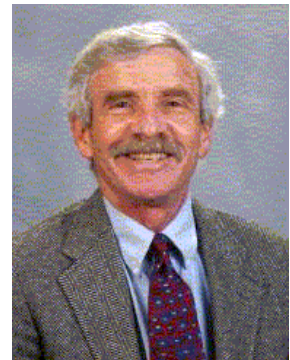# Piracy in Somalia:
## An Economic Analysis of RPG-Equipped Swashbuckling

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# ABSTRACT

Piracy is not a recent phenomenon; present since man took to the seas, piracy has always been an issue for seafarers. While it has faded from our zeitgeist over the past century, piracy has never been eradicated, but instead has been pushed to the few remaining lawless patches of the oceans. In 2008, the sea saw the return of a particularly brazen form of piracy as the confluence of a fractionalized Somali state, heavily trafficked shipping routes, and the lack of alternative economic opportunities led pirate gangs to capture and hold for ransom a record 42 ships. Conventional wisdom suggests that the payment of ransoms funds pirates' equipment upgrades, encourages future attacks and increases future ransom demands. Nonetheless, faced with limited and inferior alternatives, ship owners overwhelmingly agree to pay ransoms. This thesis aims to determine the predictive factors that can help explain ransom amounts and the length of ship's captivity. Sourced from international piracy reports and news articles, the data set consists of 41 ship hijackings attributed to Somali pirates between 2008 and 2009. The results show that ransoms are not random nor is their amount solely determined by the negotiating skills of the pirates and the ship owners. Instead there are six variables that affect ransom amounts and the length of captivity. There are three significant variables which effect a positive increase in the ransom amount: an increase in the length of captivity, an increase in the number of crew taken hostage, and the owner's government's policy of paying ransoms. There are four significant variables which effect a decrease in the length of captivity: an increase in the development level of the country of ownership, an increase in the development level of the crew's home country, the ship being a tanker, and the owner's government's policy of paying ransoms. Given these results, owners and government can take specific actions to minimize ransom amounts. Additionally, if pirates aim to maximize profit, the data present some conclusions about which ships they should target and the most effective strategy after capturing a ship. Given the lack of negotiating power, there is not much owners can do except negotiate in good faith and aim to pay a fair ransom quickly. The data suggest that governments can ensure better outcomes (faster releases and lower ransoms) by publicly stating a policy of negotiating with pirates. Finally, pirates can maximize their profits by finding the ideal target for hijacking and by choosing how much to delay negotiations. The ideal target is a tanker owned by a company in a developed country, with a large crew from developed countries. When the owner has sufficient financial resources, pirates who aim to maximize profits will hold the ship captive for longer periods. The results of this thesis are rather discouraging to governments and owners seeking better outcomes as they have very little ability to influence ransom amounts or the length of captivity. Because owners do not have any viable options except to pay the ransom quickly, owners and governments should focus on reducing the number of hijackings. However, with limited defenses on the seas, increasing pirate capabilities, a small naval protection force and the vastness of the ocean, piracy will only occur more frequently until a land-based solution is developed.

# A SHORT NOTE ON SWASHBUCKLING

As swashbuckling is rather an unusual term, I thought an explanation of the term would prove useful. As defined by the Oxford English Dictionary, a swashbuckler is "a swaggering bravo or ruffian; a noisy braggadocio." That definition led me to look up the meaning of ruffian, which the OED defines as a "man of a low and brutal character; one habitually given to acts of violence or crime; a cut-throat villain."

# ACKNOWLEDGEMENTS

# A TALE OF SWASHBUCKLING IN THE MODERN AGE

## RESURGENCE

Global piracy rates began to increase during the 1990s and peaked in 2004. Defined broadly as attempted or successful boardings or hijackings, the bulk of piracy consists of attacks similar to armed robbery. Almost always these occur either at port or in heavily trafficked and narrow regions. As other piracy hotspots began to gain control of the escalating situation, piracy seemed to be trending downwards in 2005 and 2006. However, in 2007, there were an unprecedented 12 hijackings off Somalia as the political situation there deteriorated. In 2008, there were 42 hijackings and in 2009, 47 ships were captured. The situation shows no signs of abating; in the first quarter of 2010, nine ships were hijacked. The uptick in hijackings by Somali pirates seems to be quite resilient as the various international responses have done little to reduce the number of ships hijacked.

## MOTIVES

A UN report characterized several factors as contributing to piracy: "poverty, lack of employment, environmental hardship, pitifully low incomes, reduction of pastoralist and maritime resources due to drought and illegal fishing and a volatile security and political situation all contribute to the rise and continuance of piracy in Somalia."[1] Pirates have typically characterized their activities as responses to foreign abuse of Somali territorial waters through illegal fishing and the dumping of toxic material. However while this may have been a significant factor before 2008 when fishing vessels represented a larger proportion of targeted ships, the nature of piracy has changed since then. Most observers believe that claims about protecting Somali sovereignty are only a smokescreen for the pirates' true profit motivation.

## PIRACY TACTICS

Somali pirates have developed quite sophisticated methods of attack. Pirates consistently use small arms such as AK-47 rifles and rocket propelled grenades to conduct their attacks. To board ships, they use grappling hooks and shimmy up the rope or they use ladders that hook on to the side of the target.

There have been shifts in the preferred areas of the ocean to conduct hijackings. In 2007, hijackings were concentrated relatively close to Somali coasts in the Gulf of Aden and the Indian Ocean. As merchant ships began to sail further out to sea to avoid piracy in 2008, pirates focused their attacks on ships transiting the Gulf of Aden, a more narrow body of water. In 2009, international naval patrols reduced hijacking opportunities in the Gulf of Aden so pirates began to target vessels in the Indian Ocean again. However, pirates were forced to venture farther out into the sea to reach potential targets. This necessitated a change in their tactics. While most hijackings were conducted by using fishing skiffs with large motors, the shift in ship traffic away from the Somali coast put most ships out of the range of these skiffs. Pirates began to use larger ships (typically fishing vessels) as mother ships that towed skiffs and could extend both range and the length of time the pirates could spend at sea hunting for a target. The result has been a drastic expansion in the area of the Indian Ocean that is susceptible to piracy. Indeed, in 2010, multiple hijackings have occurred over 1,400 miles off the coast of Somalia.

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[1] *Piracy off the Horn of Africa*.

Pirates also employ interesting tactics to surprise ships. Often mother ships will send out a false distress call and request assistance from nearby ships. Another tactic is to stage decoy attacks so that the captain of the decoy target calls for naval support diverting naval ships away from the real ship.[2]

## DEFENSIVE TACTICS

Defensive tactics are limited by several factors including unarmed crews, relative firepower and slow ship speeds. Constant vigilance is often the most effect defense. By monitoring the horizon for suspicious activity, the crew of a targeted ship can gain a meaningful head start in preparing for a potential attack. Typically the standard response is to increase speed and sail in a zigzag pattern. Fluttering the rudder causes the ship to rock, which makes boarding more difficult. Once pirates get closer, the crew might use fire hoses or sonic blasters to try to deter boarding. Ships occasionally have physical defenses such as barbed wire or electric fences. Once boarding is likely, crews occasionally lock themselves in a fortified room. However, once boarding occurs, the standard industry practice is to surrender.

