Lifting the Eyepatch
The Business Models of Piracy

DISSERTATION

zur Erlangung des akademischen Grades eines Doktors
der Wirtschafts- und Sozialwissenschaften (Dr.rer.pol.)
der Fakultät Wirtschafts- und Sozialwissenschaften
der Helmut-Schmidt-Universität, Universität der Bundeswehr

Vorgelegt von

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Hamburg, den 24.11.2017

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Hamburg, 24.11.2017
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<tr>
<td>AIS</td>
<td>Automatic Identification System</td>
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<tr>
<td>BMP</td>
<td>Best Management Practice</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>CPO</td>
<td>Crude Palm Oil</td>
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<tr>
<td>CRIMGO</td>
<td>Critical Maritime Routes in the Gulf of Guinea</td>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<tr>
<td>ECCAS</td>
<td>Economic Community of Central African States</td>
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<tr>
<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<td>EU</td>
<td>European Union</td>
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<td>FSI</td>
<td>Failed State Index</td>
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<tr>
<td>GU</td>
<td>Guardian</td>
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<tr>
<td>HA</td>
<td>Handler</td>
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<tr>
<td>HRA</td>
<td>High Risk Area</td>
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<tr>
<td>ICC</td>
<td>International Chamber of Commerce</td>
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<tr>
<td>IMB</td>
<td>International Maritime Bureau</td>
</tr>
<tr>
<td>ISPS</td>
<td>International Ship and Port Security</td>
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<tr>
<td>MGO</td>
<td>Marine Gas Oil</td>
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<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
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<tr>
<td>NGIA</td>
<td>National Geospatial Intelligence Agency</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>PM</td>
<td>Place Manager</td>
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<tr>
<td>PMSC</td>
<td>Private Maritime Security Company</td>
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<tr>
<td>RAT</td>
<td>Routine Activity Theory</td>
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<td>RCT</td>
<td>Rational Choice Theory</td>
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<tr>
<td>ROI</td>
<td>Return on Investment</td>
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<tr>
<td>RPG</td>
<td>Rocket-Propelled Grenade</td>
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<tr>
<td>SALW</td>
<td>Small Arms and Light Weapons</td>
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<tr>
<td>SC</td>
<td>Super Controller</td>
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<tr>
<td>SE-Asia</td>
<td>South-East-Asia</td>
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<tr>
<td>SGD</td>
<td>Singaporean Dollar</td>
</tr>
<tr>
<td>UNO</td>
<td>United Nations Organization</td>
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<tr>
<td>USD</td>
<td>United States Dollar</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>VIVA</td>
<td>Value, Inertia, Visibility and Access</td>
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War, trade, and piracy together are a trinity not to be severed.

Johann Wolfgang von Goethe, 1832
1 Introduction

Maritime piracy is anecdotally known as the second-oldest business in the world. However, at least in the Western culture, a stereotyped pirate is not being thought of as a capable businessman but as a savage outlaw, handicapped by an eyepatch and concealing a mystic map with guidelines to his secret treasure. In fact, the opposite is true. Today, real piracy leaders are professional entrepreneurs, who established sophisticated business models and embedded their “piracy companies” in transnational criminal networks. Although the various negative impacts of piracy are taken seriously and triggered a broad spectrum of research in diverse academic disciplines over the recent years, most studies tackle the subject only with a one-eyed retrospective focus. Probably due to prepossession, many piracy incidents seem to be discounted as scattered events, resulting from an act of desperation, carried out by humble amateurs. Furthermore, most studies take only one of the piracy hotspots as an independent subject into consideration for their differing research objectives. As a consequence, the academic field of piracy lacks a consistent approach, which applies the same set of assumptions and tools to the different piracy hotspots, to illustrate the diversity of the criminal business models and thereby the big picture of piracy itself. Metaphorically speaking, not pirates but many academics have been wearing an eyepatch during their investigations, probably limiting themselves in getting the full picture of the business and overlooking the underlying processes.

The purpose of this dissertation is to “lift the eyepatch” to visualize the different business models of piracy without self-imposed limitations, to lay the foundation for a more profound and comprehensive research approach. To overcome this blind spot, pirates are not morally judged for their criminal behavior but considered as equal entrepreneurs of the economy. Instead of insinuating pirates to rush at single hijackings to make quick money desperately, they are believed to run professional companies, which base on sophisticated and repeatable business models. This impartial assumption makes the topic assessable by macro- and microeconomic tools and models. Furthermore, this approach allows analyzing the subject from a pirate’s perspective. From this opposite viewpoint, an economic assessment facilitates the identification of framework-factors, which have been responsible for the emergence and development of piracy in general. In a next step, the application of business models helps to reveal further relevant factors, which trigger the internal procedures of the piracy companies, running a business in the hotspots of South-East Asia, West
Africa, and East Africa. These deduced elements will then be illustrated in an explorative qualitative cause and effect model, to visualize their interrelation and the corresponding processes between them, which ultimately lead to the feasibility-assessment of piracy businesses. These visualized business models can be used as templates for further research objectives and enable academics to take the perspective of criminal entrepreneurs, to reveal new insights and weak-spots of illegal business models in general. These findings could be used to tighten effective counter-measures, which may not have been considered up to now. Metaphorically speaking, this dissertation aims at revealing the concealed treasure-map, which contains the “secret” core factors and processes determining the feasibility of the criminal business and thereby the ultimate rationale of the emergence of professional piracy per se.

1.1 Problem Statement
Over the last two decades, incidents of piracy in South-East Asia (SE Asia), East Africa, and West Africa frequently appeared in the media. Due to the empathetic impact, predominantly triggered by the business model of kidnappings for ransom, the piracy hotspot off the coast of East Africa had been of significant concern to the public and international bodies. This impact has led to a broad spectrum of counter-measures, which apply in the particular region. As a consequence, this massive approach contained the threat of Somali pirates for several years drastically.¹ Due to the succeeding decline in piracy incidents off the Somali coast, naval-preservation and public focus on site declined over these years naturally. While East Africa faded from the spotlight, the hotspots in SE Asia and West Africa became more prominent. However, the inoperative piracy businesses in East Africa apparently tracked the withdrawal of naval-preservation and launched new hijackings in 2017. This return not only triggered media attention once more but shows that the topic of piracy, concerning all piracy hotspots, is still of high actuality and relevance for the security of the seas and thereby for the maritime industry, regional economies, and global policymakers. Furthermore, it has become apparent, that pirates watch the market and adjust their operations and overall activity to the given framework. This phenomenon indicates that pirates run sophisticated business models.

¹ Between the years 2012 and 2016, not a single successful hijacking operation of Somali pirates has been reported (IMB Piracy Reporting Centre 2012-2017).
The problem is that the academic field of maritime piracy lacks a fundamental rational model, which visualizes the diverse business models of the criminal hotspots, to help researchers understand and tackle the allocable dynamics which determine the feasibility of the illegal businesses.

So far, research in maritime piracy studies segments into three pillars, namely the study of causes, organizational structures, and practices of piracy, the corresponding institutional responses, as well as attempts to historicize and deconstruct the broader politics of this maritime crime (Bueger 2014). Most of these studies take the same assumptions about the causes of piracy, which fundament on the work of Vagg and Murphy, as a basis for their investigations. One of the central statements of these shared assumptions is that the economic dislocation of specific regions leads to a shortage of jobs and thereby to poverty, which in turn may lead the affected population to revalue criminal activities like piracy into a culturally thinkable alternative profession (Vagg 1995, 63-67).

An incentive for the journey of this dissertation, is the underlying impression, that a variety of researchers has been overemphasizing poverty as a cause for piracy up to a point, from where pirates are believed to be no more than humble amateurs, who are forced to raid ships in the act of desperation. As a consequence, the pirates have probably been underestimated and not been concerned as capable businessmen, who run sophisticated operations. Furthermore, this impression is presumably backed by prevailing prepossessions against criminal minds in general, whose illegal activities rely on decision-making processes, which may be incomprehensible for anyone, who concerns himself as a fine and upstanding citizen. These prepossessions, in turn, may have hampered researchers in an impartial analysis and assessment of the internal and external processes, which ultimately facilitate the criminal business models. The lack of an impartial approach and consequently the missing of corresponding worked-out factors, underlying the different business concepts, would explain, why only a few studies tackled the topic of piracy from a business perspective (c.f. Klein 2013, Percy 2011, The World Bank 2013, The Global Initiative against Transnational Organized Crime 2016).

However, the few studies which consider pirates as businesspeople chose only one of the piracy hotspots as an independent subject for their analysis, naturally missing to identify similarities and differences of the diverse business models present in the affected regions. Thereby, researchers have raised the issue of lacking the big picture, and consequently the necessary nuanced understanding of the offender’s decision-making progress and the opportunity structure in which the crime takes
place, as well as an appreciation for what factors of the environment can be manipulated (Townsley 2015).

Anyhow, due to the broad approach of research concerning the specifics of each of the piracy hotspots, sufficient secondary data is available to deduce relevant factors and the interrelation between them, which are believed to trigger the underlying business models of piracy.

From this follows that the development of an applicable method, which enables researchers to visualize the business models of piracy in a comprehensible and assessable way from the perspective of a criminal entrepreneur, would facilitate a deeper understanding of the underlying dynamics. Such a template could reveal further insights and thereby add additional value to the academic field of maritime piracy.

1.2 Research Objectives

The purpose of this dissertation is to enable a better understanding of the business models of maritime piracy. This objective shall be achieved by approaching the subject from the perspective of a criminal entrepreneur, because this shift of view, in comparison to previous studies, is believed to facilitate a more impartial analysis of the underlying dynamics of piracy and provide further insights, which might have been overlooked in the past. Due to this rational analysis the relevant factors and their corresponding interrelations to each other, which form the internal and external processes of the piracy business models, shall be deduced. By an application of explorative qualitative cause and effect models, these complex structures shall be visualized and give a coherent view over the feasibility-assessment of piracy businesses.

These developed models could be used as templates to facilitate researchers to explore and expand the academic field of maritime piracy by more in-depth analyses, as well as examine similar problems of different criminal businesses and activities in the future, refining this method in the progress. Finally, policymakers, the maritime industry, and troops on the ground could use this technique as an expandable template to define and launch corresponding counter-measures against the core business models, which are determining the feasibility of the illegal business and thereby the ultimate rationale of the emergence of professional piracy per se.
This objective leads to the following questions:

- How can piracy organizations be equated with regular business structures?

- How can the complex business structures and activities of piracy be examined to deduce impartial factors, which are relevant to the underlying dynamics?

- How can the relevant factors and the interrelations between them be arranged to deduce internal and external processes, which subsequently form the dynamics of piracy business models?

- How can the internal and external processes of piracy be arranged to set up the causal conception of piracy business models?

- How can the structured business models be visualized to enable a better understanding of the emergence of professional piracy per se?

1.3 Limitations of the Research

Due to the interdisciplinary nature and complexity of the topic, this study can only examine some aspects of maritime piracy and makes several assumptions. Firstly, the subject is observed from an impartial viewpoint, ignoring moralities or other prepossessions against criminal behavior and assuming the equalization of piracy businesses with regular companies. This approach makes the topic assessable by macro- and microeconomic tools and models. Furthermore, this method allows examining the subject from a pirate’s perspective. However, due to the unavailability of real piracy leaders as interviewees for a closer examination, the validity of the assumptions cannot be proven.

Secondly, the piracy companies are believed to run their businesses on rational decisions with the long-term objective to make a repeatable monetary profit. Thereby pirates are neither seen as opportunistic small-time criminals nor as individuals or groups who use acts of piracy to gain attention for promoting their political views and rebelling against their government.\(^2\) However, this assumption does not intend to

\(^2\) In SE Asia and West Africa, several politically motivated groups take hostages or damage public facilities to express their protest against the political agenda of the regional government. These activities do not rely on a monetary business model and will therefore not be of further concern. However, piracy groups, which emerged
justify the piracy business as an equal part of the economy in the real world, but to accept their interference.

Thirdly, the application of an explorative qualitative cause and effect model simplifies the identification and illustration of relevant factors which are responsible for the emergence and development of piracy business models. Due to this method of simplification, the model does not take subsidiary details, which are not elementary for the functioning of the business, into consideration. This procedure accompanies the purpose of the visualization method, which is to enable a better understanding of the interrelations between the factors and thereby the functioning of piracy business models in general. However, qualitative models cannot predict the future, and the model developed in this dissertation does not claim to have found the ultimate solution for containing the threat of piracy. Nevertheless, the relevant insights from this model are based on abductive logic and are thereby logically sound, unless the accuracy of the particular interrelations between the factors is falsified.

from these rebellious groups, like the maritime part of the MEND Movement in Nigeria, will be assessed as professional piracy syndicates in the course of this study.
2 Current State of Research

To approach the problem of a missing method, which would enable researchers to take a criminal’s perspective and to visualize the corresponding insights in a comprehensible cause and effect model, a broad spectrum of piracy studies has to be taken into account, to base the approach on sufficient data. While most of the previous works do not directly relate to the economics of piracy, they offer an adequate range of data concerning the causes, organizational structures, and practices of piracy, the institutional responses to this illegal business, as well as attempts to historicize and deconstruct the broader politics of piracy. These studies are used as secondary sources from which relevant factors and their interrelations between each other can be extracted. Thereby, literature from the more general field of economics of crime builds the fundamental theoretical framework of this dissertation. A critical analysis of the related research studies highlights the gap in the maritime literature concerning the field of economics of piracy, which this thesis is attempting to bridge.

2.1 Academic Field of Maritime Piracy

Maritime piracy has become a prominent topic in the academic field of the recent years. Until the late 1990s, most academics studying maritime crime approached the subject as a historical concern or as a technical problem for port regulations and port authorities. From 2008\(^3\) on, the increase in piracy in three geographical areas, namely SE Asia, East Africa and West Africa, lead to a rising interest for piracy issues in a broad spectrum of the academic fields. Therefore, maritime piracy evolved into an interdisciplinary study, spanning economics, politics and international relations, area studies, sociology, law, anthropology, and security studies. While focusing on divergent perspectives and paradigms, piracy studies achieve coherence through a shared interest in understanding piracy and developing responses to it using scientific methods. There is also an increasing cross-fertilization between disciplines, spurred by the motivation of understanding the problem holistically (Bueger 2014). Bueger identified three pillars of piracy studies, namely the study of

\(^3\) The hijacking of the MV Faina on 25th September 2008 lead to widespread public attention, as the Ukrainian flagged vessel carried Soviet-made tanks, heavy weapons, and ammunition. This incident, followed by a subsequent rapid increase in hijackings, triggered the academic debate on maritime piracy.
causes, organizational structures and practices of the criminal business, the institutional responses, as well as attempts to historicize and deconstruct the broader politics of piracy.

The first pillar focuses on inquiries on the phenomenon of piracy and investigates the conditions and causes that trigger these criminal activities. Furthermore, information about the organization, tactics and local networks of pirates have been drawn out from this perspective and lead to knowledge essential for developing effective responses. For example, there have been identified three factors which are driving piracy in the hotspot of East Asia: economic dislocation, “recognition of piracy as an available cultural or subcultural possibility,” and opportunity (Vagg 1995, 63). The first factor provides two reasons why a “local population would tolerate pirates,” that is “intimidation of the populace and economic incentives” (Vagg 1995, 67). The second factor describes a deeper reason, which allows for the idea that ‘raiding ships at sea is culturally “thinkable”’ (Vagg 1995, 67). “Opportunity,” according to this research, refers to the official, administrative corruption, which tolerates piracy and reduces the risk of getting caught. These studies complement further factors that contribute to the emergence of piracy. For example, Murphy introduced seven preconditions: (1) legal and jurisdictional opportunities, (2) favorable geography, (3) conflict and disorder, (4) under-funded law enforcement/inadequate security, (5) permissive political environments, (6) cultural acceptability/ maritime tradition, and (7) reward (Murphy 2007). These thoughts have been approached by several quantitative studies, like Nincic, who demonstrated that most piracy attacks occurred in the waters of failed states, or in proximity to them (Nincic 2008). In this context, Hastings analyzed the importance of infrastructure and the access to markets for criminal operations in those areas. He highlights that pirates in the proximity of a failed state go for less logistically hijackings, namely kidnappings for ransom, while weak states with a certain level of legitimate governance encourage more sophisticated attacks, namely the selling of the cargo and the ship itself (Hastings 2009, 213). Further studies have shown that piracy activities prosper in areas which are relatively stable, but also corrupt, and which have a sufficient level of infrastructure and resources (Coggins 2010). These findings suggest that it is not a high level of anarchy, an absence of authority or poverty which allows for piracy to prosper, but an ideal mix of weak governance, corruption, and sufficient infrastructure (Percy 2011). Murphy used a qualitative and historical analysis to investigate the actors, which created the conditions for piracy to flourish in Somalia. He shows that the criminal actors have
learned how to turn piracy from an ad hoc operational to a highly professionalized profitable business (Murphy 2011).

The second pillar of piracy studies focuses on the international response and aims to develop counter-piracy policies. In many of these studies, legal questions are highlighted. Kraska assists in disentangling the complex organizational field involved, by taking a broad perspective in discussing legal resources along with a more extensive repertoire of diplomatic, corporative, and military responses to piracy (Kraska 2011). Geiss and Petrig discuss the legal regimes that pertain to the illegal business. They conducted a comprehensive survey of the legal resources and the institutional challenges of counter-piracy and documented the breadth of legal documents relevant in detailing the history of the law of counter-piracy (Geiss 2011). Their survey provides an overview that demonstrates that a sufficient legal regime to counter-piracy exists, but substantial legal problems in implementation and alignment of laws persist (Bueger 2014, 411).

The third pillar of piracy studies contextualizes contemporary piracy in a broader historical development, takes the concept of the subject apart, and discusses the normative dilemmas underlying the topic. Furthermore, the third pillar examines the international responses. In this context, mainly political, legal, and economic theories are used for the analysis. However, also the historical perspective is helpful, dismantling piracy, as it raises awareness that this criminal business is not a new phenomenon and connects the experiences of ancient piracy to its contemporary form. The third pillar shapes understandings of global order, the concept of sovereignty, the constitution of international law and non-sovereign spaces, the importance of world-trade in a capitalist age, and what constitutes legitimate violence (Bueger 2014, 412).

The three pillars of piracy studies show that piracy is a common concern for different disciplines where researchers use various theories and methods as tools to address the topic. However, the use of different tools and perspectives shares the willingness to tackle the problem in using scientific methods and shows that piracy-studies are not a “problem-solving research” but questions the frames of reference, discourses and worldviews of elites (Bueger 2014, 414). Unfortunately, these studies applied individual standards for their examinations and most works limited their focus on the analysis of single piracy hotspots. Therefore, the academic field of maritime piracy lacks a coherent and impartial pool of relevant factors, which are underlying the criminal business.
Nevertheless, most researchers are using the same data source for their investigations. The primary source of maritime piracy data, available for researchers, is the International Maritime Bureau (IMB). The IMB established the Piracy Reporting Centre to collect data about piracy worldwide. This data is offered to the public by annual reports from a retrospective perspective and proactively by broadcasting incident details to ships, coast guards and navies via the Inmarsat-C-SafetyNET service (ICC International Maritime Bureau 2013). Ship owners and shipmasters are submitting the data to the reporting center when an attack occurs. Therefore, these reports are analogous to self-report victimization data. The data includes the geographical location of the attack, date, time and a short narrative and limited information about the type of the attacked vessel and its crew. The IMB distinguishes between incidents that arise at sea and those that occur in ports. Furthermore, the data shows if the targeted ship was fired upon, boarded or hijacked, or if the attempted attack could be parried. This information is simplified by stating if an attack was successful or not. Since most academic papers on the topic of maritime piracy are based on this dataset, their findings are commensurable.

The Term Piracy

In maritime piracy studies, the legal term “piracy” has been adjusted to practical use. The International law governing maritime piracy is contained in Articles 100-107 of the United Nations Convention on the Law of the Sea (UNCLOS)\(^4\). Article 100 states that “All states shall cooperate to the fullest possible extent in the repression of piracy on the high seas...” The term “repression of piracy” includes policing with naval warships, arresting, questioning, gathering evidence and detaining suspected pirates, transferring suspects to landward places of detention, placing suspects on trial and providing them with defense lawyers, and imprisoning those found guilty (Hallwood und Miceli 2013, 68). Article 101 defines acts that constitute piracy emphasizing “any acts of violence, detention of crew or passengers or any act of depredation, committed for private ends by the crew or the passengers or a private ship... or against another ship; also the taking over of a ship used/to be used in acts of piracy.” The term “private ends” includes robbery or hijacking-for-ransom and personal profit. This term is critical as it excludes criminal acts at sea not directed at those ends. Article 103 of UNCLOS defines a pirate ship as “intended by the persons in dominant control to be used for the purpose of committing one of the acts referred to in Article

\(^4\) The Convention was signed in 1982 and ratified in 1994.
101. The same applies if the ship or aircraft has been used to commit any such act, so long as it remains under the control of the persons guilty of that act.” Article 105 reads, “On the high seas, or in any other place outside the jurisdiction of any State, every State may seize a pirate ship or aircraft, or a ship taken by piracy and under the control of pirates, and arrest the persons and seize the property on board. The courts of State which carried out the seizure may decide upon the penalties to be imposed, and may also determine the action to be taken with regard to the ships, aircraft or property, subject to the rights of third parties acting in good faith.” Finally, Article 106 governs seizures at sea “without adequate grounds,” creating a liability for the arresting state to the flag state.

In summary, the Law of the Sea (UNCLOS) classifies only those incidents, which have taken place on the high seas\(^5\), as “piracy.” The “high seas” include the contiguous zones and exclusive economic zones in this context, but not the territorial sea, internal waters, ports or anchorages. Piratical acts of thefts that occur in these areas are considered as “armed robbery against ships,” “armed robbery at sea,” or simply “armed robbery” (Geiss 2011).

However, for practical purposes, piracy and armed robbery pose similar threats to the security of global shipping and share similar motivations behind the two crimes (Mejia 2012). For this reason, the term “piracy” is used to cover both types of crimes in this dissertation, irrelevant to the place where the incident occurs.

### 2.2 Economics of Crime

Researchers in a variety of academic disciplines have constructed and analyzed multiple theories of criminal behavior. Studies about the motivation and economic impact of crime and terrorism complement each other. The different approaches ultimately fall into one of three categories (Gottfredson and Hirschi 1990). First, the set of intrinsic personality characteristics that predispose an individual to acts of crime and violence have been studied for psychological explanations. Second, social scientists analyzed the environmental and cultural conditions and therefore extrinsic factors that may lead to criminal behavior. Thirdly, from an economic view, the rational choice explanation argues, that an individual criminal deliberately chooses to engage in crime and terror after weighing the costs and benefits of doing so. This economic view serves as a fundamental assumption for this dissertation, which

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predominantly applies economic explanations on monetary-profit seeking criminals to the topic of piracy. According to Becker, "the combined assumptions of maximizing behavior, market equilibrium, and stable preferences, used relentlessly and unflinchingly, form the heart of the economic approach [to the study of human behavior]" (Becker 1976). The economic approach assumes that the decision to engage in criminal behavior is the result of a rational resource-allocation process. The individual as a rational decision maker wants to allocate his limited resources among a wide variety of alternatives, to maximize the satisfaction of his wants and needs. Therefore, the individual will choose the alternative behavior that yields the highest excess of benefits over costs, even if it is a criminal one. The normative framework, given by this theory, enables the use of sophisticated quantitative methods to analyze the causes and effects of criminal behavior.

While Becker’s work set a theoretical framework for further analysis of criminal behavior in general, Frey studied the motivation and behavior of terrorism. His work analyzed the economic impact of terrorism and deduced possible countermeasures. While terrorists are usually aiming for political change, in contrast to criminals who typically focus on personal benefits, many similarities can be drawn from both perspectives. Especially Frey’s focus on the rational choice theory of terrorists can be transferred to the fight against criminals in general (Frey 2008). In other words, terrorists, criminals, and pirates alike weigh up the expected payoffs from engaging in a crime against the detection probability and the expected costs of punishment. This approach by Becker and Frey forms the underlying framework for this dissertation.

Another academic approach to criminology is the Routine Activity Theory (RAT) developed by Felson and Cohen. The premise of this approach is that crime is relatively unaffected by social causes such as poverty or inequality but triggered by the circumstances in which offenders and victims come together in space and time (Cohen and Felson 1979). Therefore, the RAT focuses on the situational aspects that may lead to criminal activities. The core concept includes the factors “a likely offender,” “a suitable target,” and “the absence of a capable guardian.” When a motivated offender encounters a suitable victim in the absence of a capable guardian, crime becomes possible. Townsley has applied the advanced RAT to maritime piracy in the case of Somali-Piracy (Townsley 2015). Figure 1 shows the components of the RAT and their interrelations in the crime triangle. The innermost triangle illustrates the main actors in the commission of a crime, namely the Pirates, the Ship (target) and the Place, where the ship is attacked (SLOC-Sea Line of
Communication). The middle triangle shows controllers, namely the Handlers, the Guardian, and the Place Manager, representing individuals or institutions with direct responsibility for the actors in the crime triangle. These controllers help understanding crime patterns and the effectiveness of crime prevention, as the actions of the controllers permit or prevent crime from happening.

![Diagram of crime triangle with controllers: Handlers, Guardian, and Place Manager]

Figure 1: The Routine Activity Approach. Source: Townsley 2015, p.7.

Thereby crime is less likely when Handlers directly supervise offenders, guardians directly supervise potential victims or targets, and managers directly supervise places (Felson, 1995). Consequently, the theory gives reasons why some crime prevention activities succeed and why others fail. Due to the focus on the offender’s perspective, Felson furthermore introduced four criteria that predict if a target is suitable for a crime to occur (Ferson 1998, 55-60). Those four criteria are called VIVA: Value, Inertia, Visibility, and Access. From the perspective of the offender, the value is the potential profit a target can provide, where the target may be both, an item or a person. Inertia is the physical difficulty and feasibility the offender must deal with when attacking the target. Visibility measures if the target can easily be seen or if it is hidden in any way. Access determines if the site where the target is located is easily accessible or if measures must be taken to reach it. All these factors can deter or motivate criminal acts, by merely making it more difficult or easier to commit the respected crime. Sampson, Eck, and Dunham (2009) advanced the theory by introducing the concept of super controllers. As figure 1 depicts, super controllers are actors responsible for creating incentives for controllers to prevent crime. The advanced RAT lists ten super controller types, each based on the nature of their authority over controllers and organizes them into three categories, namely formal, diffuse and personal (Sampson, Eck and Dunham 2009). The formal category
includes institutions that rely on an authority that is established and widely recognized (i.e., governments, organizations, regulators). The personal category comprises individuals that use informal or personal influence to persuade controllers (i.e., clans, groups, and families). Diffuse super controllers form a hybrid of the formal and personal categories (i.e., political groups, markets, the media) (Townsley 2015). In practice, most super controllers represent coalitions of institutions and individuals. In summary, the fundamental works of Becker and Frey, which facilitate the assumption that piracy businesses are determined to maximize their monetary profit and are rationally weighing their potential rewards against the probability of being punished, serve as a basis for this dissertation. Furthermore, the causal conception of the Routine Activity Theory, developed by Felson and Cohen, applied to the criminal sphere of piracy, amplifies the theoretical framework of this thesis.

2.3 Economics of Maritime Piracy

While many studies have covered research about the causes, organizational structures, and practices of piracy, as well as the institutional responses to maritime crime, and attempts to historicize and deconstruct the broader politics of piracy, the ex-post rationalization of their business models has not yet been studied adequately. Most studies, which have tackled economic aspects of maritime piracy, focused on measuring the economic impact caused by the illegal activities and deduced rationales for stronger countermeasures (c.f. Bowden 2010). Only a few studies have approached the topic from a business perspective (c.f. Klein 2013, Percy 2011, The World Bank 2013, The Global Initiative against Transnational Organized Crime 2016). However, these studies are not covering the overall phenomenon of piracy from an impartial rational business perspective. Furthermore, there is no study in the literature, which has tackled the topic from a pirate’s viewpoint. Finally, the few studies that consider pirates as professional businessmen chose only one of the piracy hotspots as an independent subject for their analysis, naturally missing to identify similarities and differences of the diverse business models. From this follows that the academic field of maritime piracy lacks a rational model, which visualizes the different business models, to help researchers understand and tackle the allocable dynamics which determine the feasibility of piracy operations. The development of such a model could serve as a template, facilitating researchers to expand the field of economics of maritime piracy by further and more in-depth investigations, and would thereby bridge the gap in the current state of research.
3  Methodology

This dissertation aims to enable researchers of the academic field of maritime piracy to gain a better understanding of the underlying business models, whose feasibility is believed to be the ultimate rationale of the emergence of professional piracy per se. Therefore, this thesis processed the following steps.

Firstly, piracy organizations were approached from an economic perspective, by the application of a variety of economic theories in combination with findings of secondary data, to assume the equalization of piracy with regular business structures as an impartial rationale for the subsequent construction of the corresponding business models.

Secondly, piracy companies were approached from a business perspective by the application of macro- and microeconomic tools to examine the complex business structures and to subsequently deduce the core processes and factors, which are relevant for the underlying dynamics of the piracy businesses.

