Tuna fishing risks. Management and coverage principles

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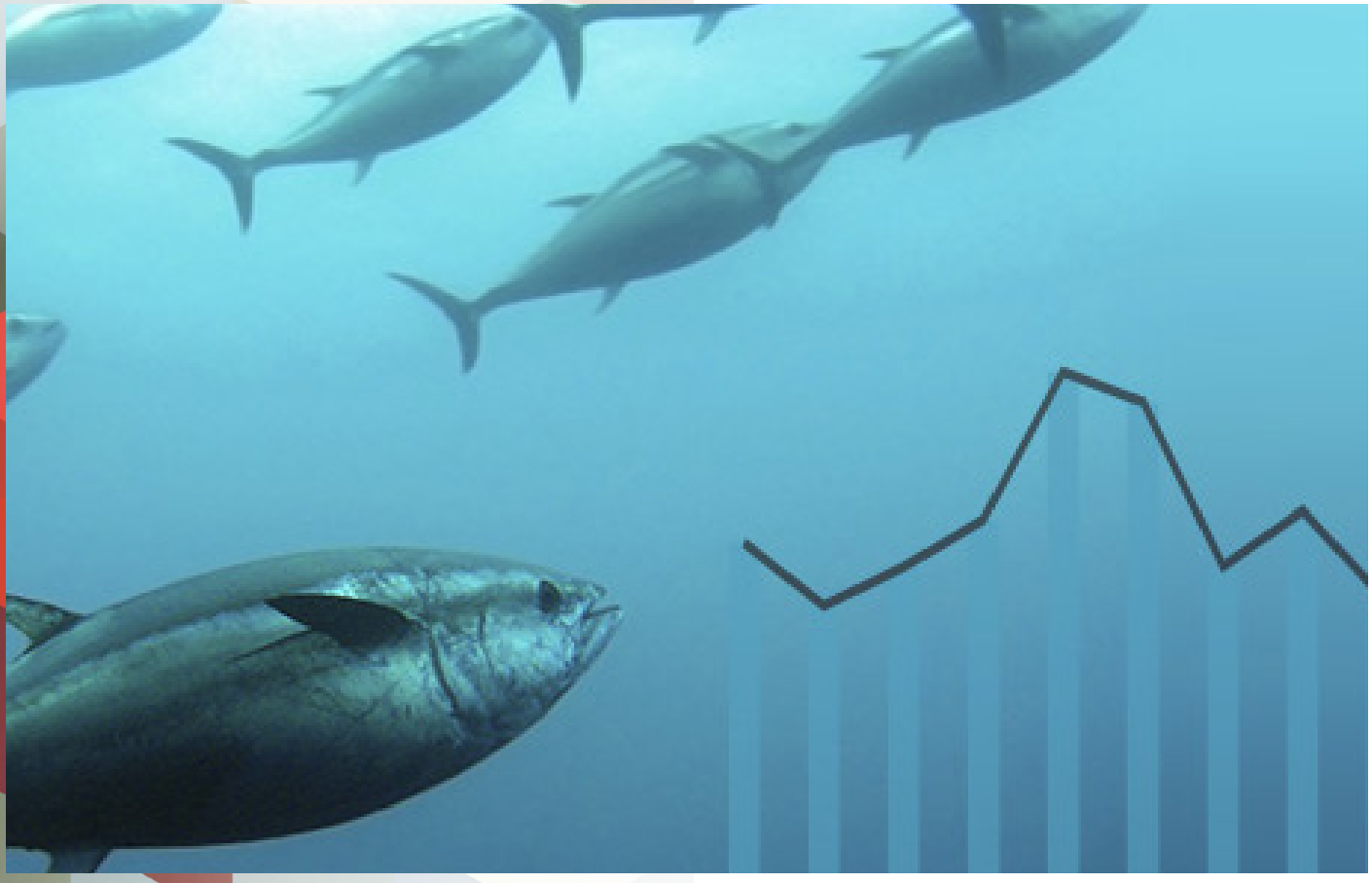
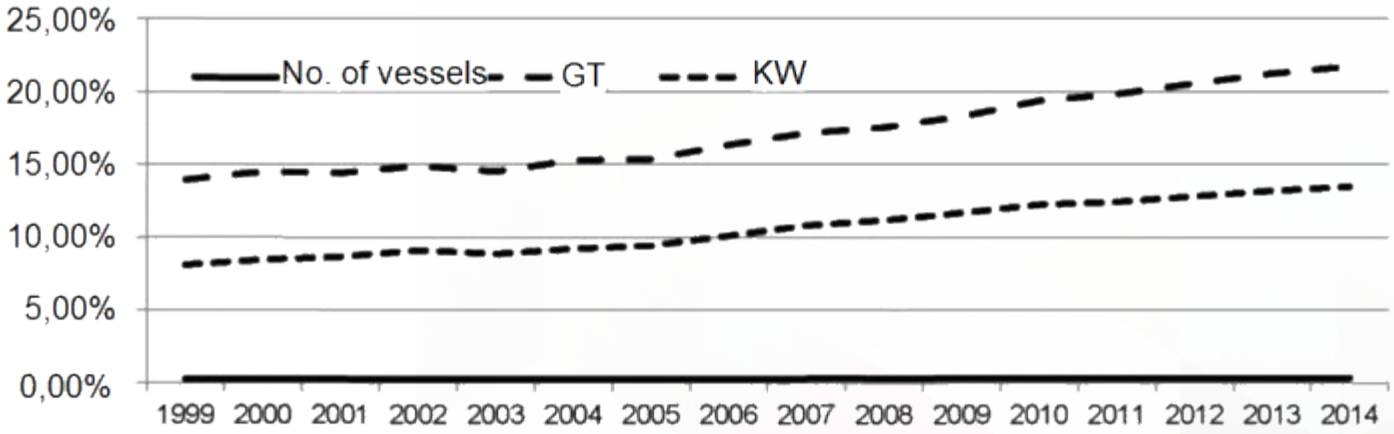


This study analyzes the risks affecting the freezer tuna vessel subsector to, next, propose measures in response to these. Its conclusions include a matrix of protection strategies and instruments for the listed risks.

After successful studies by the French biologist Emile Postel between 1946 and 1952, some French and Breton vessels set sail toward West African waters in search of tuna. Given the positive results obtained by the French ships over the different campaigns, eight vessels from Bermeo set sail toward those waters on October 30, 1956. Year after year, until 1964, Basque ships, mainly from Bermeo, participated in fishing campaigns in African waters, with inconsistent results. However, those fishermen realized the entire time that neither their vessels nor their fishing method used, live bait, were the most suitable for fishing in those regions. Therefore, the freezer tuna vessel subsector was created using purse seiner fishing practices, both then and now.

Graph 1. Growth in GT in Spain, 1999-2014



Source: Prepared internally

The first Spanish freezer tuna vessels, Alacrán and Albóniga were built in 1964 by two companies in Bermeo. By 1968 the Spanish fleet already controlled 12 tuna vessels, all of these from Bermeo.

We can claim that the total number of tuna fishing fleet experimented an upward trend until the mid-1980s, and that subsequent changes were insignificant (Ugalde Zabala, 2014).

In October 2014 there were 677 freezer tuna vessels worldwide (International Seafood Sustainability Foundation (ISSF), 2015), of which 63 were owned by Spanish companies that are members of either of the two associations of tuna vessel shipowners: Organización de Productores Asociados a Grandes Atuneros Congeladores (OPAGAC) and Asociación Nacional de Armadores de Buques Atuneros Congeladores (ANABAC). However, in addition to these companies, others with majority Spanish capital headquartered in other territories own ships that are not included in the abovementioned figures, given the impossibility of gathering minimally reliable data on these.

Of the 63 vessels, only 30 bear a Spanish flag, wherefore we refer to control and not merely to ownership.

