FDI in the Retail Sector and its Impact on Select Macro-Economic Variables : A Comparative Study of India and China

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Abstract

Retailing can be defined as the buying and selling of goods and services. It can also be defined as the timely delivery of goods and services demanded by consumers at prices that are competitive, affordable, and available under one roof. The current research work aspired to analyze the FDI in retail sector and its impact on the select macro-economic variables of both India and China. The study made a comparative analysis with respect to both the countries. The study observed that FDI plays a vital role in transforming developing countries into developed nations. The overall performance of select macro-economic variables in India, when compared to China, need to improve. New privileges in FDI will stabilize the market and the financial indicators in the future.

Key words: **descriptive test, FDI in retail, impact of macro-economic variables, cause and effect of FDI in retail in India and China**

JEL Classification : G14, L1, L5, L6

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Retailing can be defined as the buying and selling of goods and services. It can also be defined as the timely delivery of goods and services demanded by consumers at prices that are competitive, affordable, and available under one roof. Retailing involves a direct interface with the customer and the coordination of business activities from end to end (manufactures to consumers) right from the concept or design stage of a product or offering, to its delivery and post-delivery service to the customer (Janardhan & Feroz Zaheer, 2006). The Indian industrial activity, especially in the retail sector, is an important contributor to the developed economy. The same aspect of retailing is considered as one of the largest and traditional industries in India. It has emerged as one of the most dynamic and fast-paced industries. The recent decade has greatly contributed to the growth in the retail industry, especially in the organized retailing sector when compared to the unorganized retail sector in India. The organized retail culture initiated in the Western and Eastern countries of the world.

The overall size of the retail sector was estimated to be ₹ 31 trillion (USD 534 billion) in 2013-2014, with a CAGR of 15 % over the last 5 years, which is much higher than the growth of the Indian GDP in the same period. Going forward, the overall retail sector growth is likely to witness a CAGR of 12-13%, which would be worth ₹ 55 trillion (USD 948 billion) in 2018-19. The revenue generated from organized retail (or modern retail) was ₹ 0.9 trillion (USD15.5 billion) in 2009, ₹ 2.4 trillion in 2012 (USD 41.4 billion), and is expected to continue growing at

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an impressive rate to a projected INR 5.5 trillion (USD 94.8billion) by 2019. (The Indian Retail the Next Growth Story, KPMG, 2014).

China has been able to attract foreign retailers due to its ability to understand customer needs and wants, local competition, controlling of inflation, better market share, market size and performance, and adoption of new technology.

Review of Literature

Chackochen. M and Pon Ramalingam, (2012) discussed about why we need FDI in the retail sector. In their study, the authors clearly defined that in India, FDI entry options are franchise and strategic licensing agreement, cash and carry wholesale trading, and manufacturing based. Retailing is the last link that connects an individual consumer with a manufacturing and distribution chain. A retailer is involved in the act of selling goods to the individual consumer at a margin of profit, and FDI will provide innovative technology to the consumers. So, allowing FDI would be beneficial to the retailers for accelerating retail market growth, providing employment opportunities, creating competition, and would lead to proper balancing of the distribution systems.

Renuka. Ganesan. M and et., all (2013) investigated the performance of FDI in the Indian retail sector and compared the same with successful experiments in countries like Thailand and China. In Thailand and China, the issue of allowing FDI in the retail sector was first met with incessant protest, but later turned out to be one of most promising political and economical decision of their governments and led not only to the commendable rise in the level of employment, but also led to an enormous development of their country's GDP. The study made an analysis of 10 sectors and compared the same with Thailand and China. The results revealed that 50% of the total FDI inflows received by India came from Mauritius, Singapore, and the USA, which greatly promoted the retail sector in India as compared with other countries. Finally, the authors concluded that the advantages of allowing FDI in the retail sector will lead to economic development in India and will make a new path for consumers for buying various goods. Successful experiments in countries like Thailand and China has proved that allowing FDI in the retail sector was a favorable economic decision of their governments.

Chellasamy, P., and Ponsabariraj, N (2013) identified the profitability position and prospectus of the selected retail companies in India. The study covered a period of 10 years from 2002-2003 to 2011-2012. The study used a financial tool, namely profitability scoring multiplier analysis. This analysis measured operating, non-operating, and financial indicators on profitability position of select retail companies in India. The final results depicted that the profitability position of a few of the selected retail companies was not satisfactory during the study period. This was due to the poor cost of production, return on investment, non-core assets, and increasing bad debts. The debt capital greatly affected the profitability position and the trend of the companies. Finally, the study concluded that return on investments in terms of using capital and reducing production costs would help to increase the profits of the concerned companies.

Research Problem

Retailing is still largely dominated by the unorganized retail sector in India. In India, small scale retailers and shoppers are facing stiff competition from affordable prices, quality of products, demand on branded items, service quality, freedom in choosing products, and customer relationship provided by organized retail. The retail sector has developed into new formats such as hypermarkets which includes departmental stores, discount stores, malls, and so forth, and customers are also flocking to organized retail stores to meet their needs and wants as they get affordable prices, good quality of products, demand on branded items, service quality, and freedom in choosing from a variety of products .

