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### **LIST OF ABBREVIATIONS**

A	AGREE
BIFFEX	BALTIC INDEX FORWARD FREIGHT EXCHANGE
COA	CONTRACT OF AFFREIGHTMENT
D	DISAGREE
DW	DEAD WEIGHT
FFA	FORWARD FREIGHT AGREEMENT
FOREX	FOREIGN EXCHANGE
GT	GROSS TONNAGE
IPE	INTERNATIONAL PETROLEUM EXCHANGE
ISM	INTERNATIONAL SAFETY MANAGEMENT
ISPS	INTERNATIONAL SECURITY PLANNED FOR SHIPS
LIBOR	LONDON INTERBANK OFFERED RATE
MPT	MODERN PORTFOLIO THEORY
NYMEX	NEW YORK MERCHANTILE EXCHANGE
OTC	OVER THE COUNTER
RVI	RESIDUAL VALUE INDEX
SA	STRONGLY AGREE
SD	STRONGLY DISAGREE

## **ABSTRACT**

The scope of this study was to examine the use and extent of use of shipping derivatives in Greek Shipping market. To achieve this purpose a questionnaire was conducted and addressed to chief managers of various shipping companies regardless of size and market. A sample of 31 companies was collected and based on their responses we came across significant conclusions.

We found out that shipping derivatives in Greece are still in an initial stage. A few companies use them regularly as a risk aversion technique. The majority faces them with cautiousness and reluctance. Liquidity and credit risk are two of the main risks associated with shipping derivatives by Greek shipowners.

For shipping derivatives to become more popular in Greek Shipping market Banks should support them and undertake a role of consultant and regulator. Furthermore time and money should spend to train and employ expertise personnel.

## **ACKNOWLEDGEMENTS**

I would like to thank my parents and my brother Mark. My Supervisor and my friends Kiki, Lia, Anthia, Alex, Efi, Evi, Antoni and Manoli for their valuable help.

## **DECLARATION**

I hereby declare that this research has not been submitted in another University in Greece or Abroad for the acquisition of a relevant or subordinate degree.

M.Goulielmos

## **INTRODUCTION**

*“Examining the best way to hedge against market fluctuation: A ship owner’s perspective”*

### **1.1 Scope of Research**

**“The best way to predict the future is to create it”**, (Ducker, 2004).

The uncertain and volatile nature of markets creates the need for hedging risk. A number of derivative instruments are introduced in order to minimize risk and ensure company’s viability. Such instruments are introduced in almost all sectors of financial activity such as: interest rates, currency exchanges, freight rates etc. The importance of managing risk has become increasingly important to most organizations. Shipowners, speculators, banks, agents and brokers are potential users of Shipping Derivatives.

For this purpose we conducted our Master Thesis to investigate whether Greek shipowners use shipping derivatives as a risk management tool and to what extend. We also wished to investigate the reasons, their fears and their reserveness. Regarding that there is a clear picture of what is happening in foreign countries, we limited our research only in Greek Shipping Industry. This phenomenon indeed inspired us to study the dynamics of he Greek Shipping market and find out the origins of its peculiarity. We also looked at the parameters that make these financial instruments more suitable to particular shipowner’s needs.



A number of questionnaires were sent out to a number of involved parties in Greece. The questionnaires provided us with the necessary perspective and information into hedging decisions and practices by Greek Shipowners and Bankers. This overview is more appropriate to be carried out without separating it in wet and dry shipping.

## **1.2 The Structure of the Thesis**

The thesis begins with an introduction where we describe the topic under study and the reasons motivating on research effort. Next we proceeded with the aims and objectives of our research. We present first the subject of our study and the expected outcomes this research might have.

In **chapter one** we made a comprehensive analysis of risk management with a brief reference to derivatives and its main forms. We also made a review of the important Hedging Theory. We explained and analyzed the theoretical concepts that constitute the core terms of our study.

In **chapter two** we discussed the risks faced by a shipowner and the ways for managing these risks. We concluded the chapter with a reference to the advantages and disadvantages of shipping derivatives.

In **chapter three** we presented the research methodology followed. Next the research problem is defined. We discussed in detail the research design and how we applied methods and techniques to collect data and analyze them.

In **chapter 4** we presented in detail our research findings that emerged from the returned questionnaires. We elaborated the elements we collected and we analyzed the relevant

findings. Furthermore, in **Chapter 5** we went ahead with our research findings examining the subject from Shipping Banks point of view and making comparative analysis with shipping companies' outcome.

Finally, in **chapter 6**, we considered the main points of our study and made recommendations for action and policy making. In a final section we explored the future of derivatives in Greece and we made suggestions for future research.

### **1.3 Aims & Objectives of the Thesis**

During the past decades, financial markets around the world have become increasingly interconnected. Financial globalization has brought considerable benefits to national economies and to investors, but globalization has also changed the structure of markets, creating new risks and challenges for market participants and policy makers. Three decades ago a shipowner building a new vessel would probably have been unable to borrow from a domestic bank. Today he/she has more options to choose from. He/She can choose around the world for a loan with a lower interest rate, he/she can invest in stocks or bonds either in domestic or international capital markets and he/she can choose from a variety of financial products designed to help him/her hedge against possible risks or speculate from market's ups and downs.

Sophisticated computer systems have made face to face dealings less important and allowed traditional contained institution like "the City" to grow out of their boundaries. Developments in technology and especially the impressive growth of Internet banking and brokerage services, have allowed globalization to go beyond traditional markets and reach

other secondary markets as well. The development of new financial techniques, the globalization of investments and the introduction of new technologies have significantly increased market interconnection.

Given the above frame, the scope of this study is to examine the Greek Shipping Market relatively to these latest financial developments. The initial part of the study aims examining if shipowners deal with risk, whether they model, measure and manage risk. Risk is one of those elusive words that mean different things to different people even though they operate within the same industry. Quite a few companies don't ever adopt a certain risk management strategy while some might consider developing one. A central issue is that a risk management strategy is a planned, predefined, conscious and well-developed policy. It doesn't arise out of the blue and is not an approach that can be implemented in the treat of the moment. Strategy implies tactic, tactic implies planning and planning is based on analysis. Producing a hedging policy is a strategic decision the success or failure of which can make or break a firm. Therefore one of our prime targets was the identification of risks that a certain shipping company regards as most important in its activities.

Moreover we examined the various factors that determine the use of shipping derivatives by shipowners in Greece. It is well known that Greece constitutes a premier maritime force. Greek shipowners have units of financial power not much in a national but in an international base. According to a recent publication as of 15.3. 2004 of Lloyd's Register – Fairplay, Greek interests control 3,370 vessels of various categories, of 180,140,898 total DW (Dead Weight) and of 108,929,135 total GT (Gross Tonnage) including 256 new building vessels of various categories of 13,720,998 GT on order from shipyards.

Internationally Greek interests now control around 9.1% of the world's today number of vessels in service and on order 18% of the world fleet deadweight. It is remarkable that despite the accidents of Erika (12/12/99) and Prestige (13/11/02) the Greeks were not affected and they still remain first in controlling more tonnage. Notable also is the fact that Greek shipowners move towards new building orders and purchasing of more modern vessels. The presence of Greek shipowners is especially significant in four categories of vessels: crude oil, product and chemical tankers, combination carriers and ore and bulk carriers. The average age of the Greek controlled vessels now stands at 16.8 years (Economic Outlook, 2004).

Greek shipping is a key player in the world economy. Today Greek Interests have in excess of 18% of world newbuilding orders, making them one of the most important players in the newbuilding market. The current Greek operated fleet is 95 million GRT (Gross Register Tonnage) with a further 14 million GRT on order (DNV, 2004).

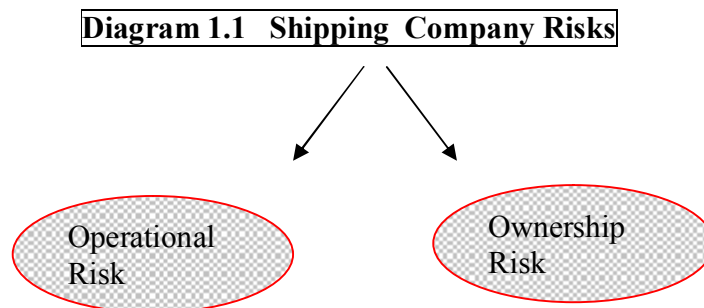
Furthermore, we examined the company size since it is evident that returns and risks of smaller companies are larger than those of larger ones. The so called "size effect". Risk and hedging are two issues related since the one presupposes the other and the second comes as an answer to the first. In this sense hedging will be dealt in this thesis. The issue of hedging is being set and various theories stress to the most significant.

Finally, we hope that our research will contribute to learning more about hedging by providing insights into the difficulties and issues that characterize the Greek shipping market and how corporate managers make find ways to make these financial tools more appealing.

## Chapter 1: Risk and Hedging Analysis

### 1.1 Risk Management Analysis

Risk is an integral part of trading and investment. Corporations in the shipping industry are exposed to fluctuations in all kinds of financial prices as a natural result of their activities. A shipowner is facing two kinds of risks: (a) **Operational Risk** that is the risk that the shipowner or operator faces in the day-to-day operation of the vessel and (b) **Ownership Risk** which is the risk that arises by holding the specific asset in his portfolio, (Diagram 1.1).



To manage risk effectively, it must be understood and controlled. Over the years various theories & financial instruments have been developed to manage risk. Risk management is a term that tends to slip through the fingers when you try to pin a formal definition on it. Perhaps it is easier to agree on a definition of what is not. Risk management is not a theory of unthinking compliance but a theory that helps an organization to choose the risks it feels comfortable with and minimizes those that it does not want. Risk management has to do

with all forms that entail adventure and unpredictability, is a process for identifying, measuring, reporting and controlling risks. That does not imply necessarily risk reduction. “In fact the objective of risk management is not to reduce risk but more importantly to quantify and control risk” (Freight Metrics, 2003).

“Risk management is a three step-process: (Diagram 1.2)

- 1. Risk Modeling:** Identifying the underlying risk factors and modeling their dynamics
- 2. Risk Measurement:** Quantifying the impact of risk factors & financial results.
- 3. Risk Management:** Controlling risk with risk-informed decision-making”.

**Diagram 1.2. Steps of Risk Management**

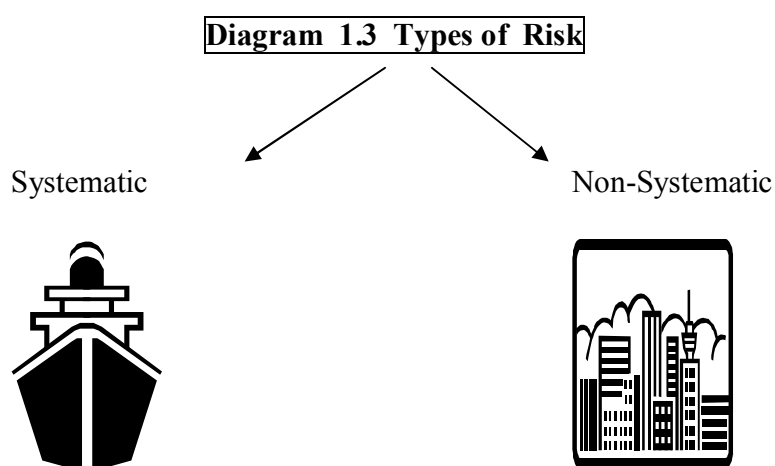


**Freight Metrics, 2003**

One can distinguish two important factors that determine our inability to forecast the future developments. Those are *Variability* and *Uncertainty*. Variability cannot be predicted because it is a matter of pure chance and derives from within the system. For example the petroleum oil crisis 1975 and after constituted an unpredicted shock in the industry that altered the long-term equilibrium. On the other hand, uncertainty emanates from the level

of knowledge. Risk management can reduce uncertainty as opposed to variability that cannot be controlled.

Risk can also be distinguished into two types: *systematic* and *non-systematic*, (Diagram 1.3). The systematic is related with the market and the non-systematic is company specific.



For example if a new company enters a monopolistic market such as the coastal route from Piraeus to Iraklio the market will change from monopoly to oligopoly and the competition will become more intense. This can be considered as a systematic risk. While if the vice – president of a company resigns, this relates only to the company and does not affect the market. Companies face both systematic and non-systematic risks. However, the nature of systematic risk has a greater effect on the company rather than the nature of the non-systematic. But whatever field we specialize in or whichever approach we follow, we all share an intuitive understanding of what the concept of risk means to us.

Shipping Companies in particular face a plethora of risks due to the international environment in which they operate. It was not until 1980's when the shipowners, brokers, traders and other involved parties realized the need and importance of risk management

tools. Financial products such as futures, forwards, options and swaps, that were successfully used in other sectors of the economy and that they have made their appearance in the world of shipping. Shipping derivatives were launched as a hedging activity to protect against adverse movements in the freight market and help turn volatility into profitability.

Concluding, we point out that investors are in the market to make profits. Profit is the reward of bearing risk. Investors will bear risk only if the expected outcome compensates them for that risk. This is why investors use various financial tools, analyze opinions of experts and utilize different strategies in order to minimize the potential risks associated with the particular investment. No risk culture is perfect. The challenge of risk management is to assess an organization's culture and then work to improve it. The interesting point will be to find out if shipowners are willing to exploit the new financial tools and embrace the concept of risk management that are widely used in other sectors.



## 1.2. Derivatives Overview

As a concept, derivatives have a history traced back to ancient times. As Thomas F. Siems a senior economist at the Federal Reserve Bank of Dallas, argued that the Greek philosopher Thales created the first derivative contract. Thales predicted that the olive harvest would be especially good for one year so he bought options securing him the exclusive use of olive presses in his region. When the harvest proved out to be as Thales predicted he made a remarkable profit. Derivatives began as tools used by farmers to protect themselves from declines in grain prices.

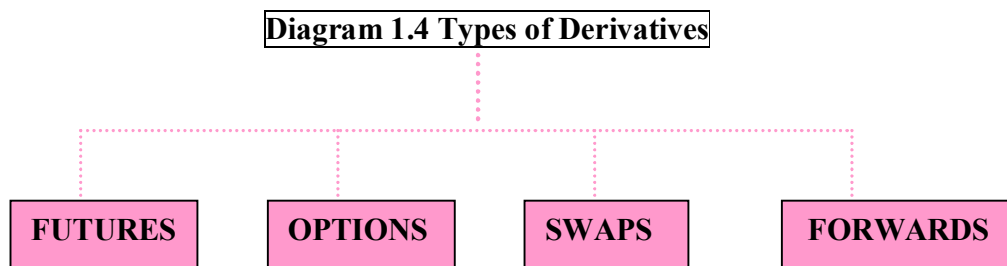
**“Derivatives are financial instruments whose price or payoffs depends on another asset or stock with derived values based on movements of financial markets single commodities, indices or a combination”**, (Dinwoodie&Morris, 2003). Basically they are forms of expectations and estimations on movements of anything from whole financial markets, to indices, to various commodities, and generally to whatever has a variable price with an agreed and a future reference point that allows trading to be made. All derivatives are based on some underlying cash product. These “cash” products are:

- Spot Foreign Exchange This entails the buying and selling of foreign currency at the prevailing exchange rates. As these rates change relative to your “home currency” so you make or lose money.
- Commodities. These include grain, coffee beans, and iron. etc.
- Equities or Stocks.
- Freight
- Indices.

- Bunkers.

Derivative products are contracts, which are constructed based on one of the “cash” products described above. The primary purpose of any derivative instrument is to provide a mechanism for market participants to hedge undesirable risks. They are considered as important financial instruments because they allow risk to be diversified and controlled. They don’t require physical acquisition, quite the opposite, they allow market agents to “speculate” on movements of the prices of other instruments without being required to trade in the instruments themselves. They have no intrinsic value but they derive their value from something else. Derivatives enable one to transfer risk entailed in a certain activity to one willing to accept such a risk. They both make opposite estimations about the same event and they both “bet” that things will come out in expected ways. At the end of the day the market balances, because what someone loses somebody else gains. Derivatives exist as both exchange-traded contracts and privately negotiated contracts between a dealer and an end-user. The exchanges are located in Chicago, New York, London Tokyo and other financial centers.

There are four major types of derivatives, (Diagram 1.4):



- **Futures.** Future contract is an agreement to buy or sell a fixed quantity of a product

or service for settlement against the underlying at a fixed set of dates in the futures at a fixed price. Futures are dealt in a clearinghouse and they are marked to market that allows the investor to know at the end of the day if he has made loss or profit.

➤ **Options.** The right, but not the obligation, to buy or sell some underlying cash instrument at a pre-determined rate on a pre-determined expiration date in a pre-set notional amount. A call option conveys the right to buy the underlying asset at a certain price. A put option conveys the right to sell the underlying asset at a certain price. The counterparty that has the right to buy the asset is the buyer of the option and the counterparty with the obligation to sell the asset is the seller or writer of the option. Options trading can limit an investor's risk and leverage potential. Unlike other investments options offer a known risk to buyers. An option buyer cannot lose more than the price of the option the premium.

➤ **Swaps.** The simultaneous buying and selling of a similar underlying asset or obligation. The swap market developed because two different investors would find that while one of them had a comparative advantage in borrowing in one market he was at a disadvantage in the particular market he wanted to borrow. If these markets were counter-matched by the two parties with their relative advantages, the two could get the best of both through a swap.

➤ **Forwards** is another form of contract being utilized. The derivative contract can be trade in a different market from that in which the underlying product is itself traded. The initial launching was made with BIFFEX contracts that were launched in 1985 and survived until 2002. The structure of BIFFEX contracts was such that it didn't respond successfully to the needs of the market users. This was due to the fact that hedging using

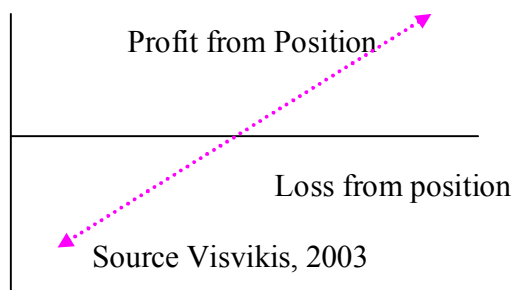
BIFFEX contracts was a cross-hedge. However, cross hedging freight rate risk using an index is successful when the futures and the spot price are close.

FFA contracts are traded in an over-the-counter derivative market where two parties must agree to do business with each other. By contracting this agreement each party accepts credit risk from the other party. It is a private market and the general public does not know that the transaction was done. FFAs are principal-to-principal contracts between a seller and a buyer to settle freight or hire rate.

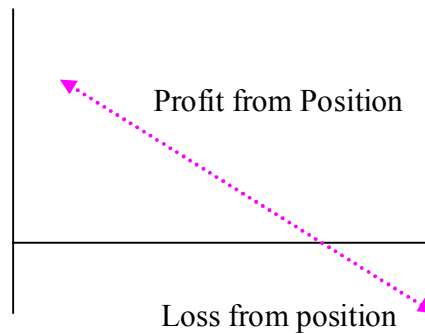
The one counterparty estimates that the price of an agreed freight route will be higher in the future and buys FFA contracts, aiming to sell them in the future at the higher price. On the contrary the other counterparty takes the opposite position and sells FFA contracts.

Settlement derives from the difference between the forward price and the average price for the route selected in the index over the last seven working days. According to these contracts one can take a “position” in the market based on contracts bought or sold. Relatively to the market participant intentions one can engage in a short (sell) or long (buy) position, (Diagram 1.5). A short position held by a market participant is when sale exceeds holding, (Diagram 1.6). On the contrary one can hold on a long position when holding exceeds sale. For every long position that is assumed, some party always assumes a short position and vice versa.

**Diagram 1.5 Long Position**



**Diagram 1.6 Short Position**

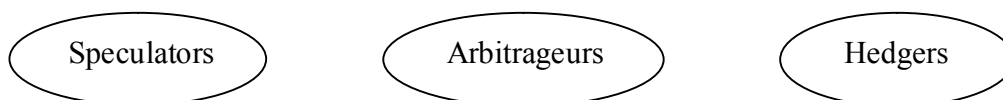


Source Visvikis, 2003

Derivatives can be used by a variety of mediums. Mainly they are categorized in three major groups depending on the choice of use (Diagram 1.7).

- **Speculators.** According to their expectations about future market condition speculators buy and sell derivative contracts to make profit. Their existence provides market liquidity.
- **Arbitrageurs** buy and sell derivatives future contracts to make risk less profit. Their existence increases market efficiency.
- **Hedgers** buy and sell derivatives for risk management purposes. A derivative when used effectively is an excellent risk management strategy. On the contrary when used ineffectively can be viewed detrimental by the users.

**Diagram 1.7 Users of Shipping Derivatives**



### **1.3 Disadvantages and Advantages of using Derivatives**

Derivatives have some evident advantages and disadvantages. Some of them are commonly recognized by the nature of the specific activity and some arise by their practice.

#### **1.3.1 Disadvantages of using Derivatives**

A notable disadvantage is the risk of a trading partner not fulfilling his obligations in full on due date or at any time thereafter the agreement imposes. It is a risk that affects all aspects of business. Among the risks that face financial institutions, credit risk is considered as one of the most important. It is also the risk that controllers pay great attention since it can lead banks and major institutions to economic failure. The credit risk is associated with forward contracts considering that there is no clearinghouse to secure exchanges. It reflects the probability that a borrower will default on a commitment to pay. In particular the one party is likely not to perform, on the expiry date, the obligations that come up from a change in the forward contract from zero. In turn failure to pay is affecting market confidence.

Another point is liquidity risk: the uncertainty about being able to sell or offset a previously established position. Liquidity risk comes into two forms. Market liquidity risk comes up when a counterparty is unable to proceed in a transaction of a particular derivative contract. Liquidity risk constitutes one of the major reasons in the collapse of Barings Bank. Barings could not cover the margin calls of Leeson's futures positions on

the Singapore International Monetary Exchange and the Osaka Stock Exchange and as a consequence the 200-year old British Bank collapsed.

The Enron collapse made shipping industry to shiver. Some shipbrokers estimated that Enron has been involved in 30% of paper trades in the capsize bulk market and about 20 per cent in the panamax market. What Enron's spectacular collapse highlighted was the need for counterparty security. The risk that arises when a counterparty defaults. Shipping may be a business where everybody appears to know each other or can take recommendations for each other, but sometimes this may not be the case. FFAs do not have any other financial instrument to back up the contract, (Gibson and Zimmermann, 1994).

A disadvantage regarding derivatives is that they are associated with legal risk. That involves the possibility that a derivative contract may be deemed illegal or unsuitable. Market participants in general view derivatives as important tools that enable businesses to become more competitive, investors to gain high returns and governments to cut costs that otherwise could not. On the other hand other worry that derivatives may cause substantial and unexpected costs that can lead to a financial crisis, (Costa, 2003).

Settlement risk constitutes another gray point in the involvement with derivatives, the risk that a settlement in a transfer system does not take place as expected. This happens because one party defaults to its clearing obligations to one or more counterparties. One can claim that settlement risk contains both credit and liquidity risks. The first, when a counterparty cannot meet his obligation and the second, because the counterparty may not settle in full value but only part of it, causing the other counterparty to cover the shortfall at short notice.

In case someone decides, without the assistance of an expert, the financial position he is going to hold, for example either long or short, then he/she runs the risk of bad estimation. However, the same can apply when using a professional or a broker advisor that is regarded as an “expert”. Some advisors happen to be better than others. So someone may come ahead with a not-so competent advisor. We also have to point out that some speculators may try to take advantage of the situation and try to present themselves as “experts” without being competent and knowledgeable.

We’ll be closing this session with the following statement: “While derivatives can be useful investment tools, they also present significant risk if not understood fully and used. As with other investment instruments the amount of risk and the potential for return from a derivative depend on its use and unique characteristics” (Legislative Audit Bureau, 1995).

### **1.3.2 Advantages of using Derivatives**

Some of the advantages of the derivatives trading are that it allows for better asset allocation and asset liability management. A derivative instrument is yet another alternative a financial manager can have in his portfolio, which helps him to diversify his risks, creating flexibility within the portfolio.

Derivatives are associated not only with corporate benefits but also with social benefits. They provide the means to governments, international corporations and major financial investors to manage risk. Thereupon lies the important role of derivatives, that of hedging. Another variant of hedging is known as efficient portfolio management. They provide the means to “market agents” to reduce, control or relocate the undesired risk of adverse price



movements of freight, bunker, interest and foreign exchange rates by transferring this risk to others willing to bear it. Such risk management policies allow market agents to stabilize their revenue or the cost side of their balance sheet (Kavussanos&Visvikis,2003).

Derivatives can also provide a source of revenue through market – making, earning fees on a bid spread, outright position taking, attempts to profit in the expectation of favorable price movements and arbitrage, trading to profit from temporary price anomalies between different contracts and different markets, (Derivatives, 2002).

Derivatives provide also information to market observers about the true value of certain assets and the future direction of specific commodities such as oil, freights etc. An investor has access to asset classes that are not available as financial investments otherwise. Thus the trading of derivatives aids economic agents in price discovery – the discovery of accurate price information, (Visvikis,2003).

It illustrates how one market reflects new information relative to the other and how well the markets are linked. The observation of derivatives market also provides useful information about the tendency of economy and can help major investors to take crucial investing decisions. Recently, it was argued that derivatives constitute unbiased predictors and therefore can be used as accurate forecasting vehicles.