Given the relatively weak defensive tactics, there have been calls for armed defenses—either armed guards or armed crewmembers. This remains relatively rare as there are several legal implications, and ship owners and crews have generally resisted the call to arms. Additionally, the use of armed guards is only questionably helpful—in the case of one hijacking, three paid mercenaries who were supposed to protect the ship from hijacking attempts jumped into the ocean once it became clear that the hijacking was inevitable.[3]

These tactics do not necessarily have to completely prevent the attack to be successful. Attacks usually last between 15 and 30 minutes so any delay increases the likelihood of naval assistance reaching the vessel. Due to their top speed of roughly 35 miles per hour, naval ships have limited response areas of only a few miles. However, helicopters onboard naval ships can often be scrambled quickly enough to deter or fight off pirates.

## INTERNATIONAL RESPONSES

Several countries have sent warships to the Gulf of Aden and the Indian Ocean. The international missions, Combined Task Force 151, NATOL: Operation Ocean Shield, and the EU NAVFOR Operation Atalanta, coordinate responses with the several countries operating anti-piracy efforts independently. There are currently a few dozen warships patrolling the affected areas. Typically, these ships provide escorts to merchant vessels, respond to reports of piracy, and occasionally stage rescue operations.

### *LACK OF PUNITIVE OPTIONS*

One factor limiting the effectiveness of the naval presence in the Gulf of Aden is the lack of legal jurisdiction. Often, the navies operating in the area capture pirates only to release them back onto Somali shores. Sometimes, this is due to a lack of substantive proof that those captured were engaging in illegal activity. Legal obstacles often effectively prevent the prosecution of those captured. For instance, several countries abolished anti-piracy laws in the early 1900s as the crime had virtually vanished.

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[2] Payne, 101.
[3] Fletcher.

In cases where prosecution is a possibility, the lack of a functioning government and the relative impunity in which pirates operate rule out prosecutions in Somalia. In 2008, Kenya agreed to prosecute and imprison Somali pirates captured by navies in the Gulf of Aden and the Indian Ocean.[4] Currently overburdened with 100 suspected pirates serving up to 20 year prison sentences, Kenya now refuses to accept suspected pirates for prosecution citing a lack of resources and the failure of Western governments to deliver promised aid for the judicial system.[5]

Occasionally western countries will try pirates in their own courts. During the Maersk Alabama hijacking, the US Navy captured a Somali pirate who is now facing prosecution in New York City.[6]

## INSURANCE

Insurance premiums for ships traveling near Somalia have risen from $500 per transit to over $20,000. For larger tankers, premiums can reach $100,000 for a $5 million kidnapping and ransom (K&R) policy.[7] Insurance against piracy is now a booming market reaching $400 million in premiums per year. In the past, there have been cases where insurers argued that their policies did not cover marine piracy or K&R events. Now, several insurers have developed new products to directly insure against K&R events. Some of these new policies even provide coverage for the associated costs of negotiating and delivering the ransom, which can be several multiples of the actual ransom payment.

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[4] Houreld, Katharine. "Somali Pirates Board Oil Tanker; Warship En Route."
[5] Moulid.
[6] Karon.
[7] Helman.

# DATA SOURCES

The purpose of this study is to determine the predictive factors that can help explain ransom amounts and the days of captivity. Additionally, I will attempt to test the validity of several piracy memes that pervade the international maritime community.

## DATA COLLECTION

Several sources compile and report worldwide data on piracy. The International Maritime Organization (IMO) is a specialized agency of the UN and issues monthly reports containing all reported incidents of successful and attempted piracy. The International Marine Bureau (IMB) is part of the International Chamber of Commerce and also collects piracy data through the IMB Piracy Reporting Center that it established in 1992. The IMB issues reports quarterly and annually.

Monthly reports from the IMO contain many pieces of information about each attack: the ship's name, gross tonnage (a measure of volume), flag, vessel type, date of attack, location of attack, method of attack, number of crew, and outcome. IMB reports, although less frequent, are usually more descriptive and contain additional information such as the location of the ship after being hijacked, the date of the ship's release, whether a ransom was believed to be paid, and the details of the rescue, if any. Although both of these reports state that piracy is severely underreported, this statement applies primarily to attempts and to non-hijacking acts such as robbery of crew belongings or ship stores.

For my analysis of ship ransoms, several key data were absent from these organizations' reports. In many cases the IMO and IMB did not report a release date for ships, especially those captured at the end of the reporting period. Additionally, the ship's cargo, the ship's owner, and the nationalities of the crew are only sporadically reported. Finally, neither organization publicizes any information regarding ransoms paid for the release of ships and crewmembers.

For these missing pieces of information, I relied mostly on anecdotal news reports, but also found some of the data in books and maritime trade journals. News reports generally provided information about the crew's nationalities and the ship's owner. Occasionally, the release date of the ship would be inconsistent amongst news reports, but EU NAVFOR announces the release of ships. Ransom data proved the most elusive to track down. Most figures come from anonymous sources – usually either government officials or pirates – quoted in the media.

In 2007, there were 18 successful hijackings of ships worldwide with 12 of them attributable to Somali pirates. In 2008, 42 ships were captured off of Somalia, and this increased to 47 ships in 2009. I chose to examine hijackings occurring between 2008-09. Although there were 99 attacks over the two years, I was only able to find complete data for 44 hijackings because of three main reasons: ransom amounts are only occasionally published, several captured ships were rescued by naval forces, and a few ships were released without ransom.

### OUTLIERS

There were three significant outliers that I decided to exclude. Although I had complete data for these hijackings, including them would have distorted my results because these acts of piracy were fundamentally different from the remaining 41 instances. In one case, a Nigerian tug, the Yenegoa

Ocean, was captured in August 2008 and held for over 300 days. Not only was the period of capture substantially longer than all other instances of piracy I examined, but the owners of the tug did not have the financial resources to pay the ransom. After over 10 months in captivity, the crewmembers' families agreed to pay a small ransom of $43,000. This observation was excluded because it does not represent the typical hijacking and ransom transaction where an owner or government with financial resources secures the release of the ship and crew.

The other two hijackings that were excluded closely resembled each other. The first was the hijacking of the Sea Horse, a Lebanese cargo ship, in April 2009. The ship was heading to Mumbai to pick up food aid to be delivered to Somalia when it was captured.[8] However, the ship was released after six days. It was reported that Somali traders were involved in the release and paid a ransom amount of $100,000.[9] Because this ship was providing humanitarian aid to Somali, it is believed that the pirates released it for only a token ransom.[10]

The other ship that was excluded from the data set was the Almezaan, a general cargo ship. This ship has seen more than its fair share of hijackings. It was hijacked in May 2009 and November 2009. In March 2010, it successfully evaded yet another hijacking attempt. In 2009, it was released once without a ransom payment because it was reportedly chartered by Somali businessmen. In November, pirates accepted a ransom payment of only $15,000 for 'expenses'.[11] Although not known definitively, this ship is likely owned by Somali expatriates in Dubai. Therefore the owners are able to ensure the release of their ship at a below market rate.

I attempted to include these instances where the hijacked ship had a Somali affiliation by using a dummy variable. However, the inclusion of these results only served to cloud the overall results due to their abnormally low ransoms and unusual circumstances. Additionally, I believe that a study of ransom amounts and length of captivity is more useful when it applies to the more prevalent case where the hijacked ship does not have additional negotiating ability due to a Somali relationship.

### DATA FIDELITY

The IMO and the IMB almost always report the same information, and the quality of their data is very high. In cases where inconsistencies appear, I was able to obtain the correct data, usually through EU NAVFOR. However, the data I obtained about the nationality of the ship's owner, the nationalities of the crew, and the ransom amount were of more questionable quality. I sourced this information primarily from various news organizations and looked for corroboration from multiple sources, when possible.