The Indian retail industry is witnessing a huge revamping exercise as traditional marketers make way for new

formats such as departmental stores, hypermarkets, supermarkets, and specialty stores in India. The FDI investments in India and China in retail create immediate fluctuations in major Indian macro- economic indicators such as GDP, exchange rate, inflation, wholesale price index, and consumer price index. This has been due to the large scale of investments in the retail industry, with investments by major national and international players. With this background, the current research work aspires to analyze the FDI in retail sector and its impact on the select macro-economic variables of both India and China. The study makes a comparative analysis with respect to both the countries. Based on the above issues, we have framed the following research question, which is also the objective of the present study :

- What is the growth of FDI in the retail sector and what is its impact on select macro-economic variables in India and China?

Methodology

(1) Sources of Data and Framework of Analysis : China has one of the top most retail businesses throughout the world and is also the country occupying the first place for attracting more FDI in the retail sector. So, we compare the Indian retail growth with that of China.

The following macro-economic variables have been used to measure the impact of FDI in the retail sector. Before carrying out the analysis, the select variables are considered to a logarithm. It shows the elasticity and degree of responsiveness. *FDI* is the explained variable, while the explanatory variables are namely, *LBOT* (balance of trade), *LCPI* (consumer price index), *LEXRATE* (exchange rate), *LGDP* (gross domestic product), *LIIP* (industrial investment production), *LINFL* (inflation rate), *LIR* (interest rate), *LPPI* (producer price index), *LTR* (total reserve), and *LUR* (unemployment rate). The data collected for the study is secondary data. The required data for the study was collected and compiled from the Reserve Bank of India (RBI), Organization for Economic Co-operation and Development (OCED), Economic Research and International Monetary Fund (IMF). The study covers a period of 14 years from 2000 Q1 to 2014 Q4. The collected data has been analyzed with the help of econometric analysis namely descriptive statistics, CAGR, Augmented Dickey - Fuller (ADF) test, panel least squares analysis, and pairwise Granger causality tests.

(2) Panel Least Squares Analysis Fit for the Study

$$FDI_{it} = \beta_0 + \beta_1 * BOT_{it} + \beta_2 * CPI_{it} + \beta_3 * EXRATE_{it} + \beta_4 * GDP_{it} + \beta_5 * IIP_{it} + \beta_6 * INFL_{it} + \beta_7 * IR_{it} + \beta_8 * PPI_{it} + \beta_9 * TR_{it} + \beta_{10} * UR_{it} + \varepsilon_{it}$$

where,
FDI= dependent variable, and *BOT, CPI, EXRATE, GDP, IIP, INFL, IR, PPI, TR,* and *UR* = independent variables

Conceptual Design and Hypotheses

The conceptual design of the study is depicted in the Figure 1. The hypotheses for the study are as follows :

- **H01:** There is no significant relationship between the normal distributions of select macro-economic variables in India and China.

- **H02:** There is no significant relationship between FDI in the retail sector and its impact on the select macro-economic variables in India and China.

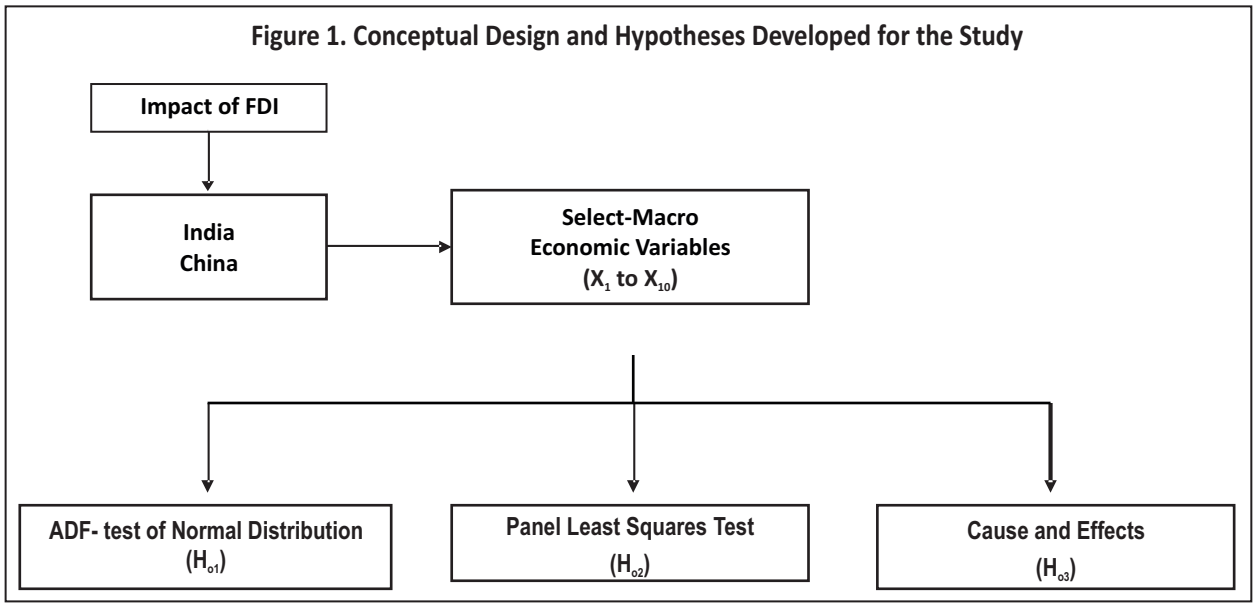

Table 1. Summary of Descriptive Statistics of Select Macro-Economic Variables in India and China During the Study Period from 2000 Q1 to 2014Q4

