.250 million
Net tangible assets	>Rs.30 million in preceding 3 years	>Rs.30 million as per the latest audited results	
Issue size	>Rs.100 million		
Market cap	>Rs.250 million		
Remarks		Or Net worth > Rs.50 million	

Source: BSE, NSE website

mation disclosure requirements for exchange listing can reduce information asymmetry, which can bring down adverse selection risk and high monitoring costs for SME financiers and ease financial constraints of SMEs.

The new guidelines on SME exchanges led to both the leading stock exchanges in India – the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) to setup SME platforms in March 2012. Of the two, there has been a significant interest and activity on the BSE SME exchange: 129 firms were listed as of Mar 2016. Out of the listed firms, 16 firms have since been shifted to the Main Board of the BSE. In comparison, the SME exchange at NSE (called *Emerge*) has 15 firms that listed during the period. Table 1 provides the eligibility criteria for listing on the SME platform of BSE and NSE. The table also provides information on the Main Board eligibility criteria.

The table shows that the eligibility criteria of the SME platforms is less stringent than the Main Board platform and accordingly caters to the needs of the small and medium enterprises.

We use several measures that can be categorised into funding constraints or financial access and performance of the firm.

2.1 Measuring financial access

In the literature, financial access is measured using various financial ratios, including debt to sales, short-term debt to current assets, liquid assets to total assets, cash flows to total assets, dividend payout ratio, bank loans to total assets and credit rating (Jinjarak and Wignaraja, 2016). Based on the availability of data, we use the following measures:

i) **Debt-financing**: Measured as borrowings to total capital ratio, where borrowings can be either short term or long term. We use the following set of variables to capture the size of debt-finance:
   1. Borrowings (LN BORR): Borrowings include short term as well as long term borrowings.
   2. Proportion of bank borrowings in total capital employed: (PROP BANK BORR) where total capital is the sum of debt and equity capital, and trade credit.
   3. Proportion of institutional borrowings in total capital employed (PROP INSTITUTIONAL BORR) where institutional borrowings includes borrowings from both banks as well as non banking financial institutions (or NBFCs).
   4. Proportion of promoter loans in total capital employed (PROP PROMOTER LOANS)

ii) **Equity financing**: This is measured as logarithmic values of total capital (**ln capital**) infused by the owners of the company, and capitalised profits.

iii) Proportion of trade credit in total capital employed (PROP TRADE CREDIT). Firms with higher financial constraints are expected to have a higher dependence on trade credit for financing.

iv) **Leverage**: Measured by the debt to equity ratio.

v) Working capital to total assets (WORKING CAP TO ASSETS). Firms with financial constraints are expected to have a higher marginal value of working capital, and thus a higher working capital to asset ratio.

vi Cash holdings to total assets (CASH HOLDINGS TO ASSETS) where cash holdings include cash and other liquid assets. Firms with financial constraints are expected to hold a larger proportion of assets in liquid assets, and thus a *higher* net working capital to assets ratio.

vi Dividend to pbitda (DIVIDEND TO PBITDA): This measure captures the payout ratio. Firms with higher financial constraints are expected to retain a significant portion of earnings, and will thus have a lower dividend to pbidta value.

2.2 Measuring firm performance

We capture firm's performance using turnover and efficiency ratios:

i) **Turnover ratio**: This is the ratio of sales to total assets of the firm, and captures how much revenue the firm generates per unit of assets.

ii) **Efficiency ratios**: These capture operating efficiency of the firm and indicate how efficiently the firm uses assets to generate profits. They include:

1. Operating profit (PBIDTA) to total assets (PBIDTA TO TA): Operating profit is measured as earnings before interest, depreciation, tax and amortization.
2. Profit before tax (PBT) to total assets (PBT TO TA): PBT captures profits that accrue per unit of assets employed.
3. Return on assets (PAT TO TA): Returns is computed as profits net of all obligations. This ratio showing how effectively the firm uses assets to generate returns.

3 Research design

We analyse the impact of listing on the SME exchange using matching and by estimating differences-in-differences (DID) regression coefficients. We compare the impact of the firms listed on the SME exchanges (*treated*) with similar firms that are eligible to list on the SME exchanges but do not list (*control*). These control firms are selected by matching them on certain parameters, as described in the following subsection.

3.1 Matching

In order to select controls for the treated firms (listed on the SME exchanges) we make use of the observation of several firms that satisfied the eligibility criteria required for listing on the SME exchanges, only a few chose to apply for listing while others did not. Among the set of firms that did not list, we identify similar or matched firms by using the propensity score matching approach. The causal impact of the listing on the SME exchange is measured by the change in the financial constraints and firm performance on the listed firms relative to their matched counterparts. The firms that choose to list are referred to as *treated* set, while their matched counterparties are referred as the *comparison* group. The procedure used for matching is described below:

a) Selection of covariates: The key to propensity score matching lies in selection of appropriate covariates that capture firm's characteristics and reduce selection bias.

