

A Comparative Analysis of Operational Income and Expenses of Indian Depositories (NSDL & CDSL)

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Abstract

Depository system was the major financial sector reform which was concentrated on strengthening the functioning and operations of capital market. Depository works as the custodian. The principle function of depository is to dematerialize the securities. There are two depositories in India NSDL and CDSL. This study focuses on the comparative analysis of operational income and expenses of Indian depositories. It is based on secondary data. The period of study is 2008-2018.

Keywords: Depository System, NSDL, CDSL, Operational Income, Operational Expenses, Financial Performance.

I- Introduction

The electronic technological Revolution has brought about a number of changes in the functioning of capital market. The most Revolutionary change was bought in the entire history of the Indian capital market is the depository system. This was the major financial sector reforms which was concentrated on strengthening the functioning and operation of capital market. Depository is an important intermediary in the securities market. The services provided by depositories are the product of secondary market reforms in India. The depository works as the custodian and interlinks investor with primary and secondary market. The principal function of the depository is to dematerialise the securities and enable their transaction in book entry form.

The depository system has paved the way for instituting an infrastructure that's helps in eliminating various risks associated with capital market transactions and increased the efficiency of clearance and settlement system. Prior to the introduction of this system so many operational inefficiencies were breeding into the Indian capital market due to traditional paper-based trading and settlement system. It was a market lacking in transparency and which offered brokerage and Commission that enriched intermediaries.

Depository is an organisation where the securities of an investor are kept in electronic form. There are two depositories in India. NSDL: National Securities Depository Limited and CDSL: Central Depository Services (India) Limited. They were registered by the SEBI on 7th June 1996 and 8th February 1999 respectively. They are promoted by NSE and BSE with the support of some Banks respectively. Both the depositories are doing well, so that this study is trying to find out the performance of both depositories, specially focused on operational income & operational expenses of both depositories.

II- Research Methodology

The financial data has been collected from secondary data which includes annual reports of respective depository organisation, website of NSDL and CDSL.

Statistical tools like mean, standard deviation, coefficient of variance, compounded annual growth rate average, charts, graphs, trend analysis, normality test, t-test, Wilcoxon signed rank test have been used for analysing the data. Chain based index and trend percentage have been used to

gauge the changes in financial performance over the period of time. This analysis provided an overview of the direction of changes in financial performance and helped to formulate the hypothesis.

The collected data was tested for normality then hypothesis testing of non-normal data and normal data was applied, which are Wilcoxon signed rank test and student's t-test respectively. The assumed level of significance is 5%. SPSS and Microsoft Excel have been used to perform trend analysis and prepare various charts and graphs and hypothesis testing. The table value of t-test and Wilcoxon signed rank test are 2.262 and 8 respectively. The period of the study is 2008-2018.

Objective of the study:

1. To know the operational income of the depositories during the period of study.
2. To know the operational expenses of the depositories during the period of study.
3. To analyse the ratios between operational income & total income.
4. To analyse the ratios between operational expenses & operational expenses.

Hypothesis of the Study

Null Hypothesis (H₀₁): There is no significant differences between the mean score of operational income to total income ratios of NSDL and CDSL over the period of time.

$$H_{01}: \mu_1 = \mu_2$$

Null Hypothesis (H₀₂): There is no significant differences between the mean scores of operational expenses/operational expenses to total income ratios of NSDL and CDSL over the period of time.

$$H_{02}: \mu_1 = \mu_2$$

III- An Overview of Operational Income and Expenses

In case of NSDL and CDSL operational income includes Annual fees, custody fees, transaction fees, income from other IT enabled e-governance services, software licensing fees and other such operational income. In other hand, operational expenses of NSDL and CDSL includes rent, rates, electricity, water & fuel, Computer technology, legal & professional, travelling, postages & communication, printing & stationery, insurance etc. related expenses.

Operational Income ratio establishes relationship between profit and total revenue. The ratio also indicates the operational efficiency of a business Enterprises. It is expressed as operational income/ total Income X 100.

Operational Expenses ratio establishes relationship between operational expenses and total revenue. It measures or operational efficiency of a business Enterprises by providing an idea about the cost structure of the concern. It is expressed as operational expenses / total revenue x 100.

IV- Comparison of Financial Performance of Depositories

Comparison of financial performance of NSDL and CDSL has compared with the help of trend analysis and ratio analysis.

