

# *An-arrgh-chy*: The Law and Economics of Pirate Organization\*

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## **Abstract**

This paper investigates the internal governance institutions of violent criminal enterprise by examining the law, economics, and organization of pirates. To effectively organize their banditry, pirates required mechanisms to prevent internal predation, minimize crew conflict, and maximize piratical profit. I argue that pirates devised two institutions for this purpose. First, I analyze the system of piratical checks and balances that crews used to constrain captain predation. Second, I examine how pirates used democratic constitutions to minimize conflict and create piratical law and order. Remarkably, pirates adopted both of these institutions before the United States or England. Pirate governance created sufficient order and cooperation to make pirates one of the most sophisticated and successful criminal organizations in history.

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*“Nature, we see, teaches the most Illiterate the necessary Prudence for their Preservation . . . these Men whom we term, and not without Reason, the Scandal of human Nature, who were abandoned to all Vice, and lived by Rapine; when they judged it for their Interest . . . were strictly just . . . among themselves . . .”*

—Captain Charles Johnson (1726-1728: 527)

## 1 Introduction

Pirates are known for raucousness, recklessness, and chaotic rapine. Pirate reality, however, is quite another picture. Real-life pirates were highly-organized criminals. Unlike the swash-buckling psychopaths of fiction, historical pirates displayed sophisticated organization and coordination.

Pirates could not use government to enforce or otherwise support cooperative arrangements between them. Despite this, they successfully cooperated with hundreds and sometimes thousands of other rogues. Amidst ubiquitous potential for conflict, they rarely fought, stole from, or deceived one another.

In fact, piratical harmony was as common as harmony among their lawful contemporaries who relied on government for social cooperation. How did “these men whom we term . . . the Scandal of human Nature, who were abandoned to all Vice, and lived by Rapine” accomplish this impressive level of order (Johnson 1726-1728: 527)?

Becker (1968) was the first to apply the logic of rational-choice decision making to criminals. Following him, a number of others extended this logic to decision making in the context of organized outlaws. Fiorentini and Peltzman (1995) provide the best and most comprehensive collection of essays that consider the economics of criminal organization. In addition, a large literature discusses the economic impact of organized crime, activities of

criminal organizations, optimal strategies for preventing organized crime, and reasons for its emergence (besides Fiorentini and Peltzman 1995, see for instance, Anderson 1979; Arlacchi 1986; Chang, Lu, and Chen 2005; Dick 1995; Garoupa 2000; Jankowski 1991; Jennings 1984; Konrad and Skaperdas 1998; Reuter 1983, 1987; Skaperdas 2001).

Unlike these topics, the internal governance institutions of violent criminal organizations have received relatively little attention.<sup>1</sup> The difficulty of ‘getting inside’ criminal organizations is largely responsible for this. Levitt and Venkatesh’s (2000a, 2000b) important work on street gangs is an exception to this rule, as are Gambetta (1993) and Reuter’s (1983) superb studies of the mafia. However, Levitt and Venkatesh focus on the financial organization of gangs rather than their governance structures. Gambetta and Reuter’s studies, on the other hand, are primarily concerned with the mafia as a provider of protection for outsiders and the organization of the illegal markets it serves.

This paper investigates the internal governance institutions of violent criminal enterprise by examining the law, economics, and organization of pirates.<sup>2</sup> These “most treacherous rogues” terrorized the waters of the Caribbean, Atlantic, and Indian Oceans during the 17th and 18th centuries. Pirates formed a loose confederation of maritime bandits outside the law of any government.

To effectively organize their banditry, pirates required mechanisms to prevent internal predation, minimize crew conflict, and maximize piratical profit. I argue that pirates devised

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<sup>1</sup>Anderson (1979), Gambetta (1993), and Reuter (1983) are the closest exceptions in this regard. Their excellent works consider some internal governance aspects of the mafia, but tend to focus primarily on the mafia’s relationship to protection and other markets. Important research by Polo (1995) examines governance institutions of criminal organizations, but does so theoretically.

<sup>2</sup>This paper is also closely connected to the literature that examines the private emergence of law and governance institutions. See, for example, Anderson and Hill (2004), Anderson, Benson, and Flanagan (2006), Anderson and McChesney (2002), Benson (1988, 1989, 1990), Leeson (2007a, 2007b, 2007c), and Friedman (1979).

two institutions to overcome these obstacles to successful organization. First, I look at the system of piratical checks and balances that crews used to constrain captain predation. Second, I examine how pirates used democratic constitutions to minimize conflict and create piratical law and order. Remarkably, pirates adopted both of these institutions before the United States or England.

Their governance institutions were self-enforcing by necessity. Appealing to the formal enforcement mechanisms of the state is not an option for criminal organizations, including pirates. Although the maritime nature of piratical expeditions makes certain aspects of their system of internal organization and governance specific to pirates, my analysis highlights important problems that any form of organized criminal enterprise faces, as well as the institutional solutions such organizations employ to overcome these problems.

The literature that addresses the economics of organized crime focuses on the criminal organization as a supplier of some service, usually protection, to other actors inside and outside the criminal world. Schelling (1971), for instance, who was among the first to conduct this research, identifies the provision of enforcement services to other agents, and in line with this function, a monopoly on coercion, as the distinguishing features of organized crime.

While this definition is perhaps appropriate for the mafia, it neglects equally important organized criminal activities that do not provide any kind of useful service to others and do not involve any kind of monopoly of coercion. An army of thieves, for instance, which coordinates its activities, requires internal mechanisms of governance, and combines in a long-term arrangement for concerted plunder, is as much a criminal organization as the mafia.

Pirates were clearly organized criminals and yet were not primarily in the business of providing services to anyone other than their members.<sup>3</sup> Nor did they have a monopoly on force. Because of this, unlike most discussions of criminal organization, mine takes a broader view of organized crime. This view encompasses any long-term arrangement between multiple criminals requiring coordination that involves agreements which, owing to their illicit status, cannot be enforced by the state.<sup>4</sup> The emphasis of my analysis therefore shifts from the organization of criminal markets (the focus of existing research on the economics of organized crime) to the internal predation problem that criminal organizations face, and the strategies, institutions, and equilibria that emerge in response to it.

To examine these features for pirates, I draw on a series of historical documents that provided a first-hand glimpse into their organization. The first of these is Captain Charles Johnson's *General History of the Pyrates* (1726-1728), which contains reports on a number of history's most famous pirates related to the author by pirates themselves.<sup>5</sup> I also draw on Alexander Exquemelin's (1678) invaluable account of the 17th century buccaneers.

Exquemelin was a surgeon who sailed on a buccaneering vessel and provides a detailed, first-

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<sup>3</sup>Pirates, however, did smuggle and sell goods in the colonies that European governments' mercantilist policies prohibited or taxed.

<sup>4</sup>My definition of a criminal organization is therefore similar to Polo's (1995: 87) as "one that cannot rely on the external enforcement of the judicial institutions and whose behaviour and possibilities are not constrained by the law."

<sup>5</sup>"Captain Johnson" is a pen name used by the author of *A General History of the Pyrates*. His true identity remains unknown. In 1932, John R. Moore claimed that Johnson was in fact Daniel Defoe. In the late 1980s, however, this view was overturned and today most historians do not believe Defoe is the author of this important book (see, for instance, Furbank and Owens 1988; Cordingly 2006; Woodard 2007). While it is widely acknowledged that Johnson's work contains some errors and apocryphal accounts (such as the community of Libertalia), it is considered to be largely factual and remains a definitive source of pirate history relied on by pirate historians in constructing their accounts of 18th-century piracy, as I do here. As eminent pirate historian David Cordingly puts it, this book "is the prime source for the lives of many pirates of what is often called the Golden Age of Piracy" (2006: xx). It should also be noted that the problem of separating fact from fiction is not unique to Johnson but more generally applies to historical records that are nearly 300 years old. To address this, whenever possible, I use multiple sources to document each of my major contentions.

hand account of their raids, system of rules, and social organization. The buccaneer, William Dampier (1697-1707), also published a journal relating to his piratical exploits, which I make use of as well.