We follow the literature and use firm size (captured by total assets), age, and industry as matching covariates (Barber and Lyon, 1997).[2] These variables are measured in the year prior listing. We do not include any outcome variables in matching procedure to avoid any bias that may arise from variable selection based on estimated effect (Stuart (2010)).

b) Select a distance measure to match

We use the propensity score[3] to match firms overall several covariates (Rosenbaum and Rubin, 1983). The propensity score for security i is defined as the probability that i will undergo the *treatment*, T_i, conditional on the set of observed covariates (X). In this case, the treatment is a listing on the SME platform. If the propensity score for i is defined as e_i:

$$\begin{aligned} e_i(X_i) &= P(T_i = 1|X_i) \quad \text{then,} \\ D_{ij} &= |e_i - e_j| \end{aligned}$$

where D_{ij} is the distance measure between i, which is a treated security, and j is the matched security that does not receive the treatment and is referred to as the control security.

The advantage of propensity score matching compared to alternatives, such as the exact or Mahalanobis distance measures, is that it helps to construct matched pairs that have similar distributions of covariates, without requiring close or exact matches on each covariate (Stuart, 2010).

c) Select a specific matching algorithm and match balance statistics.

Once we obtain the propensity scores, we match firms using nearest neighbor matching algorithm *with* replacement and a caliper of 0.05. We test match balance on a number of other variables in addition to the selected covariates. Based on this, we get *matched set of* treated and control firms.

3.2 The difference-in-differences (DiD) regression

To evaluate the causal impact of listing, we use a difference-in-differences (DiD) regression framework. The DiD between the treated and control firms is framed as follows:

[2]Barber and Lyon (1997) also recommend the use of book-to-market ratio as a covariate. However, market value of the unlisted firms is not available.

[3]The propensity score is estimated using a logit model on total assets and total capital.

$$\begin{aligned}\text{VARIABLE}_{i,t} &= \alpha + \beta_1 \text{LISTED-DUMMY}_i + \beta_2 \text{LISTING-YEAR-DUMMY}_t + \\ &\quad \beta_3(\text{LISTING-YEAR-DUMMY}_i \times \text{LISTED-DUMMY}_t) + \\ &\quad \beta_4 \text{INDUSTRY-DUMMY} + \beta_5 \text{LN(ASSETS)} + \beta_6 \text{YEAR} + \beta_7 \text{AGE} + \epsilon_{i,t}\end{aligned}$$

where $\text{VARIABLE}_{i,t}$ represents one of the measures specified in Section 2.1 for firm 'i' at time 't'. LISTED_i is a dummy variable that takes value 1 if 'i' belongs to the treatment group, 0 otherwise. YEAR-OF-LISTING is a dummy variable that takes value 1 if $t \geq$ listing year, 0 otherwise. We control for *industry* effects using INDUSTRY-DUMMY, and age of the firm (AGE). We also control for firm size using logarithmic values of total assets (LN(ASSETS)), and the time effect by using year dummy (YEAR).

The advantage of DiD regression compared to an event study analysis is that it not only eliminates the differences due to the event (*listing* versus *pre-listing*) but also adjusts for the differences in the treatment and the control group. The coefficient of interest is β_3, on the interaction term ($\text{LISTING}_i \times \text{YEAR-OF-LISTING}_t$). The sign and the value of $\hat{\beta}_3$ is the estimate of the treatment effect (Meyer, 1995), which in this case is the event of *listing*.

For variables related to financial access, significant value of β_3 indicates that listing had a significant impact on the financial constraint variable. Since listing is expected to reduce financial constraints, we test the hypothesis (H_0^1):

$$H_0^1 : \beta_3 = 0$$
$$H_A^1 : \beta_3 > 0$$

for all values of FIN-CONST $\in$ (LN BORR, PROP BANK BORR, PROP INSTITUTIONAL BORR, DEBT-EQUITY, WORKING CAP TO ASSETS, DIVIDEND TO PBIDTA).

We expect that a firm's reliance on internal funds in the form of promoter loans will reduce after an improvement in financial constraints. Similarly, proportion of trade credit in total capital employed and the ratio of cash holdings in total assets are expected to go down. This will be reflected as $\beta_3 < 0$ when FIN-CONST for each of these measures (PROP. PROMOTER LOANS, PROP. TRADE-CREDIT, CASH HOLDINGS TO ASSETS).

A positive impact of listing on firm's performance measure will get reflected as a positively significant β_3. Specifically, we test the following hypothesis:

$$H_0^1 : \beta_3 = 0$$
$$H_A^1 : \beta_3 > 0$$

for all values of FIRM-PERFORMANCE $\in$ (TURNOVER-RATIO, PBIDTA TO TA, PBT TO TA, PAT TO TA).

4 The data

We analyse firms listed on the SME platforms of BSE and NSE between March 2012 to March 2015. We exclude the firms listed in financial year 2015-16 since balance sheet data for these firms is not available post listing.[4] This gives us a sample of 54 listed firms. Firm level data is extracted from Prowess database[5] which has balance sheets and income data for all firms registered under the Companies Act 1956.

The number of unlisted but registered firms in our database is 16,638.[6] Based on listing criteria at the Indian SME exhanges, we characterise all unlisted firms with net worth greater than Rs.15 million, paid up capital less than Rs.250 million, and profit after tax greater than zero as our comparison group for matching. We include three years prior to year of listing in our dataset. Hence our data span from 2009-2015. Table 2 provides the industry classification of the sample of treated firms (listed on the SME exchange) in our analysis.