Comparative Trend Analysis of NSDL & CDSL

Trend analysis has done on the basis of prominent items of profit and loss account and balance sheet of NSDL and CDSL, which includes calculation and graphic representation of items. The summary of comparison of financial performance of NSDL and CDSL is shown in following tables.

4.1 - Operational Income of NSDL and CDSL

Table – 4.1
Comparative Trend Analysis of NSDL and CDSL

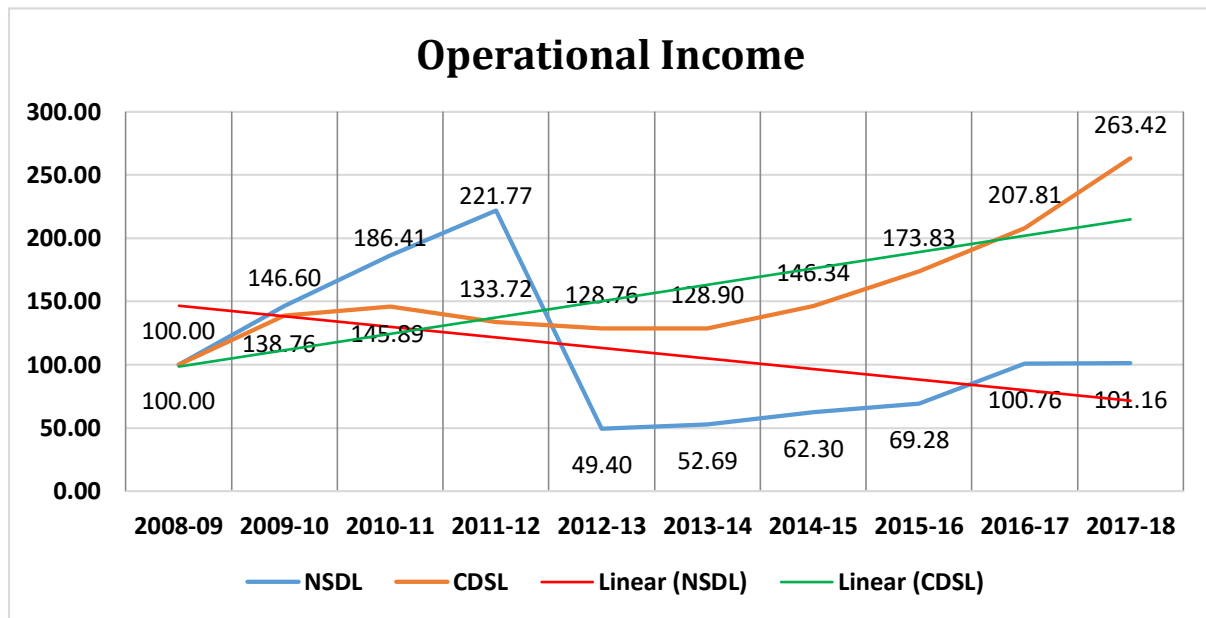
Year	NSDL			CDSL		
	Operational Income	Trend Percentage	Chain Base Index	Operational Income	Trend Percentage	Chain Base Index
2008-09	19845.96	100.00	100.00	5852.51	100.00	100.00
2009-10	29094.79	146.60	146.60	8121.17	138.76	138.76
2010-11	36994.00	186.41	127.15	8538.48	145.89	105.14
2011-12	44012.00	221.77	118.97	7825.91	133.72	91.65
2012-13	9804.75	49.40	22.28	7535.53	128.76	96.29
2013-14	10456.03	52.69	106.64	7543.93	128.90	100.11
2014-15	12363.59	62.30	118.24	8564.28	146.34	113.53
2015-16	13749.71	69.28	111.21	10173.65	173.83	118.79
2016-17	19996.54	100.76	145.43	12161.89	207.81	119.54
2017-18	20076.25	101.16	100.40	15416.79	263.42	126.76
Average	21639.36	109.04		9173.41	156.74	
SD	11612.51	58.51		2768.37	47.30	
CV%	53.66	53.66		30.18	30.18	
CAGR	0.12%	0.12%		10.17%	10.17%	

Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd.co.in/> & <https://www.cdslindia.com/> respectively.

From the comparative table No- 4.1 there is differences between the means of operational income of NSDL and CDSL over the period of time. The very high mean of NSDL indicates that there is positive amount of operational income. It suggests that comparatively lesser amount has been involved in the CDSL. The standard deviation of the operational income of both depositories indicates that there is variation in operational income of both depositories. But comparatively variation is more in NSDL than CDSL which shows higher level of fluctuation in NSDL. So, there is a high dispersion level in NSDL.

