



ASSESSMENT OF FINANCIAL CONDITION: A CASE STUDY OF SAUDI CONSTRUCTION COMPANIES

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ABSTRACT

This study aims to assess the financial condition of some selected Saudi construction companies. The study adopts the published financial statements of the construction companies listed on Saudi Stock Exchange Market. Traditional financial ratios were employed as assessment tools, necessary financial data concerning the ratios were extracted and saved in Microsoft Excel spreadsheet for the analysis of the financial ratios, and these were compared to the industry's typical median and range. Subsequently, a null hypothesis test was conducted using SPSS 22, to statistically test that there is no significance difference between the companies' median and industry median. The analysis reveals that two companies are financially satisfactory and the third company is in financial distress. However, the companies' financial condition can be enhanced if they are able to manage the companies in such a way that there's increase in their revenues, reduces general overhead costs and adequate debt management.

Key Words: Construction Companies, Financial Statements, Financial Ratios, T-test, Saudi.

Introduction

Construction industry has been, and is still the vanguard of national economic development. This industry plays a crucial role in national development by using various resources to construct economic and social amenities (Halim et al., 2014). According to the U.S-Saudi Arabian Business Council (2009), Saudi construction industry contributes approximately 8% of the Kingdom's gross domestic product. The construction sector plays a central role in the Kingdom's vast industrial expansion through the Saudi National Industrial Cluster Development Program.

In addition, Tserng et al., (2014) highlighted that, the importance of the construction industry is related not to its size only but to its contribution to national economic development. This industry produces all of the facilities needed by other industries and end users. Saudi construction industry, as in other countries, can serve as an indicator of the Kingdom's economic conditions.

One of the required conditions of a competent and satisfactory company in this industry, is the use of adequate processes and construction project completion as scheduled (Plebankiewicz, 2010). However, a failing financial condition may prevent construction companies from using adequate processes and completing a construction project as scheduled. And this can result to economic and social damages (Ibn-Homaid and Tijani, 2015).

To curb the economic and social damages resulting from failing financial condition of construction companies, a periodic evaluation of their financial data is essential. Tserng et al., (2014) divulged that, periodic evaluation of the companies assists client to avoid awarding contracts to a company with failing financial conditions. Furthermore, this also enables the company's owner, shareholders, creditors and employees to put in place appropriate strategies to maintain the company's survival. The current study adopts financial ratios analysis to assess the financial status of three listed construction companies on Saudi Stock Exchange Market, based on their published financial statements.

Financial Ratios Analysis

Financial ratios analysis is a means of periodic evaluation and assessment of the financial conditions of companies. It can be calculated from information contained in the companies' financial statements and this is a useful tool for evaluating and determining the companies' financial conditions (Peterson, 2009). Ross et al., (2010) highlighted that, the usages of the ratios in construction companies can provide an early warning device that offers an effective monitoring tool to avoid continuing failing financial condition.

Moyer et al., (2007) highlighted three main purposes of financial ratios analysis. Firstly, it plays an effective role in planning to achieve the company's goals. Secondly, it's an analytical device in determining the strengths and weaknesses of the company. Thirdly, the ratios are use as monitoring tools for ensuring that the companies' objectives are compatible with their resources. Thereby, Kangari and Farid (1992) stated that financial ratios analysis enables the practitioners to study and understand the financial dynamics of companies' operation and business.

One group of writers (e.g., Hung et al., 2002; Halim et al., 2014; Chan et al., 2005; Varghese and Menacere, 2007) stated that financial ratios are classified into four broad categories. These are liquidity, profitability, leverage and efficiency ratios. Liquidity ratios comprises of quick ratio and current ratio; leverage ratios comprises of debt to equity ratio, average age of accounts payable, current liabilities to net worth ratio and accounts payable to revenue ratio; profitability ratios consists of gross profit margin, after tax profit margin, return on assets and return on equity; while efficiency ratios comprises of fixed assets to net worth ratio, current assets to total assets ratio, collection period, assets to revenue ratio, working capital turns, general overhead ratio and degree of fixed assets newness. The formulas that define these ratios are listed in Table 1.