Variables	India				China			
	Mean	SD	CV	CAGR	Mean	SD	CV	CAGR
LBOT	14.22	0.79	2.04	0.01	3.15	1.30	1.19	-0.04
LCPI	-0.21	0.31	1.36	0.01	4.54	0.12	1.52	-0.01
LEXRATE	3.87	0.11	1.19	0.01	1.85	1.43	1.13	0.01
LGDP	2.09	0.64	1.17	0.02	1.80	0.73	1.13	0.01
LIIP	-2.58	0.29	1.19	0.06	2.58	0.24	1.20	0.08
LINFL	1.82	0.45	1.13	0.02	4.54	0.12	1.19	0.01
LINTEREST_RATE	-2.70	0.16	1.09	0.05	-0.65	1.71	1.09	0.03
LPPI	-2.46	0.26	1.02	9.77	4.57	0.07	1.22	-0.01
LTOTAL_RESERVE	11.92	0.73	1.19	0.00	11.66	0.39	1.19	-0.11
LUR	1.68	2.15	1.17	0.02	1.54	0.30	1.22	0.01

↳ **H03 :** There is no cause and effect between the FDI in the retail sector and its impact on the select macro-economic variables in India and China.

Analysis and Results

The Table 1 reveals the summary of the descriptive statistics of select macro-economic variables in India and China during the study period. The average of select macro-economic variables shows a fluctuating trend during the study period; this has been due to the new policy introduced by retailing and impact of FDI in retail. The balance of trade has the highest average of 14.22%, followed by total reserve, which has the average of 11.92%.

Table 2. Summary of Augmented Dickey-Fuller (ADF) Tests of Select Macro-Economic Variables in India and China During the Study Period from 2000 Q1 to 2014Q4

Variables	India			China		
	Level	1St Difference	2nd Difference	Level	1St Difference	2nd Difference
LBOT	-3.801350			-4.501325		
LCPI			-12.62117		-4.299197	
LEXRATE		-5.839564			-8.650096	
LGDP	-3.598440				-8.245542	
LIIP			-30.14372		-6.099378	
LINFL		-8.812090			-6.696264	
LINTEREST_RATE		-9.348179			-10.01882	
LPPI		-6.892001			-6.048825	
LTOTAL_RESERVE		-4.448350			-4.711859	
LUR		-7.501792		-4.624422		

Note: Significance level is 0.05 %.

The interest rate has a negative average of 2.70%. The unemployment rate has the highest standard deviation of 2.14%, and exchange rate has the lowest standard deviation of 0.11%. The balance of trade has the highest coefficient of 2.04%, and the producer price index has a low coefficient of variance of 1.01%, and it is found that there is more consistency when compared to other select macro-economic variables in India. The producer price index has the highest positive compound annual growth rate of 9.77 %, and the balance of trade, consumer price index, and exchange rate have the lowest positive compound annual growth rate of 0.01%.

For China, the total reserve has the highest average of 11.66%, followed by producer price index, which has the average of 4.56%. The interest rate has a negative average of 0.65%. The interest rate has the highest standard deviation of 1.70%, and the producer price index has the lowest standard deviation of 0.10%. The consumer price index has the highest coefficient of 1.65%, and the FDI has a low coefficient of variance of 0.001%, and it is found that there is more consistency when compared to other select macro-economic variables in China. The industrial investment production has the highest and positive compound annual growth rate of 0.08%, and the total reserve has the lowest and negative compound annual growth rate of 0.1101 %.

(1) Testing the Normality of Select Macro-Economic Variables in India and China

↳ **H01(a):** There is no significant relationship between the normal distributions of select macro-economic variables in India.

↳ **H01(b):** There is no significant relationship between the normal distributions of select macro-economic variables in China.

The Table 2 shows the summary of the Augmented Dickey-Fuller test of select macro-economic variables in India and China during the study period. The select macro-economic variables of the countries show that the time series is stationary with various stages during the study period. In India, the select macro-economic variables such as balance of trade and gross domestic product has stationarity at level. The exchange rate, inflation, interest rate, producer price index, total reserve, and unemployment rate are stationary at first difference. The consumer price index and industrial investment production are stationary at second difference. The select variables are stationary

Table 3. Panel Least Squares Analysis of India During the Study Period from 2000 Q1 to 2014Q4

