



Governing Seasteads: An Outline of the Options
Brad Taylor*
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Our Mission: To further the establishment and growth of permanent, autonomous ocean communities, enabling innovation with new political and social systems.

Email: info@seasteading.org website: www.seasteading.org

* Email: bradrtaylor@gmail.com

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1. Introduction

Seasteading is the practice of creating politically autonomous communities on the ocean – homesteading the high seas. The goal of seasteading is to allow experimentation and innovation in political, economic, and social systems (P. Friedman & Gramlich, 2009). Seasteading changes the ecosystem from which government emerges; the metarules (structure) and rules (policy) chosen by seasteads will be diverse and dependent on the preferences of individuals. In a sense, attempting to anticipate concrete rules is pointless and against the spirit of seasteading, since we will only learn what works through trial and error. There are, however, lessons which can be learned from how current and past governance systems and rule-sets have worked out in practice. In the early days of seasteading, there will be few ventures and thus less opportunity for the right solutions to float to the top. Innovation needs to start from somewhere, and having some idea of what will and will not work from the outset will be extremely valuable.

This document will lay out the governance decisions seasteading polities will have to make, at both the structural - ownership, collective choice, constitutional constraint, monocentricity - and policy - commercial law, internal dispute resolution - levels. These options will entail tradeoffs; the goal of this document is not to recommend any organizational structure over others, but to make those tradeoffs explicit and to flag the conditions under which particular forms of governance will be particularly desirable or undesirable.

There are two crucial elements of governance:

1. The procedures for making decisions about what government will do (the structural level)
2. The outcomes of those decisions (the policy level)

After outlining the criteria for good governance and reviewing the experience of governance on land, this document will lay out the general considerations relevant to each of these levels. Since seasteading polities will be created from scratch, the initial content of the policy level will often be decided differently from how decisions will be made later. For example, a marine real-estate developer might create by dictatorial fiat a set of rules which can later be altered or replaced through democratic mechanisms.

1.1. Terminology

Thinking about founding new communities on the ocean raises a number of terminological issues. We will discuss only the most pressing of these here.

When we talk of a “seastead,” we mean to refer to a single vessel, whether a ship (“shipstead”) or some other structure. A group of seasteads coming together to take advantage of economies of scale and agglomeration will be referred to as a seastead “cluster.” A group of seasteads governed by a common set of rules – regardless of whether there is a single organization administering those rules or whether the group is spatially contiguous – form a seasteading “polity.” For the purposes of this document, “governance” should be taken to mean the creation and enforcement of rules and the provision of goods and services to all members of the polity. We will generally consider polities as geographically bounded, but the discussion of polycentric governance in section 5.3 will relax this assumption.

While this document will speak of seasteading “governments,” the distinction between public and private institutions is far from clear-cut and is rather irrelevant (Nelson, 2005). Governance is about provision of rules and collective services, and there is a gradation between the coercive governance of national states, of which it is hard to opt out, and the voluntary governance of clubs, of which it is easy to opt out. Whether we think of seasteads as public or private institutions depends on where we draw an arbitrary line, and has no effect on the analysis provided here.

Another issue arises when we attempt to import notions such as land and buildings from discussions of land-based governance. On terra firma, we need to distinguish between land, improvements to land, and buildings. On the ocean, we need to consider ocean surface, improvements to the ocean surface, the floating structure on which dwellings can be constructed, and the dwellings themselves. Ocean surface can be considered as just a different type of land. We will refer to ocean surface, whether or not it has been improved (through the construction of a breakwater or the provision of territorial defense, for example) as “space.”¹ The floating structure which can exist on the ocean surface will be referred to as the “structure.” The livable shelters on this structure can be referred to as “buildings” or “dwellings.” Structures and buildings may often be physically combined, as in a standard ship, but it is possible that modular buildings could be moved among structures.

2. What makes for good governance?

Before discussing the specific governance options, it will be useful to outline the conditions for good governance.

2.1. Policy Level

According to the conventional economic understanding, government has two core functions: (1) Resolving disputes between citizens (regulating externalities); and (2) producing goods which are valued by people but cannot be effectively produced through normal market mechanisms (providing public goods). In an ideal world, everyone would be made better off by every government action; in the real world, this will almost never be the case. The adjudication of disputes will produce winners and losers. Even with compromise, conflict remains. Everyone will have different views on the level of various collective goods which should be produced: some people really like national defense; others really like street lights. When people want different things but must be forced to live by the same rules, the best metric for deciding government policy is economic efficiency.

An economically efficient rule or action is one which maximizes net benefit. That is, the gain to the winners must outweigh the loss to the losers by as much as possible. Assume a simple hypothetical government with two citizens, Alice and Bob. The government has \$10,000 to spend on public goods and must decide whether to buy protection from a security agency or build a street light. Alice prefers the former; Bob the latter. A benevolent dictator would ask how much value each good produces for Alice and Bob and would choose whichever option comes out ahead. Gains and losses, being subjective, are not immediately visible to outsiders, however. The way economists attempt to gauge gains and losses is through revealed preference, particularly willingness to pay. Since individuals have privileged access to their own preferences and seek to fulfill them, their choices indicate the relative value of various options. They will consider the wide variety of factors which make one option more or less desirable than another and reach a compromise among competing values. Unfortunately, collective provision normally does not allow preferences to be revealed in action: without market choice, there is often no way to tell how much each person values a good.

Suppose that Alice really wants the security service and does not much care about the streetlight – valuing security at \$9,000 and the streetlight at \$50. Bob, on the other hand, only mildly prefers the streetlight over security - \$6,000 versus \$5,500. The efficient result would be for the government to purchase security.

¹ Ocean surface is not currently a scarce resource, and there are thus no property rights governing it. History shows that as a resource becomes scarce and the transaction costs of creating property rights are not prohibitively high, institutional innovation will lead to the definition and enforcement of property rights (Demsetz, 1967). While it will be some time before ocean surface becomes scarce in a simple sense, the value of ocean surface, like that of land, will be determined significantly by its proximity to amenities (MacCallum, 2008). This, in addition to the possibility of improvements to ocean surface, means that particular stretches of ocean surface may have economic value even if there is an abundance of free space elsewhere.

Neither Alice nor Bob values it enough to purchase it on their own, however, and the governor has no way of knowing their private valuations. Bob has an incentive to falsify his valuations if asked: he prefers the streetlight and will be more likely to get it if he exaggerates this preference.

Many efficient rules are obviously desirable: the prohibition of murder harms some (those who are both bloodthirsty and confident in their own ability to protect themselves) and benefits others (everyone else). It seems certain that the benefits of murder prohibition in terms of safety outweigh its cost in terms of unsatisfied bloodlust, and our moral intuitions in this case agree with economic analysis. In other cases, our normative concerns will conflict with efficiency. Taking an extreme case to demonstrate the point, Bryan Caplan has pointed out that with sufficiently many Nazis, the holocaust would have been economically efficient. The modest (and horrific) psychological gains of trillions of Nazis would be likely to outweigh the severe costs of torture and death of a few million Jews (Caplan, 2009).

Efficiency is clearly not all we care about – various people place great weight on liberty, equality, and other values. Economic efficiency is, however, the best simple rule we have for evaluating outcomes and does an excellent job of capturing most of the things we care about in practice (Friedman, 2001, chap. 2; Posner, 1979). Throughout this paper, we will consider the value of policy primarily based on its economic efficiency.

2.2. Structural Level

The fundamental governance decisions will be at the structural level. The structural level consists of the rules which define how new rules can be introduced, how existing rules can be altered, and how public services will be produced and distributed. In terms of seasteads, this will involve ownership, contractual rights and obligations between a government and its citizens, and decision-making rules. While people don't necessarily care about the structural level in its own right, it is important insofar as it determines the type of policy which will ultimately emerge.

In general, seasteads will need decision-making rules which:

1. Produce decisions which satisfy the preferences of residents and efficiently solve conflicts among them
2. Reduce principal-agent problems as much as possible
3. Do not result in excessive decision-making costs

These requirements are closely interrelated and will be discussed jointly below. The ownership, contract, and decision-making rules are highly interdependent, since decision-making power should ultimately be given to the owner(s) as residual claimant(s). Nevertheless, the diversity of possible decision-making rules and contractual relationships within a given ownership structure, especially in the case of democracy, makes it important to conceptually separate the issues.

Like any principal-agent relationship, government has incentive problems which need to be solved. Granting a small group of individuals the power to make or enforce decisions on behalf of others is dangerous when decision-makers can pursue their own interests at the expense of citizens/customers. In his book *Exit, Voice, and Loyalty*, economist Albert Hirschman describes the ways in which individuals can respond to problems within organizations, whether small and voluntary like a business or large and coercive like a government. One option, loyalty, is to simply put up with the problems. If you want to improve your situation, however, you have only two options: complain or leave (Hirschman, 1970).

Seasteading and other forms of competitive government aim to constrain rulers through exit rather than voice. For reasons we will not discuss at length here, we believe that this will be a much more effective constraint on government. The power of exit depends on the cost of switching and the number and diversity of alternatives to which customers can switch. Seasteading increases the power of exit through both of these

mechanisms, but the number of options will remain quite limited for some time. The first seastead will need to compete only with existing governments; until the market for governance matures, the threat of exit will be less credible than will be the case in the long run. Even if exit is a sufficient protection against self-interested governors in a mature market for governance, supplementing exit with voice or some other means of constraint might be worthwhile for early seasteads.

In addition to voice and exit, it may be possible to constrain governors through contract. This is how constitutional constraints such as the American *Bill of Rights* attempt to protect against government interference in the private sphere.² While there are well-known problems with the enforceability of constitutional constraints on current governments, contract might prove more effective under competitive government due to the possibility of external enforcement.

The constraints of voice and contract have costs as well as benefits. The first best situation in any principal-agent relationship would be for agents' incentives to be fully aligned with principals' preferences, with the former left with complete autonomy to pursue those preferences. Being forced to follow the letter of contracts or follow the expressed wishes of voters when they might be less informed than professional decision-makers will result in less efficient government.

In the limiting case of competitive government – with zero switching costs, full information, and an infinite number of options – agents would be fully constrained by exit. In this situation, additional constraints would be costly in terms of flexibility and ease of decision-making and would produce no offsetting benefit. In any real-world market for governance, the constraint will be less than perfect. As we relax the assumption of perfectly competitive government, the constraining power of exit decreases. This will increase the desirability of alternative constraints such as voice and contract. At some level of competitiveness - somewhat less than perfect competition and somewhat more than we have today - the benefits of voice and/or contract will outweigh their costs.

We can see the tradeoff between constraint and flexibility in land-based states today. Rulers of relatively undemocratic countries are free to pursue their preferences, good or bad; rulers of functioning democracies are forced to follow the will of the majority, good or bad. The law of large numbers ensures that policy determined by democracy is seldom truly awful or truly brilliant: democracies achieve a reliable level of mediocrity. The quality of policy in undemocratic nations, on the other hand, is far more variable. Dictators who are both wise and benevolent have the freedom to implement good policies. We therefore see places like Hong Kong and Singapore having such high level of economic freedom and growth. Unfortunately, evil or misguided rulers are just as free to pursue their goals. We thus see many more undemocratic polities at the bottom of most metrics of good governance.

There is a similar tradeoff between the quality of collective decisions and the cost of reaching them. As Buchanan and Tullock show in their 1962 book *The Calculus of Consent*, democracies involve an unavoidable trade-off between the external costs of collective action – the costs forced upon unwilling minorities - and decision-making costs. Their argument is limited to democracy and mainly focuses on laying out the conditions which determine the optimal majority, but decision-making costs are a relevant consideration in the broader choice of system. It is easy to overlook the importance of decision-making costs and assume that we should always seek to enact the best policy. Imagine, though, that you, along with every other voter, were required to spend two hours every morning navigating legal minutiae to become informed on a policy issue before attending a meeting in which the issue would be debated until all parties were satisfied they had been heard. This might produce good policy, but it would leave very little time for individuals to live their lives. A sensible system balances these two factors (Boudreaux & Holcombe, 1989; Buchanan & Tullock, 1962).

² The lack of consent means that the constitutions of governments are not contracts in a strict sense, but the desired *effect* of constitutions and contracts are similar.

3. Past and Present Approaches to Governance

While we cannot simply take the governance mechanisms which seem to work best on land and implement them at sea, we can learn from the ways governance problems have been solved in the past. In this section, we review the experience of customary law, common interest developments, entrepreneurial communities, and corporate governance, pointing out the diversity within these forms and flagging the important lessons for seasteading. We do not discuss the governance of national states in depth, since the existing literature on this is large, and the lessons for seasteads are less relevant. Whereas the evolution of areas of governance we do discuss has been guided primarily by individual preference, the development of states as we think of them today has to a significant degree been the result of conquest and military competition (Tilly, 1985). As such, we can be much more confident that the governance solutions of relatively voluntary forms of governance are desirable in terms of human welfare.

There are limitations to the relevance of the institutional evolution we have seen in these areas, however. Customary law evolved over a long period of time as a general-purpose governance mechanism, but has been prevented from developing in this way in the contemporary world by the rise of the state. Since technology has a large effect on which governance forms are feasible, we have not seen the full range of potential solutions given the existing state of technology. Private, voluntary governments do exist in the form of common interest developments and entrepreneurial communities, but these institutions are constrained by the rules of the broader polity in which they exist. Since seasteads will be a true alternative to existing government rather than a supplement, their needs will be different. Further, few private communities in developed countries today are genuine communities which encompass all areas of life. Most are primarily residential, with residents going elsewhere for work, or primarily commercial, with employees living elsewhere. The type of rules optimal for each differs, and will be different again for both. The limitations of corporate governance as a model for seasteading governance is obvious: it is simply a special purpose set of mechanisms, whereas seasteads will need a more general system of governance. Nevertheless, there are important lessons to be learned from all these forms of governance.

