

Determinants of Credit Rating Actions: Evidence from International Maritime Companies

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Abstract

This study aims to analyze the relevant factors in determining credit rating agency (CRA) rating actions for international maritime companies. The public disclosures regarding the credit rating actions within annual reports and the credit rating agencies' websites are analyzed by applying a content analysis for the period 2000-2017. The results of the content analysis indicate that the factor of “*market conditions*” has been disclosed as the main credit rating action determinant by the CRAs. This finding is in line with the argument that due to the high costs of obtaining the new and confidential information, CRAs tend to rely solely on

the market risk in most rating actions, rather than company-specific risk. Moreover, we determine that, after the 2008 financial crisis, CRA disclosures on company specific factors decrease dramatically. Furthermore, opacity prevails in observations regarding company-specific factors as “financial profile” and “corporate business profile”.

Keywords: Credit rating actions, Maritime companies, Public disclosures

1. Introduction

The US subprime mortgage crisis in the mid-2008 has not only directly affected the financial industry in the US, but has also spread to other markets and countries due to the high proportion of CDOs securitized by mortgages (Stopford, 2013). With its effect felt more strongly in Europe, this crisis is seen as one of the worst financial crisis in history (Ackermann, 2008). A high balance of payments deficit within the US, the deflation of real estate assets, the liquidity excess due to the high supply of credits, and an artificial boom resulting in a supply increase within multiple sectors/countries- are the main factors that led to this crisis (De Monnie et al., 2009; Melvin & Taylor, 2009; Lo Re, 2011). Following these developments, the maritime industry has not remained unaffected. The financial situation of the maritime industry has suffered from decreasing global demand and oversupply. This has in turn, led to new alliances, mergers, acquisitions and even failures as the Hanjin Shipping bankruptcy.

For the maritime companies, fleet growth and corresponding financial needs continue irrespective of the market conditions. Moreover, issues such as growing fleet age, higher insurance rates, increasing maintenance costs of the older vehicles, integration of technological developments, shifting quality standards, increasing competition and finally, increased demand (Brauner, 1994) continue to pressure the industry. Despite these, when seeking bank credit and corporate bond investors, maritime companies have faced more stringent financing conditions after 2008. One of which has been the application of strict financial covenants to risky industries (Mayer & Brown, 2014). These developments act as motivation for this study, since higher credit ratings result in lower cost of capital (Kisgen & Strahan, 2010).

Determination of the credit ratings require substantial CRA judgment as content such as firm's financial statements, management quality, and economic scenarios are employed under the rating process (Gonzales et al., 2004; Matthies, 2013). Due to the required judgment, credit rating agencies have been criticized for their failure to accurately predict credit risk. Bone & Ribeiro (2009) and Elkhoury (2008) argues that the credit rating process lacks transparency, and the relevant factors taken into consideration by the credit agencies in determining the credit ratings can be considered as "*opaque*" information for the investors. Murcia et al. (2014) also argues that CRAs lack incentives to demand detailed information of debt issuers due to the high cost inherent in obtaining new information. CRAs tend to rely solely on market risk in most rating actions rather than company-specific risks, resulting in predictable credit ratings (Murcia et al., 2014).

This study analyzes the relevant factors in determining credit rating agencies' rating actions for international maritime companies. The sample of this study was collected among the firms listed under the "UNCTAD 2016 Top 20 Maritime Companies" that were rated by a CRA and were analyzed taking into consideration the Credit Risk Determinants of maritime companies.

The following section provides a brief literature review, while the third section presents the data and the methodology of the study. Next, the fourth section presents the findings and the

final section concludes with suggestions for further research.

2. Literature Review

The credit risk measurement methods can be divided into two distinct categories; “*traditional*” and “*modern*”. While expert systems, rating systems and credit scoring models can be categorized as traditional methods; an options-theoretic structural approach and a reduced form approach utilizing intensity-based models to estimate stochastic hazard rates can be considered as modern methods (Saunders et al., 2004).

Although the literature on credit risk measurement dates back to 1930s (Ramser & Foster, 1931; Fitzpatrick, 1932; Winakor & Smith, 1935), the pioneering study of Beaver’s univariate analysis was conducted in 1966. Beaver (1966) documented that the failure of a firm can be correctly predicted to a much greater extent than would be expected from random prediction. Beaver’s (1966) model was able to accurately classify 78% of the sample of firms at least five years before failure. However, Atiya (2001) argued that Beaver (1966)’s approach is inadequate for two main reasons. First, the analysis is based solely on a single financial ratio analysis at a time and second, a cutoff threshold is developed for each individual ratio. Later, Altman (1968) expanded the Beaver (1966) approach, and employed use of a multivariate discriminant analysis, which became a popular model extensively used in empirical research and in practice (Dichev, 1998).

After the 1990s, artificial neural networks have been employed to analyze the credit risk by multiple researchers (Odom & Sharda, 1990; Wilson & Sharda, 1994). Atiya (2001) explained the superiority of using non-linear approach instead of a linear approach by implying saturation effects and multiplicative factors in the relationships between the financial ratios and the prediction of default. Atiya (2001) also asserted that many commercial loan default prediction products (e.g., Moody’s Public Firm Risk Model) and bankruptcy simulation models of leading global banks are based upon this approach.