The IMO and the IMB also report that many acts of piracy are not reported. However, they do not specify which types of pirate acts are underreported. Given the high profile of hijackings, I believe it is very unlikely that any hijacking goes unreported and instead it is acts of attempted and successful armed robbery that are underreported. Additionally, my data set do not contain every successful hijacking due to the lack of data, so failing to include a few unreported hijackings is unlikely to be a significant source of error.

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[8] "U.S. Cargo Ship Evades Somali Pirate Attack."
[9] "Pirates Release Ship for 'ransom'"
[10] Kokstad.
[11] Houreld, Katharine. "Navy Frees Somalis Seized after Pirates Shooting."

**Nationality of the Ship's Owner:** This information is not reported by either the IMO or the IMB consistently. I primarily relied on news reports for this information. However these reports are not always clear about the ship's owner. For instance, in the news, a vessel could be reported as "a Greek-owned cargo ship," "a Greek ship," "a Greek-owned, Italian-operated ship," or "a Greek-owned, Italian-chartered ship." I attempted to address these differences by choosing the country of the company that would have negotiating ability (as determined by the context of news articles), which meant either the country of the company that either owned or operated the vessel. I believe that due to the consistency I applied this analysis, this variable, while somewhat murky, is still a valid predictor to include in my analysis.

**Nationalities of the Crew:** Similar to the nationality of the ship's owner, I used news reports to determine the makeup of the nationalities of the crew. Occasionally, the number of crew reported in the news (by nationality) would conflict with the number reported by the IMO or IMB (total crew). In these few cases, I used whatever data contained the breakout of the crew's nationalities. There were three specific cases that only partial data were available. I made the best estimate possible. In two cases, the nationality was unknown. In a third case, the nationality of half the crew was reported as African. Later when I assigned these crew numerical values based on the reported nationalities, I made estimates for average African value and average value overall (for unknown crew). Overall, I do not believe that these approximations introduce a significant source of error into my analysis as these estimations were used for only 20 crewmembers out of a total of 924 in the data set.

**Ransom Amount:** Ransom amounts introduce a significant source of uncertainty into the data. In a white paper about the insurance market, Traveler's Insurance writes:

> We do not quote average or specific ransom amounts in this document. Reported sums are frequently inaccurate, as it can be in both the pirates' and the media's interest to exaggerate the sums. Giving publicity to these ransom demands is also irresponsible: it can lead to benchmarks being set, inflation in pirates' expectations, and further delays in the negotiation process.[12]

All reported figures for ransoms are sourced from anecdotal news reports, articles in industry journals, and books. Most amounts are attributed to anonymous sources, which are usually pirate affiliates and occasionally government officials. It is very rare for the owner of the ship to disclose ransom figures, but in one case this did happen: an executive of Scan-Trans Holdings reported paying $1 million in ransom for the release of its ship. There are several issues with relying on the anonymous sources quoted in the media:

- As Traveler's Insurance argues, there are incentives to inflate values.
- Ransoms are often arranged and paid through a series of middlemen, and it is unknown if the amount quoted represents the total payment or another stage in the distribution chain.
- Often, a range is reported to be the ransom amount.

Not much can be done to improve the fidelity of ransom amount data. In cases where ranges were quoted, I used the low end of the range.

Given the secretive nature of the ransom payments, I believe there is little that can be done to improve the data fidelity of this information. For the other two variables, perhaps improved data sources could mitigate any potential data fidelity issues.

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[12] Travelers.

# VARIABLES

Available data largely determined the choice of variables to include in my analysis. Some data were descriptive such as the country of ownership and the vessel type. For some of these variables, I converted them into continuous variables through the use of a proxy data set and, for others, I treated them as dummy variables.

## *MEASURED VARIABLES*

| | |
|---|---|
| **Ransom:** | In US dollars, the ransom paid to secure the ship's release |
| **Ln(Ransom):** | The natural log of the ransom |
| **Days Held:** | The number of days between capture and release |
| **Ln(Days Held):** | The natural log of the days captured |
| **Gross Tonnage:** | A measure, in thousands, of the ship's volume and overall size |
| **Crew Count:** | The number of crew aboard when captured |
| **Distance to Somalia:** | The distance, in miles, between the largest city in the country of ownership and Eyl, Somalia, a major piracy stronghold |

## *PROXY VARIABLES*

These three proxy variables are an attempt to convert descriptive data into continuous variables that could be powerful predictors of ransoms and days held. For instance, the negotiating ability of the ship's owner likely plays a powerful role in determining a ship's release. Additionally, the nationality of the crew may also be an important variable: ransoms for crews from developed countries could likely be higher than ransoms for crews from less developed countries.

| | |
|---|---|
| **Owner:** | A proxy for the business/negotiating acumen of the ship's owner. The value of the owner variable is the World Economic Forum's Global Competitiveness Report index score of the country of ownership. Appendix 1 provides the numerical value for each country. |
| **Average Crewmember Value:** | A value between 0 and 1 that is a proxy for the average value of crewmembers aboard the ship. The reported nationalities of the crew were combined with the UN Human Development Index (HDI) to create a proxy for the value of the average crewmember. The HDI uses life expectancy, literacy rates, education enrollment and GDP per capita to create a numerical representation of human development for each country between 0 and 1. Average crewmember value is a weighted average of the index value for each country and the number of crew from that country onboard. Appendix 2 provides the HDI value for each country and the number of crew per country included in the data set. |
| **Crew Value:** | A proxy for the collective value of the crew equal to the average crewmember value multiplied by the number of crew onboard |

| | |
|---|---|
| **Ship Type:**<br>(Bulk Carrier, Fishing Vessel, General Cargo Ship, Tugs and Yachts, and VLCC) | The IMO and IMB categorize all the ships in the sample into ten types. I condensed their reporting to 6 types. I created dummy variables for the 6 types keeping VLCC as the base case. |
| **Gov. will Pay:** | Some governments will negotiate with terrorists and are believed to pay the ransoms with government funds. Other governments have traded prisoners for the release of hostages. The countries of ownership with governments that pay receive a dummy variable value of 1 and all other countries of ownership receive a dummy variable of 0. (The base case is governments with unknown policies.) |
| **Gov. will not Pay:** | Some governments have a stated, public policy of never negotiating with terrorists/pirates. The countries of ownership with governments that will not pay receive a dummy variable value of 1 and all other countries of ownership receive a dummy variable of 0. (The base case is governments with unknown policies.) |

*CORRELATED VARIABLES*

Appendix 3 provides a table of correlations between variables. Variables with correlations with an absolute value of .6 or above were examined. Below is a table of the correlation pairs and the action taken (for example, removing one variable).

| Correlation Pairs | Action Taken and Explanation |
|---|---|
| Ransom, Ln(Ransom) | Ransom dropped because Ln(Ransom) better fits a normal distribution |
| Days Held, Ln(Days) | Days Held dropped because Ln(Days) better fits a normal distribution |
| Owner, Distance to Somalia | Both variables kept because correlation is not too high (0.64) and no intuitive correlation |
| Crew Count, Crew Value | Crew Value dropped because it is the product of Crew Count and Avg. Crewmember Value |
| VLCC, Gross Tonnage | VLCC dropped because it is used as the base case for the ship type dummy variables |

