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Amphibious Risk Management History of Shipping Industry

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Abstract: Risk management in the shipping industry can be defined as amphibious because of being effected by nautical and terrestrial business lines. The overall objective of this paper is to evaluate historical perspective of shipping risk management in three periods as; Great Depression, 1973 petrol crisis and 2007-2008 global financial crisis. In order to reach this aim, historical background of shipping industry and antecedents have been defined within literature review. The literature review has been concluded with shipping industry related concepts, contexts, and conjunctions. As a conclusion the study provides a basis for anticipating future directions in risk management of shipping industry.
Keywords: Risk, risk management, shipping industry, global financial crisis, historical review

1. Introduction

"The person who risks nothing, does nothing, has nothing, is nothing, and becomes nothing. He may avoid suffering and sorrow, but he simply cannot learn and feel and change and grow and love and live".

Leo Buscaglia

Each process and decision in business is prone to uncertainty. Since wrong assessments and misjudgments may lead to unforeseen developments, which may have important consequences when detected (too) late, uncertainties need to be continuously monitored and managed. Along with the increasing number of relevant uncertainties, the importance assigned to risk considerations has grown (Heckmann et al., 2015).

In order to understand risk management history, it is substantial to understand the term of "risk". In compliance with ISO (International Organization for Standardization) 31000:2009 Risk Management Principles and Guidelines, all types and sizes of companies face internal and external factors and impresses that make it unclear when they will reach their aims. All operations of a company contain risk. The same guideline defines risk management as "coordinated activities to direct and control an organization with regard to risk".

On the other hand, risk management is related with controlling operational and strategic factors of firms' activities. It can be defined as "coordinated activities to direct and control an organization with regard to risk and the risk management framework is embedded within the organization's overall strategic and operational policies and practices" (ISO Guide 73:2009, definition 2.1).

In generally all companies face the risk and risk management activities. However the concept of shipping require more elaborate risk management strategies. This is what makes the shipping field challenging and compelling when compared with other sectors.

Investment in ships is riskier than in other assets. This is mainly the consequence ofthe highly capital intensive nature of the industry, coupled with its inherent cycle (Cushing, 1997, p.2; Ma, 2008, p.5). Apart from this, supply does not create its own demand in the shipping field.It is the prospect of high earnings potential at a given time that encourages ship owners to make investment in building new ships. On the other hand, the time taken between the order being placed and the real delivery date in the long run offers does not guarantee to the owners for recovering their new ship investment (Bhirugnath, 2009).

Shipping market participants have always been faced with important and difficult investment decisions because of the complex and volatile nature of the shipping industry. While volatility in ship prices and freight rates offers the opportunity for large profits, it can also lead to huge losses. Therefore, as with any other business, assessing and monitoring volatility is important part of shipping investment and risk management activities, for several reasons. First, being aware of the magnitude of risk exposure, shipping companies can employ risk management techniques to reduce and/or control the overall financial risk of the firm. Second, lenders (banks) financing ships can assess their risk in providing funds to shipowners. Third, traders can asses any changes in the value of their portfolios under the small probability that the market crashes (Alizadeh, Nomikos, 2009).

According to Stopford (2009) the shipping industry itself includes high volatility. From the technical aspect, risk of the shipping business may be described as quantifiable charge of any financial deprivation derived from unexpected imbalance between demand and supply in the sea transport. Furthermore the risk related volatility of shipping business is stemmed from freight rates that are designated by shipping market's supply and demand (Stopford, 2009). On the other hand, Ghiorghe and Ana Maria (2012) states that the risk in the shipping industry is derived from fluctuations of freight rates in the market.

In order to reveal the impact of the fluctuations on the freight market and risk related management techniques in the shipping business, it is required to specify the details of economic mechanism. Despite of the fact that the shipping business is enclosed with financial risks this study has focused on prominent global financial crises which have great impact on freight rates.

2. Literature Review

2.1. Risk and Risk Management

The term of risk must be clarified in order to understand risk management. The content of risk has changed from past to present in different meanings. Actually it was symbolized by interaction of severity and likelihood of something occurring. However, there is no definite consensus of description for risk because it is perceived as both threat and opportunity, or as negative or positive (Langenhan et.al.,2012). That's why general risk definitions will be used in this study.

There are a number of terminological issues discussed in literature relating to risk, According to Macquarie dictionary risk is the state of being open to the chance of injury or loss (Furlong et.al., 2017).

