The Changing nature of Contemporary Maritime Piracy

Results from the Contemporary Maritime Piracy Database 2001–10

Anamika A. Twyman-Ghoshal* and Glenn Pierce

The accurate monitoring of piracy tactics is imperative for understanding the changing nature of piracy. Using the most comprehensive, global piracy data set available to date—the Contemporary Maritime Piracy Database (CMPD), this article documents the change in piracy, identifying that the new form of piracy that emerged in the 1990s became the dominant type of piracy in the study period. The CMPD suggests that even though the escalation of piracy in Somalia has affected the profile of piracy overall, other forms of piracy, which display a different set of characteristics, still remain.

Keywords: maritime piracy, Contemporary Maritime Piracy Database, Somalia

Introduction

Research on piracy has been criticized as being limited and superficial, largely due to the lack of synthesis of reported piracy incidents (Worrall 2000; Ong-Webb 2007) focusing either on select types of piracy (such as petty thefts and seizures for ransom) or on particular geographical regions where piracy occurs (such as South East Asia or Somalia and the Gulf of Aden). Usually these rely on a single source of data or are based on anecdotal evidence. Additionally, aside from International Chamber of Commerce's International Maritime Bureau (IMB) publications, little research has been produced that empirically examines global trends in piracy over the first decade of the 21st century, a time period that exhibits a major shift in the location of attacks. This paper is based on research designed to develop a more comprehensive collection of piracy data for the 21st century by combining IMB piracy reports with the US National Geospatial Intelligence Agency (NGIA) data on reported anti-shipping activities. This paper intro- duces the *Contemporary Maritime Piracy Database* (CMPD) and shows how it can be used for a more comprehensive assessment of contemporary piracy, identifying the subtle changes of piracy tactics, nature and trends.

This paper starts by describing the methodology for combining two major maritime piracy reporting sources into one comprehensive database. Drawing on the comprehensive database, the global trends and characteristics of piracy from 2001 to 2010 are analysed across a broad set of piracy incident characteristics, including time and place, the nature of the assault, type of vessel, the pirate motivations and the response to the attack. Finally, the paper reviews some of the possible reasons for the different types of contemporary piracy evidenced by the CMPD.

The CMPD

This research draws on two major data collection efforts on maritime piracy, that of the IMB and the NGIA to create one comprehensive piracy data set for the period 2001 through 2010.

The IMB is the principal international organization dealing with maritime piracy. In October 1992, it established the Piracy Reporting Center (PRC) to receive and disseminate reports of piracy and armed robbery in Southeast Asia. Since then, and especially in the last decade, all piracies are recorded irrespective of location (Author Interview with IMB Director Captain Pottengal Mukundan, February 2010). The PRC self-report victimization data are received from captains or owners of ships under attack. Each attack is logged using a report template that lists vessel particulars, details of the incident, the raiding party and additional information such as action taken by ship and crew. These individual attacks are collated into annual reports that provide summary details as well as individual attack descriptions.

The definition used by the IMB, for the purposes of their piracy reports, is exceptionally broad. This is a function of the PRC primary task of issuing status reports on piracy to ships via global satellite communication broadcasts. Essentially, they are tasked with risk assessment for the maritime business sector, and the definition aims to capture all forms of piracy activity. The CMPD retains the IMB definition of maritime piracy, which is 'any act of boarding or attempting to board any ship with the apparent intent or capability to use force in the furtherance of the act' (IMB 1992: 2). This definition proves to be more suited for research purposes than the narrow legal definition set in Article 101 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which defines piracy as 'any illegal acts of violence, detention, or any act of depredation' committed for private ends, in a ship-to-ship conflict that occurs in the high seas. The private ends element of the definition excludes from international jurisdiction acts of piracy that are condoned or organized by nation states as well as those directed at a state (Halberstam 1988). Furthermore, the UNCLOS definition requires that piracy occurs only in international waters, excluding the majority of contemporary piracy incidents that occur in territorial waters of nation states.[1] Finally with the two ship requirement, the legal definition excludes attacks that occur while a ship is in dock.

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The second source of data used in the CMPD is the NGIA's Anti-Shipping Activity Messages. These provide maritime safety information for US shipping. Similarly to the IMB reports, these messages provide the location and description of hostile acts at sea, against ships and mariners and are aimed at risk assessment for the US Navy and merchant shipping. NGIA receives its information from a variety of sources, including the IMB, wire services, international press reports, navies and coast guards from around the world and other maritime organizations and websites. In addition, NGIA allows for direct online reporting. The combined CMPD data set maintains a code that identifies the source of each attack.

Since the NGIA reports are obtained from multiple sources, there is duplication, which is aggravated when combined with the IMB data. Therefore, a substantial amount of data reconciliation and validation was required in the creation of the CMPD. Several reconciliation strategies were used in integrating the reports. This was done using a multi-step process, where descriptions were analysed to find identical factors first by looking at the location and time of the attack; then by the type of vessel that was victimized and whether the attack involved boarding. If the time of attack was identical but the descriptions were different, i.e. the vessel type, location or a narrative description was different, and then both attacks would be included in the database. Any reports deemed identical were removed. Next, attacks were checked to ensure they were based on the IMB definition of piracy.[2] Although the IMB definition is broad, it does not extend to incidents arising from civil war conflicts. The NGIA reporting system includes all reports that infringe on the safety of shipping and did record a number of attacks occurring off the coast of Sri Lanka during that nation's civil war. Therefore, 22 Sri Lankan civil-war-related attacks were excluded from the integrated piracy database, leaving 12 Sri Lankan piracies in the data set.

Another issue encountered in the data integration effort related to how piracy is counted. The IMB divides the narration of the piracies between two categories: attempted and actual attacks. Attempts are classified by the IMB as cases where the victim vessel is not boarded. There are however some areas of ambiguity. For instance, the IMB still classifies the piracy as an attempt if there is injury or loss of life but without boarding the ship. Another example of an attempted piracy is a theft from the exterior of the hull, which does not require boarding.[3] The combined CMPD includes attempted and successful piracy attacks without distinguishing between these two categories.

The process of integration of these two data sources was made easier by the fact that both sources provided comparable information in their reports. This information provided the foundation for the 52 variables included in the data set. Within this data set, each report was coded across nine major dimensions that include (1) geographic location (i.e. of the attack and alleged source of attack); (2) date of attack; (3) location at sea (e.g. high seas, coastal waters, in harbour); (4) time of attack; (5) target vessel characteristics; (6) pirate characteristics; (7) pirate actions; (8) pirate motivation (i.e. seizure for ransom, theft type, etc.) and (9) responses to piracy. The choice of variables coded reflect recommendations made by Beckman (2002: 320) to categorize treatment of crew, the types of weapons employed and the nature of the property stolen in order to better understand the level of seriousness of an attack.

Although the complete CMPD includes data from 1991 to 2010, for the purposes of this research, the focus was on the 2001–10 time interval. This decision was based on changes in piracy location that were observed in this time period based on the IMB annual reports. The previous decade (1991–2000) does not show any dramatic changes in piracy trends, which were predominantly located in Southeast Asia. Moreover, the total number of piratical incidents reported by the IMB for the study period grew by nearly 62 per cent compared to the previous ten-year period. This increase can only partially be explained by better reporting practices that developed with a greater concern and awareness of piracy in the last decades.

