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INDEPENDENT REGULATORS AS A RESPONSE TO MAJOR OIL SPILLS AND ACCIDENTS IN THE OFFSHORE OIL AND GAS INDUSTRY

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This article analyzes the reforms of offshore oil and gas (O&G) regulators in the United Kingdom (the UK), Norway, the United States of America (the USA), and the Netherlands after major accidents in the industry. The reforms introduced a measure to make regulators more independent, and to avoid conflicts of interest by separating economic and risk regulation. This research calls such measure "the functional separation criterion". In order to identify what makes a regulator independent, this research goes beyond the offshore O&G industry to analyze the theory of independent regulators developed in the field of public administration. This approach evidences that, in contrast to the understanding of independent regulators used in the offshore O&G industry, the independence of regulators in the field of public administration is a multidimensional concept. A multidimensional assessment of the independence of offshore O&G regulators reveals findings that remain hidden if one uses a single and limited approach such as the functional separation criterion.

INTRODUCTION

Responses to major accidental oil spills and gas releases in the offshore O&G industry are not limited only to immediate mitigation and containment actions, but to regulatory measures to prevent them. This article focuses on the independence of regulators as one of the measures adopted in the UK, Norway, the USA, and the Netherlands as a response to major accidents in the offshore O&G industry. The objective of this research is to identify what

criteria contribute to the independence of regulators beyond the functional separation criterion.

METHODS

Firstly, comparative legal research and qualitative research methods such as case studies are used to explain the reorganization of offshore O&G regulators after major accidents. To this purpose, this article analyzes four case studies of regulators that claim to be independent: the Health and Safety Executive (HSE) in the UK, the Petroleum Safety Authority (PSA) in Norway, the Bureau of Safety and Environmental Enforcement (BSEE) in the USA, and the State Supervision of Mines (SSM) in the Netherlands. Secondly, this article applies the theory of independent regulators to offshore O&G regulators.

AN APPROXIMATION OF REGULATION AND REGULATORS

One of the most traditional definitions describes regulation as "*the promulgation of an authoritative set of rules, accompanied by some mechanism, typically a public agency, for monitoring and promoting compliance with these rules"* (Baldwin et al., 1998). The core of this notion is that regulation derives from the exercise of a state's authority and involves four elements. Three of these elements are powers, namely rulemaking, monitoring and enforcement. The fourth element is an actor, an authority in charge of executing some or all of those regulatory powers. This paper focuses on the authority in a specific economic activity: offshore oil and gas exploration and production (e&p). For the purpose of this paper, such authority will be called "the regulator", while its duties will be referred to as "supervision".

A public regulator is defined as *'a public institution that seeks to solve problems falling under its purview by steering the behavior of regulated individuals and organizations by implementing and enforcing laws or policies, among other tactics'* (Coglianese, 2015). Examples of regulators in the offshore O&G sector abound from around the world: HSE in the UK, PSA in Norway, BSEE in the USA, SSM in the Netherlands, and so forth. The four countries are parties to the International Convention on Oil Pollution, Preparedness, Response

and Co-operation, 1990 (OPRC 1990), and their four regulators have authority to ensure that companies implement measures to assess and manage the risks of offshore O&G activities, being oil spills one of the most dangerous for the marine environment. Depending on their focus on health, safety or the environment, the regulator's mechanisms to prevent and respond to oil spills may vary from the assessment of safety cases, management systems, environmental plans, oil pollution emergency plans, contingency plans to oil pollution incidents. The HSE, PSA, BSEE and SSM share best practices on safety, oil spill prevention, preparedness and response in international forums such as the International Regulators Forum.

While the scope and instruments of the HSE, PSA, BSEE, and SSM to prevent oil spills vary, nowadays they share at least a common feature: they mainly focus on risk or social regulation in contrast to economic regulation. Risk regulation centers on issues such as health, safety and the environment, whereas economic regulation focuses on the functioning of markets (Sparrow, 2000). The reason for focusing on risk regulation is related to a concrete characteristic of offshore O&G regulators considered as desirable in the literature (OECD, 2014; Grebe et al., 2014), and mandatory in some jurisdictions (Offshore Safety Directive, 2013): their independence.

