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ABSTRACT

Implementation of the Goods and Services Tax (GST) during the year 2017 brought an equal level of appreciation and criticism to the Government of India (GoI). Post liberalization in the year 1991, there were two important systemic economic changes that the Government of India (GoI) had imposed on the Indian economic system. They were the implementation of Goods and Service Tax (GST) in the year 2017 and demonetization in the year 2016. There are very limited works of literature found examining the impact of GST at the business level. Experts opined that GST would avoid double taxation and bring down the cost of production and enhance the operating profits of companies. Likewise, it was concerned that the manufacturing companies had to face higher working capital requirements in the GST regime which would affect the liquidity requirements. Hence, this study has investigated the impact of GST on profitability and its interaction with the working capital of Indian Manufacturing companies. After excluding companies with insufficient information, thirty manufacturing companies in the broader market index NIFTY were analyzed taking the data for the years 2014 to 2021. The period from the year 2014 to 2017 was considered pre-GST and the period from the year 2018 to 2021 was considered a post-GST period. Further, the study investigated whether the impact of GST varied based on the size of companies. Panel data analyses were used for this purpose. The results show that even though there was no big difference found in profit margins of Indian manufacturing companies between pre- and post-GST periods, the impact is significantly positive during the post-GST period. Further, Size and working capital do not have any significant impact on the profit margin individually.

However, the impact of both sizes of companies and the working capital were significantly positive in the post-GST period; meaning, that companies with an increase in sizes (sales) and increase in working capital got improved their profit margin post-GST implementation.

KEYWORDS: *Goods and Service Tax, GST, Tax regime impact, Indian GST issue. Post GST impact*.

INTRODUCTION

Goods and Service Tax (GST) is a tax system that replaced seven central taxations (e.g., excise duty) and nine state taxations (e.g., value added tax - VAT) in India. After the initial stint in the year 1985 and continuous considerations from the years 1999 to 2011, GST got implemented in the year 2017 (Vanita 2018). More than one hundred and sixteen nations are under the taxation system of GST. At the international level, GST was first introduced in the year 1950. Indian GST council classified the tax rates for goods and services under five brackets 0%, 5%, 12%, 18%, and 28%. The implementation of GST was expected to have a significant positive impact on the economy.

Vanita (2018) argues that the implementation of GST brought positive effects like an increase in tax payments and registrations along with a control on inflation. Likewise, the research studies of Maruthi (2020) emphasized the benefits of implementing GST in the Indian economy. Further, experts opined that post the liberalization of the Indian economy in the year 1991, the implementation of GST is a significant step in changing the structural system of the economy (Jha 2019; Siddiqui 2018). The research studies of Nutmen et al. (2021) and Fernando and Chukai (2018) found that based on the global experience, the implementation of GST has brought better compliance to the business by simplifying the tax structures. However, Jha (2019) argues a wrinkle effect was found in some of the core sectors of the economy. Mentioning the macro effect of the GST implementation, a report of the Federation of Indian Chambers of Commerce and Industry (FICCI) called it a big bang economic reform post-independence. Kir (2021) argues that very little understanding exists of the impact of GST on the economy. Further, the existing body of literature majorly focuses on macroeconomic level impacts, and less information is available on how companies got impacted through GST implementation. Hence, this study intends to examine the impact of GST on company-level factors by examining the manufacturing companies listed in the broader market index of the National stock exchange (NSE), Nifty. Data regarding the factors like profit margin, size of the companies, and working capital of the companies are taken to examine the impact of GST. Data were extracted from 2014 to 2021, splitting it into pre-GST and post-GST. Fixed effects and random effects along with the Hausman test were used to estimate the significance of the relationship and impact between variables. The study attempts to find answers to the following questions.,

R1: The nature and level of impact of GST on the profit margins of the selected companies.

R2: Interaction effect of selected variables like the size of the firms and working capital ratio on profitability along with GST.

The remaining section of the paper is organized as follows. The next sections consist of a literature review, research methodology, analysis, and findings and conclusions.

