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The Correlation between Macroeconomic Growth in India and the Performance of the Top 1,000 Companies over a 15-Year Period (2009-2023)

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Abstract: ***In this research, we have studied the evolution of the key macroeconomic parameters of the Indian economy, such as its GDP and GDP per capita, by taking the performance of the Indian corporate sector as a proxy. Within the Indian corporate sector, we have taken the top 1000 corporates listed on the National Stock Exchange (NSE) – a representative set that makes over 90% of the total market capitalization of the NSE companies and spanning over 12 key sectors of the economy – and have assessed their growth, profitability, capital investment, value - creation (as measured by ROIC exceeding the WACC) and market capitalisation trends over the last 15 years, clustered into three eras of five years each. These three eras correspond approximately, and respectively, to the second term of the UPA government during the post - financial crisis years (FY2009 - 2013), the first term of the NDA government (FY2014 - 2018), and the second term of the NDA/BJP government (FY2019 - 2023). The paper establishes how the sector mix of the economy has evolved over the last 15 years and shows clear variation across these sectors on their revenue growth, operational profitability (EBITDA), net profitability (PAT), and ROIC performance. In addition to deriving continued strong growth and profitability, we establish that a greater proportion of the corporates are now creating value, thus enabling them to raise their capital investment intensity, that sets the stage for further growth. We have also established a high - confidence and robust correlation between the absolute GDP (in turn, also the GDP growth) with the underlying revenue pool and EBITDA pool of the top 1000 corporates, with an R - squared value ($R^{2)}$ of 0.98, that provides a strong future predictor of the performance of Indian GDP and GDP growth based on the underlying performance of the top 1000 corporates in India.***

Keywords: India GDP growth; India NSE - listed companies' performance; Top 1000 corporate performance; Correlation between GDP growth and corporate performance; Corporate value - creation; Capital investment intensity; Sector mix of the Indian economy; ROIC for corporate India

1. Introduction and Brief Literature Review

India has turned in a standout macroeconomic performance in the recent years, especially in view of the world grappling with various crises ranging from the Covid - led slowdown, two ongoing wars in Ukraine and the Middle East, and rising inflation - driven slowdown globally. India has set a bold vision for 2047, when it would complete a century of its nationhood, to become a USD 25 trillion economy. India enjoys strong tailwinds of favourable income demographics that could fuel consumption - led growth, yet the global economic context seems to be fraught with uncertainty, particularly with rising geopolitical tensions, partial retreat of globalization, rise of protectionism and the resultant curbs on the mobility of labour.

Over the past 15 years, the Indian economy has continued to grow strongly to a sizeable USD 4.0 trillion in 2023, but the per capita income in India is still below USD 3000. There are several underlying macroeconomic variables that drive the GDP growth of the Indian economy, ranging from interest rate prevailing in the economy, the fiscal spending by the government, the industrial and services output by the firms, the exchange rate and the export performance, and so forth. The monetary, fiscal, and supply - side policies of the government have a strong bearing on these underlying variables, that collectively determine the direction and trajectory of evolution of the Indian economy.

However, it is often observed that many of these variables are providing diverging signals, leading to lack of robust early prediction capability on the likely evolution of India's GDP and GDP growth performance. On the other hand, if we look at the Indian corporate sector as a mirror or proxy of the entire Indian economy, we observe that their collective performance could be a reliable window to look into how the economy is performing across a variety of sectors. Moreover, these corporates are also impacted by the monetary, fiscal, and supply - side policies of the government in a direct way. These corporates impact all the four aspects of the expenditure method of looking at the GDP aggregate (C + I + G + (X - M)) – they serve the consumption demand, participate in the investment formation in the economy as both a capital provider and an implementer of the government investment, benefit from the government spending, and drive the net export performance.

Hence, the dynamics of pursuing growth and profitability while serving the consumers, business and government segments of the Indian economy make these corporates an excellent mirror of how the overall macroeconomy is evolving. This provides the conviction that studying the performance of top 1000 companies for the last 15 years could throw light on how the country GDP growth is strongly correlated to the underlying growth of these corporates in India.

2. Key Research Objectives

The main objective of this paper is to analyse the macroeconomic GDP growth of the Indian economy and correlate it with the trends in growth, profitability, and value - creation for India's corporate sector (comprising over 12 key sectors or industries) over the last 15 years. Our research

question is: Could the performance of the top 1000 companies be a predictor of how the overall Indian macroeconomy may evolve, thus could these be seen as a bellwether to look ahead on the overall GDP growth trends for the country?

More specifically, this research is focused on studying how the sector mix of the economy has evolved over the last 15 years and establish if there are clear variations across these sectors on their revenues growth, operational profitability (EBITDA), net profitability (PAT), and ROIC performance. In addition to establishing continued strong growth and profitability, this research also aims to assess the trends on whether corporates are creating value (i. e., their ROIC > WACC), thus enabling them to raise their capital investment intensity, that sets the stage for further growth.

The time - period chosen is FY 2008 - 09 through FY 2022 - 23, which has dual significance – it covers several business and investment cycles over this period, but these years are also clustered into three eras of five years each that correspond approximately, and respectively, to the second term of the UPA government and the post - financial crisis years (FY2009 - 2013), the first term of the NDA government (FY2014 - 2018), and the second term of the NDA/BJP government (FY2019 - 2023). Our assessment period starts a sizeable 15 years after the onset of liberalization in India (1991) that would have given sufficient time to bake in the first round of reforms, impacting the economic and corporate sector growth.