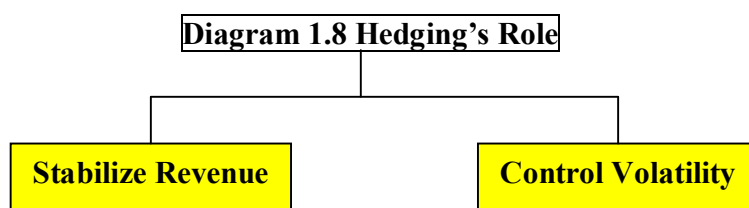
Some other strong points we have to present here is that derivatives allow high level of leverage because they require a small fraction of the investment in the underlying asset. They allow quick execution of the orders thus promoting liquidity and re-investment. The market is transparent reducing transactions cost and bid-ask spread.

Derivatives have brought rather substantial benefits to the global market. Now that world markets for trade and finances have become more integrated, derivatives have strengthened

the linkages among markets by increasing market liquidity and efficiency and facilitating the flow of trade and finance. They have also facilitated hedging and hence business planning in general. They have enabled financial institutions to offer a wider range of services as well as to exploit market imperfections and other trading opportunities for their own good. Reducing the risk that companies will face financial distress, contributes in stabilizing employment. Moreover, by controlling risk exposure, management can focus on its core business strategy – improving the quality of services or lowering the cost of their products.

#### **1.4 Hedging Theory**

Hedge is meant to cover a particular position or exposure by using a derivative instrument or some other strategy. Hedging in business context means to secure oneself against a loss on an investment by investing in an adverse position. The role of hedging is twofold: first to stabilize revenue and second to control volatility.

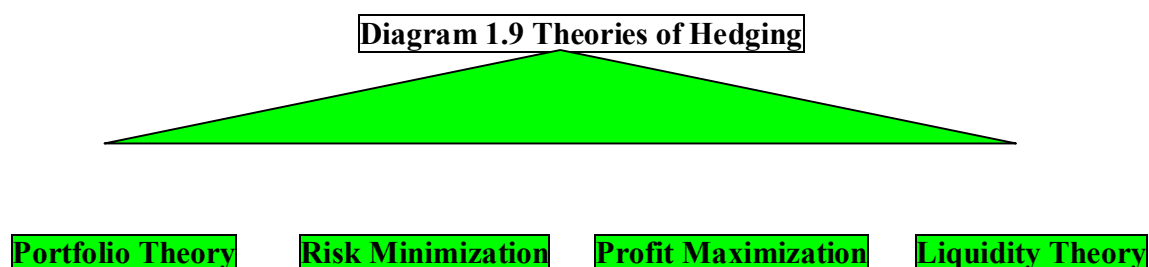


The key to hedging is to decide which financial instrument to use and when. Hedging is not just about putting on a derivative contract. The decision goes along with the company's level of sophistication, systems and preferences of the shareholders. Hedging objectives vary widely from corporation to corporation even though it appears there to be a common

problem. For example some shareholders may refuse to undertake anything that appears to entail financial price risk, while others may be open to such risks. Therefore one may notice that the same company adopts a different strategy once the management structure changes. Hedging also depends on the number of competitors and it may be used in order to improve the competitiveness of the firm.

### **1.3.1 Theories of Hedging**

Through out the years and after careful observation of financial incidents various theories have been developed related to hedging. The most significant in the field is regarded the portfolio theory of Markowitz. Many others follow with their own significance. Here we make a short presentation to the most important.



### **1.3.2 Portfolio Theory**

The origin of Portfolio theory can be traced back to the work of Markowitz that granted him the Nobel Prize. Harry Markowitz with his paper “Portfolio Selection” introduced

Modern Portfolio Theory (MPT) that appeared in the 1952 in the “ Journal of Finance”. Whereas investors before then knew that it is smart to diversify & not to put all your eggs in one basket, Markowitz was the first to quantify risk and demonstrate why and how portfolio diversification works to reduce risk for investors. He was also the first to introduce the term “efficient portfolio”. An efficient portfolio is the one, which has the smallest attainable portfolio risk for a given level of expected return, or vice versa the largest expected return for a given level of risk.

Hedging is not only about minimizing risk but also maximizing profit. Under this approach, a hedger is assumed to be risk-averse and can hold different positions of cash (long) and derivatives contracts (short) in his portfolio with the objective of maximizing the expected return for any given portfolio standard deviation or minimizing standard deviation for any given expected return.

### **1.3.3 Risk Minimization**

In the early stages of research in derivatives these markets were viewed as straightforward and simple. Hoffman stated that “ hedging is shifting risk” and Smith that “hedging enables hedgers to insure against the risk of price fluctuations”. In 1919 Marshall gave his own view stating that “the hedger does not speculate: he insures”. Until 1940 this was the theoretical foundation of why corporations use derivatives, (The Journal of Futures Markets, 2000). The shifting of risk due to unknown future changes. Risk minimization regards one who is exposed to risk and is undertaking a supplementary action in order to offset this risk.

#### **1.3.4 Profit Maximization**

During the postwar era Working was the first to challenge the traditional risk minimization approach by arguing that profit can emanate through the exploitation of opportunities that arise in the prices of futures market relative to the prices in the cash market.

According to Working there are four reasons to hedging: a) to buy and sell decisions, b) freedom for business decision, c) operation of the basis allowing surpluses, d) reduce business risk, (Visvikis, 2003).

#### **1.3.5 Liquidity Theory**

Telser (1981) argued that organized futures markets are superior to informal forward markets, because it entails rules, committees and a limited membership. While forward markets are over the counter relying on the good faith a mutual trust of counter parties. Telser stated that an organized market facilitates trade among strangers, (Pennings and Leuthold, 2000).

## **Chapter 2: Risks faced by a Shipowner and Ways to Hedge**

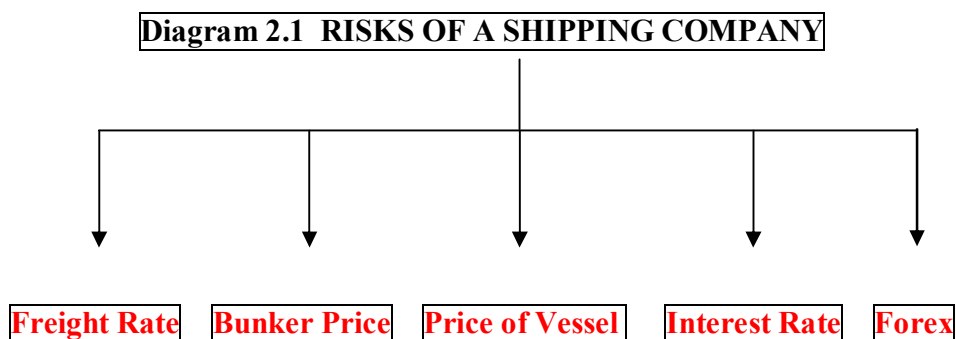
### **2.1 Analysis of Risks faced by a shipowner**

In this section we will examine the risks faced by a shipowner and the best way to hedge. We focused our research mainly to the **shipowner** because he has the physical acquisition of the vessel and certain variables such as freight rates produce fluctuations in shipowner's final profits affecting either the revenue side or the cost side of their balance sheet, (Kavussanos and Visvikis, 2003). Thus the shipowner is the immediate receiver of market fluctuation and a key element of the market.

A shipowner is faced with a number of marketable decisions. He/She has to make decisions such as:

- (a) Enter or not the shipping market and if yes which type of market to enter into (bulk, liquid, etc.),
- (b) When to invest into new ships or sell the underlying assets,
- (c) In what type of market contract to employ his vessels – spot or time charter,
- (d) How to finance them,
- (e) Whether to use financial instruments such as futures and forwards.
- (f) Counterbalance unexpected price changes in ships value, bunker prices and freight rates.

Operating in Shipping is a high leveraged investment therefore it is associated with risks that demand successful decision-making. The financial risks that a shipowner faces in his every day operation are many: freight rates, bunker prices, ship price value, interest rate and exchange rate, (Diagram 1.2). Let alone the operational risks such as the collision with another vessel, total loss or loss of a crewmember. These risks affect substantially the revenue and cost side of a shipowner.



These risks cannot be dealt in isolation one from the other. They are interconnected and interlinked and they affect together a shipping company. Many companies simplify and manage only the most obvious risks. While this approach seems to make sense on the surface, it can actually do more harm than good. A risk analysis that addresses only a part of a company's risks is problematic. This is because hedging only some risks can harm internal offset mechanisms or macro hedging planning, thereby increasing the risk exposure of the company. Perhaps, their impact might become more or less substantial in different periods but they will all make their point felt sooner or later.

### **2.1.1 Freight Risk Management**

The volatility of shipping freight rates constitutes an issue of great importance in shipping and finance because it affects substantially the revenue side either in a positive or in a negative way. Fluctuations in freight rates influence revenue and subsequently operating earnings. “Freight rates fluctuate widely, say from month to month, taking a position in the market in a particular month can produce substantial gains or losses depending on what happens in subsequent months (Kavusannos, 2003). A shipowner is facing different types of risks when he/she is employing his vessel in the spot or in the TC market. It is generally agreed that spot rates result higher profits but more volatile and hence riskier than time charters. Time charters have lower volatilities because they engage a shipping activity for a longer time at a pre - agreed freight rate but they disclose investors from exceptional gains. Time charters are preferable by shipowner’s that have loans to reimburse. Banks also give premium to time -charters in order to secure full payment of their granted loans.

Let alone the technical unbalances of the market caused by cartels or major trading companies that affect freight rates. A recent case was that of OPEC announcing reduction of total oil production making everyone expecting a fall in the tankers freight rate. Eventually, this didn’t happen and the freight rates not only didn’t decline, quite the opposite, they noted a substantial increase resulting from the simultaneous open up of China and India’s markets (2003-2004).

Freight rates risk is rated as **number one risk** in shipping operation comparatively with other risks. We believe that no other factor can influence in such a catalytic way a shipping company.



### **2.1.2 Exchange Rate Risk**

Exchange Rate Risk can take several forms. We can distinguish between two types of risk:

- The risk facing a company when is in a *long position*
- The risk facing a company when is in a *short position*.

The company is long in a currency when it has net assets in the certain currency and is expecting its future payments in that currency. The risk facing a company long in a foreign currency is when the foreign currency might weaken between the signing of the contract and the fulfillment of it.

A company, which owes money in a foreign currency, is short in that currency- she has its liabilities in a foreign currency. The risk it faces is that the value of the foreign currency will rise before it pays its liabilities.

In particular a shipowner may be contracted to receive operating revenue in one currency and to run expenditure in another. Many firms sell outputs and buy inputs in a number of currencies where the relationship between them is constantly changing. Consider a shipping company that will purchase a ship built in Japan for payment in YEN, with delivery in two years. Suppose that the shipping company's earnings and profits are US\$ based. This company faces foreign exchange rate risk, because a rise in the value of YEN will raise the cost of the ship in US\$ terms.

The same applies to most ship owning companies in Europe that have their main revenues in US Dollars and most of their liabilities in Euro. Sometimes when Euro is stronger than the Dollar the ship owning companies in EU are obliged to "cash" much more dollars to cover their liabilities in euro in an unfavorable rate.

### **2.1.3 Price Risk**

Equally important source of risk is the price risk (uncertainty about future price of an asset). Price risk originates from the fluctuations in the value of a vessel. The volatilities observed in prices derive from the assets past values, values of squared shocks to long-run equilibrium in each market and probably to various idiosyncratic and external factors or gains. The inability to predict the price of an asset leads many times to major capital losses. It is of great importance to the shipowner the timing he/she will decide to buy a new building or a second –hand vessel. Equally important is the timing to order a new vessel and the sale price.

For example the best timing for a shipowner to order a new building it is when the freight rate is in decline, as it will take 1-2 years to be delivered and make it tradable when the freight will be probably higher.

On the other hand a shipowner might decide to buy a second –hand vessel when the freight market is at its highs in order to benefit from the good rates. However we have to point out that as it has been observed the line of the purchase value of ships is related to the condition of the freight market. A shipowner may decide to buy a vessel when the freight market is low and the values are low too and decommissioned it until the freight market starts to rise again. Still this decision depends on the management of each shipping company will be probably higher.

However, an interesting subject of research is the market we are witnessing in our days where we are experiencing a flourish period without saying. Although the freight rates are quite high and ship values are quite high too the purchasing interest is not in decline. On

the contrary numerous vessels in high prices change hands and everyone is wondering why investor buy in such high prices and how they expect to resell their vessels since they have bought them in such high prices. The answer was from the Turkish buyers that purchased our two bulks that they expect the freight rates to last in high levels for a long period so the vessels will attenuate their values.

#### **2.1.4 Bunker Prices**

The cost of shipping operation can significantly affect the shipowner's cashflow and profit. Along with the price risk comes the cashflow risk, the risk that arises from the uncertainty of a secure inflow. If an investor new he/she had a certain income he/she wouldn't have a cashflow risk. Bunkers prices constitute a component that affects substantially the cost side of a shipowner. The problem is that without them no ship can sail and at the same time bunkers prices can make shipping business unprofitable.

Bunkers prices comprise 50% of voyage costs and they have the following characteristics:

- à Bunker prices tend to follow the oil market trends which are unpredictable
- à It may be subject to extreme volatility in input costs
- à It may be subject to extreme volatility in revenue

However, there is no future contract to match spot prices for this commodity. In view of the absence of tradable futures contract hedging against adverse bunker price fluctuations

using futures contracts entails cross – hedge in homogenous products such as gas oil traded in Houston or crude oil traded in Rotterdam and Singapore at the IPE<sup>1</sup>, in London.

The main markets where bunkers activities take place are Singapore, Rotterdam and Houston. Only few financial institutions offer tailored made derivatives products such as swaps & options. There are three basic types of option exercise:

- ✓ **American Option** – an option that can be exercised at anytime during its life up to maturity
- ✓ **European Option** – an option that can only be exercised on the maturity date itself
- ✓ **Asian Option** – an option selected on maturity against an average price for the underlying commodity, (Bunkerworld- Exercise of Options 2004).

Energy options trade on the New York Mercantile Exchange (NYMEX) and the International Petroleum Exchange (IPE). The underlying crude for futures contracts traded in the IPE is Brent deliverable to North Sea and for NYMEX is WTI deliverable in Cushing Oklahoma (Alizabeth et al, 2003). The “Asian” option is the most popular within bunker hedging, because the averaged settlement moderates short-term fluctuations, (Bunkerworld, 2004).

### **2.1.5 Interest Rate Risk**

The interest rate is normally fluctuating and based on LIBOR<sup>2</sup>, plus a margin – the Spread. While spread is fixed in advance by negotiations, the LIBOR is renewed periodically, such

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<sup>1</sup> (International Petroleum Exchange)

as usually three or six months. The cost of interest rises with increasing LIBOR or decreases with falling LIBOR. Such fluctuating interest rate prevents the shipping company calculating with certainty its future interest payments.

The risk facing a shipowner is the unexpected increase of LIBOR and the deterioration of freight rates. That was the case from 1982-1987, where the freight income decreased dramatically and was not enough to cover the vessel's running expenses let alone the loan repayment (Grammenos, 2000). Speculation is also perceived from the bank's side through the increase of LIBOR. During the crisis period we referred to (1981-87) an increase was noted up to 1.75% - 2%. This increase had a negative influence to the loan interest. The bigger companies - due to their size & the low risk loans - tried to overcome this problem by claiming lower Spread. On the contrary the smaller and middle companies were unable to claim lower spread resulting in high interest loans that made the final loan much higher.

## **2.2 Ways of Reducing Risk**

### **2.2.1 Exchange Rate Risk**

A variety of techniques have been developed to help firms encounter foreign exchange risk. In particular to allow companies to cover them against risk or to move from an open to a closed position in the market. First, we can consider the use of forward exchange markets. Shipping companies approximately know when they expect revenues in dollars so

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<sup>2</sup> **LIBOR** ( LONDON INTERBANK OFFERED RATE) = the interest rate a bank has to pay in order to borrow money (dollars) from the banks of London. **Loan Interest** = LIBOR+ SPREAD , spread is a surcharge on LIBOR & it is equal for the whole duration of the contract. Libor is London's Interest Rate & it is fluctuating that means it can change many times during the loan.

they can sell those dollars forward at an exchange rate agreed now. By acting in such way a shipping company are said to *lock in* to current rates.

Future contracts are another form to protect oneself against exchange rate risk. Like any forward contract, a future contract is an agreement to exchange a given product at a specified date at a price established when the contract is signed. The buyer goes long in the cash market, if he/she is contracted to take delivery of the underlying product in the future. The seller goes short contracting if he/she is to deliver the product in the future. Those that use future contracts seek to hedge against risk to which they are exposed in the cash market by locking in to existing exchange or interest rates on future transactions. A major role in determining the pricing of futures is played by arbitrageurs. The existence of a forward market in forex as well as forex futures contracts means that there are two markets in what is essentially the same product. Forex Options & Swaps can be used also. Just as in the futures market the holder of an option sells it by entering into a reversing contract.

### **2.2.2 Price Risk Hedging**

The price risk results from the uncertainty over a particular future market price. If we knew for certain the future market price of something then there would be no market price risk for that. In shipping the one who has the risk is the shipowner and what has the risk is the price of the vessel. There are beliefs that a “ship value futures market” will develop. However we need to keep in mind that the figures we are dealing in this particular market are quite high. This is privileged by the homogeneity and close specifications of ship types.

Moreover, there is a close link between freight fluctuation and asset value. When the freight market is rising the asset value rises too.

The problem situated with this situation is that of residual values. A new Index called ***Residual Value Index (RVI)*** might develop into a hedging activity. The beneficiary of the “residual value bond” is guaranteed a minimum disposal value for an asset at a future date. In a lease conception the beneficiary pays a premium to the bond provider in exchange of an asset value guarantee, thereby placing a floor under the future value of the asset.

This also expands to the area of new buildings. Options for new buildings already exist so one can buy or sell such options. Shipbuilders can do the same.

We can mention here an example from new building for tankers as was told to us by an expert in the field: Step 1: Pay 20% deposit into an escrow account, Step 2: The yard builds the ship, Step 3: The yard delivers the ship but does not touch the escrow account, Step 4: The value of the ship is determined in 10 years ... then (a) If the value of the ship is LESS than the unsettled bank loan, then the escrow account is used to refinance the ship, (b) If the value of the ship is MORE than the unsettled capital, then the yard gets all the money. This was a kind of an option contract between a shipping company and the yard.

### **2.2.3 Portfolio Risk Hedging**

The portfolio risk facing a shipowner can be hedged by using derivative contracts such as Futures. In this particular contracts the subject commodity are stocks.

In case we are forecasting a decline in stock market prices we can purchase Future Contracts in order to hedge one. This is managed by «***locking***» the higher price that

prevails in the market. When the contract expires the shipowner is benefited in case the stock price is lower. He/she has actually gained the difference. Since we are dealing with Futures contracts one has the choice whenever he/she evaluates the situation is right to sell his stocks & close his/her position. The opposite is happening when one estimates a rise in stock prices.

The basic advantage that has a future contract is the capability to hedge portfolio risk from the fluctuation of stock prices without having “to liquidate the stock titles and also the ability to utilize the market tendency by buying part only (18%) of a contract value”.

#### **2.2.4 Interest Rate Risk Hedging**

Interest rate risk is one of the main risks facing a shipowner as history has already proven. The interest rate risk as we have already mentioned is constituted by two parts Libor & Spread.

Libor fluctuates and spread is negotiable and arranged at the contract & remains constant for the whole period. Consequently the need for hedging emanates from LIBOR and can be realized in the following ways. Suppose that a shipowner has contracted a loan in order to purchase a vessel that is amortized every six months with interest rate libor+spread. The shipowner makes the estimate that the interest rate will increase. Therefore, he contacts a bank or other credit organization and closes a contract wherein he/she exchanges the fluctuant interest with a constant interest rate for a series of settlements as much as his biannual loan installments. The contract has the flexibility to cover the whole duration the shipowner reimburses to the bank the beginning of the contract with the stable interest and



the bank undertakes the risk from the fluctuation of the Libor. The same contract might be used and vice versa in case the shipowner estimates that the interest rate will decline. In case he has a contract with stable interest then he can change the stable interest with a fluctuant more favorite one. Additionally as a hedging method interest rate futures can be used.

### **2.2.5 Freight Rate Risk Hedging**

Hedging the freight rate fluctuation is related to a possible decrease of freights. The shipowner is hedging in order to protect him/her from a decline in freight level that will consequently lead to a decrease in his/her revenue.

Derivatives may constitute such a precaution measure. Freight Futures & Forward Freight Agreements are the most popular contracts. FFAs have a comparative advantage comparing to Futures because they are route specific and tailored made in specific needs.

To become more specific we can use an example: Suppose a shipowner has a vessel of 260000t and he/she plans to charter it on December to the route Persian Gulf to Singapore and estimates that the freight will decline in this specific route. In this case the shipowner can hedge against adverse movement of freight rate by using FFA contract. In particular he can **“lock”** the price of the freight by choosing the price that prevails in November in account for December. Let it be the price the shipowner agrees \$36 per tone. This presupposes that there is an adverse broker that estimates that freights will rise in December.

Hedging, presumes that there are two opposite parts, one is willing to transfer risk to a party willing to accept it. If the supposing contract matures at the end of November and the average spot freight price for the last seven days is \$33 per tone then the shipowner benefits \$3 per tone as opposed to the chartering of the vessel in the spot market. The shipowner manages thus to hedge against freight volatility. However, the result could have been different if the estimates were inaccurate and the freight instead of deteriorating improved.

## Chapter 3 Research Methodology

### 3. Research Methodology

Research forms a cycle starting with the research problem and ends with the research findings. The Research Methodology cycle we followed in our study had the following steps:

Step 1 → *Research Problem*

Step 2 → *Research Design*

Step 3 → *Research Tools*

Step 4 → *Data Collection*

Step 5 → *Data Analysis*

#### 3.1 Research Problem

This chapter discusses the research questions and their importance. A research problem is usually a condition, a phenomenon and information. It is the definition of the boundaries of a problem area within a certain context that has to do with the **Who, What, Where, When and Why**. It is well known that research can be generated either by various theories, or by

related findings or by empirical experience. The research problem in our study was formulated from our own experience.

The *subject* of our research topic is to study the use and the possible extends of use of Shipping Derivatives by the Greek market and our *research objective* is to propose solutions that may assist their application. The assumption here is that their use is limited by Greek Shipowners. In our case, we want to find out what a senior manager, shipowner or banker believes about shipping derivatives, how much he knows or how often he uses them or if he plans to use them or not use them. In parallel, questions of general views, expectations, limitations and reservations relevant to the subject of derivatives are being set in order to outline the situation. Subsequently, we have to ask our respondents and rely on what they reply.

### **3.2 Research Design**

The problem under study has the following characteristics:

- a) It is easily defined.
- b) There is a lack of previous research regarding Greek market.
- c) It refers to a certain group of corporation's – Shipping and Shipping Banks.
- d) It is addressed to a shipowner or to a chief executive officer.

A questionnaire was created containing 19 questions and a short index noting company details (Appendix 1). We received answers from 31 companies operating overall 483 vessels and from 4 Shipping Banks.

The population we have chosen was from the same geographical location mainly the port of Piraeus where the majority of major shipping companies are located. Questionnaires were also sent to companies located in the North and South areas of Athens such as Voula and Kifisia. The type of activity we have chosen and the market selected to undergo the research leaves our sample without geographical differences. A sample of 100 maritime corporations was selected to participate in the study. A one-page cover letter was sent to the addressees along with a copy of the questionnaire. The questionnaire was sent by fax or e-mail and a follow up telephone complemented the questionnaire and this ensured a higher response rate.

**Large, middle and small** companies were selected to examine the impact of company's size in financial activities. The number of vessels operating in each company determines the size of the company, in our study. Large are regarded companies with more than 30 vessels, middle those with 10 to 25 and small those with 10 or less vessels. The size of the company we believed that it may prove to be an important factor. Therefore information about the "number" of ships was used to outline the size of the company and study how a larger in size company acts compared to a smaller one. This information is recorded by asking respondents to fill boxes on the questionnaires for completing personal and corporate elements. The personal elements are too important because they give as information about a manager's level of experience and sophistication.

We have chosen not to differentiate shipping companies according to the market within which they operate. Therefore we distributed our questionnaires to both markets (liquid & dry). Many companies do not operate only in one sector but operate in tanker market as well as in bulk. The rationale in our research was to deal with the market as a total entity

since the risks faced in both markets are more or less similar at least in the non-operational side.

The questionnaire was sent mainly to ship managers and financial directors due to their key position in the corporation. This way we gave emphasis to whether respondents are likely to possess the knowledge or have access to the information, necessary for giving a correct answer. We avoided sending the questionnaire to people that do not understand, do not remember accurately or do not have accurate information. We expected respondent's would have give an answer even if they didn't know the subject or express opinion on matters they barely understand. We should also point out that with an e-mail survey it is difficult to detect the respondent's knowledge as with an interview. In this way by limiting responses to a certain group, we limited the risk to receive deceiving responses.

### **3.3 Research Tools**

In our research we used mainly e-mail and fax questionnaires. E-Mail questionnaires used to be criticized because of the difficulty of securing an adequate response. However, the e-mail questionnaires in our research were evaluated as the most appropriate. E-mail questionnaires are cheaper in time and cost than other methods and they have immediacy. It takes little time to send out the material and the bulk of the returns are received within two or three weeks. Of course some delays should be expected for late returns and responses. For example in our research due to the fact that the respondents moved a lot because of the nature of shipping business, visiting their offices in other countries or yards for new-buildings, business trips etc.- plenty of time should be allowed. In some case the

population to be covered may be so widely and thinly spread that the e-mail questionnaire is the only feasible approach. In our research the questionnaire was addressed to almost every shipping company in Greece and Banks Shipping Divisions.