The table indicates that a majority of the sample firms listed on the SME platforms is in the services industry. These include financial as well as non financial services. The next two sectors in terms of industry concentration are real estate and chemicals. A similar comparison for the Main Board listed firms on NSE and BSE indicate a similar trend.[7] More than 40% of firms listed on the Main Board are also in the services industry.

[4]The Indian financial year spans from Apr 1 to Mar 31. The results for the financial year 2015-16 are declared in Jul 2016, and the data is updated and only available by December 2016.

[5]Prowess is a firm-level database compiled by the Centre for Monitoring the Indian Economy, `http://www.cmie.com`

[6]Note that not all the unlisted firm may be small and medium enterprise. There could be large unlisted public sector enterprises mostly held by the government. Our matching exercise will account for such differences.

[7]See Table 10 in Appendix

Table 2 Industry classification of sample firms listed on SME platform of BSE and NSE

The table presents industry classification of the sample of *treated* (SME platform listed) firms during our sample period. In the table, 2013 indicates the financial year 2012-13.

	2013	**2014**	**2015**	**Total**
Chemicals	1	2	2	5
Real Estate	1	1	5	7
Food	3	1	1	5
Machinery	0	2	1	3
Metals	1	0	2	3
Misc. Manufacturing	0	1	0	1
Misc. Services	1	2	1	4
Non Fin. Services	1	10	8	19
Finance Services	0	1	3	4
Textiles	0	0	3	3
Total	8	20	26	54

Since financial firms have a very different capital structure, we restrict our analysis to firms in the manufacturing sector. We exclude firms which did not have data one year prior the listing or one year after the listing. This leaves us with a sample of 50 firms listed on the SME platform, and 9900 *unlisted* candidates for possible matched controls.

Table 3 presents summary statistics of sample firms: firms listed on the SME exchange and those unlisted on any exchange. We observe that after listing on the SME exchange, treated firms show an increase in absolute value of assets, sales, capital, working capital, net worth and cash holdings. We expect that the firm will have higher levels of assets, capital and net worth post listing. However, the the increase in cash holdings and working capital is contrary to an expected improvement in financial constraints. We would expect that, if listing improves financial constraints, it would reduce the need for the firm to hold larger proportion of assets in cash and cash equivalents. However, we find firms that list on the Main Board have cash holdings and working capital patterns post listing that are similar to firms that list on the SME exchanges.[8]

[8]Observations about the behaviour of firms that list on the Main Board are reported in the Appendix in Table 11.

Table 3 Characteristics of firms listed on the SME exchange and those that are not listed

The table presents summary statistics of treated firms (listed on the SME exchange) and control firms (those that are not listed on the SME exchange).
μ_{pre} indicates the mean of each set of firms for the period pre-listing. μ_{post} indicates the mean for the period post-listing. $Q2$ indicates the median for each period.
Boldface values indicate that the difference between pre-listing and post-listing value is significant at 5% level.

All values in Rs. Mn

Variable	**Treated firms** *(50 firms)*						**Control firms** *(9,900 firms)*		
	μ_{pre}	Q2	σ_{pre}	μ_{post}	Q2	σ_{post}	μ	Q2	σ
Assets	351.6	203.6	428.6	**565.9**	354.4	552.5	1156.2	330.5	4657.7
Sales	454.8	195.7	660.2	**702.3**	319.5	1,201.4	1322.8	370.4	5313.4
PBITDA	39.5	18.5	51.7	51.8	25.8	64.2	156.9	40.1	727
PBT	19.0	8.0	29.8	21.7	8.8	33.1	92.9	16	476.5
PAT	14.1	5.4	21.0	15.4	6.1	23.8	68.6	11.5	365.1
Capital	33.9	21.8	38.9	**107.4**	102.6	60.8	56.2	30	219.4
Borrowings	131.0	63.3	233.2	151.9	52.5	274.6	330.2	67.3	1696.4
Working cap	25.2	16.9	133.7	**84.2**	40.6	125.0	88.7	19.4	1217.4
Cashflow	-11.1	0.0	66.1	-23.4	-0.5	104.9	51.3	0	732.9
Net worth	120.2	67.6	140.7	**250.3**	206.9	179.8	412.4	111.7	1985.6
Cash holdings	21.5	8.1	38.1	**40.9**	16.2	71.3	148.4	14.3	1112.8
Age@listing	12.9	11.5	7.9	12.9	11.5	7.9	-	-	-

Table 4 Sources of financing of the firms that are listed on the SME exchange and unlisted firms

The table presents mean values of proportion of financing raised from different sources by the treated (listed on the SME exchange) and control firms.
'Prior' indicates average value before listing, and 'Post' indicates average value after listing. 'Others' comprises of the firms paid-up forfeited equity capital, convertible warrants, paid-up preference capital, foreign currency borrowings, inter-corporate loans, commercial papers, subordinated debt, hire-purchase loans.
Boldface values indicate that the difference between pre-listing and post-listing value is significant at 5% level.