As an example, and in the interest of demonstrating the real importance of the tuna fishing subsector in Spanish fishing, Graph 1 presents the growing relevance of the former in comparison with the total in terms of storage capacity (measured in GT) and power (measured in kW).

In this regard, of the 9,635 vessels included in the 2014 census of the Ministry of Agriculture, Food and Environment (MAGRAMA) merely 30, representing 0.31 percent, are freezer tuna vessels.

Logically, the abovementioned data does not include references of vessels that are flag bearers outside of Spain, wherefore the representativeness is even higher.

Of the 5,702,037 tons of captured tuna (tropical tuna: skipjack, yellowfin and bigeye; temperate tuna: bluefin and albacore), 4,792,094 tons correspond to tropical tuna, the species sought by freezer vessels, and of these, 63 percent of the captures, according to ISSF (2015: 12), are by purse seiners.

Skipjack, yellowfin and bigeye tuna are captured in tropical regions of the Atlantic, Indian and Pacific Oceans. This is a significant fact, given that the risks and characteristics specific to each vessel depend on the ocean.

In this regard, from Table 1 we may conclude that freezer tuna vessels have an average age of 21.22 years, capacity of 2,586.37 tons and 3,982.21 kilowatts of power. We can assure, therefore, that the fleet is not very new, with the subsequent risk this entails.

Table 1. Characteristics of Spanish freezer tuna vessels on December 31, 2014

TOTAL					
		No. of vessels	63		
AGE		GROSS TONNAGE		POWER	
Mean	21,22	Mean	2586,37	Mean	3982,21
Mode	31	Mode	2165	Mode	3238
Deviation	11,81	Deviation	885,79	Deviation	1263,84

Source: Prepared internally

Moreover, this same data is broken down by Ocean. While the characteristics of the 18 vessels of interest for Spain that operate in the Pacific are similar to those of the entire fleet, there are significant differences with regard to the 22 of the Indian Ocean and the 23 of the Atlantic Ocean. The Indian Ocean is home to larger, more modern and more powerful vessels, while the Atlantic Ocean, to the contrary, is home to older, smaller and less powerful vessels.

Table 2. Characteristics of Spanish freezer tuna vessels on December 31, 2014, by Ocean

ATLANTIC		INDIAN		PACIFIC	
No. of vessels	23	No. of vessels	22	No. of vessels	18
AGE		AGE		AGE	
Mean	26,87	Mean	13,95	Mean	22,67
Mode	38	Mode	14	Mode	31
Deviation	11,12	Deviation	10,21	Deviation	9,5
GROSS TONNAGE		GROSS TONNAGE		GROSS TONNAGE	
Mean	1974,3	Mean	3142,86	Mean	2688,28
Mode	1897	Mode	3445	Mode	2165
Deviation	532,65	Deviation	810,84	Deviation	844,11
POWER		POWER		POWER	
Mean	3252,73	Mean	4703,41	Mean	4032,84
Mode	2944	Mode	6000	Mode	3238
Deviation	1008,12	Deviation	1153,4	Deviation	1160,92

Source: Prepared internally

Altogether, though the number of units comprising the sample is small, on a global scale the percentage is important, given that it represents almost 10 percent of the fleet worldwide.

Therefore, we are referring to a subsector of extreme importance, generating a high business volume, involving a great number of both direct and indirect employees in the canning, shipyard, and net making industries, etc., the risks of which require efficient and effective management by a risk manager, an inexistent resource in most freezer tuna vessels shipyards.

RISK AND RISK MANAGEMENT

Many studies have focused on risk, and almost all of these from different perspectives. Nevertheless, this study approaches risk from the business point of view.

Accordingly, the following table presents the most relevant definitions, in our opinion, of business risk.

Table 3. Definition of business risk

Author	Definition
Cea García (1995: 34)	Risk of profitability
Miller (1992: 311)	Unexpected or negative variation in variables such as cost, benefit or market
Solomon et al (2000: 449)	Refers to all of the risk types that businesses face. This may be interpreted as the uncertainty associated with both potential gains and losses
Vidal Lopo (2001: 21)	The set of factors or circumstances that determine or affect obtaining the results, both now and in the future
Romero Villafranca (2004: 8)	Any event which, when materialized, is likely of entailing economic, social or environmental repercussions

Source: Prepared internally

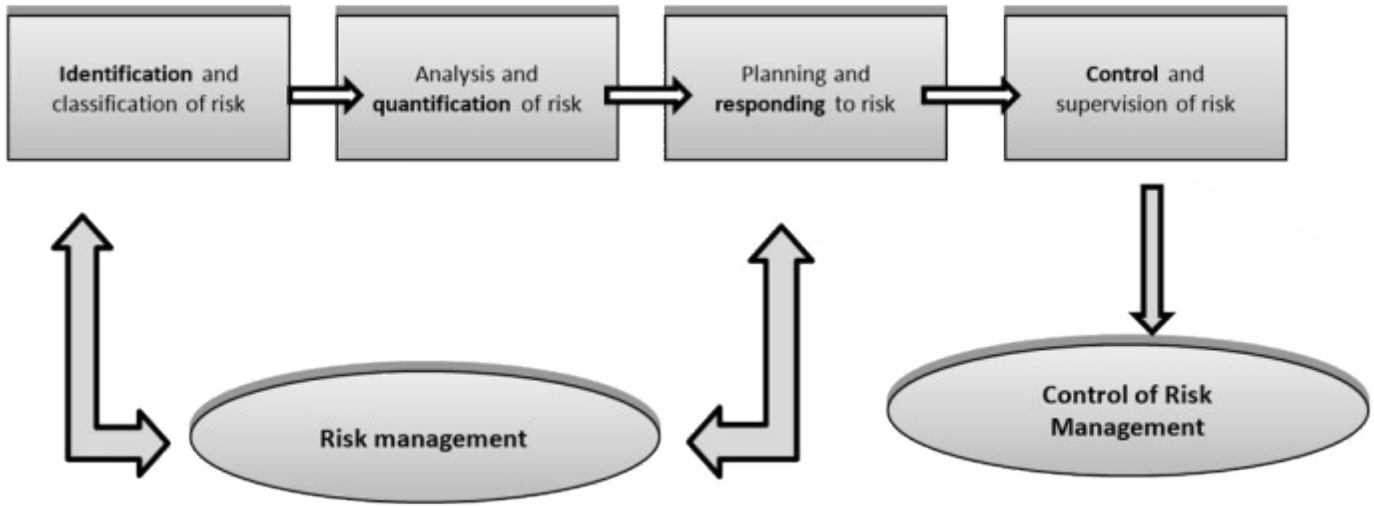
Given the previous definitions, business risk may be understood from three perspectives: as a threat, as an opportunity, or as uncertainty. The first refers to potentially negative events that may be detrimental to corporate interests and objectives; the second refers to the current relationship between the risk and the return provided by the opportunity; meanwhile, the third englobes all possible results, seeking a position of equilibrium.

The key will be to adequately manage the risks affecting the company as a whole, with risk management defined as an iterative and recurrent process that comprises all of the objectives, rules, policies, procedures and activities through which the company responds to all of its risks, past, present, and, in particular, future.

For good risk management, the existing conceptual frameworks designed for this purpose are quite helpful. These are issued by different organizations, including: Committee of Sponsoring Organizations of the Treadway Commission (COSO), International Organization for Standardization (ISO), Institute of Risk Management (IRM), Joint Standards Australia/Standards New Zealand Committee and Federation of European Risk Management Associations (FERMA).

This management results of a series of several stages, as shown in the figure below:

Figure 1. Risk management process



Source: Prepared internally

Traditionally, this process was divided into the three initial stages. However, a fourth stage (Control and Supervision) was included as of the mid-1990s.