Piracy reports can also be characterized as an individual attack or an incident. The majority of reports in the CMPD involve a single attack by a group of pirates on a single ship. However, there are a number of reports that refer to a series of attacks that are related. These can be attacks on multiple ships within a short period of time (within a few hours) by what appears to be the same group of pirates, or several attacks on the same vessel, where each attack is within two hours of the next. These series of attacks are related and constitute a single piracy incident. Over the 2001–10 period, there were 151 incidents that include 575 attacks. This affords two distinct ways piracy can be counted, either in the number of attacks (i.e. each unique assault on a ship) or in the number of incidents (i.e. involving one or a series of related assaults). The CMPD contains data on both attacks and incidents, analyses were performed on both attack and incident levels and presented the same patterns over time and across country. Therefore, for the purpose of this research, incidents are used as the unit of analysis because incidents represent the primary motivation of the event. Incidents are also most policy relevant because they represent the locus of activity. It is important to note that the database contains 3,999 incidents (representing 4,418 attacks), which were included in the ana- lytic sample. Four incidents reported by the NGIA

1 It was not till 1995 that the act of piracy within territorial waters was defined in international law by the Code of Practice for the Investigation for the Crime of Piracy and Armed Robbery against Ships (Resolution A.1025(26), Annex) as armed robbery at sea. These identical acts are differentiated by location of the act; armed robbery at sea happens within the jurisdiction of a State, whereas piracy happens on the high seas.

2 'Any act of boarding or attempting to board any ship with the apparent intent or capability to use force in the furtherance of the act.' (IMB 1992: 2).

3 For example, in the case of zinc, anodes (which protect the vessel's hull from corrosion) are attached to the exterior of a ship and do not require boarding for the purpose of appropriation.

(sourced from Lloyd's List), comprising of 496 attacks, were labelled 'unspecified press reports' and were excluded from the analytic sample due to the lack of specific information on the individual attacks.

The IMB is considered the most official source of information on piracy attacks globally and provides 74.5 per cent of the information for the CMPD. The NGIA system provides an additional 1,258 reports above the 3,678 reports provided by the IMB. Together, the combination creates a more comprehensive data set than has been previously available.

Limitations of the CMPD

The IMB data have been criticized for both over-reporting and under-reporting. Overreporting has been suggested due to the broad piracy definition used by the IMB, which captures acts that fall outside the ambit of juridical definitions. However, the IMB estimates that about 40–60 per cent of attacks go unreported (Ong-Webb 2007: 40). Reasons for non-reporting by the merchant navy include cost of staying in port during investigation (a burden on the ship owner or charterer) and fear of increased insurance costs (Chalk 2008). Under-reporting has been an issue particularly for incidents involving fishing vessels that are unlikely to report even to local authorities, due to mistrust of authorities, lack of knowledge on how and who to report to and perceptions that piracy is an accepted risk of fishing. Despite the IMB broadening its scope beyond just merchant shipping, local fishermen as well as other small, local commercial activity are unlikely to report to the IMB (Young 2007). The benefit of adding NGIA reports is that it includes other sources such as local media and international press, which aid in reducing this shortcoming. The integrated CMPD increases reports of piracy by about one third (i.e. 1,258 unique NGIA reports beyond 3,678 IMB reports).

There has been concern that reported cases are those that are more violent or require hospitalization (Ong-Webb 2007; Young 2007). However, this more comprehensive collection of piracy reports does not find especially high levels of armed or violent piracy incidents. Of the 3,999 incidents in the analytic sample, 20.6 per cent do not specify the level of armament, 21.1 per cent are deemed not armed, just over half are armed (58.3 per cent include anything from sticks and clubs to knives, guns and explosives). Moreover, the majority of piracies (56.5 per cent) are reported as involving no threat or assault. A threat is defined as a hostile act showing an intention to inflict pain or injury. The reason for this is that the majority of piracies do not involve any interaction with the crew, usually occurring at night to steal items whilst crew are unaware.

A key limitation of the CMPD is that it is restricted by the information recorded in reports, more detailed information that would allow better insight into the problem is not always available. Some information is rarely reported but if it were targeted more aggressively would provide an exponential benefit to the analysis. Of course, more information would be better, but data are constrained by what is feasible in the short time frame when an incident is called in (in the case of the IMB) and what can be drawn out from diverse sources in the case of the NGIA (Marchione and Johnson 2013).

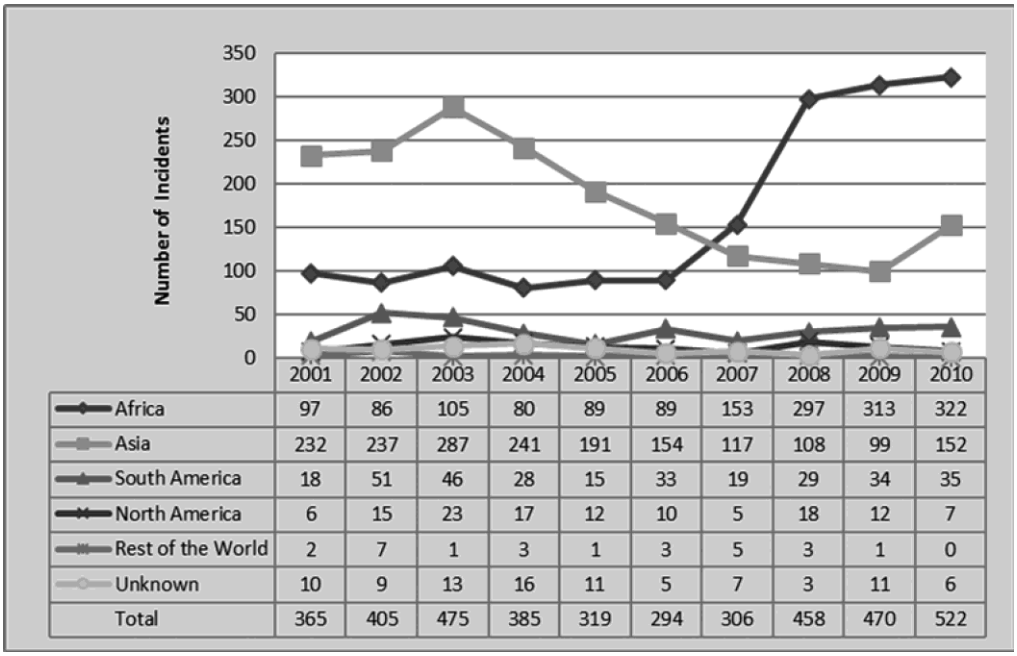
Finally, the entire data set was compiled by a single researcher, providing consistency in the coding procedure. Code validity was maintained by consulting with a research committee. However, it is likely that some errors were made in the process of coding and merging. This includes the possibility of misidentifying duplicates, typographical errors and assessment errors.