Variables	Coefficient	Std. Error	t-Statistic	Prob.
LBOT	-0.068133	0.279371	-0.243880	0.8083
LCPI	-0.569978	0.905468	-0.629485	0.5320
LEXRATE	0.710296	0.367067	1.935060	0.0588*
LGDP	-0.195812	0.033662	-5.816927	0.0000*
LIIP	0.262571	0.500668	0.524441	0.6023
LINFL	0.079938	0.071857	1.112453	0.2714
LINTEREST_RATE	0.960534	0.233141	4.119978	0.0001*
LPPI	0.611192	1.452419	0.420809	0.6757
LTOTAL_RESERVE	0.292191	0.118251	2.470948	0.0170*
LUR	-0.151143	0.015599	-9.688971	0.0000*
C	0.512069	7.914127	0.064703	0.9487
***R*-squared**	**0.953679**	**Adjusted *R*-squared**	**0.944226**	
***F*-statistic**	**100.8835**		**Durbin-Watson stat**	
Prob(*F*-statistic)	**0.000000**		**0.861466**	

Note: Significance level is 0.05%(*) and Dependent Variable: FDI.

at various stages. So, the null hypothesis (H01a) is rejected. In case of China, the select macro-economic variables such as balance of trade and unemployment rate has stationarity at level. The consumer price index, exchange rate, gross domestic product, industrial investment production, inflation, interest rate, producer price index, and total reserve are stationary at first difference. The select variables are stationary at various stages. So, the null hypothesis (H01b) is rejected.

(2) Examining the Impact of Select Macro-Economic Variables in India

↳ **H02(a) :** There is no significant relationship between FDI in the retail sector and its impact on the select macro-economic variables in India.

The Table 3 describes the panel least squares analysis of select macro-economic variables in India during the study period. The relationship between FDI and the other independent variables is found to be $R^2 = 0.95$. It means that all the independent variables have influenced the dependent variable by 95%. The regression ANOVA indicates that the calculated value of *F* is less than the table value and its significance. The regression coefficient variables are *IEXRATE, LGDP, LIR, LTR,* and *LUR*, and the calculated values for these are significant. So, the null hypothesis H02(a) is rejected, and hence, there is a significant relationship between FDI in the retail sector and its impact on the select macro-economic variables in India. The Durban-Watson statistics value of 0.86 indicates the positive autocorrelation among the independent variables.

(3) Analyzing the Cause and Effect of FDI and Macro - Economic Variables in India

↳ **H03(a) :** There is no cause and effect between FDI in the retail sector and the select macro-economic variables in India.

The relationship between FDI and the other independent variables is found to be $R^2 = 0.79$. It means that all the

Table 4. Pairwise Granger Causality Tests of India During the Study Period from 2000 Q1 to 2014Q4

Null Hypothesis	Obs	*F*-Statistic	Prob.
LCPI does not Granger Cause LBOT	58	0.69259	0.5047
LBOT does not Granger Cause LCPI		2.25382	0.1150
LEXRATE does not Granger Cause LBOT	58	1.55465	0.2207
LBOT does not Granger Cause LEXRATE		2.18657	0.1223
LGDP does not Granger Cause LBOT	58	0.41931	0.6597
LBOT does not Granger Cause LGDP		1.53366	0.2252
LIIP does not Granger Cause LBOT	**58**	**3.37162**	**0.0418**
LBOT does not Granger Cause LIIP		2.21813	0.1188
LINFL does not Granger Cause LBOT	58	0.48147	0.6206
LBOT does not Granger Cause LINFL		0.69254	0.5048
LINTEREST_RATE does not Granger Cause LBOT	58	0.88861	0.4173
LBOT does not Granger Cause LINTEREST_RATE		2.32941	0.1072
LPPI does not Granger Cause LBOT	58	0.44425	0.6437
LBOT does not Granger Cause LPPI		**3.30085**	**0.0446**
LTOTAL_RESERVE does not Granger Cause LBOT	58	2.62239	0.0820
LBOT does not Granger Cause LTOTAL_RESERVE		0.14383	0.8664
LUR does not Granger Cause LBOT	58	0.43380	0.6503
LBOT does not Granger Cause LUR		0.35859	0.7003
FDI does not Granger Cause LBOT	58	0.08609	0.9176
LBOT does not Granger Cause FDI		0.90129	0.4122
LEXRATE does not Granger Cause LCPI	58	1.72744	0.1876
LCPI does not Granger Cause LEXRATE		1.91365	0.1576
LGDP does not Granger Cause LCPI	58	1.78001	0.1786
LCPI does not Granger Cause LGDP		1.08763	0.3444
LIIP does not Granger Cause LCPI	58	13.8020	1.E-05
LCPI does not Granger Cause LIIP		7.09359	0.0019
LINFL does not Granger Cause LCPI	58	0.90307	0.4115
LCPI does not Granger Cause LINFL		0.63731	0.5327
LINTEREST_RATE does not Granger Cause LCPI	58	1.36254	0.2648
LCPI does not Granger Cause LINTEREST_RATE		2.79664	0.0700
LPPI does not Granger Cause LCPI	**58**	**5.66976**	**0.0059**
LCPI does not Granger Cause LPPI		**3.97010**	**0.0247**
LTOTAL_RESERVE does not Granger Cause LCPI	58	2.04814	0.1391
LCPI does not Granger Cause LTOTAL_RESERVE		0.48981	0.6155
LUR does not Granger Cause LCPI	58	2.93003	0.0621
LCPI does not Granger Cause LUR		0.83877	0.4379
FDI does not Granger Cause LCPI	58	2.51232	0.0907
LCPI does not Granger Cause FDI		0.42565	0.6556
LGDP does not Granger Cause LEXRATE	58	0.23555	0.7910
LEXRATE does not Granger Cause LGDP		2.70075	0.0764