There is wide diversity as to the techniques and tools that may be used for the two initial stages. Some of these are summarized in a succinct and visual manner in Table 4 by Martínez Torre Enciso and Casares San José-Martí (2011: 29)

Table 4. Tools used for the identification and analysis of risk

(SA = Strongly applicable; N/A = Not Applicable; A = Applicable)

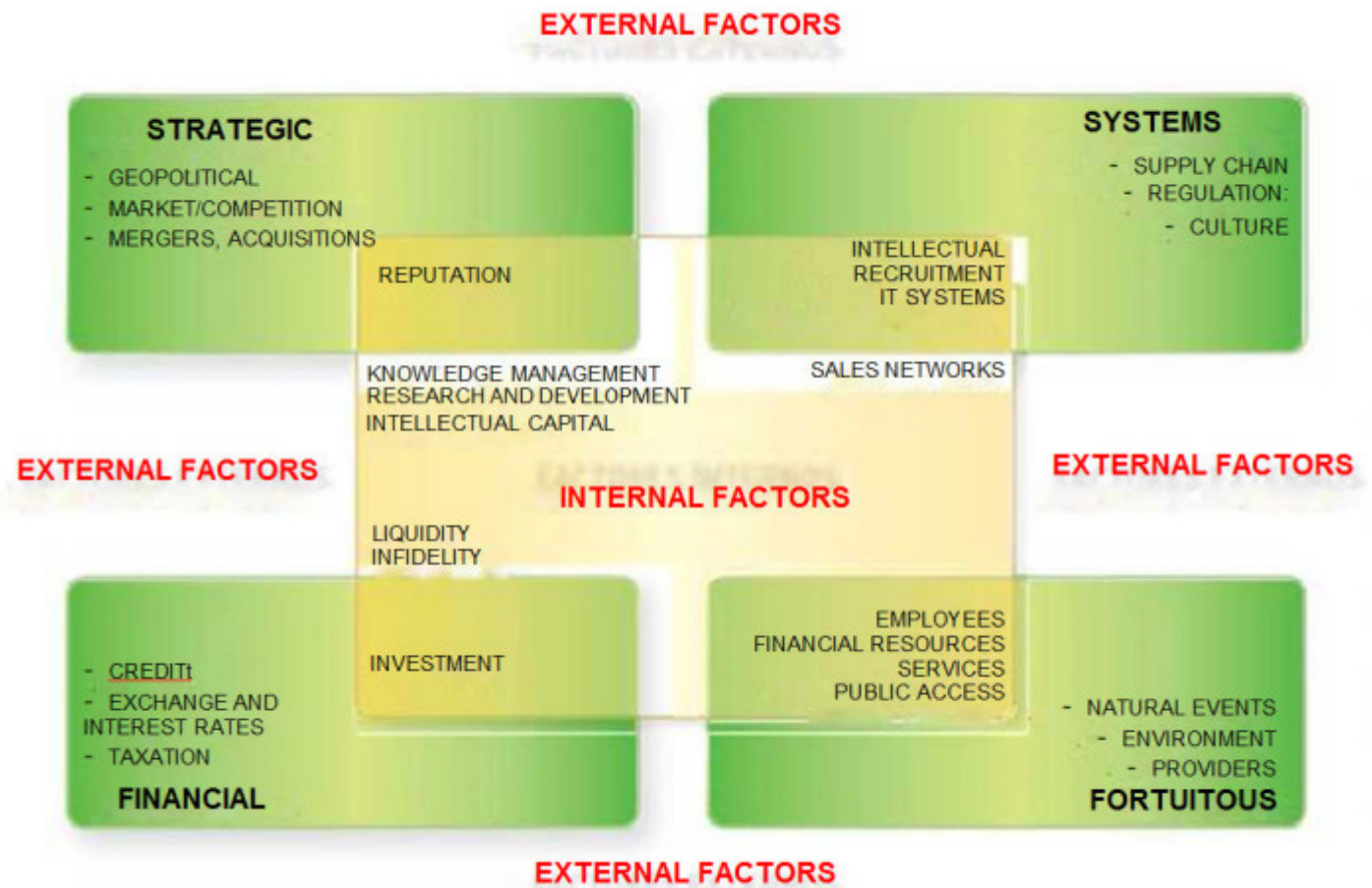
Tools and techniques	Risk evaluation process				
	Identification of risk	Risk analysis			Risk assessment
		Consequence	Probability	Risk level	
Brainstorming	SA	N/A	N/A	N/A	N/A
Structured or semistructured interviews	SA	N/A	N/A	N/A	N/A
Delphi	SA	N/A	N/A	N/A	N/A
Check-list	SA	N/A	N/A	N/A	N/A
Preliminary risk analysis	SA	N/A	N/A	N/A	N/A
Hazard and operability studies (HAZOP)	SA	SA	A	A	A
Hazard analysis and critical control points (HACCP)	SA	SA	N/A	N/A	SA
Environmental risk assessment	SA	SA	SA	SA	SA
What if...?	SA	SA	SA	SA	SA
Analysis of scenario	SA	SA	A	A	A
Business impact analysis	A	SA	A	A	A
Cause analysis	N/A	SA	SA	SA	SA
Failure Mode and Effects Analysis (FMEA)	SA	SA	SA	SA	SA
Fault tree analysis	A	N/A	SA	A	A
Event tree analysis	A	SA	A	A	N/A
Cause-consequence analysis	A	SA	SA	A	A
Cause-effect analysis	SA	SA	N/A	N/A	N/A
Protection level analysis	A	SA	A	A	N/A
Decision tree	N/A	SA	SA	A	A
Human reliability analysis	SA	SA	SA	SA	A
Bow tie analysis	N/A	A	SA	SA	A
Reliability-based maintenance	SA	SA	SA	SA	SA
Design error analysis (SNEAK)	A	N/A	N/A	N/A	N/A
Markov analysis	A	SA	N/A	N/A	N/A
Monte Carlo simulation	N/A	N/A	N/A	N/A	SA
Bayesian statistics and networks	N/A	SA	N/A	N/A	SA
FN curves	A	SA	SA	A	SA
Risk indexes	A	SA	SA	A	SA
Consequence/probability matrix	SA	SA	SA	SA	A
Cost-benefit analysis	A	SA	A	A	A
Multicriteria decision analysis	A	SA	A	SA	A

Source: Martínez Torre Enciso and Casares San José-Martí (2011: 29)

Today, the identification phase is a never-ending task, as new threats arise constantly. Therefore, it must be interpreted as an ongoing step, which should result in an uninterrupted flow of information. Just as we have mentioned, any of the known systems and methodologies may be used, given that the objective of realistically identifying the greatest number of risks is more important than the path followed to achieve this.