Character and trends in contemporary maritime piracy

Examination of CMPD shows that the levels of piracy have varied over the last decade, with incidents peaking twice over this period, in 2003 with 475 incidents and in 2010 with 522 incidents, and reaching a low point in 2006 with 294 incidents.

When piracy trends are disaggregated by region, Figure 1 shows dramatic shifts in the locations and responsibility for piracy. The first part of the 21st century was dominated by Asian piracy activity. This continued a trend in piracy that has been seen from the 1990s when Indonesia was associated with the greatest number of piracy attacks (Ong-Webb 2007: 54). From 2003 to 2009, however, trends in Asian piracy experienced a sharp decline (i.e. dropping from 290 to 99 incidents), and then showing a modest reversal in 2010 with 152 incidents. In contrast, piracy in Africa started the decade with a fairly steady, modest number of incidents (averaging about 90 incidents per year between 2001 and 2006) and grew dramatically from 2006 to a peak of 322 incidents in 2010.

Over the 2001–10 period, nearly 85 per cent of piracy worldwide was accounted for by 15 countries: Indonesia (24.8 per cent), Somalia (24.2 per cent), Nigeria (8.3 per cent), Bangladesh (7.5 per cent), India (3.8 per cent), Malaysia (2.3 per cent), Viet Nam (2.3 per cent), Philippines (2.0 per cent), Peru (1.7 per cent), Venezuela (1.7 per cent), Tanzania (1.6 per cent), Brazil (1.4 per cent), Colombia (1.0 per cent), Ghana (0.9 per cent), Cameroon (0.9 per cent). Subsequent analyses will focus on the five highest piracy incident countries (HPICs) in this decade: Indonesia (accounts for 24.8 per cent of all incidents), Somalia (24.2 per cent), Nigeria (8.3 per cent), Bangladesh (7.5 per cent), India (3.8 per cent). Together these countries account for nearly 70 per cent of piracies in the study period. Although India shows a relatively low number of piracies compared to the other HPICs, it has been included since it has had a notable history of piracy in the previous decade and shows some unique characteristics, which warrant its inclusion as an HPIC in the 2001–10 decade. The remaining countries are grouped in a sixth 'other' category accounting for 31.6 per cent of all pirate incidents. The aim here is to examine differences in the nature of piracy between countries that exhibit the highest level of pirate activity.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Africa	97	86	105	80	89	89	153	297	313	322
Asia	232	237	287	241	191	154	117	108	99	152
South America	18	51	46	28	15	33	19	29	34	35
North America	6	15	23	17	12	10	5	18	12	7
Rest of the World	2	7	1	3	1	3	5	3	1	0
Unknown	10	9	13	16	11	5	7	3	11	6
Total	365	405	475	385	319	294	306	458	470	522

Fig. 1 Regional trends in piracy 2001–10

Location at sea of piracy

Past research has found that pirates prefer to attack vessels at anchor rather than at berth because vessels do not benefit from dock-side security, proximate policing, closed-circuit television surveillance and night-time lighting (Herbert-Burns 2007). Analysis of the CMPD, which provides the location of piracy for all cases, shows that this relationship largely held up for the first two thirds of the decade. However, over the past decade, the geographic proximity of piracy to land underwent a dramatic change. At the start of the decade, over 71 per cent of all piracy incidents occurred in local waters (i.e. incidents within 12 nautical miles of the coast) and fewer than 8 per cent occurred at sea, but by the end of the decade only 37 per cent of all piracy incidents occurred in local waters and the per cent occurring at sea rose to 44.3 per cent. Figure 2 indicates that the HPICs show different trends in location at sea of piracies, and this has remained relatively stable over the study period.

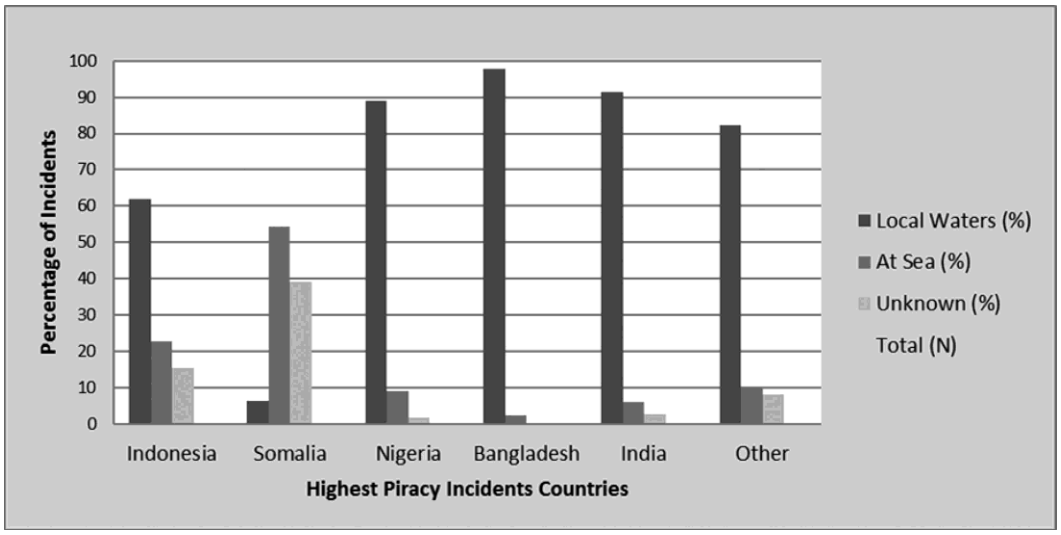


Fig. 2 Location at sea of incident across highest piracy incidents countries

The changing geographic proximity of piracy over the 2001/10 decade is driven by the rise of Somalia-related piracy incidents in the latter part of the last decade. Over the study period, in Bangladesh, India and other countries (non-HPICs), most pirate attacks continued to occur in local waters. In Nigeria, although the number of incidents dropped towards the latter part of the decade, the incidents were increasingly occurring further from shore. In Indonesia, the percentage of incidents occurring in local waters also declined while showing a modest increase in incidents at sea. Somali cases mostly (54.3 per cent) occurred at sea, beyond the 12 nautical mile territorial waters limit. In addition, there was an upsurge in Somali pirate incidents that occurred out at sea at the end of the 2001/10 decade. This move out further into the high seas is likely a factor of displacement due to the increased international forces naval presence and advise to seafarers to stay away from the Somali coast line.

Time of attack and trends in piracy

Contemporary piracy has predominantly been a nocturnal activity, which uses the cover of darkness to conceal assaults (Herbert-Burns 2007). The CMPD provides information on the time of day in over 88 per cent of incidents. Analysis of CMPD data finds this time-of-day pattern in the first two thirds of the past decade. The hours of 10 pm to 5 am is the busiest time period for pirate activity, and the quietest time for piracy was the evening (6–9 pm) for most of the decade up to 2007. After 2007, however, more and more piracies occurred during the day; pirates have been as likely to strike during the day as at night.