LIIP does not Granger Cause LEXRATE	**58**	**5.69543**	**0.0057**
LEXRATE does not Granger Cause LIIP		0.06758	0.9347
LINFL does not Granger Cause LEXRATE	58	0.35841	0.7005
LEXRATE does not Granger Cause LINFL		0.96127	0.3890
LINTEREST_RATE does not Granger Cause LEXRATE	**58**	**3.99849**	**0.0241**
LEXRATE does not Granger Cause LINTEREST_RATE		**5.01331**	**0.0101**
LPPI does not Granger Cause LEXRATE	58	3.31417	0.0440
LEXRATE does not Granger Cause LPPI		1.63074	0.2055
LTOTAL_RESERVE does not Granger Cause LEXRATE	**58**	**3.60491**	**0.0341**
LEXRATE does not Granger Cause LTOTAL_RESERVE		0.28818	0.7508
LUR does not Granger Cause LEXRATE	58	0.02838	0.9720
LEXRATE does not Granger Cause LUR		**3.16349**	**0.0504**
FDI does not Granger Cause LEXRATE	58	0.67031	0.5158
LEXRATE does not Granger Cause FDI		0.69452	0.5038
LIIP does not Granger Cause LGDP	58	2.15511	0.1259
LGDP does not Granger Cause LIIP		0.14461	0.8657
LINFL does not Granger Cause LGDP	58	0.24856	0.7808
LGDP does not Granger Cause LINFL		2.81289	0.0690
LINTEREST_RATE does not Granger Cause LGDP	58	0.25382	0.7768
LGDP does not Granger Cause LINTEREST_RATE		0.27325	0.7620
LPPI does not Granger Cause LGDP	58	2.01053	0.1440
LGDP does not Granger Cause LPPI		0.90558	0.4105
LTOTAL_RESERVE does not Granger Cause LGDP	58	1.66751	0.1985
LGDP does not Granger Cause LTOTAL_RESERVE		0.08775	0.9161
LUR does not Granger Cause LGDP	58	0.98099	0.3816
LGDP does not Granger Cause LUR		2.02182	0.1425
FDI does not Granger Cause LGDP	58	0.78102	0.4631
LGDP does not Granger Cause FDI		0.39740	0.6741
LINFL does not Granger Cause LIIP	58	1.70659	0.1913
LIIP does not Granger Cause LINFL		1.51281	0.2296
LINTEREST_RATE does not Granger Cause LIIP	58	0.84463	0.4354
LIIP does not Granger Cause LINTEREST_RATE		2.60476	0.0834
LPPI does not Granger Cause LIIP	58	0.73569	0.4840
LIIP does not Granger Cause LPPI		**6.56919**	**0.0028**
LTOTAL_RESERVE does not Granger Cause LIIP	58	2.26088	0.1142
LIIP does not Granger Cause LTOTAL_RESERVE		0.69187	0.5051
LUR does not Granger Cause LIIP	58	1.21851	0.3038
LIIP does not Granger Cause LUR		0.15586	0.8561
FDI does not Granger Cause LIIP	58	0.80183	0.4539
LIIP does not Granger Cause FDI		1.33999	0.2706
LINTEREST_RATE does not Granger Cause LINFL	58	2.62383	0.0819
LINFL does not Granger Cause LINTEREST_RATE		1.19299	0.3113

LPPI does not Granger Cause LINFL	58	2.12744	0.1292
LINFL does not Granger Cause LPPI		1.77141	0.1800
LTOTAL_RESERVE does not Granger Cause LINFL	**58**	**3.09494**	**0.0535**
LINFL does not Granger Cause LTOTAL_RESERVE		0.40484	0.6691
LUR does not Granger Cause LINFL	**58**	**5.39231**	**0.0074**
LINFL does not Granger Cause LUR		0.59620	0.5546
FDI does not Granger Cause LINFL	**58**	**3.95717**	**0.0250**
LINFL does not Granger Cause FDI		1.31668	0.2766
LPPI does not Granger Cause LINTEREST_RATE	**58**	**3.24375**	**0.0469**
LINTEREST_RATE does not Granger Cause LPPI		1.26422	0.2908
LTOTAL_RESERVE does not Granger Cause LINTEREST_RATE	**58**	**3.24901**	**0.0467**
LINTEREST_RATE does not Granger Cause LTOTAL_RESERVE		0.73998	0.4820
LUR does not Granger Cause LINTEREST_RATE	58	0.41178	0.6646
LINTEREST_RATE does not Granger Cause LUR		**3.71237**	**0.0310**
FDI does not Granger Cause LINTEREST_RATE	58	0.95086	0.3929
LINTEREST_RATE does not Granger Cause FDI		0.14081	0.8690
LTOTAL_RESERVE does not Granger Cause LPPI	**58**	**3.31060**	**0.0442**
LPPI does not Granger Cause LTOTAL_RESERVE		1.74149	0.1851
LUR does not Granger Cause LPPI	58	2.57942	0.0853
LPPI does not Granger Cause LUR		0.47933	0.6219
FDI does not Granger Cause LPPI	58	2.68569	0.0774
LPPI does not Granger Cause FDI		0.39843	0.6734
LUR does not Granger Cause LTOTAL_RESERVE	58	0.16813	0.8457
LTOTAL_RESERVE does not Granger Cause LUR		0.35304	0.7042
FDI does not Granger Cause LTOTAL_RESERVE	58	0.16299	0.8500
LTOTAL_RESERVE does not Granger Cause FDI		**3.50384**	**0.0372**
FDI does not Granger Cause LUR	58	0.19266	0.8253
LUR does not Granger Cause FDI		0.00516	0.9949