3.1. Customary Law

Governance in the sense of rules governing interaction and mechanisms for resolving disputes has been with us for a very long time, and the tendency for groups to produce rules is a biologically evolved trait. Even chimpanzee bands have rules about how food is shared and leaders attempting to impartially resolve conflicts (de Waal, 1982). Indeed, social control and conflict resolution are common in social animals including monkeys, dolphins, and hyenas (Aureli & de Waal, 2000; Flack & de Waal, 2000). Our ancestors presumably had similar rules which have evolved, both biologically and culturally, into the rich systems of governance we see today.

We tend to take the existence of states – monopolistic providers of governance and wielders of coercive force over some large geographic area – for granted. Throughout most of human history, though, rules have been created and enforced in a decentralized way, producing customary systems of law. These range from informal systems of norms governing small groups to codified bodies of law which have emerged from the decentralized interaction of individuals. While there is great diversity in customary law, there is also much commonality. The problem solved by governance is always the same at an abstract level: How can we prevent bad behavior and encourage cooperation?

Political economists following Hobbes generally model the choice of whether or not to cooperate as a one-shot prisoner's dilemma which leads to chaos. Without rules, it is supposed, each person will have an incentive to steal rather than produce and everyone ends up worse than they would be if some external agent imposed a set of rules on the group. While rules, broadly construed, are required, they need not be formally or externally enforced. In small-group situations, the most common case until recently, formal rules and enforcement mechanisms are generally unnecessary. Since people in tightly-knit groups will continually

interact and information will quickly flow to those who need it, informal norms and social sanctions such as disapproval and ostracism are enough to ensure good behavior. The one-shot prisoner's dilemma of the Hobbesian jungle is really an iterated prisoner's dilemma in which the expected outcome is cooperation without central coordination or enforcement (Axelrod, 1984; Elinor Ostrom, 1990).

Of course, even when cooperation is effectively maintained through these informal mechanisms, disputes will arise. People will understand norms differently and some people will see bad behavior where others do not. Thus, tribal societies need mechanisms for resolving such disputes. Often, these mechanisms involve influential individuals providing mediation or adjudication services. The Kapauku Papuans of West New Guinea are a good example of this (Benson, 1990, pp. 15-21; Pospisil, 1974). When a dispute arises in Kapauku society, the disputants call upon a *tonowi* – literally “the rich one” – to hear the arguments of each side, collect evidence, and issue a decision as to who is in the wrong. This may seem like the emergence of a state, with the *tonowi* as ruler. There are three crucial things to consider, however. First, the disputants are free to choose among the wide variety of *tonowi* willing to hear their case (in exchange for services and prestige). Second, the *tonowi* has no power to compel the loser to abide by the ruling. Decisions are enforced by the community at large through ostracism. Third, the *tonowi* does not make rules but attempts to decide cases based on customary standards of behavior. Thus, this system of governance remains decentralized. What we do see, though, is specialization in a particular governance function.

Over time, customary legal systems have evolved, producing a number of ingenious innovations in rules and mechanisms of settling disputes and enforcing judgments. All customary legal systems seem to share a number of features. All offences are against individuals (whether against their person or property), and victims or their families are responsible for prosecution, with punishment based on compensation rather than retribution. That is, all customary law is based on what we would now call torts. When those found guilty fail to pay their dues, sanctions are meted out by the community as a whole through ostracism or outlawry. In a world much more violent than our own, forgoing the protection of a system of rules was a very costly thing indeed (Benson, 1990, p. 21). While ostracism was often informal, it was sometimes institutionalized in formal rules. In classical Athens and other city states, for example, the decision of whether to ostracize was placed in the hands of the democratic assembly with a particular majority threshold required (Zippelius, 1986).

Even as customary legal systems grew in complexity, they retained their decentralization and focus on compensation. The formality of law increased – in some systems there were complex schedules of fines for particular injuries: this much for a broken leg; that much for a severed index finger – but it remained a bottom-up phenomenon subject to experimentation and innovation. Over time, we saw great divergence in governance, with many ingenious ways of solving the problems of living together (Bell, 1991; Benson, 1989, 1991, 1990).

Medieval Iceland is a fascinating example of the power of legal evolution (D. Friedman, 1979). It follows the common pattern of a tort-based dispute resolution system backed by ostracism, but contains many innovative features which, “might almost have been invented by a mad economist to test the lengths to which market systems could supplant government in its most fundamental functions” (D. Friedman, 1979, p. 400). One particularly ingenious legal innovation was to make torts transferrable. One worry with any decentralized legal system which relies on victims to prosecute their own cases is that the weak are systematically disadvantaged and are therefore more likely to be targeted by criminals. The Icelandic system addressed this problem by allowing torts to be bought and sold. With marketable torts, victims can sell the possibility of future compensation to the highest bidder. This means that whoever is most able to punish criminals will be willing to pay the highest price for the right to do so, and even the powerless enjoy much greater protection against aggression.

British common law in some sense continued this evolution of customary law. While now partially superseded and adulterated by top-down legislation, the common law was originally an attempt to codify

customary law, and was maintained by litigants and judges rather than politicians. A number of theorists have argued that this leads to greater efficiency (Hayek, 1973, 1960; Leoni, 1961; Posner, 2007), and it seems that those governed by common law systems do enjoy greater prosperity (La Porta, Lopez-de-Silanes, & Shleifer, 2008; Mahoney, 2001).

While we cannot fully survey the full range of customary law here, it is important to note both the diversity and common features which have evolved over the millennia. This rich source of past institutional innovation will likely provide a number of mechanisms suitable for use on a seastead, and the fact that we so often see tort-like systems enforced by ostracism strongly suggests that this is a very effective form of governance.

3.2. Common Interest Developments

When most people think of private governments, they will think of gated communities and other forms of common interest development (CID). These normally involve an interesting mix of for-profit and non-profit enterprise. A developer will buy up a block of land, improve it by creating a set of rules and then sell it off at a profit. Once the property is sold, the developer has no stake in the community, which will normally be run by a non-profit entity such as a homeowners' association (HOA), condo association, or non-profit corporation. It is important to distinguish two broad types of CID: cooperatives and subdivisions. Subdivisions represent the most important type of CID, both on land and most likely at sea.

Cooperative housing involves all public and private areas being owned by a single corporate entity owned by the residents, who have an exclusive contractual right to occupy a particular private area, such as a house, apartment, or room. The corporate body can then create and enforce rules as directed by the owner-residents, usually through a democratically elected board of directors. This type of arrangement became popular in the United States earlier than other forms of residential common interest development such as condos and HOAs, growing in number rapidly following the First World War. Their popularity relative to other forms of private community has dropped sharply since that time, representing less than five percent of CIDs in 1998, though the cooperative housing population has continued to rise modestly in absolute terms. In recent years, there have been some indications of a resurgence in cooperative housing, with many forming cooperatives as a type of intentional community (Fenster, 1999; McKenzie, 2003; Siegler & Levy, 1986).

A subdivision is typically created by a real estate developer, who buys a large block of land and divides it into lots to be sold along with a certain set of rights, obligations, collective decision-making rules, and enforcement mechanisms designed to increase the value of the land. In the condo situation, households own their private areas individually and also a share of public areas and the administrative machinery of the condo building. In an HOA, households own only their private areas and pay dues to belong to the Association, which is normally operated as a land-owning trust. In both cases, the collective decisions are meant to reflect the will of residents, who normally have formal rights of voice in decision-making.

The rules of a CID are embodied in its covenants, conditions, and restrictions (CC&Rs), along with bylaws, which are permanently attached to the land title. These rules can often be quite restrictive, including restrictions on homeowners' ability to paint their house, hang window dressings, landscape, and leave their garage door open (Roland, 1998, pp. 33-34). Additionally, the governing entity of the CID will have certain procedural and substantive rules regarding the relationship between it and the members, mechanisms for changing rules, and the requirements of management. If the community is governed by a non-profit corporation, these rules will be the articles of incorporation (Johnston & Johnston-Dodds, 2002, pp. 5-7). We can think of the CC&Rs as the policy level and the articles of incorporation (or equivalent) as the structural level.

As in entrepreneurial communities, discussed below, the desire to increase land value gives the developer the incentive to create an efficient rule-set catering to the preferences of prospective residents. After all lots have

been sold, however, the developer no longer has any financial interest in the community, and governance is handed over to the non-profit entity he has created.

In a typical CID, elected officials are charged with making routine decisions and enforcing rules, while residents themselves vote on changes to rules. CIDs use a variety of voting mechanisms, which can have very different outcomes (Boudreaux & Holcombe, 2002). Since democratic institutions are also common in broader states and in other organizations, we will not restrict our discussion of democracy to the experience of CIDs.

The experience with dispute resolution in CIDs is one of the inflexible enforcement of CC&Rs (MacCallum, 2002, pp. 372-377). This is not surprising given the incentives of governors. Without strong incentive to make residents happy, their main motivation is to avoid the problems associated with breaking rules.

Without the profit motive and threat of exit working to align incentives, other mechanisms of control are required. Handing control over to non-interested parties creates principal-agent problems. In principle, a CID could be combined with any governance model. Since government is meant to represent residents, however, we will assume that non-profit governments of this sort will be governed through some sort of democratic mechanism. Indeed, this is what we see with CIDs today.

3.2.1. Democracy

We will define a democracy as any system which elicits the preferences of all those who meet some impersonal criteria of eligibility and aggregates those preferences to somehow reach a collective decision. Setting aside any intrinsic or symbolic preference for democracy over other forms of governance, democracy should be evaluated on the extent to which it robustly produces good policy. As argued in section 2 above, a good political system produces policy responsive to resident preferences, fairly resolves conflicts which arise, mitigates principal-agent problems, and does all this without excessive decision-making costs. While democracy is universally praised as a decision-making system today, it does have a number of weaknesses.

Most obviously, most forms of democracy do not account for preference intensity. When we count noses, we give those relatively indifferent a say equal to those most strongly affected by a decision. With heterogeneous preferences, this can become extremely harmful, leading to a tyranny of the majority in which the wishes of minorities are routinely ignored. While seasteading will allow greater sorting of individuals based on policy preferences and thus reduce preference heterogeneity, the general ignorance of preference intensity will always remain somewhat problematic. As we will see below, however, not all forms of democracy ignore preference intensity.

More generally, democratic decisions are always in some sense arbitrary. Kenneth Arrow has shown that the choice of voting rule can determine which decision is reached. Further, no voting rule can simultaneously meet a minimal set of criteria for a good rule, such as non-dictatorship, independence from irrelevant alternatives, and a universal preference for one option over another ensuring the preferred option is chosen (Arrow, 1950). Stating that the democratic outcome is “the will of the people” is therefore extremely problematic. The people have no single collective will, but many, depending on the rule chosen. This does not mean that no form of democracy is desirable, however, but merely that no form is entirely impartial.

Perhaps the greatest problem in democracy, though, lies in its incentive structure. Democratic governments rely on voice to align policy with citizen preferences. For voice to produce good policy, two broad conditions must be met: (1) voters must have rationally considered, or otherwise have good grounds for knowing, what decisions they would prefer their rulers to make; and (2) rulers must make choices based on voters’ expressed preferences in a meaningful way; i.e. rulers must conscientiously seek to fulfill the goals of voters, rather than simply paying lip-service or enact visible but ineffective policies.

Unfortunately, the incentives of democracy make the first condition unlikely. In large democracies, the chance of a single vote determining the outcome of an election or referendum is effectively zero. Electoral decisions are not like regular choices, since the voter will be forced to comply with whatever decision is reached regardless of which option they chose. Since there is nothing riding on their choice, it would be irrational for them to incur any costs in becoming informed about policy: voters are “rationally ignorant” (Downs, 1957). This is exactly what we see in reality: voters in today’s large-scale polities are incapable of answering even the simplest of questions about the way their political system works (Somin, 1998).

It is possible, though, for democracy to produce good policy even when a vast majority of voters are uninformed. Assuming that ignorant voters cast their ballots randomly, the law of large numbers ensures that their errors will cancel each other out and the candidate or option chosen will be whatever is preferred by a majority of well-informed voters.

In reality, though, the assumption of random voter errors does not hold up. Bryan Caplan (2007) has shown that voters have systematically biased beliefs. He points to a number of instances in which mass opinion is not simply more error-prone than expert opinion, but biased in one direction. This means that voter errors will not cancel each other out and the views of the few informed voters will not be decisive. Caplan argues that voters are “rationally irrational.” Evolution has equipped us with a natural but irrational propensity towards xenophobia, pessimism, and zero-sum thinking. The voting booth, in contrast to the market, does not create incentives against these irrational tendencies, and voters will consume the free good of irrationality to the point of satiation.

Brennan and Lomasky (1993) point out that people do things for one of two basic reasons: because they wish to bring about some state of affairs, or because they value the activity in itself. Since voting to bring about some state of affairs is profoundly irrational, they conclude that people vote because they value the act of voting itself. If this is the case, emotional appeal and symbolic import will be more important in determining the success of political platforms than will practical consequences. Rational deliberation has very little sway on voting decisions, which are “much more like cheering at a football match than ... purchasing an asset portfolio” (Brennan & Hamlin, 1998, p. 150).

The fact that electoral choices and outcomes are unconnected from the individual’s point of view causes severe problems at the aggregate level. Rather than thinking carefully about which set of rules they would really prefer to be coercively enforced, people use politics to express their approval or disapproval of certain behaviors or groups. The choices people make in the voting booth are on average more harmful and intolerant than those they would make in a genuine situation of choice. Schumpeter’s complaint that “the typical citizen drops down to a lower level of mental performance as soon as he enters the political field” has an entirely reasonable explanation (Schumpeter, 1942, p. 262). Rulers might be constrained by public opinion, but public opinion in large democracies is ill-informed, irrational, and often vicious.