Once the risks are identified, the companies must classify these into groups. To do this, we have use the reference given by Escorial Bonet (2012: 53):

Figure 2. Risk classification



Source: Escorial Bonet (2012: 53)

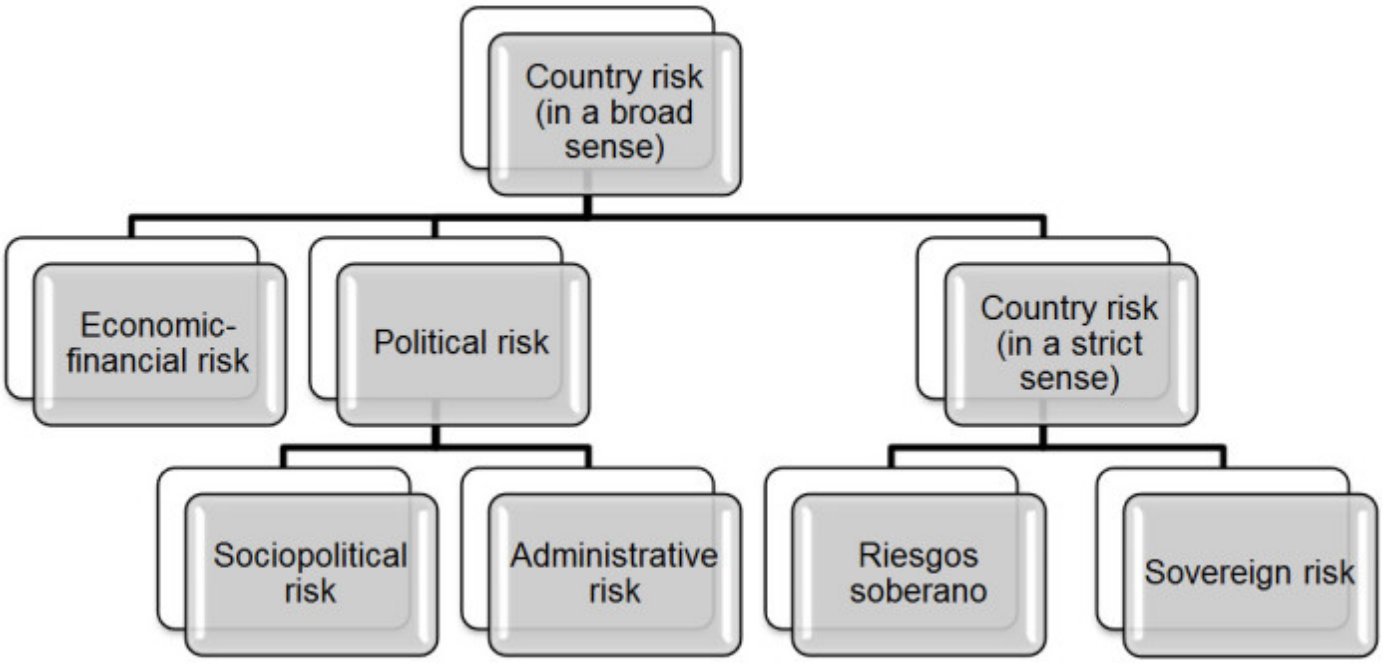
In this regard, the following section presents greater details, through from a general viewpoint, of each business risk that may affect tuna fishing companies. Afterward, each organization will be responsible for creating its own risk map and even, if pertinent, create another one for each type of vessel.

STRATEGIC RISKS

Those risks that prevent the achievement of strategic objectives, interpreted as "those points that guide the corporate activity" (Pascual Camino, 2013: 38). These are associated with the company's management, and may jeopardize its sustainability and viability.

These may arise from both internal and external sources. Among the first, we find country, reputational and technological risks.

Figure 3. Types of country risks



Source: Rodríguez Castellanos (1997: 46)

The country risk, in general, is defined by Moosa (2002: 132) as the exposure to economic loss in transnational operations caused by events occurring in a given country which are, to a certain extent, under governmental control. Dans Rodríguez (2013: 129) summarizes in a chart some of the effects that this may have, among which are worth highlighting: restrictions to the transfer of capitals, limits to convertibility, nationalization, expropriation and confiscation, war and violence, etc.

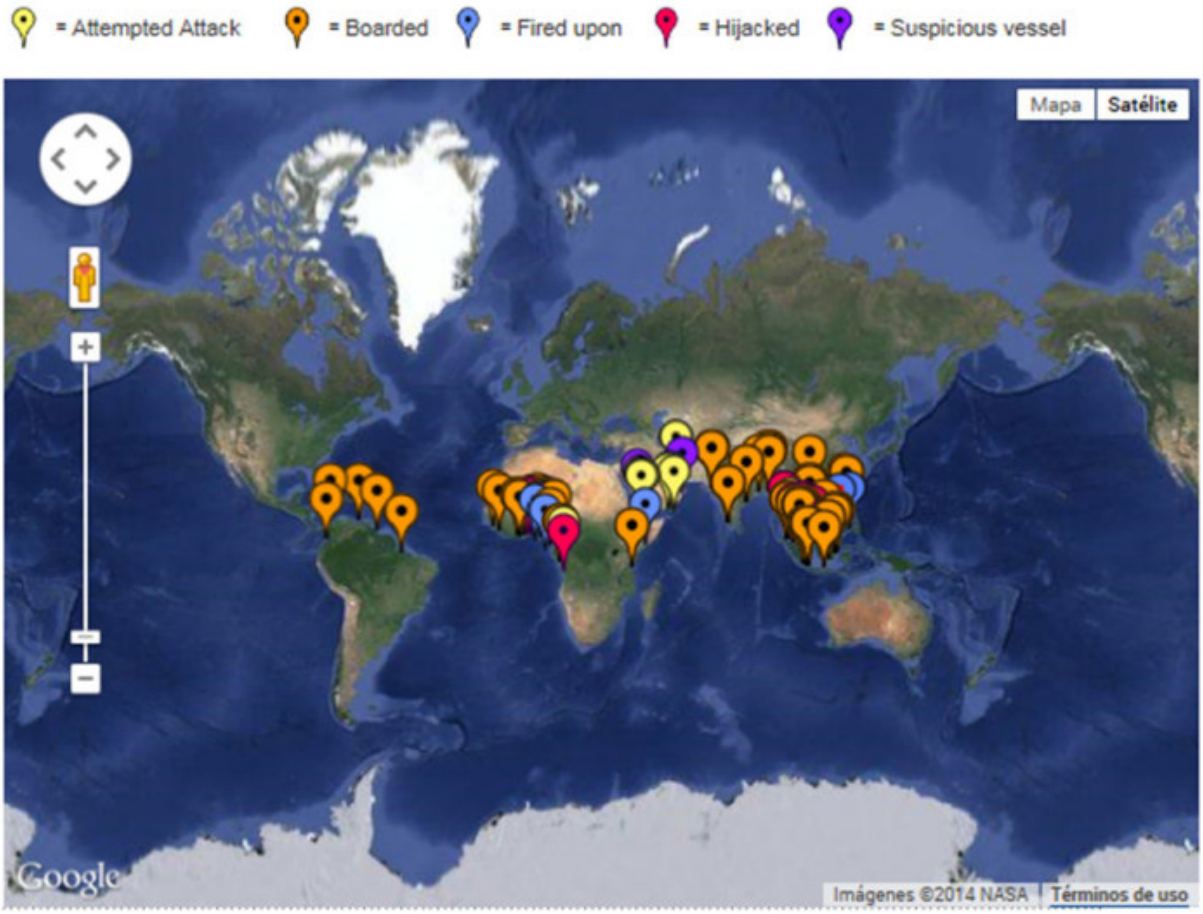
The country risk in turn, may be broken down as proposed by Rodríguez Castellanos (1997).

However, from our viewpoint and considering the activity under analysis, the tuna fishing industry, to the country risks shown by Rodríguez Castellanos (1997) we must add the risk of war and the high-profile risk of piracy.

Briefly, these may be summarized as follows:

- Economic-financial risk: the risk related with a country's payment capacity and with the uncertainty of the operational outcome of an investment in that country.
- Political risk: the risk of a company's strategic, financial or personal loss as a result of non-commercial factors, such as macroeconomic and social policies, or events related with political or social instability.
- Country risk, in a strict sense: the risk that arises of the acquisition of financial assets issued by entities of a given country or of granting loans or credit to its residents. Delayed collections of interests, dividends or principal of the debt, or even the impossibility of recovering these, generate this risk.
- Risk of war: the risk that derives of the deterioration of the economy and of insolvency that may be caused by sociopolitical instability, in general. This may have a direct effect in the closing of the navigation routes followed by the vessels that carry frozen fish.
- Risk of piracy: the risk that results of acts of piracy, defined as all attacks that occur on the high seas; in other words, beyond the territorial waters of a given country, equivalent to the area extending 200 miles from its shore.