The credit rating model is one of the commonly used models to measure credit risk. This model categorizes companies with regard to their credibility (Ong, 2003). The information provided by CRAs can be relevant for creditors and investors due to the following reasons;

- i) *Non-aligned credit rating agencies provide unbiased information;*
- ii) *Employs experts in finance;*
- iii) *Confidential information can be accessible for CRAs (Rajendran, 2015).*

Rating agencies determine the credibility of companies by taking into consideration many factors, such as; macro and micro economic variables, financial strength, quality of management, and company competitiveness (Rajendran, 2015). Matthies (2013) provides an extensive review of the literature that analyzes the determinants of credit ratings and argues that the relevant factors of credit rating decisions are produced in three main categories. These are; financial ratios and financial data (e.g., firm specific factors such as leverage, liquidity, and firm size), corporate governance mechanisms (e.g. ownership structure, board independence) and macroeconomic factors (e.g., GDP) (Matthies 2013).

3. Data and Methodology

This study investigates the credit rating actions produced by two competing CRAs, namely, Standard & Poor's (S&P) and Moody's. The AAA, AA, A, and BBB ratings are indicative of higher quality and are categorized as "investable", while indebtedness is rated as BB and lower. These ratings are considered as risky and "not investable" (Cantor & Packer, 1994).

Moody's model for global maritime companies' credit risk measurement, aims to serve as a guideline for maritime industry stakeholders. The guidelines are disclosed to inform the stakeholders regarding the qualitative and quantitative factors that influence the companies' ratings (Moody's, 2014).

Moody's take into consideration the following five factors while assessing maritime company credit risk; *1. Scale, 2. Profitability, 3. Leverage and Coverage, 4. Fleet Characteristics, and 5. Financial Policy. These factors are followed by the sub-factors presented under Table 1.*

Table 1. Relevant factors and sub-factors

Broad Rating Factors	Factor Weighting	Rating Sub-Factor	Sub-Factor Weighting
Scale	20%	Revenue	10%
		Size of Fleet	10%
Profitability	17.5%	EBIT Margin	10%
		ROA (NPATBUI/Total Assets)	7.5%
Leverage and Coverage	30%	Debt / EBITDA	10%
		RCF / Net Debt	10%
		(FFO+Interest) / Interest Expense	10%
Fleet Characteristics	17.5%	% Revenues from LT Charters	7.5%
		Unencumbered Assets	10%
Financial Policy	15%	Financial Policy	15%
Total	100%	Total	100%

Source: Moody's Investor Service, Global Shipping Industry Methodologies Report (2014).

In addition to the above sector-specific factors, Moody's ratings also include the factors that are common across all industries, such as; ownership structure, liquidity, corporate legal structure, corporate governance and country specific risks (Moody's, 2014). Standard & Poor's methodology of credit risk measurement involves the evaluation of business risk and financial risk, as shown in Figure 1.

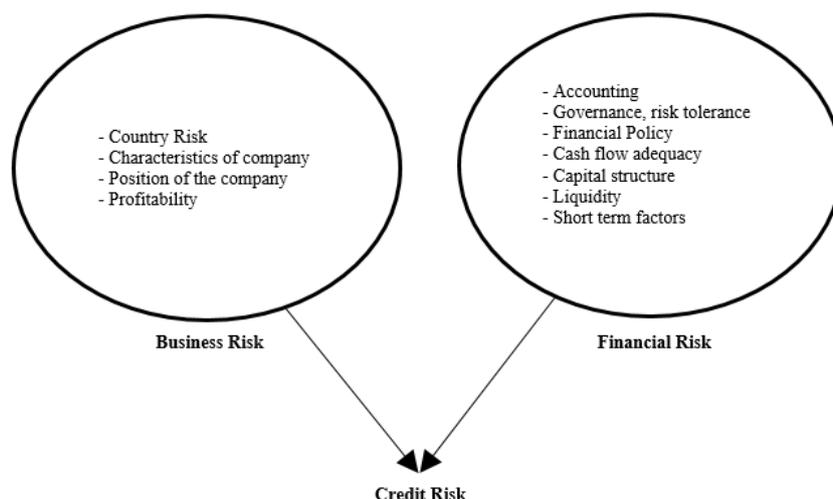


Figure 1. Credit rating factors

Source: S&P Global Ratings

3.1 Data and Analysis

The sample was selected amongst the firms listed under the “UNCTAD 2016 the Global Top 20 Maritime Companies” as presented in Table 2 according to the end of 2015 figures. A content analysis is applied on the public disclosures regarding the credit actions of the sample companies. The public disclosures on the credit rating actions found under the annual reports of the companies and the credit rating agencies’ websites are analyzed according to the factors that are presented in Matthies (2013) and the credit rating agencies’ rating models. The period analyzed is 2000-2017 with 69 observations.

