Measuring Post-Merger and Acquisition Performance of Corporations in the Maritime Transport Sector.

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Abstract

Mergers and Acquisitions are generally considered as tools of corporate growth that create value and propel corporate efficiency. Nevertheless, the empirical evidence are not consistent. This paper considers maritime corporations that participated as acquirers in completed M&As between 1998-2009. As far as the authors are aware, such an analysis has never been undertaken for the maritime industry although such an analysis will greatly assist maritime financial decision makers in formulating their decisions
The methodology of our analysis is based on utilizing profitability and enterprise value as measures to investigate the profitability performance of the acquirer following the acquisition. In addition we also examine enterprise value shifts in order to investigate how the decision to proceed with the acquisition was perceived by the investors. Our results indicate a decline in the profitability of the acquirer and there were no statistical significant evidence that the enterprise value of the acquirer increased between pre and post-merger period.

1. Introduction

The dominant corporate strategies followed by corporations seeking to enhance value creation are strategic alliances and mergers and acquisitions (M&As). The driving force behind M&As worldwide is the intense competitive environment in which the corporations operate that drives them to search ways to reduce costs, create economies of scale, gain market share and increase profitability (Jensen et al 1995). It comes as no surprise why researchers have shown considerable attention over this undertaking of growth strategy (Dietrich,1984; Croson et al, 2004; Bernad et al, 2010). Nevertheless, it is interesting to highlight at this point that there is a divergence over the conclusions of the benefits arising from the M&A activity, as Bernad et al (2010) stated, the majority of the results indicate that ex-ante valuations of acquisitions have positive returns, in contrast to the ex-post assessments, which designate negative effects.

The need to comprehend the existence of M&As and their increasing occurrence through time in contrast to the empirical evidence is obvious, since as Higson and Elliot (p. 27, 1998) state "systematic negative returns after takeovers challenge market efficiency, and if there is stock mispricing at takeover announcement this could undermine the consensus from many studies of announcement period returns, that takeovers are value creating or at least value preserving events". The timing to further investigate this issue is perfect since mergers and acquisitions the last few years have increased dramatically internationally. Especially around 2006 were cash-rich corporations launched record numbers of bids taking advantage of the low borrowing costs.

As a result of the increased demand for shipping services causing a significant increase in freight rates (UNCTAD 2009), offered shipping companies high profitability levels and a healthy cash reserve. As competition became steeper some of them utilised M&As to generate growth. Maritime transport is as highly capital intensive industry forcing shipping companies to rationalize activities, create economies of scale, reduce costs and thus minimize financial risks. All of which, in order maritime corporations to meet customer demands, cope with worldwide demand for products and establish themselves as major market players, Meersman et al (1999).

The purpose of this study is to identify the financial condition utilizing financial ratios ex ante and ex-post of the acquiring publicly traded maritime corporations quoted on capital markets based on historical accounting information. Using a database of all M&As involving marine transport corporations, on a global scale from January 1, 1994 to December 31, 2009. As far as the authors are aware, such an analysis has never been undergone for the maritime industry. The objectives of this paper are firstly to reveal the philosophy behind mergers and acquisitions and obtain relevant implications. Secondly, to critically assess the results and recommend further areas for empirically research. Finally our last objective is to assist financial decision makers in formulating their decisions.

The paper is organized as follows. In section2, the potential gains and pitfalls occurring from mergers and acquisitions are mentioned. In Section 3, the related empirical literature is discussed. Section 4 describes the data and discusses the methodology. Sections 5 develop the main research hypotheses and present the empirical results. Finally, our conclusions and recommendations for future research appear in section 6.