THEORETICAL CONTEXT OF INDEPENDENT REGULATORS

In the 1980s, the debate on independent regulators emerged in the economic regulation of utility industries (Yeung, 2010; Daintith et al., 2017; Stern et al., 1999; OECD, 2016). After major accidents, the debate expanded to hazardous industries, such as the offshore O&G sector (Daintith et al., 2017; Carrigan, 2017). Central to this debate are attempts to delineate the concept of independent regulators (also referred as autonomy) developed in the field of public administration (Verhoest, et al., 2004). Two main theoretical schools of thought in this field underpin the concept of autonomy: the New Public Management (NPM), and the Regulatory State (Verhoest, et al., 2004). These theories argue that certain functions are better executed

when are allocated at arm's length from the government (Verhoest, et al., 2004). The alleged reasons for better performance range from the specialization of independent regulators to their isolation from political influence.

Contemporarily, the Organization for Economic Cooperation and Development (OECD), recognizes that regulators necessarily interact with among others, the government and the regulated industry (OECD, 2016; OECD, 2017). Therefore, independence is required to avoid undue influence on regulators, and their decisions as a consequence of such interactions (OECD, 2016). The argument for the independence of regulators has also attracted critics. First, the empirical link between autonomy and performance is still inconclusive (Verhoest, et al., 2004). Second, because regulators are not democratically elected, this may endanger their public accountability (Verhoest, et al., 2004). Additionally, the separation of the regulator from its parent ministry does not necessarily mean real independence. Formally independent regulators may still be stringently controlled in matters of personnel, finance, procurement and so forth, limiting their managerial independence (Pollit et al., 2003).

INDEPENDENT REGULATORS IN THE OFFSHORE OIL AND GAS INDUSTRY

The Piper Alpha and DWH accidents prompted regulatory responses of governments with jurisdiction in the North Sea, the Gulf of Mexico, and beyond. These measures reformed regulators with the purpose of making them more independent, separating the regulation of safety, health and/or the environment from the licensing authority. Such approach is called in this article "functional separation criterion". One of the clearest movements towards the independence of offshore O&G regulators was made by the European Union, in adopting the Offshore Safety Directive 2013/30/EU (hereinafter OSD). The OSD requires member states to ensure the independence and objectivity of offshore O&G regulators, and prevent conflicts of interest by separating two types of regulatory functions: economic development, and regulation of major hazards. The concept of independent regulators in the OSD is not only aligned with

the reforms previously adopted in the UK and Norway after the Piper Alpha accident, but enhanced the independence of the environmental regulator in the UK.

The HSE in the UK. In the UK, supervision of health and safety regulation in offshore O&G operations was transferred between several departments, which had also the licensing authority, leading to a potential conflict of interest (Paterson, 2011). In 1988, the accidental release of natural gas on the Piper Alpha platform claimed the lives of 167 of the 226 persons on board (Miller, 1991). In 1990, the investigations published in the Cullen Report after the accident, criticized that the regulation, enforcement responsibilities, revenue generation, and licensing functions, were performed by the same agency: the Department of Energy -DoE- (Bentham, 1991; Bennear, 2015). Furthermore, the Cullen Report concluded that the inspections carried out by the Petroleum Engineering Division of the DoE were *"superficial to the point of being of little use as a test of safety on the platform"* (Paterson, 2007).

The Cullen Report counseled to transfer responsibility for health and safety offshore from the DoE to the HSE (Paterson, 2007), an executive non-departmental public body in the Department for Work and Pension, which already conducted the health and safety inspections of onshore O&G operations (Bentham, 1991). In 1991, the UK implemented this recommendation. Conversely, the DoE retained environmental regulation and its licensing functions (Paterson, 2014). In 2015, in order to comply with the OSD, the UK created the Oil and Gas Authority (OGA) to perform the economic regulation of offshore oil and gas e&p. The DoE, now the Department for Business, Energy and Industrial Strategy, retains environmental regulation functions of offshore oil and gas e&p, through the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED).

The PSA in Norway. Since its creation in 1972, the Norwegian Petroleum Directorate (NPD) involved both an economic function of maximizing hydrocarbons resources and a safety regulatory role. In 1977, the first uncontrolled blowout on the Norwegian Continental Shelf

took place at the Ekofisk Bravo platform, spilling into the North Sea more than 200.000 oil barrels (bbls) (Norsk Olje & Gass, 2017). After this accident, in 1979 Norway separated the reporting lines of the NPD between the Ministry of Petroleum and Energy regarding O&G management, and the Ministry of Labour on safety and working environment matters (Hale, 2013, PSA, 2020). In 2004, a comprehensive regulatory reform adopted similar institutional changes to those in the UK in its offshore hydrocarbons regulator. The parliament transferred all safety supervising functions from the NPD to a new agency, the PSA, maintaining the resource management administration in the NPD (Lindoe, et al., 2013). PSA reports to the Ministry of Labour and Social Affairs (PSA, 2020). In turn, the Norwegian Environment Agency and the Norwegian Board of Health Supervision are in charge of environmental and health regulation, respectively.