CV in CDSL is comparatively lower than NSDL which shows less fluctuations and more stability in operational income of CDSL than NSDL. It indicates that relative stability is very higher in CDSL than NSDL. Higher value of CV in NSDL suggests high level of inconsistency in NSDL. CAGR of operational income is very higher in CDSL, on the other side it is lower in NSDL this shows the better growth in the operational income of CDSL. In this case the CDSL is performing far better than NSDL. That means CDSL is ahead in efficiently managing its operational income and growing sharply than NSDL. It can be concluded that CDSL is growing consistently over the period of time. That may be reason of survival of CDSL.

Chart - 4.1



Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsdl.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative chart No.- 4.1 indicates that during study period there is growth in the trend line of operational income in CDSL and NSDL. CDSL is performing comparatively better than NSDL in case of operational income. If amounts are compared, they are comparatively higher in NSDL than CDSL. In the year 2012-2013 there was a sudden decrease in operational income of NSDL. CDSL trend line shows constant upward trend, but a minimum downfall in the year 2012-2013. Intensity of increase is comparatively higher in CDSL than NSDL. Comparatively there are more fluctuations in the indices of operational income in NSDL. The range and intensity of fluctuation is higher in NSDL than in CDSL. The trend line of NSDL is less vertical to X-axis which indicates that there is negative growth in NSDL. From beginning, the pattern of fluctuation in NSDL is increasing & later on it again tends to increase after the sudden fall in the year 2012-2013, with slow and steady growth pattern. CDSL recorded highest operational income trend percentage 263.42% in the year 2017-2018 and in NSDL maximum is 221.77% in the year 2011-2012. The linear trend lines of both depositories are showing mirror images of each other. The area covered by operational income' trend line of NSDL is lesser than the CDSL. On the basis of area covered, it can be interpreted that CDSL is performing well in operational income than NSDL during study period.

4.2 - Operational Expenses of NSDL and CDSL

Table – 4.2
Comparative Trend Analysis of NSDL & CDSL

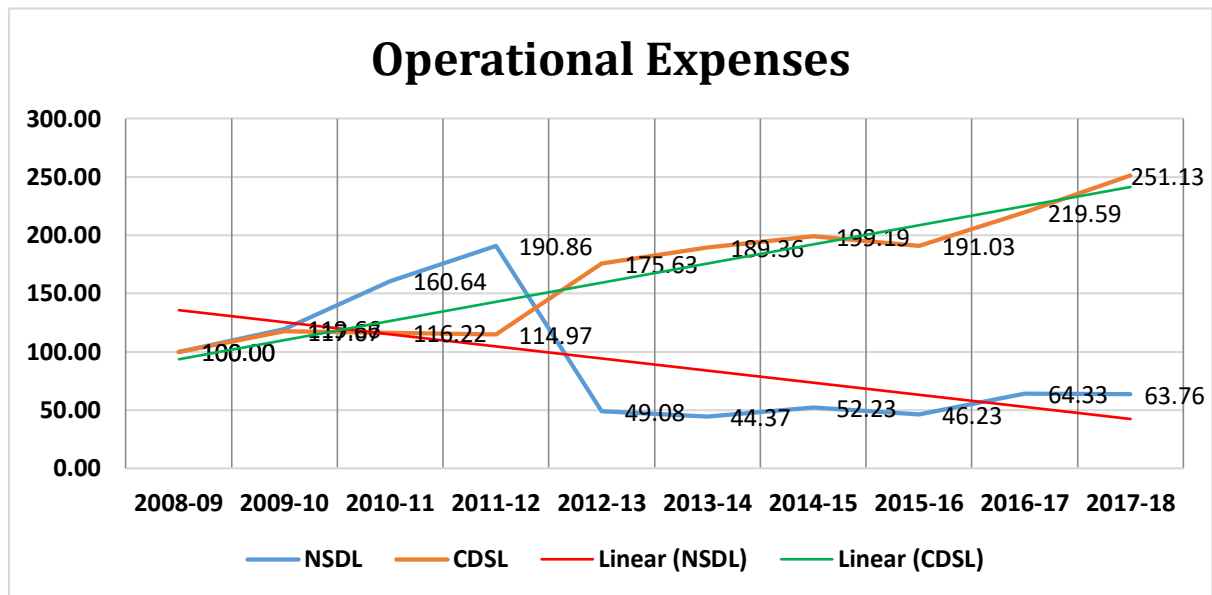
Year	NSDL			CDSL		
	Operational Expenses	Trend Percentage	Chain Base Index	Operational Expenses	Trend Percentage	Chain Base Index
2008-09	17605.16	100.00	100.00	2886.60	100.00	100.00
2009-10	21065.87	119.66	119.66	3396.59	117.67	117.67
2010-11	28280.63	160.64	134.25	3354.73	116.22	98.77
2011-12	33602.00	190.86	118.82	3318.83	114.97	98.93
2012-13	8639.95	49.08	25.71	5069.74	175.63	152.76
2013-14	7811.78	44.37	90.41	5466.15	189.36	107.82
2014-15	9194.33	52.23	117.70	5749.87	199.19	105.19
2015-16	8138.92	46.23	88.52	5514.27	191.03	95.90
2016-17	11325.64	64.33	139.15	6338.76	219.59	114.95
2017-18	11224.27	63.76	99.10	7248.98	251.13	114.36
Average	15688.86	89.12		4834.45	167.48	
SD	9200.87	52.26		1497.99	51.89	
CV%	58.65	58.65		30.99	30.99	
CAGR	-4.40%	-4.40%		9.65%	9.65%	

Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsdl.co.in/> & <https://www.cdslindia.com/> respectively.

From the comparative table No. – 4.2 there is huge differences between the means of operational expenses of NSDL and CDSL over the period of time. The very high mean of NSDL indicates that comparatively lesser amount has been involved in the CDSL. The standard deviation of the operational expenses of both depositories indicates that there is variation in operational expenses of both depositories. But comparatively variation is more in NSDL than CDSL which shows higher level of fluctuation in NSDL. So, there is a high dispersion level in NSDL.

CV in CDSL is comparatively lower than NSDL which shows less fluctuations and more stability in operational expenses of CDSL than NSDL. It indicates that relative stability is higher in CDSL than NSDL. Higher value of CV in NSDL suggests high level of inconsistency in operational expenses. CAGR of operational expenses is very high in CDSL, on the other side it is negative in NSDL this shows that NSDL is ahead in efficiently managing its operational expenses performing much better than CDSL. In this case the NSDL is performing better than CDSL.

Chart – 4.2



Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd1.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative chart No.- 4.2 indicates that during study period there is growth in the trend line of operational expenses in CDSL and downfall in NSDL. NSDL is performing comparatively far better than CDSL in case of managing its operational expenses. In the year 2012-2013 there was a sudden huge decrease in operational expenses of NSDL. The trend line of CDSL shows constant increasing trend during the study period. Comparatively there are more fluctuations in the indices of operational expenses in NSDL. The range and intensity of fluctuation is also higher in NSDL than in CDSL. The trend line of NSDL is less vertical to X-axis which indicates that there is constant decline the operational expenses of NSDL. In the early years of study period, the pattern of fluctuation of operational expenses in NSDL is increasing & later on it gets flatter with minimal fluctuations after the sudden fall in the year 2012-2013. CDSL recorded highest operational expenses trend percentage 251.13% in the year 2017-2018 and in NSDL maximum is 190.86% in the year 2011-2012. The linear trend lines of NSDL shows constant decreasing linear trend on the other hand linear trend line of CDSL shows constant increasing trend. On the basis of decreasing linear trend line, it can be interpreted that NSDL is performing very well in managing its operational expenses than CDSL during study period.

Comparative Ratio Analysis of NSDL & CDSL

The ratio analysis of operational income and operational expenses of NSDL and CDSL has done. The summary of the comparison of the financial performance on the basis of ratio analysis of NSDL and CDSL is shown in following tables.