On the other hand of course there are certain disadvantages to this method that are generally accepted and in some of these difficulties we came indeed across. The main problem with the e-mail survey we found was that of getting an adequate response rate. As we already mentioned, when the receiver of our e-mail is an acquaintance, then we certainly secured a quick response. Otherwise it is left to chance for who will receive it, if the one that receives it will pass it to the right person and who finally will fill it up. Sometimes with a follow up call we helped the questionnaire find it's way but most of the times we came across unwilling secretaries that put obstacles. Another issue that comes up is whether the right person finally completes the questionnaire. Although it was clearly stated whose person's response was required – for example the financial manager – this is not sufficient to ensure that he/she will reply it. Asking the respondent to state his name, sometimes the company's name comes in conflict with the desire for anonymity. Especially when sensitive elements are being asked then the proviso of anonymity is being offered as an exchange to get a response.

In Greece research is faced with suspicious and unwillingness. Tracing the right person to reply to our questionnaire was really a struggle. Random were the questionnaires that received reply by unknown people. All acquaintances, friends or friends of a friend had to be addressed in order to get enough responses. Useful was also the help of key people in the Shipping Industry - whose we asked their help - that knew who exactly to address and

in what company. In our opinion, the task for someone to research Shipping is very difficult if not impossible, unless he/she works in the field and he/she knows many people. It is well known that one might give distorted answers, may have misunderstood the questions or may not recall some events or as in some cases be reluctant to reveal information. All these cases constitute one of the surveyor's most difficult tasks to try to detect such errors and decide if he/she will include or exclude some answers. In our questionnaires the sequence of the questions allowed us to sense if the questioner was expert or not.

### **3.4 Data Collection**

We used the following methods of data collection:

- a) Documentary sources, for collecting data from documents, reports, etc.
- b) Observation, of working practices,
- c) Questionnaires, sent to key informants,
- d) Semi-structured Interviewing, with key informants having expertise of the field

In some countries telephone interviewing is also of some importance, especially in radio research. The abovementioned methods can also be combined. Some researchers claim that the combination of methods is often appropriate to make use of their different strengths and derive varied elements. The two sources of information - documents and observation – are suitable for certain survey situations.



Personal elements were examined such as age and sex aiming at finding out if these affect a corporation strategy. For example a young ship manager or financial director may be keener to try and use new financial tools rather than one old one who might be more conservative and resistant to new coming tools. We have to point out that shipping derivatives are newly applied instruments with a bewildering reputation.

In accordance the form of the questions being placed is closed. The structure of the questions has been closed because they were addressing managers with heavy schedule and limited time, so the point was to obtain important information in the less time-consuming way.

The questions begin with the intention to find out if a company is using a risk management strategy (See Appendix,1). The importance of these questions lay in the fact that if a corporation recognizes the issue of “risk” and “strategy”, then it is more likely to use shipping derivatives than one that does not consciously deal with risk in a certain framework (strategy). Most companies don’t seem to realize the importance of risk and they assume that risk will be faced once it appears. However the modern theory of management introduces new issues such as profit maximization and loss minimization

The business outlook has also been questioned. A positive outlook outlines the scope of expansion and progress while a negative or neutral outlook leaves the corporation idle and in a situation of stagnation.

Questions, afterwards, explored respondent’s level of knowledge and personal and corporate participation in shipping derivatives of any kind FFAs, futures, options or swaps and regularity of use. General attitudes to risk aversion and specific derivative activity were also questioned. The gravity in terms of importance of a specific risk has also tested.

Besides, the level of volatility of the stated risk has also been assessed. The notion is that a very volatile or simply volatile sector might urge a shipowner to hedge. For example tanker freight rates undergo high volatility while the bunker's price in the ferry sector is also widely fluctuating. Views of aversive reasons in using shipping derivatives are canvassed. Indeed resistance to change, traditional asset trading, fear of market manipulation and concentration, exists.

Emphasis was also given to the role banks should have in the application of shipping derivatives. Banks constitute a significant source of credibility and validity and they can substantially set the way for the forthcoming new financial tools or on the opposite hand, discourage their use. The role banks should have for their clients has been examined in order to evaluate their potential role and at the same time assess the nature of their relative relationship.

However in order to pinpoint the determining factors that influence the shipping derivative activity we used the third person. It seems to us that it is not nice to ask one in a straightforward manner what his opinion is for not using derivatives or which financial instruments are being considered as appropriate for a shipowner. In order to reduce the discomforting nature of a question we have expressed it in a third person; instead of asking the respondent of his views, he/she is asked about a generalized view.

### **3.5 Data Analysis**

Having gathered all the research data we conducted our research analysis. We coded all documentary evidence and entered the questionnaire values into an excel spreadsheet.

The first we have done when all the data were collected was to count how many people gave particular answers to each question. The people that didn't answer a certain question were excluded from calculating our final results. The information gathered is displayed in a graph rather than on a table. We have used both histograms and pies, representing values and percentages.

At some point we combined responses from different categories. One example is the level of familiarity relatively with the regularity of use. This enabled us to retrieve more information from our data collection.

## CHAPTER 4

### SHIPPING COMPANIES & RISK MANAGEMENT STRATEGIES

#### **4.1 Introduction**

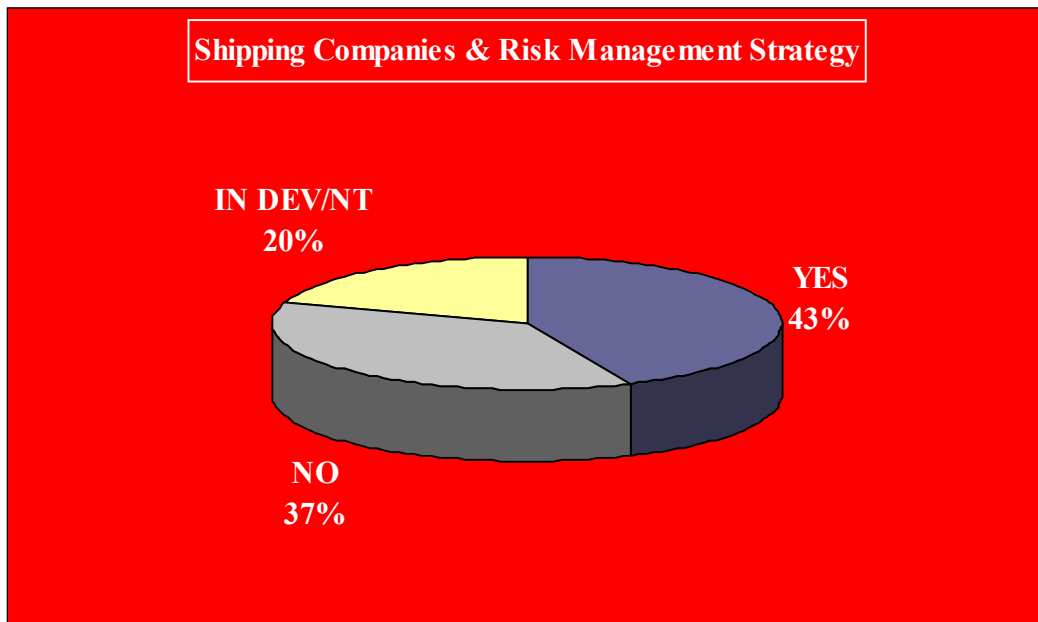
In this section we will examine whether Greek Shipping companies use a Risk Management Strategy. Our assumption is that the application of a Risk Management Strategy will enable the use of derivatives. In addition we will examine the factors that influence the use or not use of a Risk Strategy and how this factors influence the use or not use of derivatives.

#### **4.2 Do Shipping Companies in Greece Have a Risk Management Strategy?**

Risk management in shipping has always been an issue of concern for shipowners. In shipping market decisions contain uncertainty and unpredictability. Techniques have been developed that can minimize risks involved in decisions including sums of money. But although large amounts of money is involved in shipping industry, the risk management techniques are not as developed as in other sectors of economy (Kavussanos and Visvikis, 2003).

This research considered whether companies use risk management strategy resulted as we can see from our diagram 4.1, that **43% “have”, “20% are developing it” and “37% don’t use”**.

**Diagram 4.1 Shipping Companies & Risk Management Strategy**



The fact that a 43% of our sample follows a risk management strategy indicates that these companies follow an organized and controlled strategy with certain groups or teams dealing with this issue. The importance of this question lays in the interconnection between risk management and the application of derivatives. One has to be well aware of the risks emerging in the shipping industry to seek ways to offset them. It is more likely companies having a risk management strategy to use shipping derivatives to counterbalance their risks than those that don't have.

The 20% that had a risk management strategy in development indicated that some companies have started to realize that risks be anticipating and controlling they should placed in a risk management framework.

The remaining 37% is not at all following a risk management strategy. That may imply that “all risks have owner’s” policy. The owners decide at the spot of the moment what action will be taken once a crisis comes up. We should also point out that many managers, especially older in age, might not be familiar with the term Risk Management Strategy. To them it may sound modish, theoretical, and unfamiliar and without empirical interface and secure effectiveness. Furthermore, some may connect shipping derivatives with speculation and profit making and not as a financial tool suitable to offset risks.

### **4.3 Impact of Age**

Another factor that comes along with the introduction of a risk management strategy is that of age. We assumed that the older in age managers would be reluctant and unwilling to follow such strategies. At the mean time we made the hypothesis that younger managers would be more up to date with new and modern financial methods. However our research proved exactly the opposite. ***The companies staffed with those younger in age don’t follow a risk management strategy.*** This is evidently spotted in corporations where the managers are between ages of 20-25 and 30-35 where 27% and 55% are not using a Risk Management Strategy. ***While those older in age, especially 50-55 & 60-65, apply a risk management strategy, 18% (Table 1).*** In ages from 30 to 55 we have noticed a take up in the application of a risk management strategy, especially in ages 45-50 (32%).

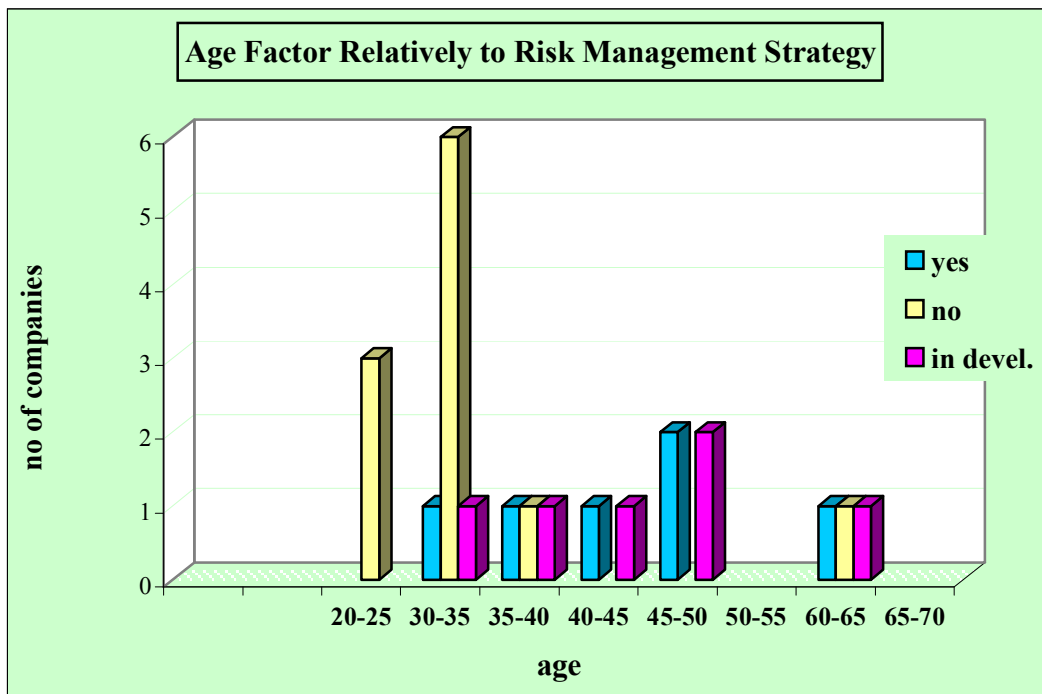
**Table 1. Age Related to Risk Management Strategy**

<b>Age</b>	<b>Yes</b>	<b>No</b>	<b>In Development</b>
<b>20-25</b>	0%	27%	0%
<b>25-30</b>	0%	0%	0%
<b>30-35</b>	26%	55%	17%
<b>35-40</b>	18%	9%	17%
<b>40-45</b>	9%	0%	17%
<b>45-50</b>	9%	0%	32%
<b>50-55</b>	18%	0%	17%
<b>55-60</b>	0%	0%	0%
<b>60-65</b>	18%	9%	17%

The rationale of this outcome may be that Risk Management is a matter of experience and authority. Senior managers are far more experienced and skilled compared with those younger in age. Furthermore their long career in the field may make them realize the need for a risk strategy. On the contrary, younger people may not feel confident and experienced enough to proceed into the adoption of a risk strategy. Besides, the hierarchy tree may not allow their ideas and proposals to go further. This applies especially in family shipping companies where the successor works together with the father in order to follow on him.

It is also an issue of authority; young managers may have a limited power, addressing particular issues and certain activities. While a senior manager, is tested and have won the shipowner's trust and respect.

**Diagram 4.2 Age Factor Related to Application of Risk Management Strategy**



#### 4.4 Company's Size

The company's size also plays a vital role in formulating a risk management strategy. The number of vessels is one of the ways to define company's size. To facilitate our study we separated companies into large with 30 vessels or more, medium with 6 to 29 vessels and small with five vessels or less.

Once again our pre-assumption was that *larger companies have a risk management strategy* rather than the smaller one due to the fact that they are exposed in wider-range of perils and the risks they are facing had a greater impact on them. For example a fluctuation in Bunkers prices induces huge costs for a company with 50 or 60 vessels. Nonetheless, only half verifies our abovementioned hypothesis.



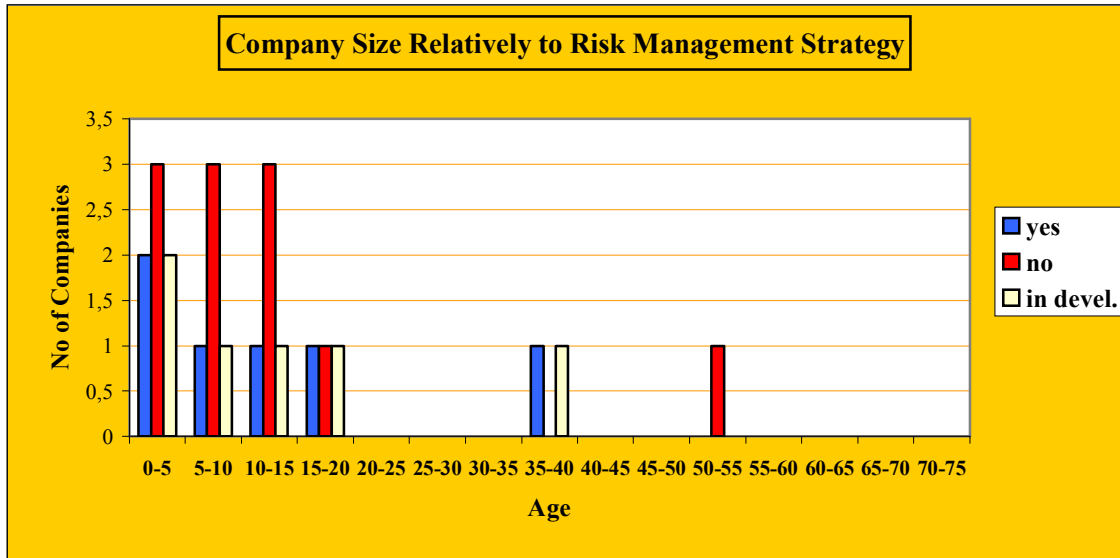
As showed in Table 2, ***Small companies too, with no more than five vessels use or start using a risk management strategy. A percentage of 34% is applying and a 32% is In Development.*** One explanation may be that this is the only way for small companies to offset risks and increase their leverage since their asset portfolio is limited. Furthermore, small companies may have the potential to expand and grow up their fleet and a mean to fulfill this scope, is the use of shipping derivatives.

***Medium companies between 6 to 29% vessels don't use a risk policy in 27%.*** This may be due to the fact that the shipowners can offset their risk by contracting half of their fleet in the spot market and the other half in time charter. It may be also a matter of perception. The company managed to develop and now is taking merit of its success, until to decide to make a step further. The critical point of deciding whether having or not a risk strategy seems to be in more than 20 vessels. We think that the company starts to expand and acquires power and volume the need to allocate and transfer risk becomes more imperative.

**Table 2. Company Size Related to the Application of Risk Management Strategy**

<b>Company Size No of Ships</b>	<b>Yes</b>	<b>No</b>	<b>In Development</b>
<b>0-5</b>	34%	28%	32%
<b>5-10</b>	8%	27%	17%
<b>10-15</b>	0%	27%	17%
<b>15-20</b>	8%	9%	17%
<b>20-25</b>	26%	0%	0%
<b>25-30</b>	0%	0%	0%
<b>30-35</b>	8%	0%	0%
<b>35-40</b>	0%	0%	17%
<b>40-45</b>	0%	0%	0%
<b>45-50</b>	0%	0%	0%
<b>50-55</b>	0%	0%	0%
<b>55-60</b>	0%	9%	0%
<b>60-65</b>	8%	0%	0%
<b>70-75</b>	8%	0%	0%

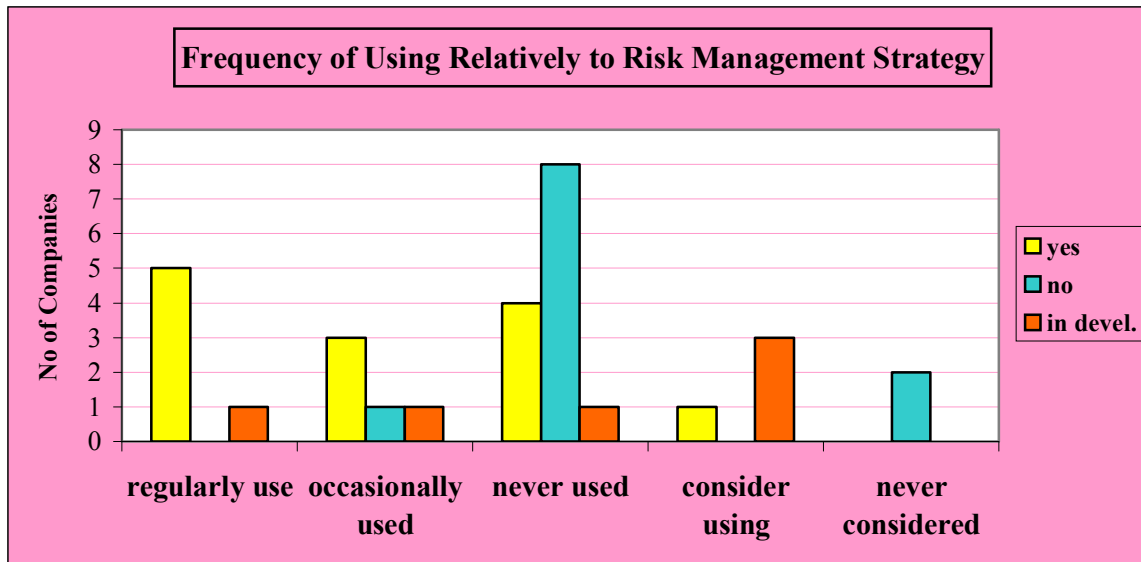
**Diagram 4.3 Company Size Related to Risk Management Strategy**



#### **4.5 Risk Management Related to the Use of Shipping Derivatives**

One assumption is that a company that has a risk policy will use shipping derivatives as a tool to offset these risks. Therefore we wanted to examine the companies that have or have not a risk strategy relatively to the frequency of using them. *No company that hasn't a risk strategy is regularly using derivatives.* A 73% with no Risk Management Strategy Never Used Shipping Derivatives and an 18% Never Considered. Only 9% with no Risk Management Strategy Occasionally Used. *Companies that have a risk strategy regularly use (38%) or occasionally used (23%) shipping derivatives, 8% consider using and a 31% never used. On the contrary, companies with no risk management never used shipping derivatives and never considered to do so. Furthermore, companies that initialize to develop a risk policy would consider using them in a 49%, regularly use got 17%, occasionally use 17% and never used in 17%.*

**Diagram 4.4 Frequency of Using Relatively to Risk Management Strategy**



The importance of the precedent outcome verifies what we have previously assumed. The implementation of shipping derivatives comes along with the application of a risk management strategy. Without it companies are likely not to use or not consider using them. The flow of the chain is in sequence; the absence of one element disturbs the flow.

As a result, if someone wants to introduce shipping derivatives, he/she should first emphasize the need of a risk management strategy. Shipping Derivatives, need to place in an organized and planned framework.

#### **4.6 Conclusions**

In this section we examined if Greek Shipping companies use a Risk Management Strategy and to what extend. We also managed to examine the implication of various factors such as age and company size related to the use or not use of risk management strategy.

Furthermore, we studied the role of risk management strategy related to the use of Shipping Derivatives.

We found out that the age factor affects the use of Shipping Derivatives. Young managers do not make use of Shipping Derivatives while older in age managers are more likely to exercise them.

The Company Size also affects the application of Derivatives. Small and Big in Size companies use Shipping Derivatives while medium in size companies avoid using Shipping Derivatives.

Therefore, small or large companies with mature in age managers are more likely to follow a risk management strategy.

Finally, the practice of Risk Management Strategy also affects the usage of Shipping Derivatives. Companies with Risk management don't use techniques such as Shipping Derivatives to compensate and mitigate risk while companies with no risk management don't use shipping derivatives to offset risk.

## **CHAPTER 5**

### **COMPANY STRUCTURE & LEVEL OF FAMILIARITY**

#### **RELATED TO SHIPPING DERIVATIVES**

##### **5.1 Introduction**

The company structure provides us with important information related to decision-making and to action planning in a shipping company. It is important to see who is taking the critical decisions and who has the first word in a crisis situation.

Furthermore the level of familiarity with shipping derivatives and the range of knowledge and experience in shipping also plays a substantial role in taking decisions.

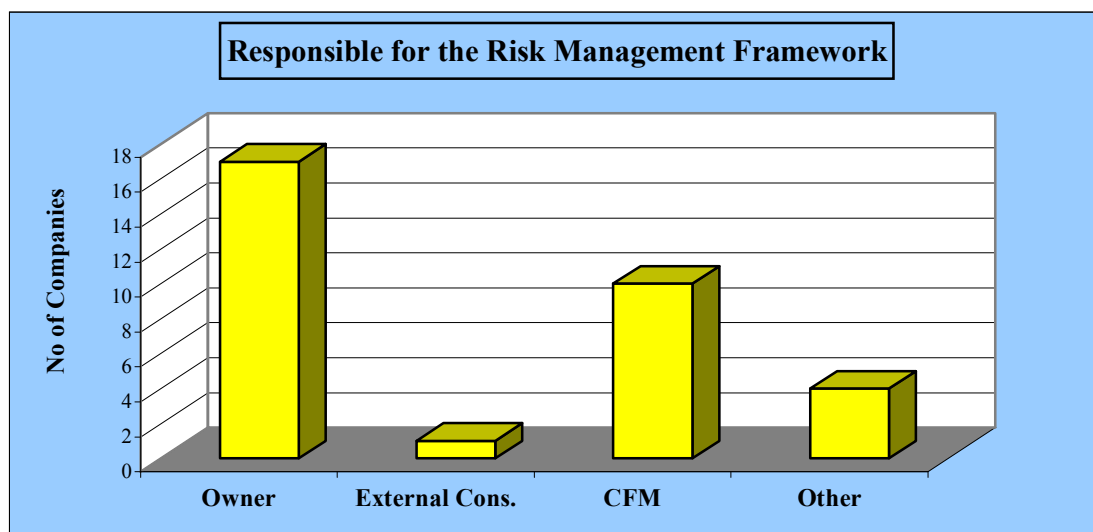
##### **5.2 Who is Responsible for Risk Management Strategy**

This question seeks to examine who is responsible for the risk management framework for those companies that use a risk management policy. In Greece the shipowner usually has a very active role in the management of his company. He takes all the important and critical decisions. It seems also that the chief financial director – as it comes out from the analysis of the questionnaires – plays a rather consultative role. *The Shipowner 53% and the Chief Financial Manager 31%, are responsible for dealing with risk* (Diagram, 5.1). Hence, it depends on these two key persons the practice of derivatives. The above outcome has prone and cons. If these two persons that have vital key positions, have heavy schedule

then their updating and briefing to new financial instruments would require time and consideration that they may not have. In this case it is better to consider employing a “risk manager” who is ready and authorize him to deal with such issues. On the other hand these two persons have the power to use derivatives and bear their sequences.

Some companies ticked the factor *Other* (13%), because as they stated in the questionnaires they have a risk management department with a designated risk management manager. Some corporations use external consultants (3%) but only to a small percentage.

**Diagram 5.1 Who is Responsible for the Risk Management Framework**



### **5.3 Financial Instruments Used by Shipping Companies the Last Five Years**

The financial instruments used by a corporation in the last 5-years are characteristic of the policy a corporation follows. We see from the responses to our questionnaire that a significant percentage (58%) has used certain financial tools in the last 5-years.