The BSEE in the USA. The Outer Continental Shelf Lands Act (OCSLA) vests the main responsibilities for regulating health, safety, and the environment of offshore oil and gas e&p in the Secretary of Interior –head of the Department of Interior (DOI)-, and the U.S. Coast Guard (USCG). This article will focus on the Secretary of Interior which unlike the USCG, concentrates economic, safety and environmental regulatory functions. During its first years as regulator, the Secretary of Interior divided the functions of administering the leasing system between two of its departments, the Bureau of Land Management (BLM) and the U.S. Geological Survey's Conservation Division (USGSCD). The BLM was the licensing and revenue collection authority, while the USGSCD was in charge of the oversight of offshore oil and gas e&p (National Commission, 2011). Following criticisms on the BLM for weaknesses in royalty collection in the O&G industry, the regulatory functions were reorganized within the DOI (National Commission, 2011). In 1982, the Secretary of the Interior created the Minerals Management Service (MMS), which assumed royalty collection and licensing functions vested in the BLM, and the oversight responsibilities of the USGSCD (National Commission, 2011).

In 2010, after the Deepwater Horizon (DWH) accident which spilled four million bbls of oil into the Gulf of Mexico (National Commission, 2011), the Secretary delegated his health, safety, and environmental regulatory functions to the BSEE, while the economic functions such as revenue collection, and licensing authority were allocated to two other agencies. These measures were supported by the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling report, which highlighted the need for a new independent agency, housed at the DOI (National Commission, 2011).

The SSM in the Netherlands. Since its creation in 1810, and during its first years of existence, SSM was responsible for the collection of taxes from the production of coal (van der Wal, 2019). Later, the function of collecting taxes was allocated to the Ministry of Finance, and SSM became responsible for the supervision of health, safety and the environment (van der Wal, 2019). In the 1960s, the discoveries of oil and gas in the North Sea started, and the Netherlands adopted especial regulations for the new industry. In 1965, the Continental Shelf Mining Act established a system of licensing rounds and conferred powers to the Ministry of Economic Affairs (now Ministry of Economic Affairs and Climate Policy - MEACP) to award licenses to O&G companies on the Dutch continental shelf (Roggenkamp, 2016). In turn, the SSM supervises offshore oil and gas e&p in three components health, safety and the environment (SSM, 2016). The head of SSM is an Inspector General accountable to the MEACP (Mining Act of the Netherlands, 2003).

After the Piper Alpha accident, the Netherlands commissioned a report to study whether SSM should be removed from the MEACP (Hale et al., 1992). The final decision was to continue with SSM depending of the MEACP, arguing that there was no viable existing health, safety and environment regulator with a better understanding of major hazards where to transfer SSM (Hale, 2013). Unlike its three fellow regulators, measures to make the SSM more independent from the licensing authority were introduced by Parliament after major safety

concerns onshore, instead of oil spills or major accidents offshore. Since 1991, the long-term exploitation of natural gas in the Groningen gas field, has caused earthquakes in the north of the Netherlands. In 2015, the investigation conducted by the Dutch Safety Board (DSB) questioned the passive role assumed by the SSM, which only in 2013 advised to the MEACP to reduce gas production (OvV, 2015). The DSB advised to the MEACP to reinforce the independent status of the SSM vis-à-vis the Ministry and the sector.

Though DSB's recommendation did not lead to a structural separation of the SSM from the MEACP, in 2017, a parliamentary amendment to the 2003 Mining Act entered into force, limiting the powers of the MEACP to give instructions to the Inspector General of the SSM, particularly, regarding its investigations. Once described the historical reforms to the regulators, the next step is to assess their independence.

ASSESSING INDEPENDENCE AS FUNCTIONAL SEPARATION

Following the criterion of functional separation, the HSE, PSA, BSEE and the SSM are formally separated from the authority in charge of the economic development of offshore O&G resources. However, this statement deserves to be nuanced. Both, BSEE and SSM structurally depend on the authorities in charge of the economic regulation of offshore oil and gas e&p –leasing and revenue collection-. This type of relation is called in this article vertical dependence. Therefore, the level of independence of BSEE and SSM is less than the one of their peers in the UK and Norway, which belong to institutions that do not perform economic regulatory functions in offshore oil and gas e&p. Taking into account that functional separation is a unidimensional approach, the next step is to assess the four authorities following the theory of independent regulators.