The origin of the word risk cannot be clearly determined, since this term seems to have roots in different cultures. An etymological analysis of the European notion of risk leads to the Greek navigation term rhizikon, describing the need to avoid "difficulties at the sea". Understood in this sense, the best approximation of the meaning of risk would be fear or adventure. The former refers to commercial activities and implies physical and mental distress, whereas the lattermeans pecuniary ventures as a strategy to engross the self-worth. In the 14th century, when the maritime trade between Northern Italian city states started to increase, traders adopted this perception and regarded risk as the danger of losing their ships. For instance a spice merchant would think of potential situations that could cause his ship to be lost: storms, piracy, mutiny of the crew, or diseases. Today, these 'what-ifstories' are largely used in planning and commonly referred to as scenario (Furlong et.al., 2017).

Aven reported ninedifferentcharacterizationsoftheriskdefinitions and the six thought-constructed development paths identified for them from 1700 until today. According to Lowrance, who, in 1976, "Risk is a measure of the probability and severity of adverse effects." the risk is closely relatedtoseveralfactorsthatmustbepreliminarilydefined before the elaboration of the conceptual model for the risk assessment (Andretta, 2014).

In the complex business environment of today, the companies that try to understand risk and its impressions are incrementally interested in risk management. Risk management can be defined as identification, assessment and prioritization of risks (Langenhan et.al.,2012).

Risk management is a relatively recent corporate function. Historical milestones are helpful to illustrate its evolution. Modern risk management started after 1955. Since the early 1970s, the concept of financial risk management evolved considerably. Notably, risk management has become less limited to market insurance coverage, which is now considered a competing protection tool that complements several other risk management activities. After World War II, large companies with diversified portfolios of physical assets began to develop self-insurance against risks, which they covered as effectively as insurers for many small risks. Self-insurance covers the financial consequences of an adverse event or losses from an accident. A simple self-insurance activity involves creating a fairly liquid reserve of funds to cover losses resulting from an accident or a negative market fluctuation. Risk mitigation, now frequently used to reduce the financial consequences of natural catastrophes, is a form of self-insurance (Dionne, 2013).

At the same time, the definition of risk management became more general. Risk management decisions are now financial decisions that must be evaluated based on their effect on firm or portfolio value, rather than on how well they cover certain risks. This change in the definition applies particularly to large public corporations, which, ironically, may be the companies that least need risk protection (apart from speculation risk), because they are able to naturally diversify much more easily than small companies. In particular, shareholders can

diversify their portfolios on financial markets at a much lower cost than the companies whose shares they hold (Dionne, 2013).

As a simple definition, risk management is the systematic application of the management policies, procedures and practices to the tasks of identifying, analyzing, assessing, treating and monitoring risk (Bedek, Njavro, 2015).

Risk management always runs the following steps: search and identify key risks, select measurement techniques and evaluate their relationship, finding ways to limit those risks and to decide of the strategies, in a process continuously under control and evaluation (Oliveira, 2014).

Risk management may be defined as the process whereby decisions are made to accept a known or assessed risk and/or the implementation of actions to reduce the consequences or probability of occurrence." (ISO 8402:1995/BS 4778).

The process of managing risks is dynamic and cyclical (Fig. 1), whereby it needs tobe endlessly adapted to the demands of the external environmentand internal capabilities (Langenhan et.al.,2012).

Figure 1: The Formal Risk Management Cycle
Source: Langenhan et.al.,2012

In many organizations, the management of risks with positive consequences is separate from the management of risks with negative consequences. ISO 31000:2009 is clear that the risk management process (shown in Figure 2 below) is the same for risks regardless of the nature of their consequences (ISO 31000, Risk Management).