Table 1: Summary of the Financial Ratios with Their Formula

No	Name		Formula
Liquidity Ratio			
1	Quick Ratio	QR	$(\text{Cash} + \text{Accounts Receivables}) / \text{Current Liabilites}$
2	Current Ratio	CR	$\text{Current Assets} / \text{Current Liabilites}$
Leverage Ratio			
1	Debt to Equity Ratio	DER	$\text{Total Liabilities} / \text{Net Worth}$
2	Average Age of Accounts Payable	AAAP	$\text{Account Payable}(365) / (\text{Materials} + \text{Subcontract})$
3	Current Liabilities to Net worth Ratio	CLNW	$\text{Current liabilities} / \text{Net worth}$
4	Accounts Payable to Revenue Ratio	APRR	$\text{Account Payable} / \text{Revenue}$
Profitability Ratio			
1	Gross Profit Margin	GPM	$\text{Gross Profit} / \text{Revenue}$
2	After Zakat Profit Margin	AZPM	$\text{Net Profit After Zakat} / \text{Revenue}$
3	Return on Assets	ROA	$\text{Net Profit After Zakat} / \text{Total Assets}$
4	Return on Equity	ROE	$\text{Net Profit After Zakat} / \text{Equity}$
Efficiency Ratio			
1	Fixed Assets to Net worth Ratio	FANW	$\text{Net Fixed Assets} / \text{Net Worth}$
2	Current Assets to Total Assets Ratio	CATA	$\text{Current Assets} / \text{Total Assets}$
3	Collection Period	CP	$\text{Account Receivable}(365) / \text{Revenues}$
4	Assets to Revenue Ratio	ARR	$\text{Total Assets} / \text{Revenues}$
5	Working Capital Turns	WCT	$\text{Revenue} / \text{Working Capital}$
6	General Overhead Ratio	GOR	$\text{General Overhead} / \text{Revenue}$
7	Degree of Fixed Assets Newness	DFAN	$\text{Net Fixed Assets} / \text{Total Fixed Assets}$

The critical part in a useful financial ratios analysis, is the analysts' interpretation of the figures. To interpret the ratios, analysts generally compare the figures to either of the following:

- Previous year's ratios i.e. historical comparisons (Harrigton and Wilson, 1989).
- Industry's standard average over a long period of time (Peterson, 2009).

The former approach enables analysts to determine whether any significant changes occurred during the considered years. However, the latter approach helps to compare the companies' ratios to its industry's standard average over a long period of time. These standard averages are

available from several sources that collect and publish data. Because of financial characteristics' differences of industries, analysts commonly use a standard average of industry that corresponds to the target company. Helfert (2005) highlighted that, the industry's standard average is not a magic number that all companies should strive to maintain. The author further stressed that, some well managed companies' ratios are above the industry average while other good companies are below it. Strischek and McIntyre (2008) highlighted that, if companies' ratios are far from the industry averages, this is a red flag and analysts should be concerned about why the difference occurs.

Data Collection and Methodology

Three construction companies were selected from the building and construction section of the Saudi Stock Exchange Market (SSEM). In the context of this study, the companies were named A, B and C respectively. The primary activities of these companies are development and construction services. Sixty financial statements were collected from the selected companies. Data were downloaded using case study research protocols (Yin, 2003). This includes the use of multiple data sources, where possible, to ensure the quality of the data collected. The financial data were based on quarterly accounting report spanning from the first quarter of year 2011 to the last quarter of year 2015. Some quarterly accounting report was published in Arabic language; these were translated to English language accordingly. This study uses industry average published in Peterson (2009) for the appraisal of the selected companies.

Data regarding the aforementioned financial ratios were extracted from the collected financial statements. Microsoft Excel Sheet were used for computation of the financial ratios. Subsequently, in interpreting these ratios, companies' financial ratios were compared with construction industry's typical median and range published in Peterson (2009). Table 2 shows the sample of the extracted financial data for the computation of the financial ratios from the downloaded financial statements of the companies.