4.3 – Operational Income of NSDL & CDSL

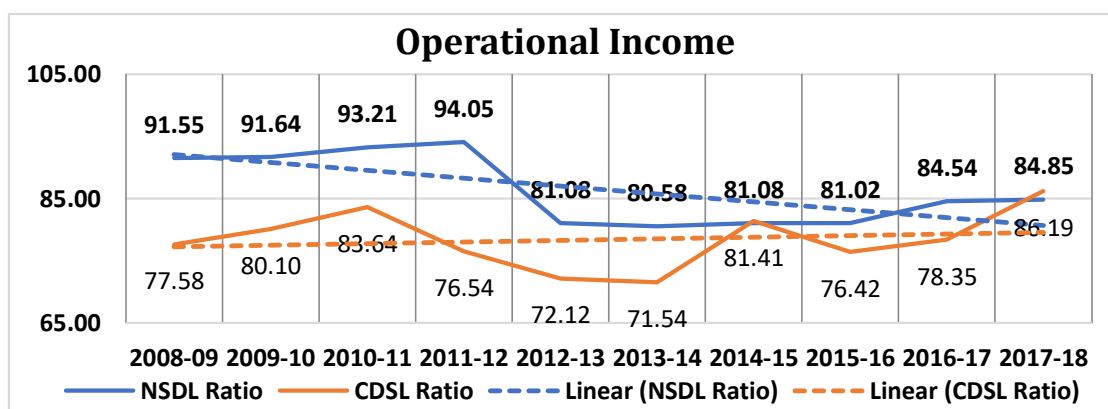
Table – 4.3
Comparative Ratio Analysis of NSDL & CDSL

year	NSDL			CDSL		
	Operational Income	Total Revenue	NSDL Ratio	Operational Income	Total Revenue	CDSL Ratio
2008-09	19845.96	21678.64	91.55	5852.51	7543.86	77.58
2009-10	29094.79	31748.08	91.64	8121.17	10138.53	80.10
2010-11	36994.00	39690.92	93.21	8538.48	10209.11	83.64
2011-12	44012.00	46798.00	94.05	7825.91	10224.29	76.54
2012-13	9804.75	12092.66	81.08	7535.53	10448.50	72.12
2013-14	10456.03	12976.63	80.58	7543.93	10544.96	71.54
2014-15	12363.59	15249.30	81.08	8564.28	10519.64	81.41
2015-16	13749.71	16971.80	81.02	10173.65	13312.89	76.42
2016-17	19996.54	23652.34	84.54	12161.89	15522.41	78.35
2017-18	20076.25	23661.19	84.85	15416.79	17887.12	86.19
Average	21639.36	24451.96	86.36	9173.41	11635.13	78.39
SD	11612.51	11637.29	5.62	2768.37	3052.44	4.65
CV%	53.66	47.59	6.51	30.18	26.23	5.93
CAGR	0.12%	0.88%	-0.76%	10.17%	9.02%	1.06%

Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative table No.- 4.3 represents the information related to operational income to total revenue ratio of NSDL and CDSL. Generally, operational income to total revenue ratio indicates the share of operational income in the total revenue of the firm or the amount of operational income present in the total revenue. The mean score of operational income to total revenue ratios in NSDL is 86.36% and in CDSL it is 78.39%, this indicates that in **NSDL there is more percentage of operational income is present in its total revenue, as compared to CDSL**. Both the standard deviation and coefficient of variance percentages are marginal high in NSDL which indicates the more inconsistency and more fluctuations with higher intensity in the operational income to total revenue ratio of NSDL than CDSL. The growth rate of ratio is negative -0.76% in NSDL and positive 1.06% in CDSL. This shows that comparatively CDSL is efficiently managing its operational income to total revenue ratio growth rate than CDSL.

Chart – 4.3



Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative Chart No.- 4.3 depicts the information about the operational income to total revenue ratio of NSDL & CDSL during study period. In the early years of study period, the pattern of fluctuation of operational income to total revenue ratio in both NSDL & CDSL is increasing & later there is sudden drop in the year 2011-2012, for CDSL & 2012-2013 for NSDL, after this there is increasing trends are present in both depositories. CDSL recorded its highest operational income to total revenue ratio percentage 85.19% in the year 2017-2018 and NSDL recorded its maximum operational income to total revenue ratio percentage 94.05% in the year 2011-2012. There are more fluctuations with high intensity are recorded in NSDL than CDSL. The linear trend lines of CDSL shows increasing trend & the linear trend line of NSDL shows fair decreasing trend, this shows that operational income to total revenue ratio is decreasing in NSDL during the study period.

From the above table & chart it is concluded that in case of operational income to total revenue ratio, if mean scores are compared, high mean value of operational income to total revenue ratio in NSDL shows that averagely there is 86.36% of operational income is present in its total revenue while in CDSL this is 78.39%. But if linear trend lines of both depositories are compared then this ratio is rapidly decreasing in NSDL and marginal increasing in CDSL during the study period. This indicates that comparatively percentage of operational income present in total revenue of NSDL is decreasing more rapidly than CDSL during the study period.