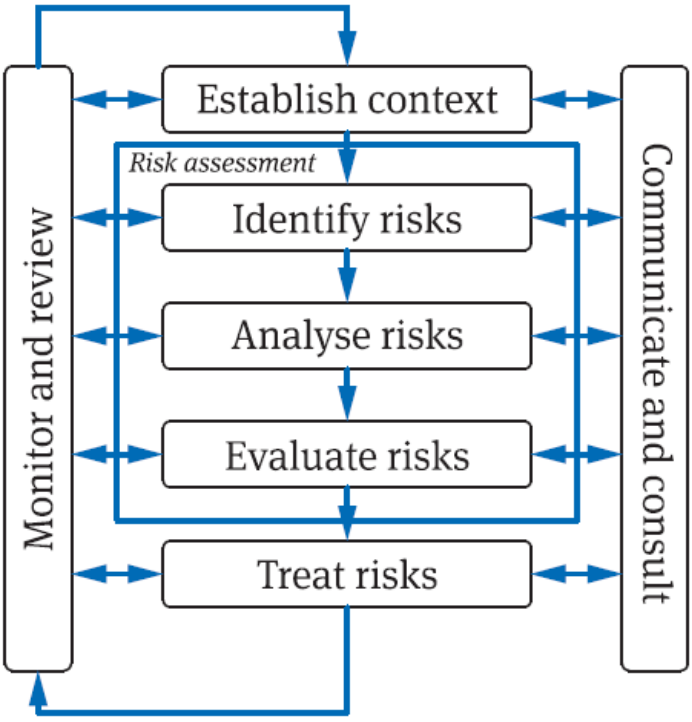

Figure 2: The ISO 31000:2009 Risk Management Process
Source:ISO 31000:2009

2.2. Shipping Risk

In the shipping business, what is termed as "shipping risk" essentially revolvesaround the huge capital investment that is involved. If vessels are limited, the shipowners make a fortune but when there is excess tonnage in the market, investorshave to bear the high opportunity costs of vessels being idle. Therefore, as observedby Kavussanos (2002, p.688), shipping risks mainly emanate from fluctuations in freight rates and bunker prices which subsequently affect the price of the investment, which is obviously the main concern of ship owners and potential investors (Meenaksi, 2009).

The freight rates in the shipping industry are extremely important for the price of the stock to a shipping company, since the freight rates determine the income to the shipping company. Moreover, investment in shipping stocks can be very difficult, since these stocks might vary a lot. This because the shipping industry is extremely volatile, where supply and demand of the freight rates determines the income to a shipping company, and thereby its stock price, which again affect the price of the option related to the shipping companies (Widiantoro, Elvenes, 2012).

The shipping industry is embedded with risk. Besides, it is the fluctuation in the freight rates that create the risk in the shipping industry. In order to understand the fluctuations of the freight rates one have to understand the economic mechanism. The freight rates are determined by the supply and demand. The freight rates are the earnings to a shipping company. This earning affects the value of the shipping company. Generally, if the freight rates are high, then the earning to the shipping company will also be high. Thus, the stock to the shipping company will be high. If the opposite happens, i.e. freight rates are low, and then the value of the shipping company will be low. However the factor that determines the price of shipping stock in financial market is not always on freight rates. This phenomenon become more attractive since the shipping industry has allegation about inefficiency in this market. Inefficiency here means that there is possibility for some player to get own benefit based on imperfectness of the shipping market information (Widiantoro, Elvenes, 2012).

In theory, the shipping industry is known to operate under conditions of competitive markets which entail the interaction of large numbers of buyers and sellers in the trade of a homogenous product, which is sea transport services, and allowing the free entry and free exit of investors given that information flow is assumed

to be fluid. When the industry operates at a level where the earnings exceed the operational costs, it attracts new investors. As the share of the industry's aggregate profit gets constantly eroded with the entry of subsequent new entrants over time, in parallel a point is reached as gradually the supply of services exceeds the aggregate demand sothat the price of the service offered is lowered to a level where operating costs are barely met. At this point, speculative investors leave the market. Slowly, the industry recovers from the depressed market conditions and restores its equilibrium position whereby earnings from operating activities cover its operating costs. In the long run, demand builds up as the global economy flourishes, existing operators again benefit from abnormal profits which is shortly followed by the influx of speculative investors as the merry-go-round continues. In theory, this is basically how the dynamics of the free market is believed to regulate itself over time (Meenaksi, 2009).

Business risks can be classified in three categories: price risk, credit risk and pure risk (Alizadeh, Nomikoh, 2016).

- **Price risk:**Price risk refers to uncertainty over the magnitude of cash flows, due to possiblechanges in output and input prices. *Output price risk* refers to the risk ofchanges in the prices that a firm can demand for its goods and services. *Inputprice risk* refers to the risk of changes in the prices that a firm must pay forlabor, raw materials etc. These risks are mainly external to the individualcompany and companies do not have any direct control of the price determinationof those external factors. For a shipping company, following sources of price risk can be classified:

  - *Freight-rate risk:*Freight-rate risk refers to the variability in the earnings of a shipping companydue to changes in freight rates. This is perhaps the most important source ofrisk for a shipping company, since volatility in the freight market has a directimpact on the profitability of the company.
  - *Operating-costs risk:* In addition to freight-rate volatility, volatility on the costs side is also a factoraffecting the profit margins of shipping companies. Perhaps the mostimportant cost components for a shipping company is the cost of fuel oil,called bunkers, used by the vessel in performing a voyage. Bunker costs, onaverage, account for more than 50 per cent of the total voyage costs and, as a result, sharp and unanticipated changes in bunker prices have a majorimpact on the operating profitability of shipping companies and ship operators.This is because bunker prices are naturally related to world oil prices, which have been shown to exhibit substantial variability both in the short and long term. Therefore, it is of utmost importance for shipping companiesand ship operators to control their exposure to bunker-market fluctuations, in order to secure their operating profit (Alizadeh, Nomikoh, 2016).
  - *Interest-rate risk:*Interest-rate risk arises from exposure to changes in interest rates. Due to thecapital-intensive nature of shipping, and the fact that most vessel acquisitionsare financed through term loans priced on a floating rate basis, unanticipatedchanges in interest rates may create cash flow and liquidity problemsfor companies which may no longer be able to service their debt obligations (Alizadeh, Nomikoh, 2016).
  - *Asset-price risk:*Asset-price risk arises from fluctuations in the price of the assets of the company.For a shipping company, the major asset is of course the value of itsships. Volatility of ship prices is an important factor for shipowners, notonly because it affects the balance sheet value of the company, but alsobecause a reduction in the value of a ship may affect the creditworthinessof a shipowner and its ability to service debt obligations, because ships areused as collateral in ship-finance transactions. For this reason, ship-financebanks, shipowners and ship operators tend to monitor ship-price volatilityand incorporate such information in their lending and investment decisions (Alizadeh, Nomikoh, 2016).

- **Credit risk:**Credit risk, also known as 'counter-party risk', is the uncertainty surroundingwhether a counter-party to a transaction will perform its financial obligationsin full and on time. Examples of credit risk include the failure of a debtor torepay a loan, or the failure to receive a payment for a product or servicewhich a firm has provided. Credit risk in shipping arises because most ofthe deals, trades and contracts are negotiated directly between the counterparties,which means that the two parties agree to do business with eachother and rely on each other's ability to honor the agreement. The agreementcould be a charter contract between a shipowner and a charterer, a newbuilding contract between an investor and a

shipyard, a freight-derivativestransaction between two investors, or even a bunker transaction between ashipowner and a bunker supplier. In any case, parties to contracts can beexposed to each other's ability to perform the contract (Alizadeh, Nomikoh, 2016).

- **Pure risk:**This is defined as the risk of reduction in the value of business assets due tophysical damage, accidents and losses; it also covers the risk of loss due tophysical risks, technical failure and human error in the operation of the assetsof a company, as well as the risk of legal liability for damages as a result ofactions of the company. For a shipping company, for instance, pure riskcan include the risk of a collision, accidents or liability from oil or chemicalspillage (Alizadeh, Nomikoh, 2016).

The distinguishing factors between price risk and pure risk are that, ingeneral, the potential liability for a company as a result of a pure risk (such asan accident, collision, oil pollution liability etc.) can be very large in relationto the size of the business and may even threaten the firm's viability.Inaddition, the underlying causes of factors associated with pure risks are oftenspecific to a particular firm and depend on a firm's actions. As a result, companiescan reduce the frequency and severity of losses through actions thatalter the underlying causes. For instance, by chartering a well-maintaineddouble-hull tanker vessel, the likelihood of an oil spill and the potentialseverity of such loss will be significantly reduced. In contrast, companieshave very little control on the underlying factors that drive price risk. Forinstance, the economic factors that cause interest rates, and, hence, the costof borrowing, to increase are beyond the control of an individual shipowner.Pure risks are usually managed by purchasing insurance contracts. Due tothe firm-specific nature of pure risks, which implies that events causing largelosses to a given firm will have very little impact on losses experienced byother firms, insurance companies which underwrite these risks can reducetheir exposure through diversification. On the other hand, insurance contractsare not used for managing financial losses arising from price risk since,in general, price risk affects a large number of firms at the same time and, hence, an insurance contract in that case would be extremely expensive.Instead, price risk is usually managed through derivative contracts, such asforwards, swaps and options, which enable price risk to be shifted to participantswho may have an opposite exposure to the particular risk. For instance, an increase in the level of freight rates will have a positive impact on the cashflows of a shipowner but will have a negative impact on the cash flow of acharterer; consequently both parties can then manage their risk by takingopposite positions in a freight derivative contract (Alizadeh, Nomikoh, 2016).

3. Amphibious Risk Management History of Shipping Industry

Historically the shipping business has been influenced from great variety of economic developments. In this risk management history of shipping industry has been examined in three periods as follows; 1929 Great Depression, 1973 Oil Crisis and 2007-2008 global financial crises.

3.1. Risk Management of Shipping in 1929 Great Depression

The Great Depression remains, without question, the longest, deepest, and broadest economic contraction that the industrialized world has ever known.