## Descriptive Statistics

| | | Mean | Std. Dev. | Min | Max | Count |
|---|---|---|---|---|---|---|
| **Measured Variables** | Ransom | 2,269,268 | 1,080,843 | 600,000 | 5,500,000 | 41 |
| | Ln(Ransom) | 14.51 | 0.52 | 13.30 | 15.52 | 41 |
| | Days Held | 67.76 | 46.95 | 5.00 | 222.00 | 41 |
| | Ln(Days) | 3.96 | 0.80 | 1.61 | 5.40 | 41 |
| | Gross Tonnage (000s) | 21.94 | 33.51 | 0.66 | 162.25 | 41 |
| | Crew Count | 22.54 | 7.59 | 6.00 | 41.00 | 41 |
| | Distance to Somalia | 3,541 | 1,358 | 1,100 | 7,534 | 41 |

| | | Mean | Std. Dev. | Min | Max | Count |
|---|---|---|---|---|---|---|
| **Proxy** | Owner | 4.75 | 0.61 | 3.67 | 5.59 | 41 |
| | Crew Value | 17.15 | 6.13 | 5.18 | 33.60 | 41 |
| | Average Crewmember Value | 0.76 | 0.07 | 0.58 | 0.90 | 41 |

| | | Mean | Std. Dev. | Min | Max | Count* |
|---|---|---|---|---|---|---|
| **Dummy Variables** | Bulk Carrier | 0.29 | 0.46 | 0.00 | 1.00 | 12 |
| | Fishing Vessel | 0.07 | 0.26 | 0.00 | 1.00 | 3 |
| | General Cargo Ship | 0.27 | 0.45 | 0.00 | 1.00 | 11 |
| | Tanker | 0.24 | 0.43 | 0.00 | 1.00 | 10 |
| | Tugs and Yachts | 0.07 | 0.26 | 0.00 | 1.00 | 3 |
| | VLCC | 0.05 | 0.22 | 0.00 | 1.00 | 2 |
| | Gov. will Pay | 0.10 | 0.30 | 0.00 | 1.00 | 4 |
| | Gov. will not Pay | 0.15 | 0.36 | 0.00 | 1.00 | 6 |

\* For Dummy Variables, Count represents the number of obs. with a value of 1.

## STATISTICAL MODEL

An ordinary least squares regression model is first used to evaluate the significant predictive factors on the ransom amount and the number of days held. When Ln(Ransom) is the dependent variable, all other variables were treated as independent variables. Likewise, when Ln(Days) is the dependent variable, all other variables including Ln(Ransom) were treated as independent variables.

However, this approach does not account for the fact that Ln(Ransom) and Ln(Days) are both dependent and independent variables—the ransom amount paid arguably depends on the length of captivity. Additionally, the length of captivity depends on the amount of ransom paid. As the ransom amount and length of captivity are effectively negotiated as a pair, each variable can be viewed as both dependent and independent. Therefore, I also used a two-stage least squares (2SLS) regression to analyze the interdependence of the variables.

## TWO-STAGE LEAST SQUARES MODEL

The advantage of a 2SLS model is that it can "examine reciprocal causation" and "assess the causal effects of reciprocally related dependent variables."[13] The 2SLS model takes the form:

$$y = f(x_1 \ldots x_n, x_{n+1}, z)$$
$$z = g(x_1 \ldots x_n, x_{n+2}, y)$$

In a 2SLS model, both dependent variables (y,z) act as independent variables as well. One key requirement of the 2SLS model is that a variable exists ($x_{n+1}$) which is a significant factor for dependent variable y but not for dependent variable z. Likewise, there must be a variable ($x_{n+2}$) which is a significant factor for dependent variable z but not for dependent variable y. For my data set, I postulate that $x_{n+1}$ is gross tonnage and $x_{n+2}$ is distance to Somalia. While gross tonnage intuitively would affect the ransom amount, there is no apparent reason for it to affect the length of captivity. Similarly, the distance to Somalia variable could affect the length of captivity as negotiations could take longer if the two parties are farther apart. However, it is unlikely that the distance to Somalia variable would affect the ransom amount.

The 2SLS model involves regressing each dependent variable against all dependent variables $x_1$ to $x_{n+2}$:

$$y = h(x_1 \ldots x_{n+2})$$
$$z = j(x_1 \ldots x_{n+2})$$

Then the fitted values (ŷ,z-hat) of these regressions are substituted back into the original functions and the two regressions are performed:

$$y = k(x_1, x_2 \ldots x_n, x_{n+1}, \hat{z})$$
$$z = l(x_1, x_2 \ldots x_n, x_{n+2}, \hat{y})$$

Therefore, a 2SLS model avoids the recursivity problem present in the ordinary least squares method. One thing to note about the 2SLS model is that there is no way to calculate an adjusted R-Sq value and the R-Sq value calculated is synthetic.

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[13] James.

# RESULTS

## 2SLS MODEL

The 2SLS model accounts for the effects of Ln(Days) and Ln(Ransom) being both independent and dependent variables. This model aims to determine the most significant factors for both Ln(Ransom) and Ln(Days):

| 2SLS—Response Variable: Ln(Ransom) | | |
|---|---|---|
| 'R-Sq' | 55.0% | |
| | Coef. | P-Value |
| Ln(Days) | 0.36 | 2.5% |
| Gross Tonnage [1] | 0.004 | 7.2% |
| Crew Count | 0.04 | 0.0% |
| Fishing Vessel | 0.53 | 10.8% |
| Gov. will Pay | -0.87 | 0.7% |

| 2SLS—Response Variable: Ln(Days) | | |
|---|---|---|
| 'R-Sq' | 42.2% | |
| | Coef. | P-Value |
| Ln(Ransom) | -0.02 | 94.9% |
| Owner | -0.76 | 0.6% |
| Avg. Crewmember Value | -4.83 | 0.7% |
| Tanker | -0.64 | 2.8% |
| Gov. will Pay | -1.49 | 0.2% |
| Distance to Somalia | 0.0001 | 28.0% |

[1] Gross tonnage is reported in thousands of gross tons.

### LN(RANSOM)

**Ln(Days):** Increasing the days of captivity by 5% leads to a 1.8% increase in the eventual ransom payment. The initial suggestion is that ship owners have a strong financial incentive to pay ransoms quickly. This result and further implications will be discussed below.

**Gross Tonnage:** Gross tonnage is not significant at the 5% level but is significant at the 10% level. For each additional 1,000 gross tons, a ship would have a 0.4% higher ransom. The result that a larger ship demands a higher ransom is intuitive.

**Crew Count:** An increase in the crew of one would lead to a 4.3% higher ransom significant at the 1% level. This result is also intuitive.

**Fishing Vessel:** A fishing vessel commands a 70% higher ransom, but this result is not significant, even at the 10% level.

