European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.10, No.2, 2018

Financial and Operational Performance: Evidence from Chittagong Port Authority in Bangladesh

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Abstract
A port is a facility for receiving ships and transferring cargo. They are usually found at the edge of an ocean, sea, river or lake. In the last few decades, due to huge upshot of globalization, the world economy has experienced rapid growth in shipping industry and international trade. Bangladesh with a population of 150 million has a remarkable volume of international trade of which 80% in sea borne. Although two seaports, namely Chittagong and Mongla, are the gateways, Bangladesh use its largest sea port Chittagong Port Authority (CPA) to connect to the whole world. CPA handles nearly 90% of all sea borne trade, highlighting its importance to the economy of Bangladesh in spite of several deficiencies. CPA contributes to 33% of Bangladesh GOVT. revenue. Bangladesh being a global front-runner in the RMG exports has also achieved significant position in some other export items like leather goods, jute, tea and frozen foods. On the other hand, Bangladesh imports electronic and automobiles goods, consumer goods, chemical etc. from china, Japan and India. Due to significant contribution to the total country's revenue and growth, it has become very important to analyze the Efficiency of CPA. This study uses different financial and statistical tools in analyzing the efficacy of CPA.
Keywords: Financial performance, operational performance, Chittagong Port Authority (CPA), ratio analysis.

1. Introduction

Sea ports efficiency is crucial issue for handling of goods in the international supply chains and is viewed to influence transports and logistics which play an significant role in trade exchange with other countries. It is important to evaluate overall efficiency of sea port to reflect their position and disclose their position in this competitive environment. The geographical location of Bangladesh can be treated as very much attractive to the international traders as she is located beside the Bay of Bengal. The bay is comprising two natural ports located Chittagong and Mongla surrounds a great portion of the boundary area of Bangladesh where Chittagong is the principal port (CPA, 2014) that situated on the right bank of the river Karnafuli in Chittagong . It provides a major gateway for the country's trade with the outside world. Chittagong Port has undertaken many ambitious projects to enhance its capacity, improve efficiency and quality of services and also to develop adequate facilities to turn itself into a world class regional port.

2. Literature review

There exist a numerous study on Performance Analysis of Sea port considering different factors and perspective. Kaplan (1984) argued that superior financial performance of ports may be dueto the use of 'novel financing and ownership arrangements' rather than to efficient operating and management systems. Hassan and et al (1993) and Hassan (1993) suggested that complicated interconnected port operations are divided into four categories: 1. Ship operations, 2. Cargo handling, 3. Warehousing, 4. Inland transportation.

Vitale and Mavrinac (1995) came up with a critique on using financial ratios to measure port performance owing to their limitation in assessing the contribution of intangible activities at ports. Such activities include innovation and development that lead to better performance and customer service.

Tongzon (1995) established a model of port performance and efficiency, specifying and empiricallytesting factors which influence port performance and efficiency. An empirical basis for the crucial role ofterminal efficiency has been covered in this study relative to other factors in overall port performance.Turk et al (1995) suggest that the key to analysis and measurement of the financial and operational control and impact is related to the central question: What is the organization's mission?

Trujillo and Nombela, (1999).There are many ways of measuring port efficiency or productivity, although reducible to three broad categories: physical indicators, factor productivity indicators, and economic and financial indicators

Berköz, (1999), ports have 2 main advantages. First of all they perform roles as important links of hinterlands to points overseas. On the other hand, countries also require inner linkages, such as links to other ports, airport and railway connections if they are to perform their role efficiently. Secondly, sea conveyance is the cheapest way of transportation when considered in terms of fuel consumption and investment.

Financial Markets Department (2000) affirmed that ratio analysis is a reflection of the true state of affairs of the performance of any business

Holmberg (2000) maintained that the main bias of financial techniques is that they reflect the results of past actions and are designed to meet external evaluators' needs and expectations.