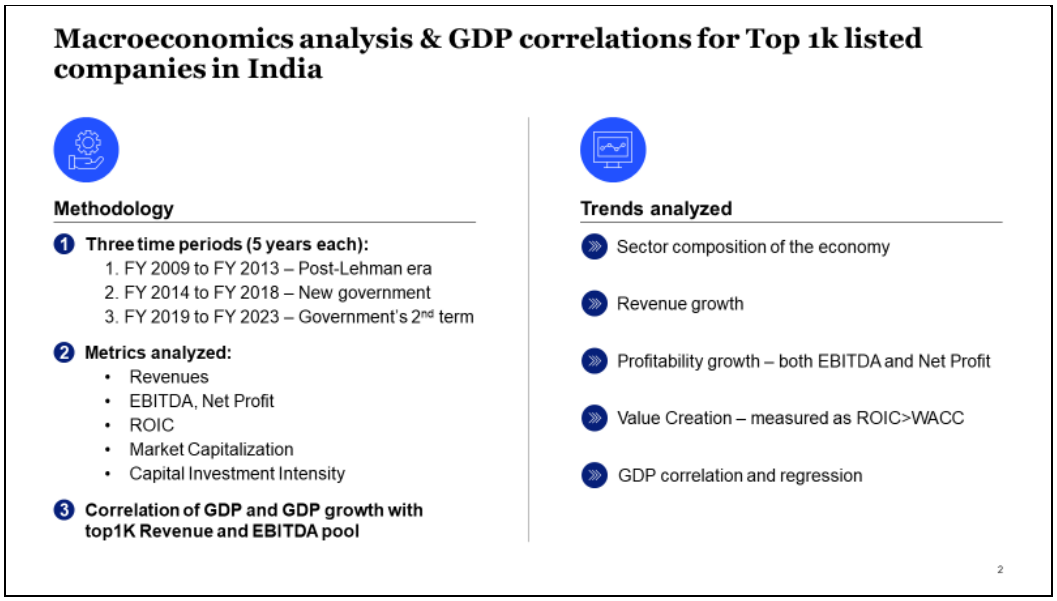
We also aim to establish a high - confidence and robust correlation between the absolute GDP and GDP growth with the underlying revenue pool and EBITDA pool of the top 1000 corporates as a possible triangulation to forecast the performance of Indian GDP (and GDP growth) based on the underlying performance of the top 1000 corporates in India. This could possibly throw light (through extrapolation) on how the evolution of India's corporate and business sectors look like in the next 5, 10, 15 years and beyond, to forecast the likely milestones for it to become a USD 10 trillion and eventually a USD 20 - 25 trillion economy.

3. Data Collection and Methodology

This research relies on significant big - data set spanning across the key performance indicators for the top 1000 corporates across a 15 - year period, coupled with the time series data for the key macroeconomic indicators for the economy in the same period.

The methodology used looks at the financial performance of Top 1000 public listed companies on the NSE for each of the years during the 15 - year period, spanning FY2009 through FY 2023. As shown in *Exhibit 1*, for each of these years, trend lines for six key metrics have been looked at – revenues, operational profitability (EBITDA), net profitability (PAT), return on capital employed (ROCE), capital investment ration, and market capitalization – for each of the companies.

Exhibit 1



The Top 1000 companies have been segmented into over 12 industry sectors of the economy – Energy, BFSI (Banking, Financial Services, Insurance), Automotive & Components, Basic Materials, Capital Goods, FMCG, IT, Telecom, Utilities, Lifesciences and Healthcare, Food & Beverages, Technology & Hardware, and Others/Diversified. Such a sectoral division allows for insight into how the sectors have evolved over time relative to other sectors and relative to the overall GDP growth.

These Top 1000 listed companies are assumed to represent the economy well, although it is granted that there is many medium and small enterprises (MSME) companies that do not get adequately reflected in the sample of 1000 companies that have been analysed.

Results From Top 1000 Corporate Performance Analysis during 2009 - 2023

From the Indian corporate sector, we have taken the top 1000 corporates listed on the National Stock Exchange (NSE) – a representative set that makes over 90% of the total market capitalization of the NSE companies and spanning over 12 key sectors of the economy – and have assessed their growth,

profitability, capital investment, value - creation (as measured by ROIC exceeding the WACC) and market capitalisation trends over the last 15 years, clustered into three eras of five years each.