In smaller polities, like the ones we see in CIDs and will see on seasteads, the problems of rational ignorance and irrationality are mitigated to some extent by the fact that a single vote is more likely to be decisive. Nevertheless, since a single voter is never the sole decision-maker, their incentive to make wise choices is not perfect. The collective action problem of voting will remain even in very small groups. The extent to which this results in bad policy in different group sizes, however, is an open question which requires more study. This, along with other ways in which seasteading democracies might be immune to these problems will be discussed, though not resolved, in section 5.1 below.

Within our broad definition of democracy, there are a number of important distinctions.

Eligibility Criteria: In current democratic governments, each adult citizen is usually given a vote which is equal to all others. In the past, the franchise has been restricted to males or property-owners. In CIDs with democratic voice, votes are generally based on one of:

1. One person, one vote.
2. One property unit, one vote.
3. One dollar of property value, one vote.

The first option has the benefit of matching out folk conceptions of fairness. It gives all residents an equal say in decisions which affect them; the second has the advantage of giving each household equal say; the third gives people voice commensurate to their stake in decisions which affect property values.

The third option, common in subdivisions such as condos and HOAs, makes less sense in a world of dynamic geography. In a subdivision, collective decisions affect the value of land within a jurisdiction. If space has little or no economic value and floating structures could be moved costlessly, this would be of no concern. Moving marine real estate will never be costless, but the fact that it is possible will make the third option less desirable. If ocean surface becomes valuable, due to locational advantages or improvements, the third option might become even more attractive.

Direct versus representative democracy: Voters can make collective decisions either by voting on each issue or periodically electing representatives to make decisions on their behalf. Direct democracy generally involves better representation of interests, while representative democracy economizes on decision-making costs.

Keeping informed on the merits of various policy options is costly. If voters can avoid this cost by electing representatives who share their preferences but have more time to devote to becoming politically informed, it would be wise for them to do so. Representatives, though, will have only imperfect indications of the wishes of voters, and the power given to representatives may also produce principal-agent problems.

Of course, a combination of direct and representative democracy is possible and common in many democracies today. Switzerland, for example, makes heavy use of citizen-initiated referenda. Seasteading polities may be able to come up with innovative ways to combine direct and indirect democracy, especially once we consider the possibilities created by new communications technologies. One such possible innovation, transferable issue-based proxy voting, will be considered in the example polity in section 7.3.1.

Voting Rule: There are many possible ways to count votes, each of which will sometimes produce different outcomes. This is a relevant consideration for direct democracies and indirect democracies – in which two methods will need to be chosen, one for electing representatives and the other for aggregating representatives' votes. Outlining the options for voting rules along with their advantages and disadvantages would take a lot of space. Rather than doing so here, we will describe particular examples in the scenarios of section 7.

In general, though, we need to think of democracies as ranging from majoritarian to consensus (Lijphart, 1999). At one extreme, voters could simply indicate which candidate or policy they prefer, and whichever alternative has the most votes could be declared the winner. At the other extreme, all residents could be required to agree. Between these two extremes, mechanisms such as supermajority requirements, proportional representation, and preferential voting can temper majority rule. In simple terms, the major cost of majoritarian systems is their tendency to ignore minority views and preference intensity, while the major cost of consensus democracies is their high decision-making costs and possible gridlock.

As Buchanan and Tullock argue, there is a tradeoff between what rules would produce the best decisions in a frictionless world and what rules produce decisions most cheaply. Unanimity would completely avoid external costs by replacing the imposition of majority will with negotiation. This would, of course, lead to very high decision-making costs, and nothing would ever get done. The optimal majority will normally be less than

100%, but there is no reason to expect it to be 50%. It will be more or less than this depending on the external costs and decision-making costs involved, which will vary by issue.

Agenda Setting: As important as the rule used to decide among competing policy options is the rule used to determine what policies will be considered. No matter how impartial the voting rule is, if the mechanisms used to decide on what people will vote are biased, we will end up with biased policy. There needs to be some way to control the agenda, since if anyone could introduce proposed legislation, decision-making costs would be very high. The problem of agenda control is even more serious when collective preferences are intransitive. The Condorcet paradox shows that the order in which options are presented can determine the result. Without tight agenda control, we end up with constant cycling among policy options since none will dominate all others. With tight agenda control, we end up with an arbitrary decision (Mueller, 2003, pp. 112-114).

3.3. Entrepreneurial Communities

The major alternative to the CID as private government is the entrepreneurial community.³ In this model, the community entrepreneur not only creates the rules of the society initially, but retains ownership and control of the community. Residents then rent land, which comes bundled with rules and public services. The owner could be a single individual or a joint stock company; residents would be businesses, individuals, or households. The law or constitution of such a community would be the totality of lease agreements between landlord and tenant, between sublessees and lessors, and indeed between any two community members involved in a contractual relationship.

While we are accustomed to thinking of landlords as passive rent-collectors, they have both the ability and incentive to be productive entrepreneurs constantly striving to increase the amenity value, and therefore rental income, of their land. The benefits of this type of community are described at length by Spencer MacCallum, expanding on the work of his grandfather Spencer Heath (Heath, 1957; MacCallum, 1970, 1971, 2002). According to the Heathian view of anarchism, a “manorial” system in which political authority stems from land ownership gives the owner of a multi-tenant income property (MTIP) the incentive and information to efficiently produce the optimal mix of rules and public services.

The landlord, as residual claimant wishing to maximize rental income, will be forced to provide the environment customers desire at a competitive price. He is renting his land; anything he can do to increase the value of that land is in his interest. The fact that a single claimant has a long-run interest in the value of the land internalizes many of the potential externalities which arise when multiple parties live in the same community. MacCallum sees the essential duties of the community proprietor as tenant selection, land planning, and leadership. All of these duties involve dealing with the effects of externalities.

When ownership of a community is divided, a market system will allocate parcels of land (or ocean surface) to those willing to pay the most for them. The person or organization willing to pay the most for a piece of land will be the one who gains the most from the use of it, though with some weight also given to wealth. This will tend to produce better outcomes than random assignment, but is not without problems.

The amenity value of a piece of land depends on land use in surrounding areas. Thus, every land-use decision imposes externalities – positive or negative – on neighbors. The socially optimal outcome – what is most efficient – will not normally be realized through a decentralized market for land. A seller will not normally consider the externalities a potential buyer would impose on neighbors. We will therefore see too many land uses which produce negative externalities – such as polluting factories near residential areas – and too few

³ The term “proprietary community” was formerly used for this type of enterprise, as in MacCallum (1970). More recently, that term has come to be used to refer to CID subdivisions, and thus MacCallum and others have come to use the term “entrepreneurial community,” sometimes shortened to “entrecomm.”

land uses which produce positive externalities – such as parks near residential areas. Without transaction costs, Coasean bargaining would produce the efficient outcome under any system of ownership (Coase, 1960). Neighbors would make side payments to prevent undesirable and encourage desirable land uses. When transaction costs are present and substantial, as they are likely to be in reality, inefficiency will remain.

This problem has prompted existing governments – and indeed CIDs – to create zoning rules such as separate industrial and residential areas. While this might remove or mitigate certain externalities, it produces its own problems (Glaeser & Gyourko, 2002). Even the best zoning rules would be costly due to their inflexibility. Given that they are produced through imperfect mechanisms of collective choice, there is also good reason to believe that actual zoning rules will not be the best available.

In an entrepreneurial community of unitary ownership and control, this problem is avoided, since the owner can comprehensively plan the community and has the incentive to consider all the costs and benefits. The landlord considers all sites jointly and wishes to maximize total rental income. This may involve excluding some prospective tenants altogether, charging differential rents as a means of taxing or subsidizing negative or positive externalities, and deciding location so as to maximize total value. It will also often involve the direct production of public goods such as parks and policing, the creation of rules, and the adjudication of disputes. Further, fragmented ownership of a community tends to lock the initial pattern of land-use in place. Knowing when leases expire, the landlord can plan ahead to rearrange lots and respond to changing circumstances.

Planning requires consideration of how certain public services, such as transportation, and rules, such as noise control, will affect the amenity value of each lot. In thinking about what public goods to produce, the landlord will consider whether their cost is offset by benefits to tenants. If so, rental prices will be bid up by more than the cost of provision and the good can be provided profitably. When considering decisions which will benefit some residents and harm others, the landlord will consider the magnitude of various costs and benefits. Some will prefer to live in a community in which they can listen to music as loudly as they wish at any time; others will prefer restrictions. If the lovers of loud music have only a weak preference, and are therefore willing to pay only slightly more rent to have their way, while those who value peace feel more strongly, the landlord will be prompted to place restrictions on music. Additionally, the landlord may be able to make exceptions to blanket rules in particular circumstances. Fortunately, the profit motive will encourage them to only make exceptions favorable on cost-benefit grounds. As in ordinary markets, individual incentives produce efficient outcomes.

The price mechanism of rent produces not only the incentive for optimal governance, but also the information. The landlord has a feedback mechanism – market demand – which is unavailable to non-proprietary governments. When the rent they are able to charge is on the increase, they know they are doing something right. Additionally, the landlord will be able to make use of other information sources, such as asking tenants what they want. Even if tenants don't have a formal right to voice, their views are very likely to be considered.

There are, of course, limits to central planning of a community. The landlord will never have perfect knowledge of the best policy and perfect ability to implement it. Fortunately, the profit motive also contains incentives to avoid technocratic hubris. If planning becomes too rigid or ambitious, rental income will fall.

The owner of an entrepreneurial community is essentially a dictator, but is heavily constrained by the threat of exit, as well as by contractual obligations. The power of contractual obligations is effective for land-based entrepreneurial communities since they are embedded within broader legal systems with mechanisms of contract enforcement. A seasteading polity, on the other hand, will not exist within the jurisdiction of an existing state and will in some sense be on its own. The problem of contract at sea is more like that of a national government attempting to constrain itself. While this is attempted through national constitutions, the lack of an external arbiter and enforcer makes constitutions unenforceable. As we will see in section 5.2, though, the

small scale of seasteads might allow seasteads to make credible promises where national governments cannot. Further, with a sufficiently strong threat of exit, contract might be entirely unnecessary and counterproductive, as informal mechanisms will be sufficient and allow for greater flexibility.

Of course, large entrepreneurial communities might be owned by more than one person. If this is so, it will be faced with the second-level governance problem of forcing managers to act as faithful agents of shareholders. Fortunately, this is not a new problem and has been subject to centuries of institutional innovation in the form of corporate governance. Section 3.4 will describe some of the ways in which corporate investors, founders, and managers have solved the principal-agent problems which accompany the separation of ownership and control.

The multi-tenant income property is a common and proven model for specific uses, but has thus far formed the basis of only a few true communities as we normally understand them. The history of the modern entrepreneurial community begins with the hotel. Hotels, while normally only accommodating guests for short times, can be thought of as miniature cities. There are public and private areas, public services such as transport, shopping areas, bars, and restaurants. While the market for short-term shelter is ancient, only relatively recently have hotels become communities in the sense of offering a variety of services rather than being merely a place to rest one's head (MacCallum, 1970, pp. 7-14).

In addition to short-term residential accommodation, the entrepreneurial community is a common model in commercial property. Shopping malls and office parks conform to this model, each containing multiple tenants with the potential to impose externalities on each other and in need of public services. The shopping mall is a particularly good example of this. Realizing that certain large retailers are able to draw in customers, which will benefit other retailers, proprietors offer these "anchors" discounted rent and other inducements. Further, mall proprietors are able to exclude any stores which could tarnish the image of the mall, and they also provide collective services such as promotion, car parking, and public-area maintenance which are public goods vis-a-vis tenants (MacCallum, 1970, pp. 15-20). While most entrepreneurial communities are much smaller than today's governments, cases such as Disney World in Florida and The Venetian in Las Vegas show that this type of organization scales reasonably well, and MacCallum has collaborated with the late Michael van Notten to develop a master lease which would form the "social software" of a larger, general-purpose polity (Notten, 2005, appendix C).

According to MacCallum, the absence of entrepreneurial communities in the long-term residential real estate market can be explained by a combination of tax incentives favoring owner-occupancy and a cultural norm which values ownership over tenancy. While these may both be responsible to an extent, it may also be somewhat true that entrepreneurial communities are not well-suited to long-term residential accommodation on land. Since proprietors are constrained solely by exit, high switching costs make entrepreneurial communities less attractive. The cost to an individual of moving home is generally higher than the cost of a business moving locations. People are often prevented from moving by social ties and employment commitments, though this sort of locational lock-in seems to be decreasing over time (MacCallum, 2003).

There is one area of long-term accommodation in which entrepreneurial communities have been common, however: manufactured housing communities, also known as mobile home parks. These communities grew out of trailer parks, which are now generally referred to as "RV parks" and will be discussed briefly below. Until the late 1940s, the use of trailers and RVs was for the most part restricted to recreation. Eventually, though, units large enough to serve as permanent homes, and we saw the emergence of parks specifically catering to the needs of long-term residence. Manufactured homes now bear little resemblance to the trailers from which they developed: they are the size of small houses rather than large vehicles and are generally very expensive to move (MacCallum, 1970, pp. 28-33).

The relationship between resident and park-owner is of great interest here. There are three typical arrangements. First, the park-owner might own both the home and the land on which it is parked and the

resident pays rent for both. This pure tenancy arrangement is really no different from other rental arrangements. In a few cases, the park is subdivided, with residents owning both the home and the lot. Such parks, however, are uncommon and unpopular due to the fact that the initial allocation of lots was largely locked in even in the face of changing needs resulting from larger mobile homes. The more interesting situation is when the resident owns the home but leases the land on which it sits. The desire to maximize rental income encourages the owner of the park to create efficient rules and provide public goods for residents, while the resident's equity in the home does not discourage improvement to the structure (Hightower, 1975; MacCallum, 1970, pp. 28-33; Nyberg, 1972). In a seasteading community, the economically equivalent case would be a situation of structural modularity down to the single-family level, with each family having individual ownership of their structure and dwelling while paying a monthly fee to belong to the polity (i.e. renting the space on which their structure floats). This situation is likely to avoid the problems of some forms of entrepreneurial communities and of voluntary democracies.

