

Effect of Selected Macroeconomic Variables on Short-term Solvency: A Study on Airports Authority of India

Prasanta Kumar Jayasingh^{1*}, Dasarathi Sahu²

Abstract

The field of Macro-economic Variables and Financial Performance is ever-evolving, and a wide array of research has illuminated this field for the past three decades. The present study explores the impact of macro-economic variables on the liquidity of the sample company. The current research has relied on secondary data over a period of 18 years. The authors have deployed regression analysis by using statistical software SPSS over a cross sectional data set. The study found that the Airport Authority of India is a growing company and has recorded an increasing trend over the period of study. Out of different macro-economic factors, only FDI have significant positive impact on liquidity of Airport Authority of India.

Keywords: Lending rate, borrowing rate, exchange rate, liquidity

INTRODUCTION

Indian aviation is booming, and by 2030, it will have surpassed China and the United States to become the largest in the world. A new period of expansion for the aviation industry has begun. Cost-effective airlines, an uptick in new airports, an influx of foreign direct investment (FDI) into domestic airlines, improved IT, and a focus on fostering regional connections are all contributors. According to Mr. Tony Tyler, Director General and CEO of the International Air Transport Association, “the world’s focus is on Indian aviation,” which includes everyone from corporations to tourism boards, airlines, and international businesses to individual tourists, and businessmen? The future of Indian aviation is promising if all its participants can work together toward a single goal.

India’s aviation business is one of the five fastest-growing in the world, bringing in US\$16 billion in revenue from 275 million passengers in 2016. There was a 21.3% growth in passenger volume between 2011 and 2015, and the combined operating profit of all Indian airlines was Rs 8,100 crores in 2016 fiscal year. From January to May of this year, there was a 17.36% increase in the number of people flying within the United States. When compared with international aircraft traffic, which grew by 8.2%, the extraordinary expansion of the sector can be attributed to the 15.8% increase in domestic aircraft traffic.

*Author for Correspondence

Prasanta Kumar Jayasingh
E-mail: prasantajayasingh@gmail.com

¹Research Scholar, P G Department of Business Administration, Utkal University, Bhubaneswar, Odisha, India

²Reader & Research Supervisor, P G Department of Business Administration, Utkal University, Bhubaneswar, Odisha, India

Received Date: September 21, 2022

Accepted Date: November 25, 2022

Published Date: December 15, 2022

Citation: Prasanta Kumar Jayasingh, Dasarathi Sahu. Effect of Selected Macroeconomic Variables on Short-term Solvency: A Study on Airports Authority of India. NOLEGEIN Journal of Financial Planning & Management. 2022; 5(2): 1–13p.

Government authorities have anticipated the need for roughly 500 unique airports by the year 2020 to keep up with the unprecedented growth in the aviation industry. This encourages the private sector to invest in airport expansion and renovation. Due to the prohibitive cost of air travel

in a developing country like India, where the middle class is rapidly expanding and accounts for around 40% of the population, there are enormous unrealized growth prospects in the aviation sector.

In 1972, the government of India formed the International Airports Authority of India (IAAI) to oversee the country's international airports, and in 1986, the National Airports Authority (NAA) was founded to handle domestic flights. When the National Airports Authority and the Indian Airports Authority merged in 1995, the resulting organization, Airports Authority of India (AAI), took over responsibility for the nation's airports and airspace. Among the 137 airports under AAI's care, 24 are international hubs while the remaining 113 are either domestic or subject to customs clearance. Over an area of 2.8 million square nautical miles, it AAI offers air navigation services. The Indian government has recognized the Airports Authority of India as a Miniratna Category 1 Public Sector Enterprise.

There can be no sustained economic expansion without the cooperation of the businesses operating inside it. There is evidence from academic studies that imply that the macroeconomic environment in which a company operates significantly affects both its overall performance and its likelihood of failure. The macro-economic climate of a country is crucial to the successful and efficient operation and continuous expansion of any sector. The heightened volatility of macro-economic conditions brought on by globalization makes it impossible to shield any one industry from their effects. Over the past four to five decades, industrialization has been a driving force in the world economy, allowing for unprecedented rates of expansion. The dynamics of industrialization were crucial in bringing about the transition from undeveloped to developing countries. There has to be more focus on the interconnectedness of industrialization and the performance of various sectors with macro-economic changes. All businesses rely on the ever-changing dynamics of macro-economic forces that influence the success of their respective industries if they are to survive. The management can mitigate the negative effects of unanticipated fluctuations by improving their understanding of and ability to estimate the causal effect of macroeconomic factors.

The existing literature on impact of macroeconomic events on performance of business firm is not uniform. The association between macro-economic condition and sales and profits of a firm is positive more specifically it is a function of previous years ROA and macroeconomic variables [1]. Economic indicators like; interest rate, growth in gross domestic product has significant impact on profitability and performance of firm [2–5], whereas exchange rate has an adverse impact on the same [6]. The firms with high growth rate are able to beat the economic cycle the firms with moderate growth rate [7]. The literatures not supporting the positive association between macroeconomic variable and performance are limited. Boyd et al. [8] concluded that macroeconomic events have no impact on earnings growth, whereas Zhang et al. [9] established adverse impact of privatization on firm profitability and positive impact on operating efficiency increase.