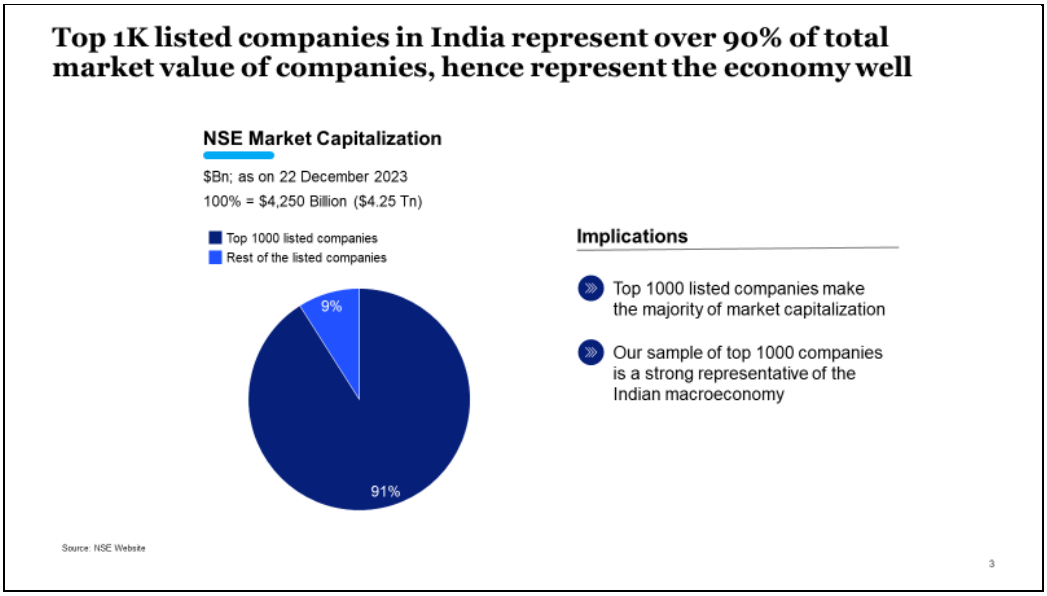
The key findings based on the detailed analysis of the GDP and GDP per capita evolution for the Indian economy over the chosen 15 - year period, as well as for the financial performance analysis for the Top 1000 companies across a diverse array of sectors, are presented below.

1) Top 1000 corporates represent over 90% of India's market capitalization.

There are over 5000 companies that have listed their shares on the Bombay Stock Exchange (BSE) and over 2200 companies are listed on the National Stock Exchange (NSE). In this research, we have taken the top 1000 corporates listed on the NSE that belong to 12 industries/sectors in the Indian economy. They collectively represent 91% of the total market capitalisation of the NSE which was USD 4.25 trillion in December 2023, as shown in *Exhibit 2*.

Both these facts confirm that our sample of the top 1000 corporates is strongly representative of the entire Indian corporate sector as well as represent the dynamics across a broad array of sectors for the Indian economy.

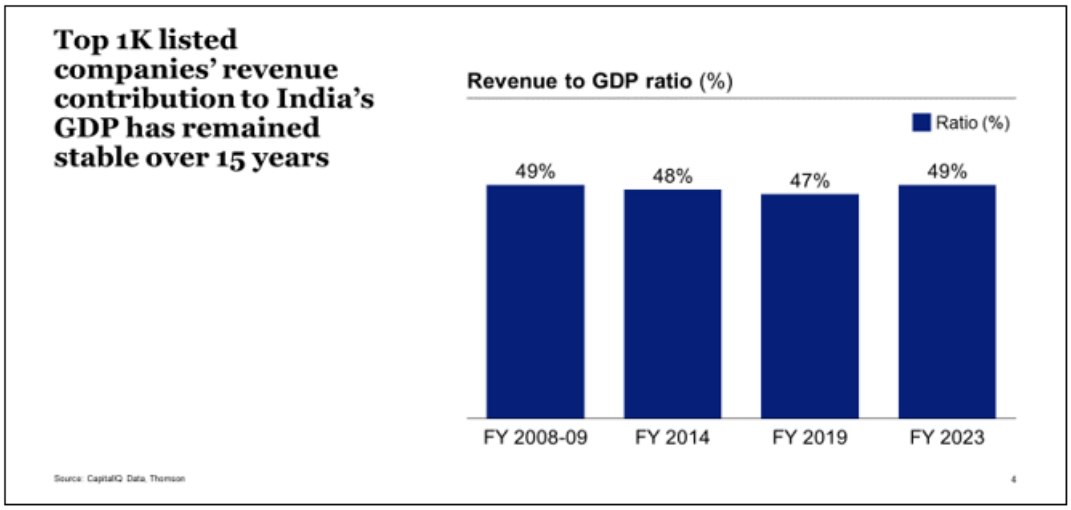
Exhibit 2



2) Top 1000 corporates have a revenue to GDP ratio of between 47 - 49%

The top 1000 corporates in India have a total revenue contribution as a fraction of India's GDP of between 47 to 49% over the last 15 years, as *Exhibit 3* shows.