2. Potential gains and implications from Mergers and Acquisitions.

According to Bernad et al (2010) in strategic management the outcome of an acquisition depends upon three elements: the strategic fit, the organizational fit and the acquisition process. The notion of strategic fit lies with the concept of synergies (Ansoff 1984; Porter 1998; Schmitz and Sliwka 2001) and the possibilities of achieving economies of scale and thus gaining a reduction in the average operating costs (Brooks 1995; Brooks 2000). A type of synergy may arise from market power, where the event of an acquisition increases market concentration. Brooks (2000) highlighted this issue following detailed case studies of several M&As and strategic alliances in shipping, air, and rail industries. This issue is further analyzed by Merikas

et al (2014) that investigates the impact of market concentration in the VLCC sector. On the other hand, the concept of organizational fit incorporates the implications rising from the differences in administrative, cultural and personnel characteristics between the acquirer and the target (Jemison and Sitkin 1986) and the markets in which they operate. Finally, the acquisition process is also very important and has a major impact over the success of the combination (Jemison and Sitkin 1986), Bernad et al 2010), meaning the process of analyzing, negotiating and finalizing the deal to acquire another entity.

3. Literature review

The concluding remarks of several empirical studies over the efficiency of mergers have indicated some very interesting points, such as acquiring corporations are typically larger in size in comparison with their targets. Firth (1980) and Roll (1986) investigated the latter in United Kingdom and United States respectively highlighted that mean value measures of gains were in the U.K negative but statistically insignificantly different from zero and in the U.S statistically insignificantly positive.

Acquisitions always provide large gains to the target's shareholders resulting from premiums paid to them above the market value of the entity. However, the average returns are less clear for the bidding's corporation shareholders (Caves, 1989).

On the one hand there are researches that indicate significant increase in profitability and performance for the acquiring corporation in the post acquisition era such as, Healy et al (1992) who investigated the post acquisition performance of 50 large industrial mergers that occurred during 1979 to mid-1984. Their findings indicated that the new entity after the acquisition has taken place had significant improvements in operating cash flows arising from increases in asset productivity in relation to the industries in which they operate. These improvements in cash flow are more noteworthy when the transactions involve corporations that have overlapping businesses.

Heron and Lie (2002) studied the relationship between the method of payment at the time of acquisition, earnings management and operating performance for a significant number of acquisitions that were conducted in the era 1985-1997. Their results indicate that subsequent to the acquisitions, the acquiring corporations continue to exhibit superior performance and experience significant higher levels or operating performance relative to their industry.

And on the other hand there are researchers that conclude that in the post- acquisition period the acquiring corporations underperform such as, Ghosh (2001) who looked at the post acquisition operating cash flow performance by utilizing a research design that accounted for superior pre-acquisition performance. The sample utilized in the analysis consisted of all completed acquisitions during the period 1981 to 1995. His findings indicated that there were no evidence that merging corporations were able to increase their cash flow performance following the acquisitions.

Similar conclusions with Ghosh were brought by Andre et al (2004), who considered long-term performance of M&As in Canada, by examining the main determinants of

post-acquisition abnormal performance to determine the factors that create or destroy corporate value. They utilize a sample consisting of 267 mergers and acquisitions that occurred between 1980 and 2000. Their analysis covered three years after the event employing mean calendar time abnormal returns in order to compute the magnitude and reliability of abnormal returns. The results have highlighted a significant underperformance of the acquirers over the three post-acquisition period.

Yook et al (2004) examined the pre and post-acquisition Economic Value Added in order to test the impact of acquisition on the acquiring corporation's financial performance. The sample consisted of 75 larger acquisitions that were completed between 1989 and 1994. His results indicated that acquiring corporation experiences a statistically significant deteriorating financial performance after the event.

Martynova et al (2007), investigated to what extent European companies improve their profitability in the post-merger era, examining a sample of 155 mergers and acquisitions completed between 1997 and 2001. Their findings indicated that the profitability of the combine corporation decreases significantly in the post-acquisition period. However, this decrease become insignificant when variables that control for industry performance and size are taken into account, suggesting that the observed decrease is caused by macroeconomic changes unrelated to merger and acquisitions.

Mantravadi and Reddy (2008) aimed to study the impact of mergers on the operating performance of acquiring corporations in different industries by examining pre-merger and post-merger performance of public limited and traded companies in India between 1991 and 2003. The results suggest that mergers had slightly positive impact on profitability of firms in the banking and finance industry and a marginal negative in the pharmaceutical, textile and electrical equipment industries.

Bernad et al (2010) evaluated the effects of mergers and merged firms on the long – run productivity of Spanish savings banks. Their results suggested that only in half of the mergers that took place in the period analyzed, signs of productivity improvements could be found.