Thirdly, the deduced factors and the interrelations between them were structured to set up the causal conception for the subsequent visualization of the piracy business models, which has been achieved by the application of an explorative qualitative cause and effect model.

The resulting visualized business models may serve as templates for further use, expansion, and refinement by researchers of maritime piracy.6

3.1  Research Design

In this study, a combination of descriptive and explorative methods was used to visualize the business models of piracy in a qualitative cause and effect model. This qualitative approach was chosen, because the emergence of piracy, and subsequently the development of sophisticated business models, is predominantly determined by soft factors, which are difficult to quantify, yet crucial for a satisfactory understanding.7

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6 The visualized models have been developed as open source templates, which are publicly accessible on the internet. The models can be found on the website http://www.know-why.net by searching for the keyword “PECOBUS.”

7 Concerned soft factors are for example the prevailing cultural and social perception of criminal acts like piracy, the political intent to counter piracy, or the applied internal criminal governance structures of piracy companies.
As a preparative for the subsequent application of theories, tools, and models, the literature about the subject was reviewed extensively to compile a pool of sufficient data about the individual piracy hotspots and the corresponding framework which influences the emergence and the associated illegal activities of this criminal business. Based on this pool of data, also original research findings out of the academic fields of criminology and economics of crime have been used as a theoretical framework for the scope of this dissertation. These preparative measures were taken in the chapter “Current State of Research.”

In the chapter “Economic Perspective” the topic of piracy was approached from an impartial viewpoint, examining the root causes, the process of sophistication, and the impact of piracy. This approach was based on the theories of Rational Choice, Transaction-Costs, and Principal-Agent. Due to this method, it has been possible to assume the equalization of piracy organizations with regular business structures. Furthermore, the first set of relevant factors, which influence the internal and external processes of the illegal businesses, was deduced for the subsequent construction of the corresponding business models.

The chapter “Business Perspective” encompasses an examination of the different piracy hotspots, namely SE Asia, West Africa, and East Africa. These hotspots were analyzed descriptively to compile sufficient data about the complex business structures for the further assessment of the individual forms of the criminal businesses. In contrast to previous work in the academic field of maritime piracy, this approach has been examined from the viewpoint of a criminal entrepreneur to gain potentially overlooked insights and to exclude the potential influence of prepossessions against piracy as much as possible. As a consequence, macro- and microeconomic tools, which are usually used to examine regular business models, were applied to the individual piracy hotspots. The macroeconomic tool PESTLE was used to analyze the business environment of the specific regions. The microeconomic tool CANVAS was applied to document and analyze the business models which are underlying the piracy operations. Due to this approach, the second set of core processes and factors, which are relevant for the underlying dynamics of the piracy businesses, was deduced.

Based on both sets of deduced processes and factors, the chapter “PECOBUS Model” set up the causal conception for the subsequent visualization of the piracy
business models, which has been achieved by the application of an explorative qualitative cause and effect model.\textsuperscript{8}

Finally, the key findings were summarized and discussed, considering their relation to previous work of the maritime piracy literature. Since this dissertation developed applicable templates, the thesis concludes with the invitation of fellow researchers of the academic field of maritime piracy to use, expand, and refine the visualized business models.

### 3.2 Data Collection

A variety of methods was used, to compile sufficient factors for the subsequent visualization of the piracy business models in an explorative qualitative cause and effect model.

Since the academic field of maritime piracy lacked a comprehensive and equally applied analysis of the three global piracy hotspots, based on the same set of assumptions, theories, and tools, approached from an impartial economic perspective, the compilation of sufficient data had to be descriptively deduced from the literature, as a preparative for the further analysis. This compilation gave an overview about the framework-factors which influence the emergence and the activities of professional piracy in the different hotspots. In contrast to previous work, the subsequent analysis was examined from the viewpoint of a criminal entrepreneur to gain potentially overlooked insights and to exclude the potential influence of prepossessions against piracy as much as possible.

**Economic Perspective**

The qualitative assessment of maritime piracy from an economic perspective was based on findings of secondary data, the application of the Rational Choice Theory, the Routine Activity Theory, the Transaction-Costs-Theory, and the Principal-Agent-Theory.

In a first step, the “Root Causes” of piracy were analyzed. Findings of secondary data, which suggest that the economic dislocation of a region has a significant influence on the root causes of piracy, have been taken over. Furthermore, the application of the Routine Activity Theory, a middle range theory, mostly derived from

\textsuperscript{8} The tool which has been used to visualize the cause and effect model is called iMODELER. More information about this software is presented in the following chapter. The software can be accessed in the internet: www.imodeler.info
the grand theory of Rational Choice, was used to indicate that criminal opportunities, which become present due to the weakness of local authorities, trigger piracy activities. Additionally, the setup of an economic model, which has been based on the fundamental work of Becker (Becker 1976), complemented this indication by evaluating the motivation of individuals to become professional pirates.

In a second step, the “Process of Sophistication” of the piracy businesses was examined. While the former chapter gives insight about the emergence of piracy and the disposition of individuals to become professional criminals, this chapter discusses, how the individual criminals established professional businesses. In this context, the Transaction-Costs Theory, which is based on the work of Ronald Coase (1937) and became most widely known by Oliver Williamson (1981), was used. The application of this theory supports the argument that the development of efficient business institutions is based on the effort of individual economic subjects, to minimize costs incurred by transactions between each other and the market (Williamson 1981). Thereby, the theory helped to examine, why individual pirates grouped and established piracy businesses. Subsequently, the Principal-Agent-Theory was applied, to illustrate that the piracy businesses formed professional chains of command to improve the efficiency of their internal structures. However, the application of this theory also identified difficulties, which naturally come along with this concept. According to the Principal-Agent-Theory, a dilemma exists in circumstances where the agents are motivated to act in their own best interests, which may be contrary to those of their principals (Jensen and Meckling 1976). Since the problem may have an even stronger impact in the piracy business, as the agents do not only act to maximize their outcome but also to avoid being prosecuted and arrested, the application of the Principal-Agent-Theory brought up valuable insights about the internal processes of piracy businesses. Therefore, all of the different piracy hotspots have developed criminal governance structures throughout their companies, to keep the agents aligned with the agenda of the companies. These findings were based on the analysis of a variety of studies, presented in the concerned chapter. Finally, the examination of secondary data has shown a significant learning-by-doing and skill accumulation among maritime pirates (Ratisukpimol 2011).

In a third step, the “Impact” of piracy on the maritime industry, as well as the regional, and global impact was deduced by a descriptive analysis of previous research. After the analysis of the root causes and the process of sophistication has illustrated, that sophisticated piracy is not a desperate act of crime but a professional business, this
chapter shows the full dimension of the consequences which are caused by the acts of piracy. Especially studies about the economic costs and financial flows of piracy contributed to the findings of this chapter (Bowden 2010) (The World Bank 2013). Due to the descriptive and qualitative analysis of professional piracy organizations, the first set of relevant factors, which influence the internal and external processes of the illegal businesses, was deduced for the subsequent construction of the corresponding business models.

Business Perspective
The qualitative assessment of maritime piracy from a business perspective was based on an extensive analysis of secondary data and the application of the macroeconomic tool PESTLE and the microeconomic tool CANVAS. In a first step, the business environments of the individual piracy hotspots, namely SE Asia, West Africa, and East Africa were examined by the application of the PESTLE analysis. PESTLE is a standard tool for regular companies to analyze the framework of macro-environmental factors affecting their business in a specific market region, by identifying the relevant political, economic, social, technological, legal and environmental factors. The analysis of an illegal business model was an unusual approach but an applicable one, due to the impartial character of the assessment. However, the individual factors had to be partially adjusted or expanded to match the interests of piracy. The Political factor thereby studied the political influence in the economy, ignoring tax policy, labor or environmental law, trade restrictions or tariffs. This factor was extended to the analysis of Place-Manager attributes, derived from the Routine Activity Theory (RAT). The Place-Manager attributes built the framework for effective counter-measures against piracy and illustrated how far the government is willing and able to use national and international security forces to fight piracy. The Economic factor examined the regional changes in trade cycles and commodities that affect the piracy businesses, as well as the field of competitors in the region. Furthermore, the Economic factor studied the port structures and the accessibility and availability of local, regional and international markets. The Social factor considered the attitude towards criminal behavior by the regional communities who host the pirates. This factor illustrated in how far the communities are economic dislocated and may even support the illegal business by logistics and human resources if they benefit from piracy themselves. Furthermore, the social factor showed how easily pirates might establish a network of insiders and corrupt officials necessary for a professional business expansion. The Technological
factor explored the availability of professional equipment for the targets to defend themselves and for the aggressors to attack the targets, as well as the required skill-sets to use them. While commercial ships and fishing boats may install barbered wire, or hire PMSCs as *Guardians* (derived from the RAT), the pirates may be interested in the market availability of automatic weapons, radar and communication devices and fast attacking boats with powerful engines and agile maneuverability. The *Legal* factor enquired the effectiveness of the regional jurisdiction in general as well as the willingness of the pirate´s victims to report an incident or to conceal it. Finally, the *Environmental* factor studied the geological nature of the region, showing if in how far natural cover is available to hide pirate´s bases at the shoreline in the vicinity of major shipping routes. Furthermore, the Environmental factor examined the general infrastructure in the region as well as meteorological events that may influence the piracy businesses.

In a second step, the individual business models of the different piracy hotspots were constructed, by applying the tool CANVAS. Usually, regular companies apply this tool as a template for documenting existing or developing new business models. The outcome of this method is a visual chart, which illustrates the elements describing the company´s infrastructure, value proposition, customers, and finances. These factors had to be partially adjusted to match the interests of piracy. The first element, infrastructure, considered the key partners, the key activities, and the key resources of the concerned piracy company. The second element, value proposition, and the third element, customers, had been two of the most convenient differentiators between the different piracy hotspots and approved the advantage of the application of this tool. The fourth element, finances, was worked out by the comprehensible analysis of actual piracy incidents, which have been reported in the literature. Missing details in those reports were proportionally constructed referring to comparable but more detailed reports of the other piracy hotspots to complement this section.

Due to this approach, the second set of core processes and factors, which are relevant for the underlying dynamics of the piracy businesses, was deduced. The descriptive analysis of the different hotspots and consequently the compilation of both sets of significant factors formed a sufficient pool of data and facilitated a logical deduction of an ultimate causal conception of the piracy business models for the subsequent construction of visualized cause and effect models.
3.3 Data Modeling

Due to the sufficient compilation of relevant factors, deduced through the analysis of the different piracy businesses from an economic and business perspective, the three business models of piracy have been visualized in an explorative\(^9\) qualitative cause and effect model, using the software iMODELER. Thereby, each business model has been modeled individually and serves as a template for further explorative examination, expansion, or refinement by fellow researchers.

Qualitative cause and effect modeling facilitates researchers to visualize complex conceptions of causal relations. In other words, this method demonstrates visually, how “more of one factor leads directly to either more or less of another factor.” Since the factors were qualitatively weighted\(^10\) by defining whether one factor’s impact on another is perceived weak or strong compared with other impacts, and whether this effect changes in the future, the iMODELER software simultaneously constructed indirect relations between the different factors and deduced short term, medium term, and long-term effects in an “Insight Matrix.”

In the context of this dissertation, the model visualizes the internal and external processes which ultimately lead to an assessment of the feasibility of piracy business models. The internal processes lead to an evaluation of the perceived business opportunity of a particular piracy hotspot, while the external processes lead to an assessment of the corresponding deterrence effect, triggered by the presence of law and order. Depending on the imbalance of both assessments, the feasibility of piracy businesses can be determined, which in turn triggers factors influencing the internal and external processes long-term. Taking this chain of causation as the center of the model, served the purpose of this dissertation, to facilitate researchers to approach the subject from the perspective of a criminal entrepreneur and to gain further insights in progress. The practical implementation of this approach is discussed in the corresponding chapter “PECOBUS Model.”

\(^9\) The explorative character of this approach lies in the handling of the software, which facilitates the modeler to easily shift the focus of the factor-arrangement from one process to another. This playful method inspires new approaches to the subject and can provide further insights. Furthermore, the open-source character of the model allows fellow researchers to work with the model and to expand it in progress.

\(^10\) The process of weighing the factors was conducted by keeping the sum of all weights, which influence a particular factor, below or equal 100. By this method, the weights of the impacts can be interpreted as percentage values more easily.
4 Economic Perspective

Before the different business models of piracy can be analyzed from an impartial business perspective, the big picture of piracy must be examined from its root causes, its stages of sophistication, and its impact on the maritime industry, the regional economies, and world trade. Therefore, the economic perspective constitutes the framework for a more in-depth analysis of the different hotspots, explains why individuals choose a career in the piracy business, shows how piracy enterprises develop over time, and how they trigger international responses from institutions and counter-piracy players. The factors from the economic perspective provide a sufficient heuristic for the conditions under which piracy companies emerge and reveal further internal and external processes, which influence the overall success of piracy businesses.

4.1 Root Causes

The root causes of maritime piracy base on three strands. Firstly, the economic dislocation and consequently the shortage of labor supply in geographical areas, which are located in the proximity of sea-trade-routes, can trigger incentives for piracy to emerge. Secondly, weak local authorities are failing in the authentic deterrence of criminals and thereby trigger criminal opportunities. This phenomenon will be examined by the adaption of the Routine Activity Theory (RAT). Thirdly, the motivation for an individual to overcome his inhibitions to conduct a criminal activity has to be initiated by a deliberate process of rational-choice and will thereby be examined by the adaption of the Rational Choice Theory (RCT). These three root causes ultimately determine the supply of human resources for piracy companies.

4.1.1 Economic Dislocation

While piracy can lead to promising profits, a direct causal link between poverty or lack of employment opportunities and criminal activities cannot be constructed. Rather than poverty alone, the crucial factor is the economic dislocation of the region. Communities that tend to be involved in piracy are those who have been economically marginalized and put at a disadvantage by economic developments and globalization processes (Bueger 2015). Once a state is economically dislocated,
and the government fails to improve the participation of nationals in the private economy, while strengthening the human rights for low-skilled workers, as well as opening the public sector to foreigners to avoid risks of elite-building, the whole state can be threatened to fail long term (Acemoglu, Robinson 2012) (Besley and Persson 2011).

From this, a shortage of labor and a fiscal deficit naturally follows. Without a prospect for a regular income by legal employment, the population may change its moral attitude and culture towards semi-legal or obviously illegal alternative labor options. Once the fiscal deficit has hit the authorities, the consequently underfunded regulatory bodies can fail to preserve a nation-wide prosecution and law-enforcement. Thereby inhibitions of the population to accept criminal activities may be lost. From this follows the acceptance of the local community to tolerate pirates and, in extreme cases, the recognition of piracy as an available cultural or subcultural possibility, which may trigger incentives to become a pirate oneself (Vagg 1995, 67). Studies have shown, that higher real per-capita incomes and lower unemployment rates tend to reduce the number of pirates (Ratisukpimol 2011, 61). Furthermore, these studies signify that the chance of successful hijackings in the proximity of countries with higher political freedom is lower since these countries tend to protect the sea more effectively (Ratisukpimol 2011, 30). Therefore, the rise of maritime piracy is inversely related to the economic and political conditions of regions from which professional piracy emerges. From this follows that economic dislocation triggers incentives in the community to engage in extralegal activities like piracy.

4.1.2 Weak Authorities

If a nation is economically dislocated and criminals face weak authorities, criminal opportunities become more attractive due to the reduced risk of prosecution. Thereby, official and administrative corruption, which tolerates or even supports piracy, reduces this risk furtherly. This concerns various levels of law enforcement stretching from coastguard and naval capabilities by which coastlines and the sea are patrolled and surveyed, to policing, intelligence, and prosecution capabilities on land, as well as the efficiency of the judicial sector allowing for the prosecution of piracy (Bueger 2015, 2). This thought has been analyzed by several quantitative studies and revealed that most piracy attacks occurred in the waters of failed states, or in their proximity (Nincic 2008). Furthermore, the state of governmental destruction as well as the state of maintained infrastructure and thereby the access to markets
limit the number of operational possibilities, and therefore the options for different business models of piracy. While pirates in the proximity of a failed state typically go for less logistically hijackings, namely kidnappings for ransom that do not require professional port-infrastructure nor regulated markets, weak states, offering maintained infrastructure and organized markets, encourage more sophisticated attacks, namely the selling of the cargo and the ship itself (Hastings 2009, 213). Further studies have shown that piracy prospers in areas which are relatively stable, but also corrupt, and which have a sufficient level of infrastructure and resources (Coggins 2010). Subsequently, the Routine Activity Theory (RAT) will be used, to examine the criminal opportunities arising in the affected regions. This middle range theory is mostly derived from the grand theory of Rational Choice and takes the perspective of the offender to find explanations for understanding and preventing crimes. RAT uses the general factors place, target and offender to explain the triggering of a criminal act, while the factors Placer Manager (PM), Guardian (GU) and Handlers (HA) may prevent the crime. In the field of maritime piracy, we define the “place” of a piracy attack to be the sea and particularly the coastline of the host state from where the pirates operate. It is therefore analogous to a predatory crime occurring in public space. However, place controlling in a maritime environment is difficult due to the sheer expanse of the ocean and legal ambiguities that may inhibit effective enforcement (Ramsey 2011). In East-Africa pirates operate up to 1000 nautical miles away from the coastline. Therefore, the operational place for Somali-Pirates encompasses about two million nautical square miles, a dimension that is impossible to protect without a gap. In West Africa, most attacks are conducted in the vicinity of several territorial waters and therefore much closer to the coast. While the typical operational field in West Africa is apparently much smaller than the one in East Africa, and theoretically easier to overview, problems of jurisdiction arise. As several states share the same maritime place, each of them naturally claims its sovereign responsibility for their territorial waters. Pirates in West Africa can thereby complicate effective law enforcement relatively easily, by leaving the territorial waters where the attack occurred and entering the territorial waters of a bordering state, that is not responsible for law enforcement concerning that attack. In SE Asia on the other hand, attacks occur in territorial waters as well as in the open sea. In Routine Activity Theory, the manager for the maritime place is represented by several instruments and institutions. The government to whom the territorial waters belong is responsible for the jurisdiction and the corresponding law enforcement. For
law enforcement, the state operates police ashore, and coastguards and national naval forces at sea. These must be constantly trained and armed with sufficient vessels and equipment. The high sea, which is expanding from the territorial waters\textsuperscript{11}, does not have any jurisdiction by nature. If threats in the high sea arise, any state in the world may freely intervene with its national navy, when such an operation is legitimate to its jurisdiction. If such a threat, like maritime piracy, has an impact on multiple states in the world, bilateral or multilateral operations may be formed by the countries concerned. If the threat even triggers international interest, organizations like the European Union or the United Nations Organization may also establish missions that will tackle the problem. The influence and the regulatory body of these international institutions can be seen as the formal Super-Controller of the PM, as shown in figure 1. Problems arise when a maritime threat appears near territorial waters that belong to a government, the manager, that holds no or only insufficient law enforcement but does not allow international players to intervene in its national territory.

The target is considered to be a whole ship, particular cargo, and other valuable items onboard the ship, or the crew itself. Whatever particular interest the pirates may have, access to the target requires the boarding of the vessel.

The corresponding GU to the target is the ship’s crew as well as external security measures. The GU can use the VIVA criteria\textsuperscript{12}, to take measures for protecting the ship and themselves. To prevent the vessel from being hijacked, the crew may install water cannons, barbed wire, high-speed maneuvers or other measures, promoted by Best-Management-Practice (BMP). BMP is an open book that developed guidance detailing the most effective actions and precautions, which ship-owners and masters can take to prevent pirate attacks. Next to these internal measures, also external measures like contracting Private Maritime Security Companies (PMSC), both armed and unarmed, can provide further protection onboard the ships. Naturally, the shipping companies represent the main Super-Controller for the GU. Likewise, insurance companies have emerged as super controllers to facilitate higher levels of guardianship (Townley 2015, 5). For example, in 2008 Lloyd’s Joint War Committee declared the Gulf of Aden High-Risk Area (HRA).\textsuperscript{13} This declaration led to a

\begin{itemize}
  \item In this context, the naming of territorial waters includes the attached contiguous zone and the exclusive economic zone.
  \item The VIVA criteria have been introduced in chapter “2.1 Economics of Crime”.
  \item In December 2015, the declaration has been revised, due to the decline of piracy in the area.
\end{itemize}
substantial increase in premiums for transiting ships (Giampaolo 2011). As insurance underwriters have offered significantly reduced premiums if armed guards are on board, more shipping companies started to hire PMSCs for enhanced protection (Brown 2012).

In the maritime piracy context, offenders represent the present professional piracy organizations. Depending on the particular hotspot, the concerned criminal structures may comprise corrupt officials, warlords, mafia systems, and other illegal businesses out of the present criminal network. Accordingly, Handlers are the local community and society in general, promoting moral standards and ethics. Depending on the area, also local clan leaders, religious representatives or businesses offering alternative jobs may represent Handlers. In the case of Somalia, clan elders act as judges and enforcers of “xeer” (an oral justice system) and could discourage young men away from criminal involvement (Kraska 2009). However, the proceeds of piracy can provide need support for local economies. Therefore, clan elders are often involved in recruiting, financing, and directing piracy operations (Kraska 2009). Non-Governmental Organizations (NGO), the United Nations Organization or other players may establish missions and incentives, which try to trigger social standards and ethical codes of conduct, may serve as Super-Controllers, influencing the HA.

Like any other theory, the RAT has its limitations. The derived methods used to reduce crime do not automatically change the criminal behavior. These methods only prevent the crime in a given situation. While the crime may be prevented, the criminal can still be motivated to do other unlawful acts somewhere else to another time. Therefore, the theory is a crime preventing theory, but not apprehended, because it does not give any optional measures for rehabilitation (Miro 2014). However, RAT in the context of maritime piracy unfolds several factors that will be further analyzed in the following chapters.

4.1.3 Social Acceptance

In economically dislocated areas, where criminal opportunities arise, a social acceptance for extra-legal activities may emerge in the society. Thereby the moral scruples of individuals to be involved in an illegal business are decreasing. The following figure illustrates this process:
The left part of figure 2 shows four spheres, which are segmenting legal and legitimate activities. The circle represents the moral perception of culture. Sphere 1 represents activities or businesses which are legal but perceived as immoral. In sphere 2 law and moral are congruent. Sphere 3 stands for activities or businesses which are illegal but are perceived as morally acceptable. Finally, sphere 4 represents acts which are unlawful and immoral to the concerned culture.

In the case of economic dislocated regions, the moral perception may be expanded and embrace activities, which had been perceived as illegal and immoral initially, as shown in the right part of the figure. A weak or even failing state, which is located in such a region, may intensify this process due to the fading presence of law and order, which in turn revokes the rationale between legal and illegal issues in general. Once a local community faces such a condition, it is a more or less purely rational decision for individuals to get involved in criminal activities as a legitimate alternative to making a living.

In a previous study, this process of individual motivation has been illustrated in an economic model that treats pirates as rational maximizing individuals to study their evaluation process of legal and illegal options leading to a decision of involvement (Hallwood and Miceli 2013, 69-71). The application of such an economic model is a

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14 Discussions with a closer focus on the ethical assessment of this issue can be found in the work of Ingo Pies.
standard approach for analyzing criminals since Becker in 1968 (Becker 1976). Based on this assumption, Hallwood and Miceli have built the following model:\(^{15}\):

\[
E(\text{NB}(n)) = \text{CPR}(n) \left[ n(\text{booty} - \text{wage}) \right] - (1 - \text{CPR}(n))(\text{jail})
\]

In this function, the outcome, \(E(\text{NB}(n))\), stands for the expected net return of a planned number of attacks, \(n\), from becoming a pirate. This outcome results from the cumulative probability of not being caught in “\(n\)” attacks, \(\text{CPR}(n)\), times the value gained per attack on \(n\) attacks subtracted by the opportunity cost\(^{16}\) of piracy per attack on \(n\) attacks, \(n(\text{booty} - \text{wage})\), minus the probability of being caught on \(n\) attacks times the implicit monetary cost of spending time in jail, \((1 - \text{CPR}(n))(\text{jail})\).

In simpler words, the causal conception of this function illustrates that the feasibility of the individual engagement in piracy results from the trade-off between the potential profit gained from piracy activities and the risk of being caught and prosecuted. This causal conception will likewise serve as the center of the visualized cause and effect model, which will be developed in the process of this dissertation.

While this deduced causal conception serves as the key takeaway from the previous work of Hallwood and Miceli for this dissertation, their research provides further insight into piracy. By differentiating their original function, the resulting first-order condition shows, that a risk-neutral pirate will choose \(n\) to maximize. In other words, as long as a pirate expects not to get caught in the act of his next attack, he will remain in the business. The determination of the optimal number of attacks, \(n^*\), is shown graphically in figure 3. Based on this figure, it can be assumed that as the number of piracy attacks grows, the value of booty collected per attack increases – perhaps because more experienced pirates become better at locating high-value targets (a learning-by-doing effect). Then the marginal benefit of piracy may rise with the number of attacks by a given private (Hallwood and Miceli 2013, 70). If this effect were strong enough, then there would be no limit to the number of attacks. That is, the MB function in figure 3 would be positively sloped. In this case, a person would plan on becoming a pirate for life and not limit himself to a given number of attacks.

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\(^{15}\) A more profound derivation and description of this function can be found in the corresponding study (Hallwood and Miceli 2013).

\(^{16}\) The factor opportunity cost represents the wage given up that could have been earned by a pirate in a legal job.
Furthermore, the factors $wage$ and $jail$ would increase the optimum number of attacks for an individual pirate, if there are low-opportunity cost ($wage$) and low-value placed on jail time ($jail$). It can also be supposed that the higher the efficiency of a piracy business is, the higher is the probability of not being caught on an attack and the more significant $booty$ is, the further to the right is the marginal benefit curve in figure 3.

From this follows that the more efficient and experienced a piracy business is, the longer individual pirates will remain in the company and the more sophisticated attacks will emerge from there. This development leads to the following analysis of the process of sophistication of maritime piracy.

4.2 Process of Sophistication

In this chapter, it is examined, why pirates consolidate and form groups, which eventually emerge to professional businesses. This analysis is based on the principles of the transaction-cost-theory. Closely related to this theory, the principal-agent-theory is applied to the hierarchical structures of piracy companies to interpret the top-down management and the division of responsibilities in place. Finally, further steps are taken to analyze the compliance and governance structures, which have probably been developed to lower the risks of operational failure.

These three phases reveal the factors, which are responsible for the overall sophistication of the business of piracy.
4.2.1 Incorporation Approach

Minimizing Transaction Costs

The transaction cost theory can be used to explain why individual pirates group together, develop sophisticated organizational structures and thereby form professional businesses. The transaction cost theory is based on the work of Ronald Coase (1937), but became most widely known by Oliver Williamson (1981), who argues that the development of efficient business institutions is based on the effort of individual economic subjects, to minimize costs incurred by transactions between each other and the market (Williamson 1981). The theory assumes opportunism among the actors and bounded rationality. Williamson argues that the three critical dimensions for describing transactions are uncertainty, frequency, and the degree to which transaction-specific investments are required to realize least cost supply (asset specificity).

In the piracy business, each attack, as well as any associated activity within the company, can be seen as a transaction. Rationally, one of the leading concerns of pirates is to lower their risks within each transaction in all three dimensions. The first dimension, uncertainty, could be identified as the risk of being caught before, during or after an attack. To lower this risk, pirates rely particularly on information, action plans, and proper equipment. In a group, many of these tasks and issues can be solved in-house or are sourced out, while individual pirates entirely rely on external providers and with that on environmental uncertainty. Nevertheless, a piracy group, like any other business, at least partly relies on external providers and on environmental uncertainty, too.

The second dimension, frequency, considers that a piracy group naturally plans for a repeated business. From this follows that pirates reinvest parts of their booty for future transactions. This internal process typically triggers the urge to protect or hedge the invested capital and effort within the transaction-partner relationship. The establishment of a piracy group, and therefore the vertical implementation in the hierarchy, assures the individual pirates that their investment is relatively safe, as they depend on each other.

Thirdly, Williamson argues that the final dimension, the asset specificity, is the most important one (Williamson 1981, 555). In the context of maritime piracy, the asset specificity can be identified as the availability of human capital, that is willing to engage in an extralegal activity, and the availability of specialized equipment, which is necessary to conduct boarding procedures. From this follows that the business of
piracy relies on a set of various specialists who have to be recruited out of criminal networks. Due to the extraordinary character of a criminal enterprise, which naturally involves extra risks, the human assets are assumed to be opportunistic and thereby placed in a vulnerable position. The involved pirates risk their financial investments and simultaneously their freedom, due to the risk of prosecution. Consequently, the high specificity, and therefore the business of piracy, drives transaction costs up. Finally, coordinating and contracting costs, within the piracy group as well as with competing groups in the region, account for the transaction costs and involve all three dimensions of Williamson. Therefore, the consolidation of individual pirates, as an attempt to minimize transaction-costs, can be seen as a kind of incorporation approach.