LITERATURE REVIEW

According to the findings of Fama's [10] study titled "Stock returns, real activity, inflation, and money," the stock market return is negatively correlated with inflation, but positively correlated with future economic growth. The inverse relationship between future economic growth and inflation was discovered by Furter.

The correlation between inflation and business profitability was first documented by De Santiago et al. [11]. They arrived to the conclusion that inflation had an impact on projects overall. Declining profits are a telltale sign of the influence. Inflation, they determined, devalues working capital, requiring continuous replacement and injections of funds, which they attributed to falling profits. They suggested a rise in sales and the implementation of low-interest loans into working capital to combat inflation's negative effects.

Kose et al. [12] in their research article “General principles for the definition of the base units in the SI” made an attempt to redefine base SI. The research suggests that globalization and business cycles are positively associated and both go in the same direction, while also suggesting the best technique to identify the effect of conventional wisdom on globalization. The interconnectedness of markets and financial systems causes macroeconomic shocks to ripple through related sectors. They also found that while globalization failed to boost average cross-country consumption, it did boost risk-sharing capacity among poor nations through financial integration.

Worldwide, a favorable and stable link was found between a company's market orientation and its performance [13]. Estimates of the moderating impacts of for-profit and non-profit manufacturing and service provision, as well as GDP, are used in establishing a connection between market orientation and company performance. Compared with for-profit businesses, non-profits have been found to have a stronger connection between market orientation and company performance.

This correlation between GDP and stock market performance was established by Barro and Ursa [14]. They found that a 10% drop in Real GDP results in a 25% drop in the stock market index. Lack of a stock market meltdown makes the likelihood of a depression remote. The findings were confirmed by analyzing data from a secondary source sample of 209 stock market collapses and 59 depressions.

Inflation, the exchange rate, and market capitalization were the three macroeconomic variables that Izedonmi and Abdullahi [15] looked at to see how they affected the performance of 20 NSE sectors. The analysis found that the extent to which a given issue impacted several industries varied considerably from one sector to the next. The findings indicated that macroeconomic factors had no appreciable effect on the NSE.

O'Neill [16] found that the stock market is a very dependable predictor of GDP growth and is highly sensitive to prevailing future expectations. Stock market values are sensitive to changes in GDP. While there is a great deal of variation between countries, the equity return is particularly vulnerable to changes in GDP projections.

Oleka, Sabina, and Ebue [17] investigated the connection between inflation and business success in Nigeria. The 18 Nigerian commercial banks were picked using a discretionary sampling technique. Secondary information was compiled from annual financial statements from 2000 to 2014. We used an ordinary least squares regression method to examine the data. The results showed that the proxy indices of financial success used in the study, return on equity and earnings per share, were positively correlated, but the relationship was not statistically significant. Time series data precludes OLS as a viable method for data analysis. To instead emphasize the long-term relationship between the research variables, VAR, and VECM may have been employed.

Singh et al. [18] examined the relationship between HMPIs and GDP in the hotel industry. Gross domestic product and unemployment rate exhibit the strongest correlation with hotel market performance with a 1-year lag. The correlation between HMPIs and CPI is significant, especially when looking at time lags of 0 or 1 year. Hotel performance metrics, especially Expenses, can be confidently estimated by using GDP changes due to their stability, strength, and close relationship.

Hameer et al. [19] studied the effects of working capital management on business performance in Bumiputera and non-Bumiputera manufacturing firms in Malaysia over 40 listed manufacturing enterprises in bursa Malaysia over 2009 to 2018. Results demonstrated a negative impact of inventory conversion period and receivable conversion period on firm performance. Account payables period had an insignificant influence on both businesses' performance but a negative impact on Bumiputera

firms and a favorable impact on non-Bumiputera firms. Working capital management components are linked to manufacturing firm performance, according to analysts.

Successful empirical investigation into the connection between working capital management and the success of exporting businesses was undertaken by Wassie [20] across 164 exporting enterprises operating in Ethiopia. Results reveal that the conversion time for receivables, cash, and payables all positively affect export firms' performance as evaluated by ROA and ROI, whereas the conversion period for inventories similarly improves ROA and ROI but has a minor impact on export firms' performance overall.

The effect of credit management policy and working capital management on the financial performance of banking sectors was studied by AL-Zararee et al. [21]. The objective of current research is to evaluate the relationship between working capital management, credit management policy, and financial performance of banking sectors in Jordan. The researchers relied on secondary data, collected from 62 financial reports of Jordanian banks listed on the Amman Stock Exchange. Working capital management and financial performance of bank were put to the test using multiple regressions. The findings indicated a statistically significant link between credit management strategies and the financial performance of Jordanian banks, as well as a favorable link between working capital management and the financial performance of Jordanian banks.

Macro-economic conditions and effective management of working capital were found to significantly impact business success, as examined by Hussain et al. [22]. Twenty-one enterprises active in the fuel and energy sectors were surveyed using secondary data from 2013 to 2018. Firms either lack the necessary resources to effectively manage their current assets, or they are using those resources inefficiently. The size factor is very important in determining the overall profit. When it comes to company performance, the interest rate and exchange rate are particularly important determinants in a developing economy.