Duggal (2015) investigated 14 mergers in the pharmaceutical industry that took place from 2000-2006 in India. For the purpose of measuring the financial and operating performance of the merger financial ratios have been considered to assess the impact of mergers. In the analysis, data from one year prior (t-1) to the event up to five years (t+5) after were used from every acquirer. The analysis has shown that merger had a significant impact on the performance as compared to the pre-merger period. This impact though is more evident in the immediate year after the merger (t+1). Profitability and operating performance of the new entity showed to improve only up to the first year and was not sustained in the post merger period (t+3, t+5 years)

4. Data and Methodology

Our empirical study analyses the financial data of all completed mergers and acquisitions that took place between 1998 and 2009, in the maritime transport industry worldwide. The sample employed consists 34 merger cases that involve 20 acquirers (some of them are multiple acquirers), the sample size is consisted with other published research in the field such as Kaur (2002). Published financial

statements were collected from the Bloomberg database. This data included all financial statements, such as, Balance Sheet, Income Statement, Cash-flow Statement and key financial ratios (provided by the Bloomberg database). The researchers evaluated the usefulness of utilising additional databases, such as, DataStream were not utilized due to the fact that similar accounting data are computed in different ways, causing misleading results decided to avoid such an experiment. In order to examine the ex- ante and the post – acquisition profitability performance of the acquirers in the analysis, 2 years prior to and 2 years after the acquisition are considered for every corporation. In addition enterprise valuation ratios are also utilized in the analysis in order to get the perception of the market in relation to the merger process.

For the purpose of identifying differences between the pre-acquisition period and the post acquisition period of the acquirer, the Wilcoxon Signed Rank Test will be utilized. It is a non-parametric statistical hypothesis test commonly used to compare two related samples or matched paired. It compares the median of a single column of values against a hypothetical median. In this research X_a and X_b, denotes the pre-merger and the post –merger period of the acquirer respectively. The test considers the difference between $|X_a—X_b|$ for each pair excluding those cases where $|X_a—X_b| = 0$. It then ranks the remaining absolute differences and computes $W\pm$ and the number of signed ranks is set as **$n_{s/r}$**, which is equal to number of X_aX_b pairs minus the number of pairs for which $X_a—X_b =0$. The Z statistic computed and the probabilities obtained are compared with the appropriate level of significance (0.05 or 0.1) in order to accept or reject the null hypothesis. The data and computation were undertaken using the Microsoft Excel.

H0: Mergers in the maritime sector have not affected the operating performance of acquiring firms in the post-merger period
H1: Mergers in the maritime sector have improved the operating performance of acquiring firms in the post-merger period

5. Analysis & Results

The comparison of the pre-merger and post-merger of the profitability performance ratios along with the enterprise valuation ratios (kindly check Appendix 2) for the entire sample set indicated that the two periods under investigation are statistically different. Table 1, presents the descriptive statistics of all the data utilized in the analysis, comprising the mean values, the St. Deviation along the minimum and maximum values. Each year prior to and after the event is considered in the analysis as an individual case as stated in the Wilcoxon test methodology. The number of cases differs between the two groups because some of the acquirers performed several mergers in a very short period of years or missing data.

By observing the mean values of the variables it can be said that the acquirers performed better in relation to their profitability prior to the acquisition event. On the other hand Enterprise Value measuring the company's total value increases, which is logical since the acquisitions in this industry are the buyout of the target's vessel fleet. The latter can also be observed from the variable Enterprise Value to Book Value.

