

# Liquidity, Solvency and Profitability Analysis Using Cash Flow Ratios and Traditional Ratios: The Telecommunication Sector in Sri Lanka.

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#### **Abstract**

This study examines the performance of Dialog Axiata PLC and Sri Lanka Telecom PLC by employing both cash flow ratios and traditional financial ratios over the past five years. Using the financial statements from Colombo Stock Exchange (CSE) website, independent sample t-tests were used for the analysis. The performance of Dialog Axiata PLC and Sri Lanka Telecom PLC was measured using liquidity, solvency, and operational efficiency indicators. Results show that traditional ratios generated different results from cash flow ratios in liquidity, Solvency and Profitability. Sri Lanka Telecom PLC was found to have significantly higher solvency ratios than Dialog Axiata PLC, indicating a possibility that the difference may be caused by the type of ownership.

Keywords: Liquidity ratios, cash flow ratios, Solvency ratios, efficiency ratios and financial statement analysis.

#### 1. Introduction

Information for financial ratios has traditionally been obtained from statement of income and statement of financial position. However, ratios from the statement of cash flow (SCF) have also gained attention from academicians and industry practitioners, since cash flow ratios provide supplementary information in understanding the "real" operational status of a business. Previous studies have provided substantial evidence supporting the application and usefulness of cash flow approaches in financial ratio analysis. Despite the fact that the SCF is becoming increasingly important, limited efforts have been made to investigate financial performance using the SCF in Sri Lanka. Thus, this study was aimed at filling the research niche by providing performance measurement of manufacturing companies by cash-basis accounting as well as traditional accrual-basis accounting. The objective of this study was to examine and compare performance of telecommunication companies using cash flow ratios as well as traditional financial ratios statement of income and statement of financial position. The outcome of this study will provide a general picture of cash flow ratios and traditional ratios including liquidity, solvency and operations. The results of this study will also be helpful to the telecommunication industry in understanding the differences in cash-basis accounting and traditional accrual-basis accounting. This study is limited to listed telecommunication companies in Sri Lanka.

# 2. Literature Review

Use of financial ratios to assess the firm performance is not new. A simple literature search can find literally thousands of publications on this topic. The studies often differentiate themselves from the rest by developing and using different independent variables (financial ratios) and/or employing different statistical or machine learning based analysis techniques. For instance, Horrigan (1965) claimed that the development of financial ratios ought to be a unique product of the evolution of accounting procedures and practices; further stating that the origin of financial ratios and their initial use goes back to the late 19th century. Financial ratios, which are calculated by using variables commonly found on financial statements, can provide the following benefits (Ross, Westerfield, & Jordan, 2003):

- Measuring the performance of managers for the purpose of rewards;
- Measuring the performance of departments within multi-level companies;
- Projecting the future by supplying historical information to existing or potential investors;
- Providing information to creditors and suppliers;
- Evaluating competitive positions of rivals;
- Evaluating the financial performance of acquisitions.

Traditional ratios are derived from statement of income and statement of financial position. Several ratios are used performance measurement in terms of profitability, liquidity and solvency. Previous studies identified ratios which are used to evaluate profitability, liquidity and solvency and interrelationship among those measures.



However cash is most liquid and important assets to the organization. Because of importance of cash flow, Lanka accounting standard (LKAS-&) prescribes the format of statement of cash flow in two way (direct or indirect method) under three major categories such as operating, investing and financing activities. In almost every business, large or small, cash is not only an essential element for a successful business, but also a continued crucial requirement for business survival (DeFranco & Schmidgall, 1998). Previous studies have discussed cash flow as being crucial for many businesses in a variety of industries (Beck, 1994; Bohannon & Edwards,1993; Casey & Bartczak, 1985; DeFranco & Schmidgall, 1998; Epstein & Pava, 1994; Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993; Sylvestre & Urbancic, 1994). Beck (1994) expressed cash as "king" and noted that cash reflects the difference between successful operations and closure.