At first glance, manufactured housing communities seem like the closest land-based approximation of seasteading: buildings are on wheels and the connection between structure and land is therefore loosened. Apart from their existence within broader polities, then, manufactured housing communities might seem to be an example of dynamic geography on land. Unfortunately, this is not the case: while buildings are often on wheels, the cost of exiting a manufactured housing community remains large for at least two reasons. First, manufactured homes aren't nearly as easy to move as one might suppose, since they are optimized for living rather than travel. Seasteads will also generally be optimized for living rather than movement, but the physical properties of the ocean will make moving relatively cheap anyway. Second, the market for manufactured housing communities, at least in the United States, is rather uncompetitive. Since manufactured houses are generally deemed undesirable eyesores, zoning ordinances have restricted where they can be located and increased the cost of entering the market. Thus, the market for manufactured housing communities has reasonably high barriers to entry and customer lock-in. From the resident's point of view, this means there are only a few options, each of which is expensive to try (Bartke & Gage, 1969; Dawkins & Koebel, 2010; MacCallum, 1970, p. 30).

RV or trailer parks are more competitive for short-term guests, due to the lower switching costs which come from vehicles designed to be moved regularly, but such parks are seldom used as permanent residences. While there are some "fulltimers" who live in RV parks permanently and often shift among them, competition in this market is weakened by the same regulatory barriers as manufactured housing parks: zoning makes RV parks few and far-between, and since people will normally be tied to an area due to work and family commitments, this increases the cost of switching.

Another interesting type of entrepreneurial community for our purposes is the marina. Marinas provide recreational boaters with a place to berth and a host of other services, including boat maintenance, refueling, restaurants, bars, and shops. Some are run by non-profit yacht clubs with a condo model of ownership, some by governments, and others as entrepreneurial, for-profit communities (MacCallum, 1970, pp. 33-34). Like mobile home parks, entrepreneurial marinas rent space to boaters, who retain ownership of their vessel. Various rules and security services come bundled with the space, and other services such as lock-up facilities, internet, and access to club facilities might be bundled or subject to an additional fee.

In contrast to mobile homes, boats are designed to move around cheaply and the threat of exit is generally much stronger. The fact that most boaters live at a fixed location on land and want their boat nearby limits the power of exit, and the number of marinas in close proximity to one another varies greatly by region. Liveaboard boaters, though, have much lower exit costs. Since firms need to respond to marginal consumers, the existence of liveaboards makes the market for marina space competitive despite high switching costs for most boaters. The separation of structure and space combined with the low costs of exit and the fact that some seasteads may themselves be marinas makes the marina a very useful case study in governance. The crucial difference, of course, is that marinas are currently governed by the laws of the jurisdiction in which they exist whereas a floating marina in international waters would exist in a legal vacuum. Unfortunately, there

has been no detailed study of the governance of marinas. Such study seems like a very promising source of knowledge in designing the governance mechanisms of a seasteading polity.⁴

The flexibility of entrepreneurial communities can be seen in the way disputes are resolved. Entrepreneurial communities such as mobile home parks and shopping malls normally have a set of written rules. Such rules are not always enforced, however. When the rule does not result in favorable outcomes in a given situation, the park owner will normally ignore violations. If neighbors complain, the rules can be enforced. When conflicts arise, compromise is sought. Taking a common-sense approach to disputes seems to suit everybody best in existing entrepreneurial communities (MacCallum, 1971, p. 10). Discretionary power is dangerous in large-scale politics in which governors have neither the incentive nor information to effectively resolve disputes. When proprietors have a long-run interest in the well-being of the community, however, flexibility and common sense become powerful tools.

Multiple-tenant income properties have led to innovations in lease arrangements. Traditional leases, being a bilateral agreement, normally contained provisions only regarding how each party would treat the other. Since the community proprietor was concerned with how tenants treat each other, however, terms protecting parties not involved in the particular contract were included (MacCallum, 1971, p. 6).

Not all residents of an entrepreneurial community are directly involved in the landlord-tenant relationship. In shopping malls, store employees and customers generally have no contractual relationship with the landlord, yet their behavior is important to his investment. In the case of employees, the tenant generally acts as an intermediary between the interests of landlord (himself an intermediary among the interests of all tenants) and employees. The tenant is involved in two legal relationships simultaneously, and is therefore well-suited to this role. For example, MacCallum recounts the case of a nurse in a shopping centre repeatedly violating the rules by parking in customer-only car parks close to the centre. The centre manager attempted to inform her of the rules, but was ignored. To remedy the situation, the manager informed the surgery at which she was employed that she would have to be fired, which is what happened (MacCallum, 1971, p. 7).

3.4. Corporate Governance

While we are not accustomed to thinking of corporate governance in the same way as the geographically-bound governance of private communities or national states, there is much to be learned from the governance of the relationship between the investors in a firm and its managers. A firm is essentially a bundle of implicit and explicit contracts among individuals pursuing a goal they could not achieve on their own, and the process of creating this contractual relationship is voluntary. The separation of ownership and control allows for mutually-beneficial cooperation between those with capital to invest and those with the skills to run a business. Such a relationship, though, puts investors in a weak position *ex post*. Realizing this, investors will demand assurances and protections *ex ante*. If the founders of a company cannot credibly provide such assurances and protections, the relationship will not go forward.

Whereas political philosophers often attribute government to a hypothetical social contract, firms are governed by genuine social contracts: there is a collective action problem to be solved by coordinating individual behavior, and each potential contracting party is a veto point. In order to allow this mutually-

⁴ For example, the separation of different sections of the marina into public and private space is important in allowing tenants to sort themselves by desired level of security. Some boaters want to store their boats safely in their absence, while others want to make use of the marina's facilities with a minimum of fuss. Airports are another business which has accomplished a clear demarcation between high-security areas for airlines and lower security areas for smaller private planes, while allowing both to use the same runways. Such demarcation will be important in seasteading polities where business uses are mixed. Combining the storage of sensitive data with tourist ventures, for example, could cause problems in the absence of some form of zoning. I thank Kevin Lyons for pointing this out and sharing his experience as a boater and pilot.

beneficial relationship to form and create value, investors and managers have devised a number of ingenious governance mechanisms. This has been happening for centuries, and the development of corporate governance practices and common law reflect the results of a long series of institutional experiments. Corporations and corporate law, which unfortunately did not exist at the founding of the United States and the drafting of its constitution, have developed many robust solutions to the problems which are inherent in any principal-agent problem and go unsolved in democratic systems of government.

Corporate governance has been the subject of much theoretical work by economists.⁵ This theoretical literature, though, is insufficiently grounded in the empirical reality of how the corporate relationship is governed in practice, since many mechanisms are simply not amenable to formal modeling (the economist's favorite pastime). This section will therefore review the standard economic approach to corporate governance before outlining some of the mechanisms used to constrain managerial slack and misbehavior which have been neglected by the mainstream literature.⁶

3.4.1. The Economics of Corporate Governance

According to the standard economic view, once investors have given money to managers, their input in the business is no longer required. Left to themselves, managers would pursue their own interests at the expense of those of shareholders. Managerial slack could facilitate everything from outright theft to overly plush offices to acquisitions which increase the prestige of the company, and therefore its managers, while reducing profitability. This led some early commentators, such as Berle and Means (1932), to argue that the corporation is a fundamentally flawed form of business organization. The separation of ownership and control apparently removes the profit motive from those in actual control of the firm, and thus the usual mechanism by which the market produces an efficient allocation of resources is absent.

If this analysis were sound, though, we would not see so much economic activity taking place in corporations. Unless we assume that shareholders have failed to notice that they are pouring their investment directly into the pockets of managers, the presence of corporations shows that the problems are not as bad or intractable as pessimists like Berle and Means suppose. A number of economists have rightly recognized that there are a number of mechanisms by which managers are constrained. Where Berle and Means saw the separation of ownership and control combined with incomplete contracts leading to the death of the market system, others have seen it as a challenge amenable to contractual and organizational innovation with the power to augment the value-producing power of the market. A weak ex post position of investors would lead to an ex ante underprovision of corporate investment, and it would be better for both investors and managers if managers could be effectively forced to act as faithful agents of shareholders.

The difficulty of corporate governance is increased by the relationship among shareholders. Monitoring and punishing managers for poor decisions is costly, and shareholders will often be stuck in a collective action problem. All shareholders would be better off if each took some effort to monitor their agents, but any one shareholder has the incentive to free-ride on the monitoring effort of others. This is one of the central challenges of democratic forms of governance, and in the large democracies we see today lead to the problems of rational ignorance and rational irrationality discussed in section 3.2.1.

Perhaps the greatest constraint on managerial slack is competition: if managers are forced to compete for their jobs, they are given a strong incentive to perform well. While the founders of a firm do not need to create the mechanism of competition themselves, the internal governance features of the firm will often affect the degree to which managers are constrained by external forces.

⁵ See Shleifer & Vishny (1997) and Gillan (2006) for surveys of this work.

⁶ I am again indebted to Kevin Lyons for pointing out the gap between theory and practice and sharing his expertise and experience in corporate governance at a practical level.

Since poor management will lower share prices, entrepreneurs can theoretically buy a controlling stake in the business, install better-performing managers to increase the share price, and make a handsome profit. There are, however, a number of legal and regulatory barriers to hostile takeovers designed to protect against investor misbehavior, especially if a controlling stake is purchased. Fortunately, a controlling stake is not always required, as a sufficiently large uncontrolling block of shares will often make an effort to induce change, such as through a proxy fight, which would include convincing other shareholders to support the management challengers, worthwhile. Similar profits are available to other firms through vertical or horizontal mergers. While those undertaking a takeover or merger attempt will not capture the full value of their efforts, since a premium will need to be paid per share, the market for corporate control pushes management towards efficiency. Generally, the Coase theorem tells us that corporate control, as a tradable commodity, will tend to end up in the hands of whoever is able to make the best use of it.

Another form of competition argued to constrain managers in the economic literature is that of the labor market. Since incumbent managers generally want to keep their jobs, or at least not get a reputation for running a firm into the ground and being ousted in a hostile takeover, the market for corporate control limits managerial slack (Manne, 1965). The labor market also imposes discipline on managers, since other managers within and outside the firm will have the incentive to monitor incumbent performance and alert shareholders to any misbehavior, whether by replacing them in the normal way or through a hostile takeover (Fama, 1980). The internal governance mechanisms of the firm can influence the degree to which external competition acts as a check on management discretion. Firms with governance features which make hostile takeovers less likely through poison pills, for example, seem to earn lower profits and thus trade at a discount (Gillan, 2006, pp. 388-389). Very high salaries for senior managers may increase the incentive effects of labor market competition. If junior managers within the firm are vying for a few lucrative senior positions, we end up with a tournament situation in which all managers have a strong incentive to perform well (Lazear & Rosen, 1981). Not only will this improve job performance at lower levels, but will also produce positive selection and incentive effects on top managers, as they will have gained their position by demonstrating their ability and commitment and face a stronger possibility of being dethroned should they reduce their effort.

While the external force of competition does constrain managers to a significant degree, principal-agent problems remain. This has prompted the founders of firms to devise a number of internal control mechanisms.

The most obvious of these is the board of directors responsible for the hiring and firing of senior managers. This provides a relatively low-cost way for shareholders to monitor and punish poor performance (Fama, 1980; Fama & Jensen, 1983; Williamson, 1985, chap. 12). Of course, the relationship between shareholders and the board is also subject to principal-agent problems, and boards can sometimes be captured by managers (Elson, 1996). This is especially true of large, mature firms with dispersed ownership, as collective action problems among shareholders will be high and management will often nominate board members. Recent research has shown that the composition and size of boards (Deutsch, 2005) and the voting rules used to elect them (Jensen & Warner, 1988) have an impact on firm performance. The structure of board meetings, board compensation, and a number of other factors are also likely to have an effect. The board of directors can be seen as a separation of powers within the firm similar to that we see in public governments, with the board acting as the legislature and the management as executive.

Proxy voting – which allows shareholders to vote in absentia by either directing an agent how to vote or delegating the decision-making power to them- is an important mechanism which seems to constrain managers by reducing the cost to shareholders of voting, both in terms of attending meetings and gathering the information needed to vote wisely (Alexander, Chen, Seppi, & Spatt, 2009). A number of for-profit proxy advice firms have arisen to assist shareholders in their voting decisions, though their role is limited mostly to reducing the practical difficulty of casting a ballot, rather than reducing information costs. Further, proxy voting can allow decision-making to be concentrated in particular situations. If management quality is poor,

those wishing to replace incumbent managers or directors can use proxy votes to do so. The proxy fight can thus be seen as an alternative to the hostile takeover offer (Hart, 1995, pp. 682-683; Ikenberry & Lakonishok, 1993; Maug, 1999; Pound, 1988).

Incentive compensation schemes are another way of aligning the incentives of managers and shareholders. In general, though, managers do not capture the full value of their marginal contribution, and incentives will thus not be fully aligned. Further, high-powered incentives which make a manager's compensation closely tied to firm performance will result in a high degree of risk for the managers, as they will receive abnormally high or abnormally low salaries depending on many factors beyond their control. An individual employee such as a manager will not normally be well-placed to deal with the risk of taking no salary, and the optimal incentive contract must find a balance between the risk-sharing benefits of an invariant salary and the performance benefits of incentive contracts (Hart, 1995, pp. 678-679; Jensen & Murphy, 1990; Shleifer & Vishny, 1997, pp. 744-745).

Taking on debt can serve as a credible commitment to wise management. Managers wish to avoid bankruptcy, since this would result in their jobs being lost and their reputations being harmed, and financing the firm through debt rather than equity will increase the threat of bankruptcy if management becomes excessively slack. Thus debt acts as a bonding mechanism by which managers can constrain their future behavior (Grossman & Hart, 1982; Jensen, 1986). While this is a theoretical possibility, it is unclear how important this is in reality. Debt may constrain managers explicitly through contractual terms however, as covenants in debt contracts sometimes limit the discretion allowed to managers in their decision making.

