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A Study on Impact of ISO 9001:2008 QMS Certifications on Financial Performance: A Case Study on Bemco Hydraulics Ltd, Belagavi

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ABSTRACT

ISO 9001 is a Quality Management tool and a source of competitive advantage, which has a potential to stimulate the company to produce quality products. Enormous amount of research articles that have been published so far on ISO 9001 Quality Management Systems and their impact on overall business performance. There is little empirical research happened specific to a manufacturing company to compare the financial performance before and after ISO 9001 certification. This paper explores the impact of ISO 9000 certification on financial performance of Bemco Hydraulics Ltd, Belagavi in Karnataka state. The company received ISO 9001 certification in the year 2009 and the financial performance of the company is analyzed pre and post ISO certifications using ratio analysis.

Keywords: ISO 9001:2008 QMS Certifications, Financial Performance

INTRODUCTION

BEMCO HYDRAULICS LTD, originally an Engineering Craftsman's shop in the late thirties has risen to be a premier producer of Hydraulic Presses equipments. The company was incorporated in the state of Karnataka on 14th March 1957 as "New Bemco Engineering Products Private Limited" by Mr. Vishnu Nimbkar, Mr. B V Pusalkar and Mr. M B Jambhekar. The name of the company was changed to "New Bemco Engineering Products Ltd" on 19th April 1972. In the year 1974, the company was taken over by the present promoters, the Mohta Group. Mr. M. M. Mohta is the present chairman and Mr. Anirudh M. Mohta is the Managing Director of the company.

The company by collaborating with Vogel of Germany and Towler Brothers of U.K manufactured the first ever indigenously produced of Hydraulics press. The company has lived the reputation of their collaborators in producing Hydraulics presses and equipments conforming to the international standards. The company with its classic range of Hydraulic Presses caters to the needs of industries involved in metal working, plastics, wood, rubber, electronics and electricals in India and abroad.

Today the company is backed by the expertise of its highly qualified technocrats functioning under the dynamic leadership of Mr. Anirudh M Mohta, the Managing Director, who has carved its name as producers of high quality, reliable and easily maintainable Hydraulic presses and equipments. BEMCO quality control department has been most carefully planned so as to be equipped with the most modern quality testing fixtures and

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equipment. At BEMCO, quality control starts from vendors and continues through the various stages of manufacturing, right up to the final testing and painting of products. Stringent inspection of materials and components at every stage of production is a way of life at BEMCO. Extensive and specialized quality control facilities backed by skilled and experienced personnel ensure that only the best products reach our customers.

II. OBJECTIVES OF THE STUDY

1. To study and analyze the effect of ISO 9001:2008 QMS certification on company's operating efficiency
2. To study and analyze the effect of ISO 9001:2008 QMS certification on company's financial performance
3. To study and analyze the effect of ISO 9001:2008 QMS certification on company's financial stability
4. To study and analyze the effect of ISO 9001:2008 QMS certification on company's profitability

III. HYPOTHESIS

For the purpose of the study the research assumes that there is a negative or insignificant impact of ISO 9001:2008 QMS certifications on organizational performance. Hence null hypothesis (H0) is formulated as 'ISO 9001:2008 QMS certified organizations do not have positive or significant impact on financial performance'. The alternative hypotheses for the study are formulated as;

1. H1: A company has the ISO 9001 9001:2008 QMS certification improves the company's efficiency
2. H2: A company has the ISO 90019001:2008 QMS certification leads to improved financial performance
3. H3: A company has the ISO 9001 9001:2008 QMS certification leads to increased financial stability
4. H4: A company has the ISO 9001 9001:2008 QMS certification leads to increased profitability

Various internal benefits are reduced costs, improved quality, increased employee morale and motivation etc. Receivable days, inventory days and payable days are used for hypothesis H1 verification. ROA, ROE, ROCE are used for hypothesis H2 verification. Hypothesis H3 is verified using current ratio, quick ratio and interest cover ratio. Finally Core EBITDA Margin, EBIT Margin and Pre Tax margin is used for hypothesis H4 verification.

IV. METHODOLOGY

The study is a case study analysis. A specific organization is chosen to analyze the impact of ISO certification on financial performance. Both Primary and secondary data are used for the study. Personal interactions is made with the executives and department heads to collect primary data and company annual reports are used as a secondary data to analyze the company' s financial performance before and after ISO certification.