Image 1. Acts of armed robbery and/or piracy in 2014



Source: IMB Piracy Reporting Centre (2014)

Image 1 shows that attacks are mainly concentrated on both sides of the African continent, wherefore, in principal, vessels with operations in the Pacific are unaffected by this risk. However, the same does not apply to those that fish in the Atlantic or Indian Oceans. Still, it does not have too great of an impact on vessels in the Atlantic, as according to Bolaños Martínez (2013: 3) these chase, in particular, oil tankers, but also "vessels navigating toward northern countries loaded with cocoa, coffee and other raw materials that are essential for the regional economies". In this sense, the attacks concentrated in the Gulf of Guinea seek "basically money, valuable objects of the vessel and its crew, cellphones, cargo, fuel, food, clothes" (Peyroteo Portela Guedes, 2014: 407). To the contrary, the main objective of Somalian pirates that act in the Indian Ocean is "to kidnap crew and vessels to obtain a sizable ransom" (Ibáñez Gómez and Esteban Navarro, 2013: 10), wherefore any type of vessel may be targeted by their kidnapping.

On another hand, reputational risk is the uncertainty of results, arising from events that may harm the perception of stakeholders. According to Villafañe (2009: 6) reputation is an intangible asset that generates value for companies, given that it "allows for raising prices, improving talent management (…), translated into greater competitiveness". Based on this, we may affirm that reputation is, perhaps, a company's most important intangible asset.

To conclude the external strategic risks, technological risk is defined as "the likelihood of suffering harm or economic, environmental or human losses as a result of deficient functioning or accident of a technology applied to human activity", and in our opinion, business.

In another sense, the most significant internal strategic risks are the risk of size and the risk of the scope of operations or risk of concentration.

Therefore, size is an important risk factor for a company, as large companies have more resources for better adapting to the competition and to economic downturns. The larger the size, the fewer the difficulties in accessing sources of long-term, low-cost financing; likewise, the larger the size, the greater professionalization of its management team; this is also beneficial for the internationalization of companies, though even the smallest of tuna fishing companies is internationalized, given the nature of the activity's characteristics. As regards innovation, according to Camisón Zornoza, Lapiedra Alcamí, Segarra Ciprés and Boronat (2002), there does not exist "a consensus as to the intensity and direction of the relationship" (ib., 2002: 5), though "the conclusion we have reached is that the size-innovation correlation is significant and positive, though the magnitude of the average effect of size on innovation is quite low (15 percent)" (ib., 2002: 35).

Finally, the risk of the scope of operations or risk of concentration is what we colloquially refer to as "putting all of our eggs in the same basket". It is especially relevant in the analyzed subsector, as some companies center all of their activities in a particular fishing area, which in the event of an unexpected event may result in serious economic difficulties.

OPERATIONAL RISKS

Operational risks are defined (Fundación MAPFRE, 2016) as:"the risk of loss arising from the inadequacy or malfunction of internal processes, personnel or systems, or arising from external events. This includes legal risks, but neither the risks derived of strategic decisions, nor reputational risks".

Therefore, this risk is inherent to a company's existence itself as well as to its activities, wherefore it also affects tuna vessel shipyard companies. Among the many that may be cited, a few examples include: the risk of capsizing of a vessel as a result of a poor cargo distribution or an improper containment tank drainage when passing through a channel, the risk of loss due to erroneous decision-making when approaching a school of fish or due to a breakdown of the vessel's main engine, or simply due to an unsigned or overdue insurance policy, wherefore it is invalid.

Operational risks may also be classified as external and internal. The first includes legal risk, while the second includes the risk of know-how or talent retention.

In this regard, Ceballos Horneros (2007: 2-3) defines legal risk from two perspectives:

- Direct; the possibility of losses due to non-compliance (or imperfection) of legislation affecting financial contracts or the impossibility of legally demanding the execution of the contract.
- Indirect; the risk of changes to regulations by the competent (governmental) authorities (local, national or international) in regulations that adversely affect the company's position.

Bearing in mind that freezer tuna vessels operate in areas of predominantly third world countries, this risk may become relevant. Along these lines, Rodríguez Fernández (2007: 12) affirms that "the large amount of regulations implemented by these countries, together with the actual disorganization of regulations, generates uncertainty as to the applicable legal system of contractual relationships".

In conclusion, the loss of talent, the risk of know-how, may become a major burden for the company, given that the proper management of intellectual capital, learning and motivation translate into increases of an intangible asset that will have the quality of generating profit for the company.

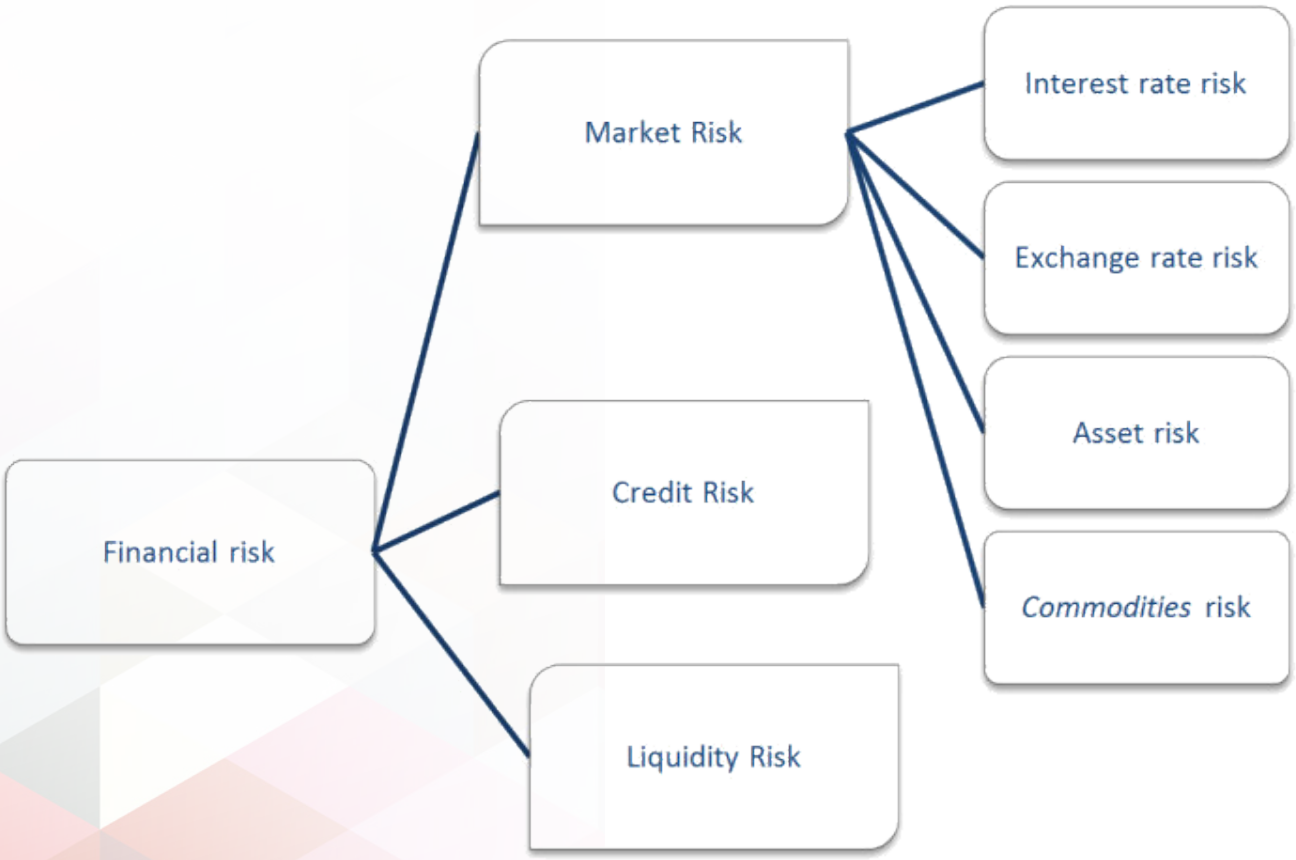
FINANCIAL RISKS

According to Jorion (2001: 3) financial risk is the volatility of unexpected financial flows, usually derived of the value of assets or liabilities.