Table 2: Sample of the Extracted Financial Data

	2011 Q1	2013 Q2	2015 Q4
Cash	718458350	774958568	92915955
Current Liabilities	883791766	1246436515	1372961939
Current Assets	1460655792	2359476511	2751583653
Gross Profit	58795004	56244045	14513961
Revenues	250684674	412569580	385401604
Profit after "zakat"	39233485	25378592	-1036880
Equity	627389493	789727308	889549911
Total Liabilities	1305551306	2108722182	2359606039
Total Assets	1932940799	2898449490	3249155950
Fixed Asset	472285007	538972979	497572297
Accounts Receivables	669328581	664168564	657525485
Accounts Payable	607351957	534680443	530351612

Profit before “zakat	40239472	26029248	-36880
Subcontracts + materials	191889670	356325535	370887643
General Overhead cost	15808630	23720300	15870549
Working Capital	1049149033	1652012975	1876194011

Q is quarter, All values in Saudi Riyals

Zakat is an Arabic word used instead of taxes, and is mainly used in the Kingdom.

Furthermore, a One-Sample T-Test option in SPSS 22 was used to conduct a null hypothesis test that the companies’ median is equal to the industry median.

Result and Discussion

Table 3, 4 and 5 present the yearly financial ratios of the companies and the industry average.

Table 3: Yearly Financial Ratios of Company A

						Industry average	
Ratios	2011	2012	2013	2014	2015	Median	Range
Liquidity Ratio							
QR	0.66	0.55	0.69	0.58	0.55	1.2	2.0-0.7
CR	1.55	1.56	1.98	1.94	2.01	1.7	2.8-1.2
Leverage Ratio							
DER	2.42	2.55	2.79	3.00	2.61	1.0	0.4-2.0
AAAP	30	21	22	17	19	-	20-45
APRR	2.24	0.90	1.34	0.91	1.31	5.70	2.8-9.7
CLWR	1.72	1.82	1.54	1.64	1.50	0.67	1.34-0.30
Profitability Ratio							
GPM	0.22	0.15	0.13	0.10	0.07	0.24	-
AZPM	15.0	9.0	4.0	5.0	3.0	2.80	6.6-0.7
ROE	7.00	5.00	2.00	3.00	1.00	12.80	37-3.6
ROA	7.00	5.00	2.00	3.00	1.00	5.80	14-1.5
Efficiency Ratio							
CATA	0.76	0.80	0.81	0.80	0.84	-	0.55-0.65
CP	24	18	20	16	18	51	32-73
ARR	76.4	67.7	80.3	76.4	82.3	46	34-62
WCT	2.60	3.00	2.20	2.01	2.10	8.7	16-4.9
GOR	6	6	6	5	5	<10	-
DFAN	24	20	19	20	16	-	40-60

FAWR	81	71	70	82	59	65	111-35
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Table 4: Yearly Financial Ratios of Company B

						Industry average	
Ratios	2011	2012	2013	2014	2015	Median	Range
	Liquidity Ratio						
QR	0.59	0.49	0.45	0.63	0.68	1.2	2.0-0.7
CR	1.47	1.24	1.13	1.72	1.72	1.7	2.8-1.2
	Leverage Ratio						
DER	1.21	1.76	1.87	1.70	1.60	1.0	0.4-2.0
AAAP	15	14	13	13	7	-	20-45
APRR	1.91	2.10	2.29	0.95	0.37	5.70	2.8-9.7
CLWR	1.05	1.55	1.68	1.09	1.09	0.67	1.34-0.30
	Profitability Ratio						
GPM	0.15	0.12	0.17	0.22	0.22	0.24	-
AZPM	7.0	5.0	5.0	8.0	9.0	2.80	6.6-0.7
ROE	3.00	2.00	3.00	6.00	12.00	12.80	37-3.6
ROA	3.00	2.00	3.00	6.00	12.00	5.80	14-1.5
	Efficiency Ratio						
CATA	0.70	0.69	0.68	0.69	0.72	-	0.55-0.65
CP	14	12	12	10	7	51	32-73
ARR	55.3	51.7	50.8	42.6	19.7	46	34-62
WCT	3.50	4.40	5.00	4.60	9.10	8.7	16-4.9
GOR	8	12	11	9	10	<10	-
DFAN	30	31	33	29	28	-	40-60
FAWR	68	84	99	77	72	65	111-35