The Learning-by-Doing Effect
The incorporation approach and the corresponding intention of conducting repeatable business facilitate the learning-by-doing effect within the established piracy groups. Studies have shown, that a history of successful piracy attacks locally improves the odds of future operations. Simultaneously, it is more likely that pirates are encouraged to target larger vessels either in close proximity to the land, as in the case of SE-Asia and West-Africa, or farther from the seashore, as in the case of East-Africa (Ratisukpimol 2011, 95). In summary, pirates have learned how to reinvest capital as well as making use of stolen vessels, equipment, and spare parts from previous raids to enhance the potential of successful future operations. Therefore, they have improved the front end, which defines the point up to the attack and the boarding of the vessel, and the back end, which covers the period from the attack to a culmination with a potential liquidation of the booty, of their operations. The learning-by-doing effect, the reinvestment of capital, and the use of stolen vessels and equipment underline the repeatable nature of the business models. From this follows that sophisticated piracy is not a desperate act of crime but a professional business.

4.2.2 Implementation of Hierarchy
In the case of the East-African piracy hotspot, the increased pressure of maritime forces and the reduced success at sea pushed the individual piracy syndicates, to move along the coast. As a consequence, this movement enhanced their criminal network, starting a collaboration with rival piracy groups and other stakeholders in the
business (UNODC (United Nations Office on Drugs and Crime) 2011). This forced flexibility naturally cultivated an organized chain of command over time. From this follows that the pirates become increasingly organized under pressure and in addition to that more sophisticated in their operations (The World Bank 2013, 3).

Also, the piracy hotspots of SE-Asia and West-Africa have formed chains of command and implemented a professional hierarchy to improve the efficiency of the underlying internal processes. This hierarchy can be analyzed by the Principal-Agent-Theory. While the hierarchical structures of the three global piracy hotspots marginally differ in their details, a typical top-down management is common to all. Usually, the directing pirate, the Chief Executive Officer (CEO), finances the business on his own and takes the role of the principal, who contracts a diverse group of specialists, the agents. While the CEO initiates and develops the business model of the piracy company, the agents are responsible for the execution of the actual operations. Thereby, principal-agent problems of the regular economy likewise apply to piracy businesses. A typical dilemma exists in circumstances where the agents are motivated to act in their own best interests, which may be contrary to those of their principals (Jensen and Meckling 1976). This problem may have an even stronger impact on the piracy business, as the agents do not only act to maximize their profits but also to minimize the risk of being prosecuted and arrested. Agents in a criminal business are therefore probably even more motivated to make decisions on their own best interests in contrast to agents of the regular economy, who are acting in hazard-free legal structures.

This aggravating circumstance constrains the CEO as the acting principal to take measures which are binding the agents on his behalf. The aggravation of this situation could even increase if the client, introduced as a third role in the principal-agent dilemma, had the potential to corrupt the agents with the intention of intervening the relationship between the CEO and his henchmen. In the case of piracy, the role of the client involves deliberate and forced customers.

17 This enrolment is assumed as the typical hierarchy in a piracy business, even though previous research has shown, that also enrolments have been in place, where an external investor could be titled as the principal, while the CEO and his subordinates would represent the agents. However, in the course of this dissertation, the role of the principal belongs equally to both, the CEO and the external investor, while the ordinary pirates and other subordinates represent the agents.
In SE-Asia and West-Africa, deliberate customers are usually regular businesses, who buy the stolen cargo at an appreciated discount.\textsuperscript{18} The shipping companies\textsuperscript{19}, who are the original owners of the stolen valuables, can be seen as forced customers, who have been compelled into this business and do not get anything in return for their loss.\textsuperscript{20} However, both kinds of clients could have an interest in corrupting the agents of the piracy company. The buying customer could thereby try to strike a deal without an involvement of the principal, gambling for an even increased discount, while the forced customer may have two different intentions in corrupting the agents. Either, the forced customer could try the same as the buying customer, intending to reduce his faced loss, or he could use a strategy to threaten the agents by stressing the risk of prosecution and offer an exemption from the potential punishment as a return for the restitution of his cargo.\textsuperscript{21} This strategy is also the most probable for the case of East-Africa, where the piracy business model is entirely different to the piracy hotspots in SE-Asia and West-Africa. Because Somalia is lacking deliberate customers, who could be interested in buying stolen cargo, as examined in the following chapters, the local piracy businesses kidnap the crews of the hijacked ships to demand ransoms from the shipping companies. In this case, the role of the client is always assigned to a forced customer, specifically to the company responsible for the wellbeing of the kidnapped crew.

To contain this threat of corruption, the principal, has to increase the transaction cost between the agents and the clients (Pies and Leschke 2000, 129). The principals of the piracy hotspots deal differently with the issues, triggered by the principal-agent

\textsuperscript{18} The regular businesses might or might not be aware of the origin of the cargo and thereby of the illegal character of the subsequent transaction. However, this circumstance shall not be of further concern in the course of this study.

\textsuperscript{19} In this example, only the shipping companies get mentioned as the original owners of the stolen cargo, because this simplifies the illustration of the case. However, in actual incidents usually, a variety of businesses, investors, and insurance companies is affected. This is considered in more detail in the later chapters of this study.

\textsuperscript{20} It could be argued, that the affected owner of the stolen cargo receives compensation from his insurance. Nevertheless, the subsequent media attention that is usually triggered by such an incident probably damages the image of the affected shipping company. For that fact alone, it is doubtful that victims of piracy incidents can be compensated sufficiently.

\textsuperscript{21} This strategy requires the counseling of counter-piracy authorities, which could, in turn, be seen as an additional form of client, as their involvement is automatically triggered, once a ship has been reported hijacked. However, this would overcomplicate the picture and is thereby not of further concern in the context of the current chapter.
dilemma. In SE Asia and West Africa, where pirates hunt for the cargo of vessels, the CEOs, the principals, are restricting crucial information necessary for the fulfillment of the operation. They thrive on secrecy, even within their own company, to the point that even the members of the boarding team, the agents, do not necessarily know where they are taking the hijacked ship and its cargo, once the boarding process has been successful (Hastings 2012, 2). The business models of theft and armed robbery rely on the access to specific economic infrastructure and markets to offload and sell the stolen goods. Usually, only the principal of such a business model has the necessary connections to criminal networks that maintain the access to these structures. He restricts information, time and money to his agents and focuses on attacking targets, which he can dispose of with the minimal use of external resources. This procedure prevents the agents from taking off with the stolen goods (Hastings 2012, 3).

In East Africa, where the business model is aligned with kidnapping for ransom operations, piracy companies do not operate secretly but have gone so far as to appoint spokesmen who give interviews to international media (Osman 2010). Due to the triggered media attention, the principals hope to gain credibility to demand higher ransoms. The principals restrict the access to external investors and officials and lead the negotiations about the ransom. Thereby, the agents do not have the necessary connections to be able to strike an own deal and to take off with the hostages by themselves. Furthermore, the principals can use social and ethnic relationships to bind their groups together (Hastings 2012, 3). For example, the clan ties for which Somalis are known can help to resolve principal-agent problems. Since most piracy companies in Somalia are composed of members of the same clan, internal linkages between agents and the principals that carry across the operations are ensured and could be used to enforce discipline (S. Hansen 2009, 25-26). In the case of East-Africa, these social and ethnic connections build an ideal fundament for the further development of criminal governance structures.

4.2.3 Initiation of Criminal Governance

As any regular business, also piracy depends on internal compliance and governance structures, to establish reliable processes underlying the professional operations.

As examined in the former chapters, the transaction-cost-theory assumes opportunism and bounded rationality among the actors. While the lack of an
adequate public governance and in addition to that the weakening of law and order facilitates the emergence of piracy, the total absence of a government could lead to total anarchy and could hinder pirates to run a professional business, as they would mistrust each other inside and outside of their criminal networks. Furthermore, the transaction costs for gathering information, coordinating activities, and business contracting would be so high that an illegal profession could lose its economic feasibility. In addition to that, the business of piracy aims for long-term and repeatable business operations involving employees, shareholders, the information and distribution networks as well as many other stakeholders. From this follows the need for criminal compliance and governance structures, to lower the opportunistic behavior and to facilitate necessary structures and communication for the piracy businesses. Therefore, if the official government of a region is not capable maintaining solid governance structures, it is a logical consequence for the piracy businesses to establish own private systems of law and order. This process, in turn, is probably an additional reason for the emergence of professional piracy corporations.

For example, in Puntland, one of the hotspots of piracy in Somalia, local clan leaders recreated new forms of governance for the whole region, after the national public governance structures collapsed (Palmer 2014, 10). This proto-state provided an ideal support system for piracy. This external governance structure backs the necessary dependability of the market for piracy businesses to flourish. The pirates also developed internal governance structures by setting a criminal code of conduct in place. This written set of rules has to be accepted by all piracy shareholders, to ensure the long-term reliability of the business. For example, the Somali code of conduct bans mistreatment of hostages to keep their value high and thereby the demand for ransom feasible (Reuters 2008). Furthermore, Somali piracy businesses rely on culturally given clan structures, which naturally support the criminal governance, as long as the workforce of a piracy company belongs to the same clan and thereby relies on the same set of cultural rules. These clan structures apply to most piracy groups in Somalia (S. Hansen 2009, 25-26). Finally, piracy businesses in East-Africa gave currency to a narrative that pirates are not criminals but quasi-state officials who protect the sovereignty against foreign intruders (Bueger 2013). They use this narrative as a form of corporate identity for internal and external justification and marketing purposes.

Also in SE Asia, pirates have established criminal governance due to a code of conduct, even though they do not rely on social bonds as the East-African pirates.
For example, convicted pirates from Indonesia have claimed, that they had been promised to be bought out of jail by their investors, as long as they do not reveal any information about their teammates and other shareholders of the criminal network (The Global Initiative against Transnational Organized Crime 2016). This fact shows, that piracy is considered to be a repeatable business and that the criminal structures professionally adjusted their framework of cooperation between the different players involved in the game.

In West Africa, piracy developed out of a politically active rebel-group that already had established own governance and compliance structures. These rules and habits still guide the Nigerian pirates through their internal and external business processes and networks. Furthermore, West African pirates usually share a social bond, as the Somali pirates do. This social relationship will be analyzed in more detail in the concerning chapters.

The fact that all hotspots of piracy rely on governance structures to assure the reliability of agreements and networks shows that pirates can be assumed as equal entrepreneurs in the economy, who share a similar need of compliance as regular businesses do.

4.3 Impact

When pirate companies enter a market, they have a negative impact on the maritime industry and the particular region they are operating in, by causing direct and indirect costs. Furthermore, they trigger media coverage on a global scale and cause international organizations to address global policies and international law. However, next to these negative costs, the emergence of piracy also has a marginal positive impact, as the topic forces shipping companies to address the subject of the well-being of their seafarers. Furthermore, the triggered need for standardized policies on a global scale forces the affected nations and international organizations to consolidate their cooperation, which is probably accompanied by further positive side effects due to better communication in general.

The negative impact of piracy on the different affected levels triggers corresponding incentives for counter-piracy measures. The impact on the maritime industry triggers the emergence of Private Maritime Security Companies (PMSC) and Best-Management-Practices (BMP), summarized under the Guardian factor. The regional impact triggers incentives for an intensifying presence of the Place Manager. Finally, the global impact of piracy can attract the attention of the Super Controller of the
Place Manager, which can lead to further counter-measures against piracy, involving international organizations and bodies like the UN, the EU or the NATO for example.

4.3.1 Impact on the Maritime Industry

The maritime industry mainly suffers from direct financial costs, caused by piracy. The expenses cover ransoms, insurance premiums, the costs of re-routing to avoid piracy regions and the installation of deterrent security equipment. Especially kidnap and ransom incidents cause a variety of costs. Besides the payment of the ransom, the total costs for a hostage situation are complemented by costs of negotiations, psychological trauma counseling, repair to ship damage caused while it was held captive, and the physical delivery of the ransom money, often done by helicopter or private plane (Bowden 2010, 9). Additionally, significant costs result from ships being held out of service and thereby being unable to do further business.

All ships, transiting piracy hotspots, must pay for higher insurance premiums. The insurance industry has responded to the threat of maritime crime by increasing its shipping premiums in the categories war risk, kidnap and ransom, cargo and hull insurance. Some shipping companies which want to avoid the rise in premiums and the overall risk from piracy hotspots tend to re-route their vessels. Especially tankers and other ship types that are “low and slow,” and thereby relatively easy targets for pirates, are shipped around the hot-spots, causing additional costs due to a higher fuel demand and extra time that must be spent in sea until the next destination is reached. 22 Further expenses apply if shipping companies decide to equip their vessels and crews with special gear for self-defense purposes. These costs may involve the hiring of PMSCs, which offer assistance onboard the ships for proper protection.

Next to the economic costs, there are also tremendous human costs associated with piracy, concerning the immeasurable physical and psychological harm to seafarers and their families, including the death of many individuals. From this follows that shipping companies face more difficulties in recruiting seafaring personnel that is willed to transit the piracy-affected areas.

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22 A re-routing from Europe to the Far East will add almost six extra days to a journey of a liner-container vessel and up to 15 to 20 days for a slower cargo ship (Bowden 2010, 13).
To deal with this issue, members out of the industry came together, to start a self-help guide for seafarers; the open source book “Best Management Practice (BMP).” It can be expected, that BMP triggered solidarity within the seafaring personnel as well as attention from the public. This recognition may have supported an improvement in the overall working-conditions onboard ships due to the claims made by maritime unions, like the International Transport Workers Foundation (ITF).

4.3.2 Regional Impact

Piracy has a direct and indirect impact on the affected hotspots. From a macroeconomic view, the criminal business affects regional trade and thereby foreign revenues, local fishing and oil industries, as well as tourism. Due to the presence of piracy, local traders, as well as international operating shipping companies, might be afraid to enter the affected waters and chose to trade in other regions and to reroute their shipments. From this might follow a decline in the supply of food and commodities, or, like in affected coastal areas of East Africa, an overall increase in prices for these goods might be a result. These costs can decrease the economic power of the affected region and thereby trigger more incentives for piracy, as stated in the former chapters.

![Figure 4: Actual and attempted attacks in East Africa, SE Asia, and West Africa from 2006-2016. Source: Data from ICC IMB.](image)

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23 East Africa covers Somalia, Oman, the Gulf of Aden, the Red Sea, the Arabian Sea, and the Indian Ocean.
The three global hotspots of piracy are located in SE Asia, West Africa, and East Africa. Figure 4 shows the number of the reported attacks in these regions, which will be examined in-depth in the following chapters.

**SE Asia**

As shown in figure 4, piracy is a constant threat to shipping in SE Asia. On average, most incidents from 2006 until 2016 occurred off the coast of Indonesia (67%) and Malaysia (15%). However, the reported numbers in figure 4 are not showing the full extent of the criminal activities in the region. It is assumed that about 70% of piracy incidents in the SE Asian waters go unreported, which leads to increased number of piracy activities, as shown in figure 5 (The Global Initiative Against Transnational Organized Crime 2015).

**Figure 5**: Actual and attempted attacks in SE Asia from 2006-2016. Source: Data from ICC IMB.

From 2005 until 2016 the Joint War Committee of the Lloyds Insurance Market implemented a War Risk Area in SE Asia, due to the constant threat of piracy in the region. This declaration approximately doubled the costs for insurance of shipping

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24 SE Asia covers Indonesia, the Malacca Straits, Malaysia, Myanmar (Burma), the Philippines, the Singapore Straits and Thailand.

25 West Africa covers Angola, Benin, Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea, Ghana, Guinea, Ivory Coast, Nigeria, Sierra Leone and Togo.

26 SE Asia covers Indonesia, the Malacca Straits, Malaysia, Myanmar (Burma), the Philippines, the Singapore Straits and Thailand.
companies operating in these waters. The costs rose from 0.05% to 0.1% of the cargo value (The Global Initiative against Transnational Organized Crime 2016, 7). The region hosts the full range of piracy business models. The majority of southeastern pirates aim for unarmed and opportunistic theft of storage equipment, light cargo or the valuables of the ship’s crew. Since most of these attacks occur in ports or anchorage areas, these crimes fall under the definition of “robbery against ships.” Therefore, these incidents are not counted in the official reports concerning maritime piracy. As single individuals usually conduct these minor crimes in an opportunistic attempt, they will also not be considered and analyzed as professional piracy businesses in this dissertation. However, even professional piracy syndicates in SE Asia focus their business models on the theft of cargo, but apparently in more significant dimensions and more complex structures. Especially pirates from Indonesia have proven their ability, to adapt their businesses to changing economic realities to maximize their expected profit. However, especially for Indonesia, whose defense and security resources are already bound to the continued internal security problems and defense budget constraints, piracy is of lower concern. Indonesia does not benefit as much from the trade that transits the Straits of Malacca in contrast to Singapore and Malaysia, who run the major ports in the region. From this follows that pirates who run their business from the shore of Indonesia, influence the economies of Singapore and Malaysia, who in turn are not fully allowed to fight pirates operating in the territorial waters of Indonesia juristically (The Global Initiative against Transnational Organized Crime 2016, 14-15).

**East Africa**

As shown in figure 6, on average, piracy has been a severe threat to shipping in the Gulf of Aden (36%) and off the coast of Somalia (52%). Most attacks and attempts occurred from 2008 until 2012. It is assumed that most piracy incidents in East Africa are reported (90%).

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27 Ocean going vessels usually have three main insurances: Liability (called P&I), Hull&Machinery and War. The damage to the vessel caused by piracy is excluded under the Hull&Machinery insurance, but is covered under War, unless the vessel sails into so-called excluded areas (JWC zones) which require an additional insurance in advance for further coverage.
Due to East African piracy, there has been a significant decrease in tourism countries such as Kenya, or islands, such as Mauritius and the Seychelles. Reports by the World Bank suggest that tourism expenditures in that region are shrinking because of growing fears resulting from incidents of tourists being taken hostage by pirates (The World Bank 2013, 33). Furthermore, corruption and criminal activities expand from the infected areas to the neighboring countries, as criminals gained fresh capital from piracy that they can use in diversified fields, that often have a criminal background themselves.

As in SE Asia, Lloyds of London implemented a War Risk Area in the Gulf of Aden, adding approximately additional USD 20,000 insurance costs per trip through the affected waters (Bowden 2012).

The international response to the East African hotspot has been mainly led by the United Nations Security Council resolutions. These allow an engagement by law enforcement, intelligence agencies, and military forces from the NATO (the North Atlantic Treaty Organization), the EU (European Union) through the European Union Naval Force Somalia (EUNAVFOR), the United States, and others.29 Due to the efforts of the naval operations, the use of PMSCs, and BMP the activity of piracy companies declined drastically from 2012 until 2016. However, due to the decline of piracy, also the presence of naval forces is diminishing. Consequently, the risk of

28 East Africa covers Somalia, Oman, the Gulf of Aden, the Red Sea, the Arabian Sea, and the Indian Ocean.
prosecution is lowering and this might trigger new incentives for pirates to go back in business. This development will be examined in the following chapters.

**West Africa**

As shown in figure 7, piracy has been a constant threat to shipping in West Africa. From 2006 until 2016, on average, most incidents occurred off the coast of Nigeria (54%), the central hotspot in the Gulf of Guinea. It is assumed that about 60% of piracy incidents in West African waters go unreported (Onuoha 2012, 30).

![PIRACY IN WEST AFRICA](image)

Figure 7: Actual and attempted attacks in West Africa\(^{30}\) from 2006-2016. Source: Data from ICC IMB.

The Nigerian government relies on crude oil for about 70% of its revenue (International Institute of Strategic Studies 2013). Oil theft, the kidnapping of crew-members and the seizure of the whole tanker-vessels causes severe disruption to the operations of the multinational oil companies, running a business in the Niger Delta. This threat is directly related to the instability of the region, due to its direct impact on the region’s revenue. Piracy in the Gulf of Guinea has escalated from low-level armed robberies to more sophisticated and violent hijackings and cargo thefts. Nigeria and Angola are two of the major oil producing countries worldwide and have

\(^{29}\) Warships under the national commands of China, India, Iran, Japan, the Russian Federation, and Saudi Arabia have also been patrolling the High-Risk Areas off the coast of Somalia.

\(^{30}\) West Africa covers Angola, Benin, Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea, Ghana, Guinea, Ivory Coast, Nigeria, Sierra Leone, and Togo.
an output of around 2 million barrels per day (Onuoha 2012, 29). Tankers departing from the Gulf of Guinea, ship about 1.5 million barrels of oil to the United States, 1 million barrels to Europe, 850,000 barrels to China and approximately 330,000 barrels to India, every day. Altogether, the region accounts for 40% of Europe’s and 29% of the United States’ oil imports (Vircoulon 2012). In 2001, maritime crime in the countries Benin, Cameroon, Cote d’Ivoire, Gabon, Ghana, and Nigeria resulted in an estimated loss of $2 billion annually for the region (United States Africa Command 2011).

4.3.3 Global Impact

Besides triggering regional problems, piracy also has an impact on a global scale. Since about 80-90 percent of global trade is conducted by sea, unchallenged piracy might weaken political stability and affect international security, simultaneously undermining global growth prospects of going forward (The World Bank 2013, 33). According to the World Bank Report, Somali piracy alone produced costs of a yearly average of about US$18 billion loss to world trade during the peak of East-African piracy from 2008-2012. Thereby the emergence of the criminal business had the same effect as imposing an additional 1.1 percent value-added tax on all shipments that transit off the Somali coast (The World Bank 2013, 33). These costs incurred because of an increase in insurance premiums for cargo, crew, and vessels that sail in these waters. Additional expenses arise due to the use of enhanced security measures, like BMP and the use of PMSCs to counter piracy attacks. 31 Because these extra costs increase the shipping rates, they affect all regions, which are involved in global trade. Besides the direct and indirect financial impact of piracy, also other key resources of particular countries are affected by the regional hotspots of maritime crime. Since Nigeria and Angola are two of the most prominent crude oil exporters, West African piracy and the corresponding insecurity of the affected waters threatens global energy production (Anyimadu 2013, 2).

31 Best Management Practices are published guidelines by the International Maritime Organization in order to prevent piracy and armed robbery against ships off the coast of Somalia. They are also used as interim guidance to private companies providing privately contracted armed security personnel on board ships in the High-Risk Area.
The international community made significant efforts to mobilize counter-piracy operations in response to the global impact of the criminal business. The International Maritime Bureau Piracy Reporting Centre (IMB PRC) at the International Chamber of Commerce (ICC) is responsible for monitoring and collecting data on piracy attacks worldwide.

As shown in figure 8, the main routes for international shipping go through the piracy hotspots of SE Asia and East Africa. The hotspot in West Africa concerns one of the major shipping routes for crude oil, flowing from the Gulf of Guinea to the United States of America, Europe, and other regions worldwide.

4.4 Deduced Economic Factors
From the economic perspective, the following factors (formatted bold) affecting the framework of the emergence and development of professional piracy businesses have been deduced. Once the factors have been introduced, they will be formatted cursive henceforward, conveniently.
Root Causes

a. **Economic Dislocation**: Regions that are economically dislocated consequently suffer from a shortage of labor and a fiscal deficit, which in turn leads to an underfunding of the local authorities and thereby restrains the exercise of their duties.

b. **Weak Authorities**: Once a region suffers from a restrained exercise of official duties, like the administration of justice, authentic **Deterrence** against criminal acts and thereby the risk of prosecution declines likewise. Consequently, the absence of law and order triggers criminal opportunities and therefore **Business Opportunities** for the piracy companies.

c. **Social Acceptance**: If the local society accepts piracy as a legitimate way to make a living, due to the lack of legal alternatives, an engagement in criminal activities becomes a rational job-option for the individuals of the affected region. However, the influencers of the local society, for example, the local communities, clan leaders, and religious groups are believed to prefer moral manners of life intrinsically and are thereby promoting to refrain from an engagement in criminal activities. These influencers are represented by the factor “**Handlers (HA)**.”

d. **Human Resources**: The intensity of the factors **Economic Dislocation** and **Social Acceptance** determines the supply of workforce, which is content to engage in criminal activities like piracy.

Process of Sophistication

a. Incorporation Approach: Individual pirates form companies to work more efficiently and effectively, by reducing transaction costs and by sharing their knowledge and competencies. Since professional piracy is a repeatable business, the incorporated pirates can enhance their skills through an ongoing **Learning-by-Doing** effect, triggered by each additional operation.

b. Implementation of Hierarchy: Piracy businesses implement chains of command and with that a professional hierarchy to improve the efficiency of their internal processes through the corresponding division of responsibilities. The reliability of this top-down management is consolidated by the implementation of protection measures against a potential corruption of the agents, the CEO´s henchmen.
c. Initiation of Criminal Governance: Often based on common clan structures or other affinities, piracy businesses initiate the implementation of governance structures in the form of guidelines and a code of conduct. The corresponding internal compliance encourages loyalty between the pirates and reduces thereby the risk of a revelation of crucial information by arrested companions.

d. **Sophistication Structures:** The intensity of the incorporation approach, implementation of hierarchy, and initiation of criminal governance are summarized in the factor *Sophistication Structures*, which positively affects the prospect of successful hijacking-operations and thereby the factor **Prospect of Operational Success**.

**Impact of Piracy**

a. **Impact on the Maritime Industry:** Shipping companies applied a variety of self-protection measures against the threat of piracy due to the impact on the industry. The implementation of BMP and the employment of PMSCs complicate the boarding of a potential target vessel and thereby affect the *Prospect of Operational Success* negatively. These measures are represented by the factor “Guardian (GU).”

b. **Regional Impact:** The regional authorities respond to the threat of piracy by the deployment of their respective navies, coast guards and police forces. The corresponding presence of the executive authority is a major factor in the deterrence of piracy. These forces are represented by the factor “Place Manager (PM).”

c. **Global Impact:** Once a piracy hotspot has an impact on the global scale, the criminal business becomes a menace to the local political stability, a threat to international security, and it undermines global growth prospects. This effect triggers the awareness of international bodies like the UN, NGOs like the IMB, and political and military alliances like the EU or the NATO. These authorities might intervene in the combating of piracy by deploying international naval units to the scene and by establishing missions for capacity building in the region. These authorities are represented by the factors “Super Controller (GU),” “Super Controller (PM),” and “Super Controller (HA).”
5 Business Perspective

After the big picture of piracy has been examined from an economic perspective to give an overview about the relevant framework factors under which piracy businesses emerge, a closer look at the individual business models is subsequently achievable. Since each of the piracy hotspots faces a different combination and variation in the degree of the framework factors, also the actual forms of piracy differ in their structural designs and levels of sophistication. From this follows that professional piracy companies rely on individual business plans, designed by criminal-minded entrepreneurs (Bueger 2015, 4).

To deduce the relevant factors and the interrelations between them from these business models, the three piracy hotspots, namely South-East Asia, West Africa, and East Africa, will be examined individually from an impartial business perspective in this chapter. Due to this descriptive approach and the equal application of the same set of economic tools, namely the PESTLE analysis and the CANVAS business model, a homogenous quality of deduced factors can be achieved and subsequently visualized in a qualitative cause and effect model.

5.1 South-East Asia: Grand Theft

Piracy is deeply rooted in the geography and history of SE Asia. The region hosts the full range of piracy business models. The majority of southeastern maritime criminals aim for unarmed and opportunistic theft of storage equipment, light cargo or valuables of the ship’s crew. Most of these incidents occur in ports or anchorage areas and thereby do not fall under the definition of “robbery against ships.” Therefore, they are not counted in the official reports concerning professional piracy. Since single individuals usually conduct these minor crimes in an opportunistic attempt, they will not be considered and analyzed as professional piracy businesses in this dissertation. 32 However, also professional piracy syndicates in SE Asia focus their business models on the theft of cargo, but apparently in more significant dimensions and more complex structures. Especially pirates from Indonesia have proven their ability, to adapt their business model to changing economic realities, intending to maximize their profit.

32 The criminals board the berthed or anchored ship and steal whatever they find within reach, until they are not able to carry any more or the crew recognizes them. Once they are detected by a crewmember, they usually abandon the ship immediately as they are not armed and not interested in serious confrontations.
In the following chapter, the focus lies on the business model of grand theft. In SE Asia, the typical product that pirates are hunting for is Crude Palm Oil (CPO). The following figures shall illustrate the nature of the SE Asian piracy hotspot and show how the criminal businesses adjusted their operational areas in response to changes in the market. This phenomenon will be analyzed in-depth by the application of the macro- and microeconomic tools PESTLE and CANVAS. On average, most incidents from 2006 until 2016 occurred off the coast of Indonesia (67%) and Malaysia (15%), as shown in figure 9.

Figure 9: Host Nations of Piracy in SE Asia. Source: Data from ICC IMB.

In the last decade, the peak of reported piracy incidents in SE Asia was reached in 2015. As shown on the Map in figure 10, most of the 147 reported incidents occurred off the coast of Indonesia, in the Strait of Malacca. In 2016, the number of reported incidents dropped to 68, marking the decade’s low. However, most of these incidents still occurred off the coast from Indonesia, as shown in figure 11.

This development is ascribed to a the improving economic trend, naturally increasing the opportunity costs for human resources who are engaged in criminal businesses. Furthermore, a slightly stronger approach in countering piracy increased the risk of authentic prosecution. These developments will be examined in the following chapters.
Figure 10: Reported Piracy Incidents in SE Asia in 2015. Source: Data from ICC IMB in an application with Google Maps.