**Gov. will Pay:** Surprisingly, a government's stated willingness to pay actually reduces the ransom by 58% significant at the 1% level. This result is counterintuitive as many in the shipping industry argue that the payment of ransoms only encourages higher payments and more hijackings. However, this result does not address the future ramifications of a government's policy on ransoms—future ransoms could indeed be higher due to more governments adopting a policy of paying. Instead, it suggests that relative to other governments that either do not have a stated policy or expressly prohibit payments to pirates, governments who are willing to pay ransoms are able to negotiate

| | |
|---|---|
| **Insignificant Variables:** | lower payments and ensure faster releases. This could be due to the perceived or real superior negotiating ability of governments. Alternatively, it could be that pirates are willing to accept a lower ransom from governments rather than face the possibility of a military attack or rescue. Notably, Gov. will not Pay was not significant. This suggests that a government has little to gain from publicly announcing it will not negotiate with pirates. Instead, the government could keep its policy unknown. In terms of ransom amounts and days held, an unknown policy is statistically equivalent to a policy of not negotiating. Therefore, the government effectively has a free option to negotiate in the future (as there is no cost to having an unknown policy). |
| | Additionally, the average crewmember value was interestingly not significant for ransom payments. This suggests that both pirates and owners place an equal value on crewmembers regardless of nationality. |

*LN(DAYS)*

| | |
|---|---|
| **Ln(Ransom):** | The ransom amount is not a significant variable for days held meaning that there is no statistical evidence that higher ransoms ensure quicker releases. This result is surprising, and it is not initially clear from any qualitative or anecdotal data why higher ransoms do not ensure earlier releases. A further discussion of this result is below. |
| **Owner:** | Increased owner sophistication as measured by the Global Competitive index results in a reduction in days held. Even though the proxy variable is a very crude approximation of business/negotiating acumen, it seems to provide a significant predictor of days held. Owners located in more developed countries are more motivated to secure the release of their ships more quickly. |
| **Avg. Crewmember Value:** | An increase of 0.1 in the average crew value would lead to a 38% reduction in days held. This variable has a very large impact on days held. This implies that owners are very strongly motivated by the nationality of their crew. This suggests that there may be some external pressures in the home country of the crew on the owner to secure a quick release of the hostages. |
| **Tanker:** | A tanker reduces days held by 48% compared to all other ship types. Some anecdotal reports discuss instances where a tanker's owners rushed to secure the ship's release as the cargo or its value was time sensitive. |
| **Gov. will Pay:** | Surprisingly, a government's stated willingness to pay actually reduces the days held by 77%. This further supports the hypothesis that governments possess superior negotiating skills that are able to achieve better outcomes than private firms. |
| **Insignificant Variables:** | Again, Gov. will not Pay was not significant. This cements my assertion that governments gain little by publicly stating no-negotiation policy. |
| | In a reversal from the ransom regression, crew count was not a significant variable for determining days held. While crews that are from more developed country (as measured by average crewmember value) are released more quickly, pirates do not receive a premium for these crews. |

## *A DISCUSSION OF THE RECURISIVITY OF RANSOM AND DAYS HELD*

The results show that ransom amounts do not affect the number of days held. However, longer captivity leads to higher ransom amounts. To explain these results, a qualitative understanding of the ransom negotiation process is useful.

For the number of days held, the ransom amount is not significant. This result is not intuitive. Why wouldn't higher ransoms ensure quicker releases of ships? I believe that the reason why the ransom amount is not a significant predictor of days held is due to ransom not being the correct variable to represent the reason why negotiations end and a release is secured. The release of the ship depends on both parties (the owner and the pirates) to mutually agree on a ransom amount. This means that the ransom amount has to be perceived by the pirates as a fair offer. Therefore it is not the absolute amount of the ransom that guarantees the release of the ship, but it is whether the ransom amount is considered fair.

Presumably, the pirates have an idea of what kind of ransom a given ship is worth based upon prior hijackings. Additionally, they also have an idea of the minimum ransom amount they are willing to accept. The speed of the negotiations and how quickly a ship is released depends on the owner's ransom offers relative to the pirates' sense of the fair ransom amount of the ship. Therefore if an owner offers a ransom that is particularly generous given the nature of the ship and crew, it is likely that release will be secured more quickly. Again, it is not the absolute value of the ransom, but the ratio of the negotiated amount to the pirates' perceived fair ransom value that determines how quickly the ship is released.

This is further supported by the relative marginal costs that the pirates and owners experience. Each day the ship's owners are without their crew, cargo and ship costs the owners an order of magnitude more than it costs the pirates to keep the ship one more day. Therefore, during negotiations any offer by the owners that is considered too low by the pirates will just delay the negotiating process. Therefore, it is advisable for the owners to approach the negotiating process 'fairly' and negotiate in good faith. This will result in a faster time to release.

The question still remains why delayed negotiations increase the ransom amount. Owners can be separated into two groups: those who negotiate fairly and those who negotiate unfairly. Fair negotiators will reach consensus with the pirates quickly and pay a ransom. Unfair negotiators will delay negotiations extending the time until the ship is released. Do unfair negotiators pay more or less ransom than fair negotiators once an agreement has been reached? They pay more.

As time drags on, the pressure for owners to settle increases significantly more than the pressure for pirates to settle because of the imbalance in marginal costs. Therefore, a breaking point will be reached where the owner realized there is little chance of paying a small ransom and will have to increase its offer in order to secure the ship's release and stop bleeding cash. I believe that this amount will be higher than the amount paid by fair negotiators as pirates are able to identify unfair negotiators and begin the process of delaying negotiations to secure a higher ransom payment. Additionally, as the length of captivity increases, owners are likely to face external pressures. For instance, the families of the ship's crew are likely to grow more restless and rising political pressure may demand action from the owners. With high financial and political pressure, owners are forced to settle and pirates can extract higher payments from these embattled owners.

The two general conclusions about the relationship between ransom and days held are:
- Ransoms have no statistical influence on days held because the absolute dollar value of the ransom does not reflect its attractiveness to pirates.
- Owners cannot outwait pirates so any increase in the length of captivity only adds to the pirates' negotiating power (as the owners' costs escalate) and increases ransom amounts. This suggests that ship owners have a strong financial incentive to pay ransoms quickly.

One potential area for further research would be to examine initial ransom demands versus the settled amount. Perhaps using the proportion of the settlement to the initial demand would a better variable for predicting when ships would be released. For instance, if the average ransom ends up being 50% of the initial demand and in one instance, the ransom was 75% of the initial demand, the relatively higher ransom may have led to a faster release. This would be an interesting hypothesis and could lead to a significant relationship.

## OLS MODEL

This OLS model serves as a robustness check of the 2SLS model.

### OLS—Response Variable: Ln(Ransom)

R-Sq (adj)          41.2%

|  | Coef. | P-Value |
| --- | --- | --- |
| Ln(Days) | 0.22 | 1.4% |
| Gross Tonnage [1] | 0.004 | 4.1% |
| Crew Count | 0.02 | 2.8% |
| Fishing Vessel | 0.62 | 3.9% |
| Gov. will Pay | -0.71 | 1.1% |

### OLS—Response Variable: Ln(Days)

R-Sq (adj)          36.5%

|  | Coef. | P-Value |
| --- | --- | --- |
| Ln(Ransom) | 0.35 | 13.2% |
| Owner | -0.47 | 1.8% |
| Avg. Crewmember Value | -5.01 | 0.5% |
| Tanker | -0.53 | 4.9% |
| Gov. will Pay | -1.18 | 0.5% |

[1] Gross tonnage is reported in thousands of gross tons.

By not accounting for the recursivity and interdependence of the variables Ransom and Days Held, this model improves the statistical significance of certain variables, but overall is still consistent with the results obtained using the 2SLS model.

The most interesting result was the increase in significance of the Fishing Vessel variable. A fishing vessel commands an 87% higher ransom significant at the 5% level. In this regression all other types of ships represent the base case. This could be qualitatively supported by the fact that many Somali pirates claim that hijackings are response to fish poaching in Somali waters—the higher ransom for fishing vessels could represent punitive demands from pirates.

# CONCLUSIONS

Ransoms are not random nor is their amount solely determined by the negotiating skills of the pirates and the ship owners. Instead there are six variables that affect ransoms and the length of captivity.

Ransoms are determined by these three significant variables:
- Ln(Days), Crew Count, and Gov. will pay

Days Held is determined by these four significant variables:
- Owner, Average Crewmember Value, Tanker, and Gov. will pay

Given these results, owners and government can take specific actions to minimize ransom amounts. Additionally, if pirates aim to maximize profit, the data present some conclusions about which ships they should target and the most effective strategy after capturing a ship.