Table 5: Yearly Financial Ratios of Company C

						Industry average	
Ratios	2011	2012	2013	2014	2015	Median	Range
	Liquidity Ratio						
QR	0.25	0.10	0.07	0.06	0.05	1.2	2.0-0.7
CR	0.73	0.48	0.49	0.35	0.34	1.7	2.8-1.2
	Leverage Ratio						
DER	8.04	3.24	2.89	2.05	2.75	1.0	0.4-2.0
AAAP	78	130	179	576	248	-	20-45
APRR	0.25	0.36	0.41	1.50	1.89	5.70	2.8-9.7
CLWR	7.24	3.01	2.72	1.78	3.45	0.67	1.34-0.30

	Profitability Ratio						
GPM	0.22	0.05	0.03	0.03	0.03	0.24	-
AZPM	0.07	0.09	0.09	0.08	0.06	2.80	6.6-0.7
ROE	3.23	1.36	1.10	3.09	3.04	12.80	37-3.6
ROA	0.36	0.60	0.06	0.42	0.45	5.80	14-1.5
	Efficiency Ratio						
CATA	0.59	0.64	0.68	0.69	0.75	-	0.55-0.65
CP	110	81	54	191	125	51	32-73
ARR	193	185	150	243	228	46	34-62
WCT	51.1	10.0	15.0	10.0	25.0	8.7	16-4.9
GOR	17	12	6	17	18	<10	-
DFAN	87	81	82	83	87	-	40-60
FAWR	37	80	61	65	75	65	111-35

Assessments of Financial Ratios

Table 6 shows the assessment of the case study.

Table 6: Assessments of Financial Ratios Analysis

No	Ratios	Assessment
Liquidity Ratios		
1	QR	The company's QR were below the industry average, and only company A and B were slightly less than minimum range. This shows that company A and B have high inventory, notes receivables and long-term assets that could be converted to cash. Company C needs a huge amount of debt financing to increase its cash.
2	CR	All except Company C were within the typical range. Company with CR less than 1.00 is undercapitalized and will not meet its short-term cash requirements, while company with CR less than 2.00 will meet its short-term cash requirements and have much of its assets tied up in current assets.
Leverage Ratios		
3	DER	Company A's DER above the typical median and range, company B's DER above typical median but within typical range while company C's DER is far above the typical range and median. This means that company B is using little debt to finance its business, company C may not be able to overhaul its debt, especially during economic downturns.
4	AAAP	A company with AAAP less than 20 days is taking the advantage of trade discounts while a company with AAAP greater than 45 days is slackening in paying its bills and may result in unfavorable credit term from its subcontractors and suppliers (Peterson, 2009). Company A and B is effectively utilizing trade discount while company C may incur loss because of untimely payment.
5	APRR	This measures how a company is using its subcontractors and suppliers as a source of fund for the construction works. Company A and B are receiving much

funds from their subcontractors and suppliers while company C is receiving little funding from its subcontractors and suppliers.

- 6 CLWR This measures the credit's risk taken by short-term creditors to the risk taken by company's owner. Brigham et al., (2002) divulged that CLWR of construction industry usually exceeds the recommendation level. This is because of industry's heavy dependence on trade discounts and financing. Short-term creditors of company A and B are having much capital at risk than the owner while company C may not be able to service its credits from short-term creditors, especially during economic downturns.

Profitability Ratios

- 7 GPM This is the measurement of the percentage of the revenues remain after paying for the construction costs and equipment costs. The GPM of all the companies were below the industry's median. The companies can increase their profit margin by taking muck works and simultaneously reduce their overhead costs.