Figure 11: Reported Piracy incidents in SE Asia in 2016. Source: Data from ICC IMB in an application with Google Maps.
5.1.1 PESTLE

5.1.1.1 Political

The Political factor examines the willingness, the capability, and the corresponding engagement of countering piracy in the concerned region. Therefore, the political factor affects the function of the Place Manager (PM), derived from the Routine Activity Theory, discussed in the former chapters. The executive forces are represented by the corresponding navy, police, and coastguards. If the government is cooperating with international authorities, a deployment of foreign military forces and an engagement of NGO’s, offering development aid, can be triggered.

Concerning the stability-factors of the PM in the piracy hotspot of SE-Asia, Indonesia is taken as the representing country for the whole region, since most piracy incidents have been reported off the Indonesian coasts. Referring to the Fragile State Index (FSI)\(^\text{33}\), Indonesia has improved its overall stability consistently during the last decade, as shown in figure 12.

![Overall Trend, 2006-2017: Indonesia](image)


Especially the factor “Security Apparatus” has been improved over the last years, as shown in figure 13. From this follows that the effort of counter-piracy programs by the PM might improve over the next years. Therefore, the risk of effective prosecution

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\(^{33}\) The Failed State Index is a conflict assessment tool measuring the trends in pressures within individual states. The index ranks all countries concerning their overall state fragility and was developed by the Fund for Peace.
against piracy will rise and possibly aggravate the piracy businesses. However, Indonesia is still a country with deficits in most stability-factors.

To understand the evolvement of piracy in the SE Asian region, some crucial historical developments have to be presented. Even though maritime piracy is deeply rooted in the geography and history of SE Asia, the concerned governments in the region had not seen a necessity to take proper counter-measures against pirates until the late 1990s. Due to the 1997 financial crisis many people living in coastal areas in Indonesia and Malaysia had been attracted to piracy to supplement their incomes. At the same time the political instability of Indonesia weakened the law enforcement, as the federal budget decreased. This lowered the inhibition level of potential criminal workforce as the risk of being prosecuted after an illegal activity declined. The establishment of the International Maritime Bureau Piracy Reporting Center in Kuala Lumpur in 1992 started recording the reporting of piracy incidents and made it possible to quantify the scale of the problem. Finally, international attention has been raised, after a number of high profile attacks became known to the public. This triggered political incentives to counter piracy on a regional and an international level. However, most of these high-profile attacks were conducted by
political extremists\textsuperscript{34} for symbolic reasons rather than by pirates, who aim for monetary profits only. After the Indonesian government succeeded in negotiating a truce with these extremists in 2005, hijackings for ransom disappeared, but piracy for cargo theft increased from there (The Global Initiative against Transnational Organized Crime 2016, 1). Japan raised the pressure on Malaysia and Indonesia to guard and control the Strait of Malacca in a joint approach, as Japan’s economy was highly depended on a safe passage through the Strait. However, Malaysia and Indonesia resented the international criticism and blocked any substantial progress and did not join the “Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia” (ReCAAP)\textsuperscript{35}, which was set up in 2001 (The Global Initiative against Transnational Organized Crime 2016, 7). Finally, in 2004, Malaysia, Singapore and Indonesia established the MALSINDO initiative to combat piracy in a joint naval patrol mission. Nevertheless, the effectiveness of the mission was limited due to a lack of expedited consent agreements, which would have allowed Malaysia or Indonesia to conduct a hot pursuit into each other’s territorial waters. The patrols intensified from 2012 on and the Strait of Malacca had been declared a War Risk Zone, which lasted until 2016. In 2016, Malaysia, Singapore and Indonesia still have not resolved the pending hot-pursuit issue, as well as information sharing about the cross-border pirate’s networks, and thereby still limit the effectiveness of their joint patrols. However, it can be expected that these issues will be cleared in the future, similar to the development in East Africa, where Interpol urged the countries to maintain intelligence on piracy and its criminal networks, to facilitate more efficient information sharing (The Global Initiative against Transnational Organized Crime 2016, 2). At the annual ReCAAP conference in 2016, the organization announced its willingness to transform into a “Center of Excellence”, implementing new rules for a more effective cooperation between the members (ReCAAP 2016, 6). The Indonesian government, as a PM, has enormous problems with corruption within its police and navy, which directly facilitates opportunities for organized crime. Furthermore, the bribing of judges and public prosecutors is a

\textsuperscript{34} The Free Aceh Movement a separatist group, which was seeking independence for the Aceh region of Sumatra from Indonesia, claimed to be responsible for several hijackings, which were primarily political kidnappings cases rather than hijackings for product theft.

\textsuperscript{35} The initial ReCAAP members were Bangladesh, Brunei, Cambodia, China, India, Japan, South Korea, Laos, Myanmar, the Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. Subsequently, Denmark, the Netherlands, Norway, the UK and the USA also joined (http://www.recaap.org/AboutReCAAPISC.aspx).
common phenomenon (The Global Initiative against Transnational Organized Crime 2016, 3). This again lowers the risk for pirates to get prosecuted and shows that the effectiveness of the PM in SE Asia is not a powerful threat to the illegal business. The governments of Indonesia, Malaysia, and Singapore are lacking an efficient form of cooperation to fight piracy effectively and from this follows that the governments can be seen as weak authorities, concerning the field of crime prevention. International military forces are not allowed to support in the fight against maritime crime. This matches a quantitative analysis on piracy by Hastings. The study with a focus on political institutions and state status has shown, that the geographies of state failure and state weakness influence piracy (Hastings 2009). It is argued that state failure is associated with less sophisticated attacks, while state weakness supports more sophisticated attacks seen in SE Asia, since weaker states provide the facilities necessary for pirating. Pirates in the vicinity of failed states usually commit more time-intensive crimes, such as taking hostages, because of lack of legal enforcement and markets in which economically valuable booty could be liquidated. In contrast, pirates operating in weak states tend to target goods, cargo, and vessels, that can be seized and sold in black markets that are sufficiently deep, liquid and anonymous (Ratisukpimol 2011, 66).

In summary, it can be stated that the willingness of the potentially most crucial Place Manager in SE Asia, Indonesia, is moderate. The ability of the regional navies to counter piracy is however limited, as the necessary cooperation between the affected nations in the region is not given. From this follows that also the support by international navies is highly limited in its engagement.

### Political Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Counter-Piracy</td>
<td>Moderate</td>
<td>PM (+)</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Counter-Piracy</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: SE Asia (Indonesia), Political Factor Evaluation.
5.1.1.2 Economic

The economic factor studies in how far the regional changes in trade cycles and commodities affect the piracy businesses. Furthermore, the access to potential customers through black markets or the establishment of negotiation channels is analyzed. Additionally, the economic factor, from a pirate’s perspective, examines the competitors, namely other piracy syndicates operating in the region. Finally, the economic trend of the region indicates, if the opportunity costs for potential pirates are increasing or decreasing, affecting the availability of human resources for piracy businesses.

Since the opening of the Suez Canal in the nineteenth century, trade between Europe and Asia became more feasible, and a highway for international shipping developed from there. Nowadays, about 220 vessels\(^{36}\), trading internationally, transit the Malacca Strait daily (Hand 2016). Most ships transiting the Strait are Containerships and VLCCs (Very Large Crude Carriers), which are relatively seldom attacked by pirates, as their high freeboard is difficult to overcome. However, the pirates are offered a massive pool of different vessels and cargos to target. Pirates in SE Asia adapted their business models to the circles and changes of the economies in the region. In the 1990s, the piracy business was demand driven, by Chinese buyers who wanted to purchase goods at below market prices in the black market, supplied by pirates. In contrast, in the 2000s, piracy was supply driven, due to the rise in the production of palm oil in the region, corresponding in the shift of the pirate’s business models from the theft of mixed cargo to the hunt for pure oil. As the crude palm oil (CPO) production continued to grow, from about 20 million tons per year of combined Malaysian and Indonesian production in 2001 to 30 million in 2006, reaching 40 million in 2011, the pirate syndicates shifted their focus to the theft of CPO by hijacking barges and tankers along the Malaysian and Indonesian coastlines (The Global Initiative against Transnational Organized Crime 2016, 1). This business model was highly profitable until 2012 when prices for Marine Gas Oil (MGO)\(^{37}\) suddenly were about 10-20\% higher than those for CPO, as shown in figure 14.

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\(^{36}\) In 2015 on average 222 vessels over 300 gross ton transited the Strait per day, compared to 217 per day in the previous year (Seatrade Maritime News 2016).

\(^{37}\) Marine Gas Oil is a product refined from petroleum, that is typically used as fuel for diesel engines in ships and cars in the SE Asian markets.
Since MGO is transported and stored in the same manner as CPO, the professional piracy businesses responded to the price signals by diversifying their targets. In 2012 about half of the reported hijackings were for MGO, increasing to 90% in 2013, two-thirds in 2013 and about 80% in 2015 (The Global Initiative against Transnational Organized Crime 2016, 1-2).

The pirate’s tactics and hijacking maneuvers were identical to those for the previous hunt of CPO. Therefore, no significant changes had to be implemented in the process of attacking targets. However, the product ends in different markets with different buyers, corresponding to the need for an expansion of the pirate’s criminal networks. MGO can be sold directly to smaller vessels, such as fishing boats or tugs, once it was hijacked and pumped into a phantom tanker. Another method is to transport the oil to specialized traders who carry the cargo to tank farms in Thailand, Vietnam, and Indonesia, where it is blended with legitimate products and sold to the international market from there. However, the theft of MGO comes with a higher risk of prosecution, as it is usually owned by sophisticated companies trading internationally, who do report the incidents to reporting centers, triggering prosecution by regional as well as international anti-piracy organizations. Consequently, this type of theft is considered to be more “high profile,” while local CPO traders often not report incidents due to the fear of corrupt officials, who may cooperate with the piracy syndicates. Since the second half of 2015, prices for MGO

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38 Index Mundi (http://www.indexmundi.com/commodities/?commodity=palm-oil&months=300) & Platts (www.platts.com)

39 Since attacked petroleum tankers tend to report piracy incidents, in contrast to CPO barges, the numbers of incidents in official reports increased, even though, probably the same number of attacks occurred in the periods before, without being reported.
fell and hijackings for CPO are again marginally more attractive than the hunt for MGO (The Global Initiative against Transnational Organized Crime 2016, 2). The Economic factor also considers the field of competition between the individual piracy syndicates. At the previous peak of piracy in SE Asia in the 1990s about 18 piracy syndicates had been identified. Since then the field of different competitors, each running their own business, transformed into a professional network. Subsequently, their structure became less hierarchical, and a diversified field of specialists emerged, enabling the piracy business to become more efficient (The Global Initiative against Transnational Organized Crime 2016, 1). From this can be inferred that the different syndicates became more dependent on one another as they require cooperation between the various specialists to execute the whole process of a piracy operation. Therefore, this form of cooperation binds the individual businesses together and builds trust among them. This process lowers the risk that competitors try to rob each other’s booty or attempt to manipulate the rival’s operations.

![Economic Indicators](chart.png)


Concerning the overall economy of SE Asia (Indonesia), figure 15 shows that the economic indicators Economic Decline, Economic Inequality, Human Flight and Brain
Drain, and External Intervention, analyzed in the FSI, have been improving over the last decade. From this follows that the opportunity cost for potential piracy workforce is rising, since the supply of legal jobs will increase with an overall improving economy. This development may lead to a decline in human resources for the piracy businesses.

In summary, it can be stated that the infrastructure for cargo-theft operations in the region of SE Asia is given. Furthermore, pirates have access to (black-) markets to sell their stolen products. Even though there are many different piracy companies in the region, they have developed a widespread network of shared specialists and are therefore not hostile to each other. However, due to an improving economic trend in the region, opportunity costs for potential pirates are increasing and thereby decreasing the availability of human resources for engagement in illegal activities.

### Economic Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Black Markets</td>
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<td>Potential Buyers (+)</td>
</tr>
<tr>
<td>Economic Trend</td>
<td>Improving</td>
<td>Opportunity Cost (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic Dislocation (-)</td>
</tr>
</tbody>
</table>

Table 2: SE Asia (Indonesia), Economic Factor Evaluation.

5.1.1.3 Social

The Social factor examines the public mindset towards piracy in the region. If this criminal business is widely accepted as a legitimate alternative to regular employment, due to economic dislocation and a corresponding shortage of jobs, professional piracy can be established rather untroubled in a region. Furthermore, individuals face lower moral barriers in their rational decision to become a pirate, naturally affecting the available pool of human resources for a piracy company. Finally, the social factor shows how easily pirates may establish networks of insiders, informants, and corrupt officials, who are necessary for the operational success and a further business expansion.

For some communities in the region, maritime piracy has been a traditional, lucrative and prestigious way of life since generations (The Global Initiative against
Transnational Organized Crime 2016). Historically, since the nineteenth century, several colonial governments in SE Asia, especially the Dutch who ruled Indonesia, were confronted with piracy. There were specialized pirate communities based in the Riau and Lingga islands, located to the south of Singapore, and in the Sulu archipelago to the Northeast of Borneo. The pirates, often supported by their communities in manning the vessels with local people and by financing the operations, focused their attacks predominantly on native or Chinese traders (The Global Initiative against Transnational Organized Crime 2016, 5). In the twentieth and twenty-first centuries, the pirate syndicates relocated their bases and adjusted their objectives to different commodities as the economies of the region shifted their focus, but their mode of operation and the support by local communities remained relatively consistent (The Global Initiative against Transnational Organized Crime 2016, 6). The communities offer support in logistics and help to recruit new human resources. Furthermore, corrupt professional mariners and masters may serve as insiders and informants in the local shipping industry, identifying targets for the pirates. Due to the involvement of local communities and corrupt officials in the piracy business, victims are often afraid to be harmed if they report the incidents. Therefore, CPO barge hijackings are expected to be highly under-reported. Consequently, underreporting lowers the risk for the piracy businesses of being prosecuted.

In summary, it can be stated that the profession of piracy is widely accepted in the public of SE Asia. Due to this acceptance, piracy companies have a constant supply of informants, insiders, human resources and support from local communities. Finally, in the region, especially in Indonesia, corruption is widely spread. From this follows that the pirates can operate rather trouble-free.

Social Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Acceptance</td>
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<td></td>
<td></td>
<td>Corruption (+)</td>
</tr>
<tr>
<td>Corruption</td>
<td>High</td>
<td>Weak Authorities (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prospect of Operational Success (+)</td>
</tr>
</tbody>
</table>

Table 3: SE Asia (Indonesia), Social Factor Evaluation.
5.1.1.4 Technological

The Technological factor describes the availability and use of professional equipment by the piracy businesses bearing relation to the material used by the ship’s crews and PMSCs who are defending the target vessel, serving in the role of the Guardian, derived from the Routine Activity Theory. The defending crew may use professional or improvised devices to prepare their vessels for counter-measures against piracy, while the pirates may use automatic weapons, nautical equipment, and specialized devices to accomplish their missions. If the equipment used by the attacking pirates is more sophisticated than the defending devices of the target vessel, the chances of an operational success increase drastically.

In SE Asia, piracy businesses typically hunt for smaller vessels, which are only trading locally. The operators of these small to medium-sized CPO barges are usually not financially strong enough to be able to invest in highly trained security forces like those used by bigger container vessels or oil carriers. The cheaper alternative is the hiring of local security forces, which are offering their service in the region. However, these local forces are often relatively easy to bribe or to overpower by the pirates, due to the high level of corruption (The Global Initiative against Transnational Organized Crime 2016, 10).

The pirates, on the other hand, have access to black markets, which are offering automatic weapons, professional navigational equipment like radar technology to locate their targets, as well as communication devices to manage an attack with multiple attacking boats involved. Furthermore, the pirates equip their attacking-boats with a set of additional powerful engines, to be up to three times faster than their victim. Since most of the boats used by pirates are wooden, they are hard to spot on radar, which gives them a kind of “stealth-technology” advantage (The Global Initiative against Transnational Organized Crime 2016, 17). However, most pirates in SE Asia carry knives, machetes or short pipes only, as the security measures taken by their targets share a low technological standard.

In summary, it can be stated that the availability and use of professional equipment by pirates in SE Asia is slightly superior in contrast to the material used on the defending vessels. Notably, due to the high level of corruption, the loyalty and reliability of local PMSCs are questionable.

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40 According to reports, pirates in SE Asia have access to weapons ranging from knives to rocket launchers, AK47 and M16 rifles (Virtual Information Centre 2005).
Technological Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophistication of Piracy Equipment</td>
<td>High</td>
<td>Prospect of Operational Success (+)</td>
</tr>
</tbody>
</table>

Table 4: SE Asia (Indonesia), Technological Factor Evaluation.

5.1.1.5 Legal

The Legal factor studies the authenticity of the territorial jurisdiction, which forms the framework for the regional executive forces. The perception of this authenticity influences the willingness of piracy victims to report an incident or to conceal it. Consequently, the perception of a weak jurisdiction leads to a high level of underreporting, which in turn weakens the perceived impact of piracy.

Most incidents of piracy in SE Asia occur in the territorial waters of Indonesia, Malaysia, and Singapore. Each state has its sovereign legal system and is responsible for proper jurisdiction in its territorial waters. From this follows that only national security forces are legally bound and allowed to fight pirates operating in the nation’s area of authority. Coastguards and navies from neighboring governments as well as those from international coalitions engaged in anti-piracy missions are thereby not allowed to interfere as long as the responsible authority does not give official permission to do so. Outside the territorial waters also international forces are allowed to take proper actions against piracy due to international law.

However, in SE Asia pirates usually attack their targets in the boundaries of the territorial waters and thereby only have to deal with national security forces, as long as the international forces lack an official permission to support the local government by entering its territorial waters. Especially in Indonesia, corruption in the judicial process is a well-known problem. If the convicted suspects do not give up the names of the criminal network, as it is stated in the criminal governance, a fee will be paid by the piracy business to the police, judge or public prosecutor to ensure that the suspects serve no more than ten percent of their sentencing (The Global Initiative against Transnational Organized Crime 2016, 13).
From this follows that pirates in SE Asia are relatively safe against legal prosecution as long as they stick to their developed criminal governance and adjust their tactics to the hindering legal situation of the involved place managers and guardians. In summary, it can be stated that the overall jurisdiction in the region is not effective, due to the different national sensitiveness of the neighboring countries in the region of SE Asia. Furthermore, due to the high level of corruption, the willingness to report piracy incidents is low.

Legal Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticity of jurisdiction</td>
<td>Low</td>
<td>Underreporting (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Acceptance (+)</td>
</tr>
<tr>
<td>Underreporting of incidents</td>
<td>High</td>
<td>Impact of Piracy (-)</td>
</tr>
</tbody>
</table>

Table 5: SE Asia (Indonesia), Legal Factor Evaluation.

5.1.1.6 Environmental

The Environmental factor enquires the geological nature of the region as well as the established infrastructure. The factor identifies the availability of natural hideouts due to the diversity of coastal strips and islands or due to heavy vegetation, offering cover for pirate’s bases at the shoreline in the vicinity of major shipping routes. Furthermore, meteorological events like the monsoon season or the risk of a tsunami are identified, as they may affect the piracy business.

The narrow, 800 km long Strait of Malacca and Singapore serves as one of the main global shipping highways. Each year about 120,000 ships, including bulk carriers, container vessels, ferries, tankers, very large crude carriers, barges under tow and fishing vessels, pass the Strait slowly through the congested waters (The Global Initiative against Transnational Organized Crime 2016, 1). A vast number of islands, covered with dense mangroves, serve as hiding places and bases from which the pirates plan, prepare, and mount their attacks. The width of the Malacca Strait varies from 10 nm in the south to 125 nm in the north, providing an area of operations that is so narrow, that small attacking boats are entirely sufficient for fast attacks and easy to hide at the same time. The short distances also reduce the time during which the
pirates expose themselves and make it difficult for counter-piracy measures to respond quickly enough.

Concerning the meteorological events in SE Asia, the two central monsoon regimes are the northeast monsoon from November to March, and the southwest monsoon from late May to September. Furthermore, October is the transition month from the summer monsoon (southwest) to the winter monsoon (northeast). In Malaysia, Indonesia, and other SE Asian countries, increasing intensities of rainfall during the monsoons are not only a source of a major flood but also a triggering cause of major landslide event (Loo 2015). The monsoon may interrupt the piracy operations during its duration. Another meteorological event that may interrupt the piracy businesses is a tsunami, triggered by an earthquake. In 2004 an earthquake triggered a massive tsunami in the Indian Ocean, which hit many of the SE Asian regions. Especially Indonesia had been hit the hardest. Since Indonesia is a major host nation for pirates, the criminal businesses in this region have to be prepared for future tsunamis, as the hideouts of pirates are naturally located in the vicinity of the coast and thereby in the direct range of the impact of a tsunami.

In summary, it can be stated that the geological nature of the region is favorable to the pirates, as natural hideouts are available. However, the meteorological events in the region restrict the piracy businesses to limited timeframes of operation.

Environmental Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable Natural Hideouts</td>
<td>High</td>
<td>Prospect of Operational Success (+)</td>
</tr>
<tr>
<td>Meteorological Events</td>
<td>High</td>
<td>Prospect of Operational Success (-)</td>
</tr>
</tbody>
</table>

Table 6: SE Asia (Indonesia), Environmental Factor Evaluation.

5.1.2 Canvas

5.1.2.1 Key Partners

In SE Asia, a professional piracy business is run by many of players. Since 2012 the structure of maritime criminal syndicates has evolved to a network of specialists. Usually, the CEO of the enterprise seeks investors for a new operation and employs an informant who identifies a suitable target with the help of corrupt insiders. Then he
identifies a customer who is willing to buy the stolen products. After these steps, the CEO employs a boarding team leader who in turn recruits, trains and leads the pirates. A hired forger creates fake documents for the stolen products, and finally the CEO charters the attacking boats, tugs, and phantom tankers if necessary (The Global Initiative against Transnational Organized Crime 2016, 11-15). From this follows that SE Asian piracy businesses typically run their operations on customer’s order.

The Chief Executive Officer (CEO)

The CEO is the manager of the piracy business. He coordinates the different players who are involved in the business processes. While the boarding team members and other specialists usually come from the Indonesian islands, the CEO may live ashore in a metropolitan area in Indonesia, Singapore, Malaysia or Thailand and thereby far away from the actual attack. Often the CEO covers the costs for the chartering of the necessary vessels to share the risk with the investors, who may cover most of the financial requirements (The Global Initiative against Transnational Organized Crime 2016, 12).

The Investors

If the CEO is not capable or willing to fund the whole operation on his own, he seeks for external investors. These provide the upfront financing for the operation, including payments for insider’s information, charges for the forger and bribe money for corrupt police and navy personnel. If there exists a long-term relationship between the CEO and the investors, they may even provide a certain amount of money for the potential aftermath of a failed operation, where it may be necessary to bribe the judge or public prosecutor, to secure the early release of the pirates.

The Informants

Informants represent the link between the CEO of the piracy business, the boarding-team leaders, and the buyers. They work in their daily routine in a legal business dealing with shipping companies and other players in the official markets and offer their know-how and service on the black-markets. Due to their network and insight in the trade market, they identify suitable targets and sell this
information to the CEO (The Global Initiative against Transnational Organized Crime 2016, 12).

The Boarding Team Leader
The leader of the boarding team recruits the actual pirates who will perform the attack. He recruits them through former working relationships, friendships or family. The leader is usually an experienced pirate with a history of successful operations. He has his individual network of human resources, informants and direct communication with the forgers and insiders (The Global Initiative against Transnational Organized Crime 2016, 13).

The Boarding Team
On average, about nine pirates form a boarding-team. Typically, boarding team members are former seafarers themselves and thereby familiar with their targets. They usually do not have any further specialized training and are thereby no specialists in the use of weapons or tactics. The boarding team is only paid when an operation is accomplished.

The Assisting Team
The Assisting Team consists of legal and professional seafarers who are for hire, to conduct a Ship-To-Ship transfer from the hijacked vessel to a phantom tanker. Furthermore, they assist in the planning process of the operations. These men are not armed and do not support the attacking of the target-vessel.

The Forgers
Forgers are professional criminals who can ensure that the stolen products are certified and signed off as legitimate. They falsify invoices, bills of lading, certificates of origin and further paperwork that is required to be changed. If next to the product also the hijacked vessel shall be sold forgers can even forge the vessel’s documents, including registration and ownership papers (The Global Initiative against Transnational Organized Crime 2016, 13).
The Insiders
Insiders provide valuable information about the target and may even support the operation actively. These may involve seafarers like the captain, chief engineer or other members of the ship’s crew, who are onboard the target-vessel and assist the pirates when they enter the vessel. Also, shore-side insiders like bunkering agents, bunker barge crew, and cargo loading personnel may pass valuable information to the pirates.

The Potential Customers
The pirate’s customers are usually buyers who know about the illegal origin of the products. Typically, they pay about 60-65 percent of the open market value of the cargo, as they get a discount as compensation for laundering the product (The Global Initiative against Transnational Organized Crime 2016, 14).

5.1.2.2 Key Activities
The operational business of a piracy company splits into the following key activities (The Global Initiative against Transnational Organized Crime 2016, 13-15)

Identification
The first step in a piracy operation is the identification of a suitable target. This is a task for an informant, an insider or the boarding-team leader. They gather information through their criminal network. The collected information is used to select a suitable target that matches certain specifications concerning the size, design, and type of the ship, the number of crew, as well as onboard human and electronic defense and protection capabilities. Finally, the potential overall financial value of the operation influences the decision, which vessel should be targeted.

Planning
Once a target is found and introduced to the CEO, a meeting will be arranged between the informant and the buyer. During this meeting, a price for the expected booty is negotiated, and a location for the exchange of the cargo is agreed. Once the financial issues are cleared, a forger is contracted and insiders start to track and
monitor the target-vessel. The boarding-team leader starts to recruit his personnel and moves to a location near to where the hijacking will take place.

Financing
After these steps or simultaneously investors are invited to finance the operation by contributing the initial base sum to cover forgery costs, payments for insider information and bribe money for corrupt naval and police forces as well as for port authorities or cargo-loading officers. Also, a sum for the potential aftermath of a failed operation will be provided.

Execution
Once the target is in sight, the boarding team boards the vessel in a surprise attack. They take the crew hostage and sail the ship by the boarding team to a rendezvous point, where a phantom tanker is waiting to steal the cargo. Usually, the boarded vessel and hijacked crew are released unharmed after a specific amount of the cargo is transferred. On average, the entire operation lasts between 11 and 48 hours (The Global Initiative against Transnational Organized Crime 2016, 11).

Modus Operandi
Since the pirates are often former seamen themselves, they have profound skills in seamanship and are versed in handling the victim-vessel. Even though they carry weapons during an attack, they often lack experience in using them. From this follows that pirates in SE Asia are not known for a violent modus operandi.

Profit Appropriation
During the actual hijacking, the informant, the CEO and the buyer meet in a hotel to await the message of the boarding-team leader if the operation has been successful. Once the message has been received, the buyer pays the CEO, who in turn pays his employees and the investor.

Mitigation
If the operation fails the budgeted mitigation-money, usually provided by the investor, will be used to bribe judges and public prosecutors, to secure the early release of the
arrested pirates. This method ensures that the captured pirates will not reveal the other players involved in the business, and is part of the criminal governance.

5.1.2.3 Key Resources

The key activities rely on certain key resources. The availability and quality of these resources contribute to the outcome of the piracy processes.

Criminal Network

A crucial key resource for a professional piracy business is its criminal network. Due to the many players required for a successful piracy operation, the CEO of a criminal business must have access to the various specialists in the region. These provide the necessary know-how and skill-sets for the proper planning and performance of an operation.

Human Resources

While specialists like informants, forgers, and investors, who share a criminal second profession, can be hired externally for each operation, the CEO of a piracy company usually focuses on recruiting a boarding team of skilled and loyal pirates, who are willing to do repeatable business with him. Due to the widespread acceptance of piracy in the culture of SE Asia, the CEO has a significant pool of human resources from where he chooses his employees.

Finance

A CEO of a piracy business usually attracts investors in his network to share the financial risk of an operation. While the CEO is covering the costs for the rent of attacking vessels, as well as mother ships and phantom tankers, the investor secures the required amount of money to pay for the boarding team, the forgers, the informants, the technical equipment and he provides the budgeted bribe-money for corrupt police and military forces.

Equipment (Nautical Equipment, Weapons)

Nautical Equipment

The pirates need speedboats to attack their targets. These boats must be faster than the target-vessel and should be faster than the boats and ships used by counter-piracy players like the local coastguards, to be able to escape the scene if necessary. If the pirates hunt for a target that is operating in the distance larger than fifty nautical
miles from the coastline, a mothership is required (The Global Initiative against Transnational Organized Crime 2016, 14).

Motherships are much bigger than the speedboats and offer shelter against wind and weather, additional space for technical equipment like radar and AIS-devices as well as cabins for the boarding team to rest in. Phantom Tankers are used to transship stolen cargo in sea to avoid berthing in a harbor, what would cause a delay in the operation and could attract unwanted attention. The phantom tanker will be guided to a rendezvous point to meet with the hijacked vessel, once it is under control by the boarding team. The vessels are tied up alongside, and the cargo is pumped from the hijacked vessel to the phantom tanker during a ship-to-ship transfer using hoses. These tankers are generally in the range of 2,500-7,000 DWT and are crewed by about ten persons (The Global Initiative against Transnational Organized Crime 2016, 14).