Exhibit 3

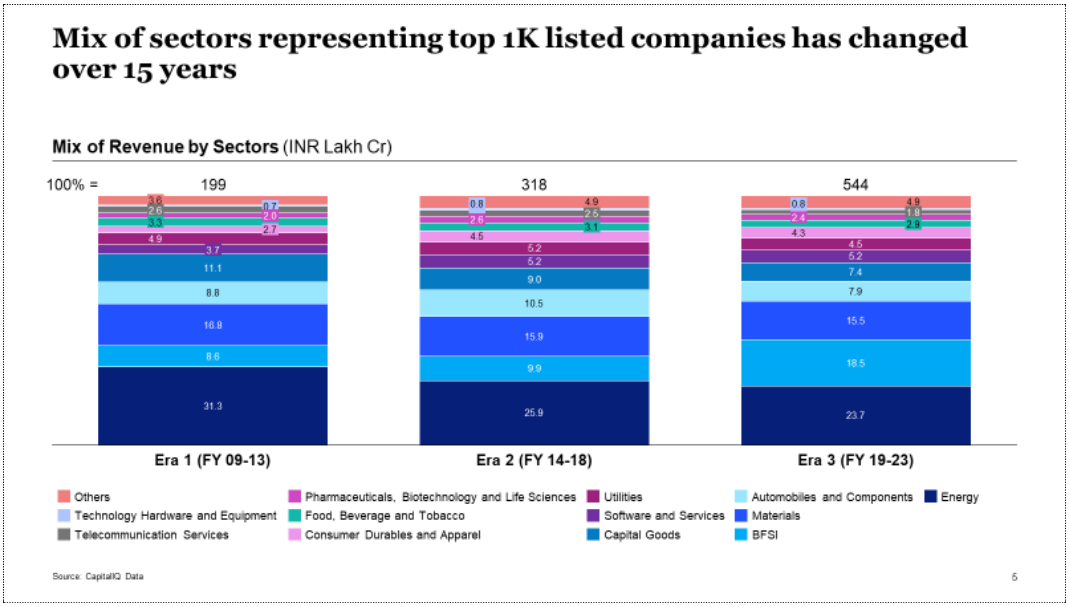


We should note that the revenue for the corporates and the country GDP are two very different metrics, in particular, the latter concerns itself with the value - add of all goods and services produced in the economy while the corporate revenues is a gross metric, yet the revenue to GDP ratio for the top 1000 corporate does indicate the relative size of operations that is embedded in these top 1000 corporates.

3) Sector - mix of the top 1000 corporates has shifted in the last 15 years.

The mix of sectors representing the top 1000 listed companies has changed over the last 15 years. We see that energy as a sector has declined from 31% of revenues in era 1 to 23% of revenues in era 3, while banking with financial services and insurance has grown considerably in the last 15 years from 8.6% in era 1 to 18.5% in era 3. The composition of the sectors has shifted visibly. Energy and materials as a sector has come down while technology and consumption - oriented sectors such as FMCG and Durables have grown in relative salience as depicted in *Exhibit 4*.

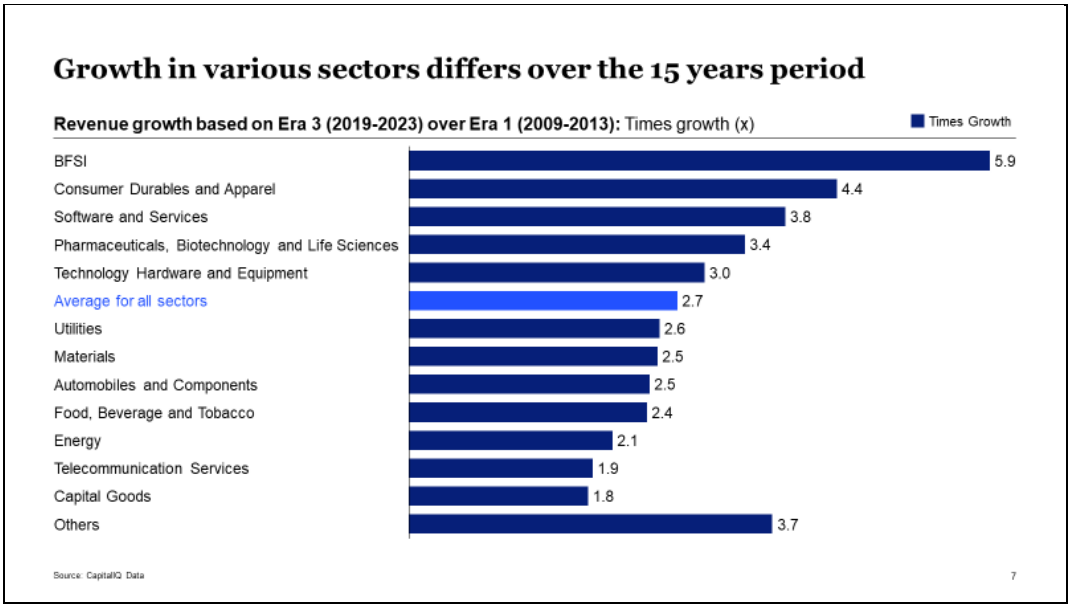
Exhibit 4



4) Relative sectors' growth over the three eras show large variation.

Revenue pool during the third era (five - year period FY2019 - 2023) over the first era (five - year period FY204 - 2018) has multiplied 2.7x for the top 1000 corporates as a collective, while the GDP has grown 2.5x during this period. These are closely correlated. As seen in *Exhibit 5*, five of the sectors have grown more than average, these are BFSI; consumer durable & apparel; software and services; pharmaceutical and life sciences; and technology, hardware, and equipment. At the same time, there are many sectors such as utilities, materials, automobiles and components, and energy that have grown slower than the overall average for the top 1000 corporates.