Despite the focus on trade policy in the literature, other forms of trade barriers also arose. The surge in the barriers highlighted in the studies cited above also seems to be attributable to non-tariff barriers, greater exchange-rate volatility, rises in foreign shipping costs relative to domestic shipping, and a lack of international trade credit. The demise of the international gold standard raised exchange-rate volatility and increased uncertainty in international transactions, while the relative costs of shipping goods on ocean-going tramp shipping lines rose considerably from the mid-1920s (Grossman, Meissner, 2010).From 1929 to 1933, nominal U.S. GDP contracted by 29%, prices declined by 25%, unemployment reached 25%, more than 9,000 banks suspended operation1 and some areas of the U.S. even experienced a return to the barter system (Eigner, Umlauft, 2015).

During the Great Depression, the banking industry reacted with a high number of bank failures, whereas the government resorted to a historically unique bailout of the world's largest banks in the recent crisis. While during the Great Depression governmental involvement remained minimal up to the end of the crisis, the government's response to the recent crisis was swift and profound (Eigner, Umlauft, 2015).

A patchy market in the 1920s turned into the 1930s depression. Ironically, in 1929 some shipowners were predicting a return to more favorable market conditions, but the Wall Street Crash of October 1929 and the subsequent recession in world trade plunged the

shipping industry into a major depression which lasted until the late 1930s. There is no doubt about the cause of the depression. Between 1931 and 1934 the volume of sea trade fell by 26%, and this coincided with a phase of rapid expansion of the merchant fleet, as can be seen in Figure 3. As a result laid-up tonnage increased from the 'normal'level of 3 million gt in June 1930, to a peak of 14 million gt by June 1932, representing 21% of the world fleet, after which heavy scrapping started to remove the surplus (Stopford, 2009).

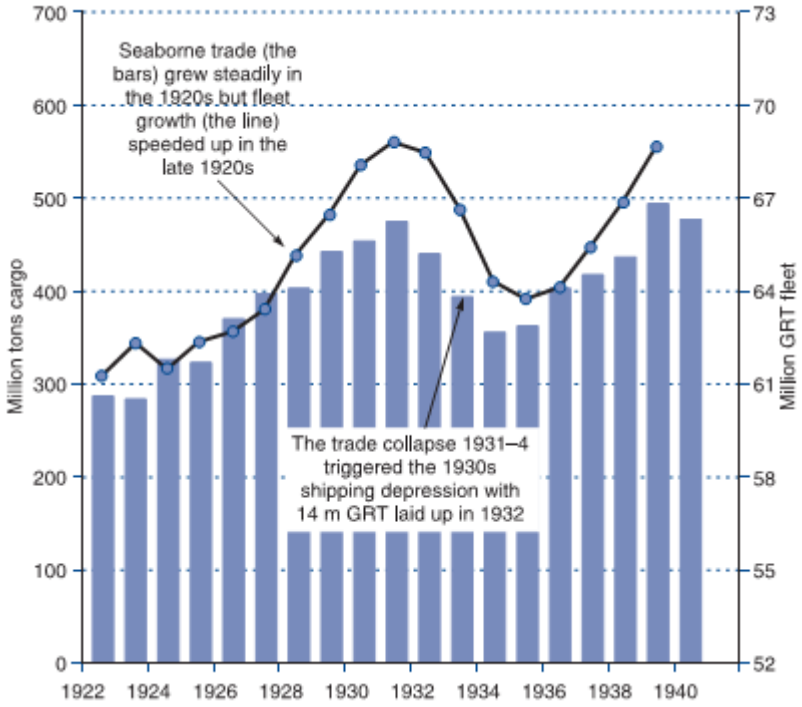

Figure 3: Sea Trade, 1922–38
Source: Stopford, 2009

Between 1922 and 1931 the volume of seaborne trade increased by more than 50% from 290 million tons to 473 million tons, before falling precipitously to 353 million tons in 1934 (Stopford, 2009).

On the other hand Great Depression has also considerable influence on shipbuilding market. In Britain, which dominated the shipbuilding market at that time, shipbuilding employment fell steadily from 300,000 in 1920 to 60,000 in 1931. Unlike the pre-war period, this was not simply cyclical unemployment that was soon absorbed by the next boom; it was a steady downward trend. Broadly speaking, the 1920s were dominated by removing the surplus shipyard capacity. There was intense international competition, indicated by 'incidents' such as a Furness Withy order placed in Germany in 1926 at a price 24% below the lowest British price with marginal overhead recovery. Then in the 1930s the Great Depression undermined demand and resulted in an 83% fall in shipbuilding output between 1930 and 1933, the biggest of any of the 12 cycles shown in Table 1.