Figure 3 shows that in Nigeria, Bangladesh, Indonesia and the 'other' countries, piracy incidents occur predominantly at night with only some fluctuation over the ten-year period. Indian piracy shows a similar pattern, but there are more incidents occurring during the day and there is greater fluctuation.

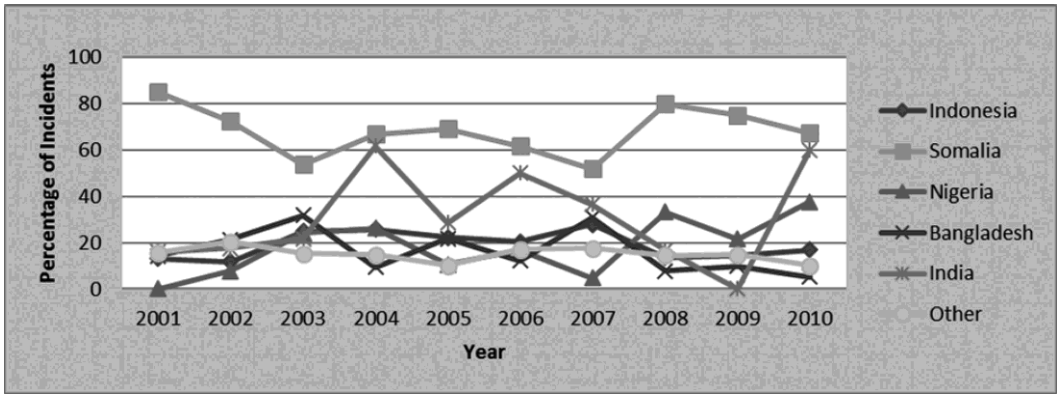


Fig. 3 Percentage of incidents occuring during the daytime for the highest piracy incidents countries

The time of day pattern of the attack for Somali cases is quite different. With the exception of 2003 where assaults were nearly as likely to occur at night as they were during the day, Somali pirates predominantly operated during the day (in 2007, Somali piracies were predominantly occurring during the day, although over 20 occurred in the evening and 27 per cent at night). For the entire study period, over 50 per cent of incidents have occurred in the day each year between 2001 and 2010. Despite a strong counter-piracy presence off the Horn of Africa in the latter part of the decade, Somali pirates continued to attack during the day, defying expectations that they would increase night time attacks to reduce the risk of interdiction or capture (NGIA 2009: 5).

Target vessel characteristics

Contemporary piracy has not shown any consistent target selection. According to existing literature, vessels that are victimized are those that are vulnerable because they are slower, restricted in their ability to manoeuvre and unprotected by local patrol or ship watch (Herbert-Burns 2007). Target vessel characteristics identified in the CMPD include type of ship, the type of cargo hauled and the vessel movement status.

Over the entire 2001/10 period, the majority of the victims were merchant cargo vessels (57.5 per cent) and tankers or other oil related ships (26.1 per cent). Reports from victimized fishing vessels (5.7 per cent), tugs/barges (4.4 per cent), private ships (3.6 per cent) and passenger vessels (0.9 per cent) were fewer in number.

There has been very little change and no consistent trend in the type of vessels assaulted. The CMPD identified that merchant ships, which includes vessels carrying energy, bulk containers, vehicle carriers and refrigerated vessels, carrying cargo are the prime targets of piracy; non-cargo ships such as passenger vessels, private yachts or research ships are rarely the victims of piracy. Even in Somalia, only around 5 per cent of cases represent non-cargo ships, contrary to popular perception and the extent of media coverage of incidents involving private yachts.

The most common types of victimized vessels are tankers or other oil-related ships. This is not surprising as product tankers, very large crude carriers and ultra-large crude carriers are slower and harder to manoeuvre because they are constrained by their draft. The data suggest that attacks on fishing vessels are not as common, but this may be a reflection of the data collection agencies' focus on merchant shipping coupled with the tendency of fishing vessel not to report attacks.

Usually, vessels fall victim to piracy when they are stationary (Murphy 2007). Stationary vessels are easier to board and require lower levels of organization. Based on the CMPD, over 50 per cent of ships were stationary when attacked until 2008, when it became more likely for a motoring vessel to be attacked.

As can be seen in Figure 4, of the HPICs, Nigeria, Bangladesh, India and non-HPIC-related piracies show a preponderance of attacks on stationary vessels (69.5, 83.6, 79.3 and 70.8 per cent, respectively). Indonesian piracy is nearly equally divided between vessels that are motoring and those that are stationary (47 per cent stationary), whereas Somali piracy almost solely targets vessels that are in motion (98.5 per cent motoring). This is probably attributable to the fact that fewer vessels anchor in or near Somali waters. It is an interesting finding that the two highest incidence countries show a pattern of piracy that is quite dissimilar from the piracies in the remaining countries. These patterns have remained fairly steady over the ten-year period.

The most common form of piracy takes place close to land and targets vessels that are stationary or moving slowly in port. This

is seen across the 'other' category, which exhibit less and simpler forms of piracy. These low level piracies occur where vessels sail closer to land (Lehr and Lehmann 2007; Murphy 2007).

Indonesian piracy is a mix of these low level forms of piracy and more sophisticated types, therefore the even distribution between stationary and motoring victims. Geographically, Indonesian piracy occurs in crowded, narrow seas with a plethora of islands and heavy vessel traffic.

In contrast, Somali pirates operate from an open, clear coastline that borders an exposed ocean. Although together the Red Sea and the Gulf of Aden bottleneck vessel traffic, joint naval operations operate convoys and advise ships not to slow or stop while transiting the coast of Somalia (BMP4 2011). This has dislocated Somali pirates further into the Indian Ocean and to target ships that are in motion.

The patterns identified suggest that pirates are not changing their tactics over time but have stayed consistent to the tactics employed in their own region.

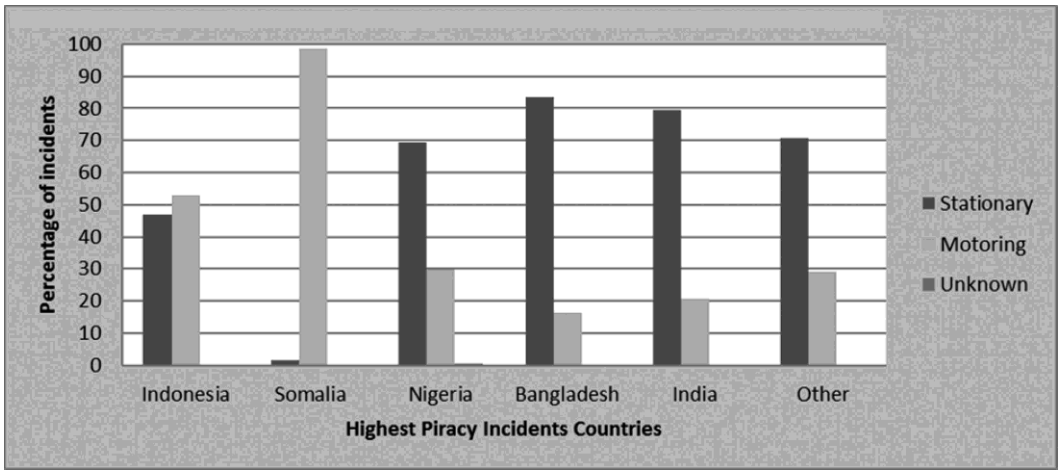


Fig. 4 Movement status of victim vessel across highest piracy incidents countries

Pirate characteristics

The key characteristics of pirates enumerated in the CMPD include the number of individuals involved in the attack and the type of arms that the pirates possessed during the assault. Both dimensions exhibit change over time.