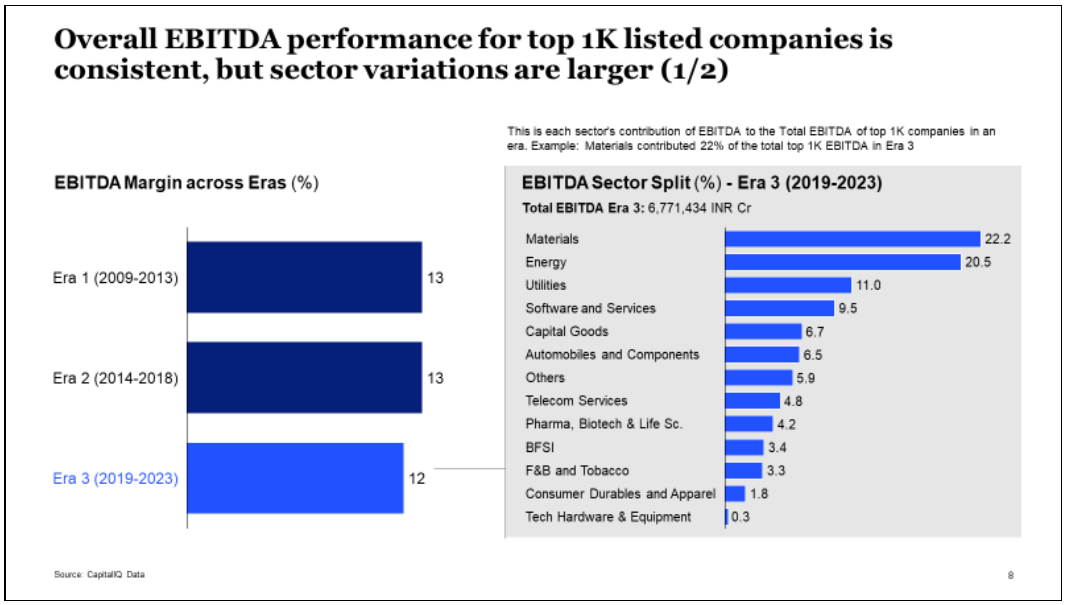
Exhibit 5



5) Total EBITDA pool has grown strongly while EBITDA margins have sustained.

Next, we shift gears to the overall operational profitability performance for the top 1000 listed companies as measured by the EBITDA metric. We see that the EBITDA margin across the three eras has stayed relatively consistent between 12 to 13% of revenues, as shown in *Exhibit 6*.

Exhibit 6

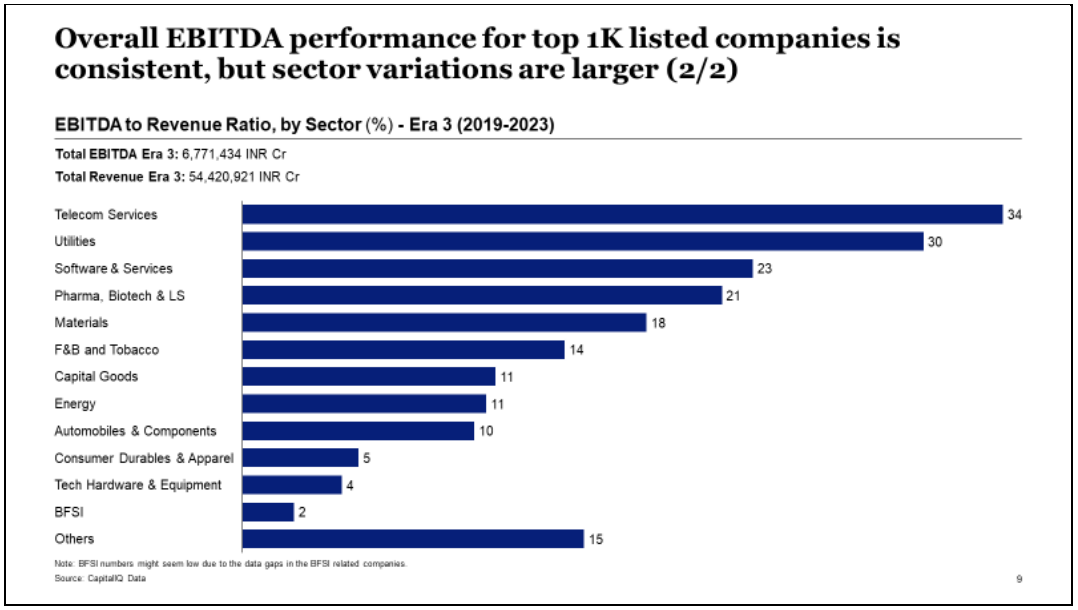


The total EBITDA pool in era 3 amounts to INR 67.71 lakh crore (USD 815 billion) and the right side of *Exhibit 6* provides the breakup of this total EBITDA pool across sectors – e. g., 22% of this total EBITDA pool comes from the materials sector, 20.5% comes from energy and 11% from utilities. Software and services contribute 9.5% of the total EBITDA pool. Rest of the sectors make up the remainder of the total EBITDA pool.

6) Relative EBITDA performance across sectors shows wide dispersion.

In terms of EBITDA to revenue ratio, we see that the telecom services have 34% EBITDA, utilities sector returns 30% EBITDA, software and services 23%, and pharma, biotech, and life sciences sector have delivered an EBITDA of 21% of revenues. It is to be noted that for the BFSI sector, the 2% operational profitability shown is the margin spread or the net interest margin.

