

# **Profitability and Consistency of Ceramics Industry- A Financial and Statistical Analysis on Selected Companies of Bangladesh.**

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## **ABSTRACT**

*This paper examines the profitability and consistency of the second leading export oriented industry of Bangladesh. The secondary data of the five leading companies namely, Fu-Wang, Monno, Shinepukur, Standard and RAK Ceramics are collected from the annual reports of 2006-2012 from their websites. The collected data are processed and analyzed by SPSS 19 to make interpretations by ANOVA outputs. Different financial tools like Gross profit margin, Operating profit margin, Net profit margin, Return on assets, Return on equity are calculated along with the liquidity ratios and turnover ratios to find out the causes of unexpected results, if any. The researchers find that two of the five companies (Standard and Monno) are performing very poorly, one (Fu-Wang) is performing moderate level and other two (RAK and Shinepukur) are performing comparatively better. The asset and sales management of the poor performers are to be improved immediately, the liquidity position of all the companies is to be improved and the capital structure of Shinepukur is to be reconstructed.*

**Key Words:** Profitability, Ceramic Industry, ANOVA, Financial Ratios, Liquidity.

## **1. INTRODUCTION**

Originated from pottery industry, ceramic industry of Bangladesh started its operation in 1958 by the name of Tajma Ceramics of Bogra. Another industrial unit started its operation in 1966 by the name of Pakistan Ceramics that was renamed after the independence of Bangladesh as Peoples Ceramic Industry. Various tableware producers started their operation in 1980s named as Monnu Ceramics, Shinnepukur, Fu-Wang etc. But the accelerated growth of ceramic industry was started in 2000, when tiles and toilet items were produced in an increasing rate with the increasing constructions of real estates/residential buildings. In the same period exporting of ceramic items got a pace of 695% growth from only 1.0 million in 1991, amounted \$100 million in 2012. The total growth is more than 200% in the last five years in that industry (The Financial Express, August 28, 2012). Now this industry is using world class technology namely 'Bones China'. The sophisticated

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products are now exported to around 50 countries of the world. 75% of export of ceramics items are going to European countries, 15% are to USA and rest 10% to other countries. (The New Age, November 18, 2012). This is a huge industry now. Around 40 ceramic industries had invested TK. 40 billion to produce various items like bone china, porcelain, tiles, tableware and sanitary ware (The Independent June 2, 2013). Not only exports this industry is fulfilling a great domestic need of products amounting to Tk. 8 billion yearly and saving huge foreign currency and paying a tax of Tk. 3.0 billion per year (Financial Express, August 08, 2012). But this industry depends on import of 95% of its raw materials (Asiatic Society, 2011). It depends on the available cheap natural gas of the country and low-waged manpower of the country.

So the growing ceramic industry that is taking the place of second export item of Bangladesh after readymade garments. We intend to examine the profitability and liquidity of the ceramic industry of Bangladesh for predicting its sustained growth in the future competitive world.

It is important to check the financial health of the industry on the basis of different financial ratios and to make a comparison among them. The comparisons can be made on trend analysis, on the basis of standards, with other units of the industry and with industry average (Pandey 1994). Different types of liquidity, leverage, profitability and activity ratios can be used to assess any industrial units profitability and consistency. To measure the ability to meet short-terms objectives, different liquidity ratios; current and quick ratio can be used (Horne and Wachowicz 2009). To measure the extents of firms' debt burden different leverage ratios can be used (Schall and Haley 1996). To measure how effectively firms' assets are being managed different activity ratios; assets turnover, inventory turnover, capital turnover etc. are used (Ross, Westerfield and Jaffe 2005) and to measure the extent of profit earning ability different profitability ratios; net profit ratio, gross profit ratio, operating expenses ratios etc. are used [Van Horne 2009].

## **2. OBJECTIVES OF THE STUDY**

The main objective of this study is to find out the ceramic companies profitability and consistency that are used for measuring the financial performance. The sub-objectives are as follows:

- a) To measure the performance of companies on the basis of their profitability.
- b) To measure the performance on the basis of their consistency.
- c) To give ranking to the selected sample companies according to their profitability and consistency.