Sánchez et al. (2002), it was found that more efficient seaports are clearly associated lower freight costs after controlling for distance, type of product, liner services availability, and insurance costs, among others. Moreover it was also found a 25% improvement of one efficiency factor implies a reduction of approximately 2% in total maritime transport cost.

Glynn et al, (2003) point out that Getting into a more quantitative perspective of financial analysis, ratio analysis is a well-established tool to evaluate an organization's profitability, liquidity and financial stability.

Clark, Dollar and Micco (2004) stated that port efficiency is only partly dependent on distance and its effect on transport costs, and the capital investment on port facilities. Factors such as port activities and services such as pilot age, towing, tug assistance or cargo handling, to name a few, are important as well when assessing the efficiency of a port. Inefficient ports increase handling costs, which are one of the components of shipping costs.

Nimalathasan (2008) stated that the common reason which supports much of the financial performance research and discussions is that, increasing financial performance analysis will bring about improvement in functions and processes of the organization.

A report by the US Maritime Administration or MARAD (2003) stated that the common measures for the financial performance in the maritime industry include return on investment, return on assets, capital structure and short-term liquidity.

3. Objective

The main objective of the study is to evaluate the performance of Chittagong Port Authority. To achieve the main objective the following specific objectives have been covered.

- To measure the operational performance of Chittagong Port Authority.
- To assess the Financial Performance of Chittagong Port Authority.

4. Methodology

To understand the current status, performance and prospects of CPA in the sea port industry, the study basically used ratio analysis considering data from balance sheets and income statements of CPA from financial year 2010-2016. Apart from that, operational performance of CPA has been addressed considering total yearly container through put, Total yearly cargo Tonnage and turn round time for ships in the port. It should be noted that common size statement analysis is a category of doing financial performance analysis of an organization. But the main focus of the study is on ratio analysis as it shows almost the overall financial and operational condition such as profitability, Asset-Management efficiency, Capital structure and liquidity of the organization. Descriptive statistics also employed in analyzing financial data. Mean, SD.CV are calculated for different type of ratio. Trend lines are introduced to virtually represent the result of the analysis.

Financial ratios express relationships between financial statement items. Although they provide historical data, management can use ratios to identify internal strengths and weaknesses, and estimate future financial performance.

5. Findings and Analysis:

Table: 5.1

Different Ratio	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	Average	SD	CV
Financial Performance Indicator									
ROCE	7.63	8.26	8.12	5.69	5.51	4.48	6.62	1.59	0.24
ROA	6.78	7.14	7.08	4.87	5	6.09	6.16	1.02	0.17
ROE	7.63	8.26	8.12	5.69	5.51	4.5	6.62	1.58	0.24
Net Profit Margin	45.97	44.87	47.96	36.95	35.95	34.08	40.96	5.96	0.15
Gross Profit Margin	57.15	67.45	68.8	66.26	63.48	63.2	64.39	4.17	0.06
Current Ratio	0.88	0.76	0.86	0.72	0.82	0.75	0.80	0.06	0.08
Working Capital Ratio	-0.013	-0.032	-0.178	-0.402	-0.379	-0.235	-0.21	0.27	-0.80
Total Assets Turnover Ratio	14.74	15.91	14.75	13.17	12	14	14.10	1.37	0.10
Debt Ratio	0.11	0.14	0.13	0.14	0.13	0.26	0.15	0.05	0.36
Financial Gearing Ratio	11.2	13.59	12.85	14.43		5.98	9.68	3.36	0.35
Operational Performance Indicator									
Turn round time of Vessels (In Days)	5.15	6.9	4.88	4.91	4.23	4.26	5.06	0.98	0.19
Total Cargo Tonnage(In '000 TONNES)	37001	44895	40901	43372	47299	54781	44708.17	6064.48	0.14
Container Throughput (In '000 TUES)	1213	1419	1343	1419	1626	1817	1472.83	215.44	0.15