Source: Compiled and Calculated from the data published in various report.

The Table 4 explicitly shows the pairwise Granger causality tests of India during the study period. There is a bi-directional (significant) causality between *LPPI & LCPI* and *LIR & LEXRATE*. There is a uni-directional (significant) causality between *LIIP & LBOT*, *LBOT & LPPI, LCPI & LIIP, LTR & LEXRATE, LEXRATE & LUR, LIIP & LPPI, LTR & LINFL, LUR & LINFL, FDI & LINFL, LPPI & LTR, LTR & LPPI,* and *LTR & FDI* . So, the null hypothesis H03(a) is rejected, and hence, there is a cause and effect relation between FDI in the retail sector and the select macro-economic variables in India.

(4) Examining the Impact of Select Macro-Economic Variables in China

- **H04(a) :** There is no significant relationship between FDI in the retail sector and its impact on the select macro-economic variables in China.

The Table 5 describes the panel least squares analysis of select macro-economic variables in China during the study period.

Table 5.Panel Least Squares Analysis of China During the Study Period from 2000 Q1 to 2014Q4

Variables	Coefficient	Std. Error	*t*-Statistic	Prob.
LBOT	-0.011117	0.044595	-0.249285	0.8042
LCPI	-384.9188	937.6552	-0.410512	0.6832
LEXRATE	-0.044529	0.050611	-0.879837	0.3832
LGDP	0.047720	0.222727	0.214255	0.8312
LIIP	0.308195	0.184537	1.670100	0.1013
LINFL	390.5491	937.9603	0.416381	0.6789
LINTEREST_RATE	-0.056495	0.043017	-1.313317	0.1952
LPPI	-3.161011	1.183432	-2.671053	0.0102
LTOTAL_RESERVE	-0.767474	0.386296	-1.986750	0.0526
LUR	-0.249545	0.326722	-0.763784	0.4487
C	-1.828289	11.94114	-0.153108	0.8789
***R*-squared**	**0.790078**	**Adjusted R-squared**		**0.747237**
***F*-statistic**	**18.44202**	**Durbin-Watson stat**		
Prob(*F*-statistic)	**0.000000**	**0.550951**		

Note: Significance level is 0.05(*).and Dependent Variable: FDI.

independent variables have influenced the dependent variable by 79% . The regression ANOVA indicates that the calculated value of *F* is less than the table value and its significance. The regression coefficient variables are *IPPI* and *TR*, and the calculated values are significant. So, the null hypothesis H04(a) is rejected, and hence, there is a significant relationship between FDI in the retail sector and its impact on the select macro-economic variables in China. The Durban-Watson statistics value of 0.55 indicates a positive autocorrelation among the independent variables.

(5) Analyzing the Cause and Effect of FDI and Macro - Economic Variables in China

↳ **H05(a) :** There is no cause and effect between FDI in the retail sector and the select macro-economic variables in China.

The Table 6 depicts the pairwise Granger causality tests of China during the study period. There is a bi-directional (significant) causality between *LUR* & *LBOT, LUR* & *LIIP*. There is a uni-directional (significant) causality between *LCPI* & *LBOT, LINFL* & *LBOT, LCPI* & *LGDP, LPPI* & *LCPI, LCPI* & *LTR, LCPI* & *LUR, LCPI* & *FDI, LEXRATE* & *LGDP, LEXRATE* & *LPPI, LINFL* & *LGDP, LPPI* & *LGDP, LTR* & *LGDP, LUR* & *LGDP, LPPI* & *LIIP, LPPI* & *LINFL, LINFL* & *LTR, LINFL* & *LUR, LINFL* & *FDI, LINFL* & *LPPI, LTR* & *LPPI, LFDI* & *LUR*. So, the null hypothesis H05(a) is rejected, and hence, there is a significant relationship between the FDI in the retail sector and the select macro-economic variables in China.

Implications

(1) In case of China, the consumer price index and wholesale price index are very low when compared with India during the study period. So, in order to increase both, there is a need for a stable *GDP* and *EXRATE*.