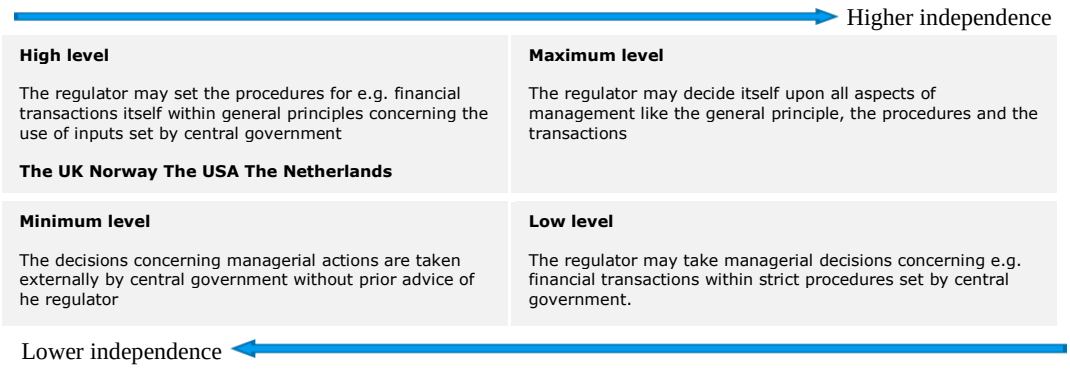
APPLYING THE CONCEPTUAL MAP OF AUTONOMY

This article uses the conceptual map of autonomy proposed by Verhoest et al., which has a multidimensional approach to the independence of regulators: managerial, policy, legal,

structural, financial and interventional. While the first two dimensions –managerial and policy- refer to the decision-making competencies in charge of the regulator, the other dimensions - legal, structural, financial and interventional- relate to the level of restrictions on the authority for making decisions (Verhoest, et al., 2004). The latter four dimensions recognize that even if the regulator has a high level of managerial and policy autonomy, "*government could influence their decisions by other means*" (Verhoest, et al., 2004). For the assessment, we use a quadrant to explain the six criteria of autonomy, and rank the regulators using the name of the country. Each quadrant explains four levels of autonomy maximum, high, low and minimum.

Managerial autonomy. This criterion analyzes the decision making competencies delegated to the regulator, and the *ex-ante* controls for making decisions with respect to its finances, human resources, or other processes such as logistics and organization (Verhoest et al., 2004). In financial matters we find that the HSE, PSA, BSEE and SSM have a high level of managerial independence. Each authority has a budget and can administer it. In all the cases the budget is previously approved by the Minister or institution to which the regulator belongs.

Figure 1. Managerial autonomy of offshore oil and gas regulators

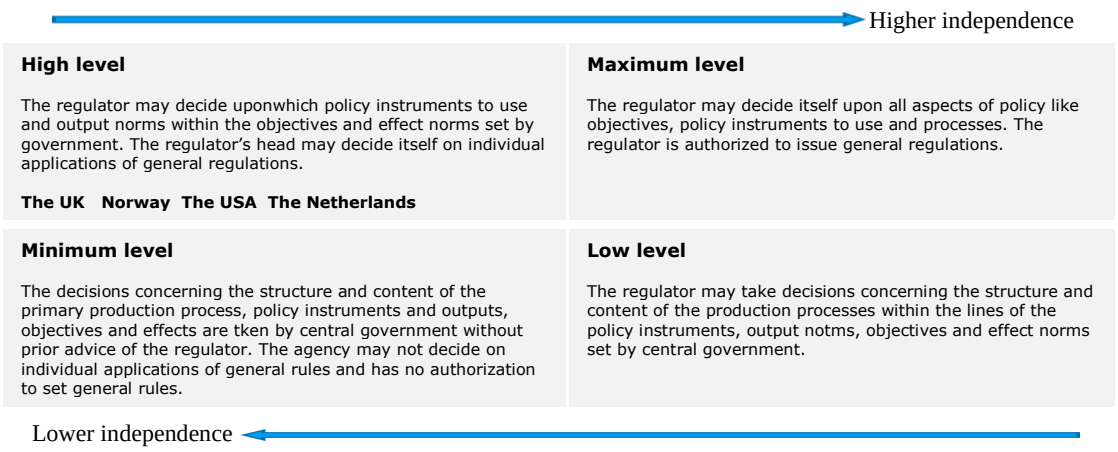


Source: Own elaboration based on Verhoest et al., 2004

Policy autonomy. Policy autonomy refers to the powers of the regulator to make decisions about the means and processes to comply with its objectives (Verhoest et al, 2004).