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016& Official Report of CPA

5.1.1 Evaluation of Operational Performance:

Operational efficiency, measured through turnaround time, is very important indicator of port development. The Chittagong port, which has expanded very significantly during last couple of decades and undertook many

initiatives including administrative reform and technical advancement, is, however, struggling with turnaround time efficiency till today. Table 5.1.2, Figure 5.1.1;5.1.2

5.2 Evaluation of Financial Performance:

5.2.1 Profitability:

Profitability ratios indicate management's ability to convert sales dollars into profits and cash flow. The common ratios are gross margin, operating margin and net income margin. The return-on-asset ratio which measures a company's effectiveness in deploying its assets to generate profits. The return-on-Equity ratio /Returned on capital employed which is the ratio of net income to Equity which indicates shareholders' equity, indicates a company's ability to generate a return for its owners. The average of ROCE and ROE is same that means both are equal to 6.62 and CV is 0.24. The average of ROA is 6.16 and CV is 0.17.The Average of Gross profit Margin and Net Profit margin is 64.39% and 40.96% respectively and CV are 0.06 & 0.15 respectively. CV shows that the gross profit margin is satisfactory level. From the following table, it is notable that ROCE, ROE, ROE, gross profit margin as well as net profit margin in first three years shows increasing trend but in last three years the trend is decreasing. Table 5.2.1, Figure 5.2.1

5.2.2 Liquidity:

Current ratio greater than one is usually a minimum because anything less than one means the company has more liabilities than assets .During the study period, Current Ratio shows that they only pay 80% of all its obligations with its assets. Quick ratio (acid test) has not demonstrated here as there is no significant difference with current ratio, as CPA does not deals with inventory. CPA is a self financing organization, providing service to the welfare of the country. So that CPA has no option of collecting funds to meet contingencies. Table 5.2.2 Figure 5.2.2

5.2.3 Solvency:

Solvency ratios indicate financial stability because they measure a company's debt relative to its assets and equity. A company with too much debt may not have the flexibility to manage its cash flow if interest rates rise or if business conditions deteriorate. The common solvency ratios are debt-to-asset and Financial Gearing (Debt/(debt + Equity)*100) Ratio. The average ratio of debt ratio and financial gearing ratio over the six years is 0.15 & 9.68 respectively and CV is 0.36 &0.58 respectively. In 2010-2014, Financial Gearing ratio of CPA shows that they heavily depend on long term fund/requirement and more exposed to financial risk. But In the year 2016 financial Gearing Ratio sharply decrease to 5.98. Which is a good indication of CPA. Table 5.2.3 Figure 5.2.3

5.2.4 Efficiency:

Asset turnover ratio is the ratio of the value of a company's revenues generated relative to the value of its assets. The Asset Turnover ratio can often be used as an indicator of the efficiency with which a company is deploying its assets in generating revenue. The average Assets turnover Ratio of CPA over the six years is 14.10 & CV is 0.39.That means CPA utilized their total assets not as much as efficiently in generating the revenues. Table 5.2.4 Figure 5.2.4

6. Discussions & Conclusion

Chittagong port Authority faces operational inefficiency due to Lack of cargo handling machineries, shortage of required human resources, burden of bureaucracy, institutionalized informal practices within the port, poor level of digitalization, etc. It is observed that the growth of cargo and container handling in recent years by the port is not continuous and balanced. Nasir Uddin Chowdhury, a former first vice-president of Bangladesh Garment Manufacturers and Exporters Association, said the port lacks container handling equipment which is affecting its operation. (Daily Star Newspaper. February 21, 2017). Chittagong Port Authority (CPA) raised the rent on storage in dec 2016, which is charged after expiry of the four-day free storage service. But the temporary measure has apparently failed to yield any positive outcome. The turn-around time of ships in Chittagong Port is average 5.06 days. This turn-around time is much higher compared to other ports of the world. The importers have to pay US$ 10,000 to 15,000 per ship as rent for stay at the port each extra day, which ultimately has an adverse impact over the prices of commodities. Khairul Alam, director of Bangladesh Freight Forwarders Association, blamed the lengthy value assessment process and examination of cargoes by the Custom House as one of the factors for the delay in clearing the import containers. Four departments of the Customs usually examine the import containers. (Daily Star Newspaper. February 21, 2017). The study shows CPA generating profit in satisfactory level but the liquidity, efficiency and solvency are exposed to higher financial risk. CPA has a good geographical location and land and has available for future expansions. Several industrial units and commercial centers have established themselves around the port. There is a good possibility for transit trade with neighboring countries. The Government can hire foreign management for the CPA to improve its efficiency.