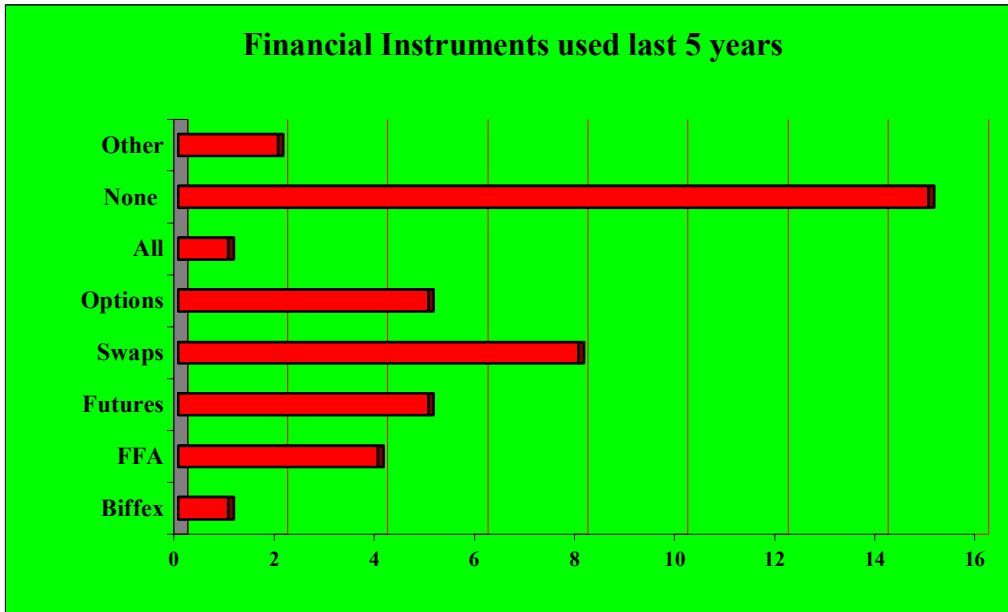
Even a small percentage **2% had utilized Biffex contracts** that can be regarded as equal to a 4% if we take into account the 2% stating that used all kinds of financial tools. The use of Biffex contracts can be claimed to be a trench knife. Because those that used them may not be willing to use new financial tools facing them with reluctance caused by previous failure or they may be more open minded to new coming services.

However **a 20% have used swaps, 12% options, 12% Futures, 10% FFAs, and 2% all types. A 37% haven't used any of the abovementioned financial instruments and 5% have used certain other**, (Diagram, 5.2).

The majority has used Swap contracts in the last 5 years. Options and Futures are following in the same level of usage. A 10% have used FFAs, an outcome quite suggestive and unpredictable but justifiable if we consider that FFAs is a secret market without being seen by the outside world. Although a high percentage of 37% haven't used any financial tool, the majority in an aggregate 58% in one or another form has used some kind.



**Diagram 5.2 Financial Instruments Used Last 5 Year by Shipping Companies**



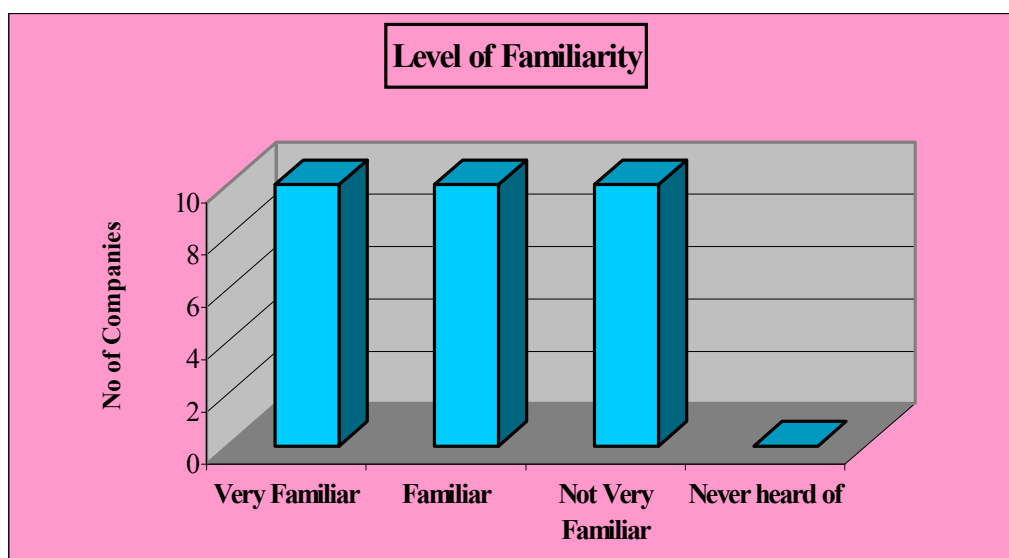
#### **5.4 Level of Familiarity**

In this section we wish to examine whether the level of familiarity affects and to what extent the treatment of Shipping Derivatives. The more familiar is someone the better outcome, one may claim.

According to what we extracted from our sample the level of familiarity with Shipping Derivatives is as follows: ***Familiar 33%, Very Familiar 34% and Not Very Familiar 33%.*** ***The choice never heard of derivatives is 0% percent,*** (Diagram 5.3). When someone has an expertise in the field, he/she has the ability to use and exploit derivatives in the best possible way. He/She is also in position to introduce and recommend them in other members of his/her corporation that are not very familiar or acquainted with them. Furthermore, the level of familiarity reveals important information regarding the general

level of knowledge of Shipping Derivatives by Greek Shipping Staff. The average of 67% (Very Familiar and Familiar) has an adequate knowledge. The fact that 0% has Never heard allowed us to assume that our respondents are up to date with recent developments in the world of Shipping.

**Diagram 5.3 Level of Familiarity**

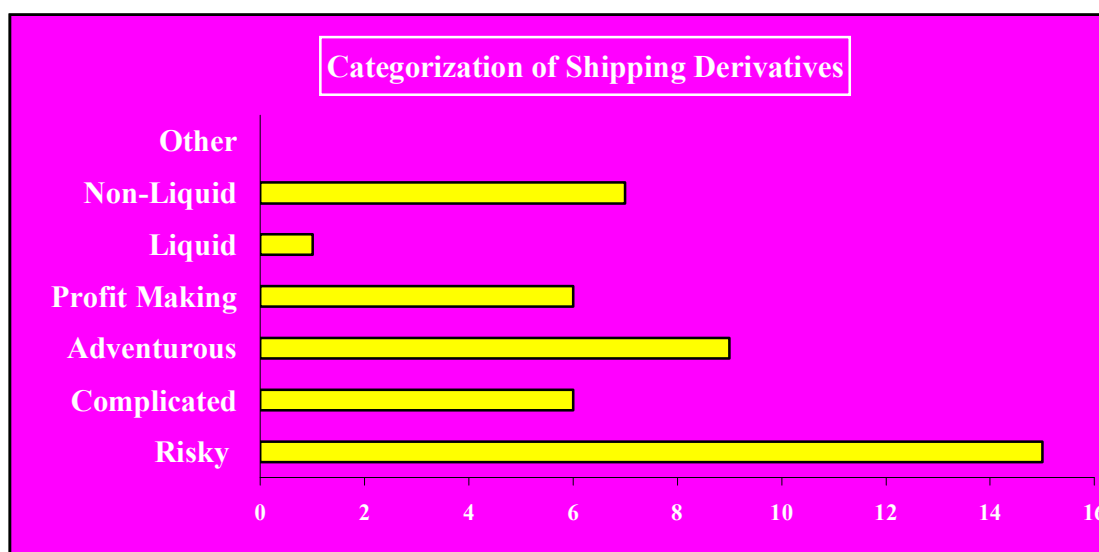


## **5.5 Perceptions of Shipping Derivatives**

It is interesting at this point to examine views of how our respondents perceived shipping derivatives. The *majority (34%) consider them “risky”* and this is a quite popular view as it appears in articles and commentaries concerning derivatives. It is reasonable for most people to regard shipping derivatives risky because of the risks associated with them. Let alone some major bankruptcies that occurred involving substantial corporate names and derivatives. *“Adventurous” are regarded by 20%*, due to perils that arise from unexpected conditions. *14% consider derivatives “Complicated”* and this is true because they require

expert knowledge and a variety of parameters to be taken into account. It is not like the stock market where everyone can enter. *“Non-liquid” responds to a 16%*, a view associated with the main problem of shipping derivatives that of liquidity risk - the inability to offset your position when decided. *Only 14% considers them “Profit Making” and 2% “Liquid”*. The massive part of our respondent’s (84%) seemed reserved and attentive.

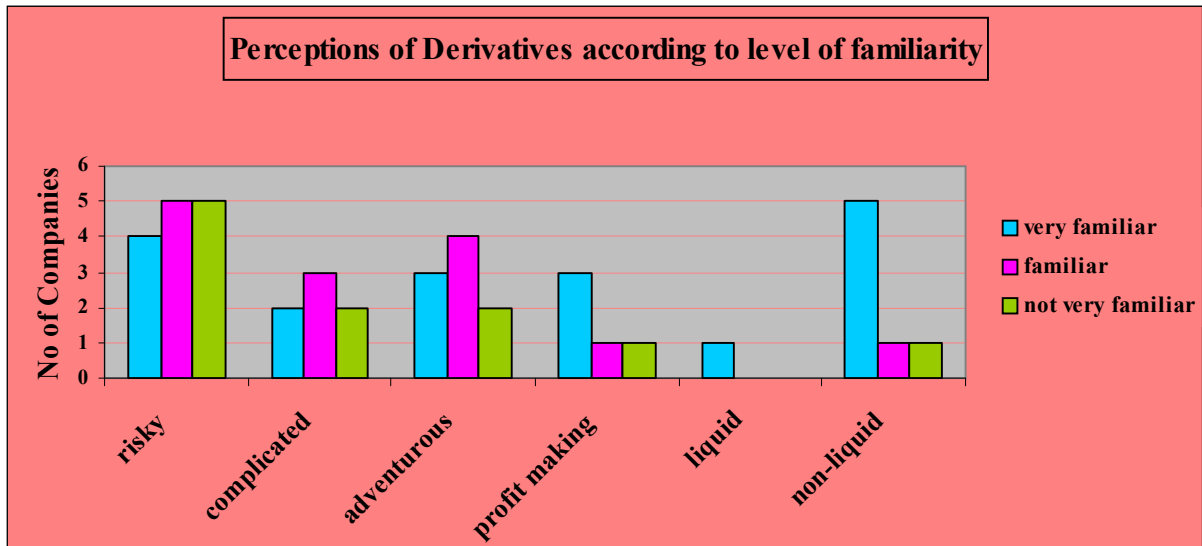
**Diagram 5.4 Perceptions of Shipping Derivatives**



### **5.6 Perception of Derivatives Associated with Level of Familiarity**

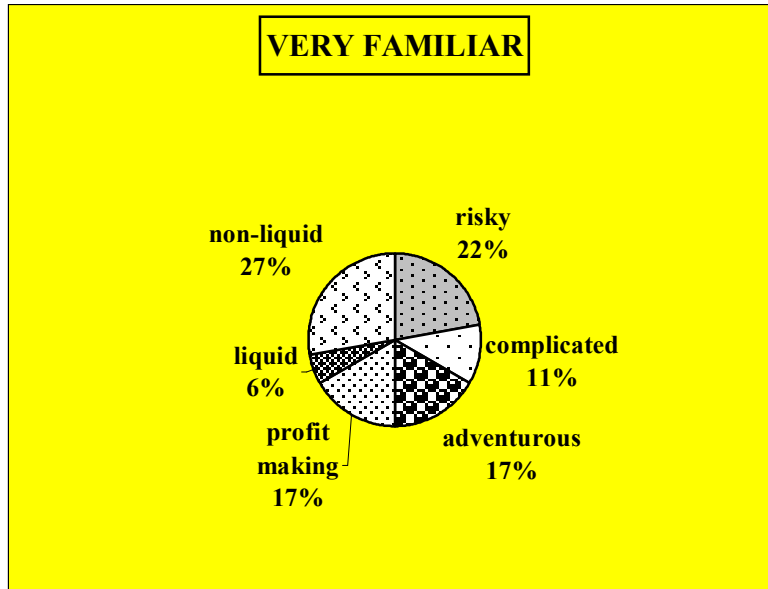
The level of familiarity is indicating useful information of how our sample reflects perceptions of shipping derivatives.

**Diagram 5.5 Perceptions of Derivatives According to Level of Familiarity**

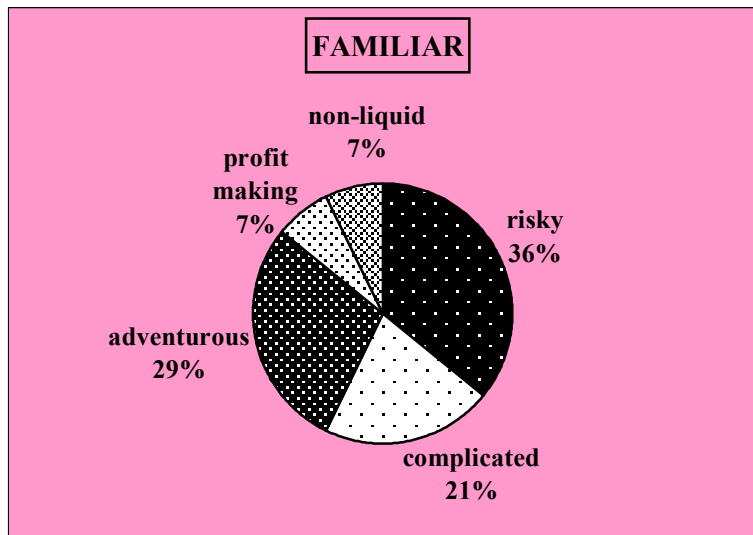


According to the level of knowledge shipping derivatives are encountered in different ways. As the level of familiarity progresses the less risky they appear. In particular those that are very familiar evaluate them mainly as non-liquid 27%. The same factor diminishes as level of familiarity progresses to 7%( familiar) & 9% (not very familiar). The lesser the level of familiarity, the more risky shipping derivatives are viewed. *Very familiar regard them risky in a 22%, familiar 36% and not very familiar 46%*, (diagrams 5.6, 5.7, 5.8) Consequently, people fear what they don't know. *Only people that are in the very familiar level encounter derivatives as liquid 6%, while the rest don't consider them as liquid at all 0%*. Significant is also the proportion that views them as complicated and adventurous relatively to the stage of familiarity. *The very familiar people find them complicated 11%, the familiar 21% and the not very familiar 18%*.

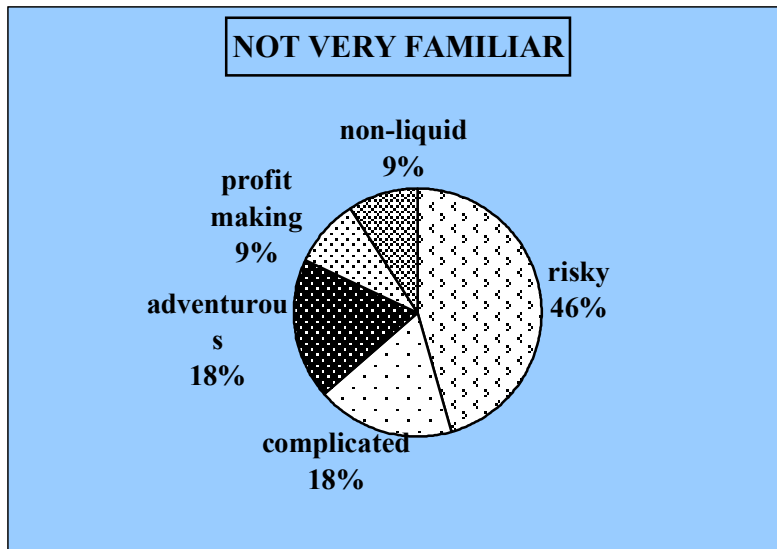
**Diagram 5.6 Very Familiar in Shipping Derivatives**



**Diagram 5.7 Familiar with Shipping Derivatives**



**Diagram 5.8 Not Very Familiar with Shipping Derivatives**

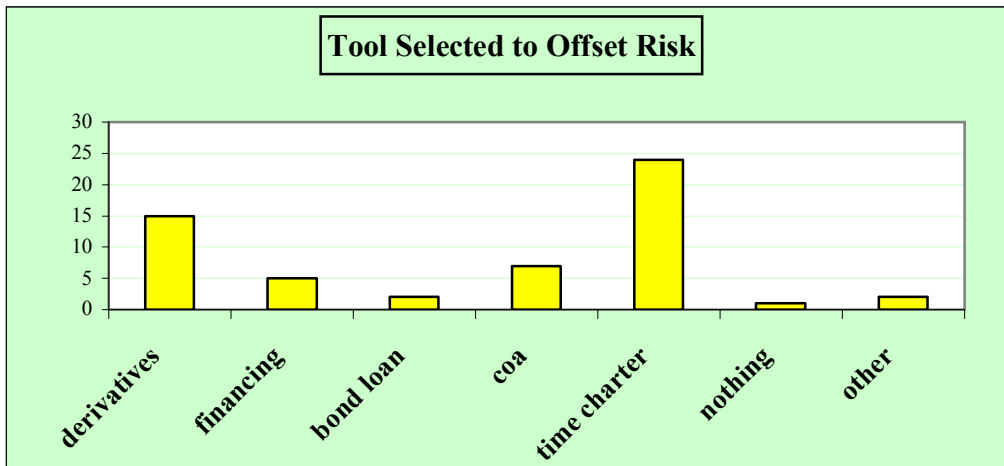


The stage of awareness and knowledge influences substantially the attitude towards certain financial tools. We observe that as the standard of know-how progress different issues are addressed. The more expert fear issues associated with the practical application of the instruments - such as “Non – liquid”. The others evaluate them from a more theoretical wide-ranging aspect- such as complicated and adventurous.

### **5.7 Tool Selected to Offset Risk**

The time-charter contract as an action, consists a primary choice in management decisions, **42%** (Diagram 5.9) *will choose time charter to adverse market fluctuations*. In view of that it stabilizes revenue and lessen risk such as bunker fluctuation that is usually for charterer’s account. *Derivatives come as a second choice with a 26%. COA gets a13%, financing 9% and bond loan 4%. Nothing chooses 2% and 4% Other.*

**Diagram 5.9 Financial Tool Selected to Offset Risk**



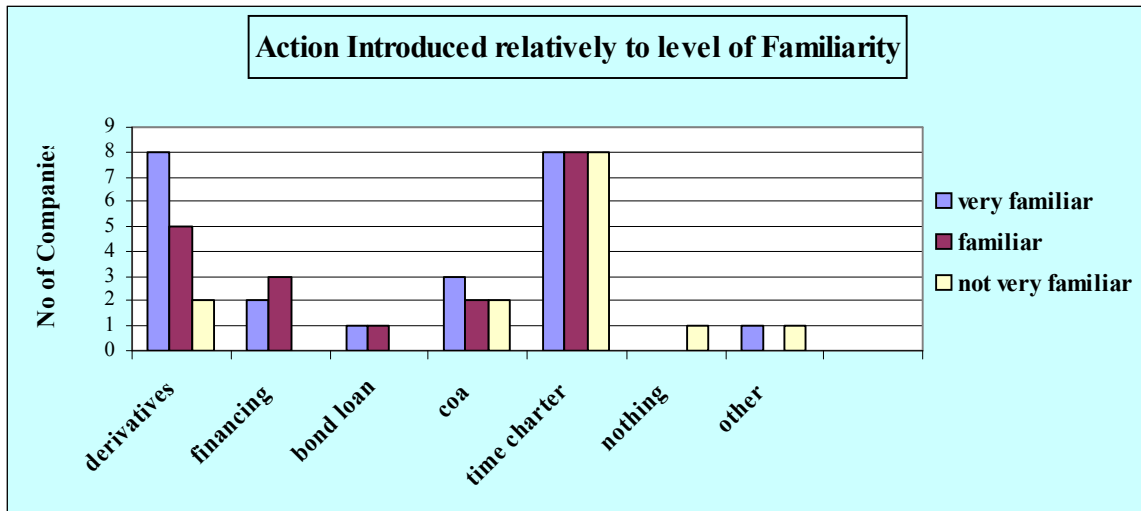
Furthermore, according to one's expertise knowledge we can draw important conclusions of what action one will take to minimize risks associated with his company. *The "very familiar" managers will choose derivatives 35% equally with time charters* as an action to offset the risks faced by a corporation. 9% and COA will use financing by 13%. Bond Loan and Other got respectively 4%.

Those that are *"familiar" will use derivatives in 26% although the majority of 42% will choose time charters* to be in their priority. The "familiar" people will also select alternative financial tools such as financing 16%, COA 11% and bond loan 5%.

The *"Not very familiar" managers will use time-charters, 58%*, as their main core of action and derivatives (14%) equally to COA (14%) in a much lesser extent. "Nothing" and "Other" got 7%. Certainly, the outcome doesn't surprise us. One will select what he trusts and knows better. Even though, humans are by nature impulsive and influential they don't seem to drift into motions that have high return when they don't trust them.

Financing and Bond Loan come with a cost that of interest that has to be repaid together with the principal.

**Diagram 5.10 Action Related to Level of Familiarity in Shipping Derivatives**



## 5.8 Conclusions

In this section we found out that the risk management decisions in Greek Shipping companies are taken by the shipowner mainly and secondarily by the chief financial officer. Seldom are the companies that have a risk manager.

The majority of the shipping companies have used in the last five years swaps that are becoming very popular to shipping market.

The level of familiarity with shipping derivatives also affects the use of these techniques to offset risk. The majority considers them risky and adventurous, perceptions that vary according to the level of familiarity.



## CHAPTER 6

### SHIPPING DERIVATIVES IN GREEK SHIPPING COMPANIES

#### **6.1 Introduction**

In this chapter we examined the roles of shipping derivatives in Greek shipping companies. In particular we researched if Greek shipping companies use shipping derivatives and to what extent.

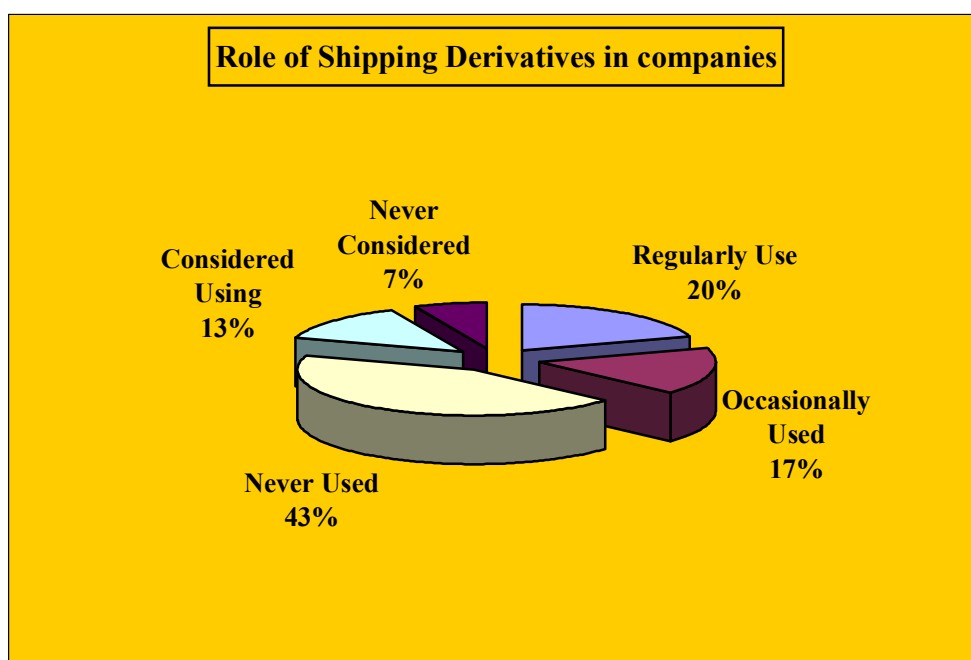
We also measured shipowner's attitudes towards shipping derivatives and we traced their fears and compunctions.

#### **6.2 Role of Shipping Derivatives in Greek Shipping Companies**

The role of Shipping Derivatives in Shipping companies had as follows: *17% occasionally used, 20% regularly used, 13% considered using and 43% never used* (Diagram 6.1), which doesn't necessarily mean that they don't consider or they will not consider using, while 7% never considered. This last one indicates that they may not be familiar or they completely rejected their application. The 14% regularly using is not surprising if we consider that a 14% regards shipping derivatives profit – making and 2% liquid. Perhaps the 14% regularly using is being verified by the 14% that finds them profit making. Those that encounter profits regularly use derivatives. Although it may sound ideal, it may be the case. “Occasionally used”, points out that an 18% considered seriously using derivatives or used them and for some reason didn't use them again or with a continuous manner. The

regularity also is a noticeable factor. As a corporation may use derivatives occasionally only when required or when it evaluates is the right time to do so. The fact that a corporation does not use derivatives frequently doesn't mean that the person in charge is not familiar or that he/she doesn't regard derivatives appropriate. On the contrary a corporation may have different means of reaction. For example one company as stated in the questionnaire has her own open – cast mine so there is no need to worry for cargo or freight fluctuation.