In addition to these sources, the calendar of colonial office papers, which contain correspondence between colonial governors and their central governments relating to piracy, and records from the trials of various pirates, such as testimony from individuals taken prisoner by pirate ships and the testimony of pirates themselves, form an important part of the historical record this paper relies on.<sup>6</sup> Finally, a few pirate captives, such as William Snelgrave (1734), whose captors ultimately released them, published longer works describing their harrowing captivity by pirate crews.<sup>7</sup> I draw on these accounts, which provide important first-hand records describing piratical governance and organization.<sup>8</sup>

## 2 A “Nest of Rogues”

17th and 18th century pirates occupied the waterways that formed major trading routes.<sup>9</sup>

These included the waters surrounding the Bahamas that stood between ships traveling from Central America to Spain, the waters connecting Europe and the North American sea coast,

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<sup>6</sup>Jameson (1923) has edited an excellent collection of such records. Unless otherwise noted, all depositions and examinations quoted here are contained in his collection.

<sup>7</sup>Importantly, drawing on the historical episode of pirates helps overcome the problem of ‘getting inside’ criminal organizations, noted above. Records from individuals who had direct experiences with pirates, as well as those that shed light on piratical governance mechanisms from pirates themselves, allows me to view pirates’ criminal organization ‘from the inside.’

<sup>8</sup>Additionally, this paper relies on and is greatly indebted to a voluminous modern literature covering all aspects of piracy, including those considered here, written by contemporary historians. Some of the best discussions belong to Rediker (1981, 2006), Cordingley (1996, 2006), Gosse (1946), Rankin (1969), Pringle (1953), Konstam (2002), and Rogozinski (2000).

<sup>9</sup>The “nest of rogues” terminology in this section’s heading comes from Governor William Spotswood who, in a letter to the British Lords of the Admiralty, complained of the growing pirate problem in New Providence (Spotswood July 3, 1716 [1882] II: 168).

those between Cuba and Haiti, which separated ships traveling from Europe to the west coast of Africa and Jamaica, and the waters around Madagascar traveled by ships sailing to and from India (Cordingly 2006: 88). These areas encompass major portions of the Atlantic and Indian Oceans, Caribbean Sea, and Gulf of Mexico. The trade routes connecting the Caribbean, North America's Atlantic sea coast, and Madagascar consequently formed a loop called the "Pirate Round," which many pirates traveled in search of prey.

The "Golden Age" of piracy, when pirates were at their strongest, extended for nearly a century between 1630 and 1730 (Rankin 1969).<sup>10</sup> "This was at a Time that the Pyrates had obtained such an Acquisition of Strength, that they were in no Concern about preserving themselves from the Justice of Laws" (Johnson 1726-1728: 87). The pirates of this era include many well-known sea robbers, such as Blackbeard, whose real name was Edward Teach, Bartholomew Roberts, and others.

Pirates were a diverse lot.<sup>11</sup> A sample of 700 pirates active in the Caribbean between 1715 and 1725, for instance, reveals that 35 percent were British, 25 percent were American, 20 percent were from West Indies, ten percent were Scottish, eight percent were from Wales, and two percent were from Sweden, Holland, France, and Spain (Konstam 2002: 9). Others came from Portugal, Scandinavia, Greece, and East India.

In sharp contrast with the racial views of the day, pirate crews were also racially diverse. Based on data available from 23 pirate ships in the first decades of the 18th century, the racial composition of ships varied between 13 and 98 percent black. The average proportion

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<sup>10</sup>Within this time frame, the period from about 1650 to 1725 marks the height of pirate population and activity (Cordingly 2006: xvi).

<sup>11</sup>Pirates also exhibited some diversity in social standing. Although most pirates were uneducated and from the lower classes of society, a few, such as Dr. John Hinchey, were well educated and came from higher stations in life.

of black crew members aboard a pirate ship was nearly 39 percent (Kinkor 2001: 201).

The pirate population is difficult to precisely measure but by all accounts was considerable.<sup>12</sup> In the 1660s, for instance, the town of Port Royal, Jamaica, an established pirate haven, was home to some 6,000 inhabitants, most of whom were pirates (Konstam 2002: 93). In the early 18th century this number seems to have shrunk somewhat, but remained sizeable. According to the reports of contemporaries and the estimates of pirate historians, in any one year, the loop that formed the Pirate Round contained several thousands of sea bandits (see, for instance, Konstam 2002: 6; Marx 1996b: 102, 111; Pringle 1953: 185; Johnson 1726-1728: 132; Rediker 2006: 256).<sup>13</sup>

Contrary to most people's images of pirate crews, they were quite large. Based on figures from 79 pirate crews between 1716 and 1726, it appears the average crew had about 80 members (Rediker 2006: 256; see also, Deposition of Simon Calderon 1682, Public Record Office, Colonial Office Papers I: 50, No. 139). The modal pirate crew was closer to 120, and crews of 150-200 were common (see, for instance, Snelgrave 1734: 199; Examination of John Brown May 6, 1717, Suffolk Court Files, No. 11945, Paper 5; Deposition of Theophilus Turner June 8, 1699, Public Record Office, Colonial Office Papers 5: 714, No. 70 VI;

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<sup>12</sup>Pure pirates should be distinguished from buccaneers, privateers, and corsairs. Pure pirates were total outlaws and attacked merchant ships indiscriminately for their own gain. Privateers and corsairs, in contrast, were both state-sanctioned sea robbers. Governments commissioned the former under "Letters of Marque and Reprisal" to attack enemy ships in times of war. Governments commissioned the latter to attack the ships of other nations on the basis of religion. "Buccaneering was a peculiar blend of piracy and privateering in which the two elements were often indistinguishable" (Marx 1996a: 38). However, "the aims and means of [buccaneering] operations were clearly piratical" (Starkey 2001: 109), so it is typical to treat buccaneers as pirates, which I do as well.

<sup>13</sup>These numbers are especially large when one puts them in historical perspective. The Royal Navy, for example, employed only 13,000 men in any one year between 1716 and 1726, making the pirate population nearly 20 percent of the Navy population (Rediker 2006: 256). In 1680, the total population of the American colonies was less than 152,000 (Hughes and Cain 1994: 20). In fact, as late as 1790, when the first U.S. census was taken, only 24 places in the country had populations greater than 2,500 (Hughes and Cain 1994: 28).



Examination of John Dann, August 3, 1696, London, Public Record Office, Colonial Office Papers 323: 2, No. 25; Deposition of Adam Baldrige, May 5, 1699, Public Record Office, Colonial Office Papers 5: 1042, No. 30 II; Johnson 1726-1728: 442; Cordingly 2006: 165).

A large number of pirate crews were substantially bigger than this. For example, Blackbeard's crew aboard the *Queen Anne's Revenge* was 300 men strong (Marx 1996b: 112). To put the size of pirate crews in perspective, the average merchant ship during this period carried only 13-17 men (Rediker 2006: 107).

Furthermore, many pirate crews were too large to fit in one ship. In this case they formed pirate squadrons. Captain Peter Eastern, who occupied the waters around Newfoundland, for instance, commanded a crew of 500. So did the buccaneer Henry Morgan (Gosse 1946: 129, 156) and pirate Captain Bartholomew Roberts, who commanded a squadron of four ships that carried 508 men (Cordingly 2006: 111). The French buccaneer, Chevalier de Grammont, commanded 700 men (Marx 1996a: 48).

Multiple pirate ships often joined for concerted plundering expeditions (see, for instance, Johnson 1726-1728: 174). The resulting pirate fleets could be massive. Buccaneer Alexander Exquemelin, for example, records that Captain Morgan commanded a fleet of 37 ships and 2,000 men sufficient to attack coastal communities on the Spanish Main (Exquemelin 1678 III: 171). Elsewhere, he refers to a group of buccaneers who "had a force of at least twenty vessels in quest of plunder" (Exquemelin 1678 I: 69; see also, 1678 1: 85; 1678 II: 105; 1678 II: 93 ). Similarly, William Dampier records a pirating expedition that boasted ten ships and 960 men (Dampier 1697-1707: 62).<sup>14</sup>

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<sup>14</sup>In the South China Sea, Cheng I commanded a pirate confederacy that boasted an astonishing 150,000 members (Konstam 2002: 174). Chinese pirates sometimes sailed together in fleets of 500 ships or more.

### 3 The Problem of Captain Predation

Pirates chiefly came from two sources, the Royal Navy and merchant ships. Both of these types of legitimate vessels were organized according to a strict hierarchy that empowered captains with essentially unlimited authority.<sup>15</sup>

The hierarchy was simple. On top was the captain, below him were his officers, and far below these were ordinary seamen. A strong captain with the power to command his ship in times of battle and for everyday matters as simple as setting a course was indispensable. Many maritime decisions had to be made immediately and on the fly. Conflicting voices would have made it impossible to accomplish even basic tasks, such as deciding when and where to take port, let alone larger ones, such as when to engage an enemy ship, how to engage it, etc.