Cycle no	Cyclical peak and downswing				Cyclical trough and upswing				Full cycle years
	Year	Peak '000 grt	Peak to next trough years	%	Year	Trough '000 grt	Trough to next peak years	%	
1	1901	2,617	3	–24%	1904	1,987	2	47%	5
2	1906	2,919	3	–45%	1909	1,602	4	108%	7
3	1913	3,332	2	–59%	1915	1,358	4	426%	6
4	1919	7,144	4	–77%	1923	1,643	1	37%	5
5	1924	2,247	2	–26%	1926	1,674	4	73%	6
6	1930	2,889	3	–83%	1933	489	5	520%	8
7	1938	3,033	2	–42%	1940	1,754	4	1057%	6
8	1944	20,300	3	–90%	1947	2,092	11	343%	14
9	1958	9,269	3	–14%	1961	7,940	14	352%	17
10	1975	35,897	4	–67%	1979	11,787	3	47%	7
11	1982	17,289	5	–43%	1987	9,770	20	534%	25
12	2007	61,900	Based on the orderbook output likely to double by 2010						
Analysis of cycles									
Average length			3.1	–52%			6.5	322%	9.6
Standard deviation			0.9	25%			5.9	313%	6.4

Table 1: Shipbuilding Cycles, 1902-2007
Source: Stopford, 2009

3.2. Risk Management of Shipping in 1973 Oil Crisis

Oil is the major energy source powering the global economy and supplying 95 per cent of the total energy fuelling world transport. Like other modes, maritime transport relies heavily on oil for propulsion and, in view of limitations imposed by existing technology and costs, is not yet in a position to adopt effective energy substitutes (e.g. biofuels, solar and wind). At the same time, fossil fuel reserves are finite, oil extraction is becoming increasingly costly and oil production overall is believed to either already have peaked or to reach its maximum level soon. The dependency of the maritime transport sector on a source of energy that is becoming increasingly scarce and more costly to produce, compounded by limited prospects, at least in the short term, for using alternative energy may entail some serious implications for the cost of maritime transport services. With over 80 per cent of the volume of global merchandise trade being carried by sea, the question of how changes in oil prices affect ocean shipping rates is of considerable relevance (UNCTAD, 2010). That's why the effects of 1973 Oil Crisis on shipping industry will be discussed in this section.

In 1960 the annual volume of international sea trade had reached a level of one billion tons, with equal shares of dry and liquid cargo. During the following years the average annual growth rate of liquid cargo – essentially crude oil and its derivatives- was 11.5 percent. The yearly increments of dry cargo were considerably lower. In the early 1970s the share of liquid cargo in the annual sea trade volumes had increased to about 60 percent. It peaked with 1.87 billion tons (versus 1,35 billion tons for dry cargo) in 1973. During that year the first international oil crisis materialized and had an immediate effect on the volumes of dry cargo continued to increase, caught up with the liquid cargo trades in the mid 1970s, and exceed the growth of liquid cargo by considerable margins until 1980 (Peters, 1993).

On the other hand, the effect of high fuel prices on ship's speed is a remarkable matter. Ships (especially tankers) sailed at lower speed during the oil crises of 1973 and 1979. In 1972 the price of crude oil was about US$3 per barrel. By the end of 1974 oil prices had quadrupled, to over US$12 per barrel. The second oil crisis came with the combination of the Iranian revolution and Iran-Iraq war, which caused oil prices to increase from US$14 in 1978 to US$ 34 per barrel in 1981 (Talley, 2012).

By 1933 financial pressures had become so great, and market sentiment so adverse, that financially weak owners were forced to sell their ships at the distress prices which distinguish a depression from a recession. The banks played a leading role in forcing

down prices and 'the market was hammered into insensibility by the ruthless and incredible course pursued by British banks in 1931 and thereafter'. This trough in prices created an active speculative market and, 'values having reached such an unprecedentedlow level, extraordinary activity was recorded in the ship sale market. Foreign buyers recognized the opportunity to acquire tonnage at bargain prices. Greek buyers were especially prominent'. Between 1935 and 1937, 5 million gt of ships were scrapped. This was coupled with the renewed growth of sea trade, which finally passed its 1929peak in 1937 and by January 19038 ships in lay-up had fallen to 1.3 million gt. As a resultthe freight index had shot up from 80, where it had been for the previous five years, to 145.This 'boom' did not last long. The position deteriorated rapidly due to a decline in trade in 1938 and a recovery of shipbuilding deliveries to 2.9 million tons in 1937 and 2.7 million tons in 1938. Within 6 months, laid-up tonnage increased by over a million tons (on 30 June 1938, out of 66.9 million tons in existence, 2.5 million tons was laid up) (Stopford, 2009).