Much of transnational crime is considered organized, that is 'groups of two or more…form some kind of rational, ongoing conspiracy to plan these crimes, and the objective is usually profit-making' (Albanese 2011: 4). Contemporary piracy is no exception, although it is important to remember that piratical activities range in organizational capacity (Murphy 2007; Young 2007). In the simplest sense, organization requires two or more individuals collaborating. CMPD reports confirm that piracy is rarely carried out independently. Over the ten-year period, there were only 49 incidents (1.2 per cent) carried out independently (data on whether one or more assailants were involved were reported in over 98 per cent of incidents).

Although the CMPD has data on both the number of assailants (about 55.7 per cent of incidents report the actual number of individuals) and the number of boats (75.8 per cent report the number of boats), the latter is more reliable since it is likely that not all assailants were observed by the victims. Examination of CMDP data finds that most piracy assaults are carried out with one to two boats (M = 1.5, SD = 1.7). Just over 2 per cent of incidents reported to have been perpetrated without a boat; these are cases where a vessel is targeted while in dock. Usually, pirates launch only one boat attacks, suggesting smaller operations. One attacking boat is used in over 75 per cent of incidents in all countries except Somalia. The number of boats used by attackers from Somalia is divided fairly evenly between one boat attacks (44 per cent) and two or more boats (55.5 per cent).

The analysis of the CMPD reveals that the type of arms pirates employed in attacks has increased in power and potential deadliness. Literature on piracy suggests that there has been a rise in the use of small arms and automatic weapons in Asia (Ong-Webb 2007: 51). Armaments are particularly important in cases where coercion and subjugation of a moving vessel is required (Herbert-Burns 2007).

Indeed aggregate figures from the CMPD show that over the ten-year study period and particularly since the middle of the decade, pirates have increased their level of armament (nearly 80 per cent of incidents provided information on the type of armaments that pirates carried). Crucially, there has been a large increase in pirates armed with automatic weapons and explosives; simultaneously pirates bearing less lethal weapons and those wholly unarmed have decreased.

When this trend is examined across the HPICs, Somalia emerges as the country driving the trend (Figure 5). Somali pirates are predominantly armed with automatic weapons and explosives such as rocket propelled grenades (98 per cent). Nigerian pirates also tend to be armed, with only 16.3 per cent of Nigerian incidents reporting no arms. In contrast, Indian pirates are mostly unarmed (75.2 per cent). Bangladeshi pirates tend to be armed, but only with more basic forms of weapons such as knives, clubs and tools (55.3 per cent). Indonesian pirates are also at the lower end of the scale, with 73.2 per cent reported as unarmed or armed with knives, clubs and tools. The category for all other countries has a similar trend where pirates tend to be unarmed or armed only with makeshift weapons or knives.

Analysis of the type of weapons used by HPIC nations reveals that it is incorrect to conclude that piracy in the last decade is increasingly armed for most nations. In fact, the changing global trend is attributable to a combination of the increasing number of piracies in Somalia and the particular manifestation of Somali piracy.

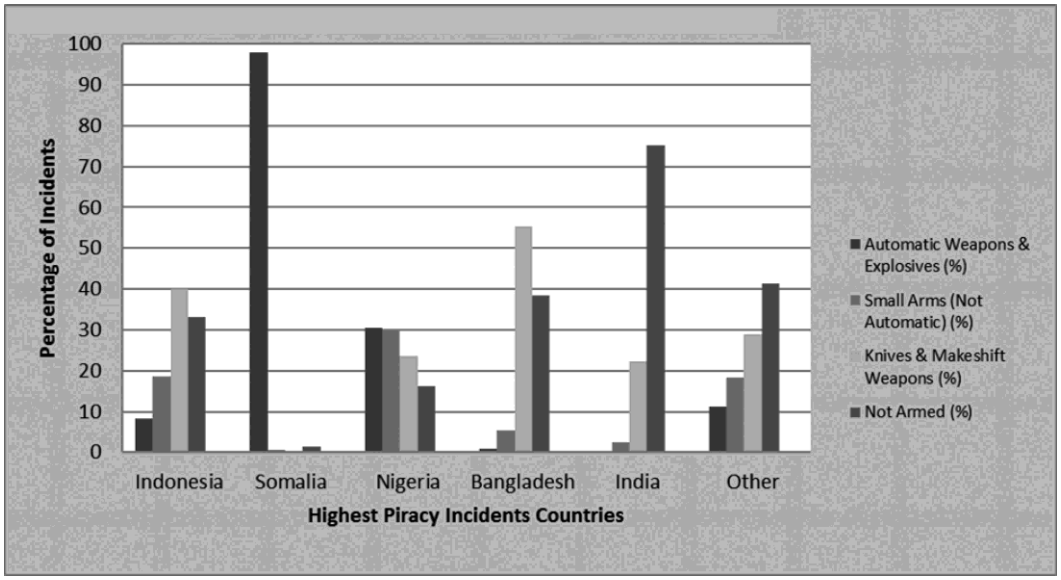


Fig. 5 Level of armament across highest piracy incidents countries

Characteristics of pirate actions

The CMPD contains information on actions taken by pirates during an attack (whether the ship was boarded and whether weapons were fired) and the treatment of the crew (whether there was a kidnap, whether crew were held hostage and the level of violence involved in the incident).

Until 2007, the overall rate of boarding fluctuated between 67 and 70.2 per cent. After 2007, the rate of boarding began to drop to 58.5 per cent (in 2008) and then to around 50 per cent in 2009 and 2010. When the figures are disaggregated across the HPICs, it is clear that Somali pirates were not as successful at boarding target vessels as pirates from other countries. Non-Somali based pirates consistently boarded over 60 per cent of targeted vessels, whereas pirates in Somalia only boarded ships 10–30 per cent of the time over the study period. This large difference is a reflection of the modus operandi of Somali pirates who predominantly attack vessels that are out at sea and in motion making the targets harder to board. The increase in Somali-based piracy (combined with their lower boarding rate) brought the overall piracy boarding success rate down in the last part of the decade.

One of the methods that pirates use to intimidate targets is to fire weapons. Firing weapons was rare in piracy attacks until 2006 and the change appears to be the result of an increasing number of piracy attacks on ships in motion, where such tactics are used in an effort to slow down moving targets.

Trends in the use of weapons by pirates are driven by the developments of Somali piracy. Of all the incidents that reported having fired weapons 59.3 per cent are attributed to Somali pirates and 14 per cent to Nigerian pirates. Only around 10.6 per cent of incidents are attributed to Indonesia. In line with earlier results showing that Indian and Bangladeshi pirates are less armed if at all, the firing of weapons is very rare in piracies originating in these countries (0.5 and 0.7 per cent, respectively).