Table 2. Sample and sample data

	Company	Headquarters	TEU Capacity	Revenue	Founding Year	Number of Employees
1	A.P. Moller Maersk	Copenhagen, Denmark	3 059 984	\$40.3 Billion (USD)	1904	89.000
2	Mediterranean Shipping Company S.A. (MSC)	Geneva, Switzerland	2 703 404	\$28.2 Billion (USD)	1970	24.000
3	CMA CGM Group	Marseille, France	1 873 439	\$15.7 Billion (USD)	1978	22.000
4	China Ocean Shipping (Group) Company (COSCO)	Beijing, China	1 608 456	\$10.2 billion (USD)	1961	130.000
5	Hapag-Lloyd	Hamburg, Germany	978 663	\$9.2 billion (USD)	1847	9.500
6	Evergreen Marine	Taoyuan City, Taiwan	949 492	\$4.6 billion (USD)	1968	3.389

7	Hamburg Süd Group	Hamburg, Germany	670 029	\$6.9 billion (USD)	1871	5.360
8	Hanjin Shipping	Seoul, South Korea	648 043	\$8.3 billion (USD)	1977	5.800
9	Orient Overseas Container Line (OOCL)	Hong Kong, China	571 429	\$ 5.9 billion (USD)	1969	9889
10	Neptune Orient Lines - American President Lines	Marseille, France	567 635	\$6.02 billion (USD)	1978	over 7000
11	Mitsui Osaka Shosen Kaisha Lines	Tokyo, Japan	542 909	\$ 15.3 million (USD)	1878	966 (Number of MOL Group employees: 10,794)
12	Yang Ming Marine Transport	Keelung, Taiwan	542 127	\$ 4.2 million (USD)	1972	N/A
13	United Arab Shipping Company	Dubai, United Arab Emirates	452 510	N/A	1976	N/A
14	Nippon Yusen Kaisha	Tokyo, Japan	493 443	\$ 20 million (USD)	1885	35.935
15	Hyundai Merchant Marine	Seoul, South Korea	381 728	\$ 5.1 million (USD)	1979	N/A
16	Kawasaki Kisen Kaisha Limited- K Line	Tokyo, Japan	397 557	\$ 11 million (USD)	1919	735
17	ZIM Integrated Shipping Services	Haifa, Israel	368 884	\$ 2,9 million (USD)	1945	N/A
18	Pacific International Lines	Singapore	336 699	about \$3,000.000 (USD)	1967	18000
19	Wan Hai Lines	Taiwan	217 847	63.86 billion TWD	1965	3162
20	X-Press Feeders	Singapore	116 709	N/A	1972	260

4. Findings

As shown in Table 3 and Figure 2, it is determined that the factor of “*market conditions*” (as macro-economic factor) has been disclosed as the main credit rating action determinant by the CRAs under the 69 observations. This finding is in line with Murcia et al. (2014)’s argument that due to the high costs of obtaining the new and confidential information, credit rating agencies tend to rely solely on the market risk in most rating actions rather than company-specific risk, thus produce predictable credit ratings (Murcia et. al. 2014).

The findings are presented in Table 3 in detail.

Table 3. The Findings

Company Name	Date	Rating Agency	Rating Action	Rationale	Outlook	Further Expectations	Relevant Factors
Nippon Yusen Kaisha	1.03.00	Moody's	Baa2	•Company's and its subsidiaries' characteristics	Positive	•NYK's improving performance will continue and the company's financial fundamentals will be strengthened in the near to medium term	Corporate Business Profile
Mitsui O.S.K Lines	2.03.00	Moody's	Ba1	•Improvement of operations caused by rising freight rates	Positive	•Expectation of MOL's improving performance will continue to contribute to its earnings.	Market Conditions
Nippon Yusen Kaisha	26.12.01	Moody's	Baa2	•Good operating performance due to the industry upcycle and robust world trade volume resulting from the generally strong global economy	Stable	•The challenging market conditions •The deteriorating conditions evident in 2001 represent a broader industry down cycle	Market Conditions
Mitsui O.S.K Lines	26.12.01	Moody's	Ba1	•Deteriorating market conditions	Stable	•It is expected that the deteriorating conditions evident in 2001 represent a broader industry down cycle	Market Conditions
Nippon Yusen Kaisha	8.01.02	Moody's	Baa2	Highly leveraged financial position and high fixed cost structure requiring a large amount of investment to remain competitive	Stable	•The deteriorating conditions evident in 2001 represent a broader industry down cycle	Leverage
CMA CGM	22.04.03	Moody's	Ba2	•CMA CGM's high adjusted debt leverage •CMA CGM's high adjusted debt leverage and expected 2003 negative free cash flow •Fluctuations in fuel prices	Stable	•Expected that 2003 negative free cash flow •Moody's expectation of continual growth in the container industry, gradual firming of freight rates over the short term and an expectation of lower annual ship supply during 2003 and 2004 which should stabilize the overall dynamics of the industry	Leverage
Nippon Yusen Kaisha	4.08.04	Moody's	Review	•NYK is likely to reinforce its market position by improving its operating performance and earning stability over the medium term	Stable	•Possible upgrade	Operating Performance
Mitsui O.S.K Lines	4.08.04	Moody's	Review	•Stability of MOL's operating performance •Cash-generating ability is likely to increase	Stable	•Possible upgrade	Operating Performance
Nippon Yusen	15.11.04	Moody's	A3	•Significant improvement in NYK's	Stable	N/A	Cash flow generation