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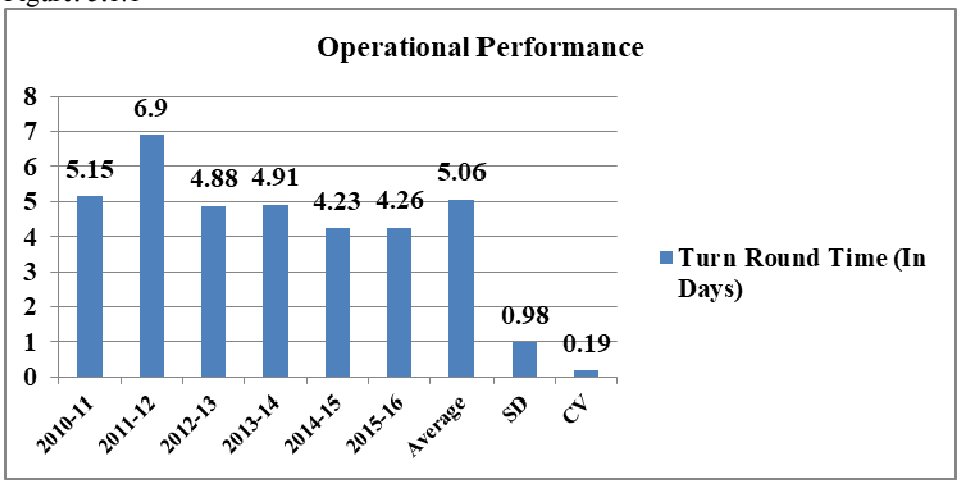
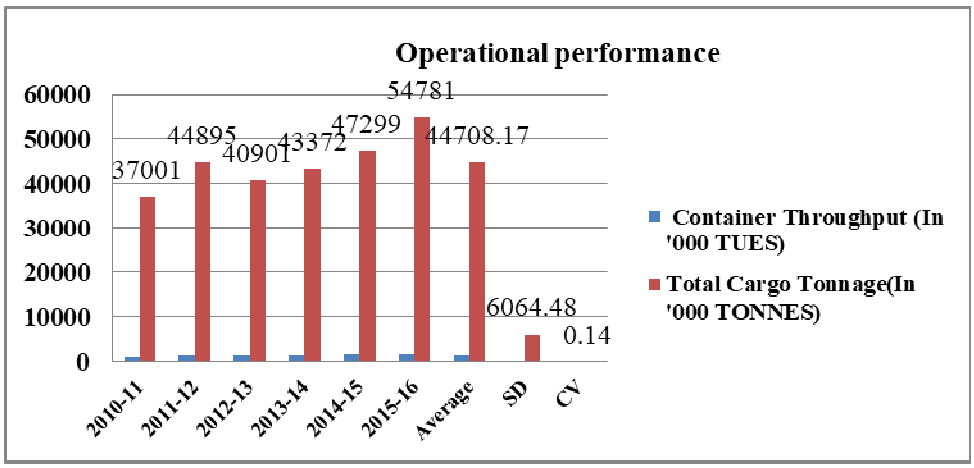
Appendix: 1