The office of captain overcame these difficulties by vesting dictatorial or near-dictatorial decision-making power in one person. This helps explain the comment of one 18th-century maritime observer who remarked, “a Captain is like a King at Sea, and his Authority is over all that are in his Possession” (Bishop 1744: 78).<sup>16</sup> The problem was that a captain endowed with this kingly authority, typically granted by government-enforced charter, could also easily turn it against his seamen for personal benefit. As British marine commander, William Betagh, characterized the situation, “unlimited power, bad views, ill nature, and ill principles all concur in a ship’s commander” who is “past all restraint” (1728: 41).<sup>17</sup>

The maritime records contain frequent references to naval or merchant ship captains who fit

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<sup>15</sup>For a more in-depth treatment of the problem of captain predation on naval and merchant vessels see the superb discussion in Rediker (2006), which I use as the basis of my discussion here. A number of others also discuss this issue. See, for instance, Rogozinski (2000).

<sup>16</sup>Quoted in Rediker (2006: 208).

<sup>17</sup>Quoted in Rediker (1981: 215).

Betagh's description.

Incredible captain mistreatment of ordinary seamen aboard naval and merchant ships was largely responsible for driving seamen from these professions into the arms of pirates. The pirate John Archer's last words before being put to death testify to this. As he lamented, "I could wish that Master of Vessels would not use their Men with so much Severity, as many of them do, which exposes us to great Temptations" (Johnson 1726-1728: 351). In 1726, the pirate, William Fly, pleaded similarly at his death sentence. "Our Captain and his Mate used us Barbarously. We poor Men can't have Justice done. There is nothing said to our Commanders, let them never so much abuse us, and use us like Dogs" (quoted in Rediker 1981: 218).

"[A]n almost universal feature of the life of a sailor" in the 17th and 18th centuries was "the unrestricted power of the captain" (McFee 1950: 49). An important element of maritime wages—food and drink allowances and accommodations—reflected this power. Although maritime contracts sometimes included provisions relating to these non-pecuniary wages, in practice captains controlled them. Many gave themselves and their officers free reign with food and drink, making up for the difference by restricting crew members' allowances accordingly.

As one sailor testified, for example, although the members of his crew "were att short allowance and wanted bread" the officers "were allowed . . . their full allowance of provisions and liquors as if there had been no want of scarcity of any thing on board" (Babb v. Chalkley 1701, High Court of Admiralty Papers, 24/127).<sup>18</sup> Similarly, while the captain and perhaps a few of his officers had private quarters aboard ships, crew members lived in squalorous

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<sup>18</sup>Quoted in Rediker (2006: 247).

conditions amongst one another and their filth.

Captains “had absolute authority over the mates, the carpenters and boatswain, and the seamen.” They had the power to “make life tolerable or unbearable as they wished” (Davis 1962: 131-132). Unfortunately for seamen, captains often opted for the latter. To keep their hungry and uncomfortable men in check, captains subjected dissenters to abuse that made piratical tortures look like parlor games.

Captains could and did use all manner of objects on board a ship as weapons to punish insolent crew members. They hit crew members in the head with tackle or other hard objects on board, crushing their faces (Jones v. Newcomin 1735, High Court of Admiralty Papers, 24/138).<sup>19</sup> When torture grew boring, they sometimes discharged crew members or had them imprisoned, ostensibly for threatening mutiny (Rediker 2006: 225).

Besides preventing dissension, captains also used their kingly power to settle personal scores with crew members. Admiralty law considered interfering with captain punishment mutinous and thus prohibited crew members from doing so (Rediker 2006: 238). Since captains effectively defined when punishment was legitimate, they were free to abuse seamen at will. As one seaman warned a newcomer, “There is no justice or injustice on board ship, my lad. There are only two things: duty and mutiny—mind that. All that you are ordered to do is duty. All that you refuse to do is mutiny” (quoted in Rediker 2006: 211).

Pirate ships faced a similar problem to naval and merchant vessels in this regard. On the one hand, a captain who wielded unquestioned authority in certain decisions, such as those during battle, was critical for success. In the midst of conflict, pirates constantly required snap decisions; there was no time for disagreement or debate.

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<sup>19</sup>Quoted in Rediker (2006: 216).

On the other hand, what was to prevent a captain with this power from behaving towards his pirate crew in the same manner that navy and merchant ship captains behaved toward their crews? Given that captain predation drove most pirates from navy and merchant ships into pirate ships, it would do no good if pirate captains also treated themselves and their officers handsomely at the expense of their crews.

### **3.1 Modeling the Threat of Captain Predation**

Of course, on any ship, there is always one means of removing a predatory captain—mutiny. However, like other forms of revolution, mutiny is a risky and costly method of changing power. More importantly, potentially mutinous crew members faced a collective action problem that prevented them from overthrowing predatory captains. Modeling this problem is straightforward.

Consider a pirate ship of complete but imperfect information with a captain and two “factions” of ordinary pirates that together comprise the ship’s crew. Alternatively, one can view these factions as two representative pirates without loss of generality. Because the captain on this ship has autocratic power, he controls food and drink rations, sleeping conditions, discipline, and specific work tasks of crew members. The captain moves first and decides whether to prey on the crew or not. If he preys on both factions simultaneously, they join together to overthrow him, so this is not an option he entertains. He can only prey on one faction at a time. Let us call the faction he must decide whether or not to prey on in any round of play, A, and call the other faction B.

Preying on a faction involves any behavior that benefits the captain at the expense of

the faction members he aggresses against. For instance, the captain might pay them less, keeping what he skims for himself. He might cut their rations short, leaving more for him to consume. He may also assign the most difficult and dangerous tasks on board the ship to them, leaving the easier and less dangerous work for himself, etc.

Faction A moves second and decides whether to challenge the captain or to acquiesce. Faction B must make the same decision as A, challenge or acquiesce, simultaneously. Thus, A and B have imperfect information about each other's decision when making their own. If A and B both challenge the captain, the crew is strong enough to overthrow him. However, if only one faction challenges and the other acquiesces, mutiny is unsuccessful and the captain retains his power. Furthermore, when it is not successful, attempted mutiny angers the captain who uses his power to punish the mutinous faction by further cutting its rations, reducing its pay, beating its members, compelling them to do more dangerous and unpleasant labor aboard the ship, etc.

If the captain preys on the crew and both factions acquiesce, the captain earns his highest payoff,  $\beta$ , and both factions earn 0. If one faction challenges and the other acquiesces, the captain's predation is still successful so he continues to earn  $\beta$ . The faction that acquiesced continues to earn 0; but the captain punishes the faction that challenged him in one of the ways discussed above, leading it to earn only  $\varphi$  where  $\varphi < 0$ .

If the captain preys on the crew and both factions challenge him, the captain's attempt at predation is unsuccessful and he is removed from power, earning him his lowest payoff, 0. Both factions on the other hand earn their highest payoff in this case,  $\alpha$ .

If the captain complies with the crew—i.e., does not prey on any of its members—and both factions acquiesce, the captain earns a lower payoff than when he successfully preys on

the crew,  $\rho$  where  $\rho < \beta$ . Both factions in this case earn their “unmolested payoff,”  $\alpha$ .

When the captain does not prey on the crew and one faction challenges while the other acquiesces, the captain continues to earn his payoff of behaving honestly toward the crew,  $\rho$ , as does the non-challenging faction, which continues to earn  $\alpha$ . However, the captain punishes the mutinous faction, yielding it a payoff of only  $\varphi$ , as above.

Finally, if the captain does not prey on the crew but both factions challenge him, removing him from power anyway, the captain earns his payoff of losing power from above, 0. However, removing an honest captain is costly to the crew. So, if the captain does not prey on the crew but both factions challenge him anyway, each earns only  $\sigma$ , where  $0 < \sigma < \alpha$ .

To summarize, in this dynamic game of complete but imperfect information, for the crew:  $\varphi < 0 < \sigma < \alpha$ ; and for the captain:  $0 < \rho < \beta$  where  $\rho + 2\alpha > \beta$ , which is to say non-predation is socially efficient. This game is depicted in Figure 1.<sup>20</sup>

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<sup>20</sup>Weingast (1995) uses a similar game of strategic interaction in his discussion of market-preserving federalism.