	Listed *(50 firms)*				**Unlisted** *(9990 firms)*	
	Prior (%)	Post (%)	Prior (Rs. Mn)	Post (Rs. Mn)	(%)	(Rs Mn.)
Owner's capital	14.79	29.26	33.90	**107.40**	8.28	46.70
Govt. capital	0.00	0.00	0.00		0.21	1.20
Bank borr	42.45	32.70	97.30	120.00	34.80	196.30
Fin Inst borr	0.39	0.30	0.90	1.10	3.63	20.50
Trade credit	28.05	29.35	64.30	**107.70**	31.47	177.50
Promoter loans	1.96	0.79	4.50	2.90	1.12	6.30
Debentures	0.00	0.71	0.00	2.60	1.63	9.20
FD: Public	0.00	0.00	0.00	0.00	0.30	1.70
Govt. borr	0.00	0.00	0.00	0.00	0.73	4.10
Others	12.35	6.89	28.30	25.30	17.82	100.50
Total	100.00	100.00	229.20	**367.00**	100.00	564.00

4.1 Sources of financing

In this section, we examine the sources of financing for our sample firms in the period prior and post listing. Table 4 presents the percentage of capital raised from different sources by treated and control firms on average. The table also reports the absolute values in Rs. million to provide a perspective on the scale of financing.

Table 4 shows that firms that list on the SME exchange have a high reliance on owner funds and trade credit. Together, these two sources account for more than 40% of financing in the years pre-listing. These characteristics are documented in the literature (Berger and Udell, 1998). The table also shows that the reliance on these two sources of financing continues post-listing. In absolute terms, both these sources record a significant increase in the post-listing period.

Another key source of financing is bank borrowings, which constitute 42% of financing capital pre-listing. We do not have data on interest rate cost paid

Table 5 Sources of financing of the Main Board firms listed on NSE and BSE

The table presents mean values of proportion of financing raised from different sources by the Main Board firms listed on NSE and BSE. 'Prior' indicates average value before listing, and 'Post' indicates average value after listing.
'Others' comprises of firms paid up forfeited equity capital, convertible warrants, paid up preference capital, foreign currency borrowings, inter-corporate loans, commercial papers, subordinated debt, hire-purchase loans.
Boldface values indicate that the difference between pre and post listing value is significant at 5% level.

	BSE *(1186 firms)*				**NSE** *(166 firms)*			
	Prior	Post	Prior	Post	Prior	Post	Prior	Post
	(%)		(Rs. Mn)		(%)		(Rs. Mn)	
Owner's capital	26.30	15.38	572.90	741.60	30.21	17.38	3,062.40	3,539.30
Govt. capital	0.06	0.00	1.20	0.10	0.07	0.00	7.50	0.00
Bank borr	25.35	31.74	552.20	**1,530.40**	21.08	25.33	2,136.70	**5,156.50**
Fin Inst borr	6.69	3.98	145.80	191.90	7.30	4.42	740.10	900.30
Trade credit	14.79	15.72	322.20	**758.10**	11.67	13.45	1,182.70	**2,737.60**
Promoter loans	0.37	0.14	8.10	6.60	0.08	0.01	7.90	**2.30**
Debentures	7.83	11.10	170.60	**535.10**	10.13	15.19	1,027.20	**3,093.50**
FD: Public	0.37	0.22	8.10	10.70	0.24	0.13	23.90	26.70
Govt. borr	1.11	0.20	24.10	9.50	1.41	0.19	143.40	37.90
Others	17.14	21.52	373.50	**1,037.60**	17.80	23.90	1,803.80	**4,865.30**
Total	100.00	100.00	2,178.70	**4,821.60**	100.00	100.00	10,135.60	**20,359.40**

by these firms for bank borrowings. What we do observe is that the absolute value of bank borrowings does not increase as much as the increase in trade credit or owner capital in the post-listing period.

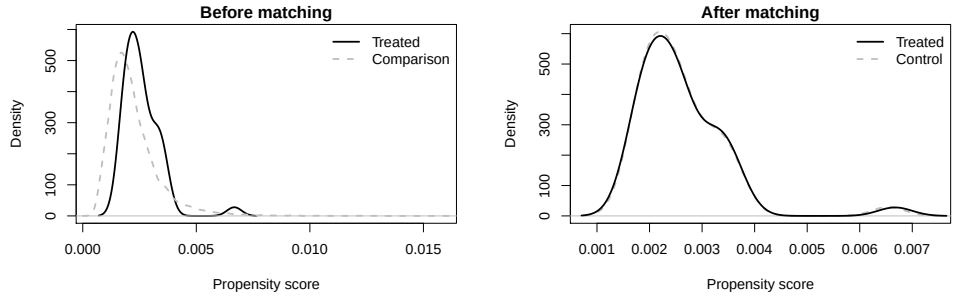
A comparison with financing patterns of Main Board firms shows a greater diversification of sources of financing. Table 5 presents the percentage of finance from different sources raised by the Main Board firms of both these exchanges. For the firms listed on the Main Board, we see that the major sources of capital even before listing include debentures and financial institutions borrowings along with others such as trade credit. We observe that in the years after the listing, these main board firms experienced a significant surge in financing in bank borrowings and debentures. But even for these firms, trade credit is a significant source of financing.

4.2 Matched sample

Figure 1 plots the empirical distributions of the propensity scores of the treated and the control group, before and after matching. These propensity

Figure 1 Density of the propensity score to match treated and control firms, before and after matching

The first graph shows the density plot of the propensity score of the set of treated firms (those listed on the SME exchange) and firms that are candidates for the control group before matching. There are 9,990 firms in total in the latter group of rims that are candidates for the control group.
The second graph shows the density of the propensity score of the set of treated and control firms selected from both groups after matching.



scores are based on the logistic model estimation with covariates value based on one year of observations on the matching covariates in the pre-listing period. The covariates we include are: firm size measured by total assets of the firm, industry, age and year of listing.