For the purpose of the study, 2009 is considered as the base year, as the company got ISO certified in that year. To analyze the impact of ISO certification on financial performance, available financial data before and after is considered. www.aceanalyser.com is also used for the analysis. Ratio Analysis is used to compare the financial data before and after ISO certification. Advanced excel software and SPSS software is used to analyze the available published data in the annual reports. For the purpose of testing hypothesis Z test of proportion calculation is used.

Impact of Efficiency Ratios on company's performance before and after ISO 9001:2008 QMS Certifications

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The efficiency ratio is a ratio that is typically used to analyze how well a company uses its assets and liabilities internally. Efficiency Ratios can calculate the turnover of receivables, the repayment of liabilities, the quantity and usage of equity and the general use of inventory and machinery. Some common ratios used are receivables turnover, inventory turnover, payables turnover etc.

Table 1: Analysis of Efficiency Ratios of Bemco Hydraulics Ltd before ISO 9001:2008 QMS Certification

Ratios	Financial Year				Mean	SD	CV
	2006	2007	2008	2009			
Receivable days	84.73	75.54	96.22	83.03	84.88	8.54	0.10
Inventory Days	199.22	163.33	184	187.43	183.495	14.94	0.08
Payable days	108.04	104.08	119.35	94.45	106.48	10.30	0.096

Source: Analysis out of financial data collected from company annual reports.

Table 2: Analysis of Efficiency Ratios of Bemco Hydraulics Ltd after ISO 9001:2008 QMS Certifications

Ratios	Financial Year						Mean	SD	CV
	2010	2011	2012	2013	2014	2015			
Receivable days	75.1	72.56	127.27	101.66	127.35	88.82	98.79	24.42	0.24
Inventory Days	268.69	252.83	306.26	213.14	235.08	180.18	242.69	43.95	0.18
Payable days	72.92	88.92	104.76	74.24	78.43	83.81	83.84	11.86	0.14

Source: Analysis out of financial data collected from company annual reports.

The receivables turnover ratio is calculated by dividing net revenue by average receivables. Average collection period (Days sales outstanding) is calculated by dividing 365 days by Receivables Turnover Ratio. A very high receivables turnover ratio can also mean that a company's credit policy is too stringent, causing the firm to miss out on sales opportunities. Alternatively, a low or declining turnover can signal that customers are struggling to pay their bills. The results from the analysis signal that, the mean of receivable days has slightly increased from 84.88 to 98.796 after ISO 9001:2008 QMS certifications.

Inventory turnover is the ratio of cost of goods sold and average inventory. Inventory days are calculated by dividing 365 days by inventory turnover. A higher turnover than the industry average means that inventory is sold at a faster rate, signaling inventory management effectiveness. Additionally, a high inventory turnover rate means less company resources are tied up in inventory. The analysis reveals that there is an increase in the inventory days from a mean of 183.49 to the mean of 242.69 after ISO 9001:2008 QMS certifications.

Payables turnover measures how quickly a company pays off the money owed to suppliers. The ratio is calculated by dividing purchases (on credit) by average payables. A high number compared to the industry average indicates that the firm is paying off creditors quickly, and vice versa. The result in the study signals that there is a significant reduction in the number of payable days 106.48 to 83.84 days after ISO 9001:2008 QMS certifications.

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Impact of Performance Ratios on company's performance before and after ISO 9001:2008 QMS Certifications

Performance ratios show a company's overall efficiency and performance and can be divided into two types: margins and returns. Ratios that show margins represent the firm's ability to translate sales value into profits at various stages of measurement. Ratios that show returns represent the firm's ability to measure the overall efficiency of the firm in generating returns for its shareholders. Some important ratios that measure the company's performances are ROA, ROE, and ROCE

Table 3: Analysis of Performance Ratios of Bemco Hydraulics Ltd before ISO 9001:2008 QMS Certifications

Ratios	Financial Year				Mean	SD	CV
	2006	2007	2008	2009			
ROA (%)	3.18	2.52	0.98	1.22	1.975	1.05	0.53
ROE (%)	85.82	53.47	14.35	12.7	42.57	30.36	0.71
ROCE (%)	27.54	27.53	20.41	19.23	23.67	4.48	0.18

Source: Analysis out of financial data collected from company annual reports.