4.4 – Operational Expenses of NSDL and CDSL

Table – 4.4
Comparative Ratio Analysis of NSDL & CDSL

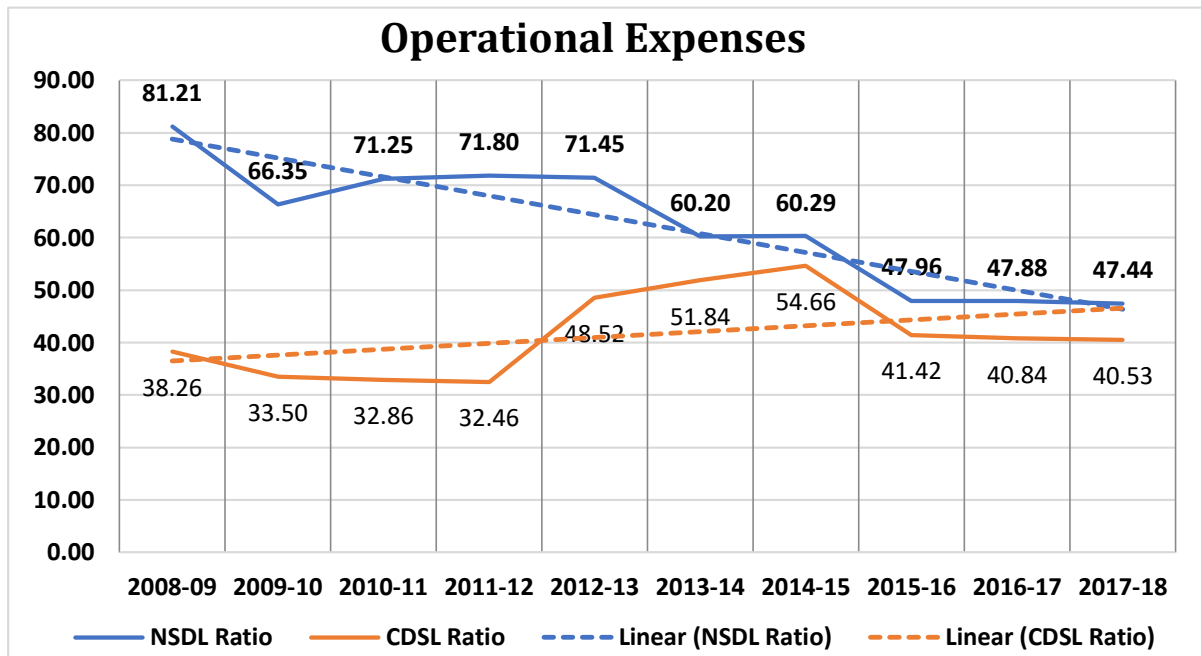
year	NSDL			CDSL		
	Operational expenses	Total Revenue	NSDL Ratio	Operational expenses	Total Revenue	CDSL Ratio
2008-09	17605.16	21678.64	81.21	2886.60	7543.86	38.26
2009-10	21065.87	31748.08	66.35	3396.59	10138.53	33.50
2010-11	28280.63	39690.92	71.25	3354.73	10209.11	32.86
2011-12	33602.00	46798.00	71.80	3318.83	10224.29	32.46
2012-13	8639.95	12092.66	71.45	5069.74	10448.50	48.52
2013-14	7811.78	12976.63	60.20	5466.15	10544.96	51.84
2014-15	9194.33	15249.30	60.29	5749.87	10519.64	54.66
2015-16	8138.92	16971.80	47.96	5514.27	13312.89	41.42
2016-17	11325.64	23652.34	47.88	6338.76	15522.41	40.84
2017-18	11224.27	23661.19	47.44	7248.98	17887.12	40.53
Average	15688.86	24451.96	62.58	4834.45	11635.13	41.49
SD	9200.87	11637.29	11.88	1497.99	3052.44	7.90
CV%	58.65	47.59	18.98	30.99	26.23	19.04
CAGR	-4.40%	0.88%	-5.23%	9.65%	9.02%	0.58%

Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative table No.- 4.4 represents the information related to operational expenses to total revenue ratio of NSDL and CDSL. Operational expenses to total revenue ratio suggest that, what percentage of total revenue are utilized in operational expenses. Generally, a lower total expense to total revenue means more profitability and a higher ratio means less profitability. The mean score of operational expenses to total revenue ratios in NSDL is 62.58% and in CDSL it is 41.49%, this indicates that in **NSDL there is more percentage of total revenue is utilized in the operational expenses, as compared to CDSL. In this case CDSL is performing better than NSDL.** The standard deviation is high in NSDL which indicates the more inconsistency and more fluctuations with higher intensity in the operational expenses to total revenue ratio of NSDL than CDSL. Coefficient of variance percentage is more in CDSL which shows more variability in it than NSDL. The growth rate of ratio is negative - 5.23% in NSDL & positive 0.58% in CDSL. The more negative growth rate in NSDL suggest that this

ratio is more rapidly decreasing in NSDL. This shows that comparatively NSDL is efficiently managing and constantly lowering its operational expenses to total revenue ratio growth rate than CDSL.