Table 1
Descriptive Statistics

Variable	Status	N	Mean	Minimum	Maximum	Std. Deviation
Profit Margin	Pre_Merger	47	17.59	-23.49	82.11	19.38
	Post_Merger	60	11.43	-33.43	53.42	16.86
Gross Margin	Pre_Merger	32	31.79	9.45	97.99	20.74
	Post_Merger	44	31.43	10.58	97.84	22.64
ROA	Pre_Merger	45	7.46	-5.37	27.23	6.23
	Post_Merger	60	5.02	-10.05	17.14	5.33
ROCE	Pre_Merger	45	20.2	-15.26	94.17	19.35
	Post_Merger	60	15.52	-31.24	102.36	19.19
Enterprise Value	Pre_Merger	43	6,013.94	78.99	34,390.97	7,920.51
	Post_Merger	60	9,211.17	98.53	59,045.57	13,436.09
EV/EBITDA	Pre_Merger	38	11.54	3.96	53.21	8.74
	Post_Merger	52	11.52	2.58	32.97	6.62
EV/ Book Value	Pre_Merger	41	3.28	0.88	9.3	2.21
	Post_Merger	58	3.33	0.79	14.3	2.47

Note: number of cases differs due to multiple acquirers or missing values

In order to test the statistical significance of the differences between the two independent groups observed in the descriptive statistics table 1, the Mann-Whitney U Test is performed. This test was considered more appropriate for the data set involved because, it does not assume any properties regarding the distribution of the underlying variables in the analysis, a common problem with real market data. Moreover, the U-Test is a non-paracontinuous level test and in contrast to the T-tests and the F-Tests, it compares median scores of the two samples instead of mean scores, therefore making it much more robust against outliers and heavy tail distributions.

Table 2 provides significant data over the profitability performance and the perception that the market has over the acquirer's value before and after the event of acquisition, also signaling their opinion over the acquirer's decision to use acquisition as a tool of corporate growth.

Table 2
Wilcoxon Signed Rank Test Comparison of the Pre –Acquisition Performance to the
After Acquisition Performance

Variables	Status	n	Mean Rank	SUM of Ranks
Profit Margin	Pre-merger	47	60.15	28827
	Post-merger	60	49.18	2951
Gross Margin	Pre-merger	32	39.44	1262
	Post-merger	44	37.82	1664
ROA	Pre-merger	45	60	2700
	Post-merger	60	47.75	2865
ROCE	Pre-merger	45	58.07	2613
	Post-merger	60	49.2	2952
Enterprise Value	Pre-merger	43	46.93	2018
	Post-merger	60	55.63	3338
EV/EBITDA	Pre-merger	38	45.26	1720
	Post-merger	52	45.67	2375
EV/ Book Value	Pre-merger	41	49.57	2032.5
	Post-merger	58	50.3	2917.5

Note: number of cases differs due to multiple acquirers or missing values

All the differences observed in the analysis from the comparison of the two independent groups Table 3 highlights that the majority of those changes are not statistically significant. Only the ratios of Profit Margin and Return on Assets were statistically significant on 0.1 and 0.05 significant levels respectively.

Table 3
Wilcoxon Signed Rank Test

	Profit Margin	Gross Margin	ROA	ROCE	Enter Value	EV/EBITDA	EV/Book Val
Mann-Whitney U	1121	674	1035	1122	1072	979	1171.5
Wilcoxon W	2951	1664	2865	2952	2018	1720	2032.5
Z	-1.814	-0.314	-2.04	-1.476	-1.458	-0.74	-0.124
Asymp. Sig (2-tailed)	0.07	0.752	0.041	0.14	0.145	0.941	0.901

The results of the investigation therefore suggest that in the Maritime Transport industry, acquirers subsequent to the acquisitions exhibit signs of lower profitability performance for the first two years after the event, as previous literature stated in other industries, such as Andre et al (2004) and Yook et al (2004). The result of the analysis performed needs further investigation over "why" this decline has taken place and "why" the acquisition of an additional fleet was not perceived by the market looking at the 'Enterprise Value' (E.V) variable as positive event. An explanation of the latter may be the shipping cycle, thus the 'timing of the event'. In more detail, the state of the market at the time of the event is crucial. The freight rates and the perception at the time for possible upswing or downswing of the market, is very important for the profitability of the new corporate entity. Moreover, the freight rate

levels are also important for measuring how easily the increased operating expenses of the new larger fleet can be covered. Moreover, it is important to mention here the vessels' values and age; as well the sectors in which the corporations involved operate (bulk wet, dry bulk or liner shipping), where according to the state of the market and the level of the freight rates the vessels' values, thus the 'fixed assets' of a company, can change dramatically altering the financial statements at balance sheet and P/L level (M. Stopford, 2008). In addition, one more factor that must be taken under consideration is the 'debt' of the target company that was transferred to the acquirer through the acquisition process.