An authority has a large extent of policy autonomy when it may issue general regulations (Verhoest et al, 2004). Applying this criterion to the offshore O&G regulators we find that the HSE, PSA, BSEE and SSM have a high level of policy autonomy. Each authority exercises its supervisory functions according to the policy instruments, laws, norms and objectives set by the parliament and the central government. Additionally, the four regulators may decide upon on individual applications of general regulations. Regulators in Norway and the USA have a higher level of independence, since they have rulemaking powers.

Figure 2. Policy autonomy of offshore oil and gas regulators

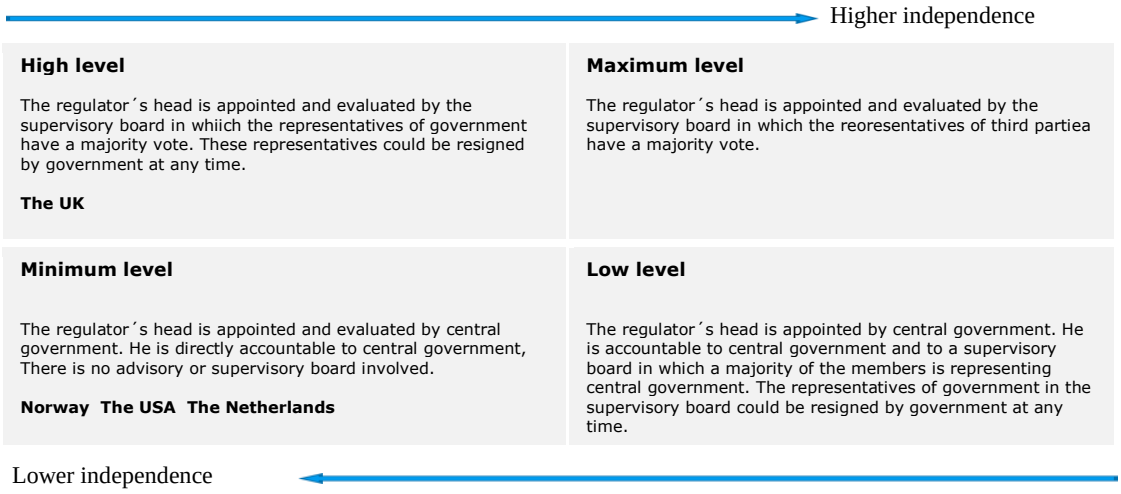


Source: Own elaboration based on Verhoest et al., 2004

Structural autonomy. Structural autonomy refers to the extent to which the regulator is shielded from influence by the government through lines of hierarchy and accountability. Some indicators are whether the regulator's head is appointed and accountable to government, or to a supervisory board, and the extent to which members of the supervisory board represent government or other parties (Verhoest et al., 2004). Assessing this criteria, the UK's regulator has a high level of autonomy. The reason is that the head of HSE is appointed by its board. It is also important to notice that HSE's board is appointed by the central government. In turn, Norway, the Netherlands and the USA present a minimum level of autonomy. The head of

PSA, BSEE and SSM is appointed by and directly accountable to the central government, without the involvement of any supervisory board in the regulators.

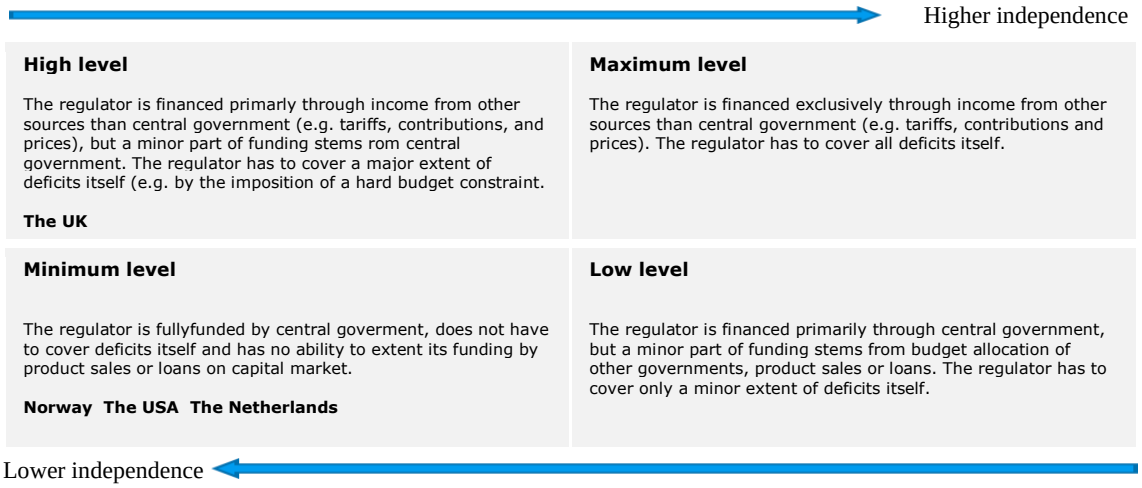
Figure 3. Structural autonomy of offshore oil and gas regulators