Table 6. Pairwise Granger Causality Tests of China During the Study Period from 2000 Q1 to 2014Q4

Null Hypothesis	Obs	*F*-Statistic	Prob.
LCPI does not Granger Cause LBOT	**58**	**3.51194**	**0.0370**
LBOT does not Granger Cause LCPI		1.26028	0.2919
LEXRATE does not Granger Cause LBOT	58	0.07866	0.9245
LBOT does not Granger Cause LEXRATE		1.07204	0.3496
LGDP does not Granger Cause LBOT	58	0.81291	0.4490
LBOT does not Granger Cause LGDP		0.91787	0.4056
LIIP does not Granger Cause LBOT	58	0.57940	0.5637
LBOT does not Granger Cause LIIP		0.12071	0.8865
LINFL does not Granger Cause LBOT	**58**	**3.51301**	**0.0369**
LBOT does not Granger Cause LINFL		1.26049	0.2919
LINTEREST_RATE does not Granger Cause LBOT	58	1.48076	0.2367
LBOT does not Granger Cause LINTEREST_RATE		0.92590	0.4025
LPPI does not Granger Cause LBOT	58	0.20953	0.8116
LBOT does not Granger Cause LPPI		0.79747	0.4558
LTOTAL_RESERVE does not Granger Cause LBOT	58	0.92167	0.4041
LBOT does not Granger Cause LTOTAL_RESERVE		2.94394	0.0613
LUR does not Granger Cause LBOT	**58**	**3.96930**	**0.0248**
LBOT does not Granger Cause LUR		**3.30764**	**0.0443**
FDI does not Granger Cause LBOT	58	14.1058	1.E-05
LBOT does not Granger Cause FDI		1.28975	0.2838
LEXRATE does not Granger Cause LCPI	58	0.68251	0.5097
LCPI does not Granger Cause LEXRATE		1.89857	0.1598
LGDP does not Granger Cause LCPI	58	2.73522	0.0740
LCPI does not Granger Cause LGDP		**3.59166**	**0.0345**
LIIP does not Granger Cause LCPI	58	1.94587	0.1529
LCPI does not Granger Cause LIIP		1.90476	0.1589
LINFL does not Granger Cause LCPI	58	2.33206	0.1070
LCPI does not Granger Cause LINFL		2.26846	0.1134
LINTEREST_RATE does not Granger Cause LCPI	58	1.56606	0.2184
LCPI does not Granger Cause LINTEREST_RATE		2.04142	0.1399
LPPI does not Granger Cause LCPI	**58**	**3.63572**	**0.0331**
LCPI does not Granger Cause LPPI		1.91915	0.1568
LTOTAL_RESERVE does not Granger Cause LCPI	58	0.08232	0.9211
LCPI does not Granger Cause LTOTAL_RESERVE		**4.15986**	**0.0210**
LUR does not Granger Cause LCPI	58	16.2522	3.E-06
LCPI does not Granger Cause LUR		**3.05503**	**0.0555**
FDI does not Granger Cause LCPI	58	0.56131	0.5738
LCPI does not Granger Cause FDI		**3.35177**	**0.0426**
LGDP does not Granger Cause LEXRATE	58	0.23095	0.7946
LEXRATE does not Granger Cause LGDP		**4.55736**	**0.0149**

LIIP does not Granger Cause LEXRATE	58	0.25074	0.7791
LEXRATE does not Granger Cause LIIP		2.37056	0.1033
LINFL does not Granger Cause LEXRATE	58	1.90449	0.1589
LEXRATE does not Granger Cause LINFL		0.68508	0.5085
LINTEREST_RATE does not Granger Cause LEXRATE	58	0.50016	0.6093
LEXRATE does not Granger Cause LINTEREST_RATE		0.97445	0.3841
LPPI does not Granger Cause LEXRATE	58	0.01456	0.9856
LEXRATE does not Granger Cause LPPI		**3.81324**	**0.0284**
LTOTAL_RESERVE does not Granger Cause LEXRATE	58	0.39844	0.6734
LEXRATE does not Granger Cause LTOTAL_RESERVE		0.51251	0.6019
LUR does not Granger Cause LEXRATE	58	1.67909	0.1963
LEXRATE does not Granger Cause LUR		0.54101	0.5853
FDI does not Granger Cause LEXRATE	58	0.77498	0.4659
LEXRATE does not Granger Cause FDI		0.00115	0.9988
LIIP does not Granger Cause LGDP	58	0.60008	0.5525
LGDP does not Granger Cause LIIP		1.02015	0.3675
LINFL does not Granger Cause LGDP	**58**	**3.59516**	**0.0343**
LGDP does not Granger Cause LINFL		2.74630	0.0733
LINTEREST_RATE does not Granger Cause LGDP	58	0.87005	0.4248
LGDP does not Granger Cause LINTEREST_RATE		1.39349	0.2572
LPPI does not Granger Cause LGDP	**58**	**5.23491**	**0.0084**
LGDP does not Granger Cause LPPI		0.46574	0.6302
LTOTAL_RESERVE does not Granger Cause LGDP	**58**	**5.27881**	**0.0081**
LGDP does not Granger Cause LTOTAL_RESERVE		0.10519	0.9003
LUR does not Granger Cause LGDP	**58**	**7.01184**	**0.0020**
LGDP does not Granger Cause LUR		1.76524	0.1811
FDI does not Granger Cause LGDP	58	0.55882	0.5752
LGDP does not Granger Cause FDI		0.10190	0.9033
LINFL does not Granger Cause LIIP	58	1.90284	0.1592
LIIP does not Granger Cause LINFL		1.94665	0.1528
LINTEREST_RATE does not Granger Cause LIIP	58	0.32749	0.7222
LIIP does not Granger Cause LINTEREST_RATE		0.76693	0.4695
LPPI does not Granger Cause LIIP	**58**	**3.45660**	**0.0388**
LIIP does not Granger Cause LPPI		0.74208	0.4810
LTOTAL_RESERVE does not Granger Cause LIIP	58	0.55967	0.5747
LIIP does not Granger Cause LTOTAL_RESERVE		0.32387	0.7248
LUR does not Granger Cause LIIP	**58**	**4.76252**	**0.0125**
LIIP does not Granger Cause LUR		**3.39297**	**0.0411**
FDI does not Granger Cause LIIP	58	0.49536	0.6121
LIIP does not Granger Cause FDI		1.14845	0.3249
LINTEREST_RATE does not Granger Cause LINFL	58	1.55258	0.2212
LINFL does not Granger Cause LINTEREST_RATE		2.03695	0.1405