Working capital's influence on company output in Latin American countries was studied by Mardones [23]. The research was based on secondary data collected from 2000-2018 from publicly traded Latin American corporations. Despite the conflicting findings across countries, industries, and sectors, the authors conclude that working capital has a positive and significant effect on company success. Larger businesses see stronger returns on their working capital investments than smaller ones.

Yousaf and Bris [24] conducted research into the effect of working capital management on the financial success of European Foundation for Quality Management-accredited businesses. Secondary data from 326 Czech companies throughout the industrial, automotive, and construction industries were used to compile this study, which spanned 2015-2019. The research was limited to a single country and three industries. The study's findings demonstrated the detrimental effect of working capital on business performance and the superiority of EFQM-certified businesses.

Simon et al. [25] estimated the impact of working capital management and firms' financial performance. Data were collected from 75 non-financial firms listed on the Nigerian stock exchange. The results showed that working capital management component have an in consists relationship with firm performance. Receivable conversion period and inventory conversion period have a negative impact on firm performance, while account payable period were positive associated with return on assets.

Nguyen [26] investigates effects of working capital management on firms' financial performance. Data were collected from 38 companies listed in Vietnam stock exchange for the period of 10 years from 2009 to 2019. Research concluded that higher investment in current assets lead to lower rate of return on assets. Controlled current assets and small inventory days ensure quick collection by

reducing receivable conversion period and enhance return on assets. Firm's performance is adversely affected by payable deferral period and economic crisis. The study also showed that numbers of short-term assets cycle positively affects efficiency of firm. The level of debt use has a negative relationship with firm's efficiency.

RESEARCH GAP

Numerous studies on financial performance have been conducted, both on a global and a national scale. Additionally, plenty of literature demonstrating the effect of certain macro-economic variables on the overall financial performance of corporate. A little amount of research was uncovered on the aviation sector. In addition, scant research appeared to be conducted on the impact of macro-economic variables on liquidity of the corporate.

RESEARCH QUESTIONS

Macro-economic factors are the factors beyond the control of management and have impact on profitability and solvency of any firm. Beside macro-economic variables, the company-specific factors also influence the financial health. The research question set on the above backdrop is:

- Do macro-economic variables have any impact on liquidity?

RESEARCH OBJECTIVE

- To examine the impact of macro-economic variables on the liquidity.

HYPOTHESIS

H₀: Macroeconomic variables have no impact on the liquidity.

METHODOLOGY

The current study "Effect of Selected Macroeconomic Variables on short-term solvency: A Study on Airports Authority of India" discusses responses to the age-old questions of the effect of macroeconomic variables on liquidity. The current study has employed exploratory and non-experimental research methods to assess the effect of the macroeconomic environment on the short-term solvency of the organization. In particular, this study has employed a quasi-experimental Ex post facto design, type II. No modification or random assignment of the independent variable conceals the use of this strategy.

Data

This study has incorporated the financial data obtained from the annual reports. The secondary financial data are secondary in nature and have been collected from 2002-2003 to 2019-2020 financial year. Besides, the details of macro-economic variables have been collected from open sources like RBI and World Bank website. The analysis has been performed using statistical software SPSS to verify the relationship between the dependent and independent variables over a panel data or longitudinal data. Thus, every panel data comprises of two dimensions, such as time series and cross-sectional dimension.

Variables

In this study, the liquidity (current ratio) is the dependent variable, which is estimated by dividing total current asset with total current liabilities. The current ratio provides information regarding the overall liquidity of the organization. The independent variables are classified under two groups namely company-specific factors and macro-economic factors. The variables included in company specific factor are Sales (Sales) Equity Capital (Equity), Total Non-Current Asset (TNCA), and Total long-term Debt (Debt). The variables of macro-economic condition are Lending rate, FDI, Inflation, GDP, and Exchange rate. The linear regression model developed is meant to estimate effect of macro-economic variables on the liquidity in specific and the effect of company specific factors in general. The proposed model is:

$$\text{Liquidity} = \alpha_0 + \beta_1 \text{Equity} + \beta_2 \text{Sales} + \beta_3 \text{TNCA} + \beta_4 \text{Debt} + \beta_5 \text{lending rate} + \beta_6 \text{FDI} \\ + \beta_7 \text{Inflation} + \beta_8 \text{GDP} + \beta_9 \text{Exchange rate} + \mu_0 \dots 1$$

Analysis

Table 1 contains the total non-current assets (TNCA) and growth of total non-current assets (GTNCA) over 2002-2003 to 2019-2020. Over the period of study, the minimum value of total non-current assets is 2127.87 (2003-2003) and the maximum value of the total non-current assets 24547.05 (2019-2020). The overall total non-current assets of the Airport Authority of India has recorded an increasing trend of growth over the period of study. The average total non-current assets are 11317.75 with the standard deviation 7556.56. Also, the average total non-current assets for sub-period first, second, and third are 3039.96, 10780.62, and 20132.67, respectively. The h deviation recorded over first, second, and third sub-period is 1091.77, 2420.70, and 3358.29. The average growth of non-current assets over first, second, and third sub-period are 142.87, (SD = 51.31), 506.64 (SD = 113.76), and 946.14 (157.82).