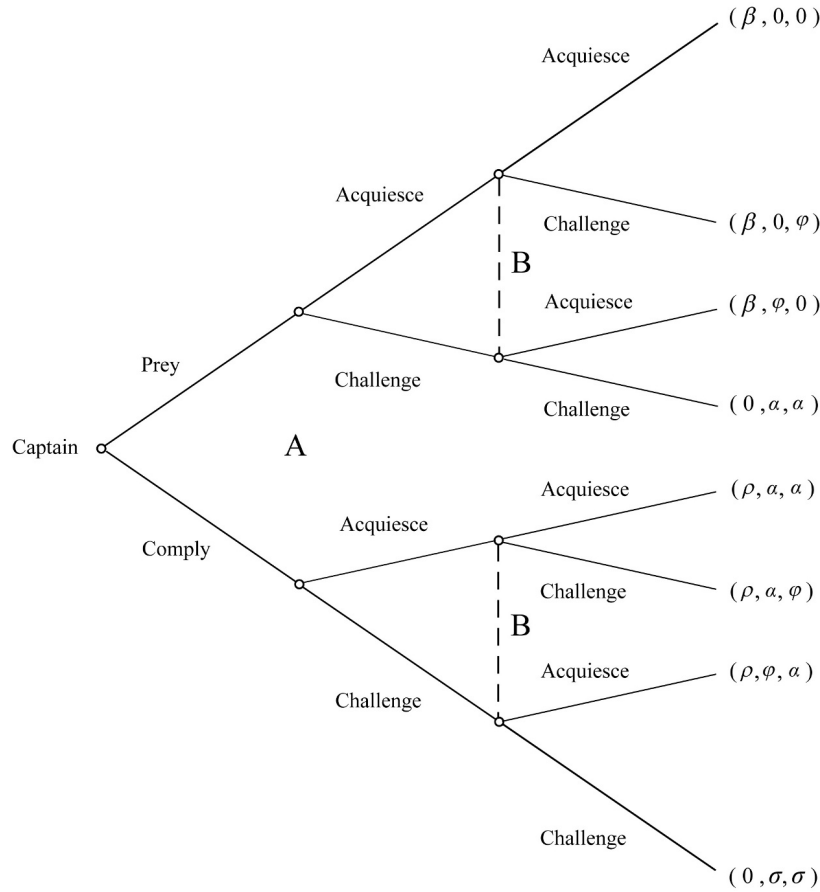


Figure 1. The Threat of Captain Predation

This game has multiple equilibria. If the captain does not prey on the crew, both factions' best response is to acquiesce. However, if the captain does prey on the crew, two pure-strategy Nash equilibria are possible. In the first, the factions mutually acquiesce. In the second, they mutually challenge. The crew faces a coordination problem. This game's equilibrium thus depends on the crew's ability to coordinate on mutual challenging in the event the captain behaves predatorily.

The problem of captain predation posed a serious problem for piratical organization. If captains could not be constrained, pirates could not join together for mutual gain through organized plunder. Despite this, the waters that comprised the Pirate Round teemed with



pirate crews for nearly a century.

What's more, pirates were highly successful criminals. They rarely failed to take their prey and were even less likely to be overtaken themselves. Pirates' successful organization allowed them to seize prizes of incredible value. In 1721, for example, John Taylor and Oliver La Buse captured a single prize worth \$400 million in current dollars (Rogozinski 2000: ix). How did pirates overcome the problem of captain predation, which threatened to undermine their criminal organization?

## 4 Piratical Checks and Balances

Because of the threat of captain predation, pirates “were adamant in wanting to limit the captain’s power to abuse and cheat them” (Rogozinski 2000: 174).<sup>21</sup> To do this, they instituted a democratic system of divided power, or piratical checks and balances, aboard their ships. As the pirate, Walter Kennedy, testified at this trial:

Most of them having suffered formerly from the ill-treatment of their officers, provided carefully against any such evil now they had the choice in themselves . . . for the due execution thereof they constituted other officers besides the captain, so very industrious were they to avoid putting too much power into the hands of one man (quoted in Pringle 1953: 108; see also, Rankin 1968: 28).

The primary “other officer” they “constituted” for this purpose was the quartermaster. The way this office worked is straightforward. Captains retained absolute authority in times of battle, thus enabling pirates to realize the benefits of autocratic control required for success in conflict. However, pirate crews transferred power to allocate provisions, select

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<sup>21</sup>A number of historians discuss the pirates’ division of power and other aspects of their organization. In addition to Rogozinski (2000), see also, for instance, the excellent discussions in Rediker (1981, 2006), Pringle (1953), Rankin (1969), Gosse (1946), Konstam (2002), and Cordingly (1996, 2006) among others.

and distribute loot (there was rarely room aboard pirate ships to take all they seized from a prize), and adjudicate crew member conflicts/administer discipline to the quartermaster, who they democratically elected:

For the Punishment of small Offences . . . there is a principal Officer among the Pyrates, called the Quarter-Master, of the Men's own choosing, who claims all Authority this Way, (excepting in Time of Battle:) If they disobey his Command, are quarrelsome and mutinous with one another, misuse Prisoners, plunder beyond his Order, and in particular, if they be negligent of their Arms, which he musters at Discretion, he punishes at his own dare without incurring the Lash from all the Ship's Company: In short, this Officer is Trustee for the whole, is the first on board any Prize, separating for the Company's Use, what he pleases, and returning what he thinks fit to the Owners, excepting Gold and Silver, which they have voted not returnable (Johnson 1726-1728: 213).

William Snelgrave, who observed the pirates' system of checks and balances first hand, characterized the relationship between captain and quartermaster similarly: "the Captain of a Pirate Ship, is chiefly chosen to fight the Vessels they may meet with. Besides him, they chuse another principle Officer, whom they call Quarter-master, who has the general Inspection of all Affairs, and often controuls the Captain's Orders" (Snelgrave 1734: 199-200). This separation of power removed captains' control over activities they traditionally used to prey on crew members, while empowering them sufficiently to direct plundering expeditions.

To see explicitly how the institution of the quartermaster prevented pirate captain predation, consider the game in Figure 2. This game is like that from Figure 1, only now in the presence of the quartermaster, the captain does not have the power to punish crew members who challenge him.

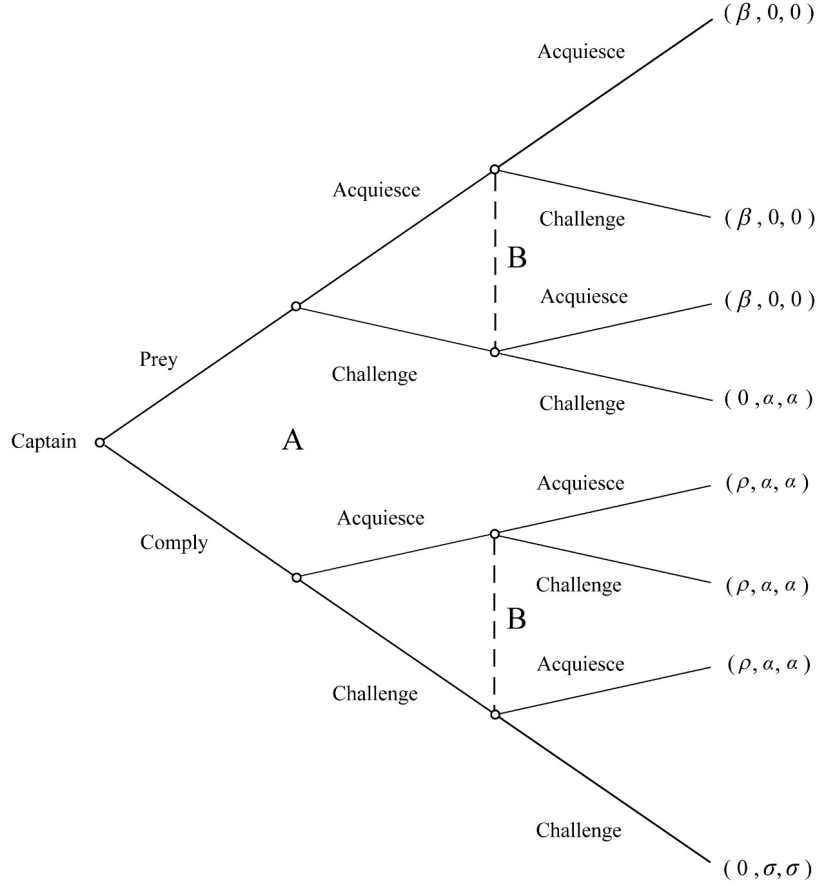


Figure 2. Piratical Checks and Balances: Constraining Captain Predation

The captain's and both factions' payoffs remain the same as before on the {Prey, Acquiesce, Acquiesce} and {Comply, Acquiesce, Acquiesce} branches of the decision tree. Similarly, the payoffs from {Prey, Challenge, Challenge} and {Comply, Challenge, Challenge} remain the same. However, because the captain no longer controls the division of booty, distribution of food, or discipline, he cannot harm crew members who challenge him. This changes the captain's and crew's payoffs when either faction challenges him.