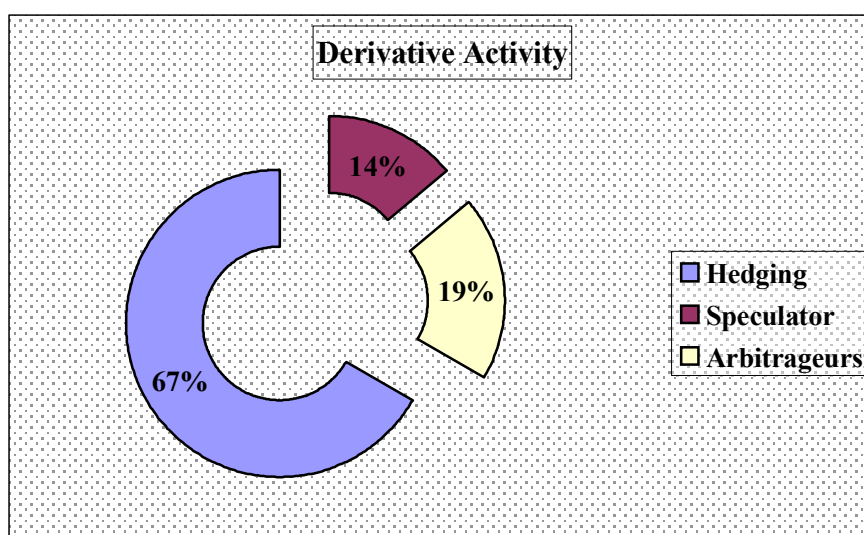
**Diagram 6.1 Roles of Shipping Derivatives in Greek Shipping Companies**



If you were to choose a derivative activity which one would you prefer? This opinion question was put to our respondent's, trying to achieve simultaneously two targets: asking for opinions and measuring attitudes.

As we can see from the Diagram 6.2 **67% would select hedging activity**, transfer risk to other market participant. **19% would prefer the arbitrage activity**; take position in mispriced instruments in order to earn riskless return. Finally, only **14% would choose to be speculators**, to take unhedged risk positions in order to exploit informational inefficiency or to take advantage of their risk capacity. The need for hedging seems to be of first priority in Greek Shipping market. Frankly after an interview we had with an expert in the field, this outcome may slightly change due to the fact that those that deal with a derivative market are tempted to speculate.

**Diagram 6.2 Derivative Activity Shipping Companies may choose**



### **6.3 The Risk Value of a Shipping Company**

**Freight volatility is of primary concern (34%)** according to our questionnaires. Freight has its unique cycles, supply and demand factors and its own volatility. Volatility is the main

characteristic of shipping market and it is dynamic and persistent. The fluctuations in freight rates influence significantly a shipowner's final profit, affecting mainly the revenue side and the loss and profit in their balance sheet. As one of our respondent's commented: "we would be very much interested to use tanker FFAs to tackle freight market volatility or to assist positioning of our fleet in certain trading areas without running the risk of short-term inactivity". The interest rate (20%) follows in order of concern because as we have already seen fluctuation in Libor level can affect significantly revenue side. Ship values and Foreign Exchange fluctuations take their position next in risk evaluation for a shipowner with a 16%. Bunker fluctuation, comes last, with a 14% (although we expected it higher). Perhaps, the contracts made by Greek Shipowners endorse Bunkers Cost to the charter.

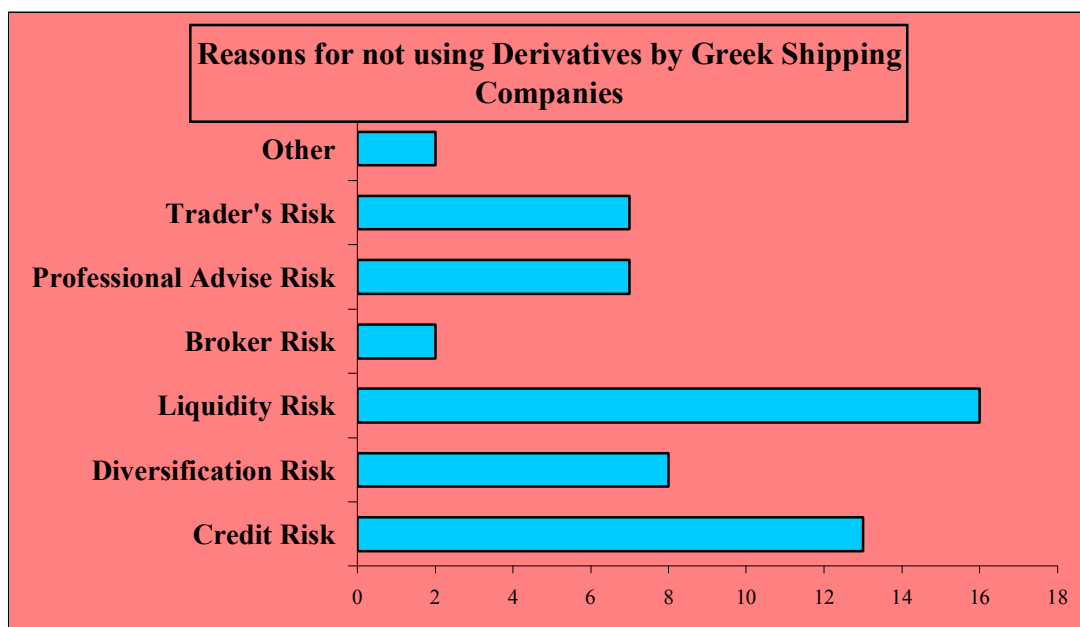
**Diagram 6.3 Classification Risk According to Importance by Shipping Company's**



#### **6.4 Shipowners Attitude towards Shipping Derivatives**

At this stage we find it useful to examine the reasons that avert Greek Shipowners to use derivatives. *Liquidity risk has a 28%* and is the foremost reason for not involving in shipping derivatives. *Credit risk follows with a 23%. Diversification risk has a 15%. Professional Advise and Trader's Risk gets 13%* as well. *Broker risk and other reasons sum up a 4%.* It seems that liquidity and credit risk are the main factors that deter active members of the shipping market to use derivatives. The fact that one may not be able to offset his position when he/she wants consists a prohibitory element. As a Greek Shipowner stated: "Everything is saleable, but when you decide to sell there may be no buyer". We may point out also that freight derivatives are over the counter contracts without clearinghouses and warrantor's. Therefore credit risk is high especially if we examine it in combination with freight volatility that is found to be of primary concern.

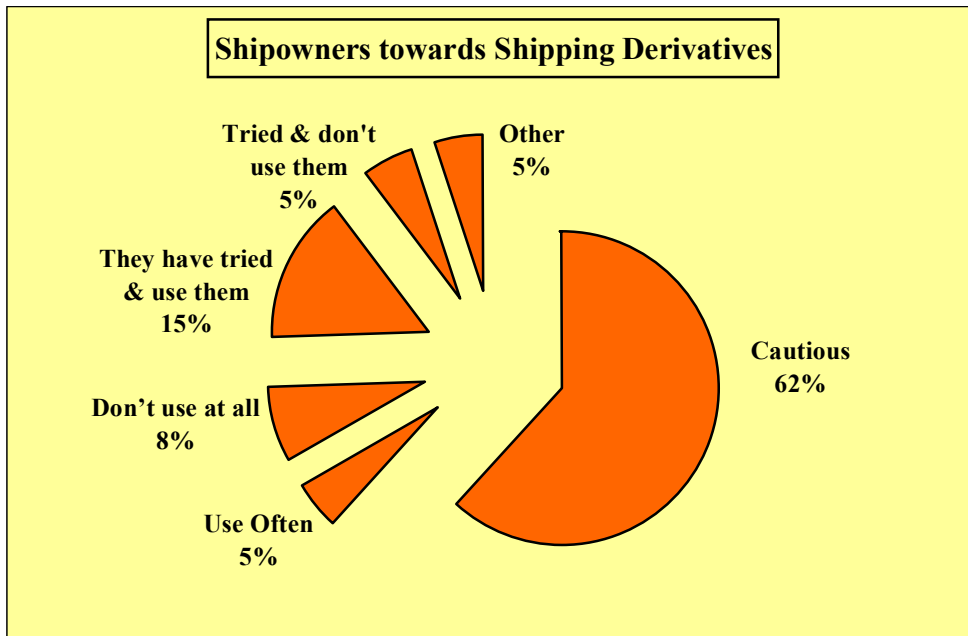
**Diagram 6.4 Reasons for not Using Derivatives by Greek Shipping Companies**



The majority of Greek shipowners perceives shipping derivatives with cautiousness. *A 62% was cautious.* This opinion poll, detects that there is a negative attitude towards shipping derivatives. It is not something welcome without reservation and unconditionally. On the contrary the results show that shipowners are watchful and precarious. This can be due to many reasons. First because of resistance to change as we already have mentioned and we have validated by our relevant research section. Second because of fear that hedging may reduce freight volatility and thus having smaller swings between market peaks and troughs. That may limit the ability of Greek investors to profit from asset trading by timing properly their purchases and sales. Third, one of the main reasons that derivatives have historically undergone so much scrutiny is that all derivatives transactions have a “loser”. Naturally no investor would like to be on the loss side. Fourth, the issue of know-how. We saw that most Greek shipping companies are made and run by ex-mariners and not by financiers. Therefore Greeks will not indulge in a market they don't know well. Fifth, the risk management process. Effective risk management presupposes a well trained, expertise and authorized personnel. Many shipowners make decisions on his or her own sometimes without consulting anyone. Derivatives may seem that they increase bureaucracy and prohibit immediate decision-making. As history has proved Greeks shipowners go unlike market direction for reasons that only the future justifies. Now that everybody is selling vessels Greeks order new-buildings making the market whisper: “Beware the Greeks bringing ships”. Going further to our analysis from those that tried derivatives, *a 15% use them while a 5% don't use them.* The initial stage is crucial when once used to keep on using them and not be deterred by losses or difficulties. Many that

incurred loss had been disappointed and frightened to proceed on again. *A 5% uses them often and an 8% don't use them at all. 5% state other claiming than derivatives are still in infancy* (Diagram 6.5).

**Diagram 6.5 Shipowners Attitude Towards Shipping Derivatives**



## **CHAPTER 7**

### **FACTORS INFLUENCING SHIPPING DERIVATIVES**

#### **IN GREEK SHIPPING MARKET**

##### **7.1 Introduction**

In this Chapter we deal with the various factors that influence the engagement with shipping derivatives such as shipping industry conditions, age of vessel, etc.

Further on, shipowners attitudes are being examined such as fear of “market manipulation” and traditional way of thinking.

##### **7.2 Importance of Factors Influencing Shipping Derivatives**

Respondents were asked to rate the importance to their firms of factors influencing Shipping Derivatives. The factor that was rated most highly was “Shipping Industry conditions”. Substantial changes in freight volatilities result from periods of large imbalances and shocks to the industry that occur unpredictable. Furthermore, the circumstances that prevail in the market, such as ordering of new types of vessels or withdrawal of old vessels matter. The blacklist boycott of certain flags and the allowance of others to enter in some ports also are of concern.



The creditworthiness and the loan record follow as an important factor. A counterpart that's not creditworthy and doesn't repay his loans is likely not to be a credential counterpart to do business with, especially in FFA contracts.

The cash capacity was rated first, too. Not only ships are physical assets with a rather limited and unknown lifespan (15-20 years) but also the cash flow from vessel operation exhibits unique characteristics such as high volatility and high return or high loss.

The chartering policy is rated firstly as well. Market movements are the main cause of decreases in freight rate revenue. Whether the vessel is engaged in the spot where income is higher for a short period in comparison with the time charter market.

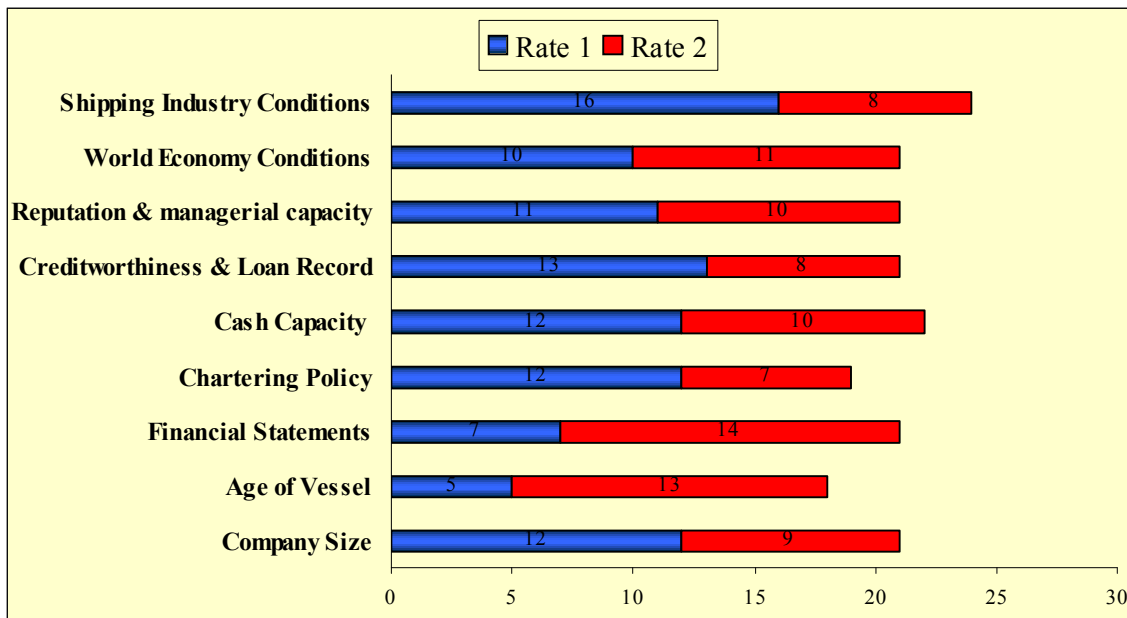
The company size is also first rated. We have already seen that the size of the company is relevant with trading derivatives. Small in size companies feel the need to diversify the risks they are facing as well as increasing their profits as well as large in size companies.

The world economy conditions rated second with a tiny difference of 1%. Political events, such as the war in Iraq. New legislation, such as ISM Code or ISPS.

The reputation and managerial capacity was also rated first. This is true if we consider those engaged in an FFA market where there is no clearinghouse and warrantors. Counterparties, should rely on whom they know and on the reputation he/she has. Greek Shipping is a small circle and everybody knows everybody. The importance of this factor may diminish when the market acquires volume.

Financial statements have a secondary importance. Less important factor compared to the rest is the Age of the Vessel.

**Diagram 7.1 Factors Influencing Shipping Derivatives**



### **7.3 Shipowners Attitude and the Possibility of “Market Manipulation”**

Another hypothesis of how derivatives are evaluated is that of fear of “Market Manipulation”. The opinions however seem to be divided in half 50% to 50% (Diagram 7.2) believe that Greek Shipowners are reluctant in using derivatives because of fear of “Market Manipulation”.

“Market Manipulation” means:

- Transactions or orders to trade, which give, or are likely to give, false or misleading signals as to the supply, demand or price of financial instruments, (Godel, 2003).
- Dissemination of information through the media, Internet and any other means, which gives, or is likely to give false or misleading signals as to the supply, demand or

price of financial instruments, includes the dissemination of rumors and false or misleading news.

“Market Manipulation” occurs in the following ways:

● **Information based manipulation.** This involves insider trading or making false reports in the market, (Doll&Hoody, 2002).

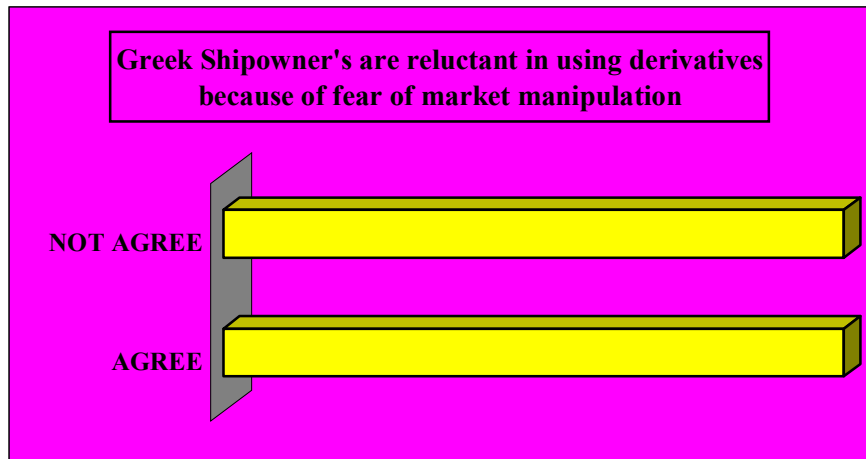
● **Action-based manipulation.** This involves the deliberate taking of some actions that changes the actual or perceived value of a commodity or asset, (Doll&Hoody, 2002).

● **Traded-based manipulation.** This is the classic case of using one market to capture the gains from creating a price distortion in another interrelated market, (Doll&Hoody, 2002).

The most important facet of market manipulation is the manipulation of information about the market. “This is the rock that sinks most investor’s ships”, (Zarathustra, 2004).

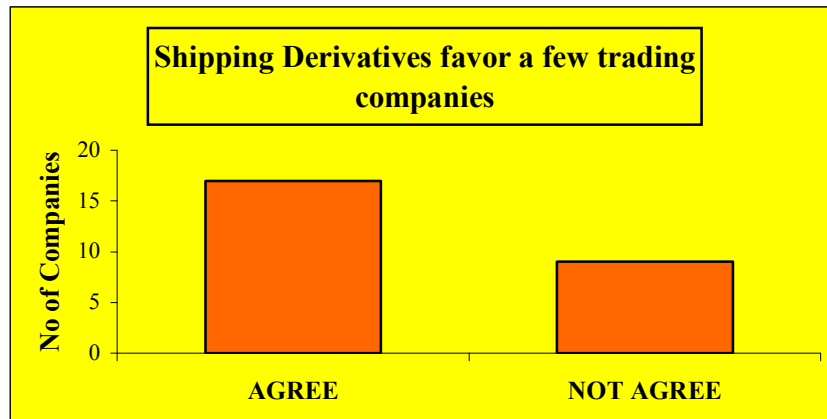
Market makers are very important for maintaining liquidity and efficiency for the particular contracts and services they make markets for. However, fears have been expressed that the shipbrokers and the traders that pull the strings of the market may direct the market in a certain path. Let alone the various cartels and monopolistic markets. One common strategy to manipulate market prices is through the use of derivatives markets, especially non-transparent over the counter because a large position can be accumulated or cleared without being observed by the overall market. Causing though a significant change in market balance.

**Diagram 7.2 Greek Shipowners & Market Manipulation**



The traders are those that marry ships with cargoes. They are the intermediaries in shipping industry. There are some traders that operate like speculators whose research helps them to predict future changes in prices. Informational asymmetries are here an important factor. As Treynor argues traders can be divided into those who trade in attempts to take advantage of their private information and those who trade for liquidity purposes. On average market makers lose when they trade with better-informed counterparties, (Hentschel & Smith, 1996). Equipped with superior knowledge, they then trade on favorable terms with less-informed buyers and sellers who are trading for other reasons. It is in a matter of “informational” efficiency. Market efficiency presupposes that all have the same information reflected instantly in prices. *In Greek market a quite high portion of 65% seems to fear that some trading companies with more information or better access to information may benefit. Only 35% didn't agree to that* (Diagram 7.3).

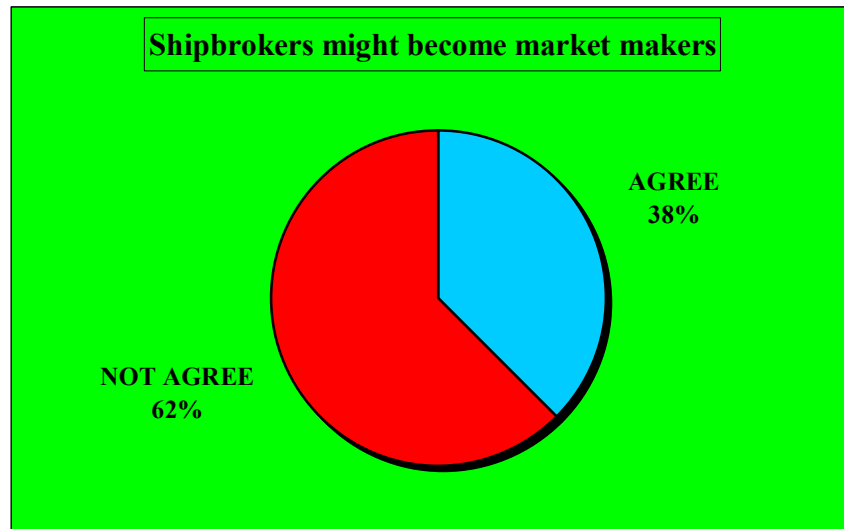
**Diagram 7.3 Shipping Derivatives & Trading Companies**



The above outlook is based on the information arbitrage model, where traders are described as speculators with the ability to calculate future changes in prices. The model also supports that “speculation is efficient by predicting that speculators help prices reflect supply and demand more accurately.

The same is being questioned for shipbrokers, the contingency shipbrokers to become market makers. However, the role of traders is more crucial than that of shipbrokers. Because shipbrokers are mere, intermediaries without bearing any cost of shipping or of a cargo as traders do. *Therefore the majority of 62% don't agree that shipbrokers may become market makers,* (Diagram 7.4).

**Diagram 7.4 Shipbrokers Possibility to Become Market Makers**

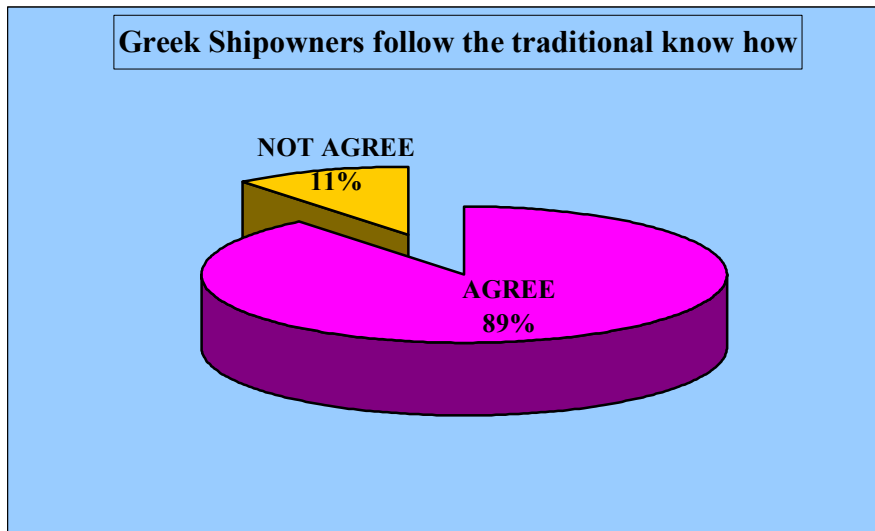


#### **7.4 Greek Shipowners and Traditional Thinking**

Many shipping companies are made and run by ex-captains that are capable ship operators with thorough knowledge of shipping issues. They know ships and the ventures that they face perhaps better than anyone else. It is not surprising how they manage to survive through difficult circumstances and encounter many others. It is not surprising also that **89% replied that they prefer the traditional know-how** (Diagram 7.5). This has to do with the kind of skills someone already has. Ex-captains and marine people have excellent operational capabilities while their financial experience and management capabilities may not be equal prudent. Consequently, a careful operation can save a corporation lot of money. Also, the traditional know-how may entail employing the vessel in time charters or contracts of affreightment or investing capital in long-term deposits. Some may claim that

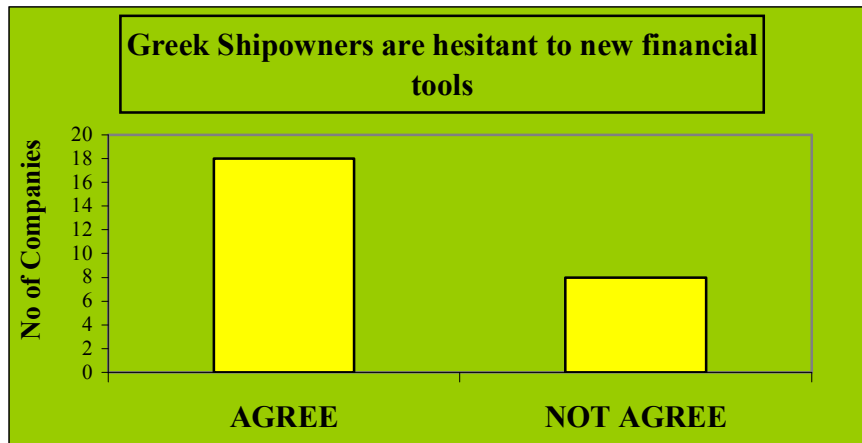
the traditional has been tested over time and it is a more secure practice than some new innovative instruments.

**Diagram 7.5 Greek Shipowners & Traditional Know-How**



We should point out now a relevant factor that comes hand to hand with the traditional know how, the so called resistance to change. Change often engenders perceptions of ambiguity and insecurity, leading to feelings of anxiety and fear. In any change activity, there will be those that are strongly in favor of the change, those that are strongly opposed to the change, those that have a “wait and see” attitude and a “just wait and it will pass” attitude. This is revealed in our research too where **69% is agreed that Greek Shipowners are reluctant to new financial tools and 31% not agree**, (Diagram 7.6).