Table 4: Analysis of Performance Ratios of Bemco Hydraulics Ltd after ISO 9001:2008 QMS Certifications

Ratios	Financial Year						Mean	SD	CV
	2010	2011	2012	2013	2014	2015			
ROA (%)	2.17	1.34	1.01	1.17	-9.67	-2.09	-1.01	4.48	-4.43
ROE (%)	19.44	12.19	11.25	15.27	-200.81	-44.89	-31.25	86.44	-2.76
ROCE (%)	18.57	18	14.6	14.29	-8.91	16.43	12.16	10.46	0.86

Source: Analysis out of financial data collected from company annual reports.

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. Calculated by dividing a company's annual earnings by its total assets, Return on Equity (ROE) is the amount of a company's net income returned to investors. Return on Capital Employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed.

Table No 3 and 4 reveals the analysis of ROA, ROE and ROCE ratios. The analysis shows that ROA is decreasing from 2006 to 2013 and 2014 and 2014 shows a negative ROA. Further ROE indicates the negative mean of -31.25 after ISO certifications as compared to 30.36 before ISO 9001:2008 QMS certifications. It is apparent that when net income is negative, ROE will also be negative. A firm may report negative net income, but it doesn't always mean it is a bad investment. Free cash flow is another form of profitability and can be used in lieu of net income. Free cash flow (FCF) is a measure of a company's financial performance, calculated as operating cash flow minus capital expenditures. FCF represents the cash that a company is able to generate after spending the money required to maintain or expand its asset base. FCF is important because it allows a company to pursue opportunities that enhance shareholder value. ROCE shows the mean of 23.67 before ISO certification as against 12.16 after ISO certifications. The interactions with the company officials revealed that the long

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recession affected the company's net income and long-term investments for the diversification of the products brought the ROA and ROE at a slower pace. However adopting ISO 9001:2008 QMS certifications helped them to acquire new and government customers.

Impact of Financial Stability Ratios on company's performance before and after ISO 9001:2008 QMS Certifications

Financial stability ratios are tools for determining the ability to meet short-term and long-term obligations with enough working capital left to operate. Short-term liquidity ratios measure the relationship between current liabilities and current assets. Long term liquidity ratios measure the extent to which the capital employed in the business has been financed either by shareholders through share capital and retained earnings, or through borrowing and long term finance. Some of the ratios which determine financial stability are; in the short run current and quick ratio and in the long run interest cover ratios.

Table 5: Analysis of Financial Stability Ratios of Bemco Hydraulics Ltd before ISO 9001:2008 QMS Certifications

Ratios	Financial Year				Mean	SD	CV
	2006	2007	2008	2009			
Current Ratio	1.74	1.18	1.45	1.63	1.5	0.24	0.16
Quick Ratio	0.54	0.51	0.58	0.65	0.57	0.06	0.10
Interest Cover	2.04	1.83	1.45	1.42	1.685	0.30	0.17

Source: Analysis out of financial data collected from company annual reports.

Table 6: Analysis of Financial Stability Ratios of Bemco Hydraulics Ltd after ISO 9001:2008 QMS Certifications

Ratios	Financial Year						Mean	SD	CV
	2010	2011	2012	2013	2014	2015			
Current Ratio	1.89	1.1	1.21	1.16	0.99	1.15	1.25	0.32	0.25
Quick Ratio	0.48	0.33	0.43	0.45	0.4	0.39	0.41	0.05	0.12
Interest Cover	1.45	1.45	1.33	1.33	-0.76	1.45	1.04	0.88	0.84

Source: Analysis out of financial data collected from company annual reports.

The current ratio is a liquidity and efficiency ratio that measures a firm's ability to pay off its short-term liabilities with its current assets. The quick ratio is a financial ratio used to gauge a company's liquidity. The quick ratio compares the total amount of cash + marketable securities + accounts receivable to the amount of current liabilities. The interest coverage ratio is a debt ratio and profitability ratio used to determine how easily a company can pay interest on outstanding debt. In other words, it measures the margin of safety a company has for paying interest during a given period, which a company needs in order to survive future financial hardship should it arise.