In Table 2, over 3 sub-periods, the average amount of total non-current assets is 3039.96, 10780.62, and 20132.67 and average growth is 142.87, 506.64, and 946.14. The F-value for both total non-current assets and growth in total non-current assets is 71.938 and the P value is 0.001 (<0.05). The P value for both the variables less than 0.05 recommends the difference in mean values over 3 sub-period is significantly different from each other.

Tables 1 and 3 contain the sales (income) and growth of sales (Gsales) over 18 years of the study. Over the period of 18 years, the minimum value of sales is rupees 2384.49 which was recorded in the year of 2002-2003. The highest value of the sales revenue 14132.96 recorded in the year of 2018-2019. The overall sales of the Airport Authority of India have recorded an increasing trend of growth over the period of study. The average sales per year are 7053.08 with the standard deviation 4041.74.

Table 1. Total non-current assets.

Year	TNCA	G ^{TNCA}	Year	TNCA	G ^{TNCA}	Year	TNCA	G ^{TNCA}	Overall
02-03	2127.87	100.00	08-09	6907.24	324.61	14-15	15661.47	736.02	
03-04	2267.71	106.57	09-10	8995.51	422.75	15-16	17938.65	843.03	
04-05	2404.49	113.00	10-11	10753.68	505.37	16-17	18800.51	883.54	
05-06	2966.38	139.41	11-12	12207.60	573.70	17-18	20526.88	964.67	
06-07	3443.49	161.83	12-13	12959.68	609.04	18-19	23321.46	1096.00	
07-08	5029.80	236.38	13-14	12860.03	604.36	19-20	24547.05	1153.60	
N	6	6	6	6	6	6	6	6	18
Mean	3039.96	142.87		10780.62	506.64		20132.67	946.14	11317.75
SD	1091.77	51.31		2420.70	113.76		3358.29	157.82	7556.56
Min	2127.87	100.00		6907.24	324.61		15661.47	736.02	2127.87
Max	5029.80	236.38		12959.68	609.04		24547.05	1153.60	24547.05

Source: Computed data.

Table 2. ANOVA summary for non-current assets.

		Sum of squares	df	Mean square	F	Sig.
TNCA	Between groups	879079092.791	2	439539546.395	71.938	0.000
	Within groups	91649287.945	15	6109952.530		
	Total	970728380.736	17			
GTNCA	Between groups	1941503.528	2	970751.764	71.939	0.000
	Within groups	202411.263	15	13494.084		
	Total	2143914.791	17			

Source: Computed data.

Table 3. Income (sales) details over study period (Rs in crore).

Year	Sales	Gsales	Year	Sales	Gsales	Year	Sales	Gsales	Overall
02-03	2384.49	100.00	08-09	4185.95	175.55	14-15	9284.98	389.39	
03-04	2630.59	110.32	09-10	4615.29	193.55	15-16	10824.50	453.95	
04-05	2997.41	125.70	10-11	5139.21	215.53	16-17	12542.01	525.98	
05-06	3490.46	146.38	11-12	5878.66	246.54	17-18	12976.96	544.22	
06-07	3726.23	156.27	12-13	6849.08	287.23	18-19	14132.96	592.70	
07-08	4289.21	179.88	13-14	8170.04	342.63	19-20	12837.44	538.37	
Descriptive statistics									
Mean	3253.07	136.43		5806.37	243.51		12099.81	507.44	7053.08
SD	715.69	30.02		1494.59	62.68		1743.12	73.10	4041.74
Min	2384.49	100.00		4185.95	175.55		9284.98	389.39	2384.49
Max	4289.21	1743.12		8170.04	342.63		14132.96	592.70	14132.96

Source: Computed data.

In the first sub-period, the sales revenue found in range of 2384.49 to 4289.21 with the average sales value per year 3253.07 and standard deviation of 715.69. In the second sub-period, the sales are in the range bound of 4185.95 to 8170.04. The average value of sales is 5806.37 with standard deviation of 1494.59. In the third sub-period, the sales are in range bound of 9284.98 to 14132.96. The average value of sales is 12099.81 with deviation of 1743.12.

Similarly, growth in sales is analyzed over 3 sub-period. In the first sub-period, the highest sales growth was 1743.12%. The average growth is 136.43 with standard deviation 30.02. During the second sub-period, growth in sales is found in range bound of 175.55 to 342.63 the average value of sales growth is 243.51 with deviation of 62.68. In the third sub-period, the sales growth is in range bound of 389.39 to 592.70. The average growth in sales is 507.44 with deviation of 73.10.

Table 4 constraints the analysis of variance (ANOVA) summary of comparing sales with sales growth. Over 3 sub-periods, the average amount of sales is 3253.07, 5806.37, and 12099.81. During this period, average growth of sales is 136.43, 243.51, and 507.44. The F-value for the sales is 64.51 and the P value is 0.0001 (<0.05), recommends the difference in the mean value of sales over 3 sub-period is significantly different from each other, and the company has recorded highest sales during third sub-period. The F ratio for growth of sales is 64.514 and P value is 0.0001 (<0.05). The result recommends difference in growth of sales over 3 sub-period significantly differ from each other, and highest growth-in-sale recorded in the third sub-period.