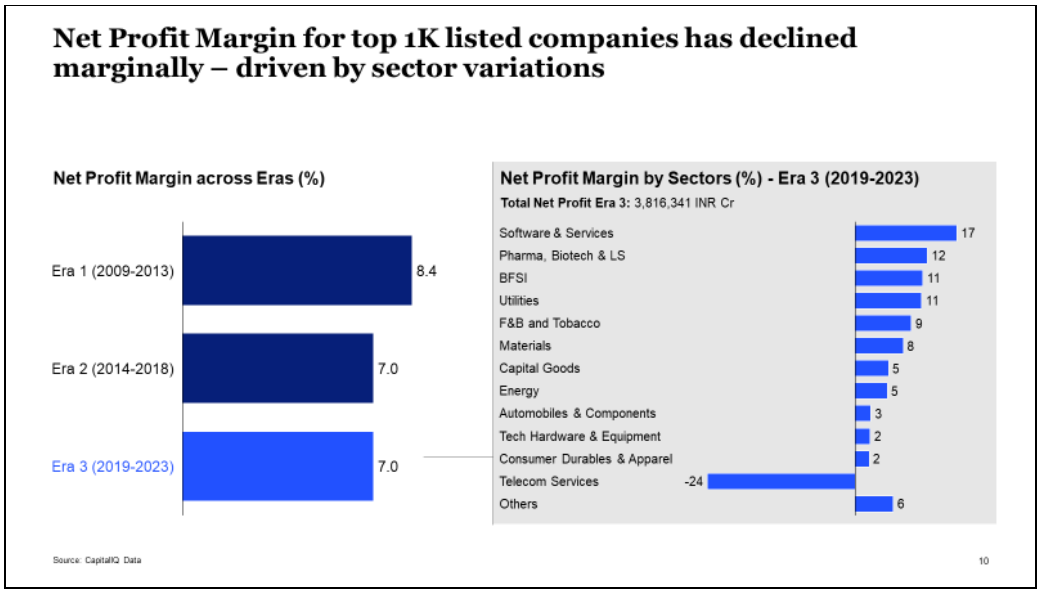
Exhibit 7



7) Net profit margin has declined marginally over the three eras.

The net profit margin (PAT) trend for the top 1000 listed companies show that the net profit margins between eras have declined marginally from 8.4% in era 1 to 7% in era 3. We also observe wide sector variations in the net profit margin performance across sectors, with software & services leading the charts at a resounding 17% PAT margin in era 3. We also observe a large PAT loss - making performance by the telecom services sector of - 24%, possibly due to the disruptive entry of Reliance Jio that has made the erstwhile incumbent players such as Vodafone, Idea and BSNL make losses due to their weakened market position.

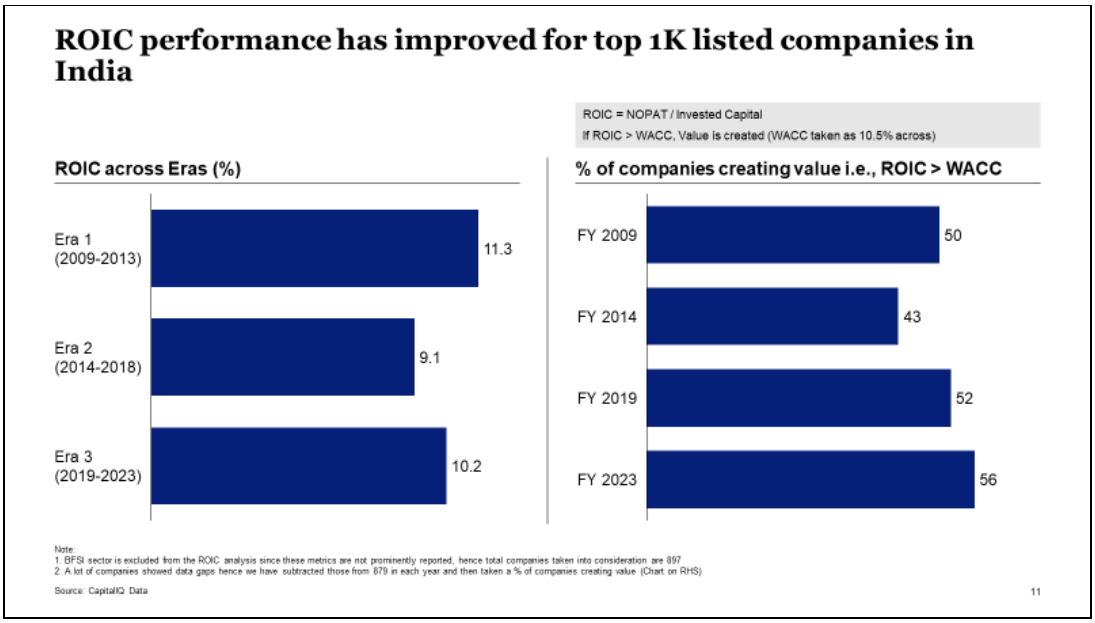
Exhibit 8



8) ROIC performance over the three eras

The return on invested capital (ROIC) performance is a great indicator of the value - creation by the top 1000 companies in the economy.

Exhibit 9



For companies that have their ROIC performance greater than WACC (weighted average cost of capital), taken as the 10.5% waterline for the Indian shareholders during this period, they create value over and above the expectations of their shareholders. This leads to them getting into a virtual cycle of undertaking capital investments for growth and further using their scale to grow their revenues, profitability, and ROIC. We see that the ROIC performance across the three eras has shown variation with the highest being in era 1 at 11.3%. This dipped to 9.1% in era 2 which was worrisome, while it has managed to stage a comeback to 10.2% on an average for era 3, still a shade below the WACC of 10.5%. At best, on an average, the top 1000 corporates are just about breaking - even on the shareholder expectations of returns and are returning approximately the weighted average cost of capital (*see Exhibit 9*).