Kaisha				financial position • Cash flow generation in recent years			
Mitsui O.S.K Lines	15.11 .04	Moody's	Baa2	<ul style="list-style-type: none"> •Reduction of the cost and improving the efficiency of its shipping operations and enhanced their global competitiveness •Investments to enhance the quality of its fleet 	Stable	<ul style="list-style-type: none"> •Moody's believes the sustainable cash flow will continue to improve its capital structure going forward •Rapid growth of Asian demand and rising fuel prices may raise the volatility of freight prices in the future 	Operating Performance
Mitsui O.S.K Lines	25.03 .05	Moody's	Baa2	<ul style="list-style-type: none"> •Improving financial profile 	Stable	N/A	Financial profile
Mitsui O.S.K Lines	12.08 .05	Moody's	Baa2	<ul style="list-style-type: none"> •MOL is likely to strengthen its financial flexibility despite its intensive capital expenditure plan for fleet expansion •Greatly increase operating profit 	Positive	<ul style="list-style-type: none"> •Moody's believes the cash flow generated from its highly competitive fleet and diversified business operations is likely to improve its capital structure going forward 	Growth
Mitsui O.S.K Lines	13.10 .05	Moody's	Review	<ul style="list-style-type: none"> •MOL nearly doubled its operating profit to JPY 171.8 billion for fiscal 2004 (ended March 2005) from JPY 92.1 billion for fiscal 2003 	Positive	<ul style="list-style-type: none"> •Possible upgrade 	Profitability
CMA CGM	1.11. 05	Moody's	Ba2	<ul style="list-style-type: none"> •CMA CGM's ongoing positive operational and financial performance over the last several years • CMA CGM has one of the youngest fleet in the industry 	Positive	<ul style="list-style-type: none"> •Demand increase on these routes which is expected to continue well into 2006 •Increase the supply in shipping industry next 3 years with deliveries of new big ships 	Operating Performance
Mitsui O.S.K Lines	24.11 .05	Moody's	Baa1	<ul style="list-style-type: none"> •Increase operating profit in the fiscal half-year ending despite recent fuel price rises •Reduction of costs due to reducing personnel expenses 	Stable	<ul style="list-style-type: none"> •Moody's believes that MOL's improvements in both profitability and stability of cash flow generation will contribute to stabilizing its financial structure, even if market conditions deteriorate in the future 	Profitability
CMA CGM	11.07 .06	Moody's	Ba1	<ul style="list-style-type: none"> •CMA CGM's strengthening market position in Ocean Containers Shipping industry 	Stable	N/A	Size
Mitsui O.S.K Lines	15.02 .07	Moody's	Baa1	<ul style="list-style-type: none"> •Reduction of debt level •Fleet expansion •Long-term transportation contracts with customers 	Positive	<ul style="list-style-type: none"> •Expectation of high level of operating profit 	Leverage

Mitsui O.S.K Lines	19.10 .07	Moody's	Review	<ul style="list-style-type: none"> •MOL is likely to further strengthen its financial profile over the medium term, despite its intensive capital expenditure to expand the fleet 	Positive	<ul style="list-style-type: none"> •Possible upgrade 	Financial profile
Mitsui O.S.K Lines	29.11 .07	Moody's	A3	<ul style="list-style-type: none"> •Improving its profitability by reducing various fixed costs and improving the efficiency of its shipping operations 	Stable	<ul style="list-style-type: none"> •Moody's believes that MOL will achieve stronger financial flexibility, even if market conditions deteriorate in the future 	Profitability
Wan Hai Lines	4.12. 08	S&P	BB+	N/A	Negative	N/A	N/A
CMA CGM	16.12 .08	Moody's	Ba1	<ul style="list-style-type: none"> •The change of outlook to negative reflects Moody's increasing concerns over the uncertainty. The current challenging environment will continue to exert pressure on CMA CGM's credit profile •Difficult market conditions but strong positions of CMA CGM 	Negative	<ul style="list-style-type: none"> •Increasing pressure on the container shipping market •Higher operating costs from bunker and chartering costs •CMA CGM will have to finance its heavy capex program in a context of slower growth prospects and potential over-capacity in the container shipping market 	Market Conditions
Yang Ming Marine Transport Co.	26.05 .09	S&P (According to Taiwan national Scale)	A-3	N/A	N/A	N/A	N/A
CMA CGM	5.06. 09	Moody's	B1	<ul style="list-style-type: none"> •Global economic downturn •Weak market conditions •Cancellation or postponing deliveries of new ships 	Negative	<ul style="list-style-type: none"> •Negative Cash flows •Lenders are likely to remain supportive and that the liquidity situation, which partly relies on asset sales, will remain adequate 	Market Conditions
Nippon Yusen Kaisha	15.06 .09	Moody's	A3	<ul style="list-style-type: none"> •NYK's financial leverage is likely to remain high comparing with shipping industry •NYK's static position in maritime sector 	Negative	<ul style="list-style-type: none"> •Projected lower operating profit comparing with previous year 	Leverage
Nippon Yusen Kaisha	29.10 .09	Moody's	A3	<ul style="list-style-type: none"> •Market conditions •Continuous pressure on the earnings 	Negative	<ul style="list-style-type: none"> •Possible downgrade 	Market Conditions
Mitsui O.S.K Lines	29.10 .09	Moody's	A3	<ul style="list-style-type: none"> •Market conditions •Downward revised operating profit expectations of the company •Efforts on increasing freight rates by reducing capacity through laying up and selling ships 	Negative	<ul style="list-style-type: none"> •Expectation of slower earnings recovery 	Market Conditions