The CMPD does not have information on the psychological effects of piracy on the crews. However, over the 2001/10 decade, 32.8 per cent of CMPD-recorded piracy incidents included threats of physical violence, 7.4 per cent included physical violence, and in 2.7 per cent of incidents seafarers lost their lives. In addition, in 112 incidents (2.8 per cent), seafarers went missing or jumped overboard.

Information on the level of violence was available in over 99 per cent of incidents in the CMPD. The data show a decrease in the number of non-threatening incidents while the number of reported killings or assaults has remained relatively stable. There has, however, been an increase in the number of threatening incidents from around 25 per cent at the start of the decade to over 47 per cent by 2009.

These patterns are a reflection of the fact that the majority of piracy occurs covertly, without interaction with crew. This is especially true for piracies off the coast of India, Bangladesh, Indonesia and non-HPICs, where around 60 per cent of incidents did not involve any threat.

The two countries that show higher levels of threat are Somalia and Nigeria (50 and 40 per cent, respectively). The high level of threatening behaviour by Somali pirates reflects earlier findings showing that Somali pirates in the northwestern Indian Ocean carry more sophisticated arms and fire them more frequently to slow down moving ships.

Nigeria has the highest level of violence among the HPICs. In addition to the elevated number of threats, Nigeria also has the highest numbers of incidents that include physical violence and killings (22 and 9 per cent, respectively). Overall, approximately 70 per cent of Nigerian piracy cases exhibit some form of threat or violence. These results conform to IMB's description of piracy off the Nigerian coast as being notable 'for the attackers' willingness to use violence against crew members' (IMB 2009).

Motivation for piracy

Based on the reports provided by the data collection agencies, the CMPD provides information on the motivation for the attack. This excludes reports of suspicious approaches because in these incidents, motivation could not be determined. The CMPD reports show that by far the greatest motive for piracy is some form of financial gain. This is done in a variety of ways: some pirates steal crew belongings or ship's equipment, others focus on cargo or the ship itself, whereas others involve a ransom demand for a seized ship and crew or for kidnapped hostages. About 2 per cent (79 incidents) of the incidents were committed by terrorist or activist organizations, or display some form of unidentified activism.

The most common forms of piracy are thefts of items from the ship, cargo, ship equipment or crew belongings. Over the study period, there has been a decline in this type of piracy, from 50 to 30 per cent and a gradual increase in the number of seizures for ransom. Incidents involving the theft of the vessel itself have remained low through- out the study period, usually around 2 per cent of incidents. Kidnappings showed a small amount of growth between 2003 and 2008, but have since declined.

The most common form of piracy is theft (Ong-Webb 2007; Young 2007) and this holds true for the 2001–10 decade. Most of the goods stolen represent a form of opportunistic petty theft that targets vessel equipment and crew belongings. Somalia is an exception in that a very small proportion of Somali incidents result in theft, in fact the motivation for Somali pirates is ransom received in return for the ship's release (Figure 6).

The primary motivation of Somali pirates is seizure for ransom. Somali piracy is responsible for just over 72 per cent of all seizures for ransom; however, only around 22 per cent of all Somali incidents result in successful boarding of a victim ship. Once a ship is boarded the likelihood that a ship is seized for ransom is very high, over 82 per cent of boarded vessels are hijacked for ransom. Of those that are hijacked over 95 per cent result in a demand for payment. Somalia accounts for just over 66 per cent of all hostage takings in the ten-year period. Indonesia has the second highest number of vessel seizures, with 9 per cent of all seizures. Of these, only 50 per cent result in a demand for payment (ransom), the remainder were motivated by theft (of the ship or ship's cargo).

Thefts of the ship itself are more broadly distributed. Indonesia has the highest percentage of ship thefts, but these are low when compared to other forms of Indonesian piracy (only 36 of 979 piracy incidents). It is interesting to note that of the 78 incidents of ship theft worldwide, 36 (46.2 per cent) occurred in Indonesia.

Kidnappings, although rare, are most common in Nigeria. Of the 88 kidnapping incidents in the CMPD, 40 (45.4 per cent) took place in Nigeria. Indonesia was responsible for another 26 incidents (29.5 per cent). Notably, there are only few Somali kidnapping incidents. This may seem contrary to media reports, which may call a seizure of a vessel off the coast of Somalia 'kidnapping'. In this research, this is termed seizure for ransom and is not included in the kidnapping data. Although kidnapping does occur in Somalia, it tends to focus on foreigners who are abducted while on Somali land, not at sea.

The cost of piracy is estimated to be between $7–$12 billion per year including supply side costs to both industry and government (Bowden 2010). Although this seems like a high figure, the overall impact of piracy-related maritime financial losses is fairly modest when compared to the total annual value of maritime commerce (estimated to be $7.8 trillion, see Murphy 2007: 20). The victims here really are the crew who not only suffer the largest psychological and financial losses, are paid very low wages and work long months at sea. Piracy is a crime that is made 'more fearsome by the knowledge on the part of the victims that they are on their own and defenseless and that no help is waiting just round the corner' (Abhyankar 2006: 1).

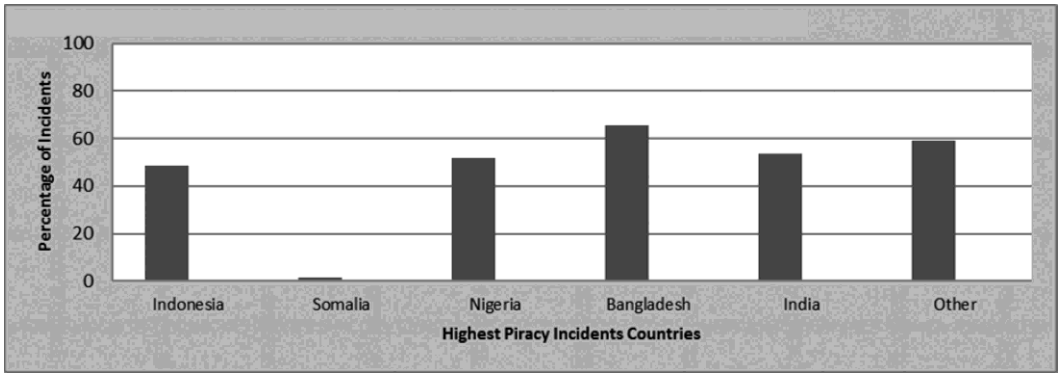


Fig. 6 Distribution of thefts across highest piracy incidents countries

The response to piracy

Two major types of actions to consider in responding to piracy are the response of potential targets to the assault and the response of authorities when alerted of a piracy. Victims of piracy regularly make attempts to defend themselves. With this in mind naval/military forces in the Gulf of Aden in collaboration with various international shipping organizations have drafted Industry Best Management Practices (BMP4) for ships transiting the Gulf of Aden (BMP4 2011). Although the BMP4 apply to the oceans off Somalia, similar advice has been given to aid vessels in avoiding piracy in other locations (Author Interview with IMB Director

Captain Pottengal Mukundan, February 2010).