Under the institution of the democratically-elected quartermaster, if the captain tries to prey on A, and A challenges but B acquiesces, the captain is still successful because preventing predation requires both factions to challenge. In this case, the captain receives

$\beta$ , like before. Unlike before, however, now for the crew, both challenging and acquiescing yield the same payoff—in this case 0, rather than the latter strategy earning a lower payoff from captain retribution, as in Figure 1.

The same happens when the captain chooses not to prey on A but only one faction challenges him. In this case the captain continues to earn his payoff of behaving cooperatively toward the crew from above,  $\rho$ . However, since he cannot punish a faction that challenges him, both factions now earn the full payoff of operating under a non-predatory captain from above,  $\alpha$ .

Like in Figure 1, the game in Figure 2 has multiple equilibria. This results from failing to eliminate weakly dominated strategies for factions A and B. On the {Prey} branch of the decision tree, acquiescing is weakly dominated by challenging for both A and B, leaving {Challenge, Challenge} as the optimal strategy for the crew when the captain is predatory.

On the {Comply} branch of the decision tree, challenging is weakly dominated by acquiescing for both A and B, leaving {Acquiesce, Acquiesce} as the optimal strategy for the crew when the captain behaves cooperatively. Since the captain earns more by cooperating when both factions challenge predatory behavior, which leads to his removal from office, than preying on the crew when both factions do this ( $\rho > 0$ ), this game’s unique subgame-perfect Nash equilibrium involves the captain behaving cooperatively and the crew acquiescing—the socially efficient outcome.

Remarkably, the institutional separation of powers aboard pirate ships predated its adoption by governments. England did not experience such a separation until the Glorious Revolution of 1688. The United States did not until nearly a century after this. The pirates, in contrast, had divided, democratic “government” and separated powers aboard their ships

since at least the 1670s.

From the evidence contained in the historical record, piratical checks and balances were highly effective in constraining captain power. According to Johnson, due to the institution of the quartermaster, aboard pirate ships “the Captain can undertake nothing which the Quarter-Master does not approve. We may say, the Quarter-Master is an humble Imitation of the Roman Tribune of the People; he speaks for, and looks after the Interest of the Crew” (Johnson 1726-1728: 423). As noted previously, the only exception to this was “in Chase, or in Battle” when crews desired autocratic authority and thus, “by their own Laws,” “The Captain’s Power is uncontroulable” (Johnson 1726-1728: 139; 214).

In addition to this separation of powers, pirates imposed a further check to balance the power of captains. They converted the office to a democratically-elected one, “The Rank of Captain being obtained by the Suffrage of the Majority” (Johnson 1726-1728: 214). The combination of separated powers and democratic elections for captains ensured that a pirate crew “only permit him to be Captain, on Condition, that they may be Captain over him” (Johnson 1726-1728: 213).<sup>22</sup>

Crews could vote captains out of office for any number of reasons. Predation was one, but so was cowardice, poor judgement, and any other behavior crews did not feel were in their best interest. In this way pirates could be sure that captainship “falls on one superior for Knowledge and Boldness, Pistol Proof, (as they call it)” (Johnson 1726-1728: 214).

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<sup>22</sup>Like their reason for separating powers, pirates also explicated their reason for democratically electing captains. The oath that a captain-elect was required to take aboard Captain North’s pirate ship, for instance, makes this clear. According to post-election ceremony, the newly-elected captain pledged the following: “doing every Thing which may conduce to the publick Good; in Confidence of which, he, in the Name of the Company, promised to obey all his lawful Commands, and declared him Captain” (Johnson 1726-1728: 525).

The historical record contains several examples of pirate crews deposing unwanted captains by majority vote or otherwise removing them from power through popular consensus. For example, the buccaneer William Dampier records a case in which “Captain Sharp was, by general consent, displaced from being commander; the company being not satisfied either with his courage or behaviour” (Dampier 1697-1707: 33; see also, Johnson 1726-1728: 139). In another case a pirate writes of “our People . . . having no love for capt. Batt. Sharpe, concludeing together to turne him out of his capt’shipp, which thay did, and Putts into his Place a stout rugged fore man as captaine” (Anonymous 1680-1682: British Museum Sloane Ms. 2752, fol. 36).<sup>23</sup> Similarly, the crew of the pirate ship *Brigatine* grew dissatisfied with the behavior of their captain and “at last forced him, with twelve others” who supported him “into an open Boat . . . and . . . they were never heard of afterwards” (Snelgrave 1734: 198).<sup>24</sup>

Frequently, crews elected quartermasters who displayed particular valor or keen decision making to replace less capable or honorable captains. In a case recorded by Johnson, for example, “When they were under Sail, they went to Voting for a new Captain, and the Quarter-Master, who had behaved so well in the last Affair . . . was chosen” (1726-1728: 479). This helped create competition among pirate officers, which tended to check their abuses and encouraged them to serve the interests of their crews.<sup>25</sup>

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<sup>23</sup>Contained in Jameson (1923:112).

<sup>24</sup>In some cases, crews also physically punished their captains for behavior they deemed inconsistent with their interests. Oliver La Buse, for example, was deprived of his captain position and flogged for attempting to desert his crew (de Bucquoy 1744: 103; translated and quoted in Rogozinski 2000: 177). Occasionally, crews also deserted predatory captains (Council of the Leeward Islands May 18, 1699, Public Record Office, Colonial Office Papers, 152: 3, No. 21).

<sup>25</sup>The competition this institution created between pirate officers likely explains the absence of cases of captain-quartermaster collusion against crews in the historical record.

Pirates took the limitations they imposed on captains' authority through their system of checks and balances very seriously. A speech from the notorious pirate, Bartholomew Roberts, testifies to this. As he told his crew, "should a Captain be so sawcy as to exceed Prescription at any time, why down with him! it will be a Caution after he is dead to his Successors, of what fatal Consequence any sort of assuming may be" (Johnson 1726-1728: 194-195). Roberts was exaggerating—but only slightly. Crews quickly and readily deposed old captains and elected new ones when the former overstepped the limited power crews gave them.

The seriousness with which pirates sought to limit their captains' power is reflected in numerous other ways as well. For instance, unlike aboard navy or merchant vessels, captains were unable to secure special privileges for themselves at their crews' expense on pirate ships. Their lodging, provisions, and even pay, as I discuss below, were nearly the same as that of ordinary crew members. According to Johnson, for example, aboard pirate ships, "every Man, as the Humour takes him . . . [may] intrude [the captain's] Apartment, swear at him, seize a part of his Victuals and Drink, if they like it, without his offering to find Fault or contest it" (1726-1728: 213-214).

In other cases, "the Captain himself not being allowed a Bed," had to sleep with rest of the crew in far less comfortable conditions (Snelgrave 1734: 217). Or, as one pirate fellow-traveler marveled, "even their Captain, or any other Officer, is allowed no more than another Man; nay, the Captain cannot [even] keep his own Cabin to himself" (Downing 1737 [1924]: 99).<sup>26</sup> Similarly, according to the experiences Exquemelin records, "The captain is allowed no better fare than the meanest on board. If they notice he has better food, the men bring

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<sup>26</sup>Quoted in Rogozinski (2000: 175).

the dish from their own mess and exchange it for the captain's" (1678 I: 70-71).

One pirate captive records an event in which the captains of a pirate fleet that had recently stopped at land borrowed fancy clothes that were part of the loot their crews had acquired in taking their last prize. These captains hoped their stolen finery would attract local women where they had docked. Although the captains intended only to borrow the clothes, their crews became outraged at this transgression by the captains, who they saw as overstepping the limits of their narrowly-circumscribed power. As the observer described it, "The Pirate Captains having taken these Cloaths without leave from the Quarter-master, it gave great Offence to all the Crew; who alledg'd, 'If they suffered such things, the Captains would for the future assume a Power, to take whatever they liked for themselves'" (Snelgrave 1734: 257).<sup>27</sup>

One can also get an idea of the effectiveness of piratical checks and balances by considering the remarks of one contemporary, which point to the rarity of pirate captain predation. Perplexed by an anomalous pirate captain who abused his crew, he puzzled, "The captain is very severe to his people, by reason of his commission, and carries a very different form from what other Pirates use to do . . . often calling for his pistols and threatening any that durst speak to the contrary of what he desireth, to knock out their brains" (quoted in Rogozinski 2000: 139; see also, Deposition of Benjamin Franks October 20, 1697, Public Record Office, Colonial Office Papers, 323: 2, No. 124).