Source: Own elaboration based on Verhoest et al., 2004

Financial autonomy. Financial autonomy refers to the extent to which the regulator depends on funding from the central government or whether it has its own revenues (Verhoest et al., 2004). The assessment of the financial autonomy of HSE, PSA, BSEE, and SSM reveals that the four authorities have a minimum level of autonomy. The four regulators are fully funded by the central government or parliament. Part of these costs are covered by the fees payed by the industry for the monitoring or enforcement work conducted by the regulators. In the cases of PSA and BSEE, the fees payed by the industry are received by the national treasury.

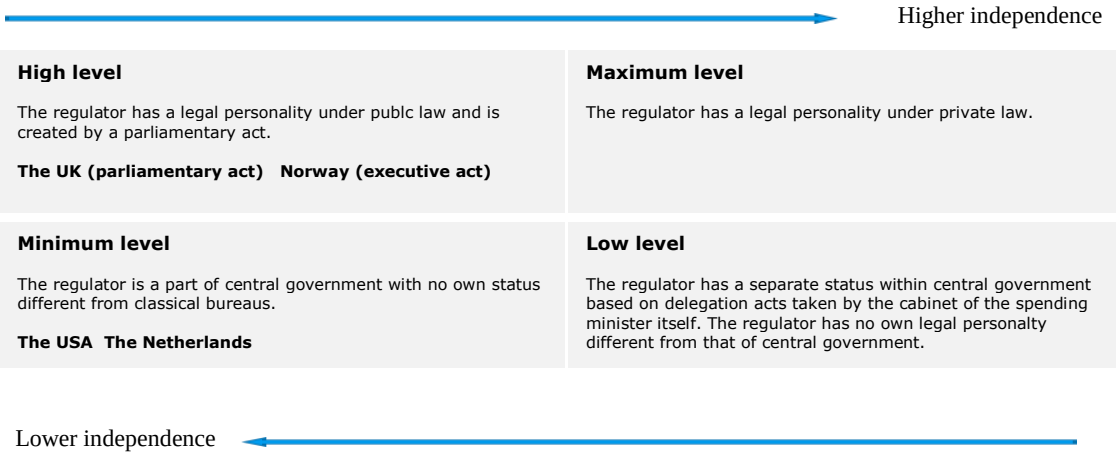
Figure 4. Financial autonomy of offshore oil and gas regulators



Source: Own elaboration based on Verhoest et al, 2004

Legal autonomy. Legal autonomy assesses to what extent the legal status of a regulator prevents the government from modifying the allocation of decision-making functions or hinders such changes (Verhoest et al., 2004). The application of this criterion to offshore O&G regulators indicates that the authorities in the UK and Norway have a high level of independence. The HSE is created by a parliamentary act, while PSA is established by an executive act. Conversely, the regulators in the Netherlands and the USA present a minimum level of independence. Though the SSM is created by a parliamentary act, it does not have legal personality different to the one of its parent ministry. In turn, instead of an act from the parliament or the president, BSEE is created by an order of the Secretary of Interior. In turn, though the SSM is created by a parliamentary act, it does not have legal personality different to the one of its parent ministry.