Weapons

The pirates mostly use small arms like guns and knives. More advanced weapons like machine-guns or RPG’s are seldom seen since pirates do not expect heavy resistance from the targeted crew and are usually not trained and experienced in the use of advanced weapons.

Timeframe

Even though law-enforcement is weak in the region, the pirates work fast, to keep the risk of emerging counter-piracy players low. Usually, the boarded vessel and hijacked crew are released unharmed after a specific amount of the cargo is transferred. On average, the entire operation lasts between 11 and 48 hours and is usually conducted by night (The Global Initiative against Transnational Organized Crime 2016, 11).

5.1.2.4 Value Proposition

The value of the stolen cargo depends on its type, the amount and the current market price. In SE Asia, pirates usually offer the stolen cargo with a discount of about 35-40 percent of the official price on the (black-) market. The value for customers of piracy products is, therefore, the cheap purchase of cargo. When the forgers of the piracy company could falsify the concerning papers successfully, the buyer does not even have to hide the illegal purchase or may even not be aware of its illegal origin.
5.1.2.5 Customer Relationships

In an ideal piracy operation, the informant already acquired a buyer for the stolen cargo in the planning phase. The buyer then usually knows about the illegal origin of the product. Since piracy is a repeatable business, it can be expected, that close and long-term relationships with individual buyers have been established over time.

If no buyer had been acquired during the planning phase of an operation, the pirates have to seek for interested companies or individual purchasers on the (black-) markets. Depending on the successful work of the forgers, the new customers may or may not know about the illegal origin of the product. Due to the attractive discount, it can be expected that new customers are willing to start a long-term relationship with the seller, to repeat such a deal in the future. Since piracy is widely accepted in the SE Asian society, especially in Indonesia, and due to the fact, that corruption is common in many areas, the obviously illegal attribute of the piracy product probably does not deter many customers from such a deal.

5.1.2.6 Channels

Having recourse to their criminal network, the pirates may use multiple channels, to sell their stolen products. In an ideal operation, the pirates have identified willing buyers in their network during the planning phase. These contacts can be seen as belonging to the black market.

If the pirates do not have a buyer from the beginning of an operation, they can search for a buyer on the black market afterward or distribute the stolen product directly in smaller portions to local buyers. The direct distribution usually aims for smaller vessels, operating in the area, with a direct need or interest in the product. These vessels are fishing-boats, tugs, and smaller trading vessels.

Another channel is the distribution through traders who transport the cargo to tank farms in Thailand, Vietnam, and Indonesia, where it is blended with legitimate products and sold to the international market from there.

5.1.2.7 Customer Segments

Typically, customers are aware of the illegal origin of the products and place an order to the piracy businesses. The customers are believed to have established long-term relationships with the criminal companies, and trade on the prominent regional or international markets. However, smaller piracy companies with restricted access to the major black markets or the broader criminal network also hunt for cargo professionally, distributing the stolen products directly to smaller business clients in
the area. These are often local traders, who are blending the cargo with legal products in close facilities.

5.1.2.8 Cost Structure

Direct Costs
A typical direct-costs structure of SE Asian piracy operations could be as follows:

Hijacking of a vessel loaded with 4.000 ton CPO

<table>
<thead>
<tr>
<th>Average Costs in USD ($)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upfront costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td></td>
</tr>
<tr>
<td><em>Forger</em></td>
<td>Charges 5 SGD per ton (1 SGD = 1,4$)</td>
</tr>
<tr>
<td>14.300$</td>
<td></td>
</tr>
<tr>
<td><em>Insider/Informants</em></td>
<td>Average Payment of 75.000 SGD (for one or two informants)</td>
</tr>
<tr>
<td>53.600$</td>
<td></td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td></td>
</tr>
<tr>
<td><em>Speedboats</em></td>
<td>Average use of two speedboats. One speedboat can host 5 pirates and costs about 15.000 $</td>
</tr>
<tr>
<td>30.000$</td>
<td></td>
</tr>
<tr>
<td><strong>Additional costs</strong></td>
<td></td>
</tr>
<tr>
<td><em>Tanker Rental</em></td>
<td>Average Payment for Ship-to-Ship transfer (325.000 SGD)</td>
</tr>
<tr>
<td>232.100$</td>
<td></td>
</tr>
<tr>
<td><em>Bribe Money</em></td>
<td>Average Payments to Navy and Coast-Guards (20.000 SGD)</td>
</tr>
<tr>
<td>14.300$</td>
<td></td>
</tr>
<tr>
<td><strong>Total Upfront Costs</strong></td>
<td></td>
</tr>
<tr>
<td>344.300$</td>
<td></td>
</tr>
</tbody>
</table>

**Costs if Hijacking succeeds**

| **Team Leader** | 89.300$ | Average Payment 125.000 SGD |
| **Pirates**     | 237.900$| Average Payment 37.000 SGD per Pirate. Average Number of involved Pirates: 9 Pirates (excluding Team Leader) |
Total Costs if Hijack succeeds

<table>
<thead>
<tr>
<th>Total Costs if Hijack succeeds</th>
<th>$671.500</th>
<th>Share for CEO: 262.100$ (40%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Share for Investors: 409.400$ (60%)</td>
</tr>
</tbody>
</table>

Costs of Hijack fails

<table>
<thead>
<tr>
<th>Bribes to Prosecutors</th>
<th>$14.000</th>
<th>1.400 USD per pirate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Leader</td>
<td>0$</td>
<td></td>
</tr>
<tr>
<td>Pirates</td>
<td>0$</td>
<td></td>
</tr>
</tbody>
</table>

Total Costs if Hijack fails

<table>
<thead>
<tr>
<th>Total Costs if Hijack fails</th>
<th>$358.300</th>
<th>Share for CEO: 262.100$ (73%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Share for Investors: 96.200$ (27%)</td>
</tr>
</tbody>
</table>

Table 7: Average Direct Cost Structure for SE Asia Piracy Operation. Source: Data from The Global Initiative against Transnational Organized Crime 2016; Index Mundi 2017. Reference Exchange Rate is 1 USD = 1.4 SGD.

As shown in table 7, the costs for piracy operations are independent of the current CPO market price. If the hijack fails, the investor loses his whole investment, and the CEO loses the costs for all vessels hired. However, if the hijack fails, the pirates do not get paid, cutting the costs almost in half in contrast to the total costs if a hijack succeeds.

Indirect Costs

Each attack that is reported can be seen as an indirect cost to future piracy operations, as the report may trigger further counter-measures by national or international navies and coast guards. The following increase in security measures raises the pirate’s risk of being caught. If this risk reaches a certain level, piracy operations are no longer feasible. However, due to the wide acceptance of piracy in the SE Asian society, as well due to the widespread corruption, the slope of the increased risk is restrained.

5.1.2.9 Revenue Streams

While the costs for hijacking operations are relatively constant, the overall economics of hijacking for product theft depends on the current market price of the stolen product. Typically, the SE Asian piracy businesses hunt for CPO or MGO, since the internal and external processes, which are necessary for such an operation, are very similar. Therefore, a calculation based on both products would be redundant. Consequently, as an example for a typical operation, the average economics for hijacking is shown in table 8.
Successful hijacking of a vessel loaded with 4.000 ton CPO

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPO Market Price (4000tn)</strong></td>
<td>2.360.000$</td>
</tr>
<tr>
<td></td>
<td>10-year average is 590$ per ton</td>
</tr>
<tr>
<td><strong>Selling Price / Revenue</strong></td>
<td>1.416.000$</td>
</tr>
<tr>
<td></td>
<td>40% Discount</td>
</tr>
<tr>
<td><strong>Costs if Hijack succeeds</strong></td>
<td>671.500$</td>
</tr>
<tr>
<td><strong>Profit if Hijack succeeds</strong></td>
<td>744.500$</td>
</tr>
<tr>
<td></td>
<td>Share for CEO: 409.475$ (55%)</td>
</tr>
<tr>
<td></td>
<td>Share for Investors: 335.025$ (45%)</td>
</tr>
<tr>
<td><strong>ROI</strong></td>
<td>CEO: 152,45 %</td>
</tr>
<tr>
<td></td>
<td>Investors: 81,83 %</td>
</tr>
<tr>
<td><strong>Success Rate</strong></td>
<td>78,7%</td>
</tr>
</tbody>
</table>

Table 8: Average Economics of a successful SE Asian Piracy Operation. Source: Data from The Global Initiative against Transnational Organized Crime 2016; Index Mundi 2017. It is assumed by the author, that the CEO receives a share of 55% since his accumulated risk is slightly higher than the risk of the investors.

A CPO market price higher than 400 USD per ton makes a piracy operation feasible. From this follows that a higher market price than 400 USD triggers incentives for piracy. An increasing market price for CPO offers much more attractive revenues in contrast to the only marginal rising costs. Therefore, a doubling of the CPO market price more than doubles the potential profit.

If a hijack succeeds, the stolen cargo will be sold to the buyer who had been identified in the planning process of the operation. The CEO shares the profit with the investor and the informant. The profit is usually paid in SGD. Bribe money to police and navy officials in Indonesia are usually calculated in USD but paid either in SGD or Indonesian rupiah (IDR). Payments to the boarding team, the forger, and the
insiders are paid in IDR (The Global Initiative against Transnational Organized Crime 2016, 14). As seen in table 8 the average profit of a successful piracy operation reaches about 744.500 USD.

5.1.2.10 Canvas Business Model

In this chapter, the microeconomic tool CANVAS was applied to the business model of Grand Theft in SE Asia. The outcome of this method is a visual chart, which illustrates the examined elements describing the company’s infrastructure, value proposition, customers, and finances, as shown in figure 16. This template facilitates the deduction of further relevant factors necessary for the cause and effect modeling in the chapter “PECOBUS Model.”

Figure 16: Canvas Business Model of Grand Theft in SE Asia. Source: Visualization by the author using the Canvas Template.
5.2 West-Africa: Armed Robbery

Piracy in West Africa went through an evolution of several phases from 2005 and before until 2012. From 2005 up to 2007 piracy in the Gulf of Guinea can be described as opportunistic sea robbery. During that phase, most attacks took place in ports and anchorages, interspersed with a limited number of robberies in the territorial sea (Kamal-Deen 2015, 100). From 2007 until 2009, pirates in the region improved their tactics by increasing the number of involved pirates per attack. The pirates started to hunt in a pack, with up to thirty or even forty people armed with guns using up to six speedboats for an attack (International Maritime Bureau 2006). By 2009 the activities of the pirates expanded their hunting-area beyond the southern and western coasts of Nigeria. Westerly swarms started targeting vessels off the coast of Benin, while those to the south were attacking ships off Cameroon and the neighboring coast (Kamal-Deen 2015, 100). A further evolution of tactics became manifested in 2009 as the criminals increased their attacks with great violence. Once a high-value target was identified, it was shadowed farther out to sea and at a vulnerable location was attacked violently (International Maritime Bureau 2009). Up to 2010, most piracy attacks had an insurgency background and where thereby politically motivated. From 2010 to 2013 a transition from an insurgency into a full-scale piracy took place, and piracy in West Africa became a standalone professional criminal business with a solely monetary motivation (Kamal-Deen 2015, 100).

The coasts of Nigeria, Benin, and Togo are the most dangerous hotspots in the region. Nigeria alone accounts for about 80 percent of reported incidents and thereby stands out as the epicenter of Gulf of Guinea piracy (United Nations Office on Drugs and Crime 2013). Pirates in West Africa are known for their violent and rigorous modus operandi, which frequently involves the kidnapping, torture, and shooting of crewmen. The increasingly violent methods are believed to be part of a conscious business model, in which violence and intimidation play a significant role (Skuld 2016). However, in this dissertation, West African piracy is defined as “armed robbery” in combination with hijackings of vessels, aiming for quick monetary profits only. Thereby the business of kidnapping crewmembers belongs to the operations of politically motivated rebel groups and terrorists, which are not considered as professional piracy businesses.41

41 To date, there have been no reports of maritime attacks by Boko Haram or Al Qaeda in the Islamic Maghreb (AQIM) (Kamal-Deen 2015, 106). However, the high value of offshore oil and gas installations in the Gulf of Guinea coupled with their vulnerability makes them attractive targets (H. Hansen 2008).
The following figures shall illustrate the nature of the West African hotspot, while the business model of the piracy companies will be analyzed in-depth by the application of the macro- and microeconomic tools PESTLE and CANVAS.

On average, most incidents from 2006 until 2016 occurred in the Niger Delta, as shown in figure 17.

![Figure 17: Host Nations of Piracy in West Africa. Source: DATA from ICC IMB.](image)

In the last decade, the peak of piracy incidents in West Africa had been reached in 2012. As shown on the Map in figure 18, most of the 62 reported incidents occurred in the Gulf of Guinea and the territorial waters of Nigeria. In 2016, 55 incidents have been reported, as shown in figure 19. From this follows that piracy in West Africa is a constant threat, which has apparently not been addressed by the responsible governments.

Consequently, the piracy businesses are believed to have expanded their criminal networks and improved their operations due to the learning-by-doing effect. Furthermore, the companies might have reinvested significant amounts of their profits to execute more hijackings in the future. These assumptions will be analyzed in the following sections.
Figure 18: Piracy incidents in West Africa in 2012. Source: Data from ICC IMB in an application with Google Maps.

Figure 19: Piracy incidents in West Africa in 2016. Data Source from ICC IMB in combination with Google Maps.
5.2.1 PESTLE

5.2.1.1 Political

The Political factor examines the willingness, the capability, and the corresponding engagement of countering piracy in the concerned region. Therefore, the political factor affects the function of the Place Manager (PM), derived from the Routine Activity Theory, discussed in the former chapters. The executive forces are represented by the corresponding navy, police, and coastguards. If the government is cooperating with international authorities, a deployment of foreign military forces and an engagement of NGO’s, offering development aid, can be triggered.

Concerning the stability-factors of the PM in the piracy hotspot of West Africa, Nigeria is taken as the representing country for the region, since most piracy incidents are reported off the Nigerian coast. Referring to the Fragile State Index, in Nigeria, the overall stability has constantly been worsening during the last decade, as shown in figure 20.

![OVERALL TREND, 2006-2017: NIGERIA](image)


In the last decade, the factor “Security Apparatus” worsened between 2013 and 2015, as shown in figure 21. In 2017 the factor is considered to be at the same level, as ten years ago. From this follows that the effort of counter-piracy programs by the PM will probably stay ineffective, as they have been over the last years. Therefore, the risk of effective prosecution against piracy will stay low and probably improve the piracy businesses. The overall trend of Nigeria is alarming and could lead to a further extension of criminal activities in general.
In the Niger Delta, several militant groups threaten the Nigerian government, claiming a participation in the oil-export revenues of the region. The most influential militant groups are “The Movement for the Emancipation of the Niger Delta” (MEND) and the Niger Delta Avengers. The Niger Delta insurgency poses a threat to five critical security interests: the national security of Nigeria, the investment security of oil companies, regional security and stability, global energy security and the security of shipping. These aspects of security are interlinked in many ways. Insurgent activities have an impact on Nigeria’s economic interests and stability, which are key components of its national security. These attacks equally threaten the investment interests of oil companies, as well as global energy security, the security of shipping and regional stability (Kamal-Deen 2015, 99). The Nigerian government focuses on its national security, which became paramount, following incidents of heavy attacks42, making the security of commercial shipping a lesser concern. Due to this focus, Nigeria has had “no political will to combat the problem of piracy” (International Maritime Bureau 2009, 41). The impunity with which piracy is conducted in the Gulf of Guinea is symptomatic of the weakness in policing, surveillance, and response capabilities (Murphy 2010). Especially the navies and coast guards of the concerned

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42 In 2008 MEND executed a successful attack on the floating production, storage and off-loading unit Bonga. The Bonga attack had serious implications for the region of Nigeria and the Gulf of Guinea and marked a peak in a series of threats to energy security in the Gulf of Guinea (Kashubsky 2008).
states in the region are underfunded and thereby limited in their capability (International Institute for Strategic Studies 2012). It has become apparent that the maritime interest and jurisdiction in the Gulf of Guinea are not commensurate with the necessary exercise of responsibility to ensure the security of the territorial waters (Vogel 2011).

Since most attacks that occurred in Nigeria were located in its territorial water or the EEZ, only Nigerian authorities would have been allowed to counter piracy. The maritime cooperation in that area is hindered by the sovereignty concern of Nigeria, which is reluctant to permit foreign security intervention (Khaerany 2016, 219). However, the maritime security cooperation in the Gulf of Guinea is increasing. In 2009, member states of the Economic Community of Central African States (ECCAS) signed a protocol on maritime security, based on a structure that divides the ECCAS grouping zones to enhance joint patrol, monitoring, and law-enforcement.43 The EU launched a project, called “the Critical Maritime Routes in the Gulf of Guinea” (CRIMGO), in 2013, to improve the safety and security off the coast of the concerned states in the region (European Commission, 2013). Several other players are engaging on maritime security in the Gulf of Guinea, as epitomized by the presence of foreign navies (Kamal-Deen 2015, 109).44 Other Western nations (U.S., France, UK) and emerging countries (Brazil, China, India, South Africa), who share an economic interests in the region, are providing financial support and expertise in security measures to assist local authorities and initiatives (International Crisis Group 2012, 2).

### Political Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Counter-Piracy Engagement</strong></td>
<td>Low</td>
<td>PM (+)</td>
</tr>
<tr>
<td><strong>International Counter-Piracy Engagement</strong></td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Table 9: West Africa (Nigeria), Political Factor Evaluation.

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43 The ECCAS protocol grouped the zones as following: Zone A: Angola, Democratic Republic of the Congo; Zone B: Angola, Republic of the Congo, Gabon; Zone D: Cameroon, Equatorial Guinea, Gabon, Sao Tome and Principe.

44 For example, Ghana hosted visits by navies of the following states since 2011: Argentina, Belgium, Brazil, France, Germany, Italy, Netherlands, South Africa, Spain, Turkey, the United Kingdom, and the United States.
5.2.1.2 Economic

The economic factor studies in how far the regional changes in trade cycles and commodities affect the piracy businesses. Furthermore, the access to potential customers through black markets or through the establishment of negotiation channels is analyzed. Additionally, the economic factor, from a pirate’s perspective, examines the competitors, namely other piracy syndicates operating in the region. Finally, the economic trend of the region indicates, if the opportunity costs for potential pirates are increasing or decreasing, affecting the availability of human resources for piracy businesses.

Most of the oil, gas, shipping and fishing industries of West Africa are concentrated along the coasts of the Gulf of Guinea’s states, particularly along the coast of Nigeria. In the southeastern Niger Delta area, onshore and offshore oil companies extract crude oil and natural gas for export purposes. The traffic of tankers transporting oil, liquefied natural gas, and refined petroleum products is heavy. Also, container ships arrive with imported goods to supply the country’s over 170 million inhabitants (International Crisis Group 2012, 6).

The Nigerian government depends on the trade with crude oil for about 70% of its revenue (International Institute of Strategic Studies 2013). Oil theft by pirates and the kidnapping of crewmembers by rebel-groups causes severe disruption to the operations of the multinational oil companies, running a business in the Niger Delta. This threat is thereby directly related to the instability of the region, due to its direct impact on the region’s revenue.

Due to the massive oil and gas trade in Nigeria, the government is receiving so much profit from this business alone, that it is kind of independent from the fiscal revenues of other sectors. From this follows that the accountability of the Nigerian government is rather low regarding the public. This situation also diminishes external options for international sanctions and pressure against the state of Nigeria (Murphy 2013, 89). Since oil has been discovered in the area, disputes between Gulf of Guinea states have multiplied, leading to nations being unable to exercise authority over some areas, which then serve as bases for illegal activities like piracy (International Crisis Group 2012, 4).

It is expected, that the piracy businesses in the region established a sophisticated criminal network of informants and insiders, who profit from the illegal oil trade. Since
the official amnesty to groups of former militants of the Niger Delta in 200945, many of
them probably found a new profession in the oil and gas business. This is expected
because the number of oil trading companies rose from six in 2006 to 140 in 2011
(Nigeria House of Representatives 2012, 75). It is assumed that many of these
companies are used for criminal oil trading after corrupt Nigerian politicians have
been identified in the boards of these companies (Nigeria House of Representatives
2012, 182-4). From this follows that many former pirates have found new
professions, where they can still profit from old connections. As new legal
businessmen with an ex-militant and piracy background, they are ideal partners to
the piracy businesses, as they can forward sensitive information about potential
targets and they can be the potential buyers for the stolen products themselves.
These connections are called “Confraternities,” as these educated businessmen
often have a degree from a university, where they expanded their network to other
influential businessmen in the region (Steffen 2015).
At sea, a thriving cash-based black market has grown that radiates from Nigeria into
the rest of the Gulf of Guinea, due to the chronic poor governance of maritime
economic activity in the region. The large quantities of cash carried on board as well
as all varieties of products that are not traceable lure thieves while the presence of
many potential buyers makes it relatively easy for pirates to sell their stolen goods.
Corruption in the Nigerian maritime administration, navy and law enforcement
agencies undermines their already limited capacity to counter criminal and violent
activities (International Crisis Group 2012, 6).
A certain degree of competition between the different militant groups in the region is
known. However, between the monetarily motivated piracy groups, no conflicts have
yet become apparent. Nevertheless, the heavily armed groups hide their stolen
cargo, vessels and hostages in secured areas until the whole deal is completed.
Concerning the overall economy of West Africa (Nigeria), figure 22 shows that the
economic indicators Economic Decline, Economic Inequality, Human Flight and Brain
Drain, and External Intervention, analyzed in the FSI, have kept a poor level that has
been slightly worsening over the last decade.

45 The offer of an amnesty or “political pardon” for “repentant militants” was officially made on 25 June 2009
(Institut Francais des relations internationales 2010).
From this follows that the opportunity cost for potential piracy workforce is low since the supply of legal jobs is not increasing in such a weak economy. This may increase the availability of human resources for the piracy businesses. In summary, even though the Nigerian government is cash-rich, the economic prosperity is limited to the elites of the region and solely based on the oil business. Therefore, the region is considered to be economic dislocated.

### Economic Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Black Markets</td>
<td>High</td>
<td>Potential Buyers (+)</td>
</tr>
<tr>
<td>Economic Trend</td>
<td>Worsening</td>
<td>Opportunity Cost (-)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic Dislocation (+)</td>
</tr>
</tbody>
</table>

Table 10: West Africa (Nigeria), Economic Factor Evaluation.
5.2.1.3 Social

The Social factor examines the public mindset towards piracy. If this criminal business is widely accepted as a legitimate alternative to regular employment, due to economic dislocation and a corresponding shortage of jobs, piracy businesses can be established rather untroubled in a region. Furthermore, individuals face lower moral barriers in their rational decision to become a pirate, naturally affecting the available pool of human resources for a piracy company. Finally, the social factor shows how easily pirates may establish networks of insiders, informants, and corrupt officials, who are necessary for the operational success and a further business expansion.

Corruption and an affinity for illegal activities are widely spread in the Nigerian society. Nigeria’s navy and maritime administration agencies are facing serious problems of capacity and corruption, due to a lack of government investment, which keeps them both undermanned and under-equipped (International Crisis Group 2012, 8). Furthermore, many legal oil-trading companies decide not to announce certain oil trades officially to save port charges and customs duty. This fact encourages pirates to hunt for oil trading vessels, as the owning companies face a dilemma once they have been attacked, as they would have to confess an illegal trade to the government if they report the incident. Therefore, many incidents are kept unreported in West Africa and thereby the risk for pirates to get prosecuted is relatively low. Furthermore, the widespread corruption benefits several players in the West African economy. Many politicians, oil industry workers, security agents and government officials benefit from the shadow economy of piracy and are willed to support the business. This enables the pirates to facilitate a large and influential criminal network easily.

For many decades, the revenue from oil wealth in the region has to a large extent only benefited the central government, oil companies and local elites (International Crisis Group 2012). Due to the declining opportunities for legitimate livelihood amidst affluence, youths are easily recruited into criminal activities like piracy (Onuoha 2012, 33). This initially took the form of illegal trade of various types of goods like oil diverted from its normal supply routes, drug trafficking, etc. The increase in economic activity along the coast accompanied by poor governance gave impetus to stronger criminal activities. Smuggling networks became more sophisticated and started to deal with firearms, and illegal oil dealers started to attack ships (International Crisis Group 2012, 4). The prospect of easy money has led many fishermen in the region to
sell their boats to pirates or to become themselves pirates (Vircoulon 2012). From this follows that especially the parts of society, who live in the vicinity of the West African coastal areas, are willing to support the piracy businesses.

Social Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Acceptance</td>
<td>High</td>
<td>HR (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Corruption (+)</td>
</tr>
<tr>
<td>Corruption</td>
<td>High</td>
<td>Weak Authorities (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prospect of Operational Success (+)</td>
</tr>
</tbody>
</table>

Table 11: West Africa (Nigeria), Social Factor Evaluation.

5.2.1.4 Technological

The Technological factor describes the availability and use of professional equipment by the piracy businesses in contrast to the material used by the ship’s crews and PMSCs who are defending the target vessel, serving in the role of the Guardian, derived from the Routine Activity Theory. The defending crew may use professional or improvised devices to prepare their vessels for counter-measures against piracy, while the pirates may use automatic weapons, nautical equipment, and special devices to accomplish their missions. If the equipment used by the attacking pirates is more sophisticated than the defending devices of the target vessel, the chances of an operational success increase drastically. Especially Nigerian pirates are known for their sophisticated weaponry. Due to the long presence of militant groups, the proliferation of small arms and light weapons (SALWs) is widespread in the region (Onuoha 2012, 33).

Concerning BMP guidelines, the nature of commercial maritime activity in the Gulf of Guinea limits the extent to which self-protection measures can be effective. Most of the trading vessels are constantly traveling within the high-risk area, making port calls between the countries along the coast. Potential BMP-efforts, taken by the ships to protect themselves, can be undermined if West African administrations do not also ensure the safety and efficiency of operations at ports. In Nigeria, the IMO’s International Ship and Port Security (ISPS) code has not been properly implemented (Anyimadu 2013, 9).
Under current terms, PMSCs are not permitted to operate within the territorial waters of Gulf of Guinea countries. Shipping companies are only allowed to hire Nigerian, Beninois or Togolese national armed police or military personnel to provide escort vessels or to travel onboard commercial vessels (Anyimadu 2013, 11). While PMSCs are not permitted to deploy armed guards in coastal waters, privately contracted security personnel does act in the region in a non-armed capacity as ship security officers, who lend advice on board the commercial vessels. However, the licensing required for these companies is a costly and time-consuming process, due to the number of ministries involved, particularly in Nigeria. Therefore, the equipment used by the pirates is estimated to be superior in contrast to the material used on the target vessels.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophistication of Piracy</td>
<td>High</td>
<td>Prospect of Operational Success (+)</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 12: West Africa (Nigeria), Technological Factor Evaluation.

5.2.1.5 Legal

The Legal factor studies the authenticity of the regional jurisdiction, which forms the framework for the regional executive forces. The perception of this authenticity influences the willingness of piracy victims to report an incident or to conceal it. Consequently, the perception of a weak jurisdiction leads to a high level of underreporting, which in turn weakens the perceived impact of piracy.

There is a legislative deficit concerning to the crime of piracy in the Gulf of Guinea. Even if the relevant states were able to patrol their coasts, they would be unable to prosecute or punish offenders, due to the legal gaps (Kamal-Deen 2015, 108). The likely result would be a “catch and release syndrome,” as was manifested in the early periods of Somali piracy when counter-piracy forces were frequently forced to release caught pirates (Andersen 2010). The weak governance institutions and weak rule of law allow powerful state actors to use their influence to block potential and actual efforts at the investigation and prosecution of arrested pirates (Onuoha 2012, 33). The United Nations Security Council adopted the Resolutions 2018 (in 2011) and 2039 (in 2012) to express grave concern about the increasing insecurity in the
region and its consequences for regional and global security.⁴⁶ These Resolutions led to a derived code of conduct for the repression of piracy and was adopted by the Gulf of Guinea states in 2013.⁴⁷

The weak law-enforcement and widespread corruption in the region of West Africa discourage shipping companies to report piracy incidents. Due to the absence of international warships and potential help, the affected shipping companies are afraid, that a report would only trigger further problems due to the rise of risk-premiums, bad publicity in the media, higher prices on the market and the activation of corrupt authorities (Murphy 2009, 68). The IMB estimates that only one-third of attempted attacks in the Gulf of Guinea is reported to its Piracy Reporting Centre (Barrios 2013). The weak law-enforcement in the region led to the fact, that most pirates, who had been arrested, have been set free closely after their arrest due to corruption and gaps in the law (Ships & Ports 2014).

Legal Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticity of jurisdiction</td>
<td>Low</td>
<td>Underreporting (+) Social Acceptance (+)</td>
</tr>
<tr>
<td>Underreporting of incidents</td>
<td>High</td>
<td>Impact of Piracy (-)</td>
</tr>
</tbody>
</table>

Table 13: West Africa (Nigeria), Legal Factor Evaluation.


⁴⁷ The Economic Community of Central African States (ECCAS), the Economic Community of African States (ECOWAS) and the Gulf of Guinea Commission (CGG), which together represent 25 African States, adopted the code of conduct against piracy and organized crime in May 2013.
5.2.1.6 Environmental

The Environmental factor enquires the geological nature of the region as well as the established infrastructure. The factor identifies the availability of natural hideouts due to the diversity of coastal strips and islands or due to heavy vegetation, offering cover for pirate’s bases at the shoreline in the vicinity of major shipping-routes. Furthermore, meteorological events like the monsoon season or the risk of a tsunami are identified, as they may affect the piracy business.

