Vessel Risk Ratings Report Summary

February 2017

About the International Marine Risk Rating Agency:

IMRRA's vessel risk rating assessments identify high risk oil & gas vessel's, and compares the risk directly compared to the oil & gas fleet average. The data analysis includes vessel risk ratings by vessel age, vessel class (size), and vessel type.

2016 Report Summary:

The following categories were used as key performance indicators to track and review vessels and dynamic trends in the oil shipping industry, with the view of vessel risk and safety between June 2016, and December 2016.

The data analysed is from vessel risk rating assessments researched during the second half of 2016, when IMRRA analysed over 15,239 vessels, or 77,322,507 DWT.

Below is the summary analysis of 2016's Q3 & Q4 trends according to Vessel Type, Vessel Age, and Vessel Size. More information is available upon request.

1. Vessel Risk Ratings according to Size and Type:

1.1. Oil Tankers

1.11. Q4 2016: During the last quarter average risk rating fell from 40.8% to 40.0%.

1.12. Six-month analysis: (Jun/Dec 2016): Average risk rating declined from 41.2% to 40.0%.

1.13. Annual (2016): During 2016 there was a positive correlation with risk assessments dropping from 41.5% to 40.0%.

Summary: There was an increasingly positive movement of oil tanker risk ratings towards the end of 2016.

1.2. Chemical/ Oil Tankers:

1.21. Q4 2016: Average risk rating dropped from 40.8% to 40.0%.

1.22. Six-month analysis (Jun/Dec 2016): Average risk rating declined from 41.1% to 40.0%.

1.23. Annual: (2016): For the annual 2016 comparative analysis of average risk rating moved from 41.3% to 40.0%.

Summary: Following the same relative downward risk trend as Oil Tankers, tanker safety is increasing with a lower, safer risk rating.

1.3. Types LPG/ LNG Tanker:

1.31. Q4 2016: Risk rating of LPG/LNG Tankers was 42% at the beginning of October 2016, interestingly there was a positive correlation of risk reduction until end of November 2016 to 41.7%, and then negative growth throughout December 2016 to 42%.

1.32. Six-month analysis: (Jun/Dec 2016): For last six-months of 2016 comparative analysis of average risk rating shows decrease from 42.4% to 42.0%.

1.33. Annual: (2016): Risk ratings moved positively from 42.5% to 42.0%.

1.34. Statistical Influences on influencing vessel risk ratings; IMRRA identified the following as being the most influential indicators regarding a vessel's risk rating, and possible causes of risk ratings increasing during December 2016.

1. Dry dock surveys;
2. Fire safety;
3. Alarm systems;
4. Casualty / Incident / Accident;
5. Condition Assessment programme (CAP) rating;
6. Crew qualifications are not acceptable for vessel type;
7. Deadweight;
8. Geographic location;
9. Safety/Terminal inspections;
10. PSC inspections;

Vessel Size and Type Summary Conclusion:

IMMRA's risk ratings demonstrate there is a positive correlation between the dynamic information IMRRA assesses and researches (Crew proficiency; Inspection Reports; Port State Control & US Coast Guard; Safety inspections & reports from industry databases; Self-test audit reports; Terminal's feedback), and these factors are becoming more consistent with the IMO's standards for increasing vessel safety.

Tanker safety standards are rising even though oil prices declined in 2016. Contributory factors included the increase in global oil trade combining strongly with port congestion, creating strong demand for tankers, resulting in lower operating costs for tanker fleets.

New build tanker deliveries: 2016 was the busiest year for deliveries since 2012. According to Bloomberg, 137 new oil tankers are scheduled for delivery in 2017, with 148 deliveries in 2018 (BIMCO).

Last, anecdotally IMMRA risk assessed more vessels during 2016 than in the previous three-years. This was also evidenced in undertaking vessel risk assessments for the LPG/ LNG industry.

2. Vessel Risk Ratings According to Age

2.11. Vessel Age <10 years: **Q4 2016:** Over the last quarter the average risk rating dropped by 0.9% from 36.9% to 36.0%.

2.12. Six-month analysis: (Jun/Dec 2016): For the six-monthly comparative analysis of average risk rating there as reductions of 1.3% from 37.3% to 36.0%.

2.13. Annual; (2016): Again, the overall risk trend was positive from, with a reduction of 1.4%. For the yearly 2016 comparative analysis, the average risk rating reductions was positive reduction from 37.4%

to 36.0%.

2.14. Vessel Age 10-20 years: **Q4 (Oct/Dec 2016)**: During Q4 the average risk rating dropped from 42.5% to 42.2%.

2.15. Six-month analysis: (Jun/Dec 2016): For the last six-months of 2016 the 2016 average risk rating moved from 42.6% to 42.2%.

2.16. Annual (2016): For the annual 2016 average risk rating decreased from 42.7% to 42.2%.

2.2. Vessel Age >20 years:

2.21. Quarterly (Oct/Dec 2016): Over the last quarter an average risk rating dropped from 56.1% to 55.0%.

2.23. Six-month analysis: (Jun/Dec 2016): For the last six months of 2016 the average risk rating rating shows a reduction from 57.1% to 55.0%.