- 8 AZPM This is the percentage of the revenues that becomes profit after Zakat. In this study, this is measured after "zakat". All the companies except company C will be able to withstand changes in the construction markets, such as less demand and higher costs. This is because their AZPM were within the typical range.

- 9 ROE Measures the company's shareholder's dividends received on their invested capital at the end of operation year. Company with high ROE will have high stock's price. All the company will have low stock's price because their ROE were below typical median.

- 10 ROA This indicates the efficiency of how the company is using its assets. Effectively managed company will have a high ROE, vice-versa. Company A effectively utilized its assets in 2011 and 2012, and company B in 2014 and 2015, while company C does not effectively managed its assets.

Efficiency Ratios

- 11 CATA This measures the liquidity of the company's assets. Company with CATA have most of its assets tied up in long-term assets, vice-versa. Company with ROE greater than the typical range, involves majorly in excavation works.

- 12 CP This measures the average duration capitals are tied up in accounts receivable. Peterson (2009) recommended 45 days as best CP for the construction industry. Company A and B are fast in bills' collection while company C has poor collection policies. A company with poor CP will have its loan interest increases and may leads to reduction in the company's profit margin.

- 13 ARR Company A is performing much work for their assets, because it is slightly above the industry median. It does not appear company B is performing too much work from its assets. However, company C is performing too much work for their assets, because it is far greater than the industry median.

- 14 WCT This is used for future operations or for the reduction of long-term liabilities. Company A and B appears to be properly capitalized while company C is undercapitalized.

15	GOR	This is the percentage of revenues used for general overhead expense. Peterson (2009) highlighted that the GOR of construction company should be less than 10%. Company A spent less percentage of its revenues on general overhead costs. Company B spent slight above 10% its revenues in 2012 and 2013. While company C spent less percentage of its revenues only in 2013.
16	DFAN	Company A and B have old equipment because their DFAN are below industry median, while company C have a significant new equipment, which would have purchased by a huge loan from long-term creditors.
17	FANW	This indicates the owners' equity tied up in fixed assets. Company with high FANW heavily invests in fixed assets. All the companies were heavily invested in their fixed assets because their FANW were above the industry median and within the industry range.

One-Sample Median Test

A null hypothesis test was applied to confirm the conclusions made about the financial ratios. In this T-test, the median values of the companies from the population of 20 data points (per company) were compared with the industry median proposed by Peterson (2009). The 20 data points corresponds to the number of the quarters from 2011 to 2015. The below hypothesis is set up to test and confirm the statistical significance

- Null hypothesis: assumes that there is no significant difference between the typical median and the companies' median.
- Alternative hypothesis: assumes that there is a significant difference between the typical median and the companies' median.

In this null hypothesis test, the difference between the typical median and the companies' medians was carried out. If the calculated t-value is greater than t-critical from the t-table, the null hypothesis test has been rejected and alternative hypothesis was accepted. The p-value is the corresponding probability of getting the observed value of the t-test statistics or even evidence against the null hypothesis test (Belsley et al., 1980). The median test is presented in Table 7.

Table 7: T-Test Results between the Companies' Median and Industry Median

Ratio	Company A			Company B			Company C			I.A
	M	T-value	P-value	M	T-value	P-value	M	T-value	P-value	
Liquidity Ratio										
QR	0.60 6	-3.232*	0.032	0.56 8	- 3.074*	0.037	0.106	- 16.072	0.256	1.2
CR	1.80 8	5.852**	0.004	1.45 6	2.117*	0.012	0.478	- 10.258	0.203	1.7
Leverage Ratio										
DER	2.67 4	1.632**	0.001	1.26 8	1.130* *	0.001	3.794	2.126	0.101	1.0