Table 5 contains the paid-up capital (PUP) and its growth (GPUP) of over 18 years of the study. The minimum value of paid-up capital is 405.59 and was recorded in the year of 2002-2003. The maximum value of the paid-up capital 656.56 and was recorded in the year of 2019-2020. The average paid up capital is 579.44 with the standard deviation of 101.83.

Table 4. ANOVA Summary of comparing sales and sales growth.

		Sum of squares	df	Mean square	F	Sig.
Sales	Between groups	248783175.23	2	124391587.62	64.51	0.0001
	Within groups	28922449.39	15	1928163.29		
	Total	277705624.63	17			
Gsales	Between groups	437547.183	2	218773.591	64.514	0.0001
	Within groups	50866.792	15	3391.119		
	Total	488413.975	17			

Source: Computed data.

Table 5. Paid up capital and its growth.

Year	PUP	GPUP	Year	PUP	GPUP	Year	PUP	GPUP	Overall
02-03	405.59	100.00	08-09	573.76	141.46	14-15	656.56	161.88	
03-04	416.63	102.72	09-10	623.34	153.69	15-16	656.56	161.88	
04-05	431.63	106.42	10-11	655.61	161.64	16-17	656.56	161.88	
05-06	449.63	110.86	11-12	656.56	161.88	17-18	656.56	161.88	
06-07	463.63	114.31	12-13	656.56	161.88	18-19	656.56	161.88	
07-08	501.13	123.56	13-14	656.56	161.88	19-20	656.56	161.88	
N	6	6	6	6	6	6	6	6	18
Mean	444.71	109.65		637.07	157.07		656.56	161.88	579.44
SD	34.80	8.58		33.70	8.31		0.00	0.00	101.83
Min	405.59	100.00		573.76	141.46		656.56	161.88	405.59
Max	501.13	123.56		656.56	161.88		656.56	161.88	656.56

Source: Computed data.

Table 6. ANOVA summary for paid-up capital.

		Sum of squares	df	Mean square	F	Sig.
PuC	Between groups	164527.237	2	82263.618	105.149	0.001
	Within groups	11735.317	15	782.354		
	Total	176262.554	17			
GPuC	Between groups	10001.808	2	5000.904	105.114	0.001
	Within groups	713.638	15	47.576		
	Total	10715.446	17			

Source: Computed data.

In the first sub period, the paid-up capital found in range of 405.59 to rupees 501.13. The average of paid-up capital during this period 444.71 and the standard deviation is 34.80. In the second sub-period, the paid-up capital found range bound of 573.76 to 656.56. The mean score of paid-up capital is 637.07 and the standard deviation is 33.70. In the third sub-period, the difference in maximum and minimum value of paid-up capital is 0. The average value of paid-up capital is 656.56 with deviation 0.00. The average growth of paid-up capital is 109.65157.07 and 0, respectively, over 3 sub-periods.

Table 6 summarizes the ANOVA summary for comparison of paid-up capital. Over 3 sub-periods, the average amount of paid-up capital is 444.71, 637.07, and 656.56. During this period average growth is 109.65, 157.07, and 161.88. The F-value for the paid-up capital is 105.149 and the P value is 0.001 (<0.05) The P value is recommended the difference in mean value of paid-up capital over 3 sub-period is significantly different from each other. The F ratio for growth of paid-up capital 105.149 and P value is 001 (<0.05). The result recommended difference between growth of paid-up capital over 3 sub-period significantly differ from each other.

Table 7 contains the non-current liabilities (NCL) and its growth (GNCL) over 18 years of the study. Over the period of study, the minimum value of non-current liabilities is 60.85 and the maximum value is 8853.52. The mean value of non-current liabilities is 3253.75 with standard deviation of 3562.97. In the first sub period, the non-current liabilities are in the range of 60.85 to 225.73. The average value of non-current liabilities is 116.74 and the standard deviation is 62.71. In the second sub-period, the range of non-current liabilities is 230.05 to 3637.85 with mean value 1712.55 and standard deviation 1201.69. In the third sub-period the range, mean score and standard deviation of non-current liabilities is 6503.86 to 8853.52, 7931.97 and SD = 889.92. Similarly, the mean score of growth in non-current liabilities over 3 sub-period is 51.72 (SD = 27.78), 758.67 (SD = 532.36) and 3513.92 (SD = 394.24).

Table 7. Non-current liabilities and its growth.