The nature of shareholders is not some exogenous fact, but is negotiated and explicitly agreed to at company formation and is amenable to subsequent alteration in order to maintain or increase efficiency. Shareholders consent to the rules governing ownership during the founding of the corporation, and their ability to sell their stake in the firm will prompt them to demand rules which maximize long-run value. When shares can be traded, the Coase theorem tells us that the efficient allocation will be reached. The existence of large shareholders can be seen as a way of mitigating free-rider problems in monitoring and enforcement (Shleifer & Vishny, 1986). Institutional investors have a large role to play here (Barnard, 1990; Bhojraj & Sengupta, 2003; Gillan & Starks, 2000), but these large organizations come with their own principal-agent problems.

3.4.2. The Practice of Corporate Governance

While the mechanisms described above are important in governing the corporate relationship, economists have tended to ignore other existing mechanisms which are neither easily measurable or discoverable from an armchair perspective, as is the concentration of share ownership, or amenable to formal economic modeling, as is the market for corporate control. In particular, economists have neglected ethnographic research of how managers and shareholders actually overcome the agency problems which could arise from the corporate relationship. Like all economic behavior, corporate governance is embedded in the broader social structure, and corporate actors have a range of social and cultural resources at their disposal (Granovetter, 1985; Macneil, 1980).

Contrary to the undersocialized view of neoclassical economics, market transactions are seldom governed by discrete transactions, but by an ongoing relationship in which trust, reciprocity, and tacit but mutually understood norms are important. "Relational contracts" are maintained not by the threat of legal action but by the mutual desirability of an ongoing relationship (Macneil, 1978, 1985, 1973). Even if two parties do not expect to transact again, dense networks which allow information to flow freely augment the power of reputation to align incentives.

In the absence of formal mechanisms to protect against dishonesty, trade is often facilitated by dense networks of culturally homogenous traders able to detect cheating through quick and reliable information

transmission and punish cheaters through social sanctions (Bernstein, 1996, 1992, 2000; Greif, 1993, 1989, 1994; Greif, Milgrom, & Weingast, 1994). According to these scholars, social structures are not created to serve the purposes of trade, but people trade in networks with low transaction costs. This, of course, limits the number of trading partners and thus the potential gains from trade (Greif, 1994). Leeson (2008), though, takes the argument further by suggesting that traders may intentionally take on certain cultural beliefs in order to reduce social distance and thereby signal trustworthiness to potential trading partners.

Social forces continue to mitigate opportunism even in modern, industrial economies. Macaulay (1963), for example, examines the informal links used to sustain relationships between firms in the United States. He interviewed businessmen and lawyers, mainly involved in the manufacturing industry, and found that contracts were often written but seldom represented the final word on the relationship. The minutiae of routine contracts were often ignored, and tacit agreement became the principal means of maintaining the relationship. There were often inconsistencies between the standardized contracts of buyer and seller. In such cases there is no formal contract in any meaningful sense, since there is no agreement. Telephone or informal written communication would often lay out the conditions of agreement more meaningfully.

When tacit understandings and contractual obligations conflicted, the former would normally take precedence. It was normal for buyers to cancel orders as circumstances changed, for example, even when they are contractually obliged to complete the transaction. This was seen not as “breaching the contract,” but simply “cancelling the order.” Legal sanctions were seen as a last resort, and even the mention of legal obligations and remedies was normally seen as ill-mannered. There was a perception that to stay in business one had to behave in a decent and honorable manner. Trust and flexibility could not be maintained by formal rules. Reputation and non-legal promises were often seen as more important than contractual relationships. There were widely accepted norms that promises should be honored. The businessmen interviewed saw this as more important and effective means of securing transactions than the threat of litigation. Thus, contractual good faith is normally far more important than the threat of legal sanction, and going to the courts can be seen as defection in the iterated prisoner’s dilemma game of good faith bargaining.

These informal mechanisms can and have been used in corporate governance. Perhaps the oldest mechanism of avoiding principal-agent problems in business is the family firm. While we do not normally consider firms owned entirely by a family “corporate,” ownership and control are often in the hands of distinct individuals living in different households with divergent incentives. Further, family firms can publicly trade shares. When the investors and managers of a firm are related, monitoring and punishing bad behavior become much easier.

While family firms are particularly important in countries with poor legal and economic institutions, they have also remained important in first-world countries. The benefits of keeping both ownership and control in the same family are obvious, but with publicly-traded shares, the degree to which minority shareholders will be protected is theoretically ambiguous. On the one hand, significant family ownership will make family managers and directors more likely to increase shareholder value, and unrelated minority shareholders will benefit from this. On the other, family shareholders may have objectives other than profitability, and managers may be encouraged to hire and promote family members even when there are more suitable candidates. As it turns out, publicly-traded family firms perform better than average. This suggests that the first factor dominates (Carney, 2005).

While the mechanisms of kinship do not scale perfectly, relational contracting does have a role to play in the governance of larger corporations without family ties. Especially for new corporations, investors can choose managers and directors likely to enhance shareholder value. This may be based partly on the social distance between principals and agents and a proven reputation in dense industry networks. This would mirror the use of pre-existing social ties to facilitate trade as described above. The founders of a corporation, though, might also make a conscious effort to decrease social distance, as Leeson (2008) argues is true of traders. Corporate culture can be seen in this light. Much empirical work has shown that the norms and shared values of an

organization influence its degree of success (Kotter & Heskett, 1992), and while culture is always a bottom-up, emergent, phenomenon, founders and influential leaders can attempt to improve corporate culture by fostering norms which maximize shareholder value.

The investor can choose to remain an active player in governance by refusing to finance the corporation all at once. The Japanese system of corporate governance relies heavily on banks as institutional investors continually monitoring firm performance and offering stepwise investment. Where the standard economic approach sees investors as making a one-off decision of whether or not to buy the rights to a future stream of revenue and thereafter remaining passive, the Japanese investor is far more active throughout the life of the firm (Aoki & Patrick, 1994; Gilson & Roe, 1993; Morck & Nakamura, 1999). While the Japanese system of corporate governance has many problems, it does demonstrate that relational financing is possible. We can see this dynamic at work in other places, too: Silicon Valley, for example, is characterized by venture capitalists taking a similar active role in the governance of the firm and offering finance in a stepwise fashion. Further, here we see a dense network of investors, entrepreneurs, and their intermediaries with shared norms able to foster information flow and reputational sanctions (Aoki, 2000).

Unfortunately, there has been little ethnographic or historical research on how investors, managers, and directors manage their relationships in practice. Historical approaches are likely to prove useful in uncovering the way particular problems have been solved in the past and the way institutional innovations have built on one another. There has been significant historical study of the emergence of the corporation as an organizational form – see especially Chandler (1962) – but less on the history of corporate governance more specifically. Morck (2005) and Pound (1992) are notable exceptions. The legal history of corporations is also likely to be a useful avenue for further study, since past legal doctrines have often reflected the best practices of the industry (Mahoney, 1999). To better understand how principal-agent problems are currently solved in firms, we need ethnographic study. Rather than relying on theoretical reasoning or the measurable aspects of firm structure, it would be far more enlightening to actually observe what investors, managers, and directors do. There has been some work in this area (Samra-Fredericks, 2000a, 2000b; Zona & Zattoni, 2007), but the insights of ethnographic study have been largely ignored by the mainstream economic literature.

While some have suggested that corporate governance can learn from public governance (Frey & Benz, 2005), there are likely to be far more lessons running in the opposite direction. Corporate governance practices are the result of a long series of contractual and institutional innovations aimed at finding increasingly better answers to single, difficult, and evolving question: how do we delegate responsibility to specialists while ensuring that they serve our best interests over long, even perpetual, periods of time? This is also one of the fundamental problems of governance in general, whether of existing countries or ocean city-states. Further, one of the problems faced by seasteads will be the separation of ownership and control in an environment without an extensive pre-existing system of legal rights and obligations. More study of corporate governance will therefore be very useful in the creation of rules for seasteading ventures.

4. Governing at Sea

Creating rules and metarules for seasteads will present both challenges and opportunities absent on land. The most important among these are:

1. Dynamic geography decreases the cost of exit.
2. Seasteads will not operate in the shadow of existing state law, as do land-based private governments. This presents challenges of contract enforcement but also hugely expands the potential for legal innovation.
3. Dynamic geography loosens the connection between land and buildings (structure and space).
4. The legal environment may be complex, with multiple jurisdictions very close together geographically and nested levels of governance. This will necessitate clear ways of signaling rule-sets, dealing with unintended violations, and integrating levels of governance.

5. The threat of existing governments taking exception to the activities of seasteaders and intervening makes the control of unpopular activities a public good.
6. Seasteading governments will initially be seen as less credible than established land-based governments.
7. Seasteading polities will initially be very small and will therefore lack the economies of scale available to larger jurisdictions in terms of the creation and interpretation of law.

4.1. Factors Affecting Choice of Structural Features

The desirability of particular structural arrangements will depend on a number of factors. In addition to individual preferences, the heterogeneity of which will ensure a diversity of governance arrangements, there are three important considerations: (1) the size of the polity; (2) the modularity of the community; and (3) the thickness of the market for governance. All three will likely be strongly related to the maturity of seasteading as a technology, and the preferable structural features will therefore change over time.

The Size of the Polity

The size of the polity is relevant in a number of respects. First, small polities will not benefit from the economies of scale in the administrative machinery of governance. While professional, specialized technocrats might be most efficient at producing certain kinds of governance, small polities will not demand enough of such services to justify the employment of a specialist. Second, the collective action problems of a democracy might be less problematic in small polities. Third, informal rules may be sufficient in resolving disputes in small polities.

In the near future, we should expect only small polities.

The Modularity of the Community

Another consideration is the size of the smallest physically modular unit of a seasteading community. It will be useful to consider two extremes: a unitary community versus single-family units. If a seasteading community is made of one indivisible structure, switching costs will likely be as high as on land. If individuals or households can vote with their house unilaterally, we will have strong dynamic geography. Between these two extremes, the number of residents on the same piece of artificial land is highly relevant, since the closer we come to strong dynamic geography, the tighter the constraint of exit will bind government.

In the near future, we should expect relatively un-modular structures.

The Thickness of the Market

The extent to which government is bound by the threat of exit depends also on the outside options of residents. If there are few products in the market for governance, leaving for something better will be less of an option. Of course, seasteads will also need to compete with existing land-based governments. In general, the degree of competition in a market depends on the availability of good substitutes. In the short term, the non-political costs of living on a seastead – the discomfort, isolation, and other costs which jointly constitute an “ocean tax” - will be high. This means that seasteads will need to be much better than existing governments in terms of governance quality to be equally attractive overall. As seasteading technology improves and economies of scale set in, competition from governments will decrease while competition from other seasteads will increase.

In the near future, we should expect a very thin market in terms of other seasteads but relatively strong competition from existing governments.

5. Structural Level

5.1. Entrepreneurial Community versus CID

The comparison of CIDs and entrepreneurial communities presented in section 3 suggests that entrepreneurial communities are more likely to produce truly good governance when switching costs are low, while democracy may be preferable when the threat of exit is too weak to align incentives. Since switching costs will always be above zero but finite, exit will always be an imperfect constraint on government. Which option is preferable will depend primarily on all three variables in section 4.1.

Within the broad model of entrepreneurial community, seasteading really have two options which we can label pure and hybrid entrepreneurial communities. The first, pure, option would be for an entrepreneur to create a seasteading community and retain ownership (individual or corporate) of all physical structures. Residents would lease a bundle of space, structure, building, and rules in the community, just as businesses lease land, structure, and rules in malls and individuals do in hotels. This could be combined with various contractual rights and obligations, including specific tenure guarantees. This option has the benefits of entrepreneurial communities described by MacCallum and will be most desirable on a physically unitary seastead in which the possibility of voting with one's house is absent. The threat of exit, then, must come from voting with one's feet by moving from the physical structure.

The hybrid model would resemble the situation of many mobile home parks today. With seasteading, structures and buildings are not tied to one spot but can move through space to different jurisdictions even when those jurisdictions are geographically defined. This mobility opens new avenues for ownership. Whereas the benefit to having land and buildings owned by different parties when the two are almost irreversibly tied together is limited, things change in a world of dynamic geography. As discussed in section 1.1, it no longer makes sense to think of buildings and land. Rather, we should think of buildings, structure, and space. Buildings (dwellings) may be tied to structure (floating real estate), but land is no longer tied to a particular space (ocean surface).

The benefits of dynamic geography will be most fully realized when each household owns the building and structure, but with the space and governing institutions run as an entrepreneurial community. This would make the party most responsible for each resource the residual claimant: owner-occupiers would have the right incentives to improve their structure and buildings, while the political entrepreneur would have the right incentives to improve the space by creating efficient rules and offering the right mix of public services.

While democracy has serious problems in existing countries, the extent to which these problems will be present on seasteading is far from clear. There are two possible mechanisms through which the ocean could improve democracy: scale and exit.

Small democracies are likely to work better than large ones, since the costs of voice seem to be systematically related to the number of voters. Rational ignorance and irrationality are the result of the insignificance of a single vote. As the number of voters decreases, the expected value of a single vote increases. With a sufficiently small polity, rational ignorance is much less of a problem, though will likely remain quite significant even in very small electorates. Another factor which makes size a relevant consideration is described by Elinor Ostrom in her work on voluntary solutions to collective action problems (Elinor Ostrom, 1990). Ostrom shows that small groups of people in close and constant contact will use norms and other informal enforcement mechanisms to prevent free-riding and ensure the production of public goods. In a democracy, informed public opinion is a public good - everyone would be better off with good policy, but the individual incentive is not to contribute to its production by becoming informed. In large democracies, there is little chance of this problem being overcome. In small democracies, norm-breakers can more easily be identified and punished. The extent of mitigation through each of these mechanisms in polities of various sizes remains an open question which requires more study, however.