Moreover, the short-term effects of the crisis that broke-out in late 1973, triggered by a combination of over investment in ships and the impact on demand of the first oil shock, soon became obvious at the level of laid-up tonnage. As the freight rates quickly declined, the laid-up fleet rose to 8.4% of the total world tonnage in 1975 (Thanopoulou, 1998).

During the early 1970s, a great many speculators were ordering ships, including tankers, because they assumed the demand for oil and other commodities would increase. When the oil crisis hit, shipping companies found they had contracted for too many tankers, so they canceled some of their orders. Contracts on bulk carriers were also canceled due to the worldwide recession that followed the oil crisis (www.globalsecurity.org).

Lastly, bulk carriers shipping cycle has greatly influenced from 1973 crisis in different ways. The transformation from boom to bust in 1973 was one of the most spectacular ever recorded in a shipping market. Over the summer rates for VLCCs soared to more than Worldscale (WS) 300, and stayed there until October. Then in October OPEC introduced a 10% embargo on all exports to the West, and the market crashed precipitately, with VLCC rates falling to WS 80 in December. The decline continued through 1974 and by April 1975 the rate for a VLCC from the Gulf to Europe had sunk to WS 15. However, it took nearly a year for the seriousness of the position to sink in. In March 1974, five months after the crisis broke, a 270,000 dwt tanker was fixed for 3 years at a firm $28,000 per day, but eight months later in November a similar fixture was reported at only $11,000 per day. There was little sale and purchase activity, but by year's end prices had already fallen by more than 50%. For example, the second-hand price of a 1970-built 200,000 dwt VLCC fell from $52 million in 1973 to $23 million in 1974.

3.3. Risk Management of Shipping in 2007-2008 Global Financial Crisis

The 2008 crisis had been the longest and most severe downturn for the modern merchant in the history of shipping market. The crisis has fueled a cut-throat competition, and not all shipping line companies can survive. The global financial and economic recession of 2008 has resulted in a sharp downturn of the economy and the shipping market. This has directly led to a rapid fall in demand for transport and related services. For example, throughputs in the world's largest container ports; Singapore and Shanghai, decreased by 13.5% and 11% respectively in 2009. Added to the fact that earlier in June of the same year, the China Containerized Freight Index showed that Chinese exports were down 21.4% year on year, ever since China became the world's factory. World-class ports including the port of Hamburg, Los Angeles/Long Beach and New York, have registered significant slowdowns compared to year 2008. According to ECLAC (2009), the United Nation Economic Commission for Latin America and the Caribbean, the activity at the major region's ports fell by 11.2%, less than the worldwide figures. Between July 2008 and May 2009, the number of containers arriving at Charleston, in South Carolina and one of the largest ports in the US, from the northern European regions the point of departure for German goods, declined by about 100,000. The total volume at the port has dropped by almost 18%. This decline is attributed to low demand in Europe for manufactured goods on the back of the euro zone crisis (Kalgora, Christian, 2016).

The Baltic Dry Index (BDI) is an assessment of the average price to ship raw materials (such as coal, iron ore, cement and grains) on a number of shipping routes and by ship size. It is thus an indicator of the cost paid to ship raw materials on global markets and an important component of input costs. As such, the index is considered as a leading indicator (forward looking) of economic activity since it involves events taking place at the earlier stages of global commodity chains. A high BDI is an indication of a tight shipping supply and is likely to create inflationary pressures along supply chains. A sudden and sharp decline of the BDI is likely to

foretell a recession since producers have substantially curtailed their demand leaving shippers to substantially reduce their rates as maritime capacity cannot by rapidly reduced (Monie et. al. 2011).

Between mid 2005 and mid 2008 the BDI grew by a factor of about 5.5 times, reflecting an almost surreal surge in global trade and expectations of additional growth, mainly fuelled by a Chinese economy hungry for raw materials and energy. The shipping industry was increasingly facing limited extra capacity and port congestion or the expectation of congestion. The existing capacity shortages in vessels and terminals pushed rates up to unparalleled heights. The index peaked in the spring of 2008 as China was stockpiling large quantities of commodities in preparation for the Olympics. Afterwards, the BDI reflected the full fledge of the unfolding recession and collapsed by 94% between July and December 2008. Never before was such a sharp correction observed, an indication that maritime shipping and global trade was brought to a full recession. Then, the BDI corrected to attain a level reflecting pre-bubble valuations (Monie et. al. 2011).