## **3. METHODOLOGY**

The researchers attempted to study the liquidity and profitability position of five renowned ceramic industrial units, namely the Fu-Wang, Monno,

Shinepukur and Standard Ceramics, RAK ceramics of 2006-07 to 2011-12 financial years. The researchers used the secondary data and analyzed by using statistical tools such as mean, Standard Deviation, Standard Error and ANOVA to compare and draw meaningful conclusion. The different financial ratios, gross profit margin, Operating Profit Margin, Net profit margin, Return on Assets and Return on Equity are used to measure the profitability. To find the reason of unexpected profitability the liquidity position and the turnovers are measured to pinpointing the problems. The following hypothesis are constructed to compare the means of different ratios of the selected companies:

**Hypothesis #1**

*Ho:* There is no significant difference between gross profit margin ratio of companies.

*Ha:* There is a significant difference between gross profit margin ratio of companies.

**Hypothesis #2**

*Ho:* There is no significant difference between operating profit margin ratio of companies.

*Ha:* There is a significant difference between operating profit margin ratio of companies.

**Hypothesis #3**

*Ho:* There is no significant difference between net profit margin ratio of companies.

*Ha:* There is a significant difference between net profit margin ratio of companies.

**Hypothesis #4**

*Ho:* There is no significant difference between ROA ratio of companies.

*Ha:* There is a significant difference between ROA ratio of companies.

**Hypothesis #5**

*Ho:* There is no significant difference between ROE ratio of companies.

*Ha:* There is a significant difference between ROE ratio of companies.

#### 4. ANALYSIS AND INTERPRETATION

The average gross profit of selected industries shows (in Table 1) a range of 17.1% to 33.58% where it is considered as standard for any industry of the range of 20% to 30% and the industry average is 26.00%. In this standard, the standard ceramics is operating below the standard of any industry and Monno, Standard & Fu-Wang is earning below the standard of ceramic industry. Shinepukur is doing better in 33.57% of gross profit and Fu Wang is at around the Industry level. The Standard deviation of the selected industry reflects the negligible variation of gross profit of Monno and Shinepukur and variation in Standard ceramics, Fu Wang & RAK must be addresses as the gross profits ratios of Standard Ceramics is not satisfactory also.

The average gross profit of five selected industries over the years are statistically highly significant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25)\geq 38.151\} < 0.001$ .

TABLE 1  
GROSS PROFIT MARGIN (%) & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	25.00	3.01	1.23	Between Group	1377.178	4	344.294	38.161	.000
Monno	6	20.49	1.19	.49	Within Group	225.6125	25	9.024		
Shinepukur	6	33.58	.83	.38	Total	1602.79	29			
Standard	6	17.10	3.26	1.33						
RAK	6	33.84	4.83	1.97						
All	30	26.00	7.43	1.36						

Sources: Different Annual Reports by Ceramic companies for 2006 -2012.

In the yardstick of the industry average of operating ratio of 12.83% (In table 2), the Fu-Wang & Standard ceramics are operating in below the standard except the Shinepukur Ceramics (27.86%), RAK (18.92%). The Monno is operating at the industry average level.. The Standard Deviation is found as very negligible in Shinepukur .9983 and in Monno 1.02 to high level of 9.02 in Fu-Wang. The variation is highest in case of Fu-Wang in Standard Deviation. The variation in operating profit is also alarming in case of Standard Ceramics but negligible in Monno and Shinepukur Ceramics. The negative return of Standard and Fu Wang in one or more year is the reason of such variation. The average operating profit margin of five selected industries over the years are statistically highly significant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25)\geq 33.128\} < 0.001$ .

TABLE 2  
OPERATING PROFIT MARGIN (%) AND ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	3.54	9.03	3.69	Between Groups	2890.58	4	722.645	33.128	.000
Monno	6	12.52	1.02	.42	Within Groups	545.336	25	21.813		
Shinepukur	6	27.86	1.00	.41	Total	3435.916	29			
Standard	6	1.33	4.62	1.89						
RAK	6	18.92	2.03	.83						
All	30	12.83	10.88	1.99						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

In the yardstick of industry average in 5.71% (in table 3), the surveyed five companies showed a range of average net profit range of .35% to 11.82%. Though the Shinpukur Limited and RAK Ceramics are performing

much better with a net profit margin of 10.67 % and 11.82% respectively, Fu-Wang is operating at around industry average level. The other two companies are performing below the standard level and their performance should be addressed. The variation in net profit of FU Wang and Shinepukur is showing a great variation in Standard Deviation, though their net profit margin is satisfactory, but variation should be addressed. The case of Standard Ceramics is also to be addressed because of its negative net profit and variation in the NP stream over the years. The negative NP in one or more year may be cause of such poor performance.