Last but not least, the non statistical significant differences of the two independent groups over the variables 'Enterprise Value / EBITDA' and 'Enterprise Value / Book Value', suggest that in the post-merger period the acquirer did not utilize the purchased fleet as efficiently as expected by the investors and that the cost of the acquisition was high, therefore no gains came to the acquirer from the acquisition of "cheap" in sale price vessels.

6. Conclusion

This paper examines the post-acquisition operating performance and enterprise value of acquiring corporations in order to investigate also the perception of the market over the acquirers decision, utilizing a sample of 20 corporations that some of them were involve in a number of acquisitions in the maritime transportation industry that were taken place between 1998 and 2009. We utilize the Wilcoxon signed rank test to measure the consequences of the acquisition, by considering the profitability performance along with the enterprise value of the corporation two year prior to and two year after the event.

Our findings indicate that there were statistically significant deteriorations in the profitability of the acquirers, reinforcing the results of previous studies in other industries. It is though strange that none of the enterprise valuation ratios were found to be statistically significant. Meaning that the M&A activity was not perceived by the investor community as a very "positive" decision. We believe that this area needs further investigation since these events are very costly investments for the acquirers and the implications of those are still not well defined. In the maritime transport industry, future research should also consider the method utilized for the acquisition (cash, stock etc), as well as, the "state" of the industry at the time of the acquisitions as a potential factor influencing the success or failure of the acquisition.

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Appendix

1. List of the Acquirers and their Acquisition Targets

Acquirer	Targets	Years of Event
Excel Maritime Carriers	Quintana Maritime Ltd	2008
Overseas Shipholding Group	Stelmar Shipping Ltd	2004
General Maritime Corporation	Arlington Tankers	2008
Overseas Shipholding Group	Maritrans Inc	2006
CMA CGM	CIE Marocaine De Navigation	2007
Nippon Yusen	Taiheyo Kaiun Co Ltd	2009
Kawasaki Kisen Kaisha Ltd	Flex LNG Ltd	2008
TEEKAY Corporation	Teekay Petrojarl ASA	2006
TEEKAY Corporation	Ungland Nordic Shipping ASA	2001
CAIANO AS	Wilson ASA	2006
Nippon Yusen	Hinode Kisen Co Ltd	2000
Frontline Ltd	Mosvold Shipping Ltd	2001
Thoresen Thai Agencies Plc	Mermaid Maritime Plc	2005
Bonheur ASA	Canger Rolf ASA	2008
Jaya Holdings Ltd	Alam Maritime	2003
Samudera Shipping Line Ltd	Samudera Indonesia Singapore	2003
Nippon Yusen	Tokyo Senpaku Kaisha Ltd	2002
Attica Group	Blue Star	2007
CP Ships Ltd	Navigazione Montainari SPA	2002
AP Moller-Maersk A/S	Royal P&O Nedlloyd NV	2005
KOninklijke-Boskalis Wes	Smit Internationale NV	2009
AP Moller-Maersk A/S	Brostrom AB	2008
DryShips Inc	Ocean RIG ASA	2008
Mitsui OSK Lines Ltd	Daibiru Corp	2004
AP Moller-Maersk A/S	Adstream Marine Ltd	2006
TEEKAY Corporation	Bona Shipholding Ltd	1999
Mitsui OSK Lines Ltd	Navix Line	1998
CMA CGM SA	Cheng Lie Navigation Co	2007
Kumpulan Sime Darby Bh	Jaya Holdings Ltd	2004
Nippon Yusen	Showa Line	1998
Mitsui OSK Lines Ltd	Kansai Kisen KK	2009
Mitsui OSK Lines Ltd	Utoc Corporation	2006
Frontline Ltd	ICB Shipping AB	2006
Nippon Yusen	Tokyo Sen Paiw	2003

2. List of Ratios

1	Gross Margin
2	Profit Margin
3	Return on Assets
4	Return on Capital Employed
5	Enterprise Value
6	Enterprise Value/ EBITDA
7	Enterprise Value/Book Value