External factors and banks' performance: An empirical examination of commercial banks listed on Bombay Stock Exchange (BSE)

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Abstract
This paper aims to examine the impact of external factors on listed commercial banks' performance in India. This study used a panel data of 37 listed commercial banks for the period from 2008 to 2017. External factors are measured by gross domestic product (GDP), inflation rate (IFR), interest rate (INTRT), and exchange rate (EXCH), whereas listed commercial banks' performance is measured by return on assets (ROA) and return on equity (ROE). The results of the study revealed that EXCH rate and IFR rate have a significant impact on listed commercial banks' performance measured by ROA, whereas GDP and INTRT rate have an insignificant influence on listed commercial banks' performance calculated by ROA. However, all external factors as (GDP, EXCH, and INTRT) have a negative effect on listed commercial banks' performance in India, except IFR rate has a positive impact on banks' performance measured by (ROA and ROE). The study adds value to the knowledge in the academic financial performance by providing new empirical evidence of the relationship between external factors and financial performance in annual reports of Indian commercial banks.
Keyword: External factors, financial performance, listed commercial banks, India

I. INTRODUCTION
Currently, India is presently one of the world's best-growing economies. There are many "financial institutions organizations in India, and they undertake distinct duties in economic activity. Indian banking is getting more attention lately due to various greater growth rates for Gross Domestic Product (GDP)". "The Indian banking sector consists of 27 public, 26 private, 46 foreign, 56 regionals rural, 1,574 urban collaborative, and 93,913 rural collaborative banks. Public sector banks account for about 70 per cent of the Indian banking system's total assets" (Shrivastava, Sahu, & Siddiqui, 2018). India's economic system is controlled by business financial institutions. In a competitive, difficult and governmental setting such as India, Indian commercial banks must effectively and efficiently distribute their assets and liabilities to boost performance (Viswanathan, Ranganatham, & Balasubramanian, 2014). The commercial banks are very important in different countries in the world, it contains almost a third of the financial assets of all financial institutions in the economy, it are still the main means of payment, it has the ability to produce funds from public bank reserves, financial institutions are the main channel from which the state transfers its monetary expansion, financial institutions are the primary financial system storage facility, and financial institutions can provide stronger and broader financial services than other financial institutions, serving both credit and transaction needs as well as savings for people, companies, and governments (Arab Accountants Forum, 2013).

In facilitating economic transactions and banking transactions, banks play a major role. Financial institutions play a major and influential role in funding their projects of large and small expenditures. In contrast to its recognition of deposits from the private and public sector and its direct connection to the acquisition of stocks and bonds in companies, the issuance of lists of promoters of new industrial enterprises and the purchase of deposit licenses, bonds, and local lenders, Investment banks are primarily involved in the funding of investment activities through the global economy Credit facilities and bank credit for all industries operating in the country. Financial institutions or commercial banks play a key role in nations ' economic progress (Arab Accountants Forum, 2013). Financial institutions retain millions of deposits from individuals, firms, states, private and public entities, and investment agencies, and provide millions of dollars to people, firms, and corporations, either indirectly or through the purchasing of securities. The first of financial institutions is to provide the economy of the country with the necessary funds for its growth and development, and any imbalances in banks in order that interfere with the national manufacturing sector's wellbeing. Naturally, the position of banks becomes much more critical as the economy grows in a country Financial institutions often finance the development of lucrative investment projects and to provide the required loans to fund the commercial sector's investment in particular (Bayt, 2016). It involves beginning to fund investment in fixed assets of construction, equipment, transportation, etc. manufacturing, in addition to funding the procurement of raw materials and financing the required working capital. Financial institutions ' most significant functions can be summarized as follows: (1) Finance feature: the acknowledgment of specific deposits and afterward the position of financial intermediaries by moving projects needing funding for (2) monetary feature from surplus institutions to economic units: when receiving and retaining the assets of people, financial institutions balance the financial and the intangible in the economy. By establishing derivatives reserves to provide liquidity for those who need it through offering loans and advancements (Bayt, 2016).

This study organized as a follow: Section two present literature review of the research. Section three shows the research methodology of the present investigation. Section four reveals the data analysis and results. Finally, section five presents a conclusion of the current research.