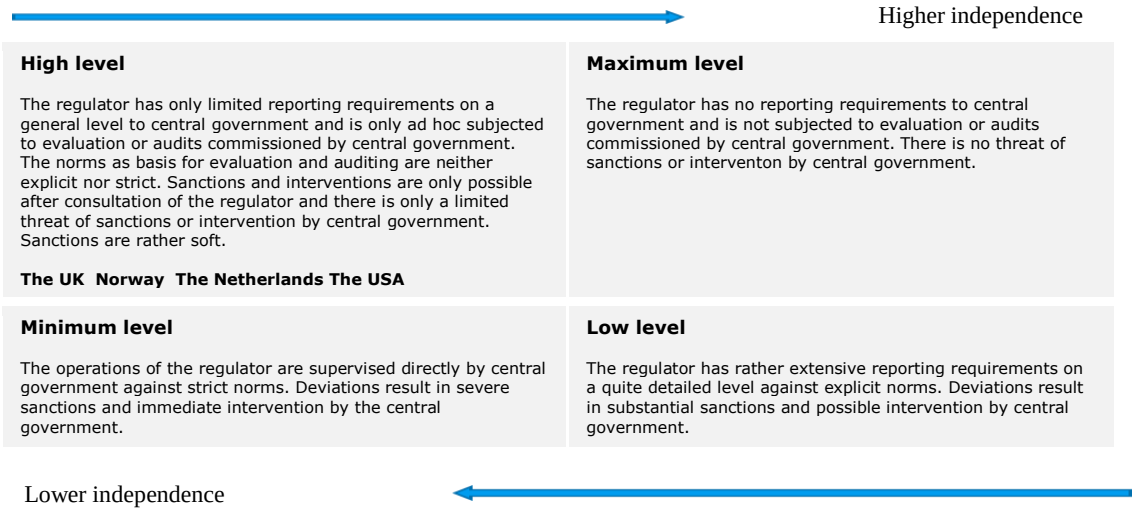
Figure 5. Legal autonomy of offshore oil and gas regulators



Source: Own elaboration based on Verhoest et al., 2004

Interventional autonomy. Interventional autonomy analyzes whether the regulator is free from ex-post reporting requirements, evaluation, audit, sanctions and interventions with respect to its decisions, and their outcomes to government on compliance with norms (Verhoest et al., 2004). Applying this criteria to the offshore O&G regulator was more challenging than the others. The reason is that all the agencies have reporting obligations to the ministries to which they belong, or from which they perform delegated functions. Therefore, the maximum level of independence is discarded. In turn, the high level of independence considers that the authorities have reporting obligations before the central government, which can also impose sanctions to the regulators. In the cases studied we did not find situations where the central government can impose formal sanctions, beyond the change of the regulator's head which is possible in all the cases, especially, if the appointment is made directly by the government. In the four cases studied, the regulators are supervised by central government and have reporting obligations to the central government, but it is the auditor or comptroller general who has the power to investigate the regulators. We allocate the four regulators in high level of independence, considering that the low and minimum level of independence refer even to stricter controls and sanctions from the central government to the regulators.

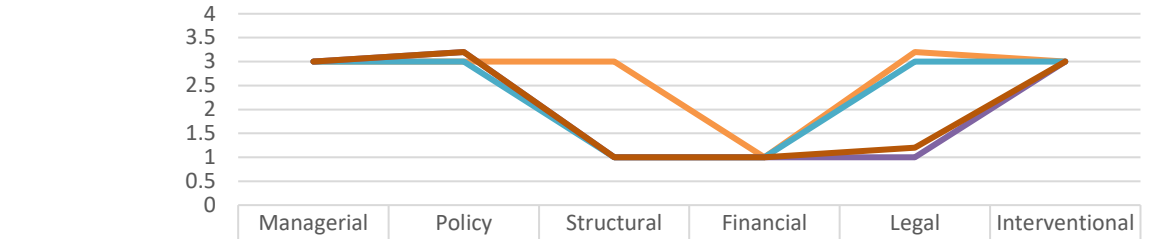
Figure 6. Interventional autonomy of offshore oil and gas regulators



Source: Own elaboration based on Verhoest et al., 2004

Figure 7 compares the six criteria assessed, attributing a number to each level of independence: maximum (4), high (3), low (2) and minimum (1). The number allocated increases (0,2) when the regulator has a feature that makes it more independent than others. From the comparison, we observe that HSE, PSA, BSEE and SMM have different levels of independence. No one of the four regulators ranks with a maximum level of independence in any of the criteria assessed. Conversely, the four authorities have several controls from the central government and the parliament. The four regulators rank high in managerial, policy and interventional independence, and low in financial autonomy. In terms of policy independence, PSA and BSSE present a higher level of independence than their peers, considering their rulemaking powers.

Figure 7. Managerial, policy, structural, financial, legal and interventional criteria of autonomy applied to offshore oil and gas regulators in the UK, Norway, the USA and the Netherlands



	Managerial	Policy	Structural	Financial	Legal	Interventional
The UK	3	3	3	1	3.2	3
Norway	3	3	1	1	3	3
The USA	3	3.2	1	1	1	3
The Netherlands	3	3.2	1	1	1.2	3

Source: Own elaboration

When looking at legal independence HSE and PSA show a high level. HSE has an even a higher level of legal independence than PSA, since it is created by a parliamentary act. In turn, BSEE and SSM have a minimum level of independence. Finally, in terms of structural autonomy, while HSE registers a high level of structural autonomy, PSA, BSEE and SMM evidence a low level in this criteria. The reason for a higher level of independence of HSE in this criterion is that its head is appointed by HSE's board, instead of the ministry to which it belongs (Department for Work and Pension) or the head of the executive branch.