Financial ratio analysis has been extensively employed to assess the financial performance of operations for a long time by investors, creditors, and managers. It permits them to obtain more valuable information from financial statements than they can receive simply from reviewing the absolute numbers reported in the documents (Andrew & Schmidgall, 1993). Originally developed as short-term credit analysis techniques, financial ratios can be traced as far back as the late nineteenth century. Since then, analysts have developed many financial ratios that practitioners and academicians use widely (Giacomino & Mielke, 1993). According to Mills and Yamamura (1998), a business's true economic health can no longer be fully measured with an accrual basis accounting system alone. For years, lenders, rating agencies, and Wall Street analysts have been using cash flow ratios in evaluating risks associated with their investments. Previous research has claimed that the SCF has provided creditors, investors, and managers with even more useful information for analyzing the financial structure of an operation when compared to traditional income statement and balance sheet (DeFranco & Schmidgall, 1998; McGowne, 1989; Mills & Yamamura, 1998; Zeller & Stanko, 1994). For instance, a study done by Mills and Yamamura (1998) showed empirical evidence that the operating cash flow ratio signaled a unique aspect of a retail firm's activity. Traditional ratio analysis often fails to reveal the severe liquidity problems that result in a bankruptcy filing (Zeller & Stanko, 1994). In addition, shareholders have become more aware of the value in financial reports, and they also believe that the SCF is increasingly important these days (Epstein & Pava, 1994).

**Liquidity**: - When it comes to liquidity analysis, cash flow information is more reliable than balance sheet or income statement information. Balance sheet data are static due to the measurement of only a single point in time while the income statement contains many arbitrary non-cash allocations (e.g., depreciation and amortization). In contrast, the cash flow statement records the changes in the other statements and nets out the bookkeeping artifice, focusing on what shareholders really care about: cash available for operations and investments (Coltman & Jagels, 2001; Mills & Yamamura, 1998).

The current and quick ratios are calculated at a particular point in time. If the financial statement accounts are unusually large or small on that date, those ratios may not reflect a normal situation. Cash flows from operations to current liabilities, an SCF-based ratio, overcomes this deficiency, because it requires the comparison of a cash-flow value from a period of time to the average of current liabilities (Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993). This ratio measures a company's ability to generate resources to meet current liabilities. The higher the ratio is, the greater the firm's liquidity (Coltman & Jagels, 2001). As a rule of thumb, current assets should exceed current liabilities on a ratio of two to one, which implies LKR 2.00 of current assets is available for each LKR 1.00 of current liabilities (Jagels & Coltman, 2004).

**Solvency**:-Solvency ratios are used to evaluate a company's ability to pay its bills in the long run. Lenders, investors, and credit-rating agencies are very concerned about a company's ability to meet its operational commitments. Cash flow ratios are useful to measure a company's strength on an ongoing basis (Mills & Yamamura, 1998).

One of the most commonly used solvency ratios, total assets to total liabilities, is calculated at a single point in time in the balance sheet statement, while the cash flow from operations to average total liabilities ratio covers a period of time. Thus, the latter is considered more useful than the former. Moreover, the total assets to total liabilities ratio ignores the varying liquidity of assets for covering various levels of debt. The cash flow from operations to total liabilities ratio gets over that deficiency by focusing directly on cash flow (Coltman & Jagels, 2001; Schmidgall, Geller, & Ilvento, 1993; Mills & Yamamura, 1998). The lower this ratio is, the lower the financial flexibility and the higher the potential for default. In other words, the higher this ratio is, the better is



the operation's ability to pay off its debts with cash. It is suggested that a minimum ratio of 20 percent is acceptable in the lodging industry (Davidson, Stickney & Weil, 1988; Schmidgall, Geller, & Ilvento, 1993).

The cash flow-interest coverage ratio is similar to the times interest earned ratio whose purpose is to look at the margin of safety in meeting debt interest payments. Since interest expense is paid with cash, the cash flow-interest coverage ratio may be more realistic than the times interest earned ratio. Moreover, the cash flow-interest coverage ratio can provide a more obvious warning that an inability to pay interest may be on the horizon than does the traditional interest coverage ratio (Coltman & Jagels 2001; Schmidgall, Geller, & Ilvento, 1993). The higher this ratio is, the better the company's ability to cover its debt. Thus, an operation's creditors will be more comfortable with a higher ratio.