LITERATURE REVIEW

This segment discusses the literature on the topic of GST. Kir (2021) highlights that India had implemented GST after examining its success in the countries like France, Brazil, and China among hundreds of other countries. Research studies by Dabla-Norris et al. (2017) emphasize the fact that a country's development primarily depends on the efficiency of the tax collections. Improvement in tax collection and increased tax revenues cause economic development (Gaspar et al., 2016; Milios, 2021). However, countries widely differ in the structure of GST and the system of implementation (Fenochietto & Pessino, 2013). Likewise, Kulkarni, & Apsingekar (2021) highlight the factors, determinants, and causes of GST implementation. Research work of Dabla-Norris et al. (2017) assessed the company level performance changes due to the tax compliance in twenty-one countries using Value Added Tax (VAT), and corporate tax rates. The paper emphasized the association between policy reforms and the revenue growth of companies in emerging economies.

Likewise, Deshmukh, Mohan. A, and Mohan. I (2022) examined the impact of GST implementation in Indi using SAP-LAP-Twitter analytic perspective. The study was primarily qualitative and emphasized the need for an econometric model approach using a panel data structure to critically evaluate and quantify the level of impact of GST. Though, the study highlighted the need of investigating fiscal factors quantitatively. Yet there is a need of examining the company-level factors to understand the direct impact of GST on corporate business performance. This gap is addressed in the present study. A report by Team Masters (2022) highlights that in the former tax system, companies had to wage an extra twenty-five percent as production costs due to the cascading effect of excise duty of around twelve percent and value-added tax of around fifteen percent. However, GST would be levied on a single taxable event which means cheaper production costs, more sales, and higher profitability for the business concerns. Likewise, the report mentions that under GST, manufacturers would need more working capital owing to receipt of advance and stock transfers. Hence, increased working capital requirements would reduce the profitability of the business concern. In line with the above arguments, this study intends to consider factors like the size of the firm and Working capital to examine the level of impact on the profitability of the business concern. The operating Profit margin is considered a proxy for profitability. Likewise, the log of sales is considered as a proxy for the size of the companies, and the working capital to sales ratio is considered for working capital requirements. Further, the study intends to examine the impact of GST on company performance by analyzing the following hypotheses.

H11: There is a significant positive effect of GST on the profit margin of the selected companies.

H12: There is a positive relationship between Size and Profit margin post-GST.

H13: There is a negative relationship between working capital and profit margin post-GST.

H14: There is a significant interaction between the size, working capital, and GST on Profit margin.

RESEARCH METHODOLOGY

Panel Data Analysis Method

To examine the stated hypotheses, this study intends to use panel data analysis. Panel data is a division of longitudinal data where observations are for the same subjects each time. Panel data comprises additional evidence, additional adaptability, and extra efficacy than pure time series data or cross-sectional data. Thus, Panel data regression models investigate group (cross-sectional) and/or time (time-series) effects. These effects may be fixed and/or random. Fixed effects assume that individual group/time have different intercepts in the regression equation, while random effects hypothesize individual group/time have different disturbances (Park, 2010). Further, the Hausman test is performed to choose between the fixed effects and random effects model.

Data and variables

The study considered companies listed in the broader market index of the National Stock Exchange India (NSE), India, i.e., Nifty 50. Nifty 50 represents the weighted average of 50 of the largest Indian companies listed on the NSE. Excluding finance and service companies, the study considered thirty companies (Appendix - Exhibit 1) and collected data for the period from 2014 to 2021. Since GST was implemented in India in July 2017, the years 2018 to 2021 are considered Post GST period, and the years from 2014 to 2017 are considered Pre GST period. Variables like Size (Log of sales), Working capital to sales i.e., (Current Assets – Current Liabilities) divided by Sales, and operating profit margin i.e., operating profit divided by sales revenue, are analyzed. The data are extracted from Capitaline, a subscription-based database consisting of the financial data of all listed entities in India. R software is used for the analysis purpose.

Model

The following model (equation 1) is used as a base model for the analysis.

Main effect: $\boldsymbol{PROFIT = SIZE + WC + GST}$ → equation (1)

Interaction effect: $\boldsymbol{PROFIT = SIZE + GST + WC + SIZE * GST + WC * GST + SIZE * WC * GST}$ → equation (2)

Where PROFIT refers to Operating profit margin, Size refers to the size of the companies, WC denotes Working capital, and GST is a dummy variable classifying pre and post-GST implementation. The interaction effect is estimated through equation 2.