LPPI does not Granger Cause LINFL	**58**	**3.62496**	**0.0335**
LINFL does not Granger Cause LPPI		1.91872	0.1569
LTOTAL_RESERVE does not Granger Cause LINFL	58	0.08139	0.9220
LINFL does not Granger Cause LTOTAL_RESERVE		**4.16219**	**0.0209**
LUR does not Granger Cause LINFL	58	16.2593	3.E-06
LINFL does not Granger Cause LUR		**3.04918**	**0.0558**
FDI does not Granger Cause LINFL	58	0.56075	0.5741
LINFL does not Granger Cause FDI		**3.35856**	**0.0423**
LPPI does not Granger Cause LINTEREST_RATE	58	1.43410	0.2474
LINTEREST_RATE does not Granger Cause LPPI		**4.24162**	**0.0196**
LTOTAL_RESERVE does not Granger Cause LINTEREST_RATE	58	1.43045	0.2483
LINTEREST_RATE does not Granger Cause LTOTAL_RESERVE		0.20800	0.8129
LUR does not Granger Cause LINTEREST_RATE	58	1.56919	0.2177
LINTEREST_RATE does not Granger Cause LUR		1.33070	0.2730
FDI does not Granger Cause LINTEREST_RATE	58	1.58603	0.2143
LINTEREST_RATE does not Granger Cause FDI		2.87675	0.0652
LTOTAL_RESERVE does not Granger Cause LPPI	**58**	**3.13636**	**0.0516**
LPPI does not Granger Cause LTOTAL_RESERVE		0.19247	0.8255
LUR does not Granger Cause LPPI	58	1.79756	0.1757
LPPI does not Granger Cause LUR		0.29284	0.7473
FDI does not Granger Cause LPPI	58	0.33711	0.7153
LPPI does not Granger Cause FDI		0.31403	0.7318
LUR does not Granger Cause LTOTAL_RESERVE	58	1.07611	0.3483
LTOTAL_RESERVE does not Granger Cause LUR		2.36477	0.1038
FDI does not Granger Cause LTOTAL_RESERVE	58	1.45791	0.2419
LTOTAL_RESERVE does not Granger Cause FDI		0.03000	0.9705
FDI does not Granger Cause LUR	**58**	**3.15055**	**0.0510**
LUR does not Granger Cause FDI		2.39859	0.1006

It will attract more investment avenues in the retail segment, maintain healthy financial factors, and it will help to maintain a positive growth in the consumer price index and wholesale prices.

(2) In India, the inflation rate is high, and the consumer price index is low among the select variables as the retail market price of products is very high when compared with the standard of living. So, in order to minimize the inflation and maximize the consumer price index, the government needs to devise ways to increase sustainable investment in the Indian retail sector and attract low prices of services and products, which are eventually passed onto the consumers. This will make the economy stable, especially the retail sector. It will also improve the major financial indicators like gross domestic product and wholesale price index.

Conclusion

The results reveal that the performance of a few macro-economic variables of the two countries is not satisfactory during the study period.

The overall performance of the select macro-economic variables in India, when compared to China, needs to improve. New privileges in FDI will stabilize the market as well as the financial indicators in the future.

Limitations of the Study and the Way Forward

The limitations of the study are as follows : For this study, the performance of FDI is considered during the specific period from 2000 Q1 to 2014. The study is confined only to the Indian and Chinese retail context, and the results are not applicable for other countries. The study is based on secondary data, and the findings depend entirely on the accuracy of such data.

The following can be considered as areas for further research :

- FDI in retail sector and its impact on select macro-economic variables : A comparative study of India and United States.
- Impact of FDI in the retail sector : A comparative study of India and developing countries.
- Impact of FDI in the retail sector and select macro-economic variables : A study with reference to the OECD countries.
- Analyzing the financial performance of the select retail companies in India.

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