Offsetting these diseconomies of scale in democratic governance are the enormous economies of scale and agglomeration in city size, however. If democracy only works in small cities, it is unlikely to be a popular governance model in the long-term. A polycentric hybrid system of governance which allows small democracies to exist within a larger entrepreneurial community (or anarchy) might give residents the benefits of both a small polity and a large economy.

Exit also has the potential to improve democracy. The argument for rational ignorance relies on the lack of incentive for voters to become informed about the political decisions which affect their welfare. The possibility of exit provides them with such an incentive. If an individual can switch governance providers at a reasonable cost, they will rationally expend some resources gathering information and assessing the desirability of various policies, since this will allow them to make informed decisions about where to live. They are not gathering this information in their capacity as voters, but the information would be available to them when they enter the voting booth. In this sense, democracy could be parasitic on jurisdictional competition in meeting its informational requirements. Unfortunately, it is not clear whether this will happen in reality. The fact that voters have psychological and social incentives to be irrational means that they could vote foolishly even when the information required to vote wisely is readily available. Again, this is an open question which requires more research.

Exit will also make democracy work better by sorting people into polities based on their preferences. One major cost of democracy, especially those varieties which ignore preference intensity, is its effect on minorities. Exit mitigates this by opening the possibility of dispersed minorities in multiple jurisdictions becoming a majority in a single jurisdiction. This is what efforts at political migration such as the Free State Project and Christian Exodus aim for: making a dispersed minority into a concentrated majority. Seasteading would lower the costs of such efforts while also avoiding the costs they impose on the unwilling natives of their proposed destination.

There are also differences between entrepreneurial communities and CIDs when it comes to the ease of finance. The concepts of floating real estate and sea-based business are both largely untested and will therefore be very risky. It seems unlikely in the early days that investors willing to take the risk of funding a seasteading business venture will also want to take the risk of buying floating real estate. This is what they would need to do in the CID model, since the tenant would own the property. In the entrepreneurial community model, on the other hand, the business would rent space from a firm specializing in the real estate side of the seastead, thus spreading the risk more effectively. For this reason, we think it will be easier to get entrepreneurial seasteads off the ground in the immediate future.

In the short term, we should expect seasteads to be relatively few, small, physically unitary, and difficult to fund. In small polities, democracy works better, while switching costs are higher in a thin market of physically unitary seasteads. This suggests that a democratic subdivision will be relatively more attractive in the early days of seasteading. On the other hand, the funding advantages of an entrepreneurial community combined with the fact that it is a proven model for commercial real estate developments in which multiple businesses share common facilities, which is to a significant extent describes how early seasteads will likely operate, recommend this model as most appropriate in the short term. In the longer term, we expect to see both models catering to different preferences, along with other forms of governance we have not foreseen.

5.2. Contract

As pointed out in section 3.3, one way of attempting to reduce principal-agent costs is through contractual/constitutional constraint. This could be possible in both entrepreneurial communities and non-profit governments. There are two important questions to answer in deciding whether contractual constraint is desirable: (1) Can the governing body be effectively constrained? and (2) Do the benefits of constraint outweigh the costs?

Effective contracts generally require some method of enforcement. Today, most people will assume this need must be met by government. Throughout history, though, contracts have been enforced by private agencies, often for a fee. One possible outcome of seasteading would be competing constitution-enforcement agencies which provide the service of impartially deciding whether a contract between government and resident has been broken and punishing any breaches. If potential residents demand contractual constraint, it will be in a government's interest to make a credible commitment to certain rules by signing up with a third-party enforcement agency.

Effective contractual constraint through third-party enforcement will only become possible with sufficient demand, however. The first few seasteading polities will need other mechanisms of contractual enforcement. There are a number of ways in which contracting parties can make promises credible. In general, if an agent can make failure to perform contractual duties more costly to itself than abiding by the agreement, promises which are otherwise cheap talk become credible. This facilitates trade (Williamson, 1983). The posting of large bonds with third parties, for example, can ensure contractual performance without the need for a physical force (Stringham, 2006, p. 14). The institutional mechanisms required for this to work – trusts willing to hold money until some condition is fulfilled and arbitration services willing to decide on the fulfillment of that condition – are already in existence. Other methods of enforcement, which seem somewhat less appropriate here, are discussed in section 6.2.3 with regard to enforcing contracts between members of a seasteading polity and outsiders.

The ability to make credible commitments in the early days of seasteading will be limited by the absence of constitution-enforcement agencies. Other methods will be available, however, and will likely be used. Contractual constraint will be more desirable when the market for governance is thin. The tradeoff between constraint and flexibility is unavoidable for all methods of constraint other than exit. When switching costs are low, we can have strong constraint combined with flexibility, and other forms of constraint will become less desirable. With costless movement, governance could be provided in a spot market: residents would be purchasing governance only for today, and would leave as soon as quality declined. We do not need complex contractual relationships with grocery stores, since they are constrained by the threat of exit.

In the near future, residents of a seastead will have few alternative options and other forms of constraint such as voice and contract will be essential. Seasteads will likely need plug into existing adjudication institutions and post bonds in order to assure residents that they will abide by agreements.

5.3. Monocentric versus Polycentric Governance

Another relevant distinction is that between monocentric and polycentric systems of government. We customarily think of governments as geographical monopolies, with one organization providing all governance services within its jurisdictional boundaries. Seasteading allows innovation in the structure of government and opens the possibility of moving beyond such monocentric states. A polycentric system of unbundled governance would contain many service providers with overlapping jurisdictions. Each citizen, household, or neighborhood would be free to subscribe to whatever governance service provider they choose, regardless of where they live (Frey & Eichenberger, 1996; Kling, 2009; V. Ostrom & E. Ostrom, 1977; V. Ostrom, Tiebout, & Warren, 1961).

Polycentric governance has two major advantages over monocentric governance. First, each governance function can be provided at the most efficient scale. In their 1961 paper, Vincent Ostrom, Charles Tiebout, and Robert Warren pointed out that different government services had different optimal scales of provision. When externalities travel over large distances, large scale collective action might be called for. A public good which is best provided at a large scale might be national defense; a negative externality which is best regulated at a large scale might be environmental pollution. Garbage removal and noise control, on the other hand, are

probably best dealt with at a much smaller scale. As Vincent and Elinor Ostrom put it, the production unit must match as closely as possible the collective consumption unit (V. Ostrom & E. Ostrom, 1977).

Second, unbundling governance services allows greater individual choice. While competing territorial governments will provide radically more choice than the current uncompetitive market for governance, territoriality implies limits to product diversity. Imagine that providers of groceries offered customers only bundles of items - X pounds of steak, Y cans of tuna, etc - and customers were perfectly free to buy from whichever store offered the bundle best suited to their preferences. This would be far better than the situation in which all people were given the same bundle of groceries, but it seems likely that people would remain unhappy with their bundles in some respect unless the number of competing firms was extremely large. Just as the obvious way to increase choice in groceries - allow people to purchase steak and tuna separately - the obvious way to increase choice in governance is to unbundle governance services.

With low barriers to entry and low switching costs, polycentric governance and anarcho-capitalism, as outlined by economists such as David Friedman and Murray Rothbard, are equivalent (D. Friedman, 1989; Rothbard, 1973). As such, there are those who doubt that competitive polycentric governance will work. One problem is that competitive rule enforcement within a particular area can impose externalities on unwilling neighbors. Entrepreneurial communities in which rule making and enforcement are performed by the residual claimant on the land provide optimal incentives to deal with externalities, avoiding conflict and producing efficient governance (Stringham, 2006). Another possibility is that competing governance providers will eventually form a geographic monopoly due to cartelization or natural monopoly (Cowen & Sutter, 2005; Nozick, 1974).

Of course, unbundling governance is not an all-or-nothing thing: it will be possible for a seasteading polity to have some services provided as a geographic monopoly while allowing overlapping jurisdictions in others. If some externalities - positive or negative - have a wide reach or certain governance markets are subject to cartelization, citizens may prefer that they be provided by geographical monopolies from the start. The provision of defense against external aggression and the prevention of activities likely to anger coastal states, for example, might be best provided on a geographical basis. This monopoly arrangement, however, does not prevent other governance services such as contract law and policing being provided by non-territorially competing organizations.

More fundamentally, the distinction between public and private goods - governance and consumer goods - is not clear cut. There is no single, well-defined bundle of goods which must be provided by a territorial monopoly but a number of options which will be determined by residents' relative tolerance of externalities and lack of choice.

6. Policy Level

Now that we have some idea of how to make collective decisions, we can discuss what the desirable outcomes of those decisions might be. Of course, we cannot attempt to predict what level of various public goods will be provided or the extent to which specific externalities are regulated. We can discuss several important general features of policy, however.⁷

⁷ One crucial area which we do not discuss due to space limitations is foreign policy, including defence, international law, and diplomacy. To adequately address these issues would require a paper much longer than this. The issues of defence, diplomacy, and international maritime law have been discussed elsewhere (Balloun, 2010; Fitzpatrick, 1998; P. Friedman & Gramlich, 2009; Galea, 2009; Kardol, 1999; Strauss, 1984), though there has as yet been no systematic overview of the issues.

6.1. Internal Dispute Resolution

Internal dispute resolution will depend crucially on how the polity is organized at the structural level, as well as its size. In an effectively-constrained entrepreneurial community, governors will have the incentive to settle disputes effectively without the need for formal rules. Of course, such rules may remain desirable insofar as they specify appropriate conduct to residents. As the discussion in section 3.3 demonstrated, the absence of formal rules or flexibility in their enforcement leads to superior results so long as the adjudicator has a proprietary interest in keeping all parties happy.

The solution to the problem of dispute resolution for an entrepreneurial community, then, might be nothing more than the use of common sense. Of course, the sensible decision in any case will depend on the preferences of residents. Proprietors will have the incentive to find out what residents want, but also to outline what sort of decisions will be made ahead of time in order to allow better sorting by resident preference. Libertines and puritans will not easily co-exist in the same polity, and diverse entrepreneurial communities will cater to diverse niches. Since problems will be minimized, and therefore rental income maximized, if the preferences to which an entrepreneurial seastead caters are indicated ahead of time, market research on what approach will prove most popular will be required. In the early days before specific ideas have been tested against reality, this could be a large challenge.

Democratic CID seasteads will lack an appropriately motivated decision-maker to resolve disputes. This means that formal rules will often be required. This will be costly in terms of flexibility, since no rule will be optimal in all cases. The market research challenge of finding what people want will be even more serious in this case, since specific rules rather than simply general approaches need to be created ahead of time. The experience of CID developers, who face this problem, albeit in an established market, will likely be instructive.

On small democratic seasteads, though, comprehensive formal law may be unnecessary and counterproductive. As discussed in section 3.1, informal rule formation and enforcement through social sanctions is sufficient in small communities with dense networks of interaction. Unfortunately, this sort of informal enforcement does not seem to scale to large groups. Rulemaking and enforcement can remain decentralized, but will generally require a more fully developed legal system and enforcement mechanisms. The discussion of section 6.2 will therefore be relevant to the internal governance of large polities.

6.2. Contracting Outside the Polity

Making agreements and settling disputes outside the polity presents a challenge more difficult than internal governance. In some sense, though, this is not a problem of seasteading governance at all: it will be individual businesses on board the seastead contracting with others. The importance of the problem and the potentially large role of the governance mechanisms themselves, though, make discussion relevant. Creating a comprehensive body of law would be extremely costly and simply not feasible for a small seastead. Fortunately, law is essentially information which can be copied. There are a variety of legal systems around the world, and a small seastead could simply declare that it will be borrowing such a system.

All contracts are incomplete and require enforcement mechanisms to be credible. In other words, genuine disagreements and the possibility of opportunistic behavior mean that contracts as words on paper are not sufficient to reach an enforceable agreement. When making a contract, a seasteading business will need to do three things: agree to the law which will govern disputes, agree to who will settle such disputes, and have some mechanism for enforcing the resulting decisions. The first two of these problems can be solved relatively easily, since there is already a well-established market for law and adjudication. The third problem is more difficult but by no means impossibly so.

6.2.1. Law

There is already a well-established market for law. Companies in the United States can choose their state of incorporation and therefore the laws which will govern certain aspects of their conduct. Parties trading across international borders will be able to contractually specify the legal system which will govern their disputes. With the increasing legal mobility accompanying globalization, governments are constrained by competition in their ability to enact harmful legislation (O'Hara & Ribstein, 2009).

Since law is essentially information which can be copied, seasteading businesses will be able to make use of existing legal systems in their agreements with outside parties. One option would be to give the businesses of a polity complete freedom to use whatever law they wish and ignore the issue at a governance level. Since seasteading governments may have to deal with enforcement, as will be argued below, having a default set of rules or possibly a menu of options may be desirable. Further, there may be economies of scale in dealing with law. If a governance provider can provide business law with which to trade with outsiders more efficiently than businesses can provide it themselves, business law is brought back into the realm of governance, where most think it belongs anyway.

While copying entire legal systems may be a cost-effective approach in the short term, the beauty of competitive government is that it allows innovation. Combining aspects of various legal systems is likely to increase the quality of law, and modifying existing systems with novel aspects could lead to drastically improved quality in the long run. Seasteading polities could advertize their legal system as “British common law with the following additions and subtractions.” This would allow seasteads to take advantage of the cost-saving of copying while avoiding the constraints of currently-existing law.

Lessons on which legal systems can be effectively transplanted into a new polity can be learned from the experience of “free zones.” Free zones are created by, or with the permission of, the existing states in which they reside. The broader polity retains its existing legal system, while the free zone uses a different one, often borrowed from another country. Gibraltar (1704) and Singapore (1819) can be thought of as early free zones. Free zones are generally aimed at attracting foreign investment, but can and have been used to pursue other goals (Strong, 2009).

One such free zone is the Dubai International Financial Centre (DIFC), a 110 acre area in which all commercial transactions are governed by British common law administered by a retired British judge, with family law remaining under the jurisdiction of UAE's Shari'ah courts. DIFC was created in 2004 as an international financial hub capable of competing with other hubs such as New York, London, and Hong Kong. It has proved remarkably successful and is now the fastest growing financial centre in the world (Strong & Humber, 2009).