The average net profit margin of five selected industries over the years are statistically highly significant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 8.638\} < 0.001$

TABLE 3  
NET PROFIT MARGIN (%) & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	4.63	6.24	2.55	Between Groups	679.417	4	169.854	8.638	.000
Monno	6	1.08	1.51	.62	Within Groups	491.585	25	19.663		
Shinepukur	6	10.67	5.50	2.23	Total	1171.002	29			
Standard	6	.35	3.86	1.57						
RAK	6	11.83	3.54	1.44						
All	30	5.71	6.35	1.16						

*Sources: Different Annual Reports by Ceramic companies for 2006-2012*

The return on assets of the selected companies is ranging between .5833% to 6.78% (in table 4) where the standards of its is 10%-12%. So the performance of the companies are to be said very poor. Though RAK, Shinpukur and Fu Wang are performing a little bit better, but all are far below the standard. The variation in Standard Deviation is consistent except RAK, standard ceramics and Fu-Wang whose SD are higher.

The average return on assets of five selected industries over the years are statistically highly significant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 10.787\} < 0.001$ .

TABLE 4  
RETURN ON ASSET (ROA) (%) & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	1.96	2.49	1.00	Between Groups	154.543	4	38.636	10.787	.000
Monno	6	.88	1.12	.46	Within Groups	89.543	25	3.582		
Shinepukur	6	3.56	1.11	.45	Total	244.086	29			
Standard	6	.58	2.27	.93						
RAK	6	6.78	2.07	.84						
All	30	2.75	2.90	.53						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

In the yardstick of industry average of ROE of 5.64% (in table 5), RAK and Shinepukur are performing better than other three companies. Other three companies are performing below the standards where the position of Standard Ceramics is the worst (only 1.40). The variations in the stream of ROE of all companies other than RAK are in alarming position showing uneven flow of return. So, the performances of all the companies are to be addressed. But the opportunity cost of investing in Ceramic Industry is not showing a good sign as the interest rate on fixed account of Commercial bank and other financial institutions are providing an interest rate of around 11-12%.

The average return on equity of five selected industries over the years are statistically highly significant in 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 6.261\} = 0.001$ .

TABLE 5  
RETURN ON EQUITY (ROE) (%) & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	3.7672	4.31114	1.76002	Between Groups	447.115	4	111.779	6.261	.001
Monno	6	2.6056	4.16539	1.70051	Within Groups	446.304	25	17.852		
Shinepukur	6	9.2418	4.69458	1.91656	Total	893.419	29			
Standard	6	1.4001	5.08695	2.07674						
RAK	6	11.1947	2.32556	.94941						
All	30	5.6419	5.55045	1.01337						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

The standard of current ratio of any industry is 2:1 and the industry average is found as 1.0791:1 (in Table 6). This industry average is not the sign of better liquidity position as the value of the inventory may be fallen by 50% that make the companies unable to pay their dues and their survival may be in question. The Companies except the Fu-Wang, RAK are operating at a

dangerous level of below 1;1 level. The variation showed by standard deviation is in negligible position. That is there are comparatively stable position, that showed by Standard Deviation in current ratio of the companies but it should be at the secured position to establish stability.

The average current asset of five selected industries over the years are statistically insignificant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq .849\} > 0.001$ .

TABLE 6  
CURRENT RATIOS & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	1.2141	.81504	.33274	Between Groups Within Groups Total	.729 5.364 6.093	4 25 29	.182 .215	.849	.508
Monno	6	.9709	.06661	.02719						
Shinepukur	6	.9935	.10345	.04223						
Standard	6	.9054	.03546	.01448						
RAK	6	1.3115	.62619	.25564						
All	30	1.0791	.45836	.08368						

*Sources: Different Annual Reports by Ceramic companies for 2006-2012*

The standards of quick ratio of any industry is identified as 1;1 by convention and the industry average is 0.3467:1 (Table 7). The poor industry average is showing that this industry is operating in very dangerous level of risk of failure in paying their dues at any time. The quick ratios of those companies are ranging from .0880 to .6764. The variation in respect of Standard Deviation is showing an even position in all the years. But the liquidity position is to be improved drastically to ensure the survival, otherwise any time they may be fallen in a closure position.

The average current asset of five selected industries over the years are statistically insignificant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 2.307\} > 0.001$ .