Moreover, freight rates have risen to unprecedented levels and have increased by almost 300 per cent over the period from 2003 to mid-2008. This increase in freight rates was followed by a corresponding drop of 95 per cent over the last quarter of 2008. A number of factors have contributed to this high volatility in the market, which also seems to have changed the way the industry views and manages its risks. In addition to freight-rate volatility, we have also seen theemergence, maturing and corresponding growth in the derivatives market for freight. Traditionally, this was a market where players in the physical freight market could hedge their risks, although this is now changing rapidly with the increasing participation of investment banks, hedge funds and other traders that may not be involved in the underlying physical market. Overall, this has resulted in the commoditization of the freight market (Alizadeh, Nomikoh, 2016).

The Great Financial Crisis of 2007-2009 was the most severe economic crisis since the Second World War. Only the Great Depression was similar in severity and length (Eigner, Umlauft, 2015).Undoubtedly, the global recession of 2008-09 is a feast for shipping analysts. Thiscurrent global downturn offers not only new challenges to shipping practitioner's insurviving this ordeal, but also new insights and key issues to be urgently addressedby the industry. (Meenaksi, 2009).

The global crisis of 2008-09 is a clear case of market failure. Market failuregenerates externalities. For instance, if ship yards in Asia close down, this will notonly affect financial issues associated with the shortfall in funding new buildings, and the likelihood of cancelled orders, but also social problems, since these local shipyards provide economic support to whole communities (Meenaksi, 2009).

The global financial and economic recession of 2008 has resulted in a sharp downturn of the economy and theshipping market. This has directly led to a rapid fall in demand for transport and related services. For example,throughputs in the world's largest container ports; Singapore and Shanghai, decreased by 13.5% and 11% respectivelyin2009.Addedtothefactthat earlier inJuneofthesameyear,theChinaContainerizedFreightIndexshowedthatChineseexportsweredown21.4%yearonyear ,eversinceChinabecametheworld'sfactory.World-class ports including the port of Hamburg, Los Angeles/Long Beach and New York, have registered significantslowdownscomparedtoyear2008 (Kalgora, Christian, 2016).

4. Conclusion

Despite the requirements of risk management activities and destructive effects of global financial crises, the maritime shipping industry is still promising as a popular investment area with big values. In generally all companies face the risk and risk management activities. However maritime transport requires more complicated risk management strategies because of astronomical earnings and devastating losses. That's why shipping field challenging and compelling when compared with other sectors.

In order to reveal the impact of the fluctuations on the freight market and risk related management techniques in the shipping business, the details of shipping literature and the process of economic mechanism should be specified. Despite of the fact that the shipping business term is very closed with critical financial risks this study has focused on prominent global financial crises which have enormous impact on freight rates and also earnings of shipowners.

The fluctuation in the freight rates creates the risk in the shipping industry. In order to understand the fluctuations of the earnings and losses in shipping business one have to understand freight rates which are determined by the supply and demand. Actually, penetrating of shipping history background gives idea for future events. Because similar historical events had similar effects on shipping economical mechanism throughout history. That's why this paper has emphasized influences of previous financial depressions on shipping economies in order to provide future point of view to the investors.

In this paper, the historical perspective of shipping risk management was evaluated in three periods as; Great Depression, 1973 petrol crisis and 2007-2008 global financial crisis. In order to reach this aim, historical background of shipping industry and antecedents have been defined within literature review.

The Great Depression remains, without question, the longest, deepest, and broadest economic contraction that the industrialized world has ever known. Moreover, Great Depression has also considerable influence on shipbuilding market.Another big crisis of maritime shipping is 1973 oil crisis. The effect of high fuel prices on ship's speed is a remarkable matter. Ships sailed at lower speed during the oil crises of 1973 and 1979. The expensive fuel prices have remarkable effects on maritime trade.The latest depression which has destructive effect on maritime trade is 2008 global economic crisis. It had been the longest and most severe downturn for the modern merchant in the history of shipping market. The global financial and economic recession of 2008 has resulted in a sharp downturn of the economy and the shipping market.

During the all depressions that mentioned in this paper, the companies which have professional risk management process and tactics together with serious precautions were luckier than the others. While some companies have lost all the asset during the crisis, some of them were rescued luckily with more gain. It is believed that having information on historical background of shipping developments gives more powerful perspective to the shipping investors and the investors who are good on using past experiences have may passed the financial crisis exams successfully. This is the explanation of how the historical risk management information and activities rescue the companies from devastating effects of crisis.

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