**Diagram 7.6 Greek Shipowners Attitude Towards New Financial Tools**

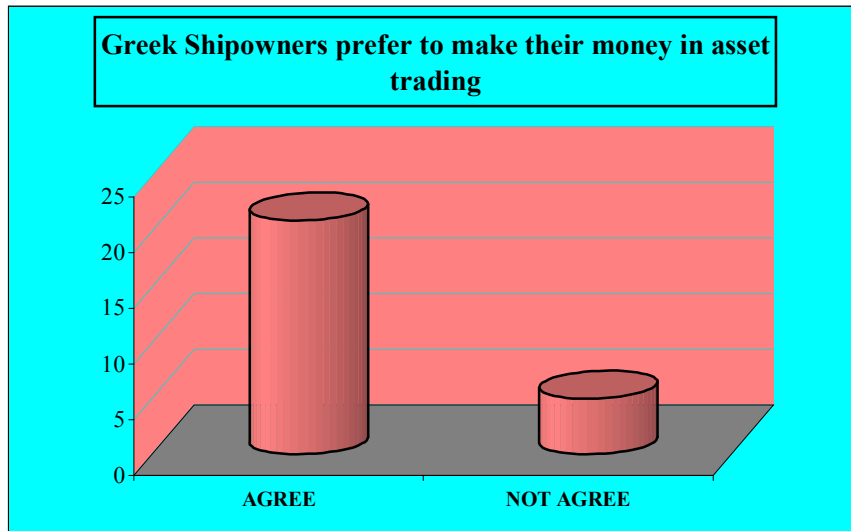


There are many shipowners that are shipowners, full stop. The concept of “trading” a market is virtually an anathema to such players and, almost certainly, always will be. To some asset trading is the prime requisite (Drewry Shipping Consultants Ltd, 1997).

According to Martin Stopford, an economist with Clarksons, (the world’s largest shipbroker), the secret of the Greek success is of finding cargoes to specialists: they excel, instead, at managing risk. The Greek shipping fortunes are based on buying ships cheaply and selling them dear. They have impressive record of spotting the tops and bottoms of the market. Greeks buy and sell ships far more than others in the industry. According to Naftiliaki, a trade magazine, says that of 535 ships traded from January to mid-May 2004, 264 involved Greeks. This is also verified by our research, **81% to 19% agree that they prefer to make money in asset trading**, (Diagram 7.7). Undoubtedly, the profits to be made in asset trading outstrip substantially those deriving from freight trading and derivatives.



**Diagram 7.7 Greek Shipowners Attitude Towards Asset Trading**



## **7.5 Conclusions**

Various factors influence the application of risk aversion techniques such as shipping derivatives. The shipping industry conditions, the credit worthiness and the loan record of a shipping company as well as the chartering policy and the age of the vessel are some of the main factors.

Some factors, as was stated by the majority of our respondents, that have a negative effect on shipping derivatives is the fear of market manipulation by trading companies. Furthermore, Greek shipowners as came out from our research prefer to follow the traditional know-how and they are reluctant to new financial tools. Let alone that Greek shipowners choose to make their money in asset trading.

## **CHAPTER 8**

### **SHIPPING DERIVATIVES AND ASSOCIATED ISSUES**

#### **8.1 Introduction**

There are several issues associated to shipping derivatives. Some argue that hedging restricts an investor from exceptional gains while at the same time derivatives assist the allocation of economic risks. Furthermore the need for a clearinghouse to regulate forward contracts is questioned. We also examine the role of Banks relatively to shipping derivatives and how Banks can contribute to the use and best use of shipping derivatives. This and other issues such as the necessity for a trained personnel and the research for appropriate tools for a shipowner are addressed in this Chapter.

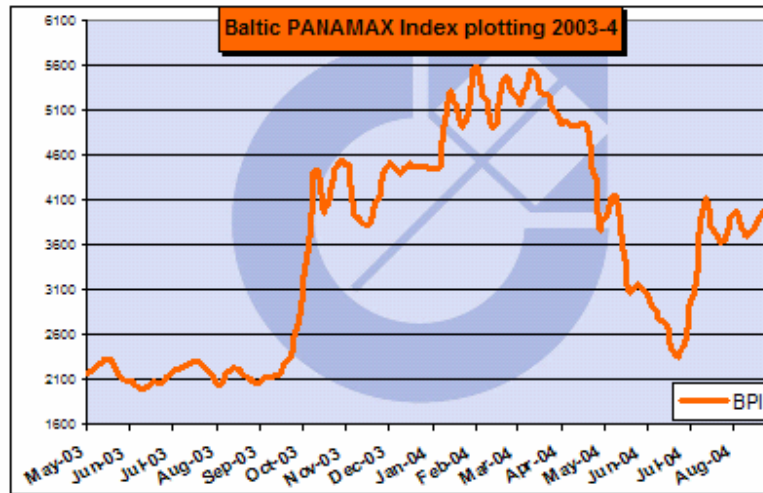
#### **8.2. Hedging Related to Profit**

One of the great benefits when hedging with derivatives is that it allows an investor to benefit from profitable fluctuations and opportunities that come up in the market. Quite the opposite happens when hedging takes place in time-charters, financing or bond loans. In that case an investor is restricted.

The above is evident also in our research findings. The majority agrees and strongly agrees that hedging locks out the potential for exceptional gain, (Diagram 8.2). This is viewed especially in the current market where we are noticing an unacceptable and unpredictable rise in every aspect of shipping industry. Vessels time chartered in this period loose

significant earnings because the freight level and the ship values undergo a day-to-day increase as shown in (Diagram 8.1)

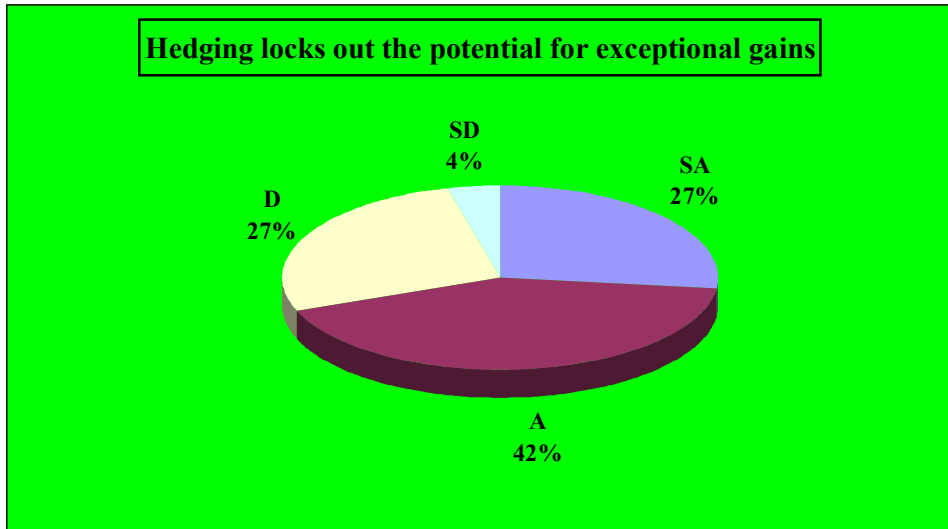
**Diagram 8.1 Baltic Panamax Index 5/2003 to 8/2004**



Source: BERY MARITIME CORPORATION, 2004

Furthermore we have to mention the issue of a bad hedge that actually adds volatility to the portfolio. This can happen for various reasons first because a hedge may work in theory but not in practice, which means that the preparation is good, but the hedge behaved differently in real time situation also due to other unstable parameters such as oil crisis, etc.

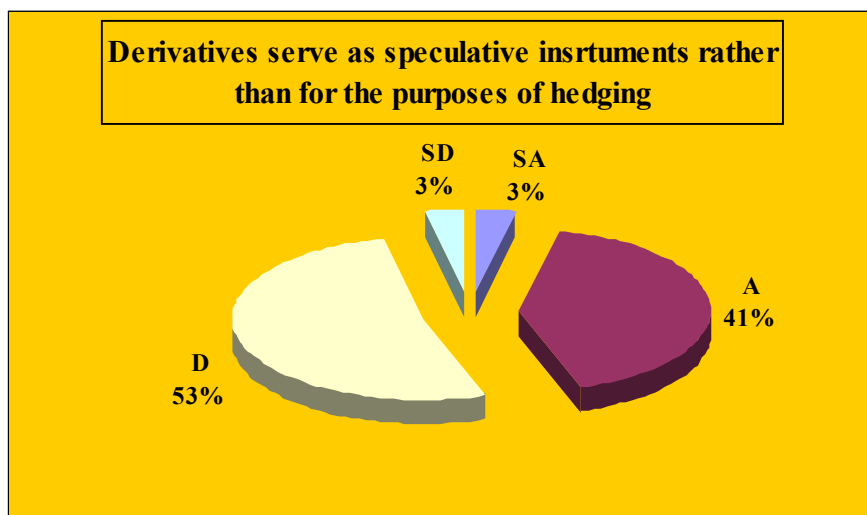
**Diagram 8.2 Hedging and Exceptional Gains**



### **8.3 Derivatives Forms of Use**

A great deal of controversy has been made arguing the role and implication of derivatives. Some argue that they are speculative rather than hedging instruments, (Diagram 8.3).

**Diagram 8.3 Derivatives as Speculative Tool**

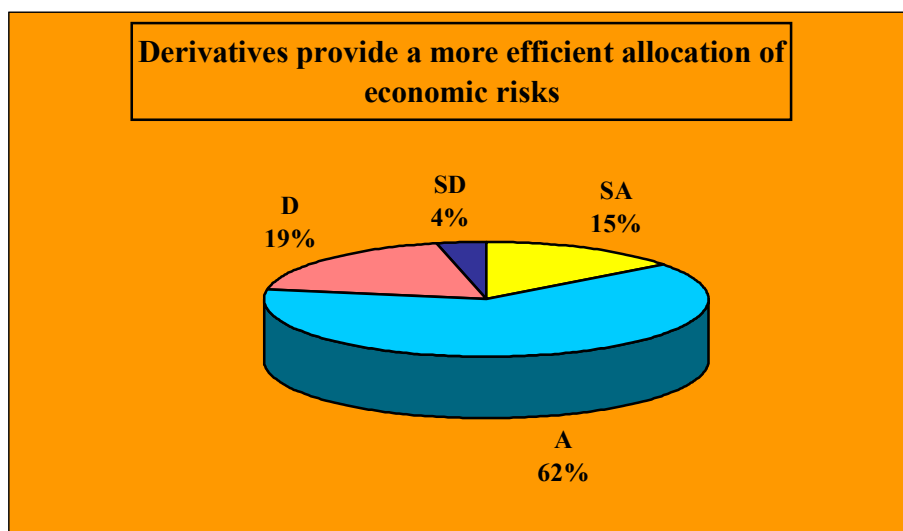


The majority of our respondents agree (62%) that derivatives provide a more efficient allocation of economic risks and the 15% strongly agrees, (Diagram 8.4). This is true if we take into consideration that derivatives offer the ability to lock the price of a commodity or a service. They also constitute a free forecasting service to market participants. Derivatives can help shipowners plan forward better relatively to freight rates that is one of their main concerns. This may influence decisions regarding their chartering policy:

- Whether to keep vessels in spot market or time charter.
- How long to keep them employed in the spot or in time charter.
- What proportion of the fleet to have in the spot relative to the time charter.
- Whether to order new vessels or keep old ones (Kavussanos & Visvikis, 2003).

Furthermore, when senior management has a complete view of the corporation's risk profile, it can make better capital allocation decisions since the section with the greatest potential risk needs the most capital.

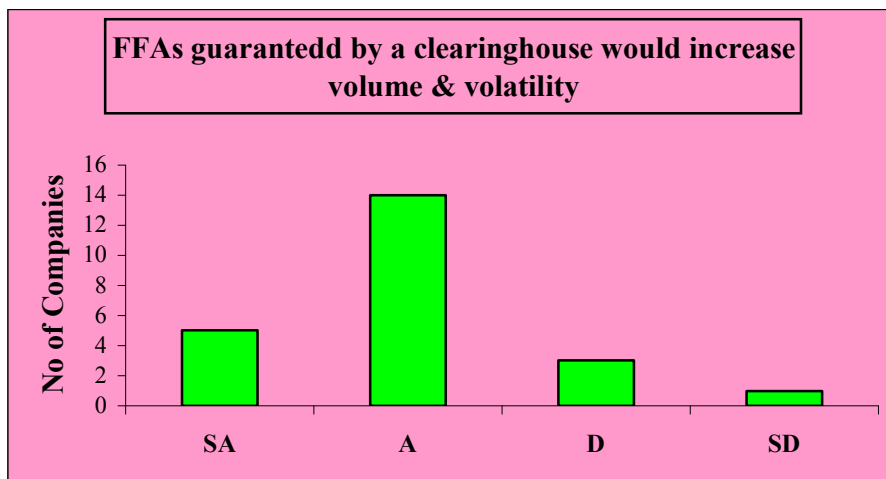
**Diagram 8.4 Derivative & Allocation of Economic Risks**



#### **8.4 Clearinghouse and FFA'S**

Shipping companies have to limit their trades to counterparties they are comfortable with and know well. If the FFA market becomes a cleared market it will be far more accessible and allow other players to enter. We have seen that default risk is one of the main worries in derivatives market. Furthermore this market has always met substantial challenges due to low liquidity. This is partly due to low liquidity and price transparency in the underlying spot freight market, which makes continuous price setting in the spot market more or less impossible. As long as market players are unsure about the fair market price for FFAs low liquidity will prevail. Recently, several companies as well as Baltic Exchange have announced a renewed effort in creating electronic marketplaces for the trading of forward freight rate products. However a bureaucratic gatekeeper to the derivatives market may seem unattractive. As far as it concerns the Greek Market the need for guarantees and clearinghouses is stated. A **61% agrees and a 22% strongly agrees that a clearinghouse will increase action in FFAs. A small but not indifferent portion of 14% disagrees and 4% strongly disagrees**, (Diagram 8.5).

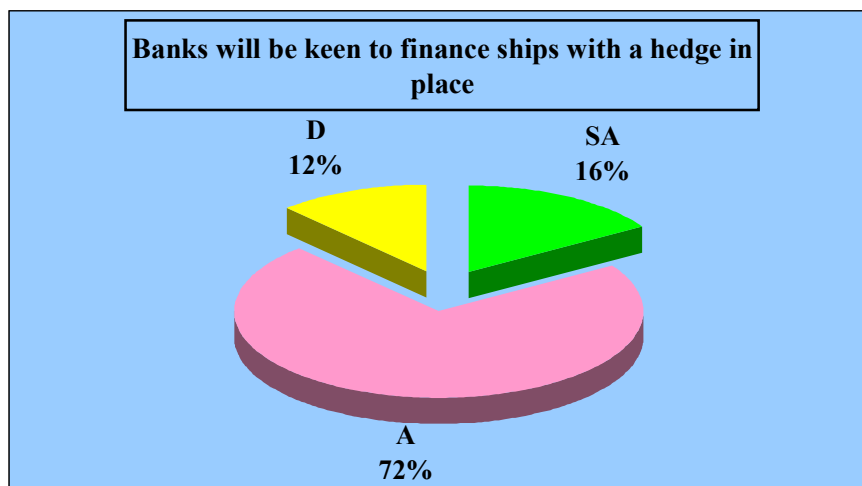
**Diagram 8.5 FFAs Guaranteed by a Clearinghouse**



## 8.5 Banks and Shipping Derivatives

Banks grant loans more easily when the underlying investment has a security clause. For that reason, companies that employ their vessels in time-charters are preferable because they offer secure revenue. The majority (72%) “Agrees and 16% “Strongly Agrees” that finance to a ship with a hedge in place is granted without difficulty, (Diagram, 8.6). Consequently, hedging risks against market fluctuation is an advance for a corporation. It raises her borrowing capability. A bank also faces lower default risk if its counterparty is using a derivative to hedge than when the counterparty is using a derivative to speculate.

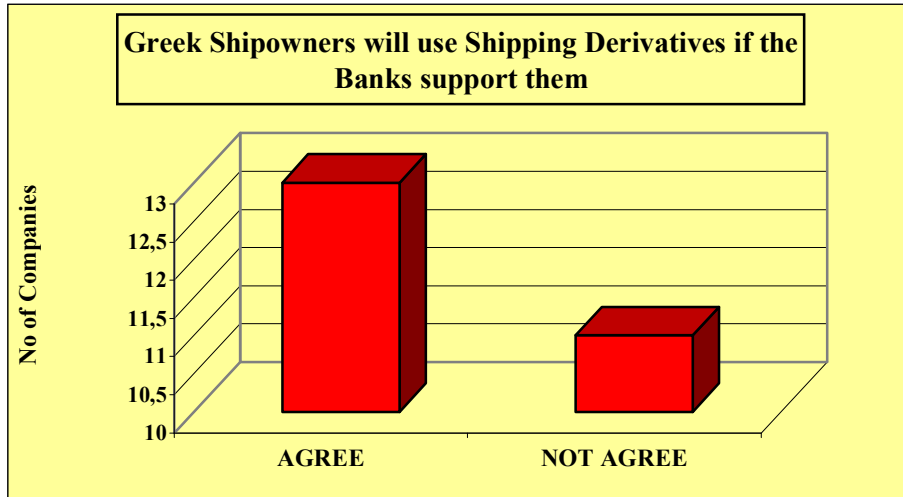
**Diagram 8.6 Banks & Hedging**



*The majority 56% agrees that shipowners will use Shipping Derivatives if the Banks support them and 46% not agree, (Diagram 8.7). The rationale of this question wishes to examine the interconnection between shipping activities and banks. We assume that investors are high dependent on banks not only from a financial point of view but also*

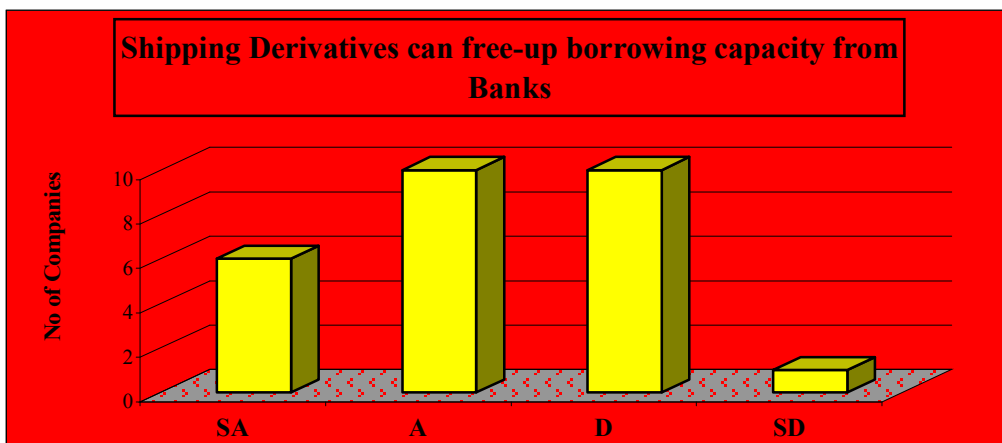
from a consultative point of view. Banks, forward warnings and propositions, which investors take into consideration.

**8.7 Use of Shipping Derivatives in Provision of Banks Support**



Creditworthy banks and firms in emerging market countries can reduce their borrowing costs now that they are able to tap a broader part of capital from a more diverse and competitive array of providers.

**Diagram 8.8 Shipping Derivatives & Potential Free-up Borrowing Capacity**



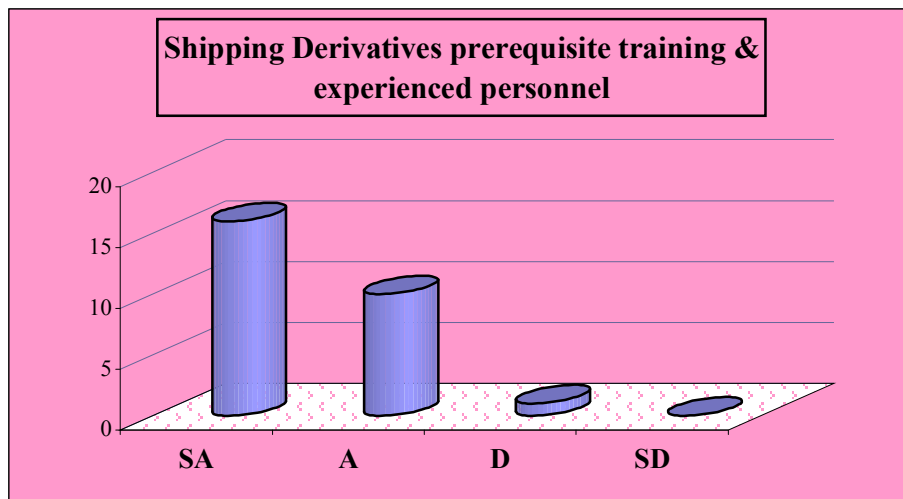


Without doubt an experienced and well-trained personnel is required in order to implement shipping derivatives. A 59% strongly agrees with this view and a 37% agrees. Only a 4% disagrees leaving no doubt about of the need of training and practical execution. This entails personnel with thorough financial qualification, analytical capabilities, easily learning and cooperative. One should invest in training his personnel and acquiring experienced personnel. The one or the other it may prove out to be inadequate.

An organization without a programme of continuous improvement and education cannot hope to be as competitive as one that does. There are two forms of development. **The first is by osmosis.** Place an apprentice alongside a craftsman and the apprentice will copy, emulate and absorb the skills of the craftsman. (Drewry Consultants, 1997). **The second is education.** We estimate that in trading derivatives both directions are needed and have to be followed, the theoretical background contango with experience. Because the knowledge itself is not adequate, the market entails a lot of perils that unless someone is familiar with he/she cannot deal with them.

On top of that we should mention that one expert person is not enough because as claimed “there is not a deep talent pool of people who are well versed in all the activities that pose a potential risk to the corporation. In today’s environment it is hard for one person to have expertise in all these areas”, (Milligan, 2004). He/She may be familiar with interest rate risk; he/she might also have worked in a bank but may not be familiar with freight rate risk. It is a team of expert that is needed to apply shipping derivatives.

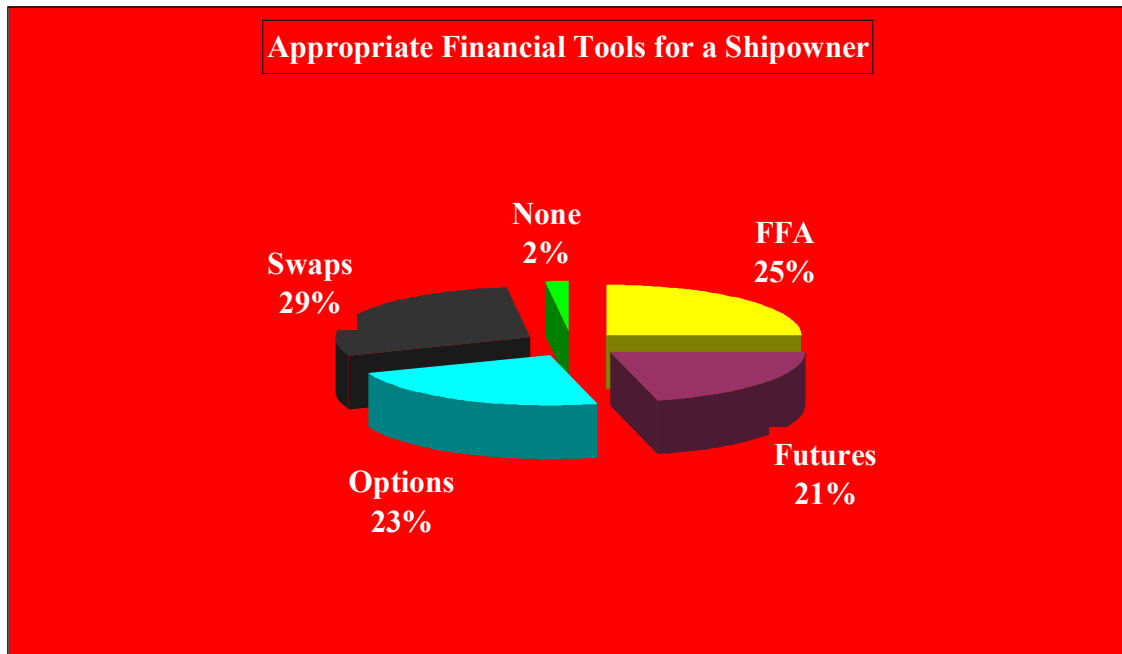
**Diagram 8.9 Shipping Derivatives and the Requisite of Training**



### **8.6 Appropriate Financial Tools for a Shipowner**

We asked our respondents what tools do they consider appropriate for a shipowner. The answer was that swaps in 29% are regarded as the most appropriate. Swaps are the easiest in kind to be used. FFAs contracts follow with 25%. FFAs are tailored made to the specific needs. Options got a 23%; they are an extremely versatile investment toll, flexible and effective. Futures follow with a 21% while a small percent 2% believes that none of them are suitable. The scope of this question is to estimate investor's perceptions without prejudice, fear and preconceptions. Setting a theoretic question we did this. This also verifies what most professionals in the field think, that derivatives are useful tools only when used properly.