Pirates in West Africa were able to master its geography and shipping profile. Distance is not a limiting factor for the piratical activities since long-range attacks give the pirates more time to plunder ships and transfer the stolen cargo. From this follows that no area in the Gulf of Guinea is too remote or too secure for piracy (Kamal-Deen 2015, 104).

The dense conurbations along the coast helped to create conditions for an increase in illegal activities. Many cities and capitals in the West African region are among the most densely populated on the continent. Urban disorder as a result of the continuous migration from the interior to the coastal areas leads to confusion by the local authorities and exacerbates law-enforcement (International Crisis Group 2012, 4). In many areas, pirates take advantage of the geographical characteristics of the coast, offering islands, peninsulas, and mangroves with difficult access that makes them ideal hiding places.

West Africa is not known for extreme meteorological events like a drastic monsoon or tsunamis, which could have an impact on the piracy businesses.

Environmental Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable Natural Hideouts</td>
<td>High</td>
<td>Prospect of Operational Success (+)</td>
</tr>
<tr>
<td>Meteorological Events</td>
<td>Low</td>
<td>Prospect of Operational Success (+)</td>
</tr>
</tbody>
</table>

Table 14: West Africa (Nigeria), Environmental Factor Evaluation.

48 Including Lagos (estimated population ten million), Douala and Accra (three million), Calabar and Port-Harcourt (two million), Cotonou and Pointe-Noire (one million).
5.2.2 Canvas

5.2.2.1 Key Partners

In West Africa, a professional piracy business is run by many players embedded in a transnational criminal network. In a typical operation, a CEO, who is usually a sophisticated businessman, embedded in political and criminal networks, is offered information about a potential target by his network of informants in the maritime industry. If he is interested, he signals his interest to the informants, who will ascertain further information about the target vessel, and reaches out to his confraternities, to request a boarding team and, if necessary, an assisting team for the operation. When he has sufficient information about the behavior and movement pattern of the target vessel, the boarding team will conduct the operation. Only if the attack has been successful, the CEO will search for buyers in his network. If possible, the CEO also hires forgers, to deal with the documents of the hijacked cargo (Steffen 2015, 251-252).

The Movement of the Emancipation of the Niger Delta (MEND)

MEND is a loose coalition of militant groups that emerged in 2005 in the Niger Delta of Nigeria, fighting for a greater share of oil revenue for the region. MEND used criminal activities to gain attention. They have been kidnapping expatriate workers and executing attacks on a strategic level against critical installations in the Niger Delta, starting with oil pipelines ashore and expanding to offshore oil platforms (Kamal-Deen 2015, 97). Elements of MEND have turned from politically motivated rebellion to monetarily motivated piracy as their principal activity (Kamal-Deen 2015, 99). These pirates are now embedded in the criminal networks MEND had built over the years. This network links military groups, politicians, security companies, and oil-businesses (Human Rights Watch 2007).

The CEO

The CEO is the manager of the piracy business and often has an ex-militant background. He is a professional businessman and is embedded in a political and criminal network. He coordinates the different players who are involved in an operation (Steffen 2015, 251).

In contrast to the other global piracy hotspots, it is expected that most businessmen in West Africa are capable of financing piracy operation on their own, without the involvement of further investors. Therefore, the CEO has to take the whole financial
risk of the operation. However, due to the weak law-enforcement, the risk of additional aftermath costs, which would occur if an operation fails, and therefore a partner to share the potential loss is low.

The Informants
Informants work in their daily routine in a legal business dealing with shipping companies and other players in the official markets and offer their know-how and service on the black market. Due to their network and insight in the trade market, they identify suitable targets and sell this information to the CEO (Steffen 2015, 251).

The Boarding Team
In West Africa, several piracy groups offer their services to CEOs through the criminal network. Most of these teams are former splinter groups from militant groups, trained and based in the Niger Delta. These men share combat experience and are therefore well attuned. Due to their militant history, these pirates are known for their violent modus operandi. This attribute may even intensify, since the boarding-team is not always receiving the agreed hire from the CEO, and therefore plunders the valuables of the hijacked crewmembers to enrich their salary (Steffen 2015, 252).

The Assisting Team
The Assisting Team consists of legal and professional seafarers who are for hire, to conduct a Ship-To-Ship transfer or assist in navigating and maneuvering the hijacked vessel and mothership, if necessary. Furthermore, they assist in the planning process of the operations. These men are not armed and do not assist in the attacking of the target-vessel.

The Forgers
Forgers are professional criminals who can ensure that the stolen products are certified and signed off as legitimate. They falsify invoices, bills of lading, certificates of origin and further paperwork that is required to be changed. If next to the product also the hijacked vessel shall be sold forgers can also forge the vessel’s documents, including registration and ownership papers. However, because many legally trading
vessels in the region do not hold official documents, the need for forgers is less critical than in other piracy hotspots.

5.2.2.2 Key Activities

Identification
The first step of a piracy operation is the identification of a suitable target. Usually, an informant identifies such a vessel and spreads the information through a network of Nigerian businessmen, who are embedded in criminal structures with proper political contacts. The informant provides the CEO of the piracy operation with movement and behavior patterns of the target vessel. The potential overall financial value of the operation influences the decision, which vessel should be targeted.

Planning
Once a businessman decides to run the operation, he becomes the CEO of the operation and signals his interest to the informants and uses his network, which is usually based on university confraternities that have contacts to militant groups, to identify a boarding-team (Risk Intelligence 2013). In the same time, he uses his business contacts to identify available Nigerian seamen, to hire them as an assistance team, which supports the planning process by their knowledge of typical routes and behavior-patterns of the target vessel.

Financing
Usually, the CEO is financing the operation on his own. He is paying for the informants and the assisting team before the operation starts. The boarding team is only paid when the attack has been successful. The boarding team often enriches their salary by plundering additional valuables of the crewmembers next to the cargo on the hijacked vessel.

Execution
Attacks against tankers are usually conducted by night and along the coasts of Angola and the Ivory Coast. The target vessel is usually at anchor or drifting while waiting for cargo or orders to proceed to the port. This facilitates the boarding-procedures of the pirates since they do not have to attack while the ship is at full speed (Pristrom 2013, 682). Once the target vessel has been boarded, the pirates force the crew to steer to Nigerian waters, to change the area of jurisdiction. Only if the attack has been successful, the CEO searches for potential customers who are
willing to buy the stolen products. Simultaneously, he charters a tanker to transfer the cargo from the hijacked vessel in a ship-to-ship operation (Katsouris 2015). The CEO may also decide to keep the hijacked vessel and sell it as an asset next to the stolen products. The pirates and supporting seamen usually disable the Automatic Identification System and paint over the ships name on the funnel of the hijacked vessel and forge the official documents of the products (Steffen 2015, 254). The CEO may then be able to sell the product as legal cargo on local markets. Even if the documents could not be forged professionally, corrupt tank farms and refineries in the region may be interested in buying the stolen cargo, as they can blend it with legal products (Risk Intelligence 2013).

Modus Operandi
Due to their militant background, the Nigerian pirates share a violent modus operandi. These men often have combat experience and are used to operate brutally. This is well known by the seamen operating in the region. From this follows that the pirates do not face a lot of defense by the crew, once the victim-vessel is boarded since the seamen do not want to risk their lives by provoking the attackers.

5.2.2.3 Key Resources
The key activities rely on certain key resources. The availability and quality of these resources contribute to the outcome of the piracy processes.

Criminal Network
A crucial key resource for a professional piracy business is its criminal network. Due to the large number of players required for a successful piracy operation, the CEO of a criminal business must have access to the diverse specialists in the region. These provide the necessary know-how and skill-sets for the proper planning and performance of an operation. In West Africa, corruption is a widely spread phenomenon in the official administrations as well as in the political sector and facilitates the availability of crucial contacts.

Human Resources
While specialists like informants and forgers, who share a criminal second profession, can be hired externally; the CEO of a piracy company is usually focused on recruiting a boarding team of skilled pirates, who are willing to do repeatable business with him. Due to the widespread acceptance of the piracy culture in the
Niger Delta, a relatively huge pool of human resources is available to the CEO, to choose his employees from. About 800-1000 MEND-militants, who are potential pirates, have profound experience in the use of maritime vessels and tactics due to a history of fights with the authorities in the Niger Delta (Onuoha 2012). Several thousand militants have at least rudimentary skills in the use of maritime assets. Many of these have found their profession in the monetary-driven piracy and do not longer follow a political agenda anymore.

Finance
The CEOs of piracy activities are usually capable businessmen, who can finance operations on their own, without any involvement of further investors. Due to the lack of official investigations of piracy incidents in West Africa, no information about the flow of the criminal capital has been come known to the academic field yet.

Equipment (Nautical Equipment, Weapons)
Nautical Equipment
The pirates need speedboats to attack their targets. These boats must be faster than the target-vessel. If the pirates hunt for a target that is operating in the distance larger than fifty nautical miles from the coastline, a mothership is required (The Global Initiative against Transnational Organized Crime 2016, 14). Motherships are much bigger than the speedboats and offer shelter against wind and weather, additional space for technical equipment like radar and AIS-devices as well as cabins for the boarding team to rest in. Hired tankers are used to transship stolen cargo in sea to avoid berthing in a harbor, what would cause a delay in the operation and may attract unwanted attention. The phantom tankers will be guided to the area of operation, to a rendezvous point to meet with the hijacked vessel currently under control by the boarding team. The vessels are tied up alongside, and the cargo is pumped from the hijacked vessel to the phantom tanker during a ship-to-ship transfer using hoses.

Weapons
Pirates in the Niger Delta are heavily armed and experienced in the use of their weapons. Knives, guns, machine guns (AK-47), grenades and RPGs are widely spread in the region, due to the lasting inner conflicts of Nigeria and militant activities.
Timeframe
Even though law-enforcement is weak in the region, the pirates work fast, to keep the risk of emerging counter-piracy players low. The operation takes approximately twelve hours and is usually conducted by night (Steffen 2015, 254).

5.2.2.4 Value Proposition
The value of the stolen cargo depends on its type, amount, and current market price. Pirates in West Africa focus to target oil tankers since the potential financial rewards are very high (Katsouris 2015). For instance, the hijacking of the tanker Kerala in 2014 lead to the theft of a part of the oil cargo, worth about US$8 million (Reuters 2014). When the forgers of the piracy company have been able to falsify the concerning papers successfully, the buyer does not even have to hide the illegal purchase or may even not be aware of its illegal origin. However, due to the weak state of law enforcement, the risk of investigations is low, and thereby the need for forging documents dispensable. Because the trade with stolen oil cargo is rather unproblematic, the pirates give a discount of 10 percent of the market-price value of the product.

5.2.2.5 Customer Relationships
After a vessel has successfully been hijacked, the CEO searches for buyers in his network. The buyers are professional businessmen, usually located in the vicinity of the hijacking. They deal with the products on the official and black-markets or run own tank farms, where they launder the product (Steffen 2015, 252). Since piracy is a repeatable business, it can be expected, that close and long-term relationships with individual buyers have been established over time. However, the customers have to make a quick decision once the deal is offered, because the CEO has usually not announced the operation and hits his customers quite suddenly. Depending on the successful work of the forgers, the new customers may or may not know about the illegal origin of the product. Due to the huge discount, it can be expected, that new customers are willing to start a long-term relationship with the seller, to repeat such deals in the future. Since criminal activity and corruption is widely accepted in many West African societies, the faked-legal or obviously illegal attribute to the piracy products may not deter many customers from such a deal.
5.2.2.6 Channels

Having recourse to their criminal network, the pirates may use multiple channels, to sell their stolen products. They may sell the products directly to other tankers, operating in the area using their black-market channels or to tank farms, which blend the stolen oil with legitimate products and sell it on the regular market.

5.2.2.7 Customer Segments

Usually, the piracy businesses accomplish an operation of armed robbery first, before they identify potential customers. However, the pirates are believed to have access to black markets and broader criminal networks, to be able to distribute their stolen cargo quickly. Due to the high level of corruption in West Africa, most customers probably know about the illegal origin of the products, regardless of forged documents. Consequently, it is assumed that long-term relationships have been established with various buyers. Nevertheless, due to the urge of selling the stolen products quickly, to lower the risk of prosecution, the criminal businesses probably distribute the cargo directly to smaller business clients in the area, too. These are often local traders, who are blending the cargo with legal products in close facilities.

5.2.2.8 Cost Structure

A typical cost-structure of West African piracy may be of the following:

Hijacking of a vessel loaded with 4.000 ton Crude Oil

<table>
<thead>
<tr>
<th>Average Costs in USD ($)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upfront costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td></td>
</tr>
<tr>
<td>Forger</td>
<td>14.300$</td>
</tr>
<tr>
<td>Insider/Informants</td>
<td>53.600$</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Speedboats</td>
<td>45.000$</td>
</tr>
</tbody>
</table>
### Additional costs

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tanker Rental</strong></td>
<td>232.100$</td>
<td>Reference Data from SE Asian piracy</td>
</tr>
<tr>
<td><strong>Bribe Money</strong></td>
<td>0$</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total Upfront Costs</strong></td>
<td>345.000$</td>
<td></td>
</tr>
</tbody>
</table>

### Costs if Hijacking succeeds

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Team Leader</strong></td>
<td>89.300$</td>
<td>Reference Data from SE Asian piracy</td>
</tr>
<tr>
<td><strong>Pirates</strong></td>
<td>369.600$</td>
<td>Average Number of Pirates: 14 Pirates (excluding Team Leader) Reference Data from SE Asian piracy</td>
</tr>
<tr>
<td><strong>Total Costs if Hijack succeeds</strong></td>
<td>803.900$</td>
<td>The CEO bears the full costs</td>
</tr>
</tbody>
</table>

### Costs of Hijack fails

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bribes to Prosecutors</strong></td>
<td>0$</td>
<td>n/a Due to connections to high ranked politicians, no extra money has to be paid, to set the pirates free</td>
</tr>
<tr>
<td><strong>Team Leader</strong></td>
<td>0$</td>
<td></td>
</tr>
<tr>
<td><strong>Pirates</strong></td>
<td>0$</td>
<td></td>
</tr>
<tr>
<td><strong>Total Costs if Hijack fails</strong></td>
<td>345.000$</td>
<td>The CEO bears the full costs</td>
</tr>
</tbody>
</table>

Table 15: Average Direct Cost Structure for West African Piracy Operations. If no specific data about West African piracy incidents was available, similar data from SE Asian incidents was used as a reference. Source: Data from The Global Initiative against Transnational Organized Crime 2016, p.16; Kamal-Deen 2015; Onuoha 2012; Percey 2011; Index Mundi 2017.
5.2.2.9 Revenue Streams

While the costs for hijacking operations are rather constant, the overall economics of hijacking for product theft depends on the current Oil market price. The average economics for a typical hijacking for product theft in West Africa is shown in table 16.

Successful hijacking of a vessel loaded with 4.000 ton Crude Oil

<table>
<thead>
<tr>
<th><strong>CPO Market Price (4000tn)</strong></th>
<th><strong>Calculation</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selling Price / Revenue</strong></td>
<td>2.124.000$</td>
<td>10% Discount(^{49})</td>
</tr>
<tr>
<td><strong>Costs if Hijack succeeds</strong></td>
<td>803.900$</td>
<td></td>
</tr>
<tr>
<td><strong>Profit if Hijack succeeds</strong></td>
<td>1.320.100$</td>
<td>Share for CEO is 100%</td>
</tr>
<tr>
<td><strong>ROI</strong></td>
<td>CEO: 164,21%</td>
<td>Average success rate concerning all reported incidents of West African piracy from 1996-2013 (Jeong 2015, 8)</td>
</tr>
<tr>
<td><strong>Success rate</strong></td>
<td>87,1%</td>
<td></td>
</tr>
</tbody>
</table>

Table 16: Average Economics of a successful West African Piracy Operation. Source: Data from The Global Initiative against Transnational Organized Crime 2016; Index Mundi 2017.

On average, a successful hijacking of a tanker leads to about 1.3 million USD. Incidents in West Africa have been reported that lead to one to ten million USD. The value of the product depends on its type and the current market price. For example, jet-fuel is a more expensive product and may increase the average profit for a successful hijack to about five million USD.\(^{50}\)

Murphy argues that Nigerian oil piracy is the most profitable criminal business (Murphy 2013).

\(^{49}\) The hijack of the tanker ANUKET EMERALD in 2012 serves as an example for the calculation. Pirates stole crude oil worth about 4 million USD to the current market price and sold it for 3,6 million USD. This is a discount of 10% and expected to be the average discount-level (Steffen 2015, 253-256).

\(^{50}\) Pirate gangs stole five million USD amounts of jet fuel by hijacking Product tanker Itri on January 16th, 2013. The operation was completed within a week (BBC News 2013).
5.2.2.10 Canvas Business Model

In this chapter, the microeconomic tool CANVAS was applied to the business model of Armed Robbery in West Africa. The outcome of this method is a visual chart, which illustrates the examined elements describing the company’s infrastructure, value proposition, customers, and finances, as shown in figure 23. This template facilitates the deduction of further relevant factors necessary for the cause and effect modeling in the chapter “PECOBUS Model.”

![Canvas Business Model of Armed Robbery in West Africa. Source: Visualization by the author using the Canvas Template.](image-url)
5.3 East-Africa: Kidnapping for Ransom

In 1991, in the aftermath of the collapse of the Somali authorities, piracy had developed from being a crude “act of protest” to a highly organized and sophisticated business. The lack of legal punishment and deterrence at the local, regional and international levels had allowed piracy to expand their activities without limitations. Furthermore, several coastal communities had been benefitting from the piracy operations, due to pirates’ investments in infrastructure and logistics. These investments could be seen as a corporate social responsibility program, which has made piracy a legitimate and justified business in the coastal region, providing the criminals with social protection and support of labor and supplies. Somali piracy developed its dynamic and established a highly sophisticated business model of hijacking ships and demanding a ransom for the release of the vessel, the cargo, and the crew. In 2008 the international community intensified joined and combined counter-measures against piracy ashore and at sea, and was able to contain piracy off the East African coast successfully.

From 2012 until 2016 there has not been a reported successful hijacking attempt off the Somali coast, while in 2017 there have been three, concerning the first half of the year (IMB Piracy Reporting Centre 2012-2017). However, this does not imply that pirates in the region of the Indian Ocean are out of business. According to a report of the UN Monitoring Group piracy enterprises have shifted their operations to other illicit businesses (United Nations 2013, 17). Pirates operate outside of the radar of the international community and hijack smaller local trading and fishing vessels or offer armed protection of fishing activities and illegal fishing, arms trafficking, human trafficking and trans-shipment of narcotics (United Nations 2013, 17).

The following figures shall illustrate the nature of the East African hotspot, while the business model of the piracy companies will be analyzed in-depth by the application of the macro- and microeconomic tools PESTLE and CANVAS.

In the last decade, the peak of piracy incidents in East Africa had been reached in 2011. As shown on the Map in figure 25, most of the 236 incidents were reported far out in the Indian Ocean. In 2015, the number of attacks dropped to an all-time-low, since the recordings of piracy incidents in East Africa, as shown in figure 26.

---

51 After the authorities collapsed, low-level pirates emerged to enforce self-administrated justice in the fishing-sector, due to the absence of official coast guards and maritime administration.
Figure 24: Piracy incidents in East Africa in 2011. Source: Data from ICC IMB in an application with Google Maps.

Figure 25: Piracy incidents in East Africa in 2015. Source: Data from ICC IMB in an application with Google Maps.
5.3.1 PESTLE

5.3.1.1 Political

The Political factor examines the willingness, the capability, and the corresponding engagement of countering piracy in the concerned region. Therefore, the political factor affects the function of the Place Manager (PM), derived from the Routine Activity Theory, discussed in the former chapters. The executive forces are represented by the corresponding navy, police, and coastguards. If the government is cooperating with international authorities, a deployment of foreign military forces and an engagement of NGO’s, offering development aid, can be triggered.

Concerning the stability-factors of the PM in the piracy hotspot of East Africa, Somalia is taken as the representing country for the region, since most piracy incidents are reported off the Somali coast. Referring to the Fragile State Index, in Somalia, the overall stability has been worsening during the last decade, as shown in figure 26.

![Figure 26: Failed State Index: Somalia, Overall Trend, 2006-2017. Source: Fund for Peace 2017.](image_url)

However, the factor “Security Apparatus” has been slightly improved over the last years, as shown in figure 27. Therefore, the risk of effective prosecution against piracy will continue to rise and aggravate the piracy businesses. Nevertheless, Somalia is ranked 2nd in the list of failed states, provided by the Fund for Peace. Therefore, the country´s deficits in most stability-factors will probably remain on a low level over the upcoming years.
Some crucial historical developments have to be presented to understand the evolvement of piracy in the East African region. Somali piracy is the result of various factors. Since the collapse of the government and state in 1991, the resulting vacuum in the place manager function lead to illegal fishing activities and thereby to overfishing by foreign vessels intruding the territorial waters of Somalia. Due to the failure of the state, there was no enforcement of international maritime law and regulations to protect economic resources in the state’s territorial and economic zone. As Somalia’s subsistence economy, especially in the coastal regions, relies heavily on fishing, declining fish stocks deprived Somalis of their primary source of food and income causing strong resentment among the local population (Gulf Research Center 2009). In the absence of an authentic jurisdiction and official executive forces to protect the livelihood of the coastal communities, locals started to disrupt the fishing activities of foreign vessels in vigilante justice. Thereby they took over the role of the place manager. These self-proclaimed watchmen carried out random and spontaneous attacks against the foreign fishing boats operating around the Somali coast. Attacks did not involve boarding the vessel or taking hostages as the primary aim was to force the foreign ships to pay a kind of tax for the fish they caught in Somali waters. When illegal fishing activities did not stop, and the locals realized how to make profit attacking the foreign vessels, robbery turned into semi-organized crime and evolved to professional piracy. Pirates started to hijack foreign fishing vessels and to take the crews hostage. Subsequently, they demanded a ransom for the
release of the crew. This made piracy a lucrative business, and the involved players shifted from their role as semi-professional place managers to the role of professional profit-seeking criminals. From 2000 to 2012 piracy attacks increased significantly in frequency, intensity, and professionalism. The piracy attacks improved with time, as parts of the profit gained from successful attacks were reinvested in facilities and local governance. Therefore, the coastal areas where piracy occurred developed a semi-professional state-authority and shifted from a failed state to a weak state status. The quantitative analysis by Hastings supports the argument that pirates require some form of governance, in contrast to a total failure of the authorities, to be provided with minimum standard of facilities and infrastructure needed for managing more sophisticated attacks (Hastings 2009). This is why pirates formed some form of state-power themselves. They have used their illicit flows from their criminal activities to influence the economy by investing in legitimate businesses and gaining political influence within the region in the process (The World Bank 2013, 29).

It is expected that also criminal businessmen from other parts of the country have joined the piracy business in the coastal areas of Somalia. These men probably brought skills and experience in the business model of kidnapping from ransom to the region, as this kind of business is a widespread practice in Somalia, used by gangs and militias to press money (Menkhaus 2009). However, since 2008, multiple international measures have been established to counter piracy off the Somali coast. These activities include international naval operations, self-defense measures by the shipping industry, a global prosecution program and several programs ashore. The Operation Ocean Shield (NATO)\textsuperscript{52}, the Combined Maritime Forces (CMF, The U.S. initiative), the Combined Task Force (CTF 152) and many single missions from countries all over the world have been established in the Indian Ocean off the coast of Somalia to fight piracy. Kenia and Ethiopia have laid the foundations for further military intervening in 2011, by attacking Al Shabab and enabling the Somali government to regain power and influence in the region (BBC News 2011). Since March 2012 the Kenyan troops, and since January 2014 the troops of Ethiopia have joined the African Union to support AMISOM in rebuilding the government and thereby the PM (African Union Mission in Somalia) (BBC News 2014).

Besides these measures, which deal with piracy as a criminal symptom, further countermeasures have been established. Diverse projects deal with these issues, by

\textsuperscript{52} NATO concluded the Operation Ocean Shield in December 2016.
rebuilding infrastructure, securing food-supplies, and capacity building for national security bodies like coastguards and military forces. The EUCAP-Nestor\textsuperscript{53} mission instructs Somali coast guards, while EUTM-Somalia\textsuperscript{54} mission instructs soldiers for the Somali army. The mission EU NAV FOR Somalia – Operation ATALANTA\textsuperscript{55} secures the food-deliveries by the World Food Organization, to fight against the shortage of food supply in Somalia, which is one of the biggest problems in the area.

Political Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Counter-Piracy Engagement</td>
<td>Low</td>
<td>PM (-)</td>
</tr>
<tr>
<td>International Counter-Piracy Engagement</td>
<td>High</td>
<td>Super Controller (PM) (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Super Controller (HA) (+)</td>
</tr>
</tbody>
</table>

Table 17: East Africa (Somalia), Political Factor Evaluation.

5.3.1.2 Economic

The economic factor studies in how far the regional changes in trade cycles and commodities affect the piracy businesses. Furthermore, the access to potential customers through black markets or the establishment of negotiation channels is analyzed. Additionally, the economic factor, from a pirate’s perspective, examines the competitors, namely other piracy syndicates operating in the region. Finally, the economic trend of the region indicates, if the opportunity costs for potential pirates are increasing or decreasing, affecting the availability of human resources for piracy businesses.

Since the end of the UN intervention in the 1990s, Somalia became a territory that received only scant attention from the international community and became economically dislocated (Bueger 2015, 3). As examined in the previous chapter, especially the coastal regions of Somalia have been dependent on fishing. When

\textsuperscript{53} EUCAP Nestor stands for „European Union Regional Maritime Security Capacity Building Mission in the Horn of Africa and the Western Indian Ocean“ and started in July 2012. Contributing states are 15 EU Member States, Norway, and Australia.

\textsuperscript{54} EUTM-Somalia stands for “European Union Training Mission in Somalia” and started in April 2010.

\textsuperscript{55} EU NAVFOR stands for “European Union Naval Force Somalia” and started in 2008. Contributing states are EU Member States and Norway.
Somali fishermen took the role of semi-professional place managers, to deal with foreign fishing-vessels, which entered the unguarded territorial waters, some fishermen slowly transformed into professional pirates, as a substitute profession. Researchers suggest that Somali piracy can be “understood as creative (and profitable) attempts to develop a vibrant economic sphere within places marginalized from the world economy for more than a century”\(^{56}\) (Kamola 2012). Due to the ramifications of the state failure, the infrastructure in Somalia crumbled, and markets closed down. From this follows that pirates developed the business model of kidnapping and hijacking for ransom since they were not able to discharge and sell most of the cargo of modern tankers and containerships or to sell such a big ship on a black market.

The pirates shifted their operational areas according to the changing trade routes off the coast of Somalia. In 2000, Somali pirates focused their attacks on the southern end of the Red Sea, mainly in the waters around the Djibouti coast, because Ethiopia redirected its export goods through Djibouti as a result of increasing tensions between Eritrea and Ethiopia. Therefore, the chances of hijacking more and wealthier cargos rose in that area. From 2002 to 2004 the pirates shifted their activities geographically from the waters off Djibouti to the coasts of the Puntland region since there was a rising naval military presence around Djibouti\(^{57}\) (Gulf Research Center 2009, 19). From 2004 to 2006 piracy attacks decreased due to the aftermath of a tsunami as the widespread damage was reported the Somali coast. Boats and ports had been destroyed, and the pirates had to raise fresh capital for new investments. Between 2006 and 2008 the pirates focused their attacks in the Gulf of Aden, away from the Somali coast and closer to Yemen, and on the high seas off Mogadishu, as their targets bypassed the Somali coast as a countermeasure against piracy. The pirates introduced the strategy of hijacking high-sea-fishing-vessels to use them as motherships to be able to operate far away from the Somali coast. From this follows that the professional piracy businesses adjusted their operations to the geographical shift of the shipping routes, and thereby demonstrated that they are capable of establishing innovations strategically. Due to the use of motherships, pirates were able to target ships transiting further away from the shoreline on the high sea, taking an alternative route to Europe via the Cape of Good Hope in South Africa (Gulf Research Center 2009, 23). From 2008 on the increasing profitability of piracy due to

\(^{56}\) See also related analyses of Samatar et al. 2010 and Klein 2013.

\(^{57}\) In 2003 the Djiboutian navy acquired six patrol boats and an additional seven speedboats to counter piracy.
the higher ransoms being paid had encouraged more local Somalis and criminal businessmen from other parts of the country to join the piracy business. It is estimated that the number of pirates went up from about 100 in 2008 to more than 1,200 in 2010 (Gulf Research Center 2009, 24). From this follows that competition between piracy businesses emerged. Somali piracy evolved from low-scale locally executed and funded operations into a transnational network of sophisticated criminal syndicates (The World Bank 2013, 10). The increase in pirate activity and thereby the increase of the threat of piracy in East Africa led to multiple countermeasures taken by international navies, the shipping industry, and other organizations. These massive countermeasures escalate the risk for pirates to be caught and prosecuted and led to a drastic decline in piracy operations. From 2012 to 2017 there have been nearly no reported incidents of piracy off the Somali coast (IMB Piracy Reporting Centre 2012-2017).