Nippon Yusen Kaisha	9.2.10	Moody's	Baa1	<ul style="list-style-type: none"> •High debt/EBITDA ratio 	Negative	<ul style="list-style-type: none"> •NYK will be unable to recover levels of profitability and financial leverage consistent with its previous rating until at least March, 2013 	Leverage
Pacific International Line	30.04.10	Moody's	B1	<ul style="list-style-type: none"> •Long track record of operating through various cycles in the liner industry •PIL's competitive profile and strong niche market position in the fast growing economies China, Middle East and Africa •Young and flexible fleet •Operating strategy and good liquidity management 	Stable	<ul style="list-style-type: none"> •PIL will gradually improve its operating performance •PIL's liquidity is sufficient to see it through the next two years, and to take delivery of its new vessels without incurring additional debt 	Operating Performance
Hapag Lloyd	23.09.10	Moody's	B1 (CFR) B3 (PDR)	<ul style="list-style-type: none"> •The credit rating action was based on limited historical data and characteristics of Hapag Lloyd. 	Stable	<ul style="list-style-type: none"> •Extremely weak financial results and credit metrics that HL will improve going forward 	Financial profile
CMA CGM	6.04.11	Moody's	Ba3	<ul style="list-style-type: none"> •Weakness of CMA CGM's credit metrics despite its strong business profile •Improving financial profile •Strong business profile due to its leading market positions gained from the successful commercial and operational strategies implemented by management and good cash flow generation •Company's strong asset base 	Stable	<ul style="list-style-type: none"> •Credit metrics will remain weak in the near future •After the market recovery, the agreement signed with Yildirim Holding and the signing of the restructuring agreements with the banks, CMA CGM will have stabilized its capital structure and liquidity profile 	Financial profile
CMA CGM	8.09.11	Moody's	B1	<ul style="list-style-type: none"> •Difficult operating environment with a financial performance materially below Moody's previous expectations despite a growth of volumes and revenues year on year 	Negative	<ul style="list-style-type: none"> •Increased capacity will cause highly competition 	Market Conditions
Yang Ming Marine Transport Co.	11.10.11	S&P (According to Taiwan national Scale)	BBB	N/A	Negative	N/A	N/A
CMA CGM	2.12.11	Moody's	B2	<ul style="list-style-type: none"> •CMA CGM's weak performance for the 	Negative	<ul style="list-style-type: none"> •Industry conditions would not further worsen and that 	Market Conditions

				<p>third quarter</p> <ul style="list-style-type: none"> •Poor performance of the industry during the peak season caused by oversupply 		<p>actually freight rates recover, at least modestly, in the last weeks of the year as well as in 2012, following the withdrawal of capacity currently underway on the main trade line</p> <ul style="list-style-type: none"> •Moody's assumption that CMA CGM's lenders will continue to remain supportive of CMA CGM 	
Nippon Yusen Kaisha	2.02.12	Moody's	Baa2	<ul style="list-style-type: none"> •Weak cash flow generating ability due to bad conditions of maritime industry (oversupply of vessels and downward pressure on freight rates) •Higher leverage •NYK maintains profits and strong customer relationships, based on its relatively large long-term contract businesses and stable non-shipping operations 	Negative	<ul style="list-style-type: none"> •Currently, Japanese companies enjoy access to the banking system which is liquid and willing to lend. This environment is expected to continue and to provide NYK with the capability to withstand the financial stress that is expected to continue for the intermediate term 	Market Conditions
Mitsui O.S.K Lines	2.02.12	Moody's	Baa1	<ul style="list-style-type: none"> •Weak cash flow •Challenging market conditions due to oversupply of vessels •Maintaining profits and strong customer relationship •MOL's stable and strong relationships with its major banks 	Negative	<ul style="list-style-type: none"> •Weak financial metrics •Moody's believes that the volatility of the industry has been increasing, while its overall tolerance for business risk is weakening •Adverse operating environment will continue due to demand-supply gaps and the uncertainty over the global economy 	Market Conditions
CMA CGM	13.03.12	Moody's	B3	<ul style="list-style-type: none"> •Weaker financial results than expectations cause liquidity negatively •Poor performance of the container shipping industry during 2011 caused by oversupply •Higher bunker costs but lower freight rates 	N/A	<ul style="list-style-type: none"> •As a result of the reduction of capacity on the main trade lines that is currently under way, freight rates could recover over the coming months as the volume of traffic increases 	Market Conditions
CMA CGM	21.03.12	Moody's	B3	<ul style="list-style-type: none"> •Review of the previous rating action 	Positive	<ul style="list-style-type: none"> •Sustained operating performance in 2013 leading to steadily improving credit metrics over time, provided that there are no significant macro-shocks that would affect the container shipping market 	Operating Performance
Wan Hai Lines	26.04.12	S&P (Accordi)	BBB	N/A	Negative	N/A	N/A