II. LITERATURE REVIEW
Large studies in different countries around the world have been investigated the factors that influence a banks' performance in different countries first, Perera and Wickramanayake (2016) examined that quality determinants of banks in 122 countries in the world). Second, "investigation that compare a banks' performance determinants among different banks in the same region" (e.g., "Chowdhury and Rasid (2017) examined the determinants of commercial banks in GCC countries, Roman and Camelia (2015) investigated the profitability in CEE countries, Menicucci and Paolucci (2016) examined that factors that affect profitability of banks in Europe"). Finally,

"examination that have analyzed a bank's performance determinants and focused only on a single country". For example, "Marijana, Poposki and Pepur (2012) Macedonia, Robin, Salim and Bloch (2018) studied the commercial banks in Bangladesh, Ramlan and Adnan (2016) studied the factors that affect profitability of banks in Malaysia, Mendonça and Silvzz (2018) investigated the impact of internal and external factors in Brazil, and Almaqtari, Al-Homaidi, Tabash and Farhan (2018) examined the determinants of commercial banks India".

Large of the previous research have defined performance by (ROA and ROE) e.g., Chowdhury and Rasid (2017),. While other studies used ROE for measuring banks' performance (e.g. Homaidi, Almaqtari, Ahmad, & Tabash, 2019). However, "bank's performance was investigated by prior research as a function of external that are related to economic, industrial and legal environments that are out of a bank's control"). "External determinants comprise variables such as GDP, inflation rate, interest rate and exchange rate" (Al-Homaidi, Tabash, Farhan, & Almaqtari, 2018; Almaqtari et al., 2018; Menicucci & Paolucci, 2016).

III. Research Methodology

1.1. Data and methodology

The objective of this analysis is to explore the effect of external variables on the performance of listed commercial banks in India. As the current research considers only listed commercial banks, a sample size composed of 37 banks is chosen based on information accessibility for the time period of this research. This forms a panel of 37 bank year observation balanced information collection. A panel of 37 listed commercial banks over the period from 2008 to 2017 is used.

1.2. Model specification

Menicucci and Paolucci (2016) adopted linear repression model to study the issues of the listed the quality of financial institutions. Some of scholars argued that linear repression model is the better to examine the determinants of banks' performance.

$$Performance_{it} = \alpha_i + \beta_1 \mathrm{GDP}_{it} + \beta_2 \mathrm{INF}_{it} + \beta_3 INTR_{it} + \beta_4 EXCH_{it} + \varepsilon_{it}. \quad (1)$$

$$ROA_{it} = \alpha_i + \beta_1 \mathrm{GDP}_{it} + \beta_2 \mathrm{INF}_{it} + \beta_3 INTR_{it} + \beta_4 EXCH_{it} + \varepsilon_{it.} \quad (1a)$$

$$ROE_{it} = \alpha_i + \beta_1 \mathrm{GDP}_{it} + \beta_2 \mathrm{INF}_{it} + \beta_3 INTR_{it} + \beta_4 EXCH_{it} + \varepsilon_{it}. \quad (1b)$$

Where, performance = ROA and ROE, and all other indicators are as defined in Table 2.

Table 1: Definitions of variables

Variable	Acronym	Measure	Expect	Evidence from Prior Research
Dependent variables: Banks' performance				
Performance	ROA ROE	$ROA_{it} = \frac{Net\ Prof_{it}}{Total\ Assets_{it}}$ $ROE_{it} = \frac{Net\ Prof_{it}}{Total\ Equity_{it}}$		(Naeem et al., 2017; Rani & Zergaw, 2017; Al-homaidi, Tabash, Farhan, & Almaqtari, 2019; Menicucci & Paolucci, 2016; Ahmad & Al-homaidi, 2018).
Independent variables: External determinants				
Economic Activity	GDP	Annual Real GDP Growth Rate	±	(Zampara et al., 2017).
Inflation	IF	Annual inflation rate (IF).	+	(Pasiouras & Kosmidou, 2007; Petria et al., 2015).
Exchange Rate	EXCH	Average exchange rate in a year	+	(Al-Homaidi et al., 2018; Almaqtari et al., 2018; Rjoub et al., 2017).
Interest Rate	INTRT	Lending interest	+	(Rjoub et al., 2017; Almaqtari, Al-Homaidi, Tabash, & Farhan, 2018).

IV. Data Analysis and Results

4.1 Descriptive statistic

Table 2 presents the results of median, maximum, minimum, and Std. Dev. values are 0.824, 0.880, 2.020, -2.040, 0.700 and 10.928, 13.155, 31.560, -38.600, 12.092 respectively. The external factors (GDP, EXCH, IFR, and INTRT) show the mean, median, max, min, and Std. Dev. values are 7.331, 7.145, 10.260, 3.890, 1.813 for (GDP), 55.765, 57.515, 66.250, 42.020, 8.813 for (EXCH), 8.390, 8.600, 12.000, 4.900, 2.306 for (IFR), finally 4.630, 5.025, 7.780, 1.060, and 2.246 for (INTRT).