Profitability: - Traditional ratios of profitability measures such as gross profit margin, net profit margin, return on equity and return on investment have been identified and relationship with liquidity, solvency and corporate governance have tested by various studies in not only in one context but also all around the world (Kajananthan, 2012; Velnampy & Kajanathan,2013; Kajananthan & Achchuthan, 2013; Velnampy, 2005,2006 & 2013). The primary concern of management is operations (Jagels & Coltman, 2004; Schmidgall, Geller, & Ilvento, 1993). Two useful cash flow ratios that focus on operations are cash flow margin and cash flow from operations to net income. The cash flow margin is similar to the profit margin whose purpose is to reveal the profits (i.e., the amount of cash) generated per dollar sales. Since the customers spend dollars (i.e., cash), not profits (net income), in the hotel industry the cash flow margin should be a more useful ratio than profit margin (Coltman & Jagels, 2001; Schmidgall, Geller, & Ilvento, 1993). The cash flow margin shows the percentage of cash flows from operation activity per dollar of revenue. The higher this ratio is, the better, since this ratio evaluates the company's ability to translate sales into cash.

The ratio of cash flow from operations to net income is indirectly related to operation performance (Schmidgall, Geller, & Ilvento, 1993). Net income alone cannot appropriately explain how well hotel companies are operated because its calculation involves subjective judgments in accruals, expense allocation, and valuation. Since cash flow from operations is pure cash, hotel managers might prefer to compare CFO to net income in order to determine the relationship between the two. The higher the ratio is the better.

## 3. Methodology

The population of this study was listed telecommunication companies in the Sri Lanka. The sample was two companies listed in the Colombo Stock Exchange for the period 2009 and 2013. The data and information required for the study were collected from the Colombo Stock Exchange (CSE) websites, annual reports, and the Colombo Stock Exchange publication. Data were collected from secondary sources.

Table-01 presents a summary of the financial ratios employed in this study. It shows the formulas for five traditional ratios and five cash flow ratios. The performance evaluations of the firms in this study were made in liquidity, solvency and profitability measures. The performance of liquidity was measured by current ratio, quick ratio and cash flow from operations to current liabilities. Solvency was accessed by total assets to total liabilities, time interest earned, cash flow from operations to total liabilities and cash flow- interest coverage. Finally, the profitability was evaluated using cash flow margin, cash flow from operations to net income and net profit margin.



Table-01							
Description of traditional ratios and cash flow ratios							
Ratio	Ratio Formula						
Category							
Traditional	Current Ratio	CA/CL	Liquidity				
	Quick Ratio	(CA-inventories-prepaid)/CL	Liquidity				
	TA/TL Ratio	TA/TL	Solvency				
	Times Interest Earned Ratio	EBIT/Interest expense	Solvency				
	Profit Margin	Net income/Total Revenue	Profitabilit				
			у				
	CFO/CL	CFO/CL	Liquidity				
	CFO/ TL	CFO/ TL	Solvency				
Cash flow	Cash flow-interest coverage	(CFO + interest expenses)/Interest	Solvency				
		expenses					
	Cash-flow margin	CFO/Total revenue	Profitabilit				
			у				
	CFO to Net Income	CFO/Net income	Profitabilit				
			у				

Note: CA= Current assets; CL= Current Liabilities; TA=total assets; TL=total liabilities; EBIT= earnings before interest and income tax; CFO= cash flow from operations.

Independent sample t-tests were used to identify the statistical differences in performance between Dialog Axiata PLC and Sri Lanka Telecom PLC.

#### 4. Analysis and Interpretation

Table 2 presents the results of the analysis. Two traditional liquidity ratios (current ratio and quick ratio) did not show statistically significant differences between Dialog Axiata PLC and Sri Lanka Telecom PLC companies. Because current assets and liabilities can be converted into cash or be due within the following 12 months, the current ratio (CR) is a measure of short-term liquidity. As shown in Table 2, the Dialog Axiata PLC had LKR 0.68 in current assets (CA) for every LKR.1 in current liabilities (CL), while Sri Lanka Telecom PLC segment had LKR 1.40 in CA for every LKR.1 in CL. Creditors and potential creditors prefer to see a high CR, because it provides a positive indicator of a business operation's capability of repaying its debt obligation. CR of at least one is expected because a CR of less than one would mean that net working capital is negative. The results indicated that Dialog Axiata PLC remained a little below the recommended level of one, while Sri Lanka Telecom PLC seemed to be more healthy in terms of CR. The quick ratio (QR) for Dialog Axiata PLC is 0.67 times, showing there was LKR.0.65 of quick assets for every LKR.1 of CL, while the QR for Sri Lanka Telecom PLC is 1.28 times, indicating that there was LKR.1.28 of quick assets for every LKR.1 of CL. The results suggested that the Sri Lanka Telecom PLC were at the better liquidity status than Dialog Axiata PLC. Creditors generally prefer high liquidity ratios, while owners and equity investors do not prefer too high ratios. Thus, management should balance between the creditors' viewpoints and owners' viewpoints. The cash flow liquidity ratio (cash flow from operations to current liabilities) did not show significant difference. Even though the ratio was found not significant in cash flow ratios, cash flow from operations to current liabilities as well as current and quick ratios indicated that Sri Lanka Telecom PLC had been in better liquidity position than Dialog Axiata PLC.