		ng to China national Scale)					
Wan Hai Lines	3.05. 12	S&P (Accordi ng to Taiwan national Scale)	A-	N/A	Negative	N/A	N/A
Hapag Lloyd	31.10 .12	Moody's	B2 (CFR) Caa1 (PDR)	<ul style="list-style-type: none"> •Market conditions •Falling demand •Reducing capacity to avoid a further reduction in freight rates (due to the high amount of chartered vessels that could be redelivered in the next year) 	Negative	<ul style="list-style-type: none"> •Lower profitability than rating agency was anticipating previously. 	Market Conditions
Mitsui O.S.K Lines	8.11. 12	Moody's	Baa3	<ul style="list-style-type: none"> •Weak earnings and cash flow •High financial leverage •Access to liquidity on the back of its strong relationships with Japanese financial institutions 	Negative	<ul style="list-style-type: none"> •Adverse operating environment will continue, in addition to the uncertainty in the global economy 	Leverage
ZIM Integrated Shipping Services	9.05. 13	S&P	CCC	<ul style="list-style-type: none"> •Weak liquidity •Market conditions 	Negative	<ul style="list-style-type: none"> •It is expected that ZIM restructure its large debt with banks in near term 	Liquidity
Nippon Yusen Kaisha	22.08 .13	Moody's	Baa2	<ul style="list-style-type: none"> •Very high debt leverage •Oversupply of vessels in maritime industry •Low freight rates 	Negative	<ul style="list-style-type: none"> •The ratings could be downgraded should there be any indication of a shortfall in the company's performance versus management's publicly stated guidance for FY3/2014. 	Leverage
Mitsui O.S.K Lines	22.08 .13	Moody's	Baa3	<ul style="list-style-type: none"> •Very high debt leverage •Market conditions (oversupply of vessels) 	Negative	<ul style="list-style-type: none"> •Given the negative outlook and market conditions, an upgrade is unlikely in the short-term •An upgrade will require a stabilization of the industry and a significant reduction in debt leverage 	Leverage
Hapag Lloyd	17.09 .13	Moody's	B2 (CFR) B2 (PDR)	<ul style="list-style-type: none"> •Good operating performance in the first half of 2013 •Conditions of container shipping market •Decreasing freight rates 	Negative	<ul style="list-style-type: none"> •It is expected that the company to improve its credit profile by continuing to reduce costs through its cost-saving program. •Bunker costs increasing beyond 2013 levels would put additional pressure on the ratings 	Operating Performanc e
Hapag Lloyd	19.09 .13	Moody's	Caa1	<ul style="list-style-type: none"> •Hapag Lloyd is a single entity after the 	Negative	N/A	Corporate Business

				reorganization of Hapag Lloyd AG Group			Profile
A.P Moller Maersk	25.09.13	Moody's	Baa1	<ul style="list-style-type: none"> •Company's global leadership in container shipping •Diversified business profile •Strong credit metrics, including moderate leverage •A focused and disciplined management team •Solid liquidity •Market cyclicality 	Stable	N/A	Size
CMA CGM	15.10.13	Moody's	B2	<ul style="list-style-type: none"> •More stable operating and financial profile following the completion of its restructuring and because of its strengthened liquidity position after the sale of 49% of its terminal business and an \$150 million equity injection as part of its restructuring 	Stable	<ul style="list-style-type: none"> •CMA CGM will be able to maintain its current operating performance, with the potential for further improvements over the next two to three years if market conditions improve 	Operating Performance
Mitsui O.S.K Lines	4.08.14	Moody's	Review	<ul style="list-style-type: none"> •Challenging container market conditions effects on earnings •Expectation of loss •High leverage for Baa3 level 	Negative	<ul style="list-style-type: none"> •Possible downgrade •Increasing investments of the company 	Market Conditions
Mitsui O.S.K Lines	4.11.14	Moody's	Baa3	<ul style="list-style-type: none"> •Market conditions (still oversupply of vessels) •High debt leverage •MOL is a core member of the Sumitomo Mitsui Group and maintains firm and stable relationships with its main bank •MOL's strong relationships with lenders and group companies of Japan support system 	Negative	<ul style="list-style-type: none"> •Moody's expects the company has turned the corner and will continue to de-leverage into next year •An upgrade is unlikely in the near or medium term. It will require sustained profit and cash flow growth 	Market Conditions
Hapag Lloyd	20.11.14	Moody's	Caa1	<ul style="list-style-type: none"> • High cyclicality in the market • Hapag-Lloyd was affected in the past few years by the combined effect of low freight rates, which constrained the company's profitability, and large capital expenditure, which increased its debt 	Negative	<ul style="list-style-type: none"> •Moody's expects that Hapag-Lloyd will improve its credit profile thanks to its ongoing efforts to boost its operating efficiency; •Cost savings derived from its acquisition of CSAV. Hapag-Lloyd has estimated that the merger with CSAV will result in \$300 million cost synergies. 	Market Conditions