TABLE 7  
QUICK RATIOS & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	.3956	.50590	.20653	Between Groups	1.118	4	.280	2.307	.086
Monno	6	.2632	.21458	.08760	Within Groups	3.029	25	.121		
Shinepukur	6	.3100	.09231	.03769	Total	4.147	29			
Standard	6	.0880	.13991	.05712						
RAK	6	.6764	.52503	.21434						
All	30	.3467	.37814	.06904						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

The inventory turnover of the ceramic industry is showing very poor performance ranging from only 1.44 to 2.45 (Table 8) only with a minimum variation measured by SD. It indicates that the selected companies of that industry are performing very poorly in respect of inventory. The problems are to be addressed and minimized for bringing effectively in those companies.

The average inventory turnover of five selected industries over the years are statistically insignificant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 2.014\} > 0.001$ .

TABLE 8  
INVENTORY TURNOVER RATIOS & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	1.9345	.99102	.40458	Between Groups	3.391	4	.848	2.014	.123
Monno	6	2.0221	.64344	.26268	Within Groups	10.524	25	.421		
Shinepukur	6	1.4437	.36524	.14911	Total	13.915	29			
Standard	6	1.7294	.56810	.23192						
RAK	6	2.4598	.50249	.20514						
All	30	1.9179	.69270	.12647						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

Where standard of assets turnover is 2.00 and the industry average is 0.54 (Table 9) times (apparently more below than the standard). The selected industries are doing poorly ranging .4340 to .8680 only. Though the standard deviation is showing the stream as more stable in those years, the asset turnover must be considered effectively to bring efficiency in the firm.

The average total assets turnover of five selected industries over the years are statistically significant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 6.669\} = 0.001$ .



TABLE 9  
TOTAL ASSET TURNOVER & ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	.4562	.09391	.03834	Between Groups Within Groups Total	.646	4	.161	6.669	.001
Monno	6	.7660	.26134	.10669		.605	25	.024		
Shinepukur	6	.3460	.07043	.02875		1.251	29			
Standard	6	.6510	.18172	.07419						
RAK	6	.5766	.07682	.03136						
All	30	.5591	.20766	.03791						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

The debt- equity ratio is to examine the debt portion in the capital to know whether charges of debts are deteriorating the profit earning of the firm in an adverse situation. Use of leverage in an adverse situation, can destroy the profitability. The Monno Ceramics and Shainepukur are using the leverage in more higher proportion than others (Table 10). Though RAK & Standard ceramics are using the debt in better proportion. FU-Wang is using in moderate proportion. The variance in using the debt is showing a better flow over the years in SD measure.

The average debt-equity ratio of five selected industries over the years are statistically insignificant at 5% significance level as obtained from an analysis of variance,  $P\{F(4,25) \geq 1.042\} > 0.001$ .

TABLE 10  
DEBT-EQUITY RATIO AND ANOVA

Companies	N	Mean	Std. Deviation	Std. Error	ANOVA					
						Sum of Squares	df	Mean Square	F	Sig.
Fu Wang	6	.6307	.58958	.24070	Between Groups Within Groups Total	2.227	4	.557	1.042	.406
Monno	6	.9380	.69307	.28295		13.364	25	.535		
Shinepukur	6	1.1092	1.30295	.53193		15.591	29			
Standard	6	.4660	.23886	.09751						
RAK	6	.4033	.30024	.12257						
All	30	.7094	.73323	.13387						

Sources: Different Annual Reports by Ceramic companies for 2006-2012

The summary table (Table 11) indicates that the Fu-Wang is attaining a gross profit of industry level, but the operating profit, the net profit, return on assets and on equity is showing very poor performance over the years. Examining the causes of that worst situation, it is found that the current ratio and quick ratio is also maintained in lower than the standard though the inventory turnover is very low. This indicates that firm's efficiency in selling

is very poor. The products and sales management must be improved and at the same time the solvency of the firm must be addressed by increasing the current assets. Debt equity ratio is maintained at the moderate level but the total asset turnover is very low. The management should think to make the fixed asset management more efficient by ensuring the optimum use.