In addition to registration and reporting procedures that are particular to the Gulf of Aden, the BMP4 proposes that vessels should enhance watch keeping by providing additional lookouts, shorter rotations of the watch period and placing dummies at strategic locations to give an impression of a higher number of crew onboard. According to the BMP4, a vessel watch is the single most effective method of ship protection (BMP4 2011). Other precautions suggested are fortifying the bridge using razor wire; locking all access doors and hatches; using of water spray; sounding alarms; using evasive manoeuvring; switching on deck and navigation lights; designating mustering points and citadels and installing closed circuit television (BMP4 2011).

The CMPD documents the various evasive tactics used by crews when attacked. Over the last decade, *warnings* (e.g. alarms, lights, flares, crew mustering) were used in 39.8 per cent of incidents of piracy incidents. Crew protected themselves by escaping into a citadel or locking all doors and hatches in 2.1 per cent of incidents (*onboard protection*). *Counter attacks* (e.g. using water spray, switching lights off, using makeshift weapons or firearms) were used only in 7 per cent of incidents. *Manoeuvring* tactics were used in 17.9 per cent of the incidents. *Hired guards* were employed in 5.5 per cent of incidents. Crew confronted, *chased and captured* pirates in 3.3 per cent of incidents. *Assistance* was requested by the crew from coast guards, naval forces or other harbour authorities in 11.9 per cent of incidents.

It is impossible to pinpoint which evasive measures are more effective because ships tend to use multiple methods to evade capture, therefore to identify the effectiveness of evasion measures overall, an analysis was conducted of the total number of evasive tactics used by a ship and boarding success. Ships that used a least four evasive measures reported no boarding by pirates, regardless of location.

Looking at the number of evasive measures used in the HPICs, the data suggest that even in areas that have the highest incidence of piracy, few vessels use evasive tactics. This is true for vessels in proximity to Indonesia, which has a longer history of piracy (Raymond 2009). This may be due to Southeast Asian piracy predominantly occurring at night on stationary vessels. In contrast, vessels that sail in some proximity to Somalia consistently report using at least one evasive measure, which may be a reflection of the nature of piracy in Somalia, which occurs during the day and further out to sea; therefore, crew are more alert and aware.

In addition to the evasive/protective measures used by victim vessels, the CMPD also contains information on the reporting practices of vessels targeted by pirates and to some degree on the response of authorities to the incident. Over the first part of the decade, there was an increase in the piracy incidents reported to both local authorities and to coalition forces (the European Union Naval Force) in the Gulf of Aden implemented in 2008).

Although only 16.4 per cent incidents reported the response of authorities, there are sufficient incidents (657 incidents) reporting this information to provide insight on official responses to piracy. The data indicate that the first nine years of the study decade saw a steady increase in the response from authorities to a distress calls from vessels. However, there was a drop in responses by authorities in 2010, which may be due to the sharp increase in the number of piracy incidents in the Gulf of Aden; that naval forces were unable to respond due to the dramatic increase in the number of distress calls. However, there have also been fewer non-responses and refusals to respond over the decade. Therefore, although authorities were generally more responsive, they found it difficult to get to the scene of the crime. This reflects the general consensus that piracy needs to be controlled from onshore and not only at sea (see Murphy 2009; Bahadur 2011; Shortland 2012). 'The multilateral and international efforts that are trying to address piracy are focusing on short-term solutions such as cooperative patrols, which are important and useful, but ultimately are like trimming the leaves of a particularly invasive weed rather than pulling it out by its roots' (Young 2007: 3). In order to create a better approach for counter piracy, more research is needed into the context within which piracy thrives and responses need to be tailored to the particular manifestation of piracy.

Discussion

This article documents the change in piracy, identifying that the new form of piracy that emerged in the 1990s became the dominant type of piracy in the study period. The escalation of piracy in this region has affected the profile of piracy overall. Although this newer form of piracy has become more prevalent, other forms of piracy that display a different set of characteristics still remain.

From 2001 to 2010, piracy incidents have occurred in 90 countries across the globe; two countries, Indonesia and Somalia, accounted for 49 per cent of all incidents worldwide. Analysing the aggregate piracy data, it is clear that piracies: are carried out further at sea; are more likely to target vessels that are in motion; are as likely to be carried out during the day as at night; are more highly armed and are more threatening. However, the data show that overall the number of successful boardings has declined in the past few years.

When the trends are analysed across the HPICs, some notable differences become apparent. Contemporary forms of piracy in most of the world are carried out close to shore, on stationary vessels, at night, without any interaction with the crew, with low level or no armaments and with a high probability of boarding. In Indonesia, piracies occur predominantly in local waters; are equally likely for vessels that are stationaryas t hose in motion; are more common at night; are more likely to include threats; are armed with low level armaments and are usually successful in boarding target vessels. In contrast, piracy in Somalia occurs in the high seas, on vessels in motion, during the day, is predominantly threatening, utilizing sophisticated weapons, with a lower likelihood of boarding. Although Somali piracy is more threatening, Nigeria exhibits the most violent form of piracy in the study period. In contrast, Indian pirates tend to avoid contact with the crew, rarely carry any type of armaments and are motivated by theft from moored ships.

Another aspect that is particular to Somali piracy is the motivation for the attack. Whereas the majority of piracy is motivated by theft of ship equipment and/or crew belongings, piracy in Somalia is motivated by ransoms in exchange for releasing a seized

vessel. Although incidents such as these have occurred in other parts of the world, the scale of the problem in Somalia is unprecedented. Furthermore, countries such as Indonesia and Nigeria where vessel seizures occur, also exhibit other forms of piracy that are theft motivated. In Somalia, piracy consists primarily of seizures for ransom.

Finally, analyses of CMPD information on evasive tactics found that vessels using at least four evasive measures have consistently been able to evade boarding by pirates. However, despite the industry drafted BMP4, which strongly encourages the use of non-lethal evasive measures, it is clear that merchant vessels are not using sufficient evasive measures. In fact, in nearly half the incidents attributed to Somali pirates, the vessels do not report using any evasive tactics.

More recently, we have seen that piracy emerging from Somalia has declined while Indonesian piracy has been increasing. In 2012, there were 75 attempted and actual piracy attacks by Somalis and 81 incidents emerging from Indonesia (IMB 2012). As of 15 July 2013, the count for piracy off the coast of Somalia was at nine incidents (IMB 2013). Nigerian piracy has been slowly increasing with 27 reports in 2012 and 22 reports by July 2013 (IMB 2012; 2013) suggesting a new area of concern. These trends confirm the need for the continuation of efforts such as the CMPD to further monitor future changes in contemporary piracy.

The results from the CMPD identified that contemporary piracy has different forms, emphasizing the importance of understanding their varied contexts for evidence-based policy formulation and targeted allocation of resources. The results of the CMPD raise important questions for further research: why is Somali piracy unique; why is it different from Indonesian forms of piracy and what led to its escalation and more recent decline (Twyman-Ghoshal 2013).