With around 3,000 special economic zones with various forms of regulation existing around the world as of 2008, the potential for rigorous study of what works is there. While there are some obvious lessons – general rather than directed incentives are preferable, for example – there has so far been no study of the impact of legal systems on free zone success (Akinci & Crittle, 2008). If the data were collected, an econometric analysis of legal origins could follow similar analyses of existing nation-states (La Porta et al., 2008; Mahoney, 2001). There are many confounding variables in the current growth regressions of national states, and the larger N and potentially greater diversity provided by free zones could shed much light on what rules are desirable. The level of zone autonomy, of course, would be an additional complicating factor not present in nation-states, but this does not seem like an insurmountable obstacle. Since the free zone industry is growing due to both public and private for-profit initiatives, this seems like a fertile area for empirical research. The efforts of Paul Romer to develop “charter cities” will likely stimulate academic interest in and, if successful, practical need for such research (Romer, 2010).

The available evidence from nation-states seems to suggest that some version of British common law leads to better economic performance (La Porta et al., 2008; Mahoney, 2001). This confirms the theoretical argument of economists that bottom-up judge-made law tends to be more efficient than top-down statutory law (Hayek, 1973, 1960; Leoni, 1961; Posner, 2007). Further evidence is provided by the fact that the world's top four financial centers are governed by some form of British common law.

The most promising turn-key legal systems of which a seasteading polity can make use are based on common law. Hong Kong common law is often cited as the leading candidate. While we should expect seasteads to produce law superior to anything which currently exists in the long run, the experience of free zones such as DIFC show that there are very good systems which can simply be copied. Further, it is possible to combine aspects of different legal systems to create a new product from existing parts. A seastead or individual business could take the contract law of one jurisdiction and combine it with the tort system of another, for example.

6.2.2. Arbitration

There is also a well-developed market for arbitration, and seasteads will not have to innovate in order to make use of it. The leading way of resolving commercial disputes across borders is international arbitration. Cross-border contracts will usually specify the law governing the transaction, the institution charged with declaring whether a breach has taken place and deciding on a remedy, and the location of the arbitration process. There are a number of benefits to commercial arbitration over litigation, including certainty, efficiency, and flexibility in choice of law. As the market for arbitration has developed, customizability has increased (O'Hara & Ribstein, 2009, chap. 5; Redfern, 2004).

There are hundreds of private, non-profit arbitration institutions which essentially serve as private courts, reaffirming the medieval idea of an international merchant law - *lex mercatoria*. The most significant arbitration providers include the International Chamber of Commerce, the American Arbitration Association, and the London Court of International Arbitration. Arbitration has traditionally been considered a faster and cheaper informal alternative to litigation, with arbitrators not following the formal procedures of courts. More recently, we have seen diversification of arbitration services, with many proceedings becoming more formalized and often resembling those of courts more closely (O'Hara & Ribstein, 2009, pp. 93-94).

While arbitration clauses will normally specify the law of a particular state, entirely private law is also possible. The use of private law is at present largely confined to particular industries with dense trading networks, with arbitration provided by industry-specific organizations (Bernstein, 1992, 1996, 2000; O'Hara & Ribstein, 2009, pp. 88-89). The arbitration of private general-purpose law will become desirable as seasteading leads to legal innovation and evolution. Competitive government will produce better law than is currently available. The important questions here are how soon such private law will emerge, and whether arbitration agencies will be willing and able to arbitrate disputes with this law at that time.

In terms of agreeing to arbitration, as distinct from enforcement, a sea-based business would be in a position no different from one on land. It would simply write the terms of arbitration into its contract and pay a fee to an arbitration agency if a dispute arose. The governance mechanisms of a seastead need not be involved at all. As we will see below, however, the methods of enforcing arbitration decisions are a harder problem which may require input from seasteading governors.

Another possibility is for contracting parties to specify a particular state court with the power to decide disputes. Such choice-of-court clauses are common in international transactions, and will normally, but not always, specify that the chosen court will apply local law. To accept a plaintiff's case, the court will need to have jurisdiction over the defendant. The act of agreeing to be bound by the decisions of a particular forum normally grants such jurisdiction. The 2005 *Hague Convention on Choice of Court Agreements* forces ratifying countries to cede jurisdiction to the court specified in contractual choice of court agreements. The specified

court will normally only hear cases in which one party has a significant connection to the country. Courts may also use the common law principle of *Forum Non Conveniens* to declare itself an inappropriate venue for the dispute (Brand & Jablonski, 2007; O'Hara & Ribstein, 2009, pp. 70-73).

Under current international law, then, seasteading businesses may be able to make enforceable contracts to be bound by the local courts of the country with which it is trading. This brings up a number of issues which require further investigation, however. Will seasteading businesses be treated fairly in such courts? Will courts accept such cases at all? It should be remembered that courts are in part politically motivated. If seasteading is unpopular on land, relying on land-based courts for adjudication may be unwise.

6.2.3. Enforcement

International arbitration does not come bundled with enforcement. The dominant view is that “the practice of resolving disputes by international commercial arbitration only works because it is held in place by a complex system of national laws and international treaties” (Redfern, 2004, p. 1). The most important international treaty is the UN *New York Convention* of 1958, which requires ratifying countries, of which there are 144 including all of the OECD, to enforce the decisions reached by international arbitration in other ratifying states. That is, the winner of an arbitration proceeding can have its remedy enforced by the home government of the loser.

While adjudication can be bought on the market as it currently exists, enforcement cannot. One enforcement option would be for a seasteading polity to declare that it will follow the *New York Convention* and enforce the decisions of arbitration on its residents. The problem with this is that enforcement will likely be very costly and will not be seen as credible by outside parties, especially if the polity is small.

In a world with many seasteads, there may be sufficient demand to allow the emergence of third-party enforcement agencies. A seastead, the contracting parties, or the adjudication agency would specify the organization charged with enforcing the arbitration award. This could be done on a contract-by-contract or subscription basis. The theoretical literature on private protection in anarcho-capitalism outlines how such markets might work on land (D. Friedman, 1989; Rothbard, 1973; Stringham, 2007). In the short term, though, no such market exists. There are some economies of scope with existing private security firms such as Blackwater, but the additional fixed costs of entering the arbitration award enforcement market seem likely to prevent a market developing for some time.

The fact that we saw international trade before the *New York Convention*, when governments were less willing to enforce arbitration awards, and in countries not abiding by the *Convention* suggests that other enforcement mechanisms must be at work. The evidence indicates that state enforcement does increase trade flows, but only by fifteen to thirty-eight percent (Leeson, 2008b). This shows that trade is indeed possible without state enforcement of arbitration awards.

Trade is often enforced through informal mechanisms such as reputation and ostracism, even at the international level. Rather than being anonymous spot transactions, international transactions are often part of long-term relationships in dense trading networks (Rauch, 2001). While the geographical distance separating trading partners may be large, repeated interaction transforms trade without formal enforcement from a one-shot prisoner's dilemma into a repeated game in which cooperation becomes rational (Axelrod, 1984).

Dense networks of interaction sometimes emerge due to the nature of the market: when a small number of traders are constantly interacting, they cannot help but deal with each other repeatedly. In other cases, dense networks, sometimes supported by various formal institutions, are a response to a lack of formal enforcement mechanisms (Greif et al., 1994). If the latter situation, relational contracting may be less efficient in itself than a spot market, with informal mechanisms being a second-best optimum. Transaction costs of informal

enforcement will prevent some otherwise worthwhile trades from taking place, which means that the development of formal enforcement mechanisms, such as the private enforcement firms suggested above, will prove beneficial.

Another option will be the posting of bonds, as discussed with reference to agreements between seasteading governments and their residents in section 5.2. With respect to arbitration awards, a similar effect would come from holding assets in a country likely to enforce such awards. This would make awards up to the value of the assets held enforceable and is a common mechanism in international transactions today. This, of course, would be an expensive undertaking and other options will likely be preferable in the long term. Given that there are no barriers to this sort of bonding, though, it represents a useful option in the short and medium term.

In short, it seems that formal enforcement of arbitration awards, whether through a seasteading polity's governance mechanisms or third-party agencies, will not be available in the short term except by posting assets in award-enforcing jurisdictions. In the meantime, this expensive option combined with informal enforcement will have to suffice. This may limit the overall volume of trade but will by no means make seasteads autarkic.

7. Scenarios

In this section, we consider three scenarios with different governance needs. These scenarios follow the likely path of seasteading development from small, isolated communities to large open-ocean city states. For each scenario, we briefly describe two ways the polity might be governed. For the first scenario, the early shipstead, we state our current preference. We do this because such a decision is closer in terms of time than the others, and there will be less chance for learning in the meantime. For the other scenarios, we do not offer any recommendations but simply point to the tradeoffs.

7.1. Early Shipstead

Early seasteads will be relatively small single ships existing close to shore. One likely scenario is a ship housing 50 full-time residents and a small variety of business operations, such as a casino/resort, medical tourism, and visa-free meetings. While cost estimates are at very early stages and depend on a number of unknowns, capital costs are likely to be US\$200-500/ft², with operating expenditure in the range of 5-25% of capital cost. It will be within the exclusive economic zone (EEZ) of some country, perhaps in the Mediterranean. The residents will be a combination of businesses, their employees, and many short-term visitors. As such, we can think of the governance needs as something like a combination of industrial park and hotel.

There will be little or no competition from other seasteads, which weakens the power of exit. On the other hand, the proximity to shore will make exit to existing nation-states cheap. Existing nation-states are poorly-governed, which will dampen their competitive effect, but the "ocean tax" will likely be high on a relatively small ship, which will reduce the ability of governance to get bad before exit becomes attractive.

In short, we have a very small polity, no modularity, and a thin market.

7.1.1. Entrepreneurial Shipstead

Perhaps the simplest organizational form for a shipstead is the pure entrepreneurial community. A single company owns the ship and leases space to businesses. Each business has exclusive right to its own space as well as access to common areas and resources, perhaps including transport infrastructure and general-purpose medical facilities.

While exit is not a particularly strong threat in this scenario, the nature of the residents and the immaturity of seasteading technology make an entrepreneurial community an attractive option. The power of exit should be understood as reducing the extent to which governors can pursue their own goals at the expense of residents'. This is determined by the difference between the value to residents of a perfectly-governed seastead and that of the next best option available. Assuming that the ocean tax will be high in the near future, even a perfectly-governed seastead will not be all that much more attractive than an existing state. The upshot is that governors will have to provide very good service in order to counter the high ocean tax.

Large businesses on the shipstead, though, need to incur large sunk costs in setting up business. As with all relationships involving "relationship-specific assets" which cannot easily be deployed for other uses, this leads to a "fundamental transformation" of the relationship from one of competition to monopoly (Williamson, 1985, p. 12). This produces the potential for opportunistic behavior on the part of the shipstead proprietor. Fortunately, the fact that there will likely be a few large tenants equalizes the bargaining power: the shipstead proprietor will have just as much to lose from the breakdown of the relationship as the business owner. Small businesses, though, will rightly be reluctant to incur large relationship-specific upfront costs and demand greater contractual protection. This is costly but necessary given market conditions.

We might also expect social distance and corporate culture as discussed in section 3.4.2 to mitigate the principal-agent problems which might exist among investors, managers, and residents. Early investors may very well be motivated by a desire to see seasteading succeed in addition to returns on their investment. If this is the case, managers with a congruent vision might be hired. While such factors are hard to quantify and are therefore ignored by most economists, social and cultural factors such as this can increase firm value in purely financial terms and should not be seen as ideology encroaching on the bottom line.

7.1.2. Condo

Wary of the power of proprietors not fully constrained by exit, some might prefer an HOA or condo model of ownership and control. An entrepreneur would create the marine real estate, a single ship, and sell off sections of it along with a set of rules and a share of the common areas. The government could be structured as a condo association, with each property coming bundled with part ownership of and voting rights on the governing body commensurate with the value of their property. An initial set of rules would be created by the developer based on market research, and property-owners would vote every three years on a board of directors with the power to levy fees, purchase collective goods, and perform a number of other routine governance duties. On more serious rule-changes, owner-residents themselves would vote. A simple plurality of votes might be required for most matters, with supermajorities required for decisions deemed particularly important. Since votes are distributed according to equity, the preferences of larger businesses are given more weight than those of smaller businesses, and sufficiently large businesses may even have veto power over some decisions. Residents not owning property – employees of a business, visiting customers, and permanent renters living on board for political reasons and telecommuting to shore – are given no formal right to voice. Businesses consider the interests of their employees, customers, and tenants when voting, however.

The legal system formally governing disputes might be Hong Kong common law, with the ICC as default arbitration agency. Most disputes, though, would likely be resolved through negotiation. Each tenant would know they needed to cooperate with others in order to do well, and the small number of tenants makes negotiation and compromise possible. If tenants could be evicted with the support of some supermajority, an additional strong incentive for good behavior would be present.

7.1.3. Comparison

While choice between the above two models entails tradeoffs, The Seasteading Institute is currently of the view that the entrepreneurial model of 7.1.1 is both more likely and more desirable than the condo model of

7.1.2 for early shipsteads. The primary reason we think this is more likely is the ease of funding. Looking into the commercial reality of seasteading has led TSI to believe that an early shipstead will be much more successful in securing funding from investors than from tenants. Early seasteading ventures will be risky, and separating the financing of real estate and onboard businesses spreads this risk more effectively.

While the success of early efforts is clearly desirable to the broader seasteading movement, we believe entrepreneurial governance will have another important benefit over the condo in this regard. Having the development in the hands of a specialist company is likely to help seasteading scale more effectively as this organization comes to learn from the experience of building an ocean community. The knowledge of how to build and govern a seastead will be less transferrable if partly in the hands of businesses without a desire to exist on multiple seasteads.