ANALYSIS AND INTERPRETATION

The descriptive statistics (Tables 1 and 2) for the variables show that the mean profit margin of the companies is estimated at 20.698 percent and the mean working capital to sales ratio is found to be 0.18335 (18.335 percent). Further, mean profit classified based on Pre and Post GST periods is found to be 19.68 percent and 20.65 percent. Among thirteen sectoral classifications, operating margins are found to be higher in sectors like Power (29.60 percent), Coal (27.95 percent), and Pharma (26.925 percent). Further, there is not much difference found in the operating profit margin during the period taken for the study (2014-2021).

Table 1 - Descriptive statistics

Variable	Min	1st Q	Median	Mean	3rd Q	Max
Operating Profit Margin	-0.6696	13.8674	19.0673	20.1698	24.9617	44.0467
Size of the companies	4.403	5.154	5.555	5.615	5.986	6.776
Working capital ratio	-0.32933	0.01254	0.11970	0.18335	0.32199	1.02401

Source: Authors calculation

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Table 2 - Mean Value of Operating Profit Margin (%)

GST Period			
Pre GST 19.68024		Post GST 20.65937	
Sectors wise			
Auto 18.49578		Chemicals 19.26558	
Coal 27.95954		Consumer 24.35311	
Food 16.15708		Infra 22.41598	
Lifestyle 10.32613		Metals 14.77342	
Paints 19.65676		Petroleum 13.75483	
Pharma 26.92595		**Power 29.60119**	
Textiles 21.86549			
Year Wise			
2014 - 19.22835	2015 - 18.17576	2016 - 20.47352	2017 - 20.84334
2018 - 21.02970	2019 - 20.19082	2020 - 19.78215	2021 - 21.63482

Source: Author's calculation

The panel data analysis based on fixed and random effects through various models signified that GST implementation has positively impacted the operating profit margin of the companies (Table 3). Upon testing model 1 to model 4 using fixed and random effects using the Hausman test, it is found that the random effects model (Model 4) is more consistent than other models. The results of which can be expressed in equation 3.

$$\boldsymbol{PROFIT = 42.1875 + 25.787\ POST\ GST - 73.129\ WC * GST - 3.9249\ SIZE * GST + 11.4079\ SIZE * WC * GST} \quad \rightarrow \text{Equation (3)}$$

GST is found to be positively impacted the operating profit margin to the level of 25.787. Working capital and Size individually does not found to significantly impact profit margin. However, working capital along with GST has negatively impacted by 73.129 and Size by 3.9249. Further, there exists a significant interaction between the size, working capital, and GST to the extent of 11.4079. the results signify that GST has improved the operating profit margin of companies. This supports hypothesis H1, where GST overall improved the profit margins of companies. However, companies with increasing working capital got a significant reduction in operating profit margin post the GST implementation. This supports hypothesis H3, which is because working capital adds to the cost and significantly reduces funds investable in fixed assets and hence causing a reduction in profit margin. Since working capital improves liquidity, not profitability. Likewise, for bigger companies post the GST implementation had a significant reduction in the operating margins. Hypothesis H2 must be rejected since the results are opposite to hypothesis.

This is an interesting observation that bigger companies were unable to capitalize on the benefits of GST implementation. However, bigger companies with higher working capital had an improvement in operating profit margins post GST implementation. The findings of the study are supported by the literature of Team Masters India (2022) which highlights operating margins improved due to lesser cost of production and working capital will get increased that in turn causes a significant reduction in profitability.