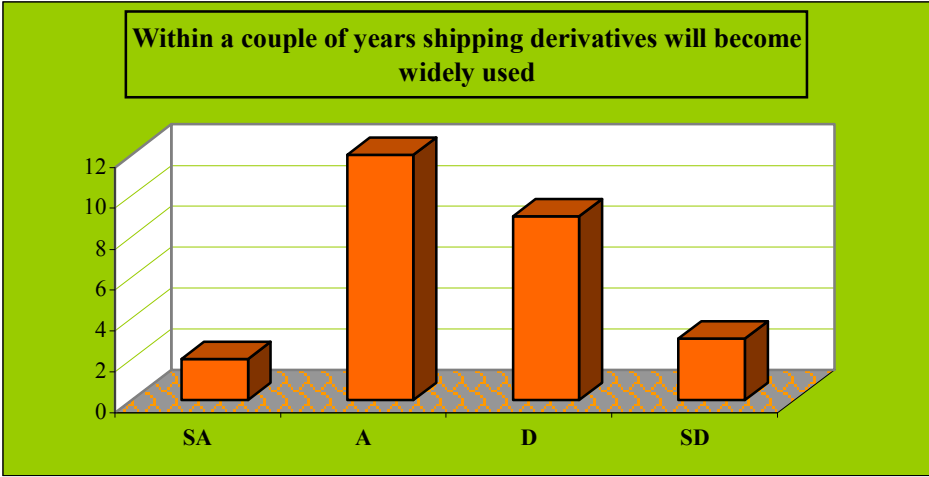
**Diagram 8.10 Appropriate Financial Tools for a Shipowner**



### **8.7 The Future of Shipping Derivatives in Greece**

Asking our respondents to state their opinion about the Future of shipping derivatives in Greece we came across a more positive perspective than we initially expected. A 52% stated positively, a 33% neutrally and 15% negatively. This is encouraging, if we consider that Greek Shipping is a conservative industry. If we also take into consideration the fears and anxieties towards derivatives the final clue is that they are not prohibited. A 48% is quite high, and the 36% neutral, may shift as the market progresses in a negative or a positive attitude.

**Diagram 8.11 Derivatives Potential Use by Greek Shipping Companies**



**Diagram 8.12 The Future of Shipping Derivatives in Greece**



## **8.8 Conclusions**

We have seen up to now that hedging helps investors to protect themselves against market fluctuations in the market. Yet the majority of our respondents agree that hedging sometimes restricts investors from exceptional gains although they believe that derivatives serve as hedging instruments and not speculative instruments. The majority of our respondents agree that derivatives provide a more efficient allocation of economic risks. Furthermore, Banks role was evaluated high by our interviews. Banks support to shipping derivatives was strongly underlined. Banks will also be benefited since they will finance ships with hedging. Finally a large part believes that derivatives will widely used in a short period of time and derivatives future is perceived with positiveness.

## **CHAPTER 9**

### **THE ROLE OF SHIPPING BANKS TO SHIPPING DERIVATIVES**

#### **9.1 Introduction**

In this Chapter we will examine Banks responses related to the questionnaire we distributed. The same questionnaire used before was asked to fill in by Shipping Banks in Greece.

#### **9.2 Role of Shipping Banks according to Shipping Companies**

Derivatives provide investors with a crucial tool for hedging against risk and uncertainty.

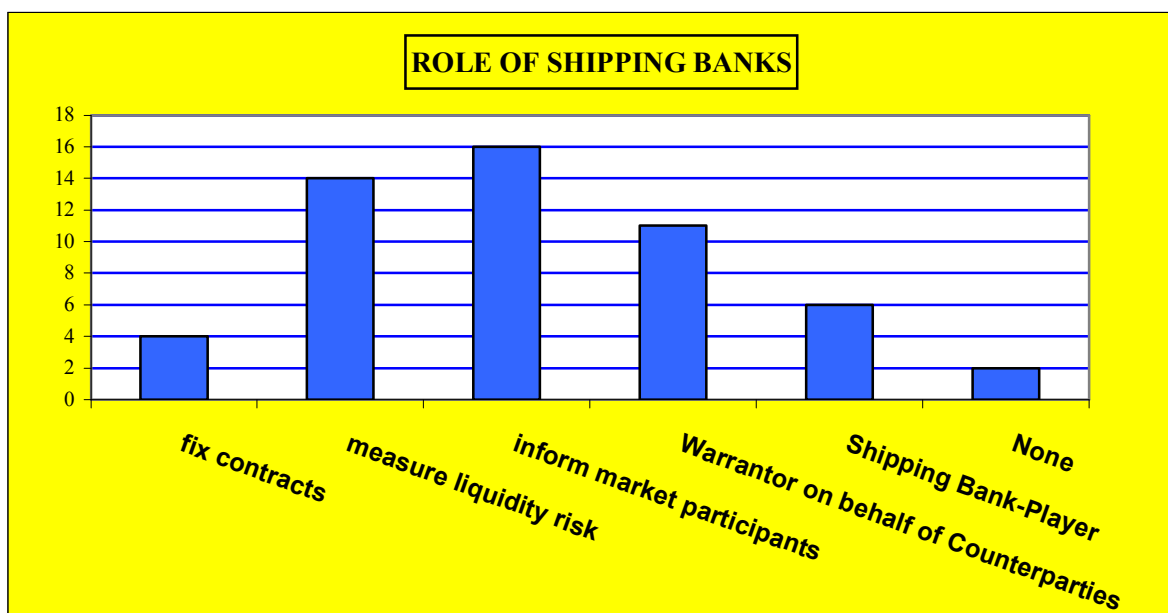
The interest of shipping banks in derivatives will tend to be rather broader than those of any other sector, trader or broker, because of their multiple policy responsibilities.

Banks are among the most active participants in derivatives market. They participate in two ways: (a) many banks use derivatives to manage their own risks and (b) many banks are market makers in derivatives.

We assumed that Banks have and can play a decisive role to the use of application derivatives. Banks are major financial institutions with monetary policies and strategic planning. As we will see Bankers are acquainted with the meaning of risk and there is no Bank without a Risk Manager.

Banks care about their own interest and secure their clients benefit. They do not wish to have a bankrupt or a bad payer client. Therefore we think that if Banks support derivatives investors will trust them. Derivatives have an image problem. Due to major bankruptcies that occurred in the past investors think they are for speculation. However, we believe that their image can change if they are placed in a financial framework with banking support. This is also the reason we included Banks and questions about Banks position in our research. The Role of Banks is shown in Diagram 9.1:

**Diagram 9.1 Roles of Shipping Banks According to Shipping Companies**



We studied what should be according to our users the role of banks. Questionnaires were addressed to all branches of major Shipping Banks, such as, National Bank of Greece, Alpha, Royal Bank of Scotland, ABN, Eurobank and Bank of Cyprus. We received replies from 4 of them, where one stated to be unfamiliar with the subject.

**The need Banks to inform market participants distinguishes among all factors. A 30% is compatible with Bank's undertaking this responsibility.** One benefit of such an approach is that banks can use many of the same valuation methods they already have in place for internal control and loan valuation to provide information about another counterparty. In addition, the banks can calculate more completely the correlations among the assets in one's portfolio in order to compute the risk of his/her overall position. Reliable financial information is an essential ingredient to efficient market discipline. Such information would convey the risk profile of the corporation it represents. Greater transparency will result in greater investor confidence. Without such information markets are susceptible to distortions caused by rumors, misinformation and speculation. Banks, meanwhile, worry that disclosing too much information might reveal sensitive information. Banks, also, specialize in monitoring activities, which obtain economies from monitoring. Therefore they can provide useful information about global conditions, identify weaknesses and vulnerabilities in international financial markets, conduct research into the nature and origins of international financial crises and prohibit domino effects.

**Measuring liquidity risk accounts for a 26%.** The key to liquidity is not only the number of players in the market but also their intentions and motivations. If deals are only done at the right market rate, it is assumed that they can be traded or at least hedged at this rate. If a position cannot be traded or hedged, the deviation between the forecast and what in reality happens results into profits or losses. Banks can take up this role to investigate the relationship between trading activity and price changes. In other words this is the price impact of trading activity, which can be labeled liquidity risk. It is important for central banks to study the determinants of market liquidity so they can use them more efficiently



when conducting monetary policy. The factors affecting market liquidity can be discerned into three broad categories: product design, market microstructure and the behavior of market participants.

**Warrantor on behalf of counterparties 21%.** Banks deal with a thousand of counterparties but only a small percentage of them have observable credit markets. The Internet with its broad geographical reach, ease of access and anonymity requires extra attention to maintain secure systems, develop reporting systems, verify and authenticate customers. We have seen up to now that credit risk and counterparty risk constitute one of the main thorns in trading derivatives. However if a bank can guarantee the creditworthiness of a counterparty by accumulating a premium capital in case of loss may amplify trading derivatives, especially FFA contracts.

**Shipping bank-player 11%.** A new type of market agent that is slowly appearing in the FFA market is the shipping-bank player. The idea that banks should want to incorporate hedges into deals has started to become more acceptable. If a shipping company has a stream of cash flows that moves up and down with the market and is financing a ship, the cash flows to repay the loan will also move with the market. If the company does not hedge, it may end up with a default situation in a weaker market. The question needs to be asked whether banks should undertake deals that could potentially go wrong in the event of a weak market. Banks should be aware of the cash flows of any owner before a loan is made. Increase of FFA trading by banks could be in the following scenario: banks try to hedge against a time-charter. Time-charters are becoming rarer because grain houses, such as Cargill, use FFA to manage price risk. If time-charters are not so readily available, maybe soon banks will be keen to finance ships with a hedge in place, (Visvikis, 2003).

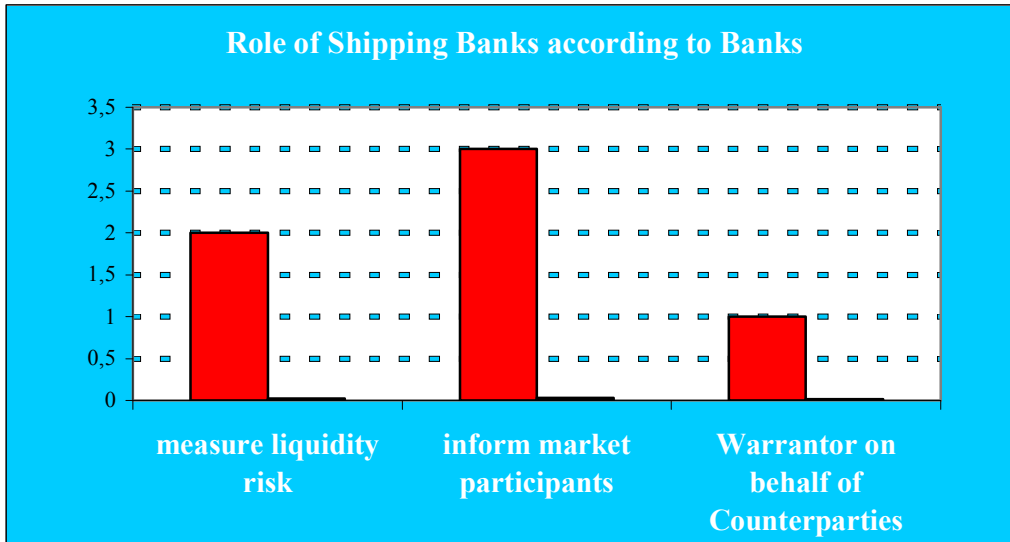
**A lesser percent believes that banks should Fix contacts 9%.** The agents fixing and writing contacts are numerous, brokers, agents, traders, banks etc.

**None 4%.** This may be due to the fact that banks use derivatives for their own good and may be viewed competitively.

Both, shipowners and bankers maintain the same view, the need for information and transparency, for valid and sound reference. The requisite to have access to determinative information and to what may some call “privileged information” in order to avoid loop falls. Information is something that Banks can offer. They have monitoring systems that warn about international financial market imbalances, they have records of investor’s creditworthiness; they can attend the tendencies in every market. Thanks to improvements in information technology, risks now are easier to monitor, analyze and manage. Thereof banks position is **50% to inform market participants, 33% to measure liquidity risk and 17% to warrantor on behalf of counterparties.** However there is no intention from Shipping Banks to act as Shipping Bank – Players or Fix Contacts. While as from Shipping Companies point there is a percentage of 11% and 9% that would like respectively the abovementioned roles for Shipping Banks.

Informing market participants is, according to us, the most manageable and secure activity for a Banks to undertake. Besides Banks are accustomed with such a role to inform, to advise and to propose. Whether a Bank would like to open up into additional liabilities then it is a matter of policy, “a bank that decides to start a new construction would first evaluate the perceived risk of that activity within the context of its overall risk appetite. And while the perceived risk of that might still fall comfortably within the institution’s appetite the company may decide to give the unit more attention” (Milligan, 2004).

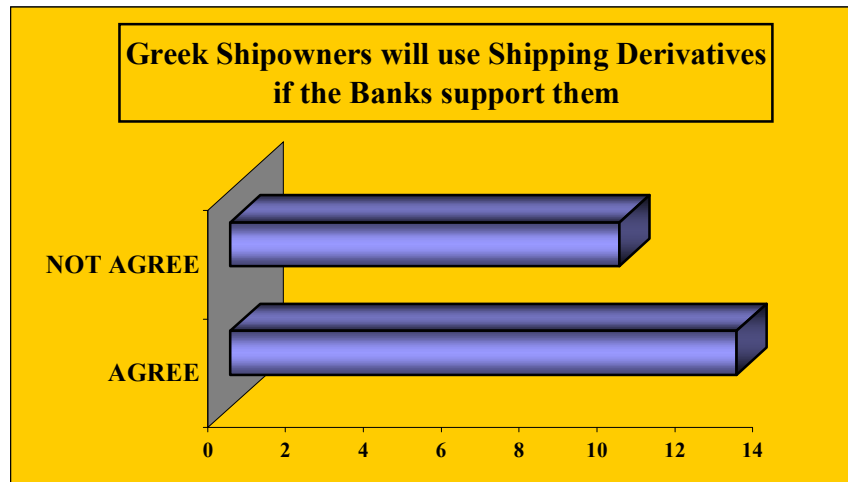
**Diagram 9.2 Role of Shipping Banks According to themselves**



A 57% of Shipping Companies agrees (Diagram 5.3) that shipping derivatives will be used if the banks support them, while a 43% disagrees. The meaning of support covers two types of investors: those who trust markets and those who don't. Those that trust will follow the market, whilst those that doesn't may follow under certain conditions.

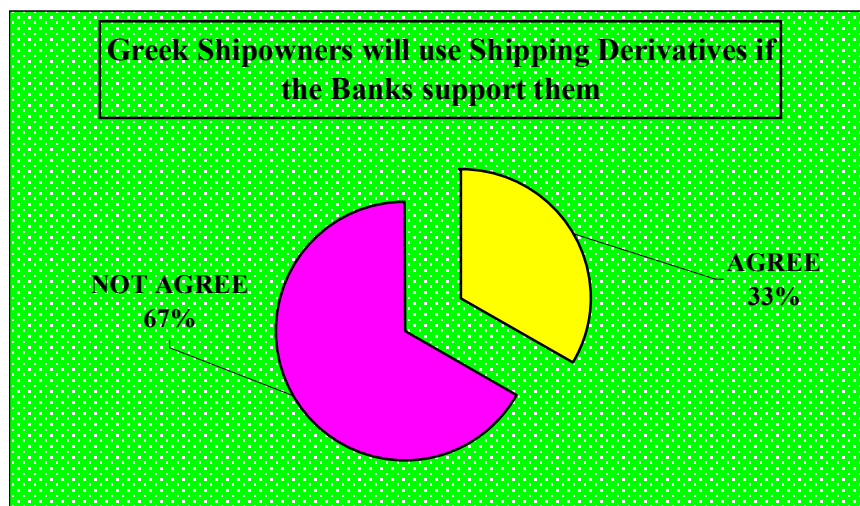
The reason a large percent disagrees that Greek Shipowners will use Shipping Derivatives if Banks support them may be because they view Banks competitively since they too use derivatives to protect themselves from credit risk.

**Diagram 9.3 Shipping Derivatives & Provision of Banks Support**



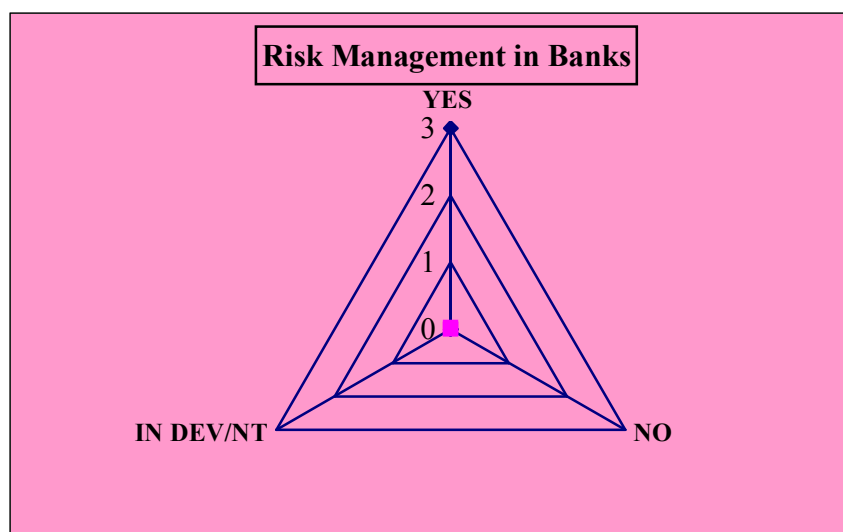
Banks, then again don't agree (67%) that Greek Shipowners will use Shipping Derivatives if they support them. Only 33% agrees. Obviously we have a conflict of interest. Shipowners would like Banks support however Banks either don't seem willing to give their back up or they are not sure that Greek Shipowners will be follow their new constructions.

**Diagram 9.4 Banks Towards Support of Shipping Derivatives**

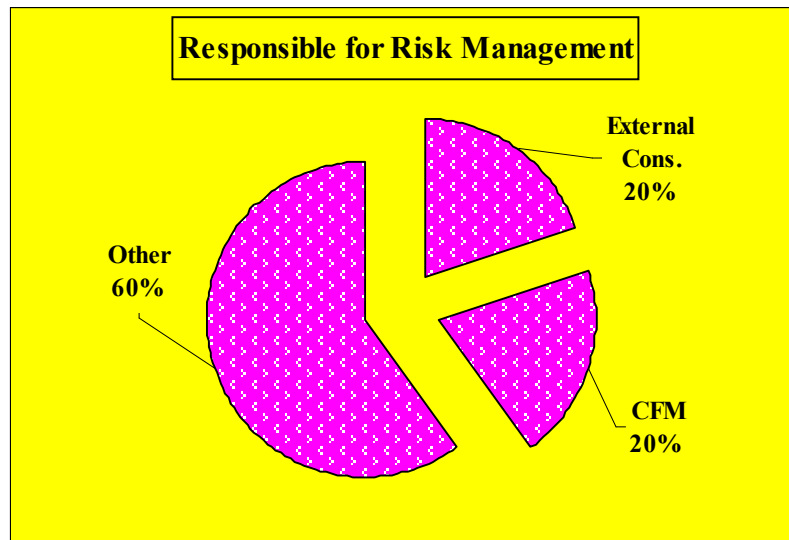


Comparing to shipping companies where there is a part not applying risk management this is not the case with banks. All respondents stated that they have a risk management strategy and a risk manager is responsible for it. As stated: “A bank in every sense of the word is a risk manager. Banks are more of an enterprise risk management facility than are other types of business or industries”, (Keenan, 2003). Dealing with risk helps Banks to identify; measure and monitor risk and get a more holistic view of it. Furthermore, it helps them come in terms with other types of risk such as operational, market and reputational risk. “As the banking industry began to understand its risks, you began to see a movement of banks looking at the banking book not only from a transactional point of view but also from a portfolio point of view”, (Allen, 2001).

**Diagram 9.5 Risk Management in Banks**

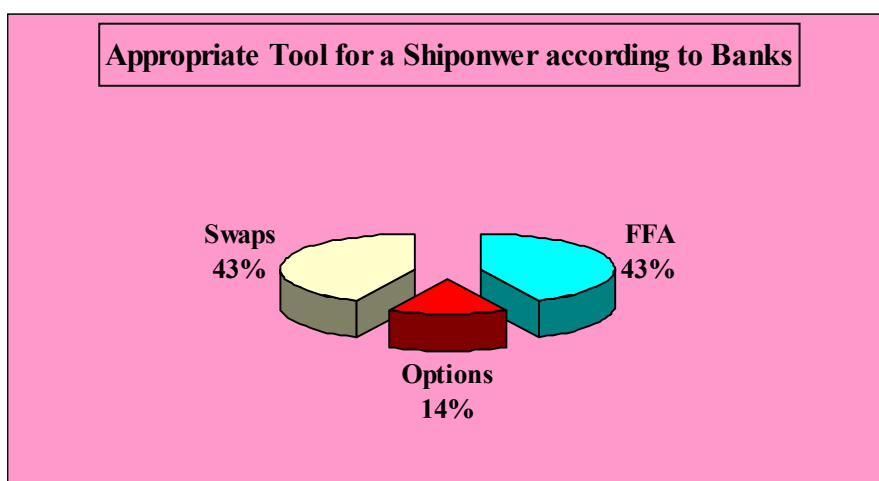


**Diagram 9.6 Responsible for Risk Management in Shipping Banks**



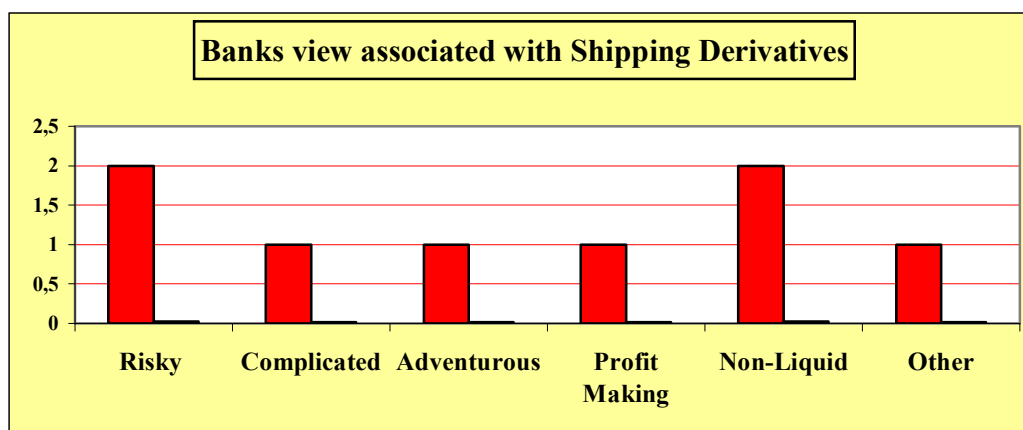
Banks evaluate swaps as the most appropriate tool for a shipowner. We have already seen a 21% of asked companies to use swaps in the last 5 years. Swaps according to project brokers can look a lot like time charters, (bdp1 Consulting Ltd, 2004). FFA's are regarded also suitable, although they are OTC (Over the Counter), because as was stated in an interview we had made, they adjust and are tailored made to the specific needs of a shipowner.

**Diagram 9.7 Appropriate Tools for a Shipowner According to Banks**



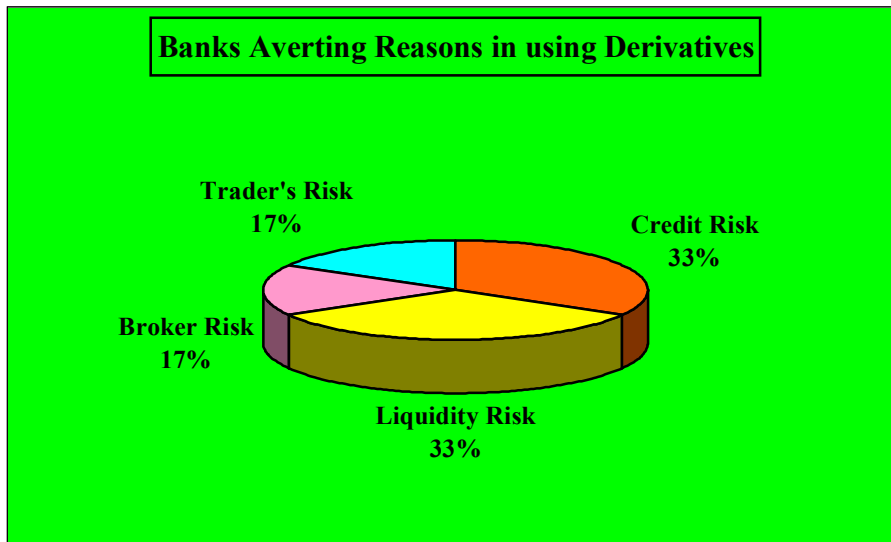
According to Banks point of view Shipping Derivatives are risky and Non-liquid for a 24%. Complicated and Adventurous got 13%. Profit making is regarded 13% and other 13%. Shipowners, as we have already seen, believe 34% that derivatives are risky and only 6% think they are non-liquid.