The all solvency ratios other than CFO/ TL demonstrated statistically significant differences between Dialog Axiata PLC Axiata PLC and Sri Lanka Telecom PLC However, in terms of practical aspects, the results showed that Sri Lanka Telecom PLC had been in the better situation in terms of three out of four solvency ratios(TA/TL Ratio, Times Interest Earned Ratio, CFO/ TL and Cash flow-interest coverage). For example, the Sri Lanka Telecom PLC's cash flow from operations to total liabilities (3.55) was more than two times higher that of Dialog Axiata PLC (1.96). Since the higher the ratio, the better will be the operation's solvency the results showed that Sri Lanka Telecom PLC seemed to outperform Dialog Axiata PLC in practical aspects.



Table-02 Independent Samples Test

		Leve Test Equal Varia	for ity of			t-	test for Equ	ality of Me	ans	
						Sig. (2-	Mean	Std. Error	95% Co Interva Diffe	nfidence l of the rence
	-	F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper
CR	Equal variances assumed	.388	.551	-5.077	8	.001	718000	.141428	-1.044135	391865
	Equal variances not assumed			-5.077	7.455	.001	718000	.141428	-1.048334	387666
QR	Equal variances assumed	.600	.461	-4.247	8	.003	614000	.144589	947423	280577
	Equal variances not assumed			-4.247	7.302	.003	614000	.144589	953057	274943
TATL	Equal variances assumed	6.943	.030	-5.688	8	.000	-1.590000	.279550	-2.234643	945357
	Equal variances not assumed			-5.688	4.246	.004	-1.590000	.279550	-2.348734	831266
TIER	Equal variances assumed	5.360	.049	1.861	8	.100	11.714000	6.294930	-2.802134	26.230134
	Equal variances not assumed			1.861	4.284	.132	11.714000	6.294930	-5.316074	28.744074
PM	Equal variances assumed	1.613	.240	2.556	8	.034	.084000	.032863	.008217	.159783
	Equal variances not assumed			2.556	5.295	.048	.084000	.032863	.000917	.167083
CFOCL	Equal variances assumed	2.906	.127	-1.007	8	.343	164000	.162807	539433	.211433
	Equal variances not assumed			-1.007	5.058	.360	164000	.162807	581063	.253063
CFOTL	Equal variances assumed	3.319	.106	-1.722	8	.123	252000	.146301	589371	.085371
	Equal variances not assumed			-1.722	4.223	.156	252000	.146301	649888	.145888
CFIC	Equal variances assumed	6.876	.031	1.401	8	.199	21.126000	15.078306	- 13.644636	55.896636
	Equal variances not assumed			1.401	4.179	.231	21.126000	15.078306	20.041105	62.293105
CFM	Equal variances assumed	7.167	.028	.171	8	.868	.008000	.046712	099718	.115718
	Equal variances not assumed			.171	4.328	.872	.008000	.046712	117910	.133910
CFONT	Equal variances assumed	4.568	.065	-1.459	8	.183	-3.254000	2.230062	-8.396533	1.888533
	Equal variances not assumed			-1.459	4.196	.215	-3.254000	2.230062	-9.333103	2.825103



Table-03
Group Statistics

	GROU				
	P	N	Mean	Std. Deviation	Std. Error Mean
CR	1	5	.68600	.190997	.085417
	2	5	1.40400	.252052	.112721
QR	1	5	.67000	.190000	.084971
	2	5	1.28400	.261591	.116987
TATL	1	5	1.96800	.108028	.048311
	2	5	3.55800	.615687	.275343
TIER	1	5	1.60760E1	13.832289	6.185988
	2	5	4.36200	2.607388	1.166059
PM	1	5	.16600	.068044	.030430
	2	5	.08200	.027749	.012410
CFOCL	1	5	.73600	.125419	.056089
	2	5	.90000	.341760	.152840
CFOTL	1	5	.37000	.053852	.024083
	2	5	.62200	.322676	.144305
CFIC	1	5	4.03800E1	33.345401	14.912517
	2	5	1.92540E1	4.986064	2.229835
CFM	1	5	.37400	.020736	.009274
	2	5	.36600	.102372	.045782
CFONT	1	5	2.47800	.771829	.345172
	2	5	5.73200	4.926476	2.203187