Year	NCL	GNCL	Year	NCL	GNCL	Year	NCL	GNCL	Overall
02-03	225.73	100.00	08-09	230.05	101.91	14-15	6503.86	2881.26	
03-04	145.23	64.34	09-10	671.94	297.67	15-16	7826.16	3467.04	
04-05	121.00	53.60	10-11	1666.04	738.07	16-17	7347.74	3255.10	
05-06	82.33	36.47	11-12	2142.24	949.03	17-18	8494.32	3763.04	
06-07	65.28	28.92	12-13	1927.19	853.76	18-19	8853.52	3922.17	
07-08	60.85	26.96	13-14	3637.85	1611.59	19-20	8566.23	3794.90	
N	6	6	6	6	6	6	6	6	18
Mean	116.74	51.72		1712.55	758.67		7931.97	3513.92	3253.75
SD	62.71	27.78		1201.69	532.36		889.92	394.24	3562.97
Min	60.85	26.96		230.05	101.91		6503.86	2881.26	60.85
Max	225.73	100.00		3637.85	1611.59		8853.52	3922.17	8853.52

Source: Computed data.

Table 8. ANOVA summary for non-current liabilities.

		Sum of squares	df	Mean square	F	Sig.
TL	Between groups	204611417.512	2	102305708.756	137.019	0.001
	Within groups	11199783.331	15	746652.222		
	Total	215811200.843	17			
GTL	Between groups	40156047.688	2	20078023.844	137.019	0.001
	Within groups	2198012.639	15	146534.176		
	Total	42354060.327	17			

Source: Computed data.

Table 8 contains the comparison of non-current liabilities over period of study. Over 3 sub-periods, the average amount of non-current liabilities are 116.74, 1712.55, and 7931.97; and average growth of non-current liabilities are 51.72, 758.67, and 3513.92. The F-value for both non-current liabilities and growth in non-current liabilities is 137.019 and the P value is 0.001 (<0.05). The P value of both the variables recommends the difference in mean over third sub-period is significantly different from each other.

Table 9 contains the current ratio (CR) and growth of current ratio (GCR) over 18 years of the study. The minimum value of current ratio is 0.77, recorded in the year of 2012-2013 and the maximum value of the current ratio is 1.82, recorded in the year of 2016-2017. The average current ratio per year is 2275.48 with the standard deviation 1335.24. In the first sub period, the current ratio is in range of 1.13 to 1.13. The average value of current ratio is 1.30 with deviation of 0.08. In the second sub-period, the current ratio is in range bound of 0.77 to 1.12. The average value of current ratio is 0.89 with standard deviation of 0.13. In the third sub period, the current ratio is in range bound of 0.95 to 1.82. The average value of current ratio is 1.41 with standard deviation of 0.36. Similarly, average growth in current ratio over 3 sub-period is 102.26 66.79 and 106.27.

Over 3 sub periods the average amount of current ratio is 1.30, 0.89, and 1.41. During this period, average growth of current ratio is 97.49, 66.79, and 106.27. The difference in mean value of current ratio and the growth-in-current ratio are tested by applying ANOVA. The result of ANOVA summarized in Table 10.

It is observed from Table 10, the F-value for the current ratio is 8.911 and the P value is 0.003 (<0.05). Furthermore, the F-ratio for growth of current ratio is 8.911 and p-value is .003 (<0.05). The P value of both current ratio and its growth recommends the difference in mean value of both the variables over third sub period is significantly different from each other.

Table 9. Details of current ratio (CR) and its growth.

Year	CR	GCR	Year	CR	GCR	Year	CR	GCR	Overall
02-03	1.33	100.00	08-09	0.95	71.54	14-15	1.47	110.69	
03-04	1.34	101.15	09-10	0.88	66.27	15-16	1.68	126.51	
04-05	1.36	102.09	10-11	0.80	60.24	16-17	1.82	137.05	
05-06	1.32	99.50	11-12	0.81	61.00	17-18	1.56	117.47	
06-07	1.30	97.97	12-13	0.77	57.98	18-19	1.00	75.30	
07-08	1.13	85.37	13-14	1.12	84.34	19-20	0.95	71.54	
N	6		6	6		6	6		18
Mean	1.30	97.49		0.89	66.79		1.41	106.27	1.20
SD	0.08	6.32		0.13	9.83		0.36	27.04	0.31
Min	1.13	84.96		0.77	57.89		0.95	71.43	0.77
Max	1.36	102.26		1.12	84.21		1.82	136.84	1.82

Source: Computed data.

Table 10. ANOVA summary for current ratio (CR).

		Sum of squares	df	Mean square	F	Sig.
CR	Between groups	0.912	2	0.456	8.911	0.003
	Within groups	0.768	15	0.051		
	Total	1.679	17			
GCR	Between groups	5155.679	2	2577.839	8.911	0.003
	Within groups	4339.111	15	289.274		
	Total	9494.790	17			

Source: computed data.

The researcher has estimated the impact of 5 macro-economic variables such as Lending rate, FDI, Inflation, GDP, and Exchange rate on the liquidity of the sample company. Sales, TNCA, Debt, Equity, Lending Rate, FDI, Inflation, GDP, and Exchange Rate are predictors and liquidity is outcome in this model (Table 11). The value of R is 0.949 and R² value is 0.901, which means that independent variables together account for 90.1% of the variation in liquidity of AAI. The adjusted R² value was 0.790 which is approximately 0.150 less than R² value. The F-ratio is 8.097, and the observed P value 0.004 < (0.05) conformed the acceptance of model.