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Table 5 and table 6 revels the analysis of ratios that determines the financial stability of a firm. The current ratio indicates a company's ability to meet short-term debt obligations. The higher the ratio, the more liquid the company is. Commonly acceptable current ratio is 2; it's a comfortable financial position for most enterprises. But the mean of current ratio before ISO certification was 1.5 which has come down to a mean of 1.25 after ISO certification. However the acceptable current ratios vary from industry to industry. The company's quick ratio shows 0.57 before ISO certification and 0.41 after ISO certification. The interest cover ratio of the company shows 1.68 before ISO certification and 1.04 after ISO certification

Impact of Profitability Ratios on company's performance before and after ISO 9001:2008 QMS Certifications

Profitability ratios are a class of financial metrics that are used to assess a business's ability to generate earnings compared to its expenses and other relevant costs incurred during a specific period of time. In other words, Profitability ratios show a company's overall financial efficiency and financial performance. Profitability ratios can be divided into two types: margins and returns. Ratios that show margins represent the firm's ability to translate sales dollars into profits at various stages of measurement. Ratios that show returns represent the firm's ability to measure the overall efficiency of the firm in generating returns for its shareholders. Some ratios used in the analysis of profitability are Core Earnings before Interest, Tax, Depreciation and Amortization (EBITDA); Earnings before Interest and Taxes (EBIT) Margin and Profit after Tax (PAT) Margin.

Table 7: Analysis of Profitability Ratios of Bemco Hydraulics Ltd before ISO 9001:2008 QMS Certifications

Ratios	Financial Year				Mean	SD	CV
	2006	2007	2008	2009			
Core EBITDA Margin (%)	11.1	9.99	12.02	11.08	11.0475	0.83024	0.07515184
EBIT Margin (%)	11.49	9.02	7.99	8.44	9.235	1.56133	0.16906659
Pre Tax Margin (%)	5.85	4.08	2.5	2.48	3.7275	1.60128	0.42958551

Source: Analysis out of financial data collected from company annual reports.

Table 8: Analysis of Profitability Ratios of Bemco Hydraulics Ltd after ISO 9001:2008 QMS Certifications

Ratios	**Financial Year**						**Mean**	**SD**	**CV**
	2010	**2011**	**2012**	**2013**	**2014**	**2015**			
Core EBITDA Margin (%)	13.91	12.53	12.32	10.21	-5.55	10.34	8.96	7.24	0.808
EBIT Margin (%)	11.58	9.57	10.28	9.56	-8.42	11.94	7.41	7.82	1.054
Pre Tax Margin (%)	3.62	2.98	2.56	2.38	-19.54	3.7	-0.71	9.23	-12.88

Source: Analysis out of financial data collected from company annual reports.

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EBITDA margin is a measurement of a company's operating profitability as a percentage of its total revenue. It is equal to earnings before interest, tax, depreciation and amortization (EBITDA) divided by total revenue. EBIT Margin is the ratio of Earnings before Interest and Taxes to net revenue - earned. It is a measure of a company's profitability on sales over a specific time period. After-tax profit margin is a financial performance ratio, calculated by dividing net profit after taxes by revenue. A company's after-tax profit margin is important because it tells investors the percentage of money a company actually earns per dollar of revenue.

Table No 7 and 8 shows the analysis of EBITDA margin, EBIT margin and PAT margin ratios. Core EBITDA margin before ISO certification was 11.04 as against 8.96 after ISO certification. EBIT margin before ISO certification was 9.23 as against 7.41 after ISO certification. PAT margin shows the mean of 2.11 before ISO certification as against the mean of 1.38 after ISO certification.

V. TESTING OF HYPOTHESES

To test the hypotheses two tailed t-test is calculated with a 0.05 significance level by comparing the mean value of various ratios calculated before and after ISO 9001:2008 QMS certifications.