There are a number of factors that have been identified by scholars as precursors of piracy; however, 'at a basic level, piracy (like all crimes) is caused by illicit opportunity structures, motivations to take advantage of such opportunities and social control weaknesses, all of which are affected by the globalization processes' (Passas and Twyman-Ghoshal 2012: 62). Illicit opportunity such as favourable geography (Murphy 2009) provide the environment that makes piracy feasible in both Somalia and Indonesia; however, it does little to explain the sudden genesis of piracy in Somalia in 1991, nor does it explain why Indonesia has a much higher level of piracy than neighbouring Malaysia.

A more salient factor for both Somalia and Indonesia is social control weaknesses. This includes jurisdictional and legal weaknesses, as well as inadequate policing and maritime security factors, which have been identified for piracy in Southeast Asia (Young 2007) and for piracy in Somalia (Murphy 2009).

Governance failure has been implicated in the rise of organized crime, drug trafficking, money laundering, corruption (Williams and Baudin O'Hayon 2002) and piracy (Murphy 2009). Moreover, good governance has been advocated as the key to crime prevention (Waller and Sansfacon 2000; United Nations Human Settlements Program 2007), has been associated with the reduction of crime rates (Neumayer 2003) and has been critical in the suppression of historical forms of piracy (Vagg 1995).

Hastings (2009) studied the effect of state failure and state weakness on seizures of vessels at sea, suggesting that state failure is associated with less sophisticated hijackings, whereas state weakness provides an environment for more sophisticated forms of seizure and theft. Comparing Southeast Asian and Somali hijacking, Hastings found that the lack of a central state in Somalia meant an absence of infrastructure to support more sophisticated forms of hijackings. To steal entire cargoes off ship requires logistics, such as well-equipped ports with corruptible officials. In Somalia 'state failure hinders pirates' operations because it deprives them of the means of creating the sophisticated networks found in Southeast Asia' (Hastings 2009: 6).

Hastings (2009) does not examine the potential effect of small state formations or governance beyond the function of a central state, missing some of the finer distinctions between state failure and state weakness. In fact, piracy in Somalia thrived in areas where local governance was relatively stable but weak such as Puntland (Twyman-Ghoshal 2012). In the south, where the situation was less secure and there was more instability, piracy decreased (Hansen 2009). This is consistent with the development of piracy into a form of business. Businesses thrive in secure and stable environments, particularly in environments where regulation and law enforcement can be manipulated; weak governance creates an environment that enables criminality.

A key distinction between piracy emerging from Indonesia and Somalia is that Somalia does not have an extended history of piracy. Maritime predation in Southeast Asia has a long history (Vagg 1995; Young 2007). The first recorded piracy incident off the coast of Somalia was in January 1991, the same month that President Siad Barre fled Muqdisho after increasing unrest and opposition to his rule. Barre was finally ousted from government permanently later that year and the country disintegrated into civil war.

The conditions that led to the genesis of piracy are critical to understanding why Somali piracy is so different from its global counterparts. The governance vacuum left after Siad Barre's overthrow led to acute control issues both internally and externally. Somalia was exposed to exploitation from foreign actors, in particular, encroachment of foreign fishing vessels (EJF 2005; UNEP 2005) and ships dumping toxic waste in Somalia's territorial waters (Greenpeace 2010; UNEP 2010; United Kingdom Parliament 2011). The lack of central authority played a critical part in the decision of fishermen to become pirates. Many first generation Somali pirates explain that they were unemployed fishermen who in the absence of a central authority felt compelled to take action to protect Somali waters and regain control of their fishing grounds (Bahadur 2011; Twyman-Ghoshal 2012). Therefore, unlike piracy in other parts of the world, Somali piracy was, at least in part, a direct response to the illegal exploitation of the natural resources of a nation in transition. The absence of a central government to regulate and control foreign marine encroachment was a key contributor to the problem, which prompted the growth of the local vigilante response (Twyman-Ghoshal 2012).

Unlike many other piracies around the world, the first generation of pirates were not attacking ships to loot cargo or crew belongings, they were attempting to get remuneration for the thieving of foreign trawlers and pollution by foreign nations (Twyman-Ghoshal 2012). While there is sound evidence that these pirate stories are founded on facts, Somali pirates continue to use the same rationalizations even though they have since targeted vessels in the high seas, which are neither fishing nor dumping toxic waste (Bahadur 2011). The original rationalizations have been effective in recruiting new, young pirates and garnering social acceptance amongst the local population (Hansen 2009). Over the 20-year period since piracy first appeared in Somalia, it has

grown from a social protest and vigilante policing to a successful commercial enterprise, which feeds off international trade (Twyman-Ghoshal 2012). Critically, in 2004, the veracity of these extended rationalizations was confirmed when in the wake of the December Tsunami, toxic waste barrels washed up on the northeast coast of Somalia (UNEP 2010).

The reduction in piracy in 2012 has been accounted for by most sources as a result of active policing and intervention by international navies (IMB 2012, October 22), which included the first European Union aerial offensive that destroyed equipment allegedly belonging to pirate gangs in northern Somalia (Guled and Lekic 2012). However, what is often overlooked are the governance developments in Somalia.

Since late 2010, Somalia begun a hopeful process towards a democratic central government; by August 2012, Somalia had a new constitution and a new bicameral federal parliament. Unlike previous efforts to constitute a central government, the new government is representative not only of a fictitious union of Somalia but includes the active participation of the semi-autonomous states of Puntland and Galmuduug (which formed in the years after civil war erupted). Rather than the top down approach of installing a foreign imposed Somali government, the current effort is garnering local support.

It is this form of governance that has proven effective in Somalia's most northerly region, the self-declared sovereign state of Somaliland. Here, the foundations of democracy were laid in using a bottom-up approach, achieving political consensus before a formal government was built (Lewis 2008). Although Somaliland administration is still weak in the areas of social services and in developing its economy, the area is considered comparatively rich by Somali standards (UN & World Bank 2008). Critically, Somaliland has been able to react to incidents of piracy swiftly and efficiently. In fact, Somaliland ports have never been used to host hijacked ships (Hansen 2009). This accomplishment is attributed to *local* law enforcement, *local* ownership and *local* control. It is clear that these are only early successes and much more needs to be done to achieve permanent stability in Somalia.

Recent reports suggest that West African piracy now affects an increasing number of seafarers, the 'periods of captivity are much shorter in the Gulf of Guinea region, [but] there are more seafarers subject to close, and often violent, contact with pirates than off Somalia' (Hurlburt et al. 2012: viii). Empirical, comprehensive cataloguing of piracy data, such as the CMPD, is needed to monitor the changing nature and trends of contemporary piracy. The CMPD has demonstrated that the dominant form of piracy changed in the study decade. Throughout history, we have seen that piracy morphs over time and place. The previous decade saw overt forms of state piracy and phantom ship piracy (Abhyankar 2006; 1997); the last decade shows no incidents of either of these types of piracy. Without a consistent, empirical data collection effort and analysis infrastructure, the subtle changes of piracy tactics, nature and trends remain a best guess.

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