The independent variables like Sales, Debt, Equity, Lending Rate, FDI, GDP have positive “b” values, whereas predictors like TNCA, Inflation, and Exchange Rate have negative “b” values indicate negative relationship with liquidity. The t-test has been carried out at 95% confident interval and found significant for Sales (p = 0.028, <0.05), FDI (p = 0.017, <0.05), debt (p = 0.025, <0.05), and TNCA (p = 0.008, <0.05). Also, 2.736, -6.561, 2.315, 1.117, 0.368, 1.333, -0.441, 0.333 and -0.349 are the standardized beta values of Sales, TNCA, Debt, Equity, Lending Rate, FDI, Inflation, GDP, and Exchange Rate, respectively. On the basis of composite model, the determinants of liquidity are Sales, TNCA, Debt, and FDI. Out of five macro-economic variables only FDI has significant impact on liquidity.

Findings

The current research has been carried out to identify the impact of macro-economic variables on liquidity. Besides the primary objective, the researcher has compared the indicators over the period of study by dividing the period into three sub-periods. The major findings are as follows:

The comparison is made for TNCA, Sales, Equity, Debt, and Liquidity over three sub-periods of study and found the difference in the value of TNCA, Sales, Equity, Debt, and Liquidity is significantly different from each other. So, it is safe to conclude that the Airport Authority of India is on growth path and have highest volume of TNCA, Sales, Equity, Debt, and Liquidity in the last sub period that is from 2014-2015 to 2019-2020. Furthermore, as regard the growth of TNCA, Sales, Equity, Debt, and Liquidity, the highest growth has been recorded in the last sub-period.

Table 11. Estimated result of regression for liquidity.

Table 11. Estimated result of regression for liquidity.

Variables entered/removed ^a						
Model	Variables entered	Variables removed	Method			
2	Exchange rate, GDP, inflation, lending rate, FDI, Debt, Sales, Equity, TNCA ^b		Enter			
A. Dependent Variable: Liquidity						
B. All requested variables entered.						
Model Summary ^b						
Model	R	R Square	Adjusted R ²	SE of the estimate	Durbin–Watson	
2	.949 ^a	0.901	0.790	0.052756153	2.710	
A. Predictors: (Constant), exchange rate, GDP, Infla, lending rate, FDI, Debt, Sales, Equity, tnca ^b						
B. Dependent Variable: Liquidity						
Anova ^a						
Model		Sum of squares	Df	Mean square	F	Sig.
2	Regression	0.203	9	0.022535998	8.097	.004 ^b
	Residual	0.022	8	0.002783212		
		Total	0.225	17		
A. Dependent Variable: Liquidity						
B. Predictors: (Constant), exchange rate, GDP, Infla, lending rate, FDI, Debt, Sales, Equity, TNCA ^b						
Coefficients ^a						
Model		Un standardized coefficients		Standardized coefficients	T	Sig.
		B	SE	Beta		
2	(Constant)	−6.150	5.262		−1.169	0.276
	Sales	1.223	0.458	2.736	2.668	0.028
	TNCA	−2.025	0.582	−6.561	−3.482	0.008
	Debt	0.319	0.116	2.315	2.761	0.025
	Equity	1.557	2.329	1.117	0.669	0.523
	Lending rate	0.806	0.460	0.368	1.754	0.118
	FDI	0.417	0.138	1.333	3.014	0.017
	inflation	−0.271	0.241	−0.441	−1.126	0.293
	GDP	0.291	0.136	0.333	2.142	0.065
	Exchange rate	−0.508	1.000	−0.349	−0.508	0.625
A. Dependent Variable: Liquidity						

Source: Computed data. SE: standard error.

The regression model is developed to estimate the impact of macro-economic variable on liquidity. Sales, TNCA, Debt, Equity, Lending Rate, FDI, Inflation, GDP and Exchange Rate are predictors and liquidity is outcome in this model. Out of five macro-economic variables, FDI have significant positive impact on liquidity whereas rest four variables have insignificant impact on liquidity. Furthermore, out of four company specific factors, sales have significant positive impact on liquidity, whereas TNCA have significant negative impact on liquidity.

CONCLUSION

The current research has been carried out with the prime objective to estimate the impact of macro-economic variable on the liquidity of Airport Authority of India. The study has relied on secondary data. The data are collected from the annual reports and website of RBI and World Bank for a period

of 18 years. The Airport Authority of India is a growing company and has recorded an increasing trend over the period of study. Out of different macro-economic factors, only FDI have significant positive impact on liquidity of Airport Authority of India.