				level.			
CMA CGM	19.12 .14	Moody's	B2	<ul style="list-style-type: none"> • CMA CGM's improving financial profile and continuing robust operating performance, which comes despite persistently challenging market conditions in the container shipping segment • CMA CGM's core EBIT margin was 5.1%, which is among the highest in its industry • The flexibility of its fleet CMA CGM can redeliver to their owners more than 80% of its chartered vessels within the next 12 months • CMA CGM has adequate liquidity 	Positive	<ul style="list-style-type: none"> •While freight rates have remained low and volatile during 2014, in particular on the East-West routes, CMA CGM pursued its cost-containment efforts and further reduced its operating costs per twenty-foot equivalent unit (TEU) 	Financial profile
Mitsui O.S.K Lines	3.02. 15	Moody's	Review	<ul style="list-style-type: none"> •Much slower earnings recovery than expected by Moody's •MOL's earnings benefited from the recent declines in bunker fuel prices and the weaker yen •Loss expectation 	Negative	<ul style="list-style-type: none"> •Possible downgrade 	Market Conditions
CMA CGM	12.05 .15	Moody's	B1	<ul style="list-style-type: none"> •Company's continued robust operating performance and resulting improvements to its financial profile despite challenging conditions in the container market •Highest profitability level in the industry 	Stable	<ul style="list-style-type: none"> •These improvements to persist in 2015 in spite of ongoing challenging market conditions in the container shipping segment •CMA CGM will maintain a top-tier operating performance and generate positive free cash flow within the next 12-18 months 	Market Conditions
Mitsui O.S.K Lines	16.06 .15	Moody's	Ba1	<ul style="list-style-type: none"> •Expectation that the company will not be able to deleverage fast enough to maintain its investment grade rating •Declined ordinary profit •Weak earnings and operating performance •Difficult market conditions • Very high debt leverage 	Stable	<ul style="list-style-type: none"> •It is expected that the market will remain weak 	Market Conditions
A.P Moller Maersk	17.06 .15	Moody's	Baa1	<ul style="list-style-type: none"> •Market conditions •Lower oil prices •Maersk Line's 	Positive	<ul style="list-style-type: none"> •It is expected APMM's leverage ratio to increase in 2015 to close to 2x 	Market Conditions

				continuing cost-cutting efforts			
CMA CGM	17.06 .15	Moody's	B1	<ul style="list-style-type: none"> •Profitability level 	Positive	<ul style="list-style-type: none"> •These improvements to persist in 2015 in spite of ongoing challenging market conditions in the container shipping segment 	Profitability
Hapag Lloyd	17.06 .15	Moody's	B2	<ul style="list-style-type: none"> •Reduction in the debt adjustment related to operating leases •Its increased scale from the integration of the recently-acquired container shipping activities of the Chilean company Compania Sud Americana de Vapores (CSAV, unrated); 	Stable	<ul style="list-style-type: none"> •It is expected that Hapag-Lloyd will improve its credit profile thanks to its ongoing efforts to boost its operating efficiency •Cost savings derived from the integration of CSAV (estimated at \$300 million). 	Operating Performance
Nippon Yusen Kaisha	17.06 .15	Moody's	Baa2	<ul style="list-style-type: none"> •NYK's position as one of the world's largest shipping companies •NYK's ordinary profit surged 44% to JPY 84.0 billion from JPY 58.4 billion a year ago •Reduction of costs due to low oil prices supports earnings 	Stable	<ul style="list-style-type: none"> •Moody's experts expect that modest earnings growth and debt reduction, which together will lead to continuous and gradual deleveraging 	Size
Hapag Lloyd	29.09 .15	Moody's	B2	<ul style="list-style-type: none"> •Company's improved operating performance since the beginning of 2015, driven by the lower bunker fuel price and fundamental changes to its operations and cost structure. •During H1 2015, Hapag-Lloyd reported EBITDA of EUR493 million, a significant increase from EUR67 million in H1 2014. 	Positive	<ul style="list-style-type: none"> •Moody's expects that these improvements will further improve Hapag-Lloyd's financial profile in the coming quarters, despite challenging market conditions in the container shipping industry. 	Operating Performance
CMA CGM	7.12. 15	Moody's	B1	<ul style="list-style-type: none"> •CMA CGM's potential acquisition of NOL would strengthen its business profile •CMA CGM's capacity by approximately a third (based on pro forma September 2015 data), consolidating its position as the third-largest player in the container shipping segment 	Stable	<ul style="list-style-type: none"> •CMA CGM's financial profile will return to a profile in line with the B1 rating within 18 months after the closing of the NOL acquisition •CMA CGM will maintain an adequate liquidity profile and refinance the acquisition financing well in advance of its maturity 	Corporate Business Profile
Mitsui O.S.K	4.02. 16	Moody's	Ba1	<ul style="list-style-type: none"> •Weaker than expected profitability for the 	Negative	<ul style="list-style-type: none"> •It is expected that the container segment will 	Profitability

Lines				fiscal year due to the challenging market conditions •Volatility of the operating environment •Weak level of earnings •Higher leverage than expected		remain in oversupply for at least the next 12-18 months, potentially depressing pricing further	
A.P Moller Maersk	16.02.16	Moody's	Baa1	•Challenging market conditions (oversupply) •Sharply decline of freight rates •EBITDA down by 21%	Stable	•Cash flow generation from operations, which Moody's expects to be \$5 billion-\$6 billion in the next 12 months	Market Conditions
Mitsui O.S.K Lines	6.05.16	Moody's	Review	•Low freight rates •Expected earnings decline	Negative	•Possible downgrade	Market Conditions
Nippon Yusen Kaisha	10.05.16	Moody's	Baa2	•High debt leverage •Oversupply of vessels in maritime industry •Low freight rates	Negative	•An upgrade is unlikely in the near term	Leverage
Nippon Yusen Kaisha	3.08.16	Moody's	Review	•Slower earnings recovery than expected	Negative	•Possible downgrade	Profitability
Mitsui O.S.K Lines	3.8.16	Moody's	Ba1	•Realized half of the expected earnings •Low freight rates due to oversupply of vessels •Very high debt leverage	Negative	•An upgrade for MOL is unlikely in the near term given the current challenging market conditions	Profitability
Nippon Yusen Kaisha	2.11.16	Moody's	Baa3	•Low cash flow due to low freight rates •Slower financial recovery than expected	Negative	•Moody's expects ordinary loss end of the financial year	Market Conditions
Hyundai Merchant Marine	13.02.17	Moody's	BB (from D)	•After bankruptcy of Hanjin, HMM gained good share of Hanjin's customer •Increasing market share	N/A	N/A	Size

As seen in Table 4, market conditions are the factor that most affect maritime company credit rating actions. In 23 of the 69 observations, market conditions are disclosed as the main factor; and in 15 observations, the effect is negative. Contrarily, when the external market conditions improve, rating actions were affected positively.