**Diagram 9.8 Banks View associated with Shipping Derivatives**



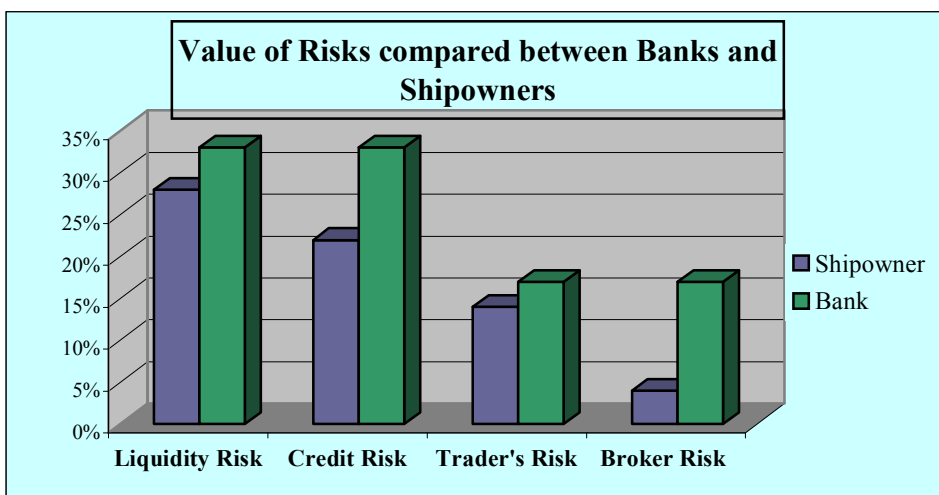
*For a Bank the most prominent reason to avoid using derivatives is Credit and Liquidity Risk.* Banks are exposed to the risk that borrowers will default on their loans. The credit risk faced by banks is relatively high because they concentrate in particular industries, such as shipping, agriculture, etc. Credit risk is the probability that a borrower will default on a commitment to repay debt or bank loans. Default occurs when the borrower cannot fulfill key financial obligations such as repaying bank loans. In the event of default banks suffer a loss because they will not receive the payments promised to them. Liquidity risk is an important consideration when the user wants to offset his position. To the extent that the market becomes more active this risk will decline. *From a shipowners point of view liquidity risk is the most important factor* because it limits his ability to repay his debts although having the capital.

**Diagram 9.9 Banks Averting Reasons in Using Derivatives**



*While credit risk is considered as more important from a Bank's point of view. The shipowner is worried about repaying, being able to liquidate his position to obtain capital while the bank worries to receive payment and collect debts. The priorities and the roles of our users related to use of shipping derivatives are divergent.*

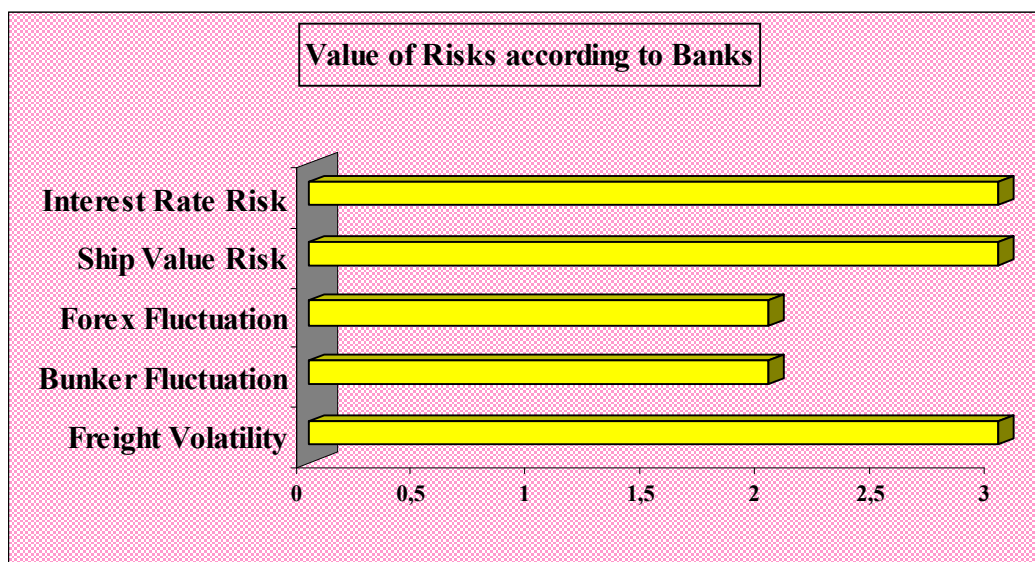
**Diagram 9.10 Value of Risk compared between Banks & Shipowners**





**Interest rate risk; Ship Value Risk and Freight Volatility**, are the most important risks according to Banks. In addition, the three of them are of equal importance. They all affect a bank's activity substantially. The interest rate fluctuates according to the exchanges of contracts and repayments in various currencies. The ship price value, because it affects the loan readjustment and scrap value and final the freight volatility cause it influences revenue. Yet, freight volatility for shipowners constitutes a risk of **primary** importance relatively to other risks. Banks on the contrary, have additional risks of the same magnitude to consider in their basket. Perhaps, banks as important as for shipowners do not consider freight volatility because banks cannot influence or determine freight rates.

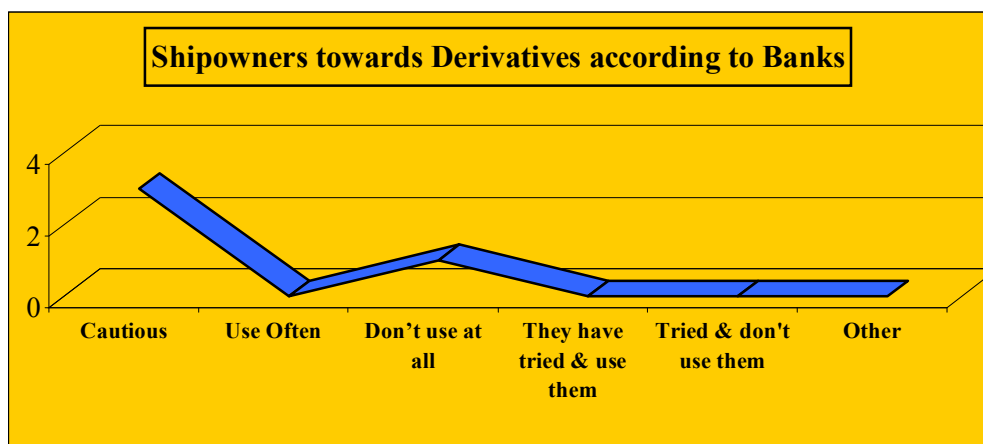
**Diagram 9.11 Value of Risks According to Banks**



Shipowners for Banks are cautious (75%) towards shipping derivatives and they don't use them at all (25%). We have already seen that shipowners are cautious 62% from shipping companies' position. However, Bank's position seems to be different from what shipping

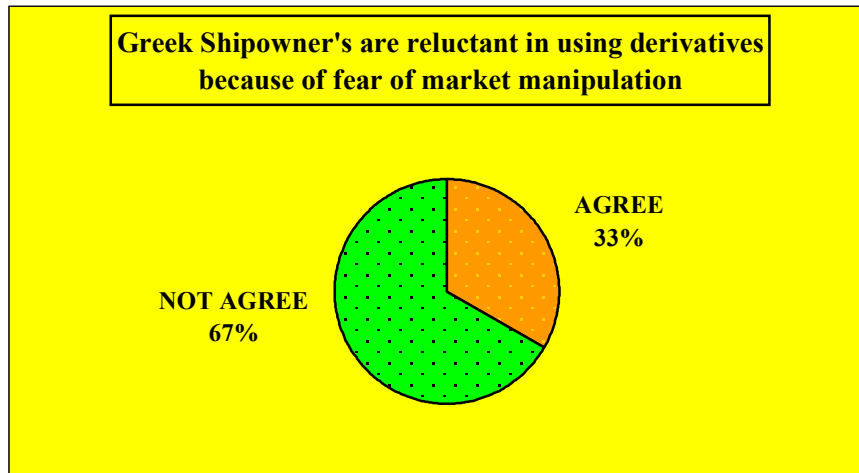
companies have already stated: 5% use often & 15% have tried and used them. We should also mention that 10% and 12% have used FFA contracts and futures respectively, in the last 5 years. Therefore, what we are witnessing is a market unknown to the most because it is not transparent, it is not reported anywhere and not dealt through major national financial institutions.

**Diagram 9.12 Shipowners Towards Derivatives According to Banks**



Market manipulation, according to banks is not a factor that can lead shipowners to reluctance in using shipping derivatives. With integrated risk measurement banks can preserve value they also have access to information and can monitor financial activities. Therefore cases of manipulation can be traced in the early stages.

**Diagram 9.13 Market Manipulation According to Banks**



Banks are in a position to know better than anyone else the psychology of their customers, their likes and dislikes. Therefore when the majority of the institutions questioned stated that Greek shipowners follow the traditional know-how this may be undeniably true. The 88% of shipping companies are compatible with this view as well. Tradition means the same old successful way that has been utilized for years and years and has proved to be effective. For an attitude to change and to make a step further to process implementation certain prerequisites should be met:

Change must be planned and no be experimental.

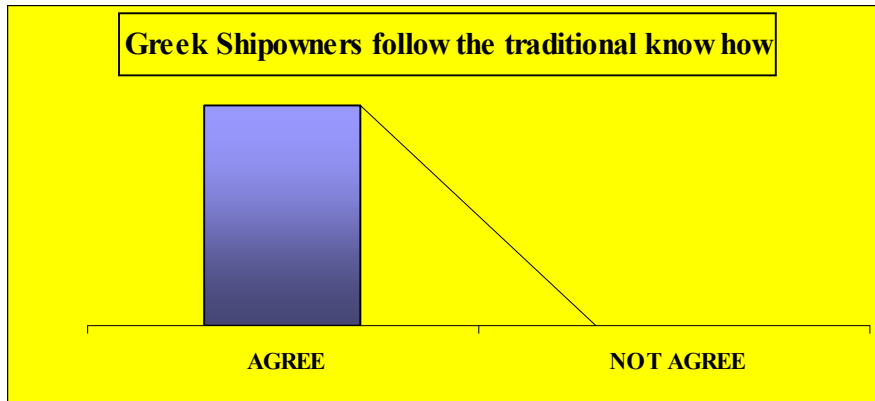
Change is more acceptable when it is understood than when it is not.

Change is more acceptable when it does not threaten company's security.

Change is more acceptable when it is an internal evolution and it is not externally imposed.

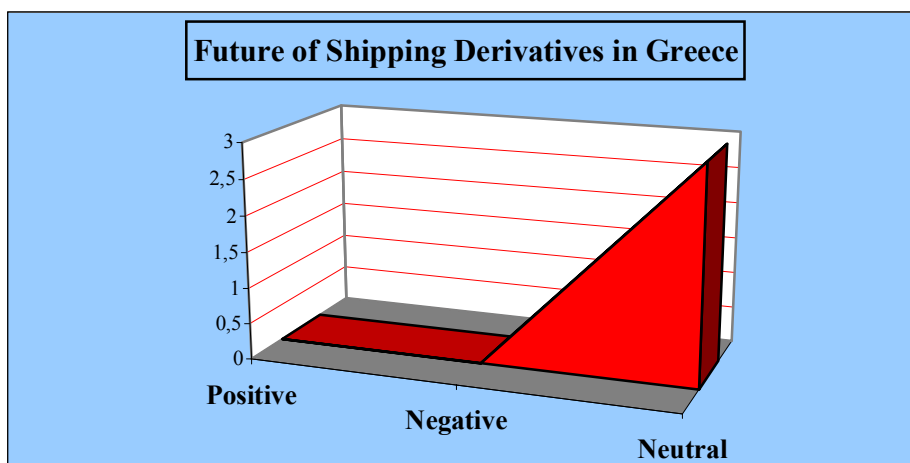
Unless the above pre-requisites exist the implementation of new means in an industry so conservative and traditional like Greek Shipping will be thorniness.

**Diagram 9.14 Traditional Know –How According to Banks**



The attitude of Banks, relatively to shipping companies that are positive about the future of Shipping Derivatives in Greece, is neutral. There is not a small portion being either negative or positive. They are not against and they are not with it. It seems that this is a banking philosophy because it is compatible with our entire respondent's. One assumption is that banks do not introduce and support financial instruments with ambiguous structure and uncertain implications. The neutral attitude implies that if the market demands they will have to follow but they will do nothing to initialize or lead someone into a derivative market.

**Diagram 9.15 Future of Shipping Derivatives According to Banks**



## CHAPTER 10

### CONCLUSIONS

#### **10.1 Summarize main points**

The market integration due to technological changes and the high volatility in shipping industry made risk management implementation necessary. Freight volatility, as we found out from our respondents, is one of the main concerns in shipping operation in both wet and dry market. Freight fluctuation affects substantially the revenue side of a shipowner.

We also came to the conclusion that the Greek Shipping market is well aware of this new financial instruments introduced in order to offset or transfer risks associated with their activities. Greek shipowners along with chief financial managers are responsible for applying risk management strategy.

Derivatives in order to apply in Greek shipping companies should be based on a well - defined and organized risk management framework otherwise, as it came out from our research, derivatives without a risk management strategy are not used.

Some of the factors that influence the use or not use of shipping derivatives have as follows:

- a) The size of the company influences the use or not use of derivatives. Small sized companies also need to allocate their risks.
- b) The level of knowledge affects one's attitude towards derivatives. The level of familiarity with shipping derivatives affects the way they are perceived by a user.

Furthermore, whatever is not understood is faced with suspicion. In order to be welcome in Greek Shipping market, a great deal of education and practical workshops should take place within corporations and banks to become literate and educated.

Greek shipowners prefer to follow the traditional know-how. They also prefer to make their money in asset trading, specially buying and selling ships. Shipping derivatives should offer strong returns should be offered to challenge the old well-tested way of making profits.

The majority of Greek shipowners are cautious in using derivatives. Liquidity and Credit risks are the main factors averting Greek shipowners entering the derivative market. This is common attitude as for shipping companies as much as for Shipping Banks. Fear, also, of Market Manipulation especially by Traders may withhold Greek Shipowners entering Shipping Derivatives market.

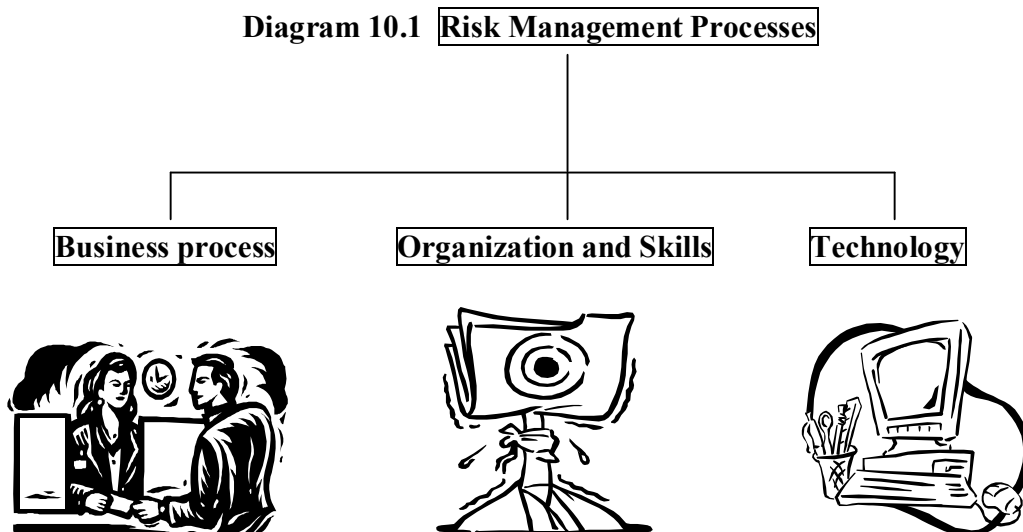
Banks should have a more active role in the derivative's market mainly that of an advisor and regulator towards shipping companies. Shipping companies have a dependence relationship with Banks and their position counts to their customers. We saw from our research that the majority agreed that Greek Shipowners would use shipping derivatives if the Banks support them.

We have, also, seen that shipping companies face the future of shipping derivatives positively while shipping banks face shipping derivatives with neutrality.

## **10.2 Recommendations and Policy Actions**

Risk management requires the right processes, organization and technology. We separate this progression into three stages:

- ✓ Business process.
- ✓ Organization and Skills.
- ✓ Technology.



First the business process prerequisites that the corporation:

- Is well aware of the risk and exposures in which it is exposed.
- Risks and exposures are fully integrated in the business decision-making process.
- A group of managers evaluates big deals.

Effective risk management requires both a micro and a macro understanding of risks in a corporation. It also demands that a corporation understands which risks can tolerate and

which risk it should transfer. To properly manage risk companies need to know the nature and magnitude of risks on a company wide basis. Once economic exposures are identified, an expert and authorized group of managers needs to approve when and how derivative products will be used. No progress can be made without first identifying the need to establish controls and move forward from there.

Second organization and skills includes the following:

- Clear definition of senior management and control functions of responsibilities for risk management.
- Staff in risk control had to be with strong analytical capability and credibility within the business.
- Clear and appropriate role for local/national based control units.

Financial literacy is the cornerstone of any plan. The emphasis on education should start at the top and move its way down on organization. It should be cleared to everyone why derivatives are being used. An adequate training program should cover derivative products and market characteristics but it needs to go well beyond these basics. Smattered knowledge will leave a manager ill equipped to defend and implement the selected course of action. Choosing the right product depends on understanding how the risk – return vary according to each alternative. Taking into account the trusts that are handled improvisation is not allowed.

Furthermore, valuable knowledge can be gained by cases where substantial derivative losses had the same cause of inappropriate incentives and ineffective controls within the firms. Some derivative positions and some relevant deficits may not be reported to senior management and shareholders. In that case employee's with the authority to take such



derivative positions may act acting outside their pertinence and not in the best interest of the company. One way claims that we may have a conflict of private and corporate interest. Employees in the derivatives area may not work towards the general company objectives set by the board or the senior management. This divergent of interests may lead to financial disasters.

The corporation can do the following to deal with such problems:

- a) Create a reward system, derivatives employees aim at generating profit, therefore a bonus system can be introduced to incite derivative employee's to perform their best, and,
- b) Control systems, careful control and supervision are also important. Setting positions and separating trading and settlement responsibilities allows firms to monitor derivative's activity.

Furthermore, the biggest and most unmanageable risk may be employee conduct area, including employee theft and fraud and employment and business practices. Employee risks are virtually impossible to predict and the financial consequences of employees' actions are therefore the most difficult to prevent.

Technology presupposes:

- Well functioning interfaces between sales, operations and risk systems.
- Quantitative risk evaluation programs to be utilized by central groups.
- Appropriate computer systems including automated warnings for near limit situations and deal validation.

### **10.3 Future Research**

Future research is needed to search further this particular case study. One can go further to investigate each market separately and then compare and contradict between them. Important conclusions can then be drawn. Each market has its peculiarities and positive elements, lacking in one market may exist in the other assisting into further knowledge.

One can also examine the skills of a corporation's top executives relatively to shipping derivatives. The competence, the qualifications and the character of employee's can be tested accordingly to the application of shipping derivative and see how the human element affect new tools.

Research in the field of Risk Management is also needed. In particular to examine whether a risk policy exists in corporations, even testing it in different markets. Going further me may examine the nature of risk policy, the controls and actions followed.

An organization can be studied as a case study in order to assist establishing the "perfect organizational model" that will lead to successful derivatives implementation. The structure of the company can be studied, as well and the relationship between authority and executives. Furthermore, identify the effectiveness of control, related to the reward system.

A research can be devoted exclusively in measuring attitudes. Measure the attitudes of shipowners and executive managers, towards innovation and new financial tools. The use of qualitative research may be of great assistance here.

In order derivatives to become more used, one may also look into the need for more regulation. The existing system can be reviewed and then proceed to further examining the changes and improvements that can be made.

Banks and their role in Shipping Derivatives can be a different subject of study. One can examine how banks work, their main policies and their actions. Study them as users of derivatives themselves and find out how they can assist shipping. Furthermore, it is interesting to look at banks intentions towards this new financial field. Gather their fear and speculations and appose their recommendations.

Besides if someone wants to narrow down the research, he/she can specialize to only examine a certain financial tool. For example options relatively to shipping or FFA contracts individually, even if the are in different markets.

An interesting case study is what is the situation in different countries. One can find out what is going on in other countries. Examine how the same practice, works in another country and in a different economy.

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**APPENDIX 1**

**Questionnaire in Shipping Derivatives**

<b>Company Name:</b>	
<b>Company Activity:</b>	
<b>Location:</b>	
<b>Number of Ships:</b>	
<b>No of Employees:</b>	
<b>Position:</b>	
<b>Age:</b>	
<b>Sex:</b>	

1. Is your Company following a risk-management strategy? *(tick all that apply)*

Yes	
No	
In Development	

2. Who is responsible for the risk management framework? *(tick all that apply – other please state)*

(a) Owner of the Firm	
(b) External Consultant	
(c) Chief Financial Manager	
(d) Other	

3. How do you perceive the business outlook of your company over the next 5 years? (*tick all that apply*)

<b>Positive</b>	
<b>Negative</b>	
<b>Neutral</b>	

4. Which of the following financial instruments have you used in the last 5 years? (*tick all that apply – other please state*)

(a) Biffex Contracts	
(b) FFA	
(c) Futures	
(d) Swaps	
(e) Options	
(f) All	
(g) None	
(h) Other	

5. How familiar are you with any of the above? (*tick all that apply – other please state*)

(a) Very familiar	
(b) Familiar	
(c) Not very familiar	
(d) Never heard of	

**6. Do you consider Shipping Derivatives?** *(tick all that apply – other please state)*

(a) Risky	
(b) Complicated	
(c) Adventurous	
(d) Profit-Making	
(e) Liquid	
(f) Non-Liquid	
(g) Other	

**7. What is the role of Shipping Derivatives in your company?** *(tick all that apply)*

(a) Regularly Use	
(b) Occasionally Used	
(c) Never Used	
(d) Considered Using	
(e) Never Considered	

**8. If you where to choose a derivative activity which one would you prefer?** *(tick all that apply)*

<b>Hedging</b> – transfer risk to other market participant	
<b>Speculator</b> – take unhedged risk positions in order to exploit informational inefficiency or to take advantage of their risk capacity	
<b>Arbitrageurs</b> - take position in mispriced instruments in order to earn riskless return.	
<b>None</b>	



**9. Which Risk from the market do you consider as more important for your Company:** *(tick all that apply – other please state)*

(a) Freight Volatility	
(b) Bunker Fluctuation	
(c) Forex Fluctuation	
(d) Ship Value Risk	
(e) Interest Rate Risk (Libor)	
(f) Other	

**10. How do you perceive the abovementioned risk within the sector you operate?** *(tick all that apply – other please state)*

(a) Very Volatile	
(b) Volatile	
(c) Reasonably Stable	
(d) Stable	

**11. What action you may choose to introduce in order to minimize the business risks mentioned before?** *(tick all that apply – other please state)*

(a) Derivatives	
(b) Financing	
(c) Bond Loan	
(d) COA	
(e) Time Charter	
(f) Nothing	
(g) Other	

**12. Which of the following reasons may be considered as averting in using derivatives:**

*(tick all that apply – other please state)*

Credit Risk	
Diversification Risk	
Liquidity Risk	
Broker Risk	
Professional Advise Risk	
Trader’s Risk	
Other	

**13. The interference with Shipping Derivatives is influenced by the following factors:**

**Rate the subsequent factors Rate 1 & Rate 2**

	Rate 1	Rate 2
(a) Company Size		
(b) Age of Vessel(s)		
(c) Financial Statements		
(d) Chartering Policy		
(e) Cash Capacity of the Owner		
(f) Creditworthiness & Loan Record		
(g) Reputation & managerial capacity		
(h) World Economy Conditions		
(i) Shipping Industry Conditions		

**14. Which of the following Financial Instruments do you consider as most appropriate for a shipowner? (tick all that apply – other please state)**

(a) FFA	
(b) Futures	
(c) Options	
(d) Swaps	
(e) Hedge	
(f) None	
(g) Other	

**15. Which of the following apply in using Shipping Derivatives? Shipowners are: (tick all that apply – other please state)**

(a) Cautious	
(b) Use Often	
(c) Don't use at all	
(d) They Have tried & use them	
(e) Tried & don't use them	
(f) Other	

**16. Is any of the above acceptable to you? (tick all that appl) Acceptable A, Non-Acceptable NA**

	<b>A</b>	<b>NA</b>
(a) Greek Shipowners are reluctant in using derivatives because of fear of market manipulation		
(b) Shipping Derivatives favor a few trading companies		
(c) Greek Shipowners follow the traditional know how		

(d) Greek Shipowners will use Shipping Derivatives if the Banks support them		
(e) Greek Shipowners are hesitant to new financial tools		
(f) Shipbrokers might become market makers		
(g) Greek Shipowners prefer to make their money in asset trading		

**18. What role do you think Central Banks should have in a derivative market?** (*tick all that apply – other please state*)

(a) Fix Contracts	
(b) Measure Liquidity Risk	
(c) Inform Market Participants	
(d) Warrantor on behalf of Counterparties	
(e) Shipping-bank player	
(e) Other	

**17. Please identify how strongly you agree or disagree with any of the following:** (*tick all that apply*) Strongly Agree (SA) Agree (A) Disagree (D) Strongly Disagree (SD)

**SA A D**

**SD**

(a) Hedging acts as insurance against income variability	
(b) Hedging locks-out the potential for exceptional gains	
(c) Derivatives serve as speculative instruments rather than for the purposes of hedging	
(d) Derivatives provide a more efficient allocation of economic risks	
(e) Within a couple of years shipping derivatives will become widely used	
(f) FFAs guaranteed by a clearinghouse would increase volume & volatility	

g) Banks will be keen to finance ships with a hedge in place	
(h) Shipping Derivatives can free-up borrowing capacity in the future from Banks	
(i) The use of Shipping Derivatives prerequisites training and experienced personnel	
(j) Time charters are becoming rarer because grain houses are using FFA to manage price risk	

**19. How do you consider the Future of Shipping Derivatives in Greece?** *(tick all that apply – other please state)*

(a) Positive	
(b) Negative	
(c) Neutral	
(d) Other	