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<sup>27</sup>This decentralization of authority and elimination of captain privilege aboard pirate ships was a radical departure from conditions in the legitimate maritime world. Observers were therefore shocked at the incredible absence of hierarchy aboard pirate ships. Commenting on their democratic form of governance, for example, the Dutch governor of Mauritius marveled, "Every man had as much say as the captain" (quoted in Ritchie 1986: 124).



This success helps to explain why, counterintuitively, “the People [pirates overtook] were generally glad of an opportunity of entring with them“ (Snelgrave 1734: 203). Pirates frequently “strengthen’d themselves with a great many fresh Hands, who most of them enter’d voluntarily” (Johnson 1726-1728: 170; see also, 228; Deposition of Jeremiah Tay July 6, 1694, Suffolk Court Files, No. 3033, Paper 6; Colonial Office Papers May 31, 1718, f. 18).<sup>28</sup> Given the choice between employment on a merchant vessel, which lacked any institutions of captain constraint and was consequently plagued by officer abuse, or employment on a pirate vessel, with its system of checks and balances that prevented captain predation, many seamen were delighted to enter the latter.

## 5 Pirate Constitutions

Pirates’ system of checks and balances effectively prevented captains from preying on their crews. However, a significant problem remained. In vesting many of the powers captains typically held in quartermasters instead, what was to prevent quartermasters from abusing their authority to privately benefit at crews’ expense?

As discussed above, quartermasters had numerous roles aboard pirate ships. They were in charge of distributing booty, provisions, conflict resolution, and crew member punishment. This gave them ample latitude to prey on crews. I have already discussed one check on quartermaster predation, which also operated to prevent captain predation—democratic elections. Like with their captains, pirate crews elected quartermasters and could depose

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<sup>28</sup>Many individuals ostensibly forced to join pirate crews in fact joined voluntarily. Officially, they asked to be ‘forced’ and occasionally put up a show to their comrades to this effect so that in the event their pirate crew was ever captured, they could claim that they were compelled as a defense. Since the law contained a loophole that allowed ‘pressed’ pirates to escape punishment, this ruse was in many cases effective (Pringle 1953; see also, Rankin 1969).

them if they overstepped their authority.

But what precisely did this include? Were, for instance, quartermasters free to divide booty and provisions as they saw fit? Could they punish crew members at their discretion? Furthermore, according to what “laws” were they supposed to adjudicate disputes between those on board?

Pirates, after all, were not only afraid of captain predation; they opposed any situation that threatened to jeopardize their ability to cooperate for organized banditry, including the institution of the quartermaster. To solve this problem pirate ships forged written constitutions that specified their laws, punishments for breaking these laws, and more specifically limited the actions that quartermasters might take in carrying out their duties.

Pirate constitutions originated with “articles of agreement” followed on buccaneer ships in the 17th century. Pirates created them “for the better Conservation of their Society, and doing Justice to one another” (Johnson 1726-1728: 210). The basic elements of pirate constitutions displayed remarkable similarity across crews.<sup>29</sup> In describing the articles on board Roberts’ ship recounted below, for example, Johnson refers to “the Laws of this Company . . . principle Customs, and Government, of this roguish Commonwealth; which are pretty near the same with all Pyrates” (1726-1728: 213).

Frequent inter-crew interactions led to information sharing that facilitated constitutional commonality.<sup>30</sup> More than 70 percent of Anglo-American pirates active between 1716

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<sup>29</sup>Compare, for instance, the articles of Captain George Lowther’s crew on board the *Delivery* (Johnson 1726-1728: 308), those of Captain Roberts’ crew (Johnson 1726-1728: 211-212), those on Captain John Phillips’ *Revenge* (Johnson 1726-1728: 342-343), and the articles that governed the pirates in the South China Sea (Gosse 1946: 272). See also, Rediker (2006: 261).

<sup>30</sup>A letter from colonial Governor Alexander Spotswood to the Board of Trade highlights the effectiveness of pirates’ information-sharing network. Spotswood, who having “been markt as the principle object of their vengeance, for cutting off their arch pirate Thatch [a.k.a. Blackbeard] complained of finding a place to escape to “where neither Master nor Sailors know me, & so may possibly escape the knowledge of ye pirates”

and 1726, for example, can be connected back to one of three pirate captains, Benjamin Hornigold, George Lowther, and Edward Low (Rediker 2006: 267). Thus, 70 percent of all pirates during this period were associated with one another in some way, via traveling on the same ship, in concert with other ships, etc.

Over time, pirates copied the successful provisions of certain crews and dropped the unsuccessful provisions of others. The result was a system of piratical customary law and meta-rules called the “Custom of the Coast,” or the “Jamaica Discipline.” 18th-century pirates built on this institutional framework in developing their own constitutions.

Articles of agreement required unanimous consent to become legitimate and thus were democratically formed in advance of launching a pirating expedition. Describing the articles created to cover the members of one plundering expedition, for instance, Exquemelin records, “These articles were agreed by unanimous vote and then signed” (1678 III: 171-172). This took place along side the election of a captain, quartermaster, and other smaller officers by the would-be crew.<sup>31</sup> Pirates sought agreement on their articles *ex ante* “to prevent Disputes and Ranglings afterwards” (Johnson 1726-1728: 342). In the event that a crew member disagreed with any of its terms, he was free to exit to search for more satisfactory terms, which pirates often did.

When multiple pirate ships joined together for an expedition they used the same system of democratically electing officers and drawing up articles for unanimous consent. Johnson, for example, describes a time when “a Counsel of War was called . . . at which it was proposed to choose a Commander; the Election was soon over, for it fell upon Davis by a

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(Colonial Office Papers June 16, 1724, 5/1319: ff. 190-192; quoted in Rediker 2006: 134).

<sup>31</sup>Thus, according to Johnson, at a March 28, 1722 trial of several pirates, the court remarked that the pirates were “wickedly united, and articulated together” (1726-1728: 258).

great Majority of legal Pollers, there was no Scrutiny demanded, for all acquiesced in the Choice: As soon as he was posses'd of his Command, he drew up Articles, which we signed and sworn to by himself and the rest" (Johnson 1726-1728: 167-168).

Likewise, crews that objected to the proposed articles or some other element of the planned, multi-ship expedition were free to depart peaceably. As Johnson records in such a case, for example, "then it was proposed what Course they should steer, and differing in their Opinions, they divided" (1726-1728: 171; see also, Exquemelin 1678 II: 114).

The buccaneers called their articles a "chasse-partie." These articles specified the division of booty among the officers and crew along with other terms of the buccaneers' organization. All sea bandits followed the basic rule of "no prey, no pay." Unless a pirating expedition was successful, no man received any payment.

Exquemelin (1678 I: 71-72) describes the chasse-partie that governed his crew's expeditions in detail:

The buccaneers resolve by common vote where they shall cruise. They also draw up an agreement or chasse partie, in which is specified what the captain shall have for himself and for the use of his vessel. Usually they agree on the following terms. Providing they capture a prize, first of all these amounts would be deducted from the whole capital. The hunter's pay would generally be 200 pieces of eight. The carpenter, for his work in repairing and fitting out the ship, would be paid 100 or 150 pieces of eight. The surgeon would receive 200 or 250 for his medical supplies, according to the size of the ship.

Then came the agreed awards for the wounded, who might have lost a limb or suffered injuries. They would be compensated as follows: for the loss of a right arm, 600 pieces of eight or six slaves; for a left arm 500 pieces or eight or five slaves. The loss of a right leg also brought 500 pieces of eight or five slaves in compensation; a left leg 400 or four slaves; an eye, 100 or one slave, and the same award was made for the loss of a finger. If a man lost the use of an arm, he would get as much as if it had been cut off, and a severe internal injury which meant the victim had to have a pipe inserted in his body would receive 500 pieces of eight or five slaves in recompense.

These amounts having first been withdrawn from the capital, the rest of the prize would be divided into as many portions as men on the ship. The captain

draws four or five men's portions for the use of the ship, perhaps even more, and two portions for himself. The rest of the men share uniformly, and the boys get half a man's share.