2.24. Annual: (2016): For the annual 2016 average risk rating reduced by 2.1% from 57.1% to 55.0%.

Vessel Age Risk Summary Conclusion:

All vessel less than 10 years old demonstrate a positive dynamic to the average risk (37%) or below it.

Vessels that are between 10-20 years old are risk rated slightly above the average risk (37%), demonstrating a positive relationship, but the correlation is smaller compared to the vessels less than 10 years old.

All vessels over 20 years old have a higher risk. Analysis has shown they more often have a negative dynamic and statistical relationship. Also, single hull vessels are more prone to oil spill risk, and in general there is less demand, with exceptions for use as barges or coastal vessels.

IMRRA's Analysis of Vessel Age; Risk Reduction Analysis requires data on the following areas:

1. Dry dock surveys;
2. Geographic location;
3. Safety/Terminal inspections;
4. Condition Assessment programme (CAP) rating;
5. Hull type;
6. Casualty / Incident / Accident;
7. PSC inspections

3. Vessel Risk Ratings According to Vessel Type

3.1. Coastal/Inland Vessels

3.12 Quarterly (Oct/Dec 2016): During Q4 the average risk rating dropped from 43,1% to 41,9%.

3.12 Six-month analysis: (Jun/Dec 2016): For 2016's Q3 and Q4 demonstrates a positive change from 44,7% to 41,9%.

3.13 Annual: (2016): Overall, the annual 2016 average risk rating reduced from 44,9% to 41,9%.

3.2. Handysize Vessels

3.21. Quarterly (Oct/Dec 2016): Over the last quarter of average risk rating dropped by 0.7% from 41.8% to 41.2%.

3.22. Six-month analysis (Jun/Dec 2016): For the six-months the average risk rating shows reduced by 0.8% from 42.0% to 41.2%.

2.23. Annual: (2016): The annual 2016 average risk rating decrease from 42.1% to 41.2%.

3.3. Handymax Vessels

3.11. Quarterly (Oct/Dec 2016): During the last quarter an average risk rating dropped from 38.2% to 37.8%.

3.12. Six-month analysis: (Jun/Dec 2016): For the last six-months analysis of average risk rating shows change from 38.7% to 37.8%.

3.13. Annual (2016): The annual average risk rating decreased from 38.6%. to 37.8%.

3.4. Panamax Vessels

3.41. Quarterly (Oct/Dec 2016): Over the last quarter an average risk rating dropped from 37.1% to 36.7%.

3.42. Six-month analysis: (Jun/Dec 2016): For the last six-months analysis of average risk rating shows positive change from 37.3%. to 36.7%.

3.43. Annual: (2016): The annual 2016 average risk rating decreased from 37.4%. to 36.7%.

3.5. Aframax Vessels

3.51. Quarterly (Oct/Dec 2016): Risk rating was 38.6 in October 2016, a decrease of risk in November 2016 till 38.5%, but a slight increase in December 2016 to 38.6%.

3.52. Six-month analysis: (Jun/Dec 2016): For the last six-months of 2016 there was an increase in risk rating by 0.3% from 38.3% to 38.6%.

3.53. Annual: (2016): Annual analysis of average risk rating shows an increasing trend from 38.3% to 38.6%.

IMRRA's interpretation is the widespread use by non-OPEC countries, whose harbors and canals through which oil are exported are too small to accept supertankers (VLCC and ULCC). The end effect is higher traffic volumes and risk using smaller vessels.

3.6 Suezmax Vessels

3.61. Quarterly (Oct/Dec 2016): During the quarter the average vessel risk rating dropped from 37.6% to 37.3%.

3.62. Six-month analysis: (Jun/Dec 2016): For the last six-months the average risk rating shows positive change of 0.6% from 37.9% to 37.3%.

3.63. Annual: (2016): For the annual 2016 comparative analysis of average risk rating shows positive change from 37.9% to 37.3%.

3.7. VLCC/ULCC Vessels

3.71. Quarterly (Oct/Dec 2016): Over the last quarter the average risk rating dropped from 41.8% to 40.8%.

3.72. Six-month analysis (Jun/Dec 2016): For the last six-months the average risk rating shows positive change of 1.4% from 42.2% to 40.8%

3.73. Annual: (2016): For the last six-months the average risk rating shows change from 42.3% to 40.8%.

Vessel Type Summary Conclusion

An explanation for the risk rating decline is vessels operating in coastal waters has improved some of statistical and dynamic criteria.

Example statistical criteria includes:

1. Casualty History & Incidents
2. Classification Society Performance
3. Company Operator Pertatic risk factors are based on the following example information:
4. Casualty History & Incidents
5. Classification Society Performance
6. Company Operator Performance
7. nsurance claim history
8. Vessel Particulars performance
9. Insurance claim history
10. Vessel Particulars

Dynamic risk factors are derived from variable information such as:

1. Crew proficiency
2. Inspection Reports
3. Port State Control & US Coast Guard

4. Safety inspections & reports from industry databases
5. Self-test audit reports
6. Terminal's feedback