Figure: 5.1.1





Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016& Official Report of CPA

Table: 5.1.2

Fiscal Year	Container Throughput (In '000 TUES) Growth	Total Cargo Tonnage(In '000 TONNES) Growth	Turn Round Time (In Days)
2010-11			
2011-12	0.17	0.21	0.34
2012-13	0.11	0.11	-0.05
2013-14	0.17	0.17	-0.05
2014-15	0.34	0.28	-0.18
2015-16	0.5	0.48	-0.17

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016 & Official Report of CPA

Figure: 5.1.2

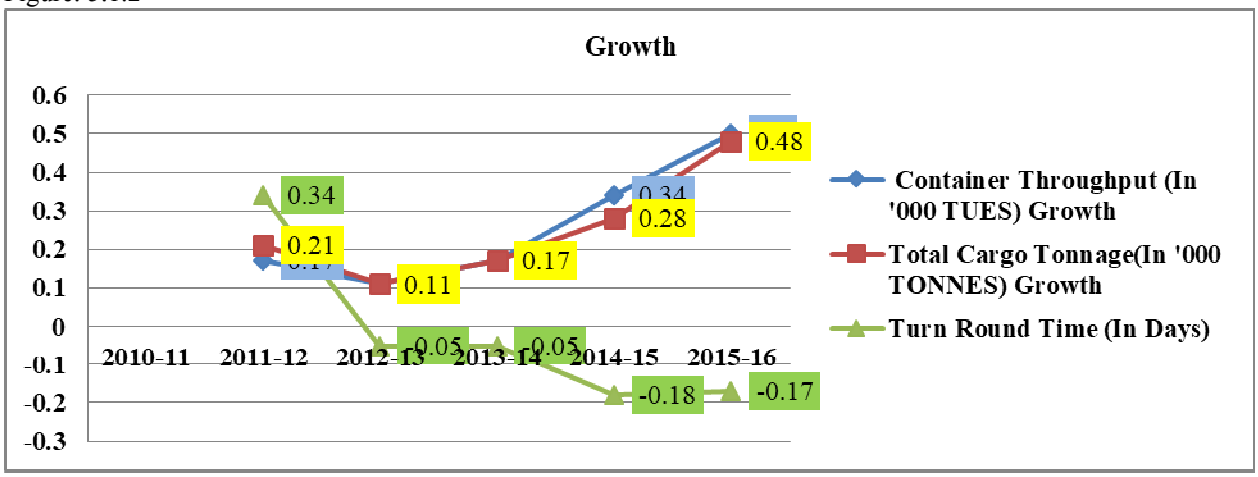


Table: 5.2.1

Fiscal Year	Return on capital Employed (%)	ROA (%)	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)
2010-11	7.63	7.63	7.63	57.15	45.97
2011-12	8.26	8.26	8.26	67.45	44.87
2012-13	8.12	8.12	8.12	68.8	47.96
2013-14	5.69	5.69	5.69	66.26	36.95
2014-15	5.51	5	5.51	63.48	35.95
2015-16	4.48	6.09	4.5	63.2	34.08