. . . When a ship is robbed, nobody must plunder and keep his loot to himself. Everything taken – money, jewels, precious stones and goods – must be shared among them all, without any man enjoying a penny more than his fair share. To prevent deceit, before the booty is distributed everyone has to swear an oath on the Bible that he has not kept for himself so much as the value of a sixpence, whether in silk, linen, wool, gold, silver, jewels, clothes or shot, from all the capture. And should any man be found to have made a false oath, he would be banished from the rovers, never more be allowed in their company.

Charles Johnson's records contain several actual examples of pirate constitutions, or "articles," as they called them, which he informs us pirates devised to create "a strict Agreement and Harmony among themselves" (Johnson 1726-1728: 394). Consider, for instance, the articles aboard Captain Roberts' pirate ship, as relayed by Captain Johnson (1726-1728: 211-212):

I. Every Man has a Vote in the Affairs of Moment; has equal Title to the fresh Provisions, or strong Liquors, at any Time seized, and may use them at Pleasure, unless a Scarcity make it necessary, for the Good of all, to vote a Retrenchment.

II. Every Man to be called fairly in Turn, by List, on board of Prizes, because, (over and above their proper Share) they were on these Occasions allowed a Shift of Cloaths: But if they defrauded the Company to the Value of a Dollar, in Plate, Jewels, or Money, Marooning was their Punishment. If the Robbery was only betwixt one another, they contented themselves with slitting the Ears and Nose of him that was Guilty, and set him on Shore, not in an uninhabited Place, but somewhere, where he was sure to encounter Hardships.

III. No person to Game at Cards or Dice for Money.

IV. The Lights and Candles to be put out at eight a-Clock at Night: If any of the Crew, after that Hour, still remained enclined for Drinking, they were to do it on the open Deck.

V. To keep their Piece, Pistols, and Cutlash clean, and fit for Service.

VI. No Boy or Woman to be allowed amongst them. If any Man were found seducing any of the latter Sex, and carry'd her to Sea, disguised, he was to suffer Death.

VII. To Desert the Ship, or their Quarters in Battle, was punished with Death or Marooning.

VIII. No striking one another on board, but every Man's Quarrels to be ended on Shore, at Sword and Pistol.

IX. No Man to talk of breaking up their Way of Living, till each shared a 1000 l. If in order to this, any Man should lose a Limb, or become a Cripple in their Service, he was to have 800 Dollars, out of the publick Stock, and for lesser Hurts, proportionately.

X. The Captain and Quarter-Master to receive two Shares of a Prize; the Master, Boatswain, and Gunner, one Share and a half, and other Officers one and a Quarter [everyone else to receive one share].

XI. The Musicians to have Rest on the Sabbath Day, but the other six Days and Nights, none without special Favour.

Several important features stand out from these examples of pirate articles. First, they created a democratic form of governance and explicitly laid out the terms of pirate compensation. This was to prevent officers aboard pirate ships, such as the captain or quartermaster, from preying upon crew members as officers aboard navy and merchant vessels notoriously did. In particular, making the terms of compensation explicit helped to circumscribe the quartermaster's authority in dividing booty.

When booty was indivisible, or there was question as to its value and thus how many shares it counted for in payment, pirates sold or auctioned the troublesome items and distributed the divisible proceeds accordingly (Rogozinski 2000: 169). This practice prevented conflict between crew members. More importantly, it constrained the discretion of the quartermaster who might otherwise be in a position to circumvent the terms of compensation when loot was indivisible or of ambiguous value.

Second, pirate articles prohibited activities that generated significant negative externalities that threatened the success of criminal organization aboard ships. Thus, pirate articles required crew members to keep their weapons in good working order; limited drunken raucousness to allow non-participant pirates to get sufficient sleep and to "give a Check to their

Debauches” (Johnson 1726-1728: 211); prohibited on-board fighting that might jeopardize the entire crew’s ability to function, and prohibited activities, such as gambling, that were likely to lead to on-board fights. On similar grounds, most crews’ articles prohibited women (and young boys), who it was thought would invite fighting or tension among crew members, on board their ships. “This being a good political Rule to prevent disturbances amongst them, it is strictly observed” (Snelgrave 1734: 256-257; see also, Johnson 1726-1728: 212).

In the same way, many pirate ships forbade activities such as firing one’s guns or smoking in areas of the ship that carried highly flammable goods, such as gunpowder. According to the articles aboard John Phillips’ *Revenge*, for example, “That Man that shall snap his Arms, or smoak Tobacco in the Hold without a Cap to his Pipe, or carry a Candle lighted without a Lanthorn, shall suffer the same Punishment as in the former Article” (Johnson 1726-1728: 342-343).

Third, pirate constitutions typically contained articles that provided incentives for crew member productivity and prevented shirking. One manifestation of this was their creation of social insurance for pirates injured during battle. Like in the examples from Exquemelin and Roberts above, articles typically specified in detail what a lost arm was worth, a lost leg, and so on. They even went as far as to assign different insurance values depending upon whether it was, for instance, the right or left appendage that was mutilated or lost, according to the importance pirates assigned to these body parts.

Another manifestation of these incentive provisions was the use of bonuses for crew members who displayed particular courage in a battle, were the first to spot potential targets, etc. As Exquemelin recorded, according to the rule aboard his buccaneering vessel, for instance, “Those who behaved courageously and performed any deed of extraordinary valour,

or captured a ship, should be rewarded out of the common plunder” (1678 II: 156). Or, as Johnson records, “It must be observed, they [pirates] keep a good Look-out; for, according to their Articles, he who first espies a Sail, if she proves a Prize, is entitled the best Pair of Pistols on board, over and above his Dividend” (Johnson 1726-1728: 191).

Finally, pirate articles stipulated punishments for failure to adhere to their rules. As discussed above, for more minor infractions, crews typically delegated punishment power to the ship’s democratically-elected quartermaster. As Johnson described it, the quartermaster “acts as a Sort of civil Magistrate on board a Pyrate Ship” (Johnson 1726-1728: 213).<sup>32</sup> In the case of more severe infractions, crew members voted on punishments. In both cases, however, pirate crews tended to follow the punishments for various infractions identified in their articles. By specifying punishments in their articles, crews were again able to limit the scope of quartermasters’ discretion in this regard, checking their power for abuse.

Punishments for article violations varied from physical torture, such as “keel-hauling,” which involved dragging the insolent pirate across the sharp and barnacled hull of the ship, to marooning—a practice Captain Johnson described as the “barbarous Custom of putting the Offender on Shore, on some desolate or uninhabited Cape or Island, with a Gun, a few Shot, a Bottle of Water, and a Bottle of Powder, to subsist with or starve” (Johnson 1726-1728: 211).<sup>33</sup> In a case aboard Captain Dulaien’s ship, for example, the crew punished one of its members for endangering the whole by tying him to a canoe, each man lashing him

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<sup>32</sup>“When this failed, the quartermaster refereed a duel between the parties, which would take place on land so as not to destroy the ship. The Quarter-Master of the Ship, when the Parties will not come to any Reconciliation, accompanies them on Shore with what Assistance he thinks proper, and turns the Disputants Back to Back, at so many paces Distance: At the Word of Command, they turn and fire immediately . . . If both miss, they come to their Cutlashes, and then he is declared Victor who draws the first blood” (Johnson 1726-1728: 212; see also, 339).

<sup>33</sup>Marooning was frequently coupled with ostracism in the event that the transgressor managed to survive. See, for instance, Exquemelin (1678 I: 72).



once with a rope (Rogozinski 2000: 173).<sup>34</sup>

In this sense, “Pirates exercised greater cruelty in maintaining discipline among themselves than in their treatment of prisoners” (Rankin 1969: 37). Pirates considered theft aboard their ships especially heinous. Their articles reflected this and frequently punished theft with torture, marooning, or death.<sup>35</sup> To help keep themselves honest, some crews used random searches to hunt for anyone who might be holding back loot (Exquemelin 1678 III: 205-206).<sup>36</sup>

Since pirate articles tended to be short and simple, they could not cover all possible contingencies that might affect a crew. In this sense, they were always incomplete. To deal with this, when a significant issue emerged, the crew gathered to act as a kind of judiciary to interpret or apply the ship’s articles to situations not clearly stipulated in the articles themselves:

[I]n Case any Doubt should arise concerning the Construction of these Laws, and it should remain a Dispute whether the Party had infringed them or no, a Jury was appointed to explain them, and bring in a Verdict upon the Case in Doubt (Johnson 1726-1728: 213).