Chart - 4.4



Source: Computed from Annual reports of NSDL & CDSL downloaded from <https://www.nsd.co.in/> & <https://www.cdslindia.com/> respectively.

The comparative Chart No.- 4.4 depicts the information about the operational expenses to total revenue ratio of NSDL & CDSL during study period. In the early years of study period, the pattern of fluctuation of operational expenses to total revenue ratio is decreasing in both NSDL & CDSL. There is sudden increase is present in CDSL in the year 2012-2013. CDSL recorded its highest operational expenses to total revenue ratio percentage 54.66% in the year 2014-2015 and NSDL recorded its maximum operational expenses to total revenue ratio percentage 81.21% in the base year 2008-2009. There are more fluctuations with high intensity are recorded in NSDL than CDSL. The linear trend lines of CDSL shows steeper trend & the linear trend line of NSDL shows increasing trend, this shows that operational expenses to total revenue ratio is decreasing rapidly in CDSL during the study period.

From the above table & chart it is concluded that in case of operational expenses to total revenue ratio, if mean scores are compared, lower mean value of operational expenses to total revenue ratio in CDSL shows that, averagely there is 41.49% of total revenue is utilized in its operational expenses, while in NSDL this is 62.58%. But if linear trend lines of both depositories are compared then this ratio is rapidly decreasing in NSDL and increasing in CDSL. This indicates that percentage of total revenue utilized in operational expenses of NSDL in decreasing more rapidly than CDSL during the end years of study period.

V- Data Analysis and Interpretation

The collected data was tested for normality with the help of Shapiro-wilk test. The tested data have been categorised as parametric and nonparametric or normal and non-normal data for hypothesis testing. Students' t-test has been used for testing normal data and Wilcoxon signed rank test has been used for testing non-normal data.

Hypothesis Testing

Null Hypothesis (H_{01}): There is no significant differences between the mean scores of operational income to total income ratios of NSDL and CDSL over the period of time.

$$H_{01}: \mu_1 = \mu_2$$

Alternate Hypothesis (H_{A1}): There is significant differences between the mean scores of operational income to total income ratios of NSDL and CDSL over the period of time.

$$H_{A1}: \mu_1 < \mu_2 \text{ OR } \mu_1 > \mu_2$$

Table-5.1
t-test on Operational Income to Total Income ratio of NSDL & CDSL

Pair/Ratio	Mean	Std. Deviation	Std. Error Mean	df	t-calculated value ($t_{cal.}$)	Level of sig. (2-tailed)	t-table value (t_{tv})
Operational Income to Total Income NSDL - Operational Income to Total Income CDSL	7.97100	5.91169	1.86944	9	4.264	.002	2.262

Table No. – 5.1 indicates that calculated value of t_{cal} ($t = 4.264$) is more than the alpha/critical/table value of t_{tv} at 5% level of significance, 2.262, $t_{cal} > t_{tv}$ (9, 0.05). ($p=0.002$ which is less than level of significance 5%).

Which means that at 5% level of significance H_0 is in the rejection region and cannot be accepted. Hence, the mean scores of operational income to total income ratio of NSDL is higher than the CDSL over the period of time. $\mu_1 > \mu_2$

Hypothesis Testing

Null Hypothesis (H_{02}): There is no significant differences between the mean scores of operational expenses/operational expenses to total income ratios of NSDL and CDSL over the period of time.

$$H_{02}: \mu_1 = \mu_2$$

Alternate Hypothesis (H_{A2}): There is significant differences between the mean scores of operational expenses/operational expenses to total income ratios of NSDL and CDSL over the period of time.

$$H_{A2}: \mu_1 < \mu_2 \text{ OR } \mu_1 > \mu_2$$

Table-5.2
Wilcoxon Signed Rank Test on Operational Expenses to Total Income Ratio of NSDL & CDSL