Unfortunately, there is not much owners can do. Owners have limited influence over these six significant variables. In reality, many of these variables are determined by sensible business decisions made long before the hijacking. Adjusting the number of crew aboard, the nationalities of the crew, and the type of ship sailed in these regions is not a practical solution because the threat of piracy is still so remote. Governmental policy on ransoms could potentially be influenced through lobbying. The only variable that owners have somewhat direct control over is the number of days the ship is held before it is released and even this variable is negotiated with the pirates. Once a given ship is hijacked, owners should attempt to secure its release as quickly as possible. Employing a strategy of protracted negotiations to obtain a better price fails. Owners cannot compete with the pirates' low marginal cost (for each additional day held). This is validated statistically as well as a 5% increase in days held results in a 1.1% increase in the cost of ransom. Owners: pay fairly and pay quickly.

The data suggest that governments can ensure better outcomes (faster releases and lower ransoms) by publicly stating a policy of negotiating with pirates. If that is not politically tenable, governments should not make a policy known. A policy of not negotiating shows no statistically significant benefit over an unknown policy and only serves to constrain the range of possible responses to hostage crises in the future.

Pirates can heavily influence outcomes. Ultimately, their goal is to find the tradeoff between higher ransoms and shorter captivities that maximize their profits. This starts with their target. The ideal target is a tanker owned by a company in a developed country, with a large crew from developed countries. By using satellite phones, pirates who are at sea can relay the names of ships within range to their associates on land, who can find the necessary information online (subscription shipping databases catalogue this information). Pirates face an interesting choice in determining how long they should hold ships. By taking a stronger negotiating position and lengthening the time until release, pirates will receive higher ransoms, but at an additional cost. Holding the ship requires financial outlays for security and food, and also increases the operational risk of the mission. Therefore, pirates must weigh the additional marginal costs from holding the ship with the increase in ransom they stand to gain. Generally it seems that the marginal costs are low enough to encourage holding the ship for longer periods especially when the owner has above average financial resources.

Once a ship is captured, pirates hold all of the power. By wisely choosing their targets and negotiating forcefully, pirates can extract the maximum financial gain. Owners do not have any viable options

except to pay the ransom quickly. As such, owners are increasingly focusing on avoiding hijacking, but with limited defenses on the seas, they have taken to lobbying their governments for increased naval protection. Ultimately, increasing pirate capabilities, a small naval protection force and the vastness of the ocean will lead to piracy continued escalation until a land-based solution is developed.

# AREAS FOR FURTHER RESEARCH

The biggest challenge to performing research on ransoms and piracy is the lack of data. Obtaining new data is crucial to extending the analysis.

1. Further exploring the notion that payment of ransom only engenders an increase in piracy and higher ransoms by employing a time-series model. This would allow the analysis of piracy and ransom trends over time. For instance, how do military rescue operations of hostages affect the likelihood that the same country's ships will be hijacked in the future? If owners from a certain country have a record of paying ransoms does that cause ships from that country to be targeted? There is a wealth of time-series related research that can be performed on this data set.
2. As mentioned briefly above, the ransom amount serves as a poor predictor of days held. This relationship could possibly be improved by including a variable that served to represent the negotiating balance of the ship's owners and the pirates. For instance, the pirate's initial ransom demands are published in the news in many cases. A ratio of the paid ransom amount to the initial demands could be a barometer of pirate success. Perhaps in cases where this ratio is higher than average, the ship is released more quickly.
3. Data is sporadic, but it could be possible to obtain cargo values and ship values for each hijacking. These could also be significant determinants for ransom value.
4. Some in the shipping industry dismiss it as a conspiracy theory, but others believe that pirates have an extensive network that funnels information about cargoes, shipping routes, and hijacking targets from shipping industry insiders located in London. One way to test this insider theory would be to analyze if pirate attacks target the most valuable ship in the immediate vicinity of the attack. For instance, if a pirate attack occurred on a particular day in a particular location, the ship that was attacked could be compared to ships transiting in that area. By estimating a ransom value for all ships in that area, it would be possible to check if the pirates attacked the most valuable ship. In order to conduct this analysis, detailed information on ships, shipping routes, cargoes would need to be compiled. However, this data might be more readily available than it seems—maritime organizations already compile data with the location of every tanker on a weekly basis, and there are certain regular shipping routes.[14]

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[14] Mathiason.

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# APPENDIX

## 1) PROXY AND DUMMY VARIABLES

| Ship's Owner | Competitiveness [1] | Largest City | Distance to Somalia (Miles) [3] | Gov. Will Pay Ransom [4] | Gov. Won't Pay Ransom [4] |
|---|---|---|---|---|---|
| Britain | 5.19 | London | 4,118 | - | 1 |
| China | 4.74 | Beijing | 5,021 | - | - |
| Denmark | 5.46 | Copenhagen | 3,867 | - | - |
| Egypt | 4.04 | Cairo | 1,941 | 1 | - |
| France | 5.13 | Paris | 3,936 | - | 1 |
| Germany | 5.37 | Berlin | 3,693 | - | - |
| Greece | 4.04 | Athens | 2,634 | - | - |
| Iran | 4.40 [2] | Tehran | 1,396 | - | - |
| Italy | 4.31 | Rome | 3,263 | - | - |
| Japan | 5.37 | Tokyo | 5,890 | - | - |
| Kenya | 3.67 | Nairobi | 1,100 | - | - |
| Malaysia | 4.87 | Kuala Lumpur | 3,578 | - | - |
| Netherlands | 5.32 | Amsterdam | 3,966 | - | - |
| Norway | 5.17 | Oslo | 4,118 | - | - |
| Phillippines | 3.90 | Manila | 4,857 | - | 1 |
| Saudi Arabia | 4.75 | Riyadh | 1,169 | - | - |
| Singapore | 5.55 | Singapore | 3,740 | - | 1 |
| South Korea | 5.00 | Seoul | 5,179 | - | - |
| Spain | 4.59 | Madrid | 3,965 | 1 | - |
| Thailand | 4.56 | Bangkok | 3,455 | - | - |
| Turkey | 4.16 | Istanbul | 2,616 | - | - |
| Ukraine | 3.95 | Kiev | 3,134 | - | - |
| USA | 5.59 | New York | 7,534 | - | 1 |

[1] The Global Competitiveness Index value is the Owner variable used in the regressions.

[2] Data was not available, so an average of the Middle East was used.

[3] Measured from the largest city in the country of ownership to Eyl, Somalia, a major piracy stronghold.

[4] A value of 1 indicates that the country will or will not pay a ransom. The official policy of most countries is unknown and represented by a value of 0.