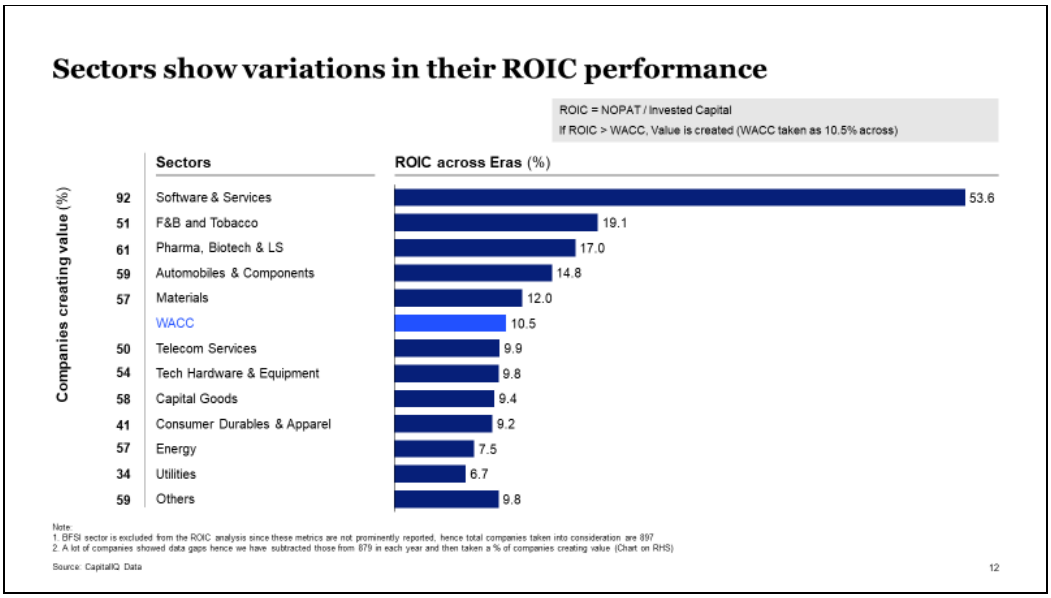
9) Proportion of corporates creating value is showing a favourable growth trend.

One additionally encouraging trend we see in *Exhibit 9* is that the percentage of companies that are creating value (where ROIC > WACC) has improved over the last decade from a low of 43% in FY2014 to a stronger 56% in FY 2023. This is a particular important trend as the upcoming private investment cycle would stem from the solidity of existing corporates witnessing clear value - creation on their invested capital.

10) ROIC performance across sectors brings out outliers on both ends.

At the same time, the ROIC performance across sectors in era 3 in *Exhibit 10* shows acute variations across sectors.

Exhibit 10

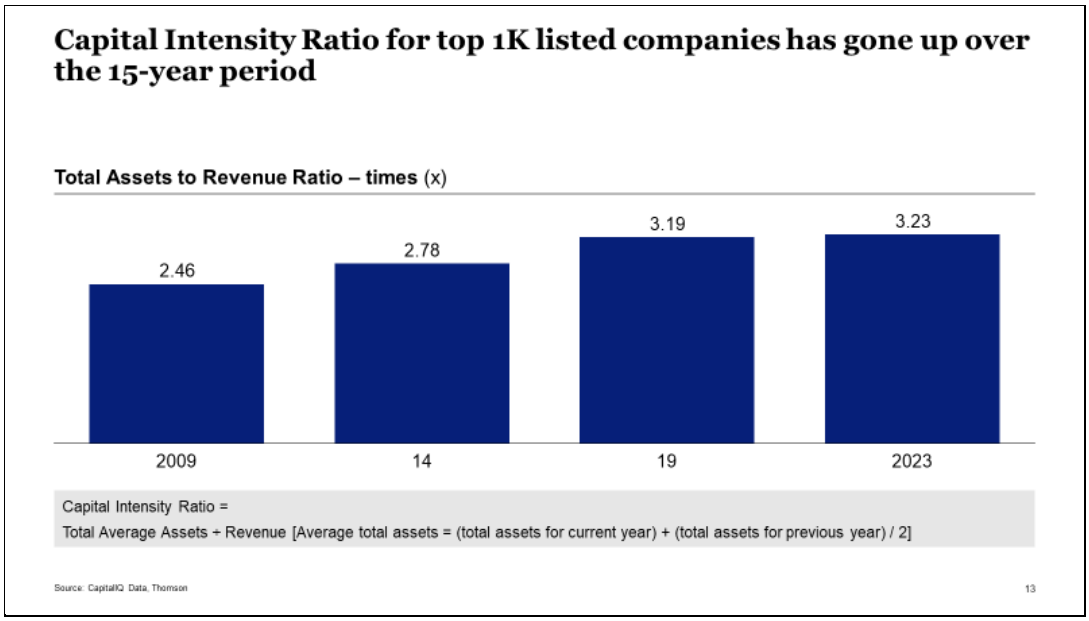


Software and services sector tops the charts with 53.5% average ROIC during era 3 and a healthy 92% of the companies in this sector are creating value. Automobiles & auto components as a sector has created ROIC of 14.8% in era 3 and 59% of these automotive & auto companies have returned ROIC greater than WACC. Energy and utilities are two sectors where the ROIC performance is lagging considerably – it doesn't augur well for the upcoming investment cycle as India grows its GDP.

11) Capital intensity ratio for the top 1000 corporates has increased by 30%

The capital intensity ratio for the top 1000 listed companies has grown over the 15 - year period. Back in FY2009, this ratio was 2.46x which has grown to 3.23x in FY2023. This has been a result of more companies creating value over the period that enables them to enhance their capital investments to pursue growth and build greater scale in their operations.