We observe a strong overlap between the density of the treated and control firms in the graph after matching, which indicates the robustness of the matching. The matched set contains 43 treated (which are the firms that are listed on the SME exchanges) and 41 control firms. Table 6 shows the match balance statistics of the two sets, before and after matching. In addition to the covariates described earlier, the table also presents statistics for the profitability and efficiency ratios.

We find a significant imbalance before matching. However, after matching, the results show a good balance between the covariates and other ratios in the year prior to listing.

In the case of the firms that listed on the Main Board, there were 41 treated firms and 39 control firms among the BSE listed firms, and 48 treated and 46 control firms for NSE.[9]

[9]Details of the matching for the firms listed on the Main Board are presented in the Appendix.

Table 6 Mean tests of match covariates and other variables, before and after matching

The table presents the match balance statistics of the covariates and other variables for the treated and the control firms. The first three columns show tests of difference in the sample mean before matching, while the next three show these tests for the subset selected after matching.
The match balance is demonstrated using both the standard t-test and the Kolmogorov-Smirnov (KS) test.

Covariate	**Before matching**			**After matching**		
	t stat.	t p-value	KS p-value	t stat.	t p-value	KS p-value
PBITDA	-14.46	0	0	-0.71	0.48	0.92
PBT	-15	0	0	1.15	0.26	0.75
PAT	-15.03	0	0	-0.02	0.99	0.57
RETAINED-EARNINGS	-1.32	0.19	0	0.49	0.63	0.12
SALES	-13.42	0	0	0.95	0.35	0.59
TURNOVER-RATIO	-2.16	0.04	0.26	-0.27	0.79	0.77
TOTAL-CAPITAL	-3.96	0	0.08	-1.35	0.18	0.30
BORROWINGS	-9.13	0	0.04	0.62	0.54	0.89
TOTAL-ASSETS	-16.29	0	0	-1.09	0.28	0.88
WORKING CAPITAL RATIO	0.17	0.87	0.29	-0.13	0.9	0.99
NET-WORTH	-14.8	0	0	-0.67	0.51	0.75

5 Results

In this section, we present our findings about the causal impact of firm listing using the DiD regression described in Section 3.2. We first present the results for the matched sample for the firms that listed on the SME exchanges, and then discuss our results for the matched sample for the firms that listed on the Main Board.

5.1 Impact on access to finance

Table 7 presents the results of DID regression on financial constraints variables for firms that listed on the SME exchanges. We find a statistically significant positive impact on capital of treated firms, indicating that firms that listed on the SME exchange do experience higher capital relative to their controls on average. The result is in line with the expectation that a listing improves the funds available to the firm. The impact is also visible on debt-equity ratio where we find that listed firms experience a lower debt to equity ratio relative to the control firms (at 10% level of significance).

However, we do not find significant impact of the listing on any other vari-

able. While the coefficient, ($\hat{\beta}_3$), is negative for the impact of listing on the proportion of trade credit, it is not statistically significant. Similarly for other variables such as proportion of promoter loans in total capital, and ratio of cash holdings to assets.

Neither do we see any impact in the form of increased debt financing, through bank borrowings or institutional borrowings. These results suggest that in the present sample period, listing did not have any significant impact on access to finance for the firms that listed on the SME exchange compared to their controls that did not list.

5.2 Impact on firm's performance

We next discuss the impact of listing on firm performance as measured by turnover and efficiency ratios. Table 8 presents the results of DID regression on firm performance measures.

The table indicates no significant impact of listing on any of the firm's performance variables. The impact on sales as measured by turnover ratio, and on profitability is close to zero.

The results could be attributed to two possibilities. One reason could be that a majority of the firms in the sample got listed in 2014 and 2015, and the data for the analysis is not enough to see any substantial impact. The second reason could be that these firms are low quality firms which choose to list on the SME platform with low disclosure requirements. To investigate these two hypothesis, we examine the performance of the Main Board listings during the same period.

5.3 Impact assessment using listing of firms on the Main Board

We analyse the performance of firms listed on the Main Board of BSE. We follow the same strategy of matching, and DiD regression for the analysis as we do for SME firms. There were a 1115 firms that got listed on BSE (*treated*) between 1995-2015.[10]. After matching on size, age and industry, we get 41 treated firms, and 39 control firms. The results of the DiD regression of this set are provided in Table 9.

[10]We repeat the analysis using the same time span as that of the SME firms (2009-2015), but the results are not qualitatively different

The results depict a similar story as we saw for the firms that listed on the SME platform. We find that firms listed on the Main Board do not experience any significant impact on financial constraints variable. In terms of performance measures, we find a positive impact of listing on sales (at 10% level) but not on profitability.

In summary, we do not find any significant difference between the performance and financial constraints measures of the Main Board listed firms vis-a-vis their matched unlisted set.[11]

6 Discussion and conclusions

Our findings suggest that a listing improves the capital structure of a firm, but does not have an impact on access to finance from formal financial institutions such as banks. Our analysis does not show an improvement in the performance of these firms vis-a-vis their matched peers.