## 2) HUMAN DEVELOPMENT INDEX VALUE BY COUNTRY

| Nationality | Crew Count | HDI | Nationality | Crew Count | HDI |
|---|---|---|---|---|---|
| Bangladesh | 3 | 0.543 | Malaysia | 67 | 0.829 |
| Britian | 6 | 0.947 | North Korea | 28 | 0.579 [1] |
| Bulgaria | 16 | 0.840 | Pakistan | 8 | 0.572 |
| Burma | 9 | 0.586 | Philippines | 264 | 0.751 |
| Cameroon | 1 | 0.523 | Poland | 7 | 0.880 |
| China | 25 | 0.772 | Romania | 12 | 0.837 |
| Croatia | 15 | 0.871 | Russia | 54 | 0.817 |
| Egypt | 53 | 0.703 | Saudi Arabia | 1 | 0.843 |
| Estonia | 2 | 0.883 | Senegal | 3 | 0.464 |
| Fiji | 1 | 0.741 | Seychelles | 1 | 0.845 |
| France | 22 | 0.961 | Singapore | 2 | 0.944 |
| Georgia | 7 | 0.778 | Slovenia | 1 | 0.929 |
| Germany | 5 | 0.947 | Spain | 29 | 0.955 |
| Ghana | 8 | 0.526 | Sri Lanka | 16 | 0.759 |
| Greece | 12 | 0.942 | Syria | 7 | 0.742 |
| India | 66 | 0.612 | Turkey | 23 | 0.806 |
| Indonesia | 13 | 0.734 | Tuvalu | 11 | 0.538 [1] |
| Iran | 21 | 0.782 | Ukraine | 68 | 0.796 |
| Ireland | 1 | 0.965 | Yemen | 2 | 0.575 |
| Italy | 10 | 0.951 | | | |
| Ivory Coast | 2 | 0.484 | Unknown | 7 | 0.752 [2] |
| Latvia | 1 | 0.866 | African | 13 | 0.547 [3] |
| Lithuania | 1 | 0.870 | | | |

[1] Data was not available, so an estimate, based on similar countries, was used

[2] Crew nationality was not known, so an average of the HDI index value was used

[3] Crew nationality was reported as African, so the average African HDI index value was used

**3) TABLE OF CORRELATIONS**

| | Ransom | Ln(Ransom) | Days Held | Ln(Days) | Owner | Gross Tonnage | Crew Count | Crew Value | Average Crewmember Value | Bulk Carrier | Fishing Vessel | General Cargo Ship | Tanker | Tugs and Yachts | VLCC | Gov. will Pay | Gov. will not Pay | Distance to Somalia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ransom | 1.00 | | | | | | | | | | | | | | | | | |
| Ln(Ransom) | 0.95* | 1.00 | | | | | | | | | | | | | | | | |
| Days Held | 0.32* | 0.35* | 1.00 | | | | | | | | | | | | | | | |
| Ln(Days) | 0.35* | 0.34* | 0.88* | 1.00 | | | | | | | | | | | | | | |
| Owner | -0.25 | -0.21 | -0.37* | -0.30* | 1.00 | | | | | | | | | | | | | |
| Gross Tonnage | 0.46* | 0.38* | 0.02 | 0.09 | -0.18 | 1.00 | | | | | | | | | | | | |
| Crew Count | 0.29 | 0.36* | -0.04 | -0.12 | -0.17 | 0.26 | 1.00 | | | | | | | | | | | |
| Crew Value | 0.32* | 0.38* | -0.08 | -0.18 | -0.21 | 0.27 | 0.96* | 1.00 | | | | | | | | | | |
| Average Crewmember Value | 0.08 | 0.07 | -0.13 | -0.17 | -0.11 | 0.04 | -0.20 | 0.06 | 1.00 | | | | | | | | | |
| Bulk Carrier | 0.16 | 0.25 | 0.26 | 0.29 | -0.26 | 0.14 | 0.13 | 0.11 | -0.08 | 1.00 | | | | | | | | |
| Fishing Vessel | 0.06 | 0.07 | -0.05 | -0.19 | -0.08 | -0.15 | 0.27 | 0.28 | 0.04 | -0.18 | 1.00 | | | | | | | |
| General Cargo Ship | -0.23 | -0.26 | -0.11 | -0.02 | 0.29 | -0.26 | -0.43* | -0.43* | -0.00 | -0.40* | -0.17 | 1.00 | | | | | | |
| Tanker | -0.06 | 0.00 | -0.08 | -0.10 | 0.08 | -0.12 | 0.29 | 0.21 | -0.34* | -0.35* | -0.15 | -0.33* | 1.00 | | | | | |
| Tugs and Yachts | -0.14 | -0.26 | -0.03 | -0.10 | 0.01 | -0.20 | -0.29 | -0.18 | 0.49* | -0.20 | -0.09 | -0.19 | -0.17 | 1.00 | | | | |
| VLCC | 0.40* | 0.28 | -0.08 | -0.01 | -0.13 | 0.94* | 0.13 | 0.16 | 0.12 | -0.14 | -0.06 | -0.13 | -0.12 | -0.07 | 1.00 | | | |
| Gov. will Pay | -0.25 | -0.35* | -0.18 | -0.21 | -0.22 | -0.21 | 0.00 | -0.01 | 0.06 | -0.26 | 0.42* | 0.20 | -0.22 | 0.10 | -0.09 | 1.00 | | |
| Gov. will not Pay | 0.13 | 0.15 | 0.11 | 0.04 | 0.29 | -0.07 | 0.22 | 0.13 | -0.31* | -0.01 | -0.12 | -0.13 | 0.21 | 0.08 | -0.09 | -0.17 | 1.00 | |
| Distance to Somalia | -0.09 | -0.03 | -0.13 | -0.16 | 0.64* | -0.21 | 0.06 | 0.01 | -0.15 | -0.10 | 0.06 | -0.03 | 0.32* | -0.12 | -0.26 | -0.21 | 0.34* | 1.00 |