REFERENCES

1. McNamara R, Duncan K. Firm performance and macroeconomic variables [Discussion Paper]. Bond University, School of Business. 1995; 66, 1–19.
2. Ackert LF, Hunter WC. Rational expectations and security analysts' earnings forecasts. *Financ Rev.* 1995; 30 (3): 427–443. doi: 10.1111/j.1540-6288.1995.tb00840.x.
3. Machin S, Van Reenen JV. Profit margins and the business cycle: evidence from UK manufacturing firms. *J Ind Econ.* 1993; 41 (1): 29–50. doi: 10.2307/2950616.
4. Robson MT. Macroeconomic factors in the birth and death of UK firms: evidence from quarterly VAT registrations. *Manchester School.* 1996; 64 (2): 170–188. doi: 10.1111/j.1467-9957.1996.tb00479.x.
5. Hackbarth D, Miao J, Morellec E. Capital structure, credit risk, and macroeconomic conditions. *J Financ Econ.* 2006; 82 (3): 519–550. doi: 10.1016/j.jfineco.2005.10.003.
6. Oxelheim L. Macroeconomic variables and corporate performance. *Financ Anal J.* 2003; 59 (4): 36–50. doi: 10.2469/faj.v59.n4.2544.
7. Higson C, Holly S, Kattuman P, Platis S. The business cycle, macroeconomic shocks and the cross-section: the growth of UK quoted companies. *Economica.* 2004; 71 (282): 299–318. doi: 10.1111/j.0013-0427.2004.00371.x.
8. Boyd JH, Hu J, Jagannathan R. The stock market's reaction to unemployment news: why bad news is usually good for stocks. *J Fin.* 2005; 60 (2): 649–672. doi: 10.1111/j.1540-6261.2005.00742.x.
9. Zhang X, Tang Z, He J. Impact of macro and firm-specific characteristics on post privatization performance: evidence from China. *Chin Econ.* 2012; 45 (5): 50–91. doi: 10.2753/CES1097-1475450503.
10. Fama EF. Stock returns, real activity, inflation, and money. *Am Econ Rev.* 1981; 71: 545–565.
11. De Santiago M, Zugarramurdi A, A. Parin MA. Inflation and managing profitability. *Eng Costs Prod Econ.* 1987; 11 (3): 151–159. doi: 10.1016/S0167-188X(87)80025-3.
12. Kose V, Siebert BRL, Wöger W. General principles for the definition of the base units in the SI. *Metrologia.* 2003; 40 (4): 146–153. doi: 10.1088/0026-1394/40/4/302.
13. Chhatoi BP. Impact of short-term solvency on operational efficiency: a study on cement industries. *Sruti Manag Rev.* 2017; 10(1).
14. Barro RJ, Ursúa JF. Stock-market crashes and depressions [National Bureau of Economic Research Working Paper No. 14760]. Cambridge, MA: NBER; 2009. Available at https://www.nber.org/system/files/working_papers/w14760/revisions/w14760.rev0.pdf [Accessed on February 2023]
15. Izedonmi PF, Abdullahi IB. The effects of macroeconomic factors on the Nigerian stock returns: a sectoral approach. *Glob J Manag Bus Res.* 2011; 11 (7): 25–29.
16. O'Neill J. (2011). Linking GDP growth and equity returns. Goldman Sachs asset management monthly insights.
17. Oleka CD, Sabina EA, Ebue IM. Relationship between inflation and firms' performance-evidence. *World Appl Sci J.* 2015; 33 (5): 814–822.
18. Singh AJ, Kim SHJ, Johnson M, Mandelbaum R. Macroeconomic variables and hotel performance: good and bad news, ICHRIE Report Sponsored by Penn State School of Hospitality Management, Translating Research Implications to applications: industry's commentary; 2016. Available at <https://broad.msu.edu/app/uploads/2019/02/ICHRIE-RR-2016.pdf> [Accessed on February 2023]
19. Hameer NABA, Ramakrishnan S, Hassan Gillani SMAH. The impact of working capital management on firm performance across Bumiputera and Non Bumiputera manufacturing firms in Malaysia. *Stud Appl Econ.* 2021; 39 (4). doi: 10.25115/eea.v39i4.4585.
20. Wassie FA. Working capital management and its impact on firms' performance: an empirical analysis on Ethiopian exporters. *Educ Res Int.* 2021; 2021: 1–10. doi: 10.1155/2021/6681572.

21. AL-Zararee A, Ali Almasria N, Ahmad Alawaqleh Q. The effect of working capital management and credit management policy on Jordanian banks' financial performance. *Banks Bank Syst.* 2022; 16 (4): 229–239. doi: 10.21511/bbs.16(4).2021.19.
22. Hussain S, Nguyen VC, Nguyen QM, Nguyen HT, Nguyen TT. Macroeconomic factors, working capital management, and firm performance: a static and dynamic panel analysis. *Humanit Soc Sci Commun.* 2021; 8 (1): 1–14.
23. Mardones JG. Working capital management and business performance: evidence from Latin American companies. *Econ Res Ekon Istraživanja.* 2021; 35 (1): 3189–3205.
24. Yousaf M, Bris P. Effects of working capital management on firm performance: evidence from the EFQM certified firms. *Cogent Econ Fin.* 2021; 9 (1): 1958504. doi: 10.1080/23322039.2021.1958504.
25. Simon S, Sawandi N, Ali Abdul-Hamid MA. A reassessment of the relationship between working capital management and firm performance: evidence from non-financial companies in Nigeria. *Invest Manag Financ Innov.* 2018; 15 (3): 249–266. doi: 10.21511/imfi.15(3).2018.21.
26. Nguyen CT. Impact of working capital management on firm performance in different business cycles: evidence from Vietnam. *J Asian Fin Econ Bus.* 2020; 7 (12): 863–867. doi: 10.13106/jafeb.2020.vol7.no12.863.