Along these lines, from a global viewpoint we can define it as: the possibility of both gains and losses as a consequence of an event or future occurrence that varies the current or expected circumstances that have served as the basis for measuring financial assets and liabilities.

The financial risk is divided as follows:

Figure 4. Types of financial risks



Source: Prepared internally

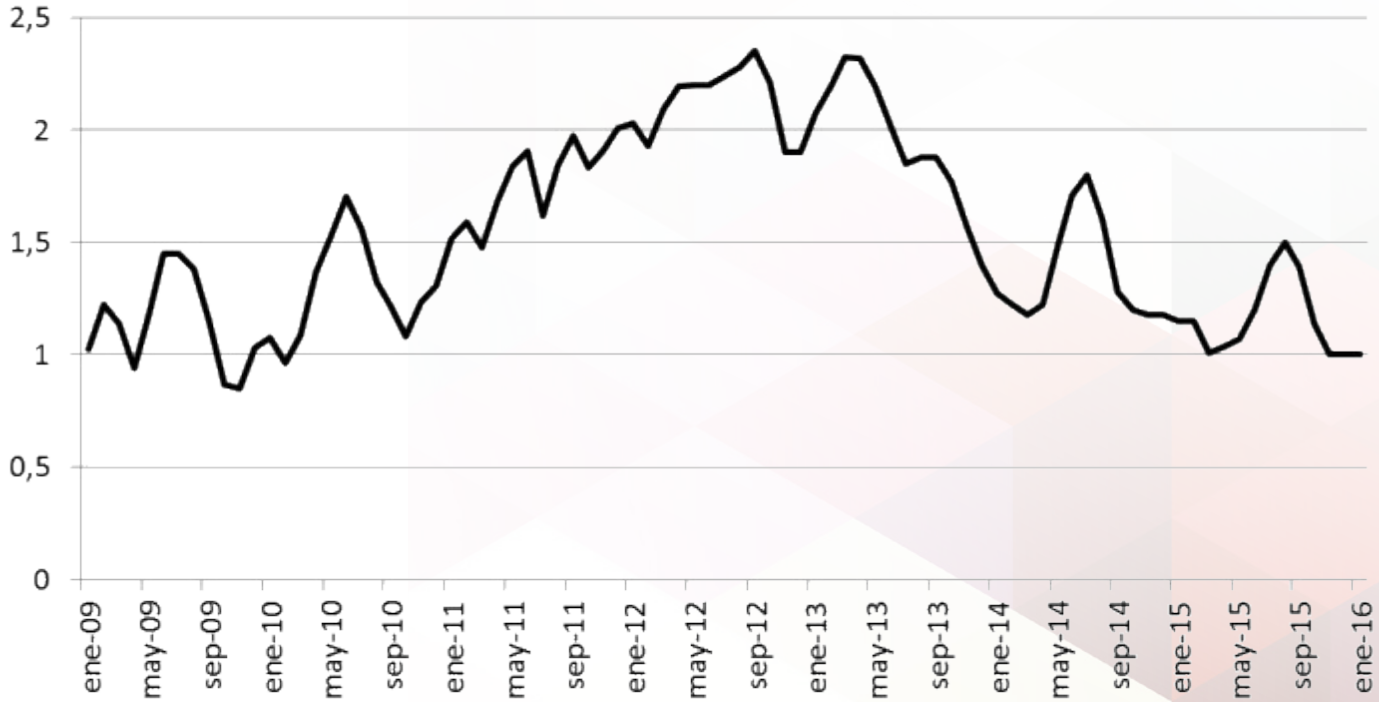
Market risk and credit risk are external financial risks, while liquidity risk is an internal financial risk.

Therefore, market risk is (Fundación MAPFRE, 2016): "the risk arising from the level or volatility of market prices of financial instruments which have an impact upon the value of the assets and liabilities of the company". Based on this, said risk may have both positive and negative connotations.

In turn, market risk is differentiated into:

- Interest rate risk: "sensitivity of the value of assets, liabilities and financial instruments versus variations in the temporary structure of interest rates or interest rate volatility" (Fundación MAPFRE, 2016).
- Exchange rate risk: risk that a variation in the relationship between two currencies may cause deviations in results, both negative and positive. Freezer tuna vessel companies, given their global and international nature, are particularly vulnerable to this risk.
- Asset risk: the risk that a variation in the market value of a company's shares owned by another will modify the results of the latter.
- Commodities risk: the possibility that a company will experience variations in its results as the consequence of changes in the company's product prices and position. Diesel prices are one of the major costs assumed by freezer tuna vessels, and this product's price fluctuates constantly. Likewise, the vessels' revenues depend on tuna catch sales, and on another hand, the amount to be caught, or whether fishing will be possible at all, is unpredictable. As an example, the graph below displays the variability in the price per ton of tuna, anything but stable.

Graph 2. Monthly price (mUSD/MT of Skipjack in the Bangkok market, January 2009-January 2016



Source: Thai Union Frozen Products PCL (February 10, 2016)

Credit risk, on another hand, may be interpreted from two angles, but always from the viewpoint of losses. The first "arises from the objective uncertainty that a creditor bears as to the loss it must assume in the case of the debtor's nonpayment of the obligations entered into by virtue of the credit" (Trigo Martínez, 2009: 16); while the second addresses the possibility that an investor "is unable to obtain the required financing resources" (Rodríguez Fernández, 2007: 7).

Last of all, liquidity risk, also having negative connotations (Jorion, 2001: 17-18), is an excessive loss arising from the disposal of assets or unusual discounts to obtain money.

FORTUITOUS RISKS

These arise from losses generated by property, personal and third-party liability. In general, these are subject to being insured.

Among others, the most important fortuitous risks include: damage to physical assets, natural disasters, environment, interruptions to business activity, health-related injuries of employees, etc. Of these, we highlight weather and climate risks and risks related to the species as external fortuitous risks; in addition, occupational risks as internal fortuitous risks.

Along these lines, weather and climate risks are the losses a company may suffer as a result of its effects. Today, the effects of weather may be less dangerous given the advanced technology onboard the freezer tuna vessels. However, this does not release from the need to navigate away from hazardous areas, resulting in economic losses, given that compared with the costs incurred in any case, revenues are zero, given the impossibility of fishing. On another hand, climate-related risks may result in closed fishing season, temporary stoppages, and changes in the number of licenses, etc., thereby entailing an intrinsic risk of management itself. Similarly, an example of a spatial risk is the transfer of fisheries with the subsequent risk of cost increases for navigating to that point (diesel, duration of the journey); and a biomass-specific risk, in the case of a decreased stock level of a given species.

On another hand, certainly the species risk is perhaps the issue object of the most analysis among those related with freezer tuna vessels. Sustainable fishing is one of the major concerns and objectives of the fishing sector, not only of the future, but of the present.

Table 5 displays the status of stocks in 2014.