While the decline in reported incidents may lead to the impression that the piracy business off the Somali coast is exhausted, in fact, the organized criminal networks diversify their financial interests by undertaking alternative ventures (United Nations 2013, 22).

Since 2012, most pirates operate outside of the radar of the international community and hijack smaller local trading and fishing vessels or offer armed protection of fishing activities and illegal fishing, arms trafficking, human trafficking and trans-shipment of narcotics (United Nations 2013, 17). From this follows that piracy networks should be able to easily shift back to their original piracy-business model in pursuit of prospective returns on investments. This “comeback” may be the result of the relaxation of public and private security measures and thereby the withdrawal of international naval forces, leading to a lower risk of prosecution.

Concerning the overall economy of East Africa (Somalia), figure 28 shows that the economic indicators Economic Decline, Economic Inequality, Human Flight and Brain Drain, and External Intervention, analyzed in the FSI, have kept a poor level that has been slightly worsening over the last decade. From this follows that the opportunity cost for potential piracy workforce is low since the supply of legal jobs is not increasing in such a weak economy. This may increase the availability of human resources for the piracy businesses.

Economic Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influence on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of Negotiation Channels</td>
<td>High</td>
<td>Forced Buyers (+)</td>
</tr>
<tr>
<td>Economic Trend</td>
<td>Worsening</td>
<td>Opportunity Cost (-)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic Dislocation (+)</td>
</tr>
</tbody>
</table>

Table 18: East Africa (Somalia), Economic Factor Evaluation.
5.3.1.3 Social

The Social factor examines the public mindset towards piracy in the region. If piracy is widely accepted as a legitimate alternative to regular employment, due to economic dislocation and a corresponding shortage of jobs, piracy businesses can be established rather untroubled in a region. Furthermore, individuals face lower moral barriers in their rational decision to become a pirate, naturally affecting the available pool of human resources for a piracy company. Finally, the social factor shows how easily pirates may establish networks of insiders, informants, and corrupt officials, who are necessary for the operational success and a further business expansion.

In Somalia, the coastal communities belong to the marginalized parts of the population. In a primarily rural region, in which cattle implies prestige, coastal communities, which primarily rely on fishing, naturally have lower status. Due to the maritime insecurity and foreign fishing exploitation increasing from 1995 (Weir 2009), especially the coastal regions have been disproportionally disadvantaged and threatened in their livelihood fundamentally (Marchal 2011). From this follows some form of cultural legitimacy of the piracy business. This cultural acceptability has mainly been provided through the prevalence of a narrative, in which piracy is projected as a legitimate practice of protecting coastal waters against outside threats such as illegal resource exploitation or environmental crime (Bueger 2013). This narrative justified piracy as a legitimate response to maritime insecurity and triggered social acceptance, which, in turn, triggered the supply of human resources as well as for ensuring the local support of communities, which provide shelter, food, and other supplies.

However, some coastal communities had moral issues in hosting pirates, who trigger the demand and supply for prostitution, corruption, drugs and other accompanying illegal activities. Furthermore, the engagement of development aid by NGO’s and the education of local clan leaders and religious groups leads to an increase in moral standards, and thereby to a decreasing acceptance of criminal activities, like piracy.

Therefore, piracy businesses have been developing a supportive social organization, a kind of practiced corporate social responsibility, to buy tolerance of the local community for the criminal activities. Thus, certain ports in Somalia have been identified as ideal safe havens for pirates as they offer facilities for shelter, food, and buildings to keep hostages if needed. These port cities share the characteristics of being armed, have sympathetic populations, and are in areas, beyond the control of
the local authorities (Hallwood und Miceli 2013, 67). Due to the absence of local authorities, it is easy for the piracy businesses to establish criminal networks. Furthermore, corruption is a widespread phenomenon, since the economically dislocated transitional government is not able to pay sufficient salaries to its workforce or to improve the overall economy to generate jobs.

Social Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influence on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Acceptance</td>
<td>Moderate</td>
<td>HR (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Corruption (+)</td>
</tr>
<tr>
<td>Corruption</td>
<td>High</td>
<td>Weak Authorities (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prospect of Operational Success (+)</td>
</tr>
</tbody>
</table>

Table 19: East Africa (Somalia), Social Factor Evaluation.

5.3.1.4 Technological

The Technological factor describes the availability and use of professional equipment by the piracy businesses in contrast to the material used by the ship’s crews and PMSCs who are defending the target vessel, serving in the role of the Guardian, derived from the Routine Activity Theory. The defending crew may use professional or improvised devices to prepare their vessels for counter-measures against piracy, while the pirates may use automatic weapons, nautical equipment, and specialized devices to accomplish their missions. If the equipment used by the attacking pirates is more sophisticated than the defending devices of the target vessel, the chances of an operational success increase drastically.

Skills necessary to perform piracy operations include navigation of vessels, boarding-procedures, weapon handling, and negotiation skills. These skill sets are widely spread in Somalia and form a part of the cultural repertoire. This includes maritime experience and navigation skills of fishermen or the negotiation skills provided by society governed customary law and informal governance processes (Menkhaus 2004). Skills such as the handling of weapons have been learned during the years of civil war, and others, such as the handling of navigation devices or techniques for boarding ships, had been trained in attempts of establishing naval forces or coast guards (Bueger 2015, 4). Weapons can easily be purchased at the local markets and
are widespread in the population. The business model of land-based kidnappings for ransom has been a widespread practice in Somalia before the rise of piracy in 2008. Therefore, skills and experience from this practice most likely have transferred to the business processes of piracy. This is remarked by Menkhaus: “the act of piracy is little more than an extension of activities that armed groups have engaged in for years: militia roadblocks, extortion and kidnapping for ransom are a staple source of income for gangs and militias in Somalia” (Menkhaus 2009).

The radar system of commercial ships is often unable to spot the pirate’s boats before they attack, as these boats are small, very fast, and operate within the radar’s blind spot making use of the element of surprise (Gulf Research Center 2009, 32). However, the counter-measures taken by commercial shipping are considered to be very high. BMP measures are widely applied to the potential target-vessels and crews. Furthermore, many ships transiting off the Somali coast hired PMSCs to defend themselves more effectively. In the official statistics, not a single ship, which had a PMSC boarded, has been hijacked, yet (IMB Piracy Reporting Centre 2012-2017). From this follows that the counter-measures taken by the shipping industry seem to be highly effective against piracy attacks.

Technological Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophistication of Piracy</td>
<td>Low</td>
<td>Prospect of Operational Success (-)</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 20: East Africa (Somalia), Technological Factor Evaluation.

5.3.1.5 Legal

The Legal factor studies the authenticity of the local jurisdiction, which forms the framework for the regional executive forces. The perception of this authenticity influences the willingness of piracy victims to report an incident or to conceal it. Consequently, the perception of a weak jurisdiction leads to a high level of underreporting, which in turn weakens the perceived impact of piracy.

The East African coastal and territorial law enforcement have been diminished after years of civil conflict, ultimately leading to the failure of the state. However, the Somali territory has not been in a state of total lawlessness, because basic law
enforcement was provided through the rudimentary judicial and policing capacities of the local authorities, such as the government of Puntland (Bueger 2015, 3). Furthermore, the mechanisms of the traditional clan-based law of “Xeer” govern wide parts of the Somali society (Van Notten 2007). This deliberate form of law based on compensation does not consider crimes such as piracy as long as members of the Somali clans are not involved as victims. From this follows that there is a lack of capacities to authentically monitor and guard the Somali coast and the sea (Bueger 2015, 3).

However, due to the global impact of Somali piracy, the international community had to take the responsibility to counter criminals activities and to rebuild the jurisdiction. The UN Security Council passed four resolutions58, which provide the legal framework for member states of the UN to deal with the problem of Somali piracy in 2008. These resolutions authorize the concerned parties to take military action to protect the safety of international maritime navigation (Gulf Research Center 2009, 28).

The actual presence of patrolling international naval vessels off the coast of Somalia encourages the commercial vessels to report piracy incidents, as they can expect serious help, in contrast to the other global piracy hotspots. Furthermore, an authentic jurisdiction diminishes the social acceptance of criminal behavior.

Legal Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influence on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticity of jurisdiction</td>
<td>High</td>
<td>Underreporting (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Acceptance (-)</td>
</tr>
<tr>
<td>Underreporting of incidents</td>
<td>Low</td>
<td>Impact of Piracy (+)</td>
</tr>
</tbody>
</table>

Table 21: East Africa (Somalia), Legal Factor Evaluation.

5.3.1.6 Environmental

The Environmental factor enquires the geological nature of the region as well as the established infrastructure. The factor identifies the availability of natural hideouts due to the diversity of coastal strips and islands or due to heavy vegetation, offering cover

58 The UN Security Council passed the resolutions 1814, 1816, 1838 and 1846.
for pirate’s bases at the shoreline in the vicinity of major shipping routes. Furthermore, meteorological events like the monsoon season or the risk of a tsunami are identified, as they may affect the piracy business.

Somalia has a coastline stretching up to 4,000km from Eritrea to Somalia. The extensive length of this coastline makes it impossible for security forces to patrol and monitor all activities in the territorial waters, the connecting high sea or the shoreline. The Gulf of Aden, the southern gateway to the Suez Canal, is one of the major shipping routes worldwide. About 20,000 ships a year pass this area, including a substantial number of the world’s crude oil (Bueger 2015, 2). Many remote coastal areas provide a sufficient infrastructure needed for the business model of kidnap for ransom piracy. These hideouts offer necessary infrastructures like roads and nearby villages, which ensure the logistics and supply needed for an operation and the treatment of hostages. Especially the ports located in West of Somalia are difficult to reach and cannot be seen from the ocean side as they are hidden in inlets. The geographical terrains of certain areas of the coastline, which are utilized by the pirates, provide a certain degree of protection (Gulf Research Center 2009, 26). However, during monsoon months (June-August for the South-West monsoon season and December-March for the North-East monsoon season) pirates are limited in their operations, as the rough sea makes it harder to navigate with the small attacking-boats. From 2004 to 2006 piracy attacks decreased due to the aftermath of a tsunami as the widespread damage was reported the Somali coast. Boats and ports had been destroyed, and the pirates had to raise new capital for new investments (Gulf Research Center 2009, 19).

Environmental Factor

<table>
<thead>
<tr>
<th>Subject</th>
<th>Evaluation</th>
<th>Influence on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable Natural Hideouts</td>
<td>High</td>
<td>Prospect of Operational Success (+)</td>
</tr>
<tr>
<td>Meteorological Events</td>
<td>High</td>
<td>Prospect of Operational Success (-)</td>
</tr>
</tbody>
</table>

Table 22: East Africa (Somalia), Environmental Factor Evaluation.
5.3.2 **Canvas**

5.3.2.1 Key Partners

In Somalia, a professional piracy business is divided into different divisions of labor, which enhances the capabilities and skill of the assembled team, making piracy operations in Somalia a successful endeavor. In a typical operation, a commander of a piracy group raises money through individual investors or the criminal stock exchange, collects necessary equipment, and chooses a boarding team leader to form an attacking group. These men are put to sea and hijack an ocean-going fishing vessel to use it as a mothership, and sail to their operational-area far out in the Indian Ocean. Due to radar and communication equipment installed on the motherships, the pirates can spot and track potential targets, until they decide to start the attack. When they successfully hijacked the target-vessel, they steer the ship to the Somali coast and berth or anchor the ship. Once the ship reached its final position, a guarding team will be embarked, and a support-team starts providing food and equipment for the starting period of the probably long-lasting negotiations about the ransom. When the ransom is paid, the crew will be set free, and the ship will be abandoned. The commander then splits the payment, launders his share and reinvests parts of his profit in future operations.

**Piracy Coalition**

There are two big networks of pirates in Somalia, separated geographically. The first network operates in the northern part of the country, namely Puntland, and uses the cities Eyl and Bossaaso as bases. In 2009, this network had been led by three commanders and divides into 15 smaller groups, each containing about 15-25 members. The second network operates in the southern part of Somalia, using the cities of Harardhere and Hobiyo as their bases. This network splits into eight smaller groups, each containing about 15-25 members and is also lead by three commanders (Gulf Research Center 2009, 42). In total, about 23 pirate groups have been operating in Somalia in 2009 and probably expanded in size until 2012. Each group operates independently as they are organized along clan-lines, functioning like
a huge economic and social network. In some cases, these groups work together in joined operations, allying the clan lines.\textsuperscript{59}

The Investors
The pirate financiers are usually wealthy businessmen and clan-leaders with a criminal background, who invest in pirate activities and fund the operations. They usually receive the biggest amount out of ransom payments, which are then moved in and out of the country and invested into other activities and businesses to be laundered (The World Bank 2013, 13). The majority of the pirate investors are located inside Somalia. Their profiles vary and include former police and military officers, khat\textsuperscript{60} dealers, former fishermen, former businessmen or civil servants, and successful pirates-turned financiers (The World Bank 2013, 58).

In 2009, in Haradheere, one of the piracy hotspots in East Africa, the piracy businesses set up a sort of stock exchange as a cooperative to fund further hijackings. The stock exchange started with 15 piracy companies and grew to 72 businesses (Reuters 2009). In 2009, 10 of these companies had been successful at hijacking. The shares can be acquired by providing cash, weapons, or other useful materials.

The Commanders / CEO´s
The northern and the southern piracy networks are each lead by three commanders. The commanders collect the money from the investors and organize the operation, recruit members of the boarding team and obtain weapons, fuel, khat, food, and water required for the expedition (Hansen 2012). Once a ship is hijacked and anchored or berthed near, or in a piracy harbor, one of the commanders will board the ship and stay on board as long as the negotiations last, to manage the business. The Commanders implemented some form of corporate governance, to ensure the loyalty to the piracy company. It is known that a pirate clan leader of approximately 500 men in the northern region, claims that everyone who applies for a position in the illegal business must see him and swear allegiance until death, natural, or otherwise.

Since the Somali piracy is a repeated profitable business it would be expensive in

\textsuperscript{59} The hijacking of the supertanker SIRIUS was such a case. However, during the ransom negotiations, a dispute evolved between the two groups and undermined the pirates’ unity and helped the negotiators reach a compromise (Gulf Research Center 2009, 42).

\textsuperscript{60} Khat is a small leafy plant. Among communities in the Horn of Africa and the Arabian Peninsula, the chewing of khat is a traditional social custom and represents an own industry in the region.
terms of forgone income if any pirate or CEO chose to renege on his commitments to the group (Hallwood und Miceli 2013, 67).

The Boarding Team Leader
Former fishermen are usually taking the role of the boarding team leader. Due to their knowledge and experience of the sea, they are capable of navigating and maneuvering the boats during the attack. The boarding team leader is also able to speak some English and can read a ship manifesto (UNODC (United Nations Office on Drugs and Crime) 2011, 48).

The Boarding Team
The boarding team usually consists of ex-militiamen, ex-soldiers, or ex-coast guards, who left the forces because they were not receiving a salary anymore after the government collapsed. They have military training and know how to handle weapons. The former coastguards know how to operate satellite phones, GPS and other professional hard- and software, that is helpful in operations conducted on the high sea (Hallwood und Miceli 2013, 67).

The Guarding Team
Once a vessel is hijacked and anchored or berthed near the coastline, about 50 pirates will come from the land and occupy the ship during the negotiations. About additional 50 men will wait on shore to deal with any contingencies while the ship still has the hostages on board. These guards have a rotation system implemented, to relieve and replace the group on duty at regular intervals.

The Support Staff
The hijacking of a ship off the coast of Somalia requires a lot of support from additional players. Former English teachers have become negotiators used by the commanders during the ransom negotiations. Also, accountants are employed to act as the chief negotiators, and someone with some know-how in the shipping industry is employed, to assess the value of the ship (The World Bank 2013, 45). Furthermore, restaurants and shops in the coastal communities are facing higher demands due to the pirates´ activities.
5.3.2.2 Key Activities

The operational business of a piracy company is split into various key activities.

Identification
The first step in a piracy operation is the identification of a suitable target. Somali pirates have several methods to do so. They monitor and intercept communications between vessels or between vessels and ports, using VHF radios (Very High Frequency), to enable the pirates to determine the exact location, current speed, direction and further information about the potential target. Additionally, the use of AIS helps the pirates to track and determine the movements of ships. Another method is to collect information about the ships specifications, schedules, and routes from open sources on the Internet, like the shipping companies’ websites. Collaborators may offer further information about the nature of the cargo, movement timetables and the possible route (Gulf Research Center 2009, 30). The collected information is used to select a suitable target that matches certain specifications concerning the size, design, and type of the ship, the number of crew, as well as onboard human and electronic defense and protection capabilities. Finally, the potential overall financial value of the operation influences the decision, which vessel should be targeted.

Planning
When a suitable target has been identified, the commander considers the possible presence of naval forces or other protection forces in the designated area. If no military forces are patrolling the region or are too far away to intervene in time, he deploys a boarding team that ideally is already standing by on a mothership in the operational area.

Financing
There are fundamentally three ways of financing the operations. Firstly, the CEO functions as the financier and bears all the costs on his own (boats, guns, food, equipment, etc.) but is also profiting the most from the ransom payment (S. Hansen 2009, 35). The second method consists of a shareholder structure, in which the pirates themselves invest in their operations. This method is probably limited to low-scale opportunistic piracy, targeting for fishing-boats in the vicinity of the shoreline of Somalia. The third and probably most common method for professional piracy
companies operating in Somalia is also based on a shareholder structure but includes a leader who gathers shares from local and foreign investors and manages the operation (S. Hansen 2009, 35). Due to the fragile state of Somalia, many investors only have limited amounts of cash inside the country but substantial deposits in banks abroad. To finance a pirate operation, the investors act as import/export facilitators. The process could be associated with “reversed trade-based money-laundering” (The World Bank 2013, 48). For example, a piracy investor will associate with a legitimate businessman operating inside Somalia who need to purchase goods or supplies from another country. The investor will ask his counterpart in that country to purchase the goods or supplies required by the legitimate businessman, using the pirate investor’s money located in his bank account abroad. These goods or supplies are then shipped to the businessman inside Somalia, who repays the investor upon receipt in cash for the value of the shipment. The operation incurred no transfer costs for the investor, who can then use the cash to pay for the criminal business (The World Bank 2013, 48).

Execution
A group of pirates, numbering around 10 to 30, depending on the complexity of the operation and the size of the target-ship, chase the ship at full speed using small wooden boats or fiberglass speedboats, eventually taking off from a mothership. If the pirates are not able to board the ship, while it is still sailing, or if the crew of the target vessel has spotted them and is eventually starting BMP measures, the pirates may warn the vessel to stop voluntarily by communicating the message through VHF radio or by firing warning shots across the ship’s bow. If the target vessel is not slowing down, pirates may fire RPGs at the ship to threat and intimidate the crew. When the pirates reach the ship’s side, they board the ship with ropes and flexible ladders, armed with knives, machine guns and RPGs to apprehend the crew, force the vessel to stop and allow more pirates to enter the ship.

Managing the hostages
After the ship has been seized, the pirates steer the vessel to the coast and berth it in ports or anchor it at the shore next to port. Researchers have identified three big

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61 There have been a few incidents in which there were more than 80 pirates involved with a maximum of 200 pirates in one case (Ratisukpimol 2011, 92).
ports and a variety of smaller ports along the Somali coastline that are used by different pirate groups to anchor hijacked vessels and start negotiations (Gulf Research Center 2009, 32). Once the hijacked vessel is close to the shore, another group of pirates, the guarding team, board the ship to keep watch over the hostages. This requires collaborators ashore, whose support has probably been agreed upon in advance. In most cases, the hostages are held on the ship until the negotiations are successful. Pirates have found that hostages on board a hijacked ship are less likely to attempt to escape as they cannot leave the ship and reach the land without outside support. Furthermore, this method makes a rescue attempt by police or military forces difficult, as guarding pirates, would probably notice the attack and ring the alarm and harm the hostages in the process. Additionally, keeping the crew as hostages on board their own ship is seen as a form of assurance that they will be released with the ship and its cargo in one single deal. Finally, the pirates and hostages can use the food, water, and medicines stored on board before they have to supply fresh food and water from land, as the negotiations can last for weeks, several months or more than a year (The World Bank 2013, 41).

Negotiations
The ransom negotiations with pirates about a hijacked vessel include the three components: the value of the vessel, the value of the cargo, and the value of the crew. The pirates try to relate the size of ransom they demand to a certain percentage of what they perceive as the value of these three components. The amount of the demanded ransom is also aligned to what they expect the concerned parties are able and willing to pay (Gulf Research Center 2009, 39). The concerned parties may include the party that owns the vessel, the party that operates the vessel, the insurance company responsible, the state where the vessel is registered, the state that owns the ship, the parties that own the cargo, the nations to whom the crew belong, and the families of the crew.

To start the negotiations, the pirates have to identify the responsible parties and find the right contact details. This information is typically obtained from the captain and other members of the crew or the ship’s registration record and other documents on board. Once the right contact is identified, the pirates open communication

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62 The three main ports are Mogadishu, Eyl and Harardhere, while the six smaller ports are Ehinowea, Dhiedhiglay, Hobiyo, Raas Shula, Bossaaso and Garaad.
63 In most cases, the pirates identify and contact the owner of the ship to start the negotiations.
channels for negotiating directly, by using the ship’s communication system, or indirectly, by conducting negotiations through mediators based ashore (Gulf Research Center 2009, 36).

The pirates usually offer a package deal, wherein they offer to take a single payment for releasing all three components including the vessel, the cargo, and the crew. This strategy is preferred because the negotiations take less time and enable the pirates to shift capacity to hijack new ships and be more productive. Alternatively, the pirates may try to strike separate deals by dividing the three components. Pirates declare their intention to go for separate deals usually when negotiations break down or drag on indefinitely, or when they feel that dealing separately with the three different components could bring more profit (Gulf Research Center 2009, 39).

The negotiations can lead to several outcomes:

If the negotiation succeeds and the concerned counter-party is ready to pay the ransom, the method for the secure payout and the kind of ransom delivery has to be cleared.

If the negotiations fail or the ransom is not paid, the pirates can revert to different options to convert the seized ship into cash. Due to the high level of economic dislocation of Somalia, it is difficult to sell the cargo or the ship in the region. However, the pirates may try to sell the whole ship on the black market with forged registration documents, or they dismantle the ship by selling it for scrap. Depending on the nature of the goods, the pirates may also be able to discharge and sell the cargo. Consumer goods could be used by the pirates, or distributed among the clan members or be sold in the local market. If the seized vessel carried products like rice or wheat as cargo, the pirates might distribute these products to friendly clans and villages to achieve or ensure their sympathy and protection. It has been reported, that pirates distributed free food and envelopes containing $100 bills to the inhabitants of coastal villages, to win their support (Gulf Research Center 2009, 36).

The hostages are released with the help of international organizations.

Ransom Payment

Once the amount is negotiated, the pirates have to secure the delivery. This can be achieved by four different methods. Firstly, the ransom can be delivered to a nearby ship, and then the pirates would collect the cash with a smaller boat and issue the order to release the hijacked ship, once the money has been checked and approved. Secondly, the ransom could be delivered to the hijacked vessel by a plane or helicopter, which would drop cash bags on board. Thirdly, the ransom could be
transferred electronically to informal indigenous banks based in Somalia, from where the pirates can collect the cash directly. Fourthly, the ransom could be transferred electronically to an account in Kenya belonging to an associate who would then transfer it to the pirates. However, in the majority of cases, the pirates prefer to receive the ransom in cash (Gulf Research Center 2009, 41).

Profit Appropriation
When the pirates have received the ransom, the money filters down through a system to fund the costs of the operations and investors, which include acts of piracy, and various other criminal business activities, including investments into the khat trade and human trafficking (The World Bank 2013, 2). The payment is distributed among the relevant stakeholders, namely the commanders and the boarding team, the financial investors, and the local community that provided services to the pirates during and after the operation. The money is then moved through and around Somalia and the region, and invested in other sectors of the region’s economy. To launder the ransom, the shareholders can buy into legitimate business interests. In particular, pirates like to invest in the khat-business. Especially the khat trade is a predominantly cash-based business with a widespread distribution network, offering ideal conditions for laundering the received money. Investors and pirates also reinvest into the Somali piracy business model, sustaining and reinforcing future attacks (The World Bank 2013, 2).

Modus Operandi
Since the Somali pirates demand a ransom for the crew they have taken hostage, the well-being of their hostages is one of the primary concerns of the commanders. However, since many pirates are taking drugs and are stressed during an operation, some abuse hostages occasionally. Furthermore, due to the typically long-lasting period of negotiations, the hostages suffer trauma and have to sit through lousy living conditions.

5.3.2.3 Key Resources
Criminal Network
The Somali piracy business model is very complex, and its operations are longstanding. The pirates, therefore, depend on a criminal network to be able to plan operations properly, execute them professionally and persevere the overall timeframe until a ransom is paid and distributed. Due to the collapse of the Somali
government, especially the coastal communities have been on one’s own for decades and established different networks to survive. Pirates, naturally being members of this society, are embedded in these networks and can resort to a pool of specialists and know-how for their criminal activities. While the different piracy groups usually operate independently, in some cases, these groups work together in joined operations, allying the clan-lines.

Human Resources
Due to the social acceptability of piracy in Somalia, which has mainly been provided through the prevalence of the narrative, in which piracy is projected as a legitimate practice of protecting coastal waters against resource exploitation or environmental crime, recruitment of human resources has in many coastal areas not been an issue for the piracy businesses (Bueger 2013). A massive pool of young men, who had been fishermen, ex-coast-guards or ex-militiamen are unemployed and willing to enter the piracy business.

Finance
Several investors in and outside of Somalia are willing to invest in the piracy business, as they receive most of the ransom if an operation is successful. In Haradheere, one of the piracy hotspots in East Africa, the piracy businesses set up a sort of stock exchange as a cooperative to fund further hijackings. The shares can be acquired by providing cash, weapons, or other useful materials (Reuters 2009). There has been evidence that also a Somali community living in Canada has invested in the piracy companies through informal financial exchange channels (NATO Association of Canada 2011).
Somali pirates have shown great flexibility and tactical thinking capacity in the development of their operations and use of gained capital. By reinvesting their profits, they have been able to upgrade and acquire new equipment, and this allowed them to adapt faster to any change in circumstances.

Equipment (Nautical Equipment, Weapons)
Nautical Equipment
Since 2005, pirates developed their tactics by introducing the use of motherships as operational headquarters in the sea to enhance their operational capability. These motherships are often hijacked fishing trawlers, which are big enough to host several pirates, food and fresh water for longer periods at sea. They carry on board or drag
alongside a few smaller speedboats that can be launched independently to execute an attack. Furthermore, they carry sophisticated communication devices and radar, enabling pirates to monitor and track passing ships and their target vessel. It is difficult for patrolling naval forces, to identify motherships, as these often operate in areas, where on average no less than 700 fishing boats and trawlers are present at the same time (Gulf Research Center 2009, 33).

However, the small attacking boats (skiffs) and the motherships are not always sufficiently equipped with fuel and potable water, when they put out far to the sea. Many pirates have lost their lives from thirst and the normal dangers of the deep ocean (Palmer 2014, 116).

Weapons
Pirates in East Africa are armed and often experienced in the use of their weapons. Knives, guns, machine guns (AK-47), grenades and RPGs are widely spread in the region, due to the lasting inner conflicts of Somalia and militant activities.

Timeframe
The timeframe for East African piracy splits into three phases. The first timeframe-phase considers the time needed for preparing an operation, reaching the operational area and waiting there until a potential target is identified.
The second timeframe-phase considers the actual attack and boarding procedures. Due to the immense size of the operational area, it may take days for counter-piracy players to arrive at the scene. However, the pirates are usually extremely stressed during an attack, since they do not know, how near a military vessel is patrolling. Once the target vessel is attacked, military vessels have probably been informed and head full-speed to the scene. The appearance of naval vessels would reduce chances of a successful hijacking drastically due to the overwhelming firepower of the naval forces. Therefore, the risk for the pirates is constantly rising, as long as the crew of the target-vessel can delay the boarding.
The third timeframe-phase starts, once the pirates are in possession of the ship and the hostages. Then, the risk of counter-piracy interference lowers dramatically, since counter-parties do not want to risk the lives of the hostages. When the ship is anchored or berthed at the pirate´s haven, the negotiation phase starts, and the whole timeframe takes until the ransom is paid and the ship and crew are released. This phase may last weeks, months or years.
5.3.2.4 Value Proposition

The potential value of the hijacked ship depends on the three components: the value of the vessel, the value of the cargo, and the value of the crew and passengers. The pirates try to relate the size of ransom they demand to a certain percentage of what they perceive as the value of these three components. The amount of the demanded ransom is also aligned to what they expect the concerned parties (shipping company, insurance company, the state(s), the families) are able and willing to pay (Gulf Research Center 2009, 39). Somali pirates target container and general cargo ships, bulk carriers, tankers, fishing trawlers, and yachts. Attacks on large container ships, cargo ships and tankers are considered high risk - high return operations (Gulf Research Center 2009, 34). The tactical advantages of attacking and hijacking these kinds of ships are that it is easy to obtain information about their movement, timetable, routes, and nature of cargo. The size of these ships makes it easy to track them with radar. Furthermore, a fully loaded vessel sails with its upper deck very close to the surface of the water, which consequently enables the pirates to board the ship more easily.