One profitability ratio (Cash flow-interest coverage) out of three profitability ratios (CFO to Net Income, Profit Margin and Cash-flow margin) demonstrated statistically significant differences between Dialog Axiata PLC and Sri Lanka Telecom PLC. However, in terms of practical aspects, the results showed that Sri Lanka Telecom PLC had been in the better situation in terms of two out (CFO to Net Income and Cash-flow margin) of three profitability ratios which are cash flow based measure of profitability. Dialog Axiata PLC had been in the better situation in terms of one out (Profit Margin) of three profitability ratios which are accural based measure of profitability.

The findings of this study could be somewhat debatable in assessing both Dialog Axiata PLC and Sri Lanka Telecom PLC's healthiness in liquidity and solvency performance. The current ratio (Dialog Axiata PLC = 0.68; Sri Lanka Telecom PLC = 1.40) showed that both Dialog Axiata PLC and Sri Lanka Telecom PLC did not exceed the ratio of 1.5, and suggested that they have not been operated at 'super' healthy statuses. In contrast, Dialog Axiata PLC and Sri Lanka Telecom PLC could be considered to have had very healthy statuses through the aspect of cash flow ratios. Cash flow from operations to current liabilities were higher than desirable minimum ratio of 40 percent for a healthy firm (Dialog Axiata PLC = 73 percent; Sri Lanka Telecom PLC = 90 percent). In terms of solvency performance, CFO to total liabilities showed that both Dialog Axiata PLC and Sri Lanka Telecom PLC were at a reasonable level because the ratios were higher than desirable minimum ratio of 20 percent or 0.2 times (Dialog Axiata PLC = 0.37 times; Sri Lanka Telecom PLC = 0.62 times). Profit margin (Dialog Axiata PLC = 0.16 percent; Sri Lanka Telecom PLC = 0.08 percent) also indicated that both telecommunication companies had not performed well for the last five years.



## 5. Findings and Conclusion

In summary, the results of this study suggest that Sri Lanka Telecom PLC have been in better liquidity, solvency, and profitability condition than Dialog Axiata PLC over the past five years. Major findings of this study can be derived from the aspects of liquidity, solvency, and profitability condition performance. First, as mentioned earlier, two traditional and one cash flow liquidity ratios did not show that there were statistically significant differences between Dialog Axiata PLC and Sri Lanka Telecom PLC. Second, both traditional and cash flow liquidity ratios indicated that the Dialog Axiata PLC was not in a healthy liquidity condition. On the other hand, interestingly, the cash flow from operating activities to current liabilities ratio implied that the commercial hotel sector was in a healthy status over the last five years. The current and quick ratios are calculated at a particular point in time. If the financial statement accounts (e.g., current asset accounts, current liability accounts) are unusually large or small on that particular date, those liquidity ratios are not expected to represent a normal financial situation for the businesses. However, cash flows from operations to current liabilities-an SCF-based ratio-overcomes this deficiency, given that it requires the comparison of a cash flow value from a period of time to the average of current liabilities (Mills & Yamamura, 1998; Schmidgall, Geller, & Ilvento, 1993).

This study provides evidence of the importance of using the cash flow ratios as a means of testing the validity of the conclusions that can be made from analysis of traditional liquidity ratios alone. There were examples of companies that had seemingly good traditional ratios and yet the cash flow ratios projected a different perspective. In contrast there was also company that had seemingly poor traditional ratios and the cash flow ratios provided a better perspective. The analysis highlights the usefulness of the cash flow ratios in conducting an investigation of the financial statements of companies. The ratios used in this study represent but a few of the cash flow ratios that exist and were selected for the purpose of making the comparison between the traditional ratios more explicit. Further research may benefit from the provision of a greater number of cash flow ratios as compared to a wider variety of traditional ratios. The implications of this study are that in essence the determination of cash flow ratios provides a more holistic approach to the analysis of the liquidity position of companies and in doing so becomes a means for making better decisions based on the data. For the purpose of the evaluation of financial data the cash flow ratios provide a valuable means by which to justify or question the relevance of the outcomes of traditional ratios. It is necessary to carry out same study to large sample for various sectors by differentiating financial and non- financial companies.

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