1. H1: A company has the ISO 9001:2008 QMS certification improves the company's efficiency

Paired t-Test for the Efficiency Ratios

	Mean Before Implementation	*Mean After Implementation*
Mean	124.9516667	141.7733333
Variance	2687.131408	7694.005833
Pearson Correlation	0.956743143	
t Stat	-0.710718222	
P(T<=t) two-tail	0.550961944	
t Critical two-tail	4.30265273	

Paired t-test for efficiency ratios revels that t value < t critical value and p value > 0.05 and Hence Ho is rejected and H1 is accepted

2. H2: A company has the ISO 9001:2008 QMS certification leads to improved financial performance

Paired t-Test for the Financial Performance Ratios

	Mean Before Implementation	Mean After Implementation
Mean	22.73833333	-6.7
Variance	412.6395083	495.3891
Pearson Correlation	-0.649642696	
t Stat	1.318515564	
P(T<=t) two-tail	0.318073545	
t Critical two-tail	4.30265273	

Paired t-test for performance ratios revels that t value < t critical value and p value > 0.05 and hence Ho is rejected and H2 is accepted

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3. H3: A company has the ISO 9001:2008 QMS certification leads to increased financial stability

Paired t-Test for the Financial Stability Ratios

	Mean Before Implementation	Mean After Implementation
Mean	1.251666667	0.9
Variance	0.357058333	0.1911
Pearson Correlation	0.92184213	
t Stat	2.360970785	
P(T<=t) two-tail	0.142127562	
t Critical two-tail	4.30265273	

Paired t-test for financial stability ratios revels that t value < t critical value and p value > 0.05 and hence Ho is rejected and H3 is accepted

4. H4: A company has the ISO 9001:2008 QMS certification leads to increased profitability

Paired t-Test for the Profitability Ratios

	Mean Before Implementation	Mean After Implementation
Mean	8.003333333	5.22
Variance	14.53335208	26.9743
Pearson Correlation	0.995931286	
t Stat	3.351203368	
P(T<=t) two-tail	0.078677654	
t Critical two-tail	4.30265273	

Paired t-test for profitability ratios revels that t value < t critical value and p value > 0.05 and hence Ho is rejected and H4 is accepted.

VI. CONCLUSION

The present study concluded that, organizations will benefit not only externally but also internally after implementing ISO 9001:2008 QMS certifications. The present study tried to explore the financial performance of an individual company before and after ISO 9001:2008 QMS certification and found that, a significant improvement is seen in internal factors such as company's efficiency, financial performance, financial stability and profitability. Further the study proved that ISO 9001:2008 QMS certification implementation can significantly influence overall financial performance of business. Although the present study is based on the analysis of financial statements of only one company as a case study, the data interpretations have broader implications for researchers and practitioners. For researchers, a bulk of the research done till date is on comparison of the financial performance of ISO certified firms with that of non-certified firms. In this study the financial performance of a single firm before and after ISO certification. Hence the future can focus upon the same line with a large number of firms. For practitioners, it is indeed tempting for managers to believe that ISO

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9000 certification will lead to business benefits. Hence the managers can better focus upon ISO 9001:2008 QMS certifications for better results.

REFERENCES

1. Bemco Hydraulics Ltd, Company website, 'www.bemcohydraulics.net'
2. Bemco Hydraulics Ltd, Company's Annual Reports.
3. www.aceanalyser.com
4. Benner, M. J. and Veloso, F. M. (2008), "ISO 9000 practices and Financial performance" A Technological coherence perspective". Journal of Operational Research, pp. 611-629.
5. Capon, N. Farley, J.U. and Hoenig, S. (1990), "Determinants of financial Performance: A Meta analysis", Management Sciences, Issue 36, pp. 1143-1159.
6. Corbett, M., Charles J., Montes-Sancho, J., and David A. K. (2005), "The Financial Impact of ISO 9000 Certification in the United States: An Empirical Analysis", Management Science, Volume 51, Issue 7, pp.1046-1059.
7. Ferati, R. N. B. and Elsana, A. (2012), "Effects of application of standard ISO 9001 in profitability of SMEs in the republic of Macedonia", International Journal of Scientific and Engineering Research. Volume 3, Issue10, pp. 1-5.
8. Inaki H., Gavin, P., Dick, M. and Marti, C. (2002a), "ISO registration‟ s impact on sales and profitability: A longitudinal study of performance before and after accreditation", International Journal of Quality and Reliability Management, Volume 9, Issue 6, pp. 774-791.
9. Lamport M. Sestanah B. Conhyedass P. and Sannasseo R. V. (2010), "The association between ISO 9000 certification and financial position", International Research Symposium Service Management.
10. Sharma, D. S. (2005), "The association between ISO 9000 certification and financial performance", The International Journal of Accounting, Volume 40, pp.151– 172.