Panel Data Analysis results

Particulars	Fixed Effects		Random Effects	
Operating Profit Margin	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Working capital to sales	11.3926** (3.4482)	15.9646 (34.7514)	10.6685*** (3.1339)	22.6819 (32.3824)
Size of companies	-5.4143 (3.8765)	-5.1404 (4.1131)	-4.8136* (2.1768)	-4.4108 ‘ (2.3479)
GST				
Pre	**Reference Category**			
Post	15.8146 * (6.1309)	26.0536*** (7.1711)	15.9138** (6.0177)	**25.787***** (7.1036)
Interaction Effects				
Working capital to sales * GST post	-8.6452*** (2.4733)	-74.239**(27.0420)	-8.7204* (2.4611)	**-73.179**** (26.9026)
Size * GST post	-2.2387* (1.0399)	-3.9561** (1.2157)	-2.2642* (1.0292)	**-3.9249**** (1.2106)
Working capital to sales * Size of the company *GST	-	11.5775* (4.8146)	-	**11.4079*** (4.7861)
Constant	-	-	44.5752*** (12.2114)	**42.1875***** (13.2177)
Observations	240	240	240	240
Adj. R squared	0.04029	0.01451	0.09885	0.11609
Robust standard errors in parentheses. *** p is 0, ** p < 0.01, * p < 0.05, ‘p < 0.10.				

Source: Author’s preparation based on the panel data analysis.

CONCLUSION AND RECOMMENDATIONS

Based on the evidence of the successful implementation of GST - the world over by many countries, had encouraged the Government of India (GoI) to implement the GST regime from the mid-year 2017. There are literature evidence that examined the impact of GST and majorly highlighted more benefits than harms. Removal of multiple taxes, differential valuations, reduced cost of production, streamlined supply chain, and improved production efficiency are the positive outcomes of GST implementation. However, increased working capital requirements due to various operational changes were considered a negative impact. Even though there is literature examining the impact of GST using various macro-economic factors, there is little evidence found on how companies are directly impacted by GST implementation. This might be due to a lack of data post the GST implementation to quantitatively examine the impact using techniques like panel data regression models.

The present study intended to fill this gap by investigating some crucial aspects of GST implementation like operating profit margins, working capital requirements, along with the size of companies. Data of thirty manufacturing companies listed in the Nifty 50 index is analyzed for the period from 2014 to 2021. The year from 2014 to 2017 is considered pre-GST and from 2018 to

2021 is considered post-GST implementation. The results of the random effects model imply that GST has positively impacted the operating profit margin. Working capital and Size hurt the operating profit margins post-GST. However, the interaction effect of size working capital along with GST is found to be positive and significant. Hence, the implementation of GST benefited the companies by positively impacting their operating profit margins.

APPENDIX

EXHIBIT 1 – LIST OF COMPANIES

S.No	Company	Sector	S.No	Company	Sector
1	ASIAN PAINTS LTD.	Paints	16	JSW STEEL LTD.	Metals
2	BAJAJ AUTO LTD.	Auto	17	LARSEN & TOUBRO LTD	Infra
3	BHARAT PETROLEUM CORPORATION LTD.	Petroleum	18	MAHINDRA & MAHINDRA LTD	Auto
4	BRITANNIA INDUSTRIES LTD.	Food	19	MARUTI SUZUKI INDIA LTD	Auto
5	CIPLA LTD.	Pharma	20	NTPC LTD	Power
6	COAL INDIA LTD.	Coal	21	NESTLE INDIA LTD	Consumer
7	DIVI'S LABORATORIES LTD.	Pharma	22	OIL & NATURAL GAS CORPORATION LTD	Petroleum
8	DR. REDDY'S LABORATORIES LTD.	Pharma	23	RELIANCE INDUSTRIES LTD	Petroleum
9	EICHER MOTORS LTD.	Auto	24	SHREE CEMENT LTD	Infra
10	GRASIM INDUSTRIES LTD.	Textiles	25	SUN PHARMACEUTICAL INDUSTRIES LTD	Pharma
11	HERO MOTOCORP LTD.	Auto	26	TATA CONSUMER PRODUCTS LTD	Consumer
12	HINDALCO INDUSTRIES LTD.	Metals	27	TATA MOTORS LTD	Auto
13	HINDUSTAN UNILEVER LTD.	Consumer	28	TATA STEEL LTD	Metals
14	ITC LTD.	Consumer	29	TITAN COMPANY LTD	Lifestyle
15	INDIAN OIL CORPORATION LTD.	Petroleum	30	UPL LTD	Chemicals

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