Table 4. Relevant factors in determining maritime company credit rating actions

Main Determinant	Negative	Positive	Stable	N/A	Grand Total
Market Conditions	15	2	5	1	23
Operating Performance	1	3	6		10
Leverage	6	1	2		9
Profitability	3	2	2		7
Financial profile		2	3		5
N/A	4			1	5
Size			3	1	4
Corporate Business Profile	1	1	1		3
Cash flow generation			1		1
Growth		1			1
Liquidity	1				1
Grand Total	31	12	23	3	69

The second most effective factor is operating performance. The disclosures on operating performance mostly lead to stable credit ratings. While the third most effective factor, high leverage is mostly associated with negative credit rating actions. Other effective company-specific factors are profitability, financial profile, company size, corporate business profile, cash flow generation, company growth and liquidity. The “financial profile” and “corporate business profile” factors are more opaque than other factors. Disclosures on financial profile generally states an improvement in the financial profile, yet does not indicate the company-specific financial elements. Similarly, corporate business profile is mostly linked to the company and its’ subsidiaries characteristics, however, the disclosures lack detailed information on these characteristics.

When the observations are examined by years, as shown in Table 5, it is seen that the macro-economic factor, market conditions, are dominant in determining the credit rating actions mostly in 2000, 2001, and after 2008.

Overall, the results indicate that when there is a global economic downturn, company-specific factors are less effective in determining maritime company credit ratings.

Table 5. Relevant factors by years

Year/ Relevant Factor	N/A	Negative	Positive	Stable	Grand Total
2000			2		2
Corporate Business Profile			1		1
Market Conditions			1		1
2001				2	2
Market Conditions				2	2
2002				1	1

Leverage				1	1
2003				1	1
Leverage				1	1
2004				4	4
Cash flow generation				1	1
Operating Performance				3	3
2005			3	2	5
Financial profile				1	1
Growth			1		1
Operating Performance			1		1
Profitability			1	1	2
2006				1	1
Size				1	1
2007			2	1	3
Financial profile			1		1
Leverage			1		1
Profitability				1	1
2008		2			2
Market Conditions		1			1
N/A		1			1
2009	1	4			5
Leverage		1			1
Market Conditions		3			3
N/A	1				1
2010		1		2	3
Financial profile				1	1
Leverage		1			1
Operating Performance				1	1
2011		3		1	4
Financial profile				1	1
Market Conditions		2			2
N/A		1			1
2012	1	6	1		8
Leverage		1			1
Market Conditions	1	3			4
N/A		2			2
Operating Performance			1		1
2013		5		2	7
Corporate Business Profile		1			1
Leverage		2			2
Liquidity		1			1
Operating Performance		1		1	2

Size				1	1
2014		3	1		4
Financial profile			1		1
Market Conditions		3			3
2015		1	3	5	9
Corporate Business Profile				1	1
Market Conditions		1	1	2	4
Operating Performance			1	1	2
Profitability			1		1
Size				1	1
2016		6		1	7
Leverage		1			1
Market Conditions		2		1	3
Profitability		3			3
2017	1				1
Size	1				1
Grand Total	3	31	12	23	69

5. Conclusion

Maritime demand is driven by global economic growth and transportation needs. Since the 2008 financial crisis, world trade volume has aggressively declined. In turn, we see that the maritime industry was one of the most negatively affected industries by the crisis (UNCTAD, 2010). Maritime companies are also exposed to natural disasters and have been threatened by political unrest. These factors, coupled with rising and volatile energy and commodity prices have negatively affected the industry. With an increase in demand in 2010, a positive turnaround in trade volume was recorded, particularly in the container trade. However, the future outlook and the over-supply issues remain critical since the sector is vulnerable on the same indefiniteness and shocks that face the world economy (UNCTAD, 2011).

Our findings show that macro-economic factors determine the credit ratings of maritime companies. Specifically, after the 2008 financial crisis, the CRA disclosures on company specific factors have dramatically decreased.

The reason behind this finding may be the opaque nature of maritime companies and high costs of obtaining private information to evaluate firm-specific factors. However, opacity prevails in credit rating actions in line with the arguments of Bona & Ribeiro (2009), Elkhoury (2008) and Murcia et al. (2014). Although the disclosures on external market conditions provides insight, in most observations, factors such as “financial profile” and “corporate business profile” lack detailed information disclosed to the investors. Thus, it may be concluded that the credit rating process of maritime companies lacks transparency, and rely mostly on market risks.

The main limitation of this study is the sample size. An examination into the reasons behind

the issue of opaqueness, and the ways to enhance the disclosed information and transparency for maritime company credit rating actions, could be considered as future research.

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