The results are consistent with the earlier studies which find that listing does not improve operating performance of the firms. Jain and Omesh (1994) and Pagano *et al.* (1998) find that transition from private to public ownership is followed by a decline in operating performance. Using a theoretical model, Zingales (1995) shows that initial owners primarily aim at maximising their proceeds from the sale of control to dispersed shareholders. Kim *et al.* (2004) and Wang (2005) provide the same evidence in the context of emerging countries, Thailand and China.

There could be several reasons for the under-performance of the firms post listing. Agency conflict which results from the separation of managerial control from the owners is one of the main factors that could drive the under-performance. Jain and Omesh (1994) and Wang (2005) document this evidence by showing positive relation between equity retention by original owners and post listing operating performance. Another reason for the decline in performance is attributed to window-dressing of profits. Managers window-dress their profits before going to public which results in over-stated pre listing performance and an under-stated post listing performance. A third reason documented in the literature for such a finding is the timing of the listing. Owners choose to go public during periods of unusually high firm's performance.

[11] A similar analysis on NSE Main Board listed top 500 firms also does not indicate any significant impact of listing on financial constraints and growth measures.

The new evidence that our study provides is that these results do not only hold for the Main Board listed firms, but also accrue to the firms that list on the SME exchange. In theory, one would expect that these firms are capital constrained and therefore an listing boosts their access to finance and could result in better performance. However, our findings suggest that neither firms that list on the Main Board nor on the SME exchange result in better performance or improved access to finance from formal institutions. The explanations for this could either be that our observations about the firms post listing is too short, and that the economic effects of the listing appear over a longer time horizon. Another explaination could be that the listing mechanism is used by incumbent shareholders to exit their holdings. These are questions that remain to be done in future research in this area.

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Table 7 DID $\hat{\beta}_3$ for financial constraints measures for firms that listed on the SME exchanges

The table presents estimates for the following DID regression equation:

$$\begin{aligned}\text{FIN-CONSTRAINT-VAR}_{i,t} \quad = \quad & \alpha + \beta_1 \text{LISTED-DUMMY}_i + \beta_2 \text{LISTING-YEAR-DUMMY}_t + \\ & \beta_3(\text{LISTING-YEAR-DUMMY}_i \times \text{LISTED-DUMMY}_t) + \\ & \beta_4 \text{INDUSTRY-DUMMY} + \beta_5 \text{LN(ASSETS)} + \beta_6 \text{YEAR} + \beta_7 \text{AGE} + \epsilon_{i,t}\end{aligned}$$

where $i = 1,\ldots,$N indexes firms, $t = 1,\ldots,$T, indexes time. FIN-CONST$_{i,t}$ is a financial constraints measure as described in Section 2.1. LISTED-DUMMY$_i$ takes value 1 for *treated* (listed) securities and 0 otherwise. LISTING-YEAR-DUMMY takes value 1 if a year falls in the post-listing period and 0 otherwise.
LISTED-DUMMY×LISTING-YEAR-DUMMY is the interaction term that captures the effect of the treatment (listing).
We also control for industry effect by including industry dummy (INDUSTRY-DUMMY), for age (AGE) and for size of firms (LN(ASSETS)).
For brevity, we present only $\hat{\beta}_3$, which is the coefficient of interest.
Standard errors are heteroscedasticity consistent, clustered at firm and year level. Values in boldface indicate a significant at 5% level based on one tail t-test.

	$\hat{\beta}_3$	Std. Error	t value	Pr($>\|t\|$)	R^2	# of Obs.
LN-CAPITAL	**0.57**	0.31	1.86	0.06	0.45	327
LN BORR	-0.41	0.46	-0.88	0.38	0.51	327
PROP. BANK BORR	-1.85	6.08	-0.30	0.76	0.31	327
PROP. INSTITUTIONAL BORR	-0.50	0.70	-0.71	0.48	0.11	327
PROP. PROMOTER LOANS	-0.75	1.74	-0.43	0.66	0.13	327
PROP. TRADE-CREDIT	-4.88	6.75	-0.72	0.47	0.22	327
NET WC TO ASSETS	-0.40	0.34	-1.16	0.25	0.18	327
DEBT-EQUITY	*-0.60*	0.34	-1.74	0.08	0.26	327
CASH HOLDINGS TO ASSETS	-0.19	2.08	-0.09	0.93	0.22	327
DIVIDEND TO PBITDA	0.00	0.02	0.17	0.87	0.16	327

Table 8 DID $\hat{\beta}_3$ for all firm performance variables

The table presents estimates for the following DID regression:

$$\begin{aligned} \text{GROWTH-VAR}_{i,t} &= \alpha + \beta_1 \text{LISTED-DUMMY}_i + \beta_2 \text{LISTING-YEAR-DUMMY}_t + \\ &\quad \beta_3(\text{LISTING-YEAR-DUMMY}_i \times \text{LISTED-DUMMY}_t) + \\ &\quad \beta_4 \text{INDUSTRY-DUMMY} + \beta_5 \text{LN(ASSETS)} + \beta_6 \text{YEAR} + \beta_7 \text{AGE} + \epsilon_{i,t} \end{aligned}$$

where $i = 1,\ldots,\text{N}$ indexes firms, $t = 1,\ldots,\text{T}$, indexes time. GROWTH-VAR$_{i,t}$ is one of the firm's output and efficiency measures described in Section 2.2. LISTED-DUMMY$_i$ is a dummy that takes value 1 for *treated* (listed) securities and 0 otherwise. LISTING-YEAR-DUMMY is a dummy that takes value 1 for years post listing and 0 otherwise. LISTED-DUMMY×LISTING-YEAR-DUMMY is an interaction term that captures the effect of the treatment (listing). We also control for industry effect by including industry dummy (INDUSTRY-DUMMY), for age (AGE) and for size of firms (LN(ASSETS)).