TABLE 11  
SUMMARY TABLE OF DIFFERENT MEASURES OF THE SELECTED COMPANIES

Companies	N	Mean of										
		Mean	Operat ing profit	Net profit	ROA	ROE	Ran ks	Current Ratio	Quick ratio	Inventory Turnover	Total Asset Turnover	Debt equity ratio
Fu-Wang	6	25.00	3.54	4.63	1.96	3.77	3	1.21	.40	1.93	.46	.63
Monno	6	20.49	12.52	1.08	.88	2.61	4	.97	.26	2.02	.77	.94
Shinepukur	6	33.58	27.86	10.66	3.56	9.24	2	.99	.31	1.44	.35	1.11
Standard	6	17.10	1.33	.35	.58	1.40	5	.91	.09	1.73	.65	.47
RAK Ceramic	6	33.84	18.92	11.82	6.78	11.19	1	1.31	.68	2.46	.58	.40
Valid (listwise)	N 6	26.00	12.83	5.71	2.75	5.64		1.08	.35	1.92	.56	.71

*Source: Different Annual Reports of Companies 2006-2012*

The Monno ceramics is maintaining satisfactory operating profit though it is earning poor gross profit and net profit. The net profit margin is really in worst position. The same is to be said regarding the ROA and ROE. The poor profitability is not due to blockade of huge money in current assets that is proved by the poor current and quick ratio. The low inventory turnover depicts the poor sales management of the company. The profitability is worsening due to poor asset management that is also reflected by asset turnover ratio. The debt equity ratio is indicating that the firm using more leverage in an adverse position of poor net profit earning environment.

The Shinepukur is one of the better performer among the selected companies in profitability reflected by the gross profit, net profit and operating profit ratio but poor working capital management is reflected by the below standard current and quick ratio. The inventory turnover is also same as other firms that should be improved. The poor total asset turnover is also reflecting the asset management of that firm is not satisfactory. The debt equity ratio is depicting that the firm is using more debt capital in their capital structure.

The Standard Ceramics is performing very poor in the profitability measured by all the five ratios and the solvency position is also in alarming position. Though the debt equity ratio is in proper proportion in capital structure the firm should give more emphasize to improve its asset management and sale management efficiency.

The RAK ceramics is the best performer regarding gross profit, operating profit and net profit margin. It gains also better return on asset and on equity. Though the liquidity ratios are below the standard of convention, are better among the selected companies. The inventory and total asset turnover is comparatively better also. The debt equity ratio is showing an optimum capital structure.

The ranking on the basis of return on equity showed the RAK ceramics is in the first position and Shinepukur, Fuwang, Monno and Standard can be placed at the subsequent positions.

The ANOVA analyses compare the means of the mentioned ratios and reflected that the hypothesis constructed earlier can be analyzed as below in acceptance-rejection criterion:

- a. The Table 1 depicts that the variation in gross profit margin among the companies are significant. So the hypotheses one is rejected.
- b. The Table 2 depicts that the variation in operating profit margin among the companies are significant. So the hypothesis two is rejected.
- c. The Table 3 depicts that the variation in net profit margin among the companies are significant. So the hypothesis three is rejected.
- d. The Table 4 depicts that the variation in return on asset margin among the companies are significant. So the hypothesis four is rejected.
- e. The Table 5 depicts that the variation in return on equity among the companies are significant. So the hypothesis two is rejected.

The ANOVA analysis for the variations in CR, QR, Inventory turnover and Debt-equity ratio of the companies studied are proved as insignificant while the total asset turnover it is significant.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

- A. The performance of the FU-Wang Ceramics is to be addressed in asset management and sales management perspective perspectives. The assets are to be used in optimum level and the sales management is to be more dynamics by enriching product line and improving the qualities by the help of operation management if necessary.
- B. The efficient operation management is to be needed to optimize the other expenses. The liquidity position must be improved to be secured in adverse position. And the asset and sales management are to addressed to bring efficiency. .
- C. The most important imperatives in case of Shinepukur are i. The liquidity position must be optimized ii. Capital structure is to reconstructed to optimize the debt-equity ratio. iii. Asset and sales management are to be addressed.
- D. In case of Standard Ceramics, the sales management and asset management are to be improved to optimize the liquidity, profitability and turnover position.

- E. RAK ceramics is in better position among the five companies though it is recommended to do the continuous improvement in its overall aspects.

The research in five leading companies of emerging ceramics industries in the aspect of profitability and consistency is important in the country's national interest. The study showed the actual profitability position of the companies by the different relevant financial ratios and concluded that the management of poor performers should address the working capital, asset and sales management to bring optimization in overall operation.

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