Exhibit 11



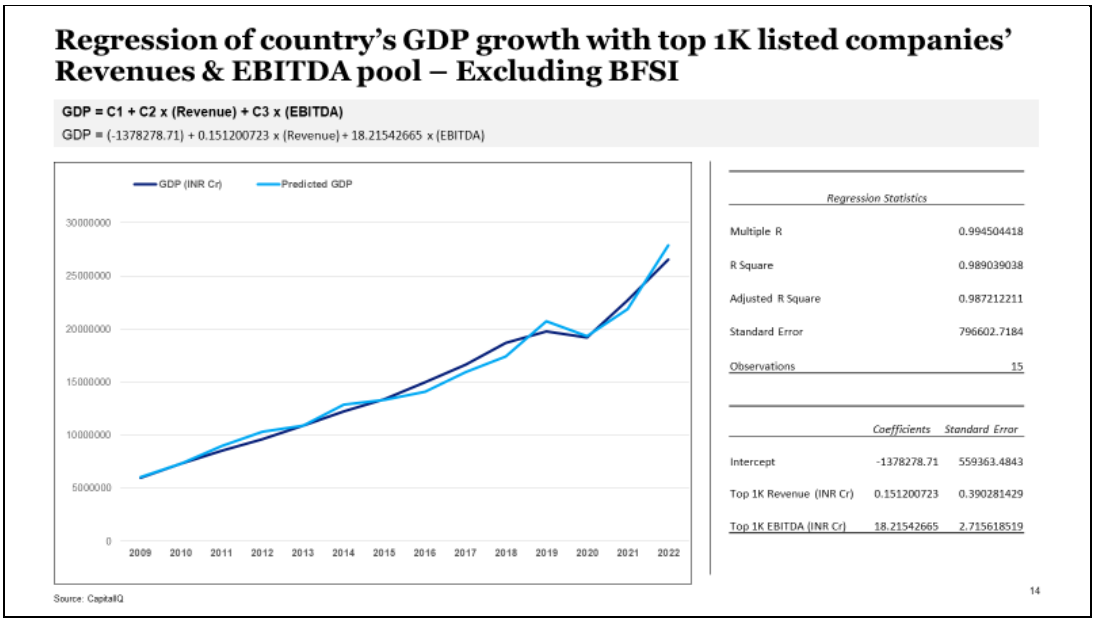
4. Conclusions for India Macroeconomic Growth

In today's constant exchange rate of INR 83 per USD, the country's GDP has grown 5x from USD 721 billion in FY2009 to USD 3570 billion (USD 3.57 trillion) in FY 2023. The top 1000 corporates in India have created tremendous market value, as the ratio of total market capitalization for the top 1000 corporates in India to the country's GDP has grown from 43% of GDP in FY2009 to 85% of GDP in FY2023. As the GDP itself has grown 5x in these 15 years, the top 1000 corporates have created a 10x market value in these 15 years, which is remarkable!

It is worth reiterating here that the ratio of the total revenue pool of the top 1000 corporates to the country's GDP in FY2009 was 49% and it has stayed at 49% even in FY2023, though it went through a marginal decline in the intervening years. At the same time, the EBITDA pool for the top 1000 corporates as a fraction of the country's GDP has stayed in the zone of 6.4% in FY2009 to 5.9% in FY2023.

This suggests that the revenue pool of the top 1000 corporates and their collective EBITDA pool could be the two variables that may be correlated to the GDP performance of the country. Accordingly, we have derived a regression equation to link the overall GDP for India to two critical variables, viz., the ***collective revenues of the top 1000 companies*** during the year and their ***collective EBITDA pool for the top 1000 companies*** in the given year.

Exhibit 13



The regression equation is:
GDP (in INR lakh crore) = - 13.783 + 0.1512 x (Revenue pool of top 1000 corporates) + 18.2154 x (EBITDA pool of the top 1000 corporates)

where the overall **GDP** for India and the collective **Revenues and EBITDA pool** of the top 1000 companies each year are measured in INR lakh crore.

In USD billion terms (INR 1 lakh crore = USD 12 billion), the regression equation is:
GDP (in USD billion) = - 165.4 + 0.1512 x (Revenue pool of top 1000 corporates) + 18.2154 x (EBITDA pool of the top 1000 corporates)

where the overall **GDP** for India and the collective **Revenues and EBITDA pool** of the top 1000 companies each year are measured in USD billion.

How can the country accelerate its GDP growth? The twin imperatives are clear. The bellwether companies need to continue to drive revenues and EBITDA growth, which will be a combination of riding the domestic consumption spending that is likely to ensue with growing per capita GDP, but also find sweet spots of undertaking private investment and exports growth wherever India could be competitive (e. g., in pharmaceuticals, automotive, specialty chemicals, IT services, E&D services, and so forth).

An important watch - out for the top 1000 corporates is to shore up their return on invested capital (ROIC), that is somewhat lagging. It must be improved and made more consistent if the corporate sector must enhance the rate of investment formation which is a core contributor to overall GDP growth. Every 1 per cent point addition to the ROIC performance adds significant EBITDA and eventually revenues to the economy. This can be driven through capital efficiency and productivity in operations as well as corporates investing more in R&D and to create the necessary buoyancy for the corporate ROIC performance.

Key Sensivities and Themes for Further Research
As indicated earlier, we have assumed the top 1000 companies to be representative of the Indian economy. This does leave out the MSME cluster of companies, where the data availability and reliability of data is both challenging.

Another caveat is that all the key metrics such as profitability and ROCE are weighted by the size of the top 1000 companies. Hence, there is an inherent successful company - bias in the collective profitability and ROIC numbers. The assumption of WACC of 10.5% also differs by sectors and in fact by each company, hence it is a simplifying assumption in this research.

The paper also assumes constant 2023 dollar for all analyses (1 USD = INR 83). Hence, the numbers for the corresponding year become very comparable for the underlying Rupee denomination, but do not capture the then prevailing exchange rates in each year.

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