For brevity, we present only $\hat{\beta}_3$, which is the coefficient of interest. Standard errors are heteroscedasticity consistent, clustered at firm and year level. Values in boldface indicate a significant at 5% level based on one tail t-test.

	$\hat{\beta}_3$	Std. Error	t value	Pr($>\|t\|$)	R^2	# of Obs.
TURNOVER-RATIO	-0.40	0.34	-1.16	0.25	0.18	327
PBIDTA-ASSETS	-0.01	0.02	-0.66	0.51	0.14	327
PBT-ASSETS	-0.01	0.02	-0.91	0.36	0.14	327
PAT-ASSETS	-0.01	0.01	-1.05	0.30	0.16	327

Table 9 DID $\hat{\beta_3}$ estimates for firms listed on BSE main board

The table presents estimates for the following DID regression with controls:

$$\begin{aligned} \text{VARIABLE}_{i,t} \quad = \quad & \alpha + \beta_1 \text{LISTED-DUMMY}_i + \beta_2 \text{LISTING-YEAR-DUMMY}_t + \\ & \beta_3(\text{LISTING-YEAR-DUMMY}_i \times \text{LISTED-DUMMY}_t) + \\ & \beta_4 \text{INDUSTRY-DUMMY} + \beta_5 \text{LN(ASSETS)} + \beta_6 \text{YEAR} + \beta_7 \text{AGE} + \epsilon_{i,t} \end{aligned}$$

where $i = 1,\ldots,\text{N}$ indexes firms, $t = 1,\ldots,\text{T}$, indexes time. $\text{GROWTH-VAR}_{i,t}$ is one of the firm's output and efficiency measures described in Section 2.2. LISTED-DUMMY_i is a dummy that takes value 1 for *treated* (listed) securities and 0 otherwise. LISTING-YEAR-DUMMY is a dummy that takes value 1 for years post listing and 0 otherwise. LISTED-DUMMY×LISTING-YEAR-DUMMY is an interaction term that captures the effect of the treatment (listing). We also control for industry effect by including industry dummy (INDUSTRY-DUMMY), for age (AGE) and for size of firms (LN(ASSETS)).
For brevity, we present only $\hat{\beta_3}$, which is the coefficient of interest. Standard errors are heteroscedasticity consistent, clustered at firm and year level. Values in boldface indicate a significant at 5% level based on one tail t-test.

	$\hat{\beta_3}$	Std. Error	t value	$\Pr(>\|t\|)$	R^2	# of Obs.
LN-CAPITAL	0.34	0.28	1.20	0.23	0.45	497
LN BORR	0.35	0.53	0.66	0.51	0.41	497
PROP. BANK BORR	3.00	4.28	0.70	0.48	0.21	464
PROP. INSTITUTIONAL BORR	-0.31	0.77	-0.40	0.69	0.20	464
PROP. PROMOTER LOANS	1.14	0.91	1.25	0.21	0.03	464
PROP. TRADE-CREDIT	-7.71	6.84	-1.13	0.26	0.17	464
WORKING CAP. TO ASSETS	*1.50*	0.82	1.84	0.07	0.18	497
DEBT-EQUITY	1.14	1.57	0.72	0.47	0.14	476
CASH HOLDINGS TO ASSETS	5.39	3.77	1.43	0.15	0.11	495
DIVIDEND TO PBITDA	-0.03	0.09	-0.32	0.75	0.38	258
TURNOVER-RATIO	*1.50*	0.82	1.84	0.07	0.18	497
PBIDTA-ASSETS	-0.03	0.02	-1.30	0.19	0.14	497
PBT-ASSETS	0.01	0.06	0.13	0.89	0.05	497
PAT-ASSETS	0.01	0.06	0.19	0.85	0.05	497

Table 10 Industry classification of firms listed on BSE and NSE Main Board

	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Total**
Chemicals	6	8	13	8	5	6	5	3	2	4	60
Construction	2	2	5	1	0	0	2	0	1	0	13
Real Estate	7	10	21	4	11	10	3	1	7	4	78
FMCG	4	3	2	0	1	4	2	4	0	0	20
Diversified	3	2	4	1	1	1	0	1	0	0	13
Electricity	1	1	4	0	2	1	1	1	0	1	12
Food	6	7	5	3	3	2	0	1	4	3	34
Machinery	4	6	5	1	2	5	6	1	1	2	33
Metals	8	10	9	2	0	7	5	2	1	7	51
Mining	0	1	0	2	2	1	0	0	0	0	6
Misc. Manufac.	5	4	3	0	1	3	2	1	0	5	24
Misc. Serv.	8	12	6	6	3	8	4	5	4	14	70
Non Fin. Serv.	17	18	19	20	8	17	8	19	12	35	173
Financial Serv.	4	7	3	4	1	5	8	2	3	2	39
Textiles	9	16	5	5	3	5	4	1	1	3	52
Transport	3	7	1	4	0	1	1	0	2	3	22
Total	87	114	105	61	43	76	51	42	38	83	700