AAAP	21.8 0	0.810	0.463	12.4 0	- 5.429*	0.006	242.2 0	2.524	0.065	30
APRR	1.34 0	-5.987**	0.004	1.52 4	- 3.455*	0.026	0.882 0	-5.665	0.156	5.7
CLWR	1.64 4	5.201**	0.007	1.29 2	-0.359	0.738	3.640	2.445	0.071	0.6 7
Profitability Ratio										
GPM	0.26 0	0.179	0.867	0.17 6	- 3.258*	0.031	0.072	-4.516	0.101	0.2 4
AZPM	7.20 0	2.000	0.116	6.80 0	5.000*	0.007	0.780	- 13.639	0.210	2.8
ROE	3.60 0	- 8.524**	0.001	5.20 0	- 4.159*	0.014	2.364	- 22.404	0.085	12. 8
ROA	3.60 0	-2.043**	0.002	5.20 0	- 0.328*	0.009	0.378 0	- 61.064	0.132	5.8
Efficiency Ratio										
CATA	0.80 2	4.774**	0.001	0.69 6	3.154*	0.001	.0670	2.627	0.011	0.6
CP	19.2 0	-9.436**	0.01	11.0 0	- 1.748*	<0.000 1	112.0 0	3.456	0.260	51
ARR	76.6 2	5.837**	0.004	44.0 2	- 2.798*	0.049	199.8 0	8.381	0.061	46
WCT	2.38 2	-1.651**	<0.000 1	5.32 0	0.430*	0.008	22.22 0	2.243	0.088	8.7
GOR	5.60	- 17.963*	<0.000 1	10.0 0	0.000	1.000	14.00	1.771	0.151	<10
DFAN	19.8 0	-3.391	0.560	30.2 0	-4.642	0.082	84.00	1.974* *	<0.000 1	50
FAWR	72.6 0	8.947**	0.001	80.0 0	8.257*	0.001	63.60	3.830*	0.019	65

M=company median.I.A=industry median

*. Correlation is significant at the 0.05 level (2-tailed).

** .Correlation is significant at the 0.01 level (2-tailed).

For company A, the ratios showing significance at alpha $\alpha = 0.01$ are CR, DER, APRR, CLWR, ROE, CATA, CP, ARR, WCT, GOR and FAWR, while QR is significance at a level of alpha $\alpha = 0.05$. Company B have these ratios “DER, AAAP, AZPM, ROA, CATA, CP, WCT and FAWR”

significance at a level of alpha $\alpha = 0.01$, while “QR, CR, APRR, GPM, ROE, and ARR” are significance at a level of alpha $\alpha = 0.05$. However, company C just have two ratios (DFAN and FAWR) that are significance at significance level 0.01 and 0.05 respectively.

Conclusion

The conclusion that can be drawn from the analysis is that company A and B could convert their inventories, note receivables and long-term assets to achieve satisfactory liquidity ratios. In addition, company A and B are adequately managing their debt, utilizing the trade and discount finances, and using their subcontractors and suppliers as a sources of fund for their construction works. However, it could be deduced that company C’s debt management ratio give us the idea of how risky the company is. Furthermore, the company is not adequately utilizing its trade discounts, subcontractors and suppliers as a sources of fund for its works.

Based on the above analysis, the overall financial condition of all the companies except company C is satisfactory. The overhead costs of the companies are adequate and the companies heavily invested in long-term assets which could be used at any period to expedite the long-term liabilities. Company A and B have good collection policy but have old equipment while company C has procured new equipment in the recent years.

All the financial ratios are important, however, it is not necessary to use all these ratios in analyzing a company. The choice of ratios to be used for analysis depends on the objectives of the concerned firm and stakeholders. For example, shareholders are more concern about the profitability ratio to determine their returns on the invested capital while creditors are concern with the company’s leverage ratio to decide on the approval of loan applications. Generally, this study reveals that the financial ratios could be used to determine the financial condition of construction companies.

The assessment of the financial conditions was done with the online published financial data of the listed construction companies on SSEM. However, the methodology in this research is general, thus it may be applied to other construction companies with unpublished financial data.

Since construction industry is a project-oriented industry that is characterized with unique financial conditions. This research suggests that the companies’ financial assessment should be a dynamic process, so it is important to systematically perform and evaluate this process at regular intervals. Further studies should be conducted to validate and improve the assessment technique used in this study.

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