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

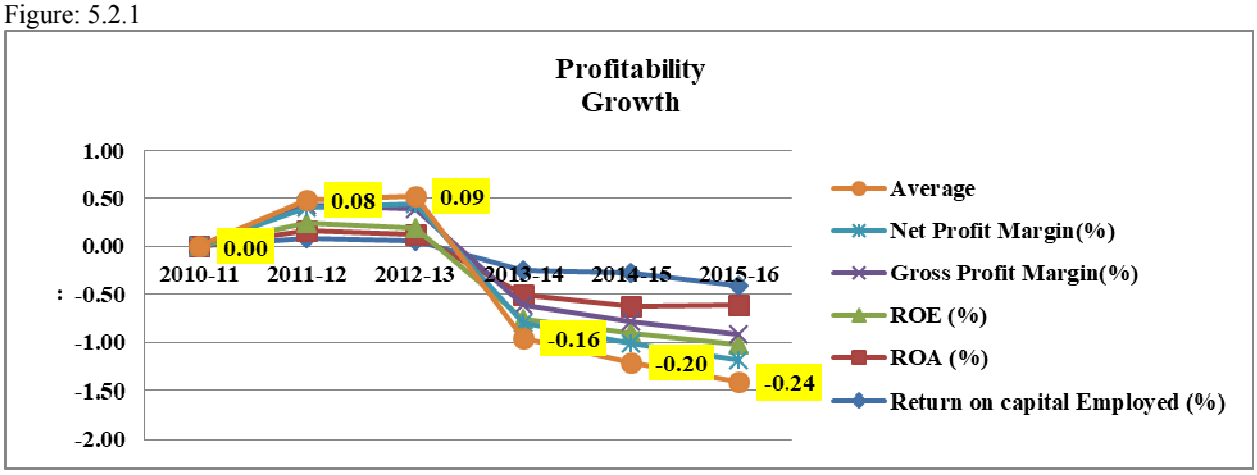
Profitability:

Growth Performance

Fiscal Year	Return on capital Employed (%)	ROA (%)	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)	Average
2010-11						
2011-12	0.08	0.08	0.08	0.18	-0.02	0.08
2012-13	0.06	0.06	0.06	0.20	0.04	0.09
2013-14	-0.25	-0.25	-0.25	0.16	-0.20	-0.16
2014-15	-0.28	-0.34	-0.28	0.11	-0.22	-0.20
2015-16	-0.41	-0.20	-0.41	0.11	-0.26	-0.24

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Figure: 5.2.1



Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Table: 5.2.2

Fiscal Year	Current Ratio	Working Capital Ratio
2010-11	**0.88**	**-0.013**
2011-12	**0.76**	**-0.032**
2012-13	**0.86**	**-0.178**
2013-14	**0.72**	**-0.402**
2014-15	**0.82**	**-0.379**
2015-16	**0.75**	**-0.235**
Average	**0.80**	**-0.21**
SD	**0.06**	**0.17**
CV	**0.08**	**-0.80**

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Figure: 5.2.2

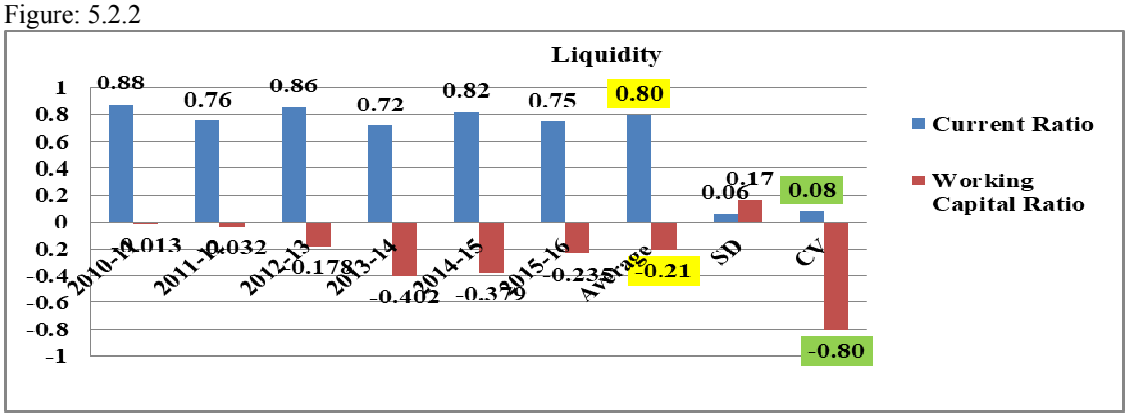
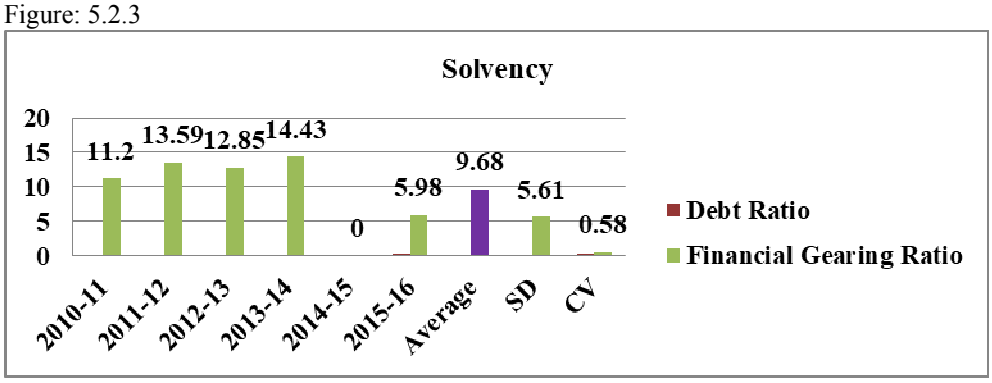