Table 11 Firm characteristics of firms listed on NSE and BSE Main Board

All values in Rs. Mn

Variable	*BSE (1119 firms)*					
	μ_{pre}	Q2	σ_{pre}	μ_{post}	Q2	σ_{post}
Assets	4,146.1	488.5	27,372.1	**10,032.1**	1,484.8	50,865.7
PBITDA	546.1	63.8	3,796.1	**1,212.6**	144.7	6,228.6
PBT	296.4	27.4	2,340.8	**675.5**	44.8	4,394.8
PAT	222.1	20.5	1,821.9	**512.0**	32.7	3,454.3
Sales	2,234.1	462.2	9,496.1	**4,987.1**2	1,013.5	17,711.5
Capital	596.0	63.1	5,455.8	770.2	134.9	5,406.6
Borrowings	1,260.5	111.8	8,764.0	**3,293.1**	244.6	19,197.7
Working capital	232.7	30.2	4,814.3	**483.2**	51.3	6,841.1
Cashflow	292.6	0.2	2,819.4	591.5	21.1	4,549.0
Net worth	1,862.0	185.4	14,974.4	**4,456.6**	649.0	25,248.4
Payout ratio	0.1	0.1	0.1	0.1	0.1	0.2
Cash holdings	336.9	18.1	2,122.3	**1,137.5**	50.1	7,019.0
Age@listing	15.4	12.0	14.0	15.4	12.0	14.0
Variable	*NSE (159 firms)*					
	μ_{pre}	Q2	σ_{pre}	μ_{post}	Q2	σ_{post}
Assets	20,191.3	2,733.9	66,337.9	**45,984.3**	11,195.5	119,951.2
PBITDA	2,678.0	350.9	9,216.1	**5,970.5**	1,563.1	14,573.0
PBT	1,494.9	170.7	5,693.7	**3,789**.6	918.4	10,247.8
PAT	1,133.4	142.5	4,425.3	**2,921.5**	697.5	8,067.7
Sales	8,202.4	1,968.0	22,197.6	**18,839.1**	5,997.8	39,734.0
Capital	3,148.0	188.3	13,415.8	3,597.2	560.4	13,100.0
Borrowings	5,805.0	458.8	21,308.8	**14,024.5**	1,387.5	45,749.9
Working capital	958.5	39.4	12,042.4	2,072.6	336.5	16,575.1
Cashflow	1,709.0	81.5	6,854.9	3,357.4	512.9	10,819.2
Net worth	9,683.8	893.8	36,626.1	**21,932.1**	5,516.3	59,885.4
Payout ratio	0.1	0.1	0.1	0.1	0.1	0.1
Cash holdings	1,589.8	180.7	5,024.3	**5,735.0**	1,042.4	16,600.3
Age@listing	16.6	13.0	14.8	16.6	13.0	14.8

Table 12 Mean tests of match covariates and other variables, before and after matching for Main Board firms

The table presents the match balance statistics of the covariates and other variables for the treated and the comparison sample for the Main Board firms listed on NSE and BSE. The first three columns show tests of difference in the sample mean before matching, while the next three show these tests for the subset selected after matching.
The match balance is demonstrated using both the standard t-test and the Kolmogorov-Smirnov (KS) test.

Covariate	Before matching			After matching		
	t stat.	t p-value	KS p-value	t stat.	t p-value	KS p-value
BSE Main Board firms						
PBITDA	3.55	0	0	-0.53	0.6	0.65
PBT	3.49	0	0	1.16	0.25	0.82
PAT	3.34	0	0	1.58	0.12	0.46
SALES	4.31	0	0	-0.96	0.34	0.84
TURNOVER-RATIO	-6.85	0	0.01	-0.43	0.67	0.24
TOTAL-CAPITAL	2.55	0.01	0	0.54	0.59	1
BORROWINGS	2.9	0	0	-0.52	0.61	0.12
TOTAL-ASSETS	3.52	0	0	0.72	0.48	0.21
WORKING CAPITAL RATIO	5.22	0	0.5	0.43	0.67	0.69
NET-WORTH	3.18	0	0	1.05	0.3	0.2
NSE Main Board firms						
PBITDA	3.55	0	0	-0.53	0.6	0.65
PBT	3.49	0	0	1.16	0.25	0.82
PAT	3.34	0	0	1.58	0.12	0.46
SALES	4.31	0	0	-0.96	0.34	0.84
TURNOVER-RATIO	-6.85	0	0.01	-0.43	0.67	0.24
TOTAL-CAPITAL	2.55	0.01	0	0.54	0.59	1
BORROWINGS	2.9	0	0	-0.52	0.61	0.12
TOTAL-ASSETS	3.52	0	0	0.72	0.48	0.21
WORKING CAPITAL RATIO	5.22	0	0.5	0.43	0.67	0.69
NET-WORTH	3.18	0	0	1.05	0.3	0.2