However, the pirates also face challenges in hijacking large container ships, cargo ships and tankers. The higher the value of the ship and its cargo, the more likely the hijacking will attract international attention and potential punishment. Therefore the hijacking of high-value targets puts more pressure on the pirates and makes operations more difficult in the long term. Additionally, it is more difficult for the pirates to hide the large vessels, what makes the operation more vulnerable to being discovered and monitored and potentially exposes the pirates to a rescue attempt.

Yachts are relatively easy targets and can be considered a low risk - high return operation (Gulf Research Center 2009, 35). Pirates usually do not face strong resistance from crewmembers or passengers. Furthermore, the pirates assume that private yachts belong to wealthy people, who will be ready to pay high ransoms. If a yacht owner refuses to pay the ransom, the pirates can sell the yacht easily on the regional black market.

Trawlers and other ocean-going fishing-vessels are considered to be medium risk targets. These ships are easy to sell or can be converted into motherships. However, due to the well-known danger of piracy in the area, many fishermen are armed and

64 For example, the hijacking of the Saudi Arabian-owned large oil tanker Sirius was a decisive factor that forced the international community to accelerate the implementation of counter piracy strategies.
ready to defend their vessels. While these hijackings do not trigger international attention, the operation itself is dangerous for the attacking pirates.

Since the year 2000, when pirates demanded ransoms amounting to hundreds of thousands of US dollars, the demanded amount has been considerably increased. For example, in 2008, the ransom ranged from $500,000 up to $15 million for a single vessel and its crew (Gulf Research Center 2009, 40). Compared to the value of the ship, cargo and crew, these sums are still considered low by the shipping companies. Therefore, they are often willing to pay the large amounts.

Depending on the nationality of the crew, the pirates can demand different ransoms. For an Asian or East-European crewmember, the pirates demand about 40,000 USD, while a West-European or North American is worth approximately 300,000 USD (Pérouse de Montclos 2012).

5.3.2.5 Customer Relationships

In the East African piracy business, the customer relationships are naturally very tensed. In contrast to the business models of other piracy hotspots, the customers of Somali pirates are not in a financial benefitting position, trying to minimize their facing loss, since they are pressed for money.

5.3.2.6 Channels

To start the negotiations, the pirates have to identify the responsible parties and find the right contact details. This information is typically obtained from the captain and other members of the crew or the ship’s registration record and other documents on board. Once the right contact is identified, the pirates open communication channels for negotiating directly, by using the ship’s communication system, or indirectly, by conducting negotiations through mediators based ashore (Gulf Research Center 2009, 36).

5.3.2.7 Customer Segments

Usually, the pirates have to deal with a consortium of customers. The concerned parties may include the company that owns the vessel, the company that operates the vessel, the insurance company responsible, the state where the vessel is registered, the state that owns the ship, the companies that own the cargo, the

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65 In most cases, the pirates identify and contact the owner of the ship to start the negotiations.
nations to whom the crew belong, and the families of the crew (Gulf Research Center 2009, 39).

5.3.2.8 Cost Structure

A typical cost-structure in East Africa could be the following:

Hijacking of a General Cargo ship

<table>
<thead>
<tr>
<th><strong>Average Costs in USD ($)</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upfront costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td></td>
</tr>
<tr>
<td>Forger</td>
<td>n/a</td>
</tr>
<tr>
<td>Insider/Informants</td>
<td>53.600$</td>
</tr>
<tr>
<td>Reference Data from SE Asian piracy</td>
<td></td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Speedboats</td>
<td>45.000$</td>
</tr>
<tr>
<td>Average use of three speedboats. One speedboat can host 5 pirates and costs about 15.000 $</td>
<td></td>
</tr>
<tr>
<td><strong>Additional costs</strong></td>
<td></td>
</tr>
<tr>
<td>Mothership</td>
<td>0$</td>
</tr>
<tr>
<td>Hijacked Fishing-Vessel, that is abandoned after the successful hijack</td>
<td></td>
</tr>
<tr>
<td><strong>Total Upfront Costs</strong></td>
<td>98.600$</td>
</tr>
</tbody>
</table>

**Costs if Hijacking succeeds**

| **Team Leader** | 75.000$ | Salary of about 75.000 USD |

---

66 The following hijack serves as an example: On 08 April 2011, the General Cargo ship was attacked and hijacked by ten armed pirates about 30nm of Ras Al Masirah, Oman, off Somalia at approximately 0234 UTC. The ten crew members onboard retreated into the citadel and requested for assistance. However, the pirates managed to gain access to the citadel and took the ten crew members hostage. The hijacked ship was then forced to sail to Somalia. The ship was released on 16 June 2011. It is believed that a ransom was paid for the safe release of the crew and vessel (IMB Piracy Reporting Centre 2012). A German shipping company owned the vessel and is believed to have paid 5.7 million USD as a ransom (Reuters 2011).

67 Most piracy operations are run opportunistically without the support of insiders or informants ashore. However, a professional piracy business will use this kind of support for its planning phase, if such information is available.
In East Africa, the salary for the pirates is a standard fee agreed to before the operation. The fixed salary is thereby not bound to the factored amount of the negotiated ransom. However, the commanders have implemented a bonus-system to encourage the pirates’ motivation. There is a bonus for the first pirate to board the hijacked ship and for those bringing their own weapon or ladder. This bonus can be up to an additional US$10,000 (UNODC (United Nations Office on Drugs and Crime) 2011). During the operation, the commanders often provide khat and food to the pirates on credit. Their consumption is recorded in books, and when they get paid

<table>
<thead>
<tr>
<th><strong>Boarding Team</strong></th>
<th>450,000$</th>
<th>9 Pirates, each receiving about 50,000$ (UNODC (United Nations Office on Drugs and Crime) 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supporting Staff</strong></td>
<td>15,000$</td>
<td>15,000$ salary for Negotiators (The World Bank 2013, 45)</td>
</tr>
<tr>
<td><strong>Guarding Team</strong></td>
<td>100,000$</td>
<td>About 100 men from the village nearby, each receiving a salary of 1,000$ (assumed amount by the author)</td>
</tr>
<tr>
<td><strong>Total Costs if Hijack succeeds</strong></td>
<td>738,600$</td>
<td>The Investor bears the full costs</td>
</tr>
</tbody>
</table>

**Costs of Hijack fails**

| **Bribes to Prosecutors** | n/a | If an attack on the high sea fails, the pirates are either been arrested by international counter-parties or died in the |
| **Team Leader** | 0$ |  |
| **Pirates** | 0$ |  |
| **Total Costs if Hijack fails** | 98,600$ | The Investor bears the full costs |

Table 23: Average Direct Cost Structure for East African Piracy Operations. If no specific data about West African piracy incidents was available, similar data from SE Asian incidents was used as a reference. Source: The Global Initiative against Transnational Organized Crime 2016; Bueger 2013; Bowden 2012; Index Mundi 2017.
their share, the equivalent of what they consumed is subtracted (The World Bank 2013, 45). Additionally, fines imposed for bad behavior are deducted from the payments, in some piracy networks along the coast of Somalia. These fines include mistreating the crew (a US$5,000 fine and dismissal), refusal to follow an order (a US$10,000 fine and dismissal), and falling asleep on the post (a US$5,000 fine) (UNODC (United Nations Office on Drugs and Crime) 2011).

5.3.2.9 Revenue Streams

Once the negotiations have been successful and the ransom money has been delivered, the revenue will be distributed. The World Bank expects, that in Somalia payments are also made to local militias controlling the port, where the hijacked vessel is berthed or anchored, whereby pirates would share 20 percent of their ransom payments (The World Bank 2013, 47). The final amount of the ransom is always variably negotiated. The claims for the hostages vary by the origins of each individual crewmember, starting from 40,000 USD for Asians or East-Europeans up to 300,000 USD for North Americans (Pérouse de Montclos 2012).

To keep the support of the local communities the piracy companies distribute a part of the revenue to the district and invest in infrastructure, schools, and hospitals (Palmer 2014, 11). This can be interpreted as a corporate social responsibility (CSR) program by the piracy business. The World Bank estimates that the investors receive about 30-75 percent of the total ransom, depending on the business model (The World Bank 2013, 3).

Hijacking of a General Cargo Ship

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ransom / Revenue</strong></td>
<td>5,700,000$\textsuperscript{68}</td>
</tr>
<tr>
<td><strong>Costs if Hijack succeeds</strong></td>
<td>738,600$</td>
</tr>
<tr>
<td><strong>Share for Local Militias</strong></td>
<td>992,280$</td>
</tr>
<tr>
<td><strong>Share for Local Community</strong></td>
<td>496,140$</td>
</tr>
</tbody>
</table>

\textsuperscript{68} The hijacking of the ship “MV Susan K” is used as an example. In this case a ransom of 5.7 million USD was paid to release the ship and the crew.
**Business Perspective**

<table>
<thead>
<tr>
<th>Reinvestment</th>
<th>$992,280</th>
<th>20% for future missions (Gettleman 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit if Hijack succeeds</td>
<td>$2,480,700</td>
<td>(50% of the revenue) (probably 80% Investor, 20% CEO)</td>
</tr>
<tr>
<td>ROI</td>
<td>CEO: 4.961,4% Investor: 268,69%</td>
<td>(Considering 10,000$ as personal expenses of the CEO)</td>
</tr>
<tr>
<td>Success Rate</td>
<td>38.3%</td>
<td>Average success rate concerning all reported incidents of East African piracy from 1996-2013 (Jeong 2015, 8)</td>
</tr>
</tbody>
</table>


Between 2005 and 2012, the UNODC-WB dataset estimates that between US$339 million and US$413 million was paid in the form of ransoms for ships and seafarers kidnapped by Somali pirates. In East Africa, the most lucrative year for pirates was 2011 when they collected about US$153.3 million as seen in figure 29 (The World Bank 2013, 41). Between 2008 and the end of 2010, Somali pirates captured more vessels than they would release for ransom. In 2010 for example, the pirates released 24 ships for ransom while they still held 28 vessels captive at the end of the same year (The World Bank 2013, 42). From this follows that their stocks at the beginning of 2011 were already bigger than the number of ships they released in 2010. As a result, despite less success at sea in 2011 than in 2010, the pirates reached a peak in 2011 estimated at US$153.3 million (The World Bank 2013, 42). The number of successful hijackings started to decrease in 2011, due to the increased presence of international navies and private security personnel aboard vessels transiting through the High-Risk area.

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69 This is based on the timeframe from 1996-2013, which has also been used for the examination of the other piracy hotspots. However, from 2014-2017 there have been only 13 reported attacks, which lead to two successful hijackings, leading to a Success Rate of 15.38% for this timeframe.
At the end of 2011, the number of ships in stocks of Somali pirates was down to 7 compared to 28 at the end of 2010. In 2012, the pirates successfully hijacked 15 ships compared to 48 in 2009, 50 in 2010, and 31 in 2011 (The World Bank 2013, 43), as illustrated in figure 30.
5.3.2.10 Canvas Business Model

In this chapter, the microeconomic tool CANVAS was applied to the business model of Kidnapping for Ransom in East Africa. The outcome of this method is a visual chart, which illustrates the examined elements describing the company’s infrastructure, value proposition, customers, and finances, as shown in figure 31. This template facilitates the deduction of further relevant factors necessary for the cause and effect modeling in the chapter “PECOBUS Model.”

Figure 31: Canvas Business Model of Kidnapping for Ransom in East Africa. Source: Visualization by the author using the Canvas Template.
5.4 **Deduced Business Factors**

From the business perspective, the following additional factors (formatted bold) affecting the internal and external processes of professional piracy businesses have been deduced. Factors which have been introduced already, are formatted cursive henceforward, conveniently.

**PESTLE**

a. **Political:** The examined piracy hotspots belong to regions which are governed by the factor *Weak Authorities*. These authorities are either not willing to counter piracy forcefully, or are not capable of countering them effectively. This determines the presence and engagement of national executive forces and thereby influences the factor *Place Manager*. Depending on the impact of piracy, especially on the global impact, the intervention of international security forces and NGO’s, the *Super Controllers (PM) and (HA)*, is triggered. However, these factors have already been deduced from the economic perspective.

b. **Economic:** The piracy businesses need to have access to black markets, to sell their stolen cargo to *Potential Buyers*. These are attracted to the *Target Value*, due to the granted discount which the piracy businesses offer to sell their goods despite the negative connotation which naturally accompanies a criminal deal. The more *Potential Buyers* have an interest in the stolen cargo, the higher rises the *Potential Reward* due to the limited supply of stolen goods. In contrast, the *Opportunity Cost* is unaffected by this dynamic. In the case of the business model of kidnapping for ransom, obviously, typical dynamics of supply and demand do not apply. Since individual hostages are no substitutes to each other the amount of demanded ransoms varies from case to case. However, depending on the nationality of the hostages, a kind of commonly accepted price-list has evolved over time. Furthermore, this business model is independent of the access to *Black Markets*. However, the pirates must identify the party responsible for the well-being of the hostages, and open a communication channel to start the negotiations about the ransom and subsequently the release of the hostages.

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70 This dynamic is based on the assumption that the supply-side is not diluted by competitive piracy businesses, which could cause a price war and thereby put the positive feasibility-assessment of the involved piracy businesses at risk due to the decreasing potential reward.
Finally, an improving or worsening of the factor **Economic Trend** influences the factors **Economic Dislocation** and **Opportunity Cost**.

c. Social: The **Social Acceptance** of criminal activities influences the supply of **Human Resources** and facilitates corruption. The factor **Corruption** manipulates the willingness of the **Weak Authorities** to counter piracy and increases the **Prospect of Operational Success** due to the support of corrupt officials, informants, and insiders.

d. Technological: The technological assessment of the piracy hotspots shows the sophistication of the weapons and nautical **Equipment**, which is used by the pirates to board the target vessels, in relation to the sophisticated equipment, which is used by the defending crews and PMSCs. Consequently, the factor influences the **Prospect of Operational Success** and the strength of the **Guardian**.

e. Legal: The effectiveness of the factor **Jurisdiction** influences the level of **Deterrence** in a piracy hotspot. Furthermore, if the perception of the judicial authenticity is low, the **Underreporting** of piracy incidents might be a consequence in the region. This, in turn, decreases the perceived impact of piracy. On the other hand, a strong **Jurisdiction** encourages victims to report incidents of piracy and diminishes the **Social Acceptance** of criminal activities.

f. Environmental: The availability of favorable hideouts facilitates the pirates to prepare their operations rather untroubled, while meteorological events may hamper pirates in their execution of operations. However, neither the pirates nor the counter-piracy authorities have a reasonable influence on the availability of such hideouts or the occurrence of meteorological events. Therefore, these potential factors will not be considered in the cause and effect model.

**CANVAS**

a. Key Partners: The CEO of a piracy company is either capable to fund the business on his own, or relies on the capital of an external **Investor**, who usually has a criminal background himself. The money is needed to hire the diverse specialists and to buy suitable equipment required to run the operations. Furthermore, money is used for **Corruption**, which in turn enhances the **Prospect of Operational Success**. It is believed, that a higher **Potential Reward** attracts more **Investors**.
b. Key Activities: The factor **Violent Modus Operandi** describes the level of violence pirates use during their operations. While the use of violence may facilitate pirates to hijack target vessels faster, since the instilled terror in the defending crew may lower the resistance, such an attitude leads to a stronger impact of piracy and could thereby provoke the intervention of executive forces. Furthermore, a **Violent Modus Operandi** harms the crew and damages the vessel, which in turn could diminish the **Target Value**.

c. Key Resources: Due to the complexity of maritime hijackings, the piracy businesses rely on a widespread **Criminal Network** with access to **Human Resources**, **Black Markets**, and potential investors. The establishment and expansion of a **Criminal Network** benefit from **Weak Authorities** and subsequently from a weak **Jurisdiction**. In regions facing such conditions, **Corruption** becomes a kind of self-fulfilling prophecy.

d. Cost Structure: The factor **Potential Loss** summarizes the investments which have been made to conduct an operation. In particular, the costs for **Human Resources** and new **Equipment** are represented by this factor. If the operation fails, this money is lost.
6  PECOBUS Model

After the piracy hotspots of SE Asia, West Africa, and East Africa have been examined from an economic and business perspective, the deduced factors and the interrelations between them shall be visualized into comprehensible internal and external processes. This visualization shall be accomplished by the application of an explorative qualitative cause and effect model, the “PECOBUS Model,” to determine the feasibility-assessment of piracy operations. Since the feasibility-assessment of the business models is believed to be the ultimate rationale of the emergence of professional piracy per se, this visualization-method should enable researchers of the academic field of maritime crime to gain a better understanding of this criminal business.

While the principal purpose of this dissertation is to develop the model as a fundamental template for further use, a rough examination of the coherent similarities and differences of the different business models shall be applied to check the plausibility of the causal conception. However, due to the limited nature of a qualitative approach, a more precise weighting and subsequent assessment of the factors can probably be achieved by a quantitative approach, which would be based on allocable numbers.

6.1 Causal Conception

Based on the work of Hallwood and Miceli, who have built an economic model to assess the motivation of individuals who rationally decide to become a professional pirate, the causal conception for the feasibility-assessment of piracy business models has been deduced. This causal conception illustrates that the Feasibility of piracy business models results from a trade-off between the potential profit gained from piracy activities (Business Opportunity) and the risk of being caught and prosecuted in the process (Deterrence). Consequently, this trade-off forms the center of the PECOBUS model, as shown in figure 32.

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71 The name “PECOBUS” is combination of the words “Piracy”, “Economic”, and “Business” for practical use, as it describes the substance of the visualized model decently.
The factor Business Opportunity represents the terminal point of the diverse internal processes, which influence the Potential Reward and the Prospect of Operational Success. Furthermore, the external processes, which influence the factor Opportunity Cost, have an impact on the factor Business Opportunity. On the other hand, the factor Deterrence pools the juridical and executive forces, which, in synergy, threaten the overall feasibility of a piracy business. Besides these external processes, which may deter piracy companies from doing business, also the factor Potential Loss, resulting from potential financial losses due to the failing of operations, has an impact on the factor Deterrence. Consequently, professional piracy can only emerge and persist, if the value of the feasibility formula is positive.

Color Assignment
Since the diverse business models of piracy encompass a variety of different factors, each factor has been assigned one of three colors to help researchers to stay on top of things. Factors, which are accessed by the criminal entrepreneur directly, are green-colored. The grey-colored factors can only be influenced indirectly by the piracy businesses. The red-colored factors are completely out of reach for the piracy businesses, naturally lacking a direct connection from green to red, at first. However, even some of the red-colored factors, which are typically deterring or distracting the
feasibility of a piracy business, can be influenced indirectly by grey factors, which in turn can be influenced by green factors, especially over the long-term. For example, in the visualized business model of SE Asian piracy companies, the green-colored factor *Criminal Network* has no direct connection, and thereby no direct influence, on the red-colored factor *Deterrence*, as figure 33 depicts.

![Diagram of business model](image)

**Figure 33**: The indirect connections between the factors Criminal Network and Deterrence in the visualized business model of SE Asian piracy. Source: Visualization by the author using the iModeler.

However, the iModeler has grasped 98 indirect connections from the factor *Criminal Network* to the factor *Deterrence*. Already in the short-term, the factor *Criminal Network* has a qualitatively strong influence on the factor *Deterrence*, due to its indirect connections. In the long-term, this influence is even increasing. In fact, in the long-term, this is the most influential impact-connection in the feasibility-assessment as shown in figures 34 and 35. In these figures, the Insight-Matrix from the factor *Deterrence* shows on its horizontal axis the effectiveness of other factors as
increasing the factor *Deterrence* or decreasing it. The vertical axis indicates the change of impact over time from short to long-term.

![Figure 34](image1.png)

**Figure 34**: The short-term influence of the factor Criminal Network on the factor Deterrence in the Insight-Matrix of the SE Asian piracy business. Source: Visualization by the author using the iModeler.

![Figure 35](image2.png)

**Figure 35**: The long-term influence of the factor Criminal Network on the factor Deterrence in the Insight-Matrix of the SE Asian piracy business. Source: Visualization by the author using the iModeler.
6.2  **iModeler Concept Maps**

The developed models are best read by actually using the iModeler-software and by changing the perspective from which it is seen by placing individual factors as center points. The visualized models have been developed as open source templates, which are publicly accessible on the internet. The models can be found on the website http://www.know-why.net by searching for the keyword “PECOBUS.”

However, to receive an impression of the complexity of the different piracy hotspots, the following screenshots shall illustrate the visualized business models.

SE Asia – Grand Theft

![Concept Map of SE Asian piracy. Source: Visualization by the author using the iModeler.](image_url)
West Africa – Armed Robbery

![Concept Map of West African piracy. Source: Visualization by the author using the iModeler.](image)

East Africa – Kidnapping for Ransom

![Concept Map of East African piracy. Source: Visualization by the author using the iModeler.](image)
6.3 Plausibility Check

After the piracy hotspots of SE Asia, West Africa, and East Africa have been visualized into explorative qualitative cause and effect models to determine the feasibility-assessment of piracy operations, a rough plausibility check shall verify the underlying causal conception of the models with the findings of the academic field of maritime piracy.

However, since the principal purpose of this dissertation has been to develop the models as basic templates for further use, their qualitative nature limits the quantifiable proof. A more precise weighting and subsequent assessment of the factors can probably be achieved by a quantitative approach, which would be based on more allocable numbers. If a sufficient pool of such data was deduced and collected by future research, the developed models could be assessed by the iModeler software.

Nevertheless, a rough examination of the coherent similarities and differences of the different business models shall be applied to check their underlying logic with real-world findings out of the literature.

Similarities

While the three global hotspots of piracy established individual business models to adjust their businesses to the different regional frameworks, the same causal conception applies to all of their feasibility-assessments. The PECOBUS Model shows that besides the shared causal conception, also many factors, which have a significant impact on the feasibility-assessment, are overlapping across the different business models. In all three hotspots, the two factors Weak Authorities and Economic Dislocation have the major influence on the positive side of the feasibility-assessment, while most of the other shared factors have a different order and vary in their weighting. These two major factors had also been identified as the most important root causes of piracy in the maritime literature, as examined in the chapter “Economic Perspective.” Furthermore, the factors Opportunity Cost, Potential Loss, and Jurisdiction, which have a major influence on the negative side of the feasibility-assessment, are shared among the hotspots. Notably, the illustrated business models of the hotspots of SE Asia and West Africa seem to be very similar. While this makes logical sense, due to the similar findings in the course of this research, it is still a remarkable outcome, since both regions are
geographically far apart and are not believed to have established a relationship or
other forms of connections.

Differences
While all three piracy hotspots share the same causal conception, the internal and
external processes differ in details. Notably, the business model of kidnapping for
ransom, present in East Africa, is fundamentally different in contrast to the business
models of grand theft and armed robbery. While piracy businesses in Somalia are not
relying on the access to black markets, to identify and attract potential customers,
they face additional deterrence-factors. Due to the significant global impact of the
East African criminal companies, international forces entered the scene and
apparently destabilized the feasibility-assessment of the professional business
models. However, due to the worsening factor Economic Trend, many other factors
will be influenced and give an advantage to the criminals, long-term. Furthermore,
due to the drastically declined impact of piracy, based on the inoperative status of the
illegal businesses in the recent years, the presence, and thereby the power, of
multiple Deterrence factors will most probably continue to diminish from the scene.
From this follows that a restart of East African piracy seems probable since the
feasibility-assessment of the businesses is constantly improving to the advantage of
the criminals.

The factor Economic Trend is also the most decisive in differentiating the hotspots of
SE Asia and West Africa. Due to an improving Economic Trend in SE Asia, the local
piracy businesses will face problems in recruiting Human Resources, since the
Opportunity Costs are rising and simultaneously the Social Acceptance is declining.
In the long-term, the Weak Authorities will be strengthened and can thereby reinforce
the factors Place Manager and Jurisdiction.
In contrast to the conditions in SE Asia, the Economic Trend is worsening in West
Africa. From this follows a supply of Human Resources and a decline in Deterrence
activities, long-term.

The complexity of the different visualized cause and effect models, resulting in a
multiplicity of direct and indirect connections, over a short-, medium-, and long-term
period, makes it infeasible to check the plausibility to a full extent. However, the
relevant insights from this model are based on abductive logic and are thereby
logically sound, unless the accuracy of the particular interrelations between the
factors is falsified.
7 Conclusion

The purpose of this thesis was to enable a better understanding of the professional piracy business by “lifting the eyepatch” of previous research approaches, which tackled the topic of maritime piracy with a one-eyed retrospective focus and by the self-imposed limitation of discounting pirates as desperate amateurs. To overcome this blind spot the illegal business models were approached from the perspective of a sophisticated criminal entrepreneur because this shift of view was believed to facilitate a more impartial examination of the underlying dynamics of piracy, providing further insights, which might have been overlooked in the past. Metaphorically speaking, in the course of this study, the applied methodology has been successfully revealing significant parts of the concealed treasure-map of piracy, which contains the “secret” core factors and processes determining the feasibility of the criminal businesses and thereby the ultimate rationale of the emergence of professional piracy per se.

As a preparative for the subsequent application of theories, tools, and models, the literature about piracy was reviewed extensively to catch the “Current State of Research.” This review revealed the lacking of a comprehensive understanding of pirate’s decision-making progresses and the opportunity structure in which the crimes take place, as well as an appreciation for what factors of the environment can be manipulated. Consequently, the literature has been stressing the urge of an elegant model, which facilitates a better understanding of the underlying dynamics of piracy.72

In a first step, the chapter “Economic Perspective” approached piracy organizations by the application of a variety of fundamental economic theories in combination with findings of secondary data, to assume the equalization of professional piracy with regular business structures as an impartial rationale for the subsequent construction of the corresponding business models. Especially the use of the theories of Rational Choice, Transaction-Costs, and Principal-Agent facilitated the deduction of the first set of relevant factors.

In a second step, the chapter “Business Perspective” approached piracy companies by the application of macro- and microeconomic tools to examine the complex business structures and deduce further core processes and factors, which are

72 The phrase “elegant model” shall describe a simply appearing presentation of a complex system.
believed to be significant for the underlying dynamics of the piracy businesses. By the application of the PESTLE-Analysis and the Canvas Business Model, the deduced factors were arranged logically, leading to an identification of further internal and external processes. This procedure was applied to the three global hotspots of piracy, namely SE Asia, West Africa, and East Africa to collect sufficient and coherent data for the second set of relevant factors.

Finally, in a third step, the chapter “PECOBUS Model” structured the deduced factors and the interrelations between them to set up the causal conception for the subsequent visualization of the piracy business models, which has been accomplished by the application of explorative qualitative cause and effect models. Based on the traditional principles of Rational Choice and a specialized economic model, which examines the individual motivation of engagement in illegal activities, it was possible to construct a universal feasibility-assessment concept of piracy businesses. This causal conception illustrated that the feasibility of piracy business models results from a trade-off between the potential profit gained from piracy activities and the risk of being prosecuted in the process. Consequently, this trade-off formed the center of the PECOBUS model, which enabled a better understanding of the internal and external dynamics of professional piracy.

However, neither qualitative nor quantitative models can predict the future, and the procedure developed in this dissertation does not claim to have found the ultimate solution for containing the threat of piracy. Nevertheless, since the PECOBUS model has been applied to all three global piracy hotspots, similarities and differences of the business models have become visible and indicate the big picture of piracy. The visualized models serve as applicable templates, and due to their open-source character, they can be explored, expanded, and refined in progress. Thereby, this dissertation is believed to have laid the foundation for a more profound and comprehensive research approach. Naturally, fellow researchers in the academic field of maritime piracy are cordially invited, to use and improve the visualized cause and effect models, ad libitum.

Notably, the developed PECOBUS models could be enhanced by the application of a quantitative approach. However, this demands further research to identify, deduce, and collect data in allocable numbers. Such an approach could likewise take the methodology of this thesis as a guided procedure, to tackle the subject from an impartial viewpoint. As shown in the progress of this study, the equalization of piracy organizations with regular business structures facilitated the application of macro- and microeconomic tools. While this dissertation developed the fundamental causal
conception of the feasibility-assessment of piracy businesses in a qualitative approach, the use of quantitative data could scale the short-, medium-, and long-term effects of the internal and external processes, visualized in the PECOBUS models. Furthermore, the PECOBUS models could be applied to other regions of the world, which are not affected by professional maritime piracy yet, to check the theoretical feasibility of the emergence of such criminal businesses. By analyzing the given framework factors of the particular region, at least the external processes could be projected, and various potential responses of the criminals could be tested theoretically.

Finally, the models could be expanded by factors and processes, which are not yet present in the real world. For example, the use of new technologies and tactics, such as cyber-crime activities, could be implemented in the model to gain a better understanding of possible consequences that would occur, if piracy businesses make use of such opportunities in the future. Thereby, preventive countermeasures could be considered at an early stage.

Even if these recommendations do not convert researchers, policymakers, the maritime industry, or troops on the ground to an ongoing application of the developed cause and effect models, readers of this thesis will probably lift the myth of savage outlaws and tackle pirates as capable businessmen leaving self-limiting prepossessions behind. This insight alone, would facilitate a better understanding of the problem and serves the purpose of this dissertation.
8 List of Cited Literature