Table: 5.2.3

Fiscal Year	Debt Ratio	Financial Gearing Ratio
2010-11	0.11	11.2
2011-12	0.14	13.59
2012-13	0.13	12.85
2013-14	0.14	14.43
2014-15	0.13	0
2015-16	0.26	5.98
Average	0.15	9.68
SD	0.05	5.61
CV	0.36	0.58

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Figure: 5.2.3



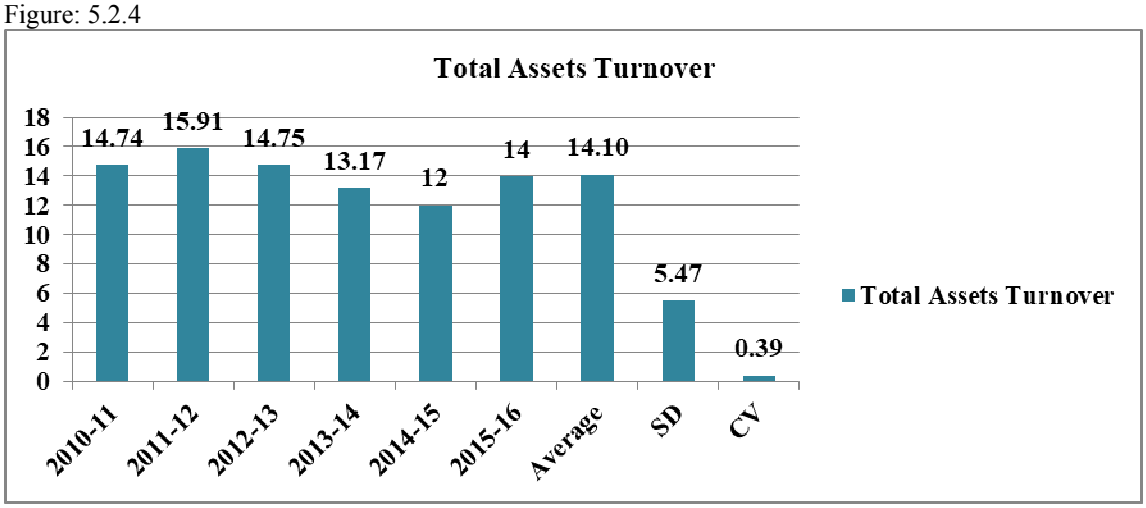
Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Table: 5.2.4

Fiscal Year	Total Assets Turnover
2010-11	14.74
2011-12	15.91
2012-13	14.75
2013-14	13.17
2014-15	12
2015-16	14
Average	14.10
SD	5.47
CV	0.39

Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016

Figure: 5.2.4



Source: Annual Report of CPA Fiscal Year 2010-11 to 2015-2016