7.2. Open-Ocean Shipstead Cluster

Further in the future, we will likely see a number of shipsteads choosing to cluster together in order to achieve economies of scale and agglomeration. While some will remain within some country's EEZ, others, prompted by the need for greater autonomy and enabled by economies of scale in infrastructure and a greater ability to deal with large waves, will move to the high seas.

We will assume an open-ocean cluster of thirty ships of various sizes with a total population of around 10,000 people. Ship populations might vary from 20 to 500. There are a few other such shipstead clusters around the world, but none within less than a week's sailing time. The market is thus thicker than in the scenario of 7.1, and since the community is modular, individual ships could break away to form their own cluster nearby.

7.2.1. Anarcho-Capitalism

One option to govern such a cluster would be no overall governance at all: each shipstead would be governed by whatever rules its residents or owners agreed to. Some would be entrepreneurial communities, others democracies. Dispute resolution and law enforcement across ships would be performed on a contractual basis by for-profit firms. Thus, we have a number of small islands of governance – entrepreneurial, political, and customary – at the ship level existing within a broader anarchist system.

Some goods would be provided for all and funded collectively, but each ship would have the ability to opt out of collective provision at any time. For example, we can imagine a situation in which political tensions with nearby states became high at some point, prompting the cluster to unanimously agree to collectively provide a strong and expensive defense force. The new protection agency and its administrative machinery might attempt to levy taxes to fund itself, and would be successful as long as concern over invasion remained high.

Once the concern subsides, however, residents might generally decide that the taxes are not worth paying. Since the protection agency has the capacity for violence to enforce their wishes, however, those wishing to stay might be forced to comply. Protection agencies from outside the cluster might be unwilling to depose the nascent government, since opinion would likely be somewhat divided in the community, with some seeing the state as the proper outcome despite a few dissidents. Fortunately, the residents have the option of exit and outside protection agencies would be much more willing to enforce this right. We could thus see a bloodless reset of the polity. At first, a few ships would leave simultaneously to set up a new cluster without any central authority a few miles away. Others might follow, and we could end up with basically the same cluster but without the strong defense force. Those who still favored strong defense might attempt to attract residents with similar preferences or join an existing community. If the latter, the protection agency might offer its services elsewhere and dissolve and sell its assets.

The relatively small size of the community would allow most disputes to be resolved through the informal mechanisms of reputation, ostracism, and negotiation. When informal enforcement fails, the default system

of dispute resolution might turn out to be a variation of British common law. There might be one or more small protection agencies within the polity which deal with routine disputes, but residents might also maintain a subscription with a larger protection agency outside the polity. Their services would rarely be called upon, having a low monthly fee but a high co-payment, but provide a level of assurance not possible from small protection firms.

7.2.2. Federal Consensus Democracy

If the externalities members of the cluster imposed on one another became too large, an overarching governance system may be desired. Since many of the ships forming the cluster would already have autonomous governance mechanisms before joining the cluster, ship-based federalism seems a natural basis of organization. Each ship would be given a high degree of autonomy over its internal affairs, and one representative from each votes on cluster-wide matters at periodic intervals. Whenever the representatives of all ships agree on some policy, they have absolute authority to carry it out. Worried that this would allow special interests to capture representatives, many ships retain the right to recall representatives at any time.

Some might complain that the unanimity rule tends to produce gridlock in the face of necessary changes to rules. To some extent, this is an unavoidable tradeoff of a consensus democracy, but the small number of legislators allows logrolling to facilitate efficient Coasean bargains. While such vote-trading is often seen as a problem in larger democracies, it could be quite valuable in this small, exit-constrained polity. The original constitution might, for example, contain a provision for the establishment of a court and remuneration of its officers. As more seasteads emerged and information technology improved, though, such a court might become less efficient than the purchase of court services from a third party. If most lawyers and court workers resided on a single small ship on which they constituted a plurality, however, the consensus system would allow them to veto the dissolution of the court. Realizing the potential for gains from trade, the other ships might agree to compensate the displaced workers monetarily on the condition that they agree to dissolve the court.

The resulting polity would more closely resemble a civil law system, with lawmaking coming almost exclusively from the democratic system rather than the decisions of judges. The relatively low decision-making costs of the polity's democratic machinery would make the clarification of ambiguities in original legislation easy.

7.3. Open-Ocean Breakwater

Breakwaters allow economies of scale in construction costs far beyond anything achievable by simple clusters. While the upfront cost might well be in the billions, small and simple ships and barges could be built very cheaply to exist within it. This allows the development of genuine city states.

The existence of the breakwater, though, ties residents in place to some degree. Vessels designed for use within a breakwater cannot exist in the open ocean and the large fixed costs of breakwaters presents large barriers to entry, reducing the power of exit. While there will likely be some competition in breakwaters, since the market will be somewhat contestable straight away, they might be too far apart to allow vessels designed for existence within them to switch breakwaters. There would likely be nearby clusters of ships and spars, but many ships would essentially be tied to the breakwater for all time, much like buildings are tied to land.

7.3.1. Breakwater Subdivision

A group of entrepreneurs might put up a large amount of capital to create a breakwater and an accompanying rule-set and sell off lots by the square foot. The body responsible for maintaining the breakwater and performing other governance duties might be created as a trust democratically controlled by residents.

Realizing that the governance needs of a genuine city are different from those of most subdivisions, the developers might create a complex democratic system, but being unconstrained by the legacy systems of government on land, they could implement governance mechanisms suggested by public choice theorists but untried in reality. The following is one possible combination of mechanisms.

There are two houses of legislature, both of which must agree (by plurality) to any rule change. The first is elected every three years by a vote of all residents, defined as those living within the breakwater for more than 18 of the last 24 months, over the age of sixteen. The second is elected every five years by property-owners in proportion to the area of protected ocean they own. Each house contains thirty legislators, each of whom submit a rule change to every monthly sitting. Two of these bills are randomly drawn in each house at every meeting and voted upon. If it is supported by the house in which it is drawn, it is passed to the other house for a vote at its next sitting.

In addition to this system of representative democracy, the polity makes heavy use of direct democracy. A petition of 5,000 eligible voters initiates a binding referendum on any matter. In addition to specifying a question to be voted upon, each petition must specify the voting rule by which it will be made. Realizing that direct democracy gives rise to high decision-making costs, the developer notes the institutional innovations of corporate governance and gives voters the ability to appoint proxies. Rather than specifying a single agent to vote on all issues, though, different proxies could be granted power to vote on different issues. Someone who generally favors the free market but sees strong regulation as essential in environmental policy and takes a moderate approach to social issues, for example, can allow a free-market non-profit to vote on their behalf on economic issues, an environmental group on environmental issues, and a moderate group on social issues. If voters do not agree with their proxy on a specific bill, they can override their power to choose and make the decision themselves.

As a result of this innovation, we might see non-profit and for-profit groups emerging to represent particular viewpoints. Some could offer to vote on all issues, others only in specific areas. These groups could make their views explicit on every question before voting, and accept non-binding objections from subscribers.

In addition to headcount democracy with various majority thresholds, Borda counts, and various runoff voting rules, one popular rule might turn out to be the demand-revealing process (Tideman & Tullock, 1976). This system asks voters how much they would be willing to pay to have their preferred policy enacted. The valuations of individual voters are added up, and whichever option comes out ahead in dollar terms is declared the winner.

A curious system of taxes gives voters the incentive to answer honestly. In essence, voters pay the cost their vote imposes on others. Any voter whose valuation is required to change the outcome is charged a tax equal to the amount required to change the outcome. Imagine a simple case of three voters deciding whether to purchase a new public good at a fixed cost. Two of the voters prefer the good not be purchased. Voter A would be willing to pay \$25 not to have the good produced. Voter B's would be willing to pay \$20 for the same outcome. Voter C, though, has a strong preference for the good, and would be willing to pay \$50 to have the good produced. The efficient solution is that the good be produced, despite a majority preferring that it not be. If we simply asked the voters how much they valued their preferred option, each would have an incentive to overstate their valuation to change the outcome. If we require that each voter for the winning option to pay their full valuation, each would have an incentive to understate their valuation in order to free-ride on the contributions of others.

The demand-revealing process, though, charges voters only that portion of their valuation required to change the decision. A voter overstating his valuation risks being charged more than the decision is worth to him, while a voter understating his valuation risks not having his preferred option chosen even though it is worth more to him than the amount he would have to pay to have it chosen. Consider the situation faced by voter C above. Given that the valuations against the project total \$45, revealing his true preference of \$50 will require

him to pay \$45 and have the project go through. Had he understated his preference by less than \$5, the outcome and taxes charged would be the same. If by more than \$5, he would pay no taxes but would not have his preferred option go through. His dominant strategy is therefore not to understate his preference. Had he overstated his preference in this case, he would still only have paid \$45. Since he doesn't know the choices of others, however, not overstating is also a dominant strategy. Suppose instead that the valuations of voters A and B summed to \$60. If C claimed his willingness to pay was really \$70, his preferred option would be chosen, but he would have to pay \$60, which is more than it is worth to him. With many voters, it is unlikely that any single valuation will change the outcome. This means that the actual taxes charged will be small or non-existent. The possibility of such taxes removes any incentive to answer dishonestly, but does not overcome the problems of rational ignorance and rational irrationality discussed in section 3.2.1.

7.3.2. Entrepreneurial Breakwater

Entrepreneurial ownership of a breakwater presents both challenges and opportunities in governance. As argued in section 5, a proprietor has the incentive to maximize rental income. If properly constrained, he can do this only by maximizing the amenity value of his property. A breakwater, though, makes exit costly. Potential tenants would be concerned by this and the proprietor would be forced to think carefully about how to reassure them. The result would be contractual arrangements designed primarily to decrease the cost of exit for residents.

The proprietor would own only the breakwater and a few public areas which all residents are allowed to use. The private vessels would be owned by residents, who rent lots by individual lease with the proprietor. Certain "anchor" tenants would be given favorable terms in recognition of the positive externalities they produce for other tenants. The ownership model of the breakwater is therefore like that of many mobile home parks.

The proprietor, to allay tenants' fears of predation, might promise to heavily subsidize exit. While most vessels within the breakwater would not be suitable for the open ocean, they could probably be moved long distances to another breakwater at significant cost. Every lease could contain a provision that the proprietor will pay this cost should the tenant wish to leave, with enforcement provided by a third party protection agency or through use of a bond held in trust. Of course, this could lead people to move at the proprietor's expense for frivolous reasons, and it may be preferable to specify the conditions under which the proprietor is responsible for moving costs. Ideally, the proprietor should be liable only for the costs of moving when movement is prompted by dissatisfaction with governance. In van Notten and MacCallum's master lease for the Freeport Clan, the proprietor is only liable for relocation expenses if he has violated the terms of the lease (Notten, 2005, appendix C). This will provide only an imperfect constraint, however, since there is likely to be much room for governance to get bad without violating the terms of the lease. There may be better ways of determining whether governance quality has degraded. The market value of space within the breakwater, for example, would provide a good indication, though this would not subsidize exit when governance moves away from that preferred by the resident but does not degrade in terms of overall market demand. Any means of subsidizing exit will be imperfect and the choice will involve tradeoffs. Some such mechanism will likely prove useful in ensuring good governance when exit costs are high, however.

Realizing that a large community produces diverse preferences and that not all governance services are best provided at a large scale, the entrepreneurial community might allow residents to band together to form sub-governments, either entrepreneurial or non-profit. Some might choose to live only by the minimal law enforcement of the greater polity, while others live in more restrictive communities governed by proprietorship or various forms of democracy.

A large breakwater, of course, is unlikely to be funded by a single individual. This produces the second-level challenge of corporate governance, and the various mechanisms discussed in section 3.4 will become relevant.

8. Conclusion and Areas for Further Research

This preliminary analysis has only scratched the surface of the issues seasteads will face in creating governance institutions. An actual polity requires actual rules rather than broad options, and even the broad options require more study. Important unanswered questions include:

1. How well does democracy work in small polities? How much of a problem is rational ignorance when the number of voters is small? Can informal mechanisms overcome these collective action problems?
2. Will the power of exit make voice work more effectively? Is the information gathered by people in their capacity of feet-voters effectively harnessed in their capacity as ballot-voters, as suggested in section 5.1?
3. What concrete legal systems will prove best in specific circumstances? Further study of what determines the success of free zones will help in answering this question.
4. How can contracts best be enforced at sea?
5. How soon will private law emerge, and will arbitration agencies be willing and able to arbitrate disputes with this law at that time?
6. What concrete rules (for a democracy) or general approach (for an entrepreneurial community) will be popular, and hence profitable, in the early days of seasteading? How do CID developers do their market research, and what can we learn from their experience?
7. What can we learn from the governance of marinas in terms of both the structure and policy levels?
8. How secure should leases be in entrepreneurial communities?
9. What voting rules will work best in democracies of various sizes?

We cannot predict what governance mechanisms will emerge on seasteads in the long run. The uncertainty about what works best in practice is one of the major reasons seasteading will improve governance. Nevertheless, there are important lessons to be learned from customary law, contemporary private communities, and corporate governance. These forms of governance have been subject to long-run institutional evolution and many of the problems of governance faced by seasteads have already been solved, or at least seriously mitigated, in a number of ingenious ways. While there are a number of peculiarities of governing at sea, the general problems of preventing misbehavior and resolving disputes are the same everywhere.

Perhaps the single most important point we should take from these case studies, though, is that humans will find ways of solving their problems when low-cost experimentation is possible. In some sense, governance is a hard problem: we simply cannot foresee all the problems ahead of time and devise a good system of rules. In another sense, though, the problem is easy. We know from history that institutional evolution works on land, and there do not seem to be any barriers to it working on the ocean. Of course, this institutional evolution will require careful thinking: it is through conscious effort that good ideas are developed. The magic of ex-post selection only happens ex-post, and a healthy dose of ex-ante common sense and historical knowledge will go a long way in ensuring that early seasteads do not fail due to poor governance.

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