CONCLUSIONS

Responses to major accidents and accidental oil spills in the offshore O&G industry are not limited only to mitigation and containment actions but to institutional regulatory measures to prevent such accidents. In the UK, Norway, the USA, and the Netherlands one of those measures is to enhance the independence of offshore O&G regulators. This article analyzed what means such independence. A historical analysis to those reforms shows that in the four cases studied independence means to remove economic regulation from the offshore oil and gas risk regulator, what we called ¨functional separation criterion of independence¨. Assessing

the functional separation criterion we observe that offshore O&G regulators in the UK, the USA, Norway and the Netherlands do not perform economic regulatory functions related to licensing and revenue collection, being therefore, independent.

However, what the theory of independent regulators shows is that independence refers to avoiding undue influence on regulators as a consequence of their interactions with the government and the regulated industry. The conceptual map of Verhoest et al., used in this research focuses on the decision-making competencies in charge of the regulator, and the level of restrictions from the central government on the regulator to make its own decisions. We observe that regulators in the USA and the Netherlands vertically depend on institutions which have primary economic regulatory functions regarding offshore oil and gas e&p. Therefore, their level of independence is less than the one of their peers in the UK and Norway. Such finding shows that the functional separation criterion is insufficient to ensure that offshore O&G regulators are independent from the control of authorities that perform economic regulatory functions in the industry.

When looking at the managerial, policy, financial, structural, legal, and interventional criteria of autonomy, no one of the four regulators analyzed ranks with a maximum level of independence. Conversely, the four authorities have several controls from the central government and parliament, particularly, structural and financial. The regulators with higher levels of independence are the Health and Safety Executive in the UK, and the Petroleum Safety Authority in Norway. In turn, the State Supervision of Mines in the Netherlands, and the Bureau of Safety and Environmental Enforcement in the USA, respectively, overall rank with less levels of independence in the criteria assessed.

Another relevant finding of this research is that the regulators studied focus on different aspects of risk regulation. The SSM in the Netherlands is the most comprehensive, covering

health, safety and the environment. The BSEE in the USA focuses on safety and the environment, while the HSE in the UK concentrates on health and safety. The PSA in Norway focuses on less matters, only safety. In the case of the UK and the USA, the reason for concentrating on those areas may be explained by the nature of the impacts of their most devastating accidents. Though both accidents affected safety, the Piper Alpha had a high number of human victims, and less or no environmental impacts. In turn, the main negative impact of the DWH was environmental. The focus on safety regulation of the four authorities studied makes them crucial actors to ensure that O&G companies have in place mechanisms to assess, manage risks, and prevent accidents such as oil spills.

The conceptual map of autonomy is a key starting point to assess the independence of offshore O&G regulators, which reveals many findings covered when we apply only the functional separation criterion. Despite of the interesting findings that this methodology provides, it has several limitations, and needs to be complemented with other methodologies. We can mention at least three limitations. First, the independence of a regulator refers to protect its decisions from undue influences as from the political side as from the regulated industry. The conceptual map of autonomy only assesses one side of the coin, the regulator's independence from the central government, which may represent the political side.

In order to assess the independence of offshore O&G regulators, the previous analysis should be complemented with a methodology that evaluates their independence from the industry, for instance, examining the involvement of the O&G industry in the three main regulatory processes: rulemaking, monitoring and enforcement. Second, the conceptual map does not assess the enforcement powers of regulators. Such assessment, requires more empirical research in order to identify not only what enforcement tools the regulators have, but how they exercise them in practice. This is a relevant criterion considering that what

distinguishes a regulator from any other governmental agency are precisely its enforcement powers. Such criterion may be also related to the managerial independence of the regulator, this is, the regulator's autonomy to make decisions on the processes that it supervises. Third, a general limitation when assessing the independence of any regulator is how to link the regulator's independence to its performance. A way to link independence and performance may be to compare health, safety and environmental indicators such as accidents, fatalities, the rate of annual oil spills and gas releases, among others. However, this is a challenging task in the offshore O&G sector, where the size, risks and characteristics of the industry changes from country to country, there are not mandatory international standardized indicators, and not all the regulators make public this information.

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