Table 2. Descriptive statistic

Variables	ROA	ROE	GDP	EXCH	IFR	INTRT
Observations	370	370	370	370	370	370
Mean	0.824	10.928	7.331	55.765	8.390	4.630
Median	0.880	13.155	7.145	57.515	8.600	5.025
Maximum	2.020	31.560	10.260	66.250	12.000	7.780
Minimum	-2.040	-38.600	3.890	42.020	4.900	1.060
Std. Dev.	0.700	12.092	1.813	8.813	2.306	2.246

4.2 Correlation matrix

Table 3 reveals the correlation between external factors and banks' performance. The results indicated that GDP and INF have a positive correlation with performance of Indian listed banks measured by (ROA and ROE), whereas EXCH and INTRT have a negative correlation with performance (ROA and ROE) of Indian banks for the period from 2007 to 2017. Table 2 also revealed that results of Variance Inflation Factors which indicated that there is no multicollinearity problem between variable because of all values less than 8.

Table 3. Correlation matrix

Variables	ROA	ROE	GDP	EXCH	IFR	INTRT
Panel A: Banks' performance						
ROA	1.000					
ROE	0.809	1.000				
Panel B: External factors						
GDP	0.017	0.035	1.000			
EXCH	-0.308	-0.451	-0.148	1.000		
IFR	0.241	0.381	0.106	-0.317	1.000	
INTRT	-0.234	-0.336	0.138	0.168	-0.7099	1.000
Panel B: Multicollinearity diagnostics						
Variance Inflation Factors			1.126	1.13149	2.349	2.22823

4.3. Multiple regression analysis

4.3.1. Determinates of ROA

Table 4 present the results of regression analysis of the current examination for the period from 2007 to 2017 in India listed commercial banks. The Adjusted R-squared value is 0.118 which means that all independents variable contributes about 11% from ROA. Table 4 revealed that EXCH and IFR have a significant impact on listed commercial banks' performance measured by ROA, whereas GDP and INTRT have insignificant influence on listed banks' performance defined by ROA. However, all external factors as (GDP, EXCH, and INTRT) have a negative effect on listed banks' performance in India, except IFR has a positive impact on banks' performance measured by ROA.

Table 4. Determinates of ROA

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	12.218	4.115	2.969	0.003
LNGDP	-0.431	0.469	-0.920	0.358
LNEXCH	-3.156	0.813	-3.882	0.000
LNIFR	1.733	0.620	2.796	0.005
LNINTRT	-0.260	0.261	-0.995	0.320
R-squared	0.127			
Adjusted R-squared	0.118			
Durbin-Watson stat	1.419			
F-statistic	13.308			
Prob(F-statistic)	0.000			

4.3.2. Determinates of ROE

Table 5 reveals the outcomes of regression of the present investigation. The Adjusted R-squared value is 0.12 which means that all independents variable contributes about 12% from ROE. Table 4 indicated that EXCH and INTRT have a significant influence on listed commercial banks' profitability, whereas GDP and IFR have an insignificant effect on listed banks' performance in India. The results also found that GDP, EXCH, and INTRT have a negative effect on listed banks' performance in India, except IFR has a positive influence on banks' performance calculated by ROE.

Table 5. Determinates of ROE

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	5.009	1.118	4.480	0.000
LNGDP	-0.011	0.019	-0.595	0.552
LNEXCH	-1.102	0.222	-4.960	0.000
LNIFR	0.238	0.168	1.417	0.157
LNINTRT	-0.133	0.071	-1.882	0.061
R-squared	0.13			
Adjusted R-squared	0.12			
Durbin-Watson stat	0.544			
F-statistic	13.511			
Prob(F-statistic)	0.000			

V. CONCLUSION

This paper aims to examine the effect of external factors on listed commercial banks' profitability in India. This research adopted a panel data of 37 listed commercial banks for the period from 2008 to 2017. External factors are measured by gross domestic product

(GDP), inflation rate (IFR), interest rate (INTRT), and exchange rate (EXCH), whereas listed commercial banks' performance is measured by return on assets (ROA), return on equity (ROE) and. The outcomes of the study revealed that EXCH rate and IFR rate have a significant impact on listed commercial banks' performance measured by ROA, whereas GDP and INTRT rate have an insignificant influence on listed commercial banks' performance calculated by ROA. However, all external factors as (GDP, EXCH rate, and INTRT rate) have a negative effect on listed commercial banks' performance in India, except IFR rate has a positive impact on banks' performance calculated by (ROA and ROE).

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