Table 5. Status of stocks in 2014 of species caught by freezer tuna vessels

Ocean	RFO	Skipjack	Yellowfin	Bigeye	Last updated
Indian Ocean	IOTC	Moderately exploited	Moderately exploited	Moderately exploited	2014
East Pacific Ocean	IATTC	Moderately exploited	Fully exploited	Fully exploited	2014
Western and Central Pacific Ocean	WCPFC	Moderately exploited	Moderately exploited	Overexploited	2014
Atlantic Ocean	ICCAT	Moderately exploited	Fully exploited	Moderately exploited	2014

Source: Prepared internally

Given this, special attention must be paid mainly to bigeye tune in the Pacific Ocean, even though this species is captured in much lower numbers by freezer tuna vessels, as skipjack is the species par excellence of these, followed by yellowfin, and finally, bigeye, by far. Therefore, the most captured species by freezer tuna vessels enjoys a good sustainability.

In conclusion, occupational risks may be defined as the possibility of losses arising as a consequence of an event related with the workplace. These losses may entail human costs, such as fatalities or social pressures or psychological stress, or economic costs, sometimes easily identifiable as compensation, and other times having less visibility, such as work hours lost by colleagues and managers in the event of an accident and first aid, conflicts at the workplace, strikes or damaged reputation of the company, among others.

OTHER RISKS

This section details some of the risks that are not included in the previous sections, but which, nevertheless, are not less important. Here we find:

- Risks at sea: these are risks associated with the sea and which may generate losses, sometimes quite substantial, and even, with catastrophic results for companies. For example: shipwreck,

collision with another vessel, capsizing, stranding, contact with floating or sunken objects, collision against a port, etc.

- Risk of inactivity or loss of profits: these are losses suffered due to a decrease of business volume and/or increase of operating costs, as long as this results in a temporary, total or partial interruption of the business activity as a result of an incident.
- Accounting risk: defined as "a deviation in the outcome of the decision-making process, as well as in the determination of the best possible estimates and predictions, as regards conditions and future results of a company. This occurs as a consequence of not having used accounting data based on the best alternative of the available professional accounting regulations applicable to the case and/or not having applied sound professional criteria" (Pérez and Carboni, 2005: 55).
- Risks related with Corporate Social Responsibility (CSR) and Sustainability: these are those risk that, when efficiently managed, are capable of positioning an organization in the market by demonstrating its public commitment to corporate and social responsibility. These risks entail a prominent positive impact, particularly a strategic one, as long as they are approached properly. Otherwise, they may represent a threat to corporate sustainability and to the company's image (Dopazo Fraguío and Candelario Macías, 2011: 65-66).
- Corporate Governance Risks: those derived of the corporate governance model itself, its structure, composition, self-regulation and control, in addition to the fulfilment of the obligations entered into by virtue of the codes of good corporate governance (Dopazo Fraguío and Candelario Macías, 2011: 62).

Finally, we cannot overlook the risk of risk itself; in other words, that derived of the unawareness of the existence of a risk associated with a given element.

ANALYSIS AND QUANTIFICATION OF RISK

To analyze risk, actions are implemented to estimate the magnitude of the identified risks, wherefore they will be measured on the basis of frequency and intensity. There variables will be used to attempt to establish the probability of their occurrence and their consequences. The assessment of the probability of risks studies the probability of the occurrence of each risk, and the evaluation of their impact researches their potential effects on an objective.

The methodology for evaluating corporate risks is comprised of the combined application of qualitative, semiquantitative and quantitative techniques. Normally, qualitative techniques are used when the risks are not quantifiable or when there is insufficient credible data for a quantitative evaluation, or when their use would entail a disproportionate cost compared with the benefits to be obtained. They are characterized by not recurring to numerical calculations; instead, they are based on participants' judgments, experiences and intuitions. They use descriptions to show the possibility of the materialization of these risks and the potential impact of their effects.

On another hand, quantitative techniques tend to contribute higher precision when evaluating impact. These are characterized by the use of mathematical models that allow for assigning values to the occurrence of the different risks identified. Therefore, quantitative methods include the analysis of probability and consequences. It is not always possible to apply these methods due to insufficient data or information.

Finally, semiquantitative methods include values in the qualitative scales; in other words, they use numerical scales for consequences and probability, and are combined to produce a risk level by using a formula.

Therefore, with the analysis of risks, attempts are made to evaluate controls, analyze consequences and estimate probabilities. All of this results in a probability and impact matrix, in which categories are assigned to the risks on the basis of the combinations of both factors. The value of each risk is obtained by multiplying its probability by the associated impact. Depending on the company's degree of aversion/propensity, the value reflected will indicate priority.

After the risk assessment is completed, these must be evaluated. Then, the risk will be considered acceptable or insignificant, when it does not entail a threat to the organization; tolerable, if the possibility exists that only periodical revisions, and not actions, will be required for its management; moderate, when the risk may significantly impact the company, requiring the implementation of measures in the medium term; important, if it represents a major threat for the organization, requiring the implementation of measures in the short term; and inacceptable or intolerable, when they threaten the company's stability, requiring immediate and urgent implementation of measures.

Once the risks have been evaluated, the next step is to find a way to approach these to minimize negative risks and maximize positive risks.

MEASURES FOR APPROACHING RISK

The planning of responses unto risks consists of developing options and defining actions for improving opportunities and reducing threats.

One of the initial decisions to be made as regards responding unto risks is whether or not to respond to said risk. In any case, and before decision-making, the decision must undergo a cost-benefit analysis.

Therefore, not responding to a risk is the same as accepting it, also known as an assumed or retained risk. Its acceptance may be passive, when the existence of a risk is unknown; or active, in the opposite case. When facing the latter, the company must design a plan for responding to the risk, whether it is assumed voluntarily or obligatorily.

Furthermore, responding to a risk requires a response plan, through which the best decision is made between: avoiding, mitigating or transferring negative risks; and exploiting, improving or sharing positive risks. In any case, all of these response measures are not necessarily exclusive or suitable for all circumstances. The adequate option will be the one that strikes a favorable balance between its implementation cost and the benefits derived of the same.

NOT RESPONDING TO A RISK

Retention exists when (Culp, 2006: 31) a company decides to assume on its own the negative consequences of risks to which its ordinary activity is exposed, without transferring these to a third party.

In this case, as regards positive risks, doing nothing or accepting an opportunity is to try to take advantage of it when it occurs, but without actively pursuing it. From the point of view of a negative risk, for Hierro Anibarro and Castillo Plaza (2011: 25):

"Retention entails not transferring to a third part a risk to which one is exposed. The consequences of an incident are directly assumed by the affected party, which will cope with it using a fund specifically destined for these eventualities or, in the case no specific capital is available, by recurring to any type of resource, whether ordinary or extraordinary".

Therefore, voluntariness may be differentiated according to:

- Unconscious retention: when an organization accepts a risk simply because it is unaware that it exists. Given the unconscious and inactive nature of this position, there is no response plan unto the same.
- Conscious retention: when the organization is aware of and assumes the risk, whether on its own voluntarily or due to legal obligation. Conscious retention may be classified as:

    - Assumed: when the risk is intentionally accepted and no additional prevention or protection measures are developed in response to it. In this case, when an event occurs, it will be at the company' expense, against the results of the corresponding year.
    - Planned: when the risk is intentionally accepted and the company has financial or strategic mechanisms in place for bearing part or all of the losses that may arise. Among financial mechanisms we may highlight self-insurance or Alternative Risk Transfer (ART). On another hand, the diversification of business, vertical integration or product quality improvements are a clear example of strategic mechanisms.

Other retention techniques also exist fortuitous risk when a company transfers part of the risk and retains part of the losses, if any. Some of the most common are: deductibles, coinsurance and first risk.

RESPONDING TO A RISK

The process for responding to a risk consists of selecting and applying the most suitable measures that modify the risk to thereby avoid the damages inherent to the risk factor or to benefit from the advantages it may report.

In this regard, in response to negative risks the company may avoid, mitigate or transfer the risk; as regards positive risks, the company may opt to exploit, share or improve it.