Pair/Ratio	Ranks	N	Mean Rank	Sum of Ranks	Test statistics(T)	N	T-table Value
Operational Expenses to Total Income CDSL - Operational Expenses to Total Income NSDL	Negative Ranks	10	5.50	55.00	.00	10	<8
	Positive Ranks	0	.00	.00			
	Ties	0					
	Total	10					

Table No.- 5.2 indicates that the mean ranks were compared for the two variables with sample size 10. Mean of negative ranks was greater than the mean of positive ranks and sum of negative ranks was also greater than the sum of positive ranks. T-statistics ($T=0.00$) is less than the critical value of $T_{Critical}=8$ at 5% level of significance. Thus, we **reject the null hypothesis H_{019}** for two-tailed test. Hence, the mean score of operational expenses to total income ratios of NSDL higher than CDSL over the period of time. $\mu_1 > \mu_2$

Table- 5.3**Comparison of Financial Performance of NSDL & CDSL on the Basis of Trend Analysis**

S.No.	Item	NSDL	CDSL
1.	Operational Income	Steeper Downward	Steeper Upward
2.	Operational Expenses	Steeper Downward	Steeper Upward

Table- 5.4**Comparison of Financial Performance of NSDL & CDSL on the Basis of Ratio Analysis**

S. No.	Parameters (Ratios)	NSDL		CDSL	
		Mean Ratio	Performance	Mean Ratio	Performance
1.	Operational Income to Total Income Ratio	High	High	Low	Low
2.	Operational Expenses to Total Income Ratio	High	Low	Low	High

Table- 5.5**Result Summary of Hypothesis Testing on the Basis of t-test**

S. No.	Null Hypothesis	t _{cal} Value	Reject/Fail to reject	Result
H ₀₁	There is no significant differences between the mean scores of operational income to total income ratios of NSDL and CDSL over the period of time.	4.264	Reject Null Hypothesis	$\mu_1 > \mu_2$

Table- 5.6**Result Summary of Hypothesis Testing on the Basis of Wilcoxon Signed Rank Test**

S. No.	Null Hypothesis	Test Statistics(T)	Reject/Fail to reject	Result
H ₀₂	There is no significant differences between the mean scores of operational expenses to total income ratios of NSDL and CDSL over the period of time.	0.00	Reject Null Hypothesis	$\mu_1 > \mu_2$

VI- Findings, Suggestions and Conclusions

The present study was aimed to compare the financial performance of NSDL and CDSL. The study reveals important and useful findings regarding the performance of these depositories which is related to operational income and operational expenses of NSDL and CDSL.

Findings

1. As per t-test, difference is identified. The mean score of operational income to total income ratio of NSDL is higher than the mean score of operational income to total income ratio of CDSL over the period of time. This shows that there is significant difference. This indicates that is NSDL is performing better than CDSL in this matter NSDL is leading over the period of time.
2. As per Wilcoxon signed rank test, difference is identified. The mean score of operational expenses to total income ratio of NSDL is higher than the mean score of operational expenses to total income ratio of CDSL over the period of time. this indicates that NSDL had spent more part of its total income on operational expenses as compared to CDSL during the study period. In this case CDSL has performed better than NSDL and is leading during the study period.

Suggestions

1. CDSL had lower operational income than NSDL, during study period. It is suggested that CDSL should improve this ratio. The management of CDSL must try to improve/increase its operational income.
2. NSDL had spent more proportion of its total revenue on operational expenses as compared to CDSL during study period. Comparatively operational expenses are very well controlled by CDSL than NSDL. It is suggested that NSDL must work on the ways of reducing its operational expenses and improve the performance of this ratio. It has two alternative options either to increase its total revenue or to reduce operational expenses.

Conclusion

1. As per trend analysis, trend of operational income of CDSL is going to steeper upward while in case of NSDL it is going to steeper downward. In this case CDSL is beating NSDL. In case of operational expenses, trend of CDSL is going to steeper upward while in case of NSDL it is going steeper downward. In this case NSDL is beating CDSL and showing good control over expenses.
2. As per ratio analysis, NSDL is performing well in compare of CDSL. That means NSDL is using its assets efficiently and effectively. NSDL have good control and effective management. In case of operational expenses, CDSL is showing higher performance which shows good control over expenses.
3. As per hypothesis test, the null hypothesis has been rejected on the basis of t-test and Wilcoxon signed rank test. There is significant differences has been found in favour of NSDL and CDSL respectively. In case of income NSDL is performing well but in case of expenses CDSL is performing well.

References

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