Through this ‘judicial review’ process, pirate crews were able to further limit the discretionary authority of quartermasters, restraining the potential for quartermaster abuse.

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<sup>34</sup>Rope lashing appears to have been a common punishment among pirates. The articles aboard Captain John Phillips’ *Revenge* stipulated for example: “That Man that shall strike another whilst these Articles are in force, shall receive Moses’s Law (that is, 40 Stripes lacking one) on the bare back” (Johnson 1726-1728: 342-343).

<sup>35</sup>Even when punishment for theft was not this severe, the penalties remained heavy. On Woodes Rogers’ ship, for instance, the crew punished concealing plunder worth more than half a crown with the loss of the thief’s shares, plus twenty times the value of the good he concealed (Bromley 2001: 184).

<sup>36</sup>Oath taking was commonly used among pirates as well as a method of staking one’s reputation to help enforce piratical articles and custom. See, for instance, (Exquemelin 1678 I: 68, 71-72; 1678 II: 100, 104, 156, 161).

## 5.1 Modeling Pirate Constitutions

Pirate constitutions performed two critical roles in supporting piratical order and the success of pirate expeditions. First, they created well-defined rules that governed pirates when at sea. These rules limited conflict and other behaviors that threatened to jeopardize a crew's ability to cooperate for the purposes of plunder.

Perhaps even more importantly, pirate constitutions helped to ensure that the quartermaster, an institution created to check the predatory inclinations of pirate captains, would not use his authority in this capacity to prey on the crew himself. Pirate constitutions achieved this by making regulations, compensation, and punishments explicit, which circumscribed quartermaster discretion in his duties. This not only created rules for quartermasters to follow, but also created common knowledge among crew members about when a quartermaster was overstepping his bounds. The fact that pirate crews unanimously consented to their constitutions strengthened this common knowledge.

Modeling how pirate constitutions worked in this regard is straightforward. The threat quartermasters posed for pirate crews was similar to the threat captains posed. Formally, this situation resembles that in Figure 1, only here the quartermaster's interaction with A and B is being modeled, rather than the captain's. Figure 3 presents this game.

	$\sim$ Abuse		Abuse		
	Acquiesce	Challenge	Acquiesce	Challenge	
Acquiesce	$\rho, \alpha, \alpha$	$\rho, \alpha, \varphi$	Acquiesce	$\beta, 0, 0$	$\beta, 0, \varphi$
Challenge	$\rho, \varphi, \alpha$	$0, \sigma, \sigma$	Challenge	$\beta, \varphi, 0$	$\mathbf{0}, \sigma, \sigma$

Figure 3. Piratical Constitutions: Checking Quartermaster Abuse

The quartermaster may abuse the authority the crew delegates to him and take advantage of A or B, or may not abuse this authority and faithfully execute the crew's will, as it elected him to do. If the quartermaster does not use his authority to take advantage of crew members, for example, by holding back provisions, cheating crew members out of pay, etc., there is no problem. As the matrix on the left illustrates, once we have eliminated the weakly dominated strategy for crew members of A and B, {Challenge, Challenge}, the only remaining equilibrium when the quartermaster does not abuse his authority is mutual acquiescence from A and B—the socially efficient outcome.

However, if the quartermaster abuses his authority, there are two possible equilibria, {Acquiesce, Acquiesce}, the socially inefficient outcome, and {Challenge, Challenge}. The right matrix depicts this situation. The pirate crew again faces a coordination problem. The institution of the pirate articles, however, makes the mutual-challenge strategy focal for A and B in this case.

By establishing unanimously-agreed to, well-known, and well-defined rules about what constitutes illegitimate behavior (and how it should be punished) in advance, and making rules about what each crew member is owed in terms of provisions, compensation, and insurance claims explicit, pirate articles create shared notions about quartermaster abuse for A and B. Further, by placing A and B under the same set of rules, pirate articles make A and B more likely to interpret transgressions against the members of either faction in the same light. The members of B are more likely to see abuse of A as abuse of their own members, and vice versa.

In this way, pirate articles operate to help coordinate A and B on their response to various forms of quartermaster behavior. In particular, they help to coordinate A and B

on the mutual challenge response when the quartermaster abuses any member of the crew. Since in this case abuse is met with mutual challenge, and mutual challenge leads to the quartermaster's removal, in the presence of the pirate articles the quartermaster maximizes his payoff by not abusing the crew ( $\rho > 0$ ). The resulting equilibrium,  $\{\sim \text{Abuse, Acquiesce, Acquiesce}\}$ , is socially efficient.

The historical record supports the effectiveness of pirate constitutions in this capacity, evidenced by the rarity of accounts of quartermaster abuse. Equally importantly, in the infrequent event abuse did occur, the evidence indicates that crews successfully removed abusive quartermasters from power. In 1691, for example, one quartermaster, Samuel Burgess, cheated his crew in the division of food. In response, his crew marooned him (Rogozinski 2000: 177).

The evidence also suggests that piratical articles were highly successful in preventing internal conflict and creating order aboard pirate ships. William Dampier, for example, records only one theft aboard his ship between 1683 and 1691 (Bromley 2001: 184). Pirates, it appears, strictly adhered to their articles. Even amidst starvation and dehydration, they did not tolerate theft and enforced their articles' punishments. As a pirate whose crew found itself in precisely this situation commented, for example, "One of our men in the midst of these hardships was found guilty of theft, and condemned for the same to have three blows from each man in the ship, with a two-inch-and-a-half rope on his bare back" (Dampier 1697-1707: 75).

Though it is strange to think about such strict order prevailing among pirates, the peculiarity fades when one recognizes that the success of their organized criminal enterprise depended upon it. The remark of one perceptive observer indicates precisely this: "as great

robbers as they are to all besides, are precisely just among themselves; without which they could no more Subsist than a Structure without a Foundation” (quoted in Rediker 2006: 287).

The fact that pirate crews unanimously consented to the articles that governed them, *ex ante*, also plays an important role in explaining their success. Pirates recognized that “it was every one’s Interest to observe them, if they were minded to keep up so abominable a Combination” (Johnson 1726-1728: 210). Since pirates agreed to these rules before sailing, rules were largely self-enforcing once in place.

Indeed, according to one pirate historian, pirates were more orderly, peaceful, and well organized amongst themselves than many of the colonies, merchant ships, or vessels of the Royal Navy (Rogozinski 2000: 179).<sup>37</sup> As an observer put it, “At sea, they perform their duties with a great deal of order, better even than on the Ships of the Dutch East India Company; the pirates take a great deal of pride in doing things right” (de Bucquoy 1744: 116).<sup>38</sup>

## 6 Conclusion

Piratical institutions provide an important glimpse into the typically invisible governance mechanisms that support cooperation inside criminal organizations. My analysis of the law, economics, and organization of pirates leads to three conclusions.

First, ordinary ‘foot soldiers’ inside criminal organizations may face a problem of leader

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<sup>37</sup>Chinese pirates, who created similar private governance mechanisms aboard their ships, enjoyed similar order. Referring to these pirates, for example, one pirate historian notes that “the discipline of the crew was little short of exemplary” (Gosse 1946: 273).

<sup>38</sup>Translated and quoted in Rogozinski (2000: viii).

predation similar to the problem citizens under governments face with respect to political rulers. Importantly, organized criminals' inability to rely upon state-created institutions to overcome this problem does not prevent them from developing private, self-enforcing institutions for this purpose instead. "[K]ings were not needed to invent the pirate system of governance" (Rogozinski 2000: 184). It is unlikely that they are needed to invent systems of governance in other criminal organizations either.

Second, the institutions that comprised the pirates' system of governance—democratic checks, the separation of power, and constitutions—are remarkably similar to those governments employ to constrain ruler predation in the 'legitimate world.' Government does not have a monopoly on these institutions of governance any more than it has a monopoly on the ability to generate cooperation and order. The success of pirate 'an-arrgh-chy' highlights both these facts.

Finally, organized criminals are as interested in creating order among themselves as non-criminals. They, too, have an incentive to develop solutions to obstacles that otherwise prevent them from cooperating for mutual gain. The fact that their cooperation is directed at someone else's loss does not alter this. Thus, while Captain Charles Johnson described the pirates' criminal organization as "that abominable Society," it is important to acknowledge that, however abominable, it was nevertheless a society (Johnson 1726-1728: 114).

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