\* significant at the 5% level

## 4) SOURCE DATA

| # | Date of Attack | Date of Release | Name | Owner | Ransom | Days Held | Gross Tonnage | Crew Count | Distance to Somalia | Owner | Crew Value | Average Crewmember Value | Ship Type | Gov. will Pay | Gov. will not Pay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2/1/2008 | 3/18/2008 | Svitzer Korsakov | Denmark | 700,000 | 46 | 0.66 | 6 | 3,867 | 5.46 | 5.2 | 0.86 | Tug | - | - |
| 2 | 4/4/2008 | 4/11/2008 | Le Ponant | France | 2,000,000 | 7 | 1.19 | 30 | 3,936 | 5.13 | 27.0 | 0.90 | Yacht | - | 1 |
| 3 | 4/20/2008 | 4/25/2008 | Playa de Bakio | Spain | 1,200,000 | 5 | 2.10 | 26 | 3,965 | 4.59 | 19.5 | 0.75 | Fishing Vessel | 1 | - |
| 4 | 5/25/2008 | 6/24/2008 | Amiya Scan | Denmark | 1,000,000 | 30 | 2.55 | 9 | 3,867 | 5.46 | 7.0 | 0.78 | General Cargo Ship | - | - |
| 5 | 5/28/2008 | 7/7/2008 | Lehmann Timber | Germany | 750,000 | 40 | 5.29 | 15 | 3,693 | 5.37 | 10.2 | 0.68 | General Cargo Ship | - | - |
| 6 | 7/20/2008 | 10/9/2008 | Stella Maris | Japan | 2,000,000 | 81 | 30.05 | 21 | 5,890 | 5.37 | 15.8 | 0.75 | Bulk Carrier | - | - |
| 7 | 8/19/2008 | 9/27/2008 | Bunga Melati Dua | Malaysia | 2,000,000 | 39 | 22.25 | 39 | 3,578 | 4.87 | 31.6 | 0.81 | Tanker | - | - |
| 8 | 8/21/2008 | 10/10/2008 | Iran Deyanat | Iran | 2,000,000 | 50 | 25.17 | 30 | 1,396 | 4.40 | 23.6 | 0.79 | Bulk Carrier | - | - |
| 9 | 8/21/2008 | 9/11/2008 | Irene | Japan | 1,600,000 | 21 | 7.37 | 19 | 5,890 | 5.37 | 14.6 | 0.77 | Tanker | - | - |
| 10 | 8/21/2008 | 9/11/2008 | BBC Trinidad | Germany | 1,100,000 | 21 | 6.30 | 13 | 3,693 | 5.37 | 10.1 | 0.77 | General Cargo Ship | - | - |
| 11 | 8/29/2008 | 9/27/2008 | Bunga Melati 5 | Malaysia | 2,000,000 | 29 | 22.12 | 41 | 3,578 | 4.87 | 33.6 | 0.82 | Tanker | - | - |
| 12 | 9/3/2008 | 9/27/2008 | Al Mansourah | Egypt | 600,000 | 24 | 9.75 | 25 | 1,941 | 4.04 | 17.6 | 0.70 | General Cargo Ship | 1 | - |
| 13 | 9/15/2008 | 10/16/2008 | Stolt Valor | Japan | 1,100,000 | 31 | 15.73 | 22 | 5,890 | 5.37 | 13.9 | 0.63 | Tanker | - | - |
| 14 | 9/25/2008 | 2/4/2009 | Faina | Ukraine | 3,200,000 | 132 | 10.93 | 21 | 3,134 | 3.95 | 16.8 | 0.80 | General Cargo Ship | - | - |
| 15 | 9/26/2008 | 11/8/2008 | Genius | Greece | 3,290,000 | 43 | 6.77 | 19 | 2,634 | 4.04 | 14.4 | 0.76 | Tanker | - | - |
| 16 | 10/15/2008 | 1/12/2009 | African Sanderling | South Korea | 2,000,000 | 89 | 32.38 | 21 | 5,179 | 5.00 | 15.8 | 0.75 | Bulk Carrier | - | - |
| 17 | 11/7/2008 | 1/16/2009 | CEC Future | Denmark | 1,700,000 | 70 | 4.98 | 13 | 3,867 | 5.46 | 10.6 | 0.82 | General Cargo Ship | - | - |
| 18 | 11/10/2008 | 4/21/2009 | Stolt Strength | Phillippines | 2,500,000 | 162 | 20.06 | 23 | 4,857 | 3.90 | 17.3 | 0.75 | Tanker | - | 1 |
| 19 | 11/15/2008 | 1/9/2009 | Sirius Star | Saudi Arabia | 3,000,000 | 55 | 162.25 | 25 | 1,169 | 4.75 | 19.6 | 0.79 | VLCC | - | - |
| 20 | 11/18/2008 | 1/9/2009 | Delight | Iran | 2,000,000 | 52 | 25.77 | 25 | 1,396 | 4.40 | 17.2 | 0.69 | Bulk Carrier | - | - |
| 21 | 11/28/2008 | 1/25/2009 | Biscaglia | USA | 1,000,000 | 58 | 16.28 | 30 | 7,534 | 5.59 | 19.2 | 0.64 | Tanker | - | 1 |
| 22 | 1/1/2009 | 3/5/2009 | Blue Star | Egypt | 1,000,000 | 63 | 6.17 | 28 | 1,941 | 4.04 | 19.7 | 0.70 | General Cargo Ship | 1 | - |
| 23 | 1/3/2009 | 4/26/2009 | Sea Princess II | Kenya | 2,000,000 | 113 | 1.90 | 15 | 1,100 | 3.67 | 9.8 | 0.65 | Tanker | - | - |
| 24 | 2/22/2009 | 4/25/2009 | MV Saldanha | Greece | 1,900,000 | 62 | 38.89 | 22 | 2,634 | 4.04 | 16.6 | 0.75 | Bulk Carrier | - | - |
| 25 | 3/29/2009 | 4/10/2009 | Bow Asir | Norway | 2,400,000 | 12 | 14.63 | 26 | 4,118 | 5.17 | 20.4 | 0.78 | Tanker | - | - |
| 26 | 4/4/2009 | 8/3/2009 | Hansa Stavanger | Germany | 2,750,000 | 121 | 15.99 | 24 | 3,693 | 5.37 | 16.9 | 0.71 | General Cargo Ship | - | - |
| 27 | 4/6/2009 | 5/9/2009 | Malaspina Castle | Britain | 2,000,000 | 33 | 21.17 | 24 | 4,118 | 5.19 | 19.5 | 0.81 | Bulk Carrier | - | 1 |
| 28 | 4/11/2009 | 8/9/2009 | Buccaneer | Italy | 4,000,000 | 120 | 1.67 | 16 | 3,263 | 4.31 | 14.2 | 0.89 | Tug | - | - |
| 29 | 4/13/2009 | 9/14/2009 | Irene E.M | Greece | 2,000,000 | 154 | 21.95 | 22 | 2,634 | 4.04 | 16.5 | 0.75 | Bulk Carrier | - | - |
| 30 | 5/2/2009 | 12/10/2009 | Ariana | Greece | 2,600,000 | 222 | 37.96 | 24 | 2,634 | 4.04 | 19.1 | 0.80 | Bulk Carrier | - | - |
| 31 | 5/5/2009 | 6/18/2009 | Victoria | Germany | 1,800,000 | 44 | 7.77 | 11 | 3,693 | 5.37 | 9.2 | 0.84 | General Cargo Ship | - | - |
| 32 | 5/7/2009 | 6/23/2009 | Marathon | Netherlands | 1,300,000 | 47 | 1.66 | 8 | 3,966 | 5.32 | 6.4 | 0.80 | General Cargo Ship | - | - |
| 33 | 7/8/2009 | 10/5/2009 | Horizon 1 | Turkey | 2,750,000 | 89 | 21.63 | 23 | 2,616 | 4.16 | 18.5 | 0.81 | Bulk Carrier | - | - |
| 34 | 10/2/2009 | 11/17/2009 | Alakrana | Spain | 3,300,000 | 46 | 3.72 | 36 | 3,965 | 4.59 | 28.1 | 0.78 | Fishing Vessel | 1 | - |
| 35 | 10/15/2009 | 12/28/2009 | Kota Wajar | Singapore | 4,000,000 | 74 | 16.77 | 21 | 3,740 | 5.55 | 14.7 | 0.70 | General Cargo Ship | - | 1 |
| 36 | 10/19/2009 | 12/28/2009 | De Xin Hai | China | 4,000,000 | 70 | 40.89 | 25 | 5,021 | 4.74 | 19.3 | 0.77 | Bulk Carrier | - | - |
| 37 | 11/11/2009 | 2/1/2010 | Filitsa | Greece | 3,000,000 | 82 | 14.43 | 22 | 2,634 | 4.04 | 17.1 | 0.78 | Bulk Carrier | - | - |
| 38 | 11/29/2009 | 1/18/2010 | Maran Centaurus | Greece | 5,500,000 | 50 | 156.57 | 28 | 2,634 | 4.04 | 22.9 | 0.82 | VLCC | - | - |
| 39 | 11/5/2009 | 12/17/2009 | Delvina | Greece | 3,500,000 | 42 | 31.26 | 21 | 2,634 | 4.04 | 16.1 | 0.77 | Bulk Carrier | - | - |
| 40 | 10/29/2009 | 3/7/2010 | Thai Union 3 | Thailand | 3,000,000 | 129 | 1.95 | 27 | 3,455 | 4.56 | 21.3 | 0.79 | Fishing Vessel | - | - |
| 41 | 11/16/2009 | 3/16/2010 | Theresa VIII | Singapore | 3,500,000 | 120 | 12.73 | 28 | 3,740 | 5.55 | 16.2 | 0.58 | Tanker | - | 1 |