RESPONDING TO NEGATIVE RISK

When a risk is avoided or eliminated, the probability of its occurrence disappears or its impact decreases completely, wherefore the probability of a loss is zero. To eliminate the probability generates the risk must be suspended, or the threatened resources must be moved elsewhere to a level of non-exposure. To make the impact of a risk disappear, extreme protection measures must be implemented, which sometimes are not viable due to the high costs entailed for the company. Furthermore, there are also risks impossible to avoid. One example of this is the risk of losing the net while fishing, a risk that cannot be transferred. Reducing the probability of this occurrences entails reducing the number of starts, with the consequent reduction in captures, and to completely eliminate its impact, the fishing methods must be changed, given that purse seiner fishing is impossible without a net.

On another hand, reducing and mitigating a risk requires an ex ante action to prevent the event from occurring and/or to reduce its effects. Therefore, the threat mitigation strategy entails reducing the expected monetary value by decreasing the probability of the occurrence and/or consequences to an acceptable threshold.

Oftentimes, it is more effective to make decisions from the beginning to mitigate a risk, rather than to repair the consequences after it has materialized.

Two means exist for reducing the risk: prevention and mitigation. The first is the series of policies, regulations, controls and procedures implemented so avoid the occurrence of a dangerous event, or to reduce its effects. Preventive measures to be applied, usually having a lower cost than others, include, among others: inspections and security tests, investment in information, preventive maintenance. Meanwhile, the second entails a series of intervention methods aimed at reducing or decreasing a risk, different from prevention in that this one entails anticipation, while mitigation is action at the time of the danger or materialization of the risk. We can state that mitigation results of the impossibility of preventing or avoiding harm and its consequences, when only attenuation is possible.

In other matters, transfer entails involving a third party in its management; in other words, the risk is transferred by one person or company to another. Said differently, it is outsourcing the risk. This party will assume part of the losses in accordance to what has been agreed, when an event occurs that requires this, and even sometimes, this party assumes the liability for applying control measures to reduce these.

A great variety of transfer tools exist. Some are through an insurance contract and others are through a non-insurance contract. The first include traditional insurance and others derived of this, while from the second we cannot overlook: liability exemption clauses, lease agreement for goods, and lease agreement for services.

RESPONDING TO POSITIVE RISK

In the same way as we have seen different techniques and tools for responding to risk to minimize it, the same train of thought may be applied to opportunities, but in this case with the objective of strengthening these. In this sense, the strategies to be adopted are: exploiting, sharing and improving.

Exploiting a risk, the positive equivalent of avoiding a risk, intends to eliminate the uncertainty of the opportunity by focusing its management positively so that it will occur. Therefore, exploiting a risk is assuring that it will happen.

On another hand, improving a risk, the positive counterpart of mitigating a risk, pursues the objective of modifying the opportunity, accentuating its probability and/or positive impacts, and identifying and maximizing the key driving forces of these risks with positive impact. Therefore, the probability may be increased by strengthening the cause of the opportunity and by using a proactive approach unto the conditions that trigger it. While the impact increases, the susceptibility of the project unto the opportunity likewise increases, using tested resources or more productive tools, among others.

On another hand, the last feasible strategy when facing positive risks is sharing, on the same level as transferring. This implies assigning the ownership of a positive risk to a third party that is better able to capture the opportunity for the benefit of the project.

This results in the establishment of links or strategic alliances with other companies to cover certain positive risks.

The types or models of these alliances are different. Logically, some are more interesting than others, but tuna fishing companies we highlight: franchising or licensing, collaboration agreements, multilateral agreements, corporate venturing or joint ventures and mergers.

Last of all, and though this is not a strategy for sharing per se, we consider it suitable to point out the importance that the creation of foundations may entail for tuna fishing companies. These entities are defined as not-for-profit organizations that employ their assets for purposes of general interest. These purposes, as an example and in relation to the activity object of our study, could include, among others: promotion of research in the field of tuna fishing, environmental conservation or development cooperation in the regions in which their operations take place, which oftentimes are developing countries.

Though these types of organizations benefit from tax breaks, in our opinion, by no means is this its main advantage. The establishment of foundations entails, from our perspective, a matchless opportunity for strengthening the increasingly important, desired and vital corporate reputation.

CONCLUSION

Good risk management enables managers to efficiently face uncertainty and the associated risks and opportunities, thereby improving its capacity for generating value while consolidating its activity and making it sustainable in the long term.

Though no risk management process can create a risk-free environment, it is necessary to count with a risk management system for reducing losses that may arise from these to a minimum, as well as for maximizing gains.

Table 6. Relationship between risks and their responses

Strategies and tools for providing coverage / Risks				Negative risks																Positive risks			
				Non-response to risk								Responding to a risk											
					Self-insurance										Transfer								
				Accept	Pure self-insurance	Savings	Accounting reserves	Captive companies	Retention groups	Pools	Business diversification	Avoid	Mitigate	Future	Fixed-term contracts	Options	Swaps	Insurance	Accept	Exploit	Improve	Share documents
Strategic risks	External strategic risks	Country risk	Economic-financial risk	X	X	X	X					X	X									
			Political risk	X	X	X	X					X	X									
			Country risk, in a strict sense	X	X	X	X	X				X	X	X	X	X	X					
			Risk of war	X	X	X	X	X				X	X					X				
			Risk of piracy	X	X	X	X	X			X	X	X					X				
		Reputational risk		X							X		X						X	X	X	X
		Technological risk		X	X	X	X	X			X	X	X					X				
	Internal strategic risks	Size risk		X	X	X	X				X	X	X									
		Concentration risk		X	X	X	X	X			X	X	X									
Operational risks	External operational risk	Legal risk		X	X	X	X	X			X	X	X									
	Internal operational risk	Know-how risk		X									X									
Financial Risk	External financial risks	Market Risks	Interest rate risks	X	X	X	X	X				X		X	X	X	X		X	X		
			Exchange rate risks	X	X	X	X	X				X		X	X	X	X		X	X		
			Asset risk	X	X	X	X	X				X		X	X	X	X		X	X		
			Commodities risk	X	X	X	X	X				X			X	X			X	X		
		Credit risks		X	X	X	X	X				X	X									
	FINANCIAL RISK	Liquidity Risk		X	X	X	X	X				X	X									
Fortuitous risk	External fortuitous risks	Weather and climate risks		X	X	X	X	X			X	X	X									
		Species risk		X	X	X	X	X			X	X	X									
	Internal fortuitous risks	Occupational risk		X	X	X	X	X				X	X					X				
Other risks	Risks at sea			X	X	X	X	X				X	X					X				
	Loss of profit			X	X	X	X	X					X									
	Accounting risk			X								X	X									
	Risks related with CSR and sustainability			X								X	X						X	X	X	X
	Corporate governance risk			X								X	X						X	X	X	
	Risk of risk			X									X									

Source: Prepared internally

Therefore, tuna fishing companies must be aware of the benefits that can result from good risk management. It's not merely a question of complying with legislation, but rather extends beyond this. With a comprehensive policy and participation and commitment across all corporate levels, we may avoid unpleasant surprises along the journey.

Many risks affect these companies, but there are also many tools which, if deemed necessary, may be used as a response.

In summary, we present in Table the responses which, in our opinion, may be used when facing each risk. However, this is quite relative, given that the responses depend on each specific situation, depending on the degree of aversion to the risk, the objectives, the intentions, the desires, etc.

Though we must acknowledge that some of the proposed tools are theoretically possible, in reality the demand is insufficient, wherefore their use is limited or stunted. For this reason, once the risks have been identified, the available tools will comprise the point of departure, to thereafter opt for the most suitable one, depending on the company's needs. One example of this is coverage for loss of profit, perhaps for which the proper management of the remaining risks is the best tool. ■

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