Privatized bankruptcy: a study of shipping financial distress

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Abstract

The current trend in bankruptcy legislation is to follow the US model of Chapter 11, whereby the courts have the authority to 'stay' the liquidation rights of the secured creditors. The alternative approach of freedom of contracting, whereby the courts limit themselves to strictly enforcing the rights of all parties, is largely ignored, for fear that such a system would be plagued by coordination failures among creditors. We study the resolution of financial distress in shipping, where the ex territorial nature of assets have distanced the industry from on shore bankruptcy legislation. We have three main findings. First, we demonstrate how financial distress can be effectively resolved by way of a contract and other private institutional arrangements. Second, that the economic cost of financial distress is low. Moreover, the cost seems to be driven by dysfunctional owners rather than uncoordinated creditors. Third, we estimate the fire sale discount, and demonstrate that much of the estimated discount is due to low maintenance of vessels and is largely concentrated in low valued vessels and corrupt ports. The shipping industry with its multitude of jurisdictions might be expected to provide for disorderly defaults; whereas in fact we find an industry close to Hayek's 'spontaneous order'.

"*There is only one law in shipping: there is no law in shipping*".

Sami Ofer (shipping magnate)

1 Introduction

The last thirty years have seen a significant expansion of 'judicial activism' in corporate bankruptcy. Many countries have reformed their bankruptcy laws in the spirit of the American model of Chapter 11, whereby the courts are given the authority to 'protect'

companies from creditors so as to assist their recovery. In particular, creditors can exercise their security interests in assets only to the extent that these rights are not 'stayed' by the court. No doubt, there are important cross-country differences in the discretion given to the courts, as well as to their willingness to exercise it (see Davydenko and Franks (2008) and Djankov et al (2008)). Even in the United States, the activist trend has not been entirely consistent: see Baird and Rasmussen (2002) and Ayotte and Morrison (2009). And yet, it is fair to say that the old English principle of *freedom of contracting* is all but forgotten. Namely, the idea that privately (re)negotiated debt contracts should be strictly enforced and serve as contingency plans in the eventuality of default is no longer a serious policy option. Jensen's (1997) call for the 'privatization of bankruptcy law' is viewed today as a somewhat eccentricc idea.

It seems that these developments have been driven by a strong conviction that in the absence of vigorous court involvement, freedom of contracting is destined to be plagued by coordination failures. According to Jackson (1986), bankruptcy raises, by its very nature, a 'common pool' problem. Rather than resolving Myers' (1977) debt overhang problem through contract renegotiation, creditors would initiate a run on the company's assets in a manner similar to a Diamond-Dybvig (1984) bank run. It is important to recognize that the common pool problem is, essentially, a contractual failure to allocate property rights on the pool of the company's asset so as to avoid the first-mover advantage that triggers the run. Franks and Sussman (2005) explain the problem in terms of institutional stagnation. Namely, that the debt contract is too crude, unrefined, and ill-adapted to deal with the complex reality of modern business, and that the market suffers from a shortage of contractual innovations that could have ameliorated the problem. Moreover, the creditors run problem is exacerbated by insufficient market liquidity, so that forced sales of assets are not fairly priced. Shleifer and Vishny (1992) believe that a solution lies in bankruptcy law: "assets in liquidation fetch prices below value in best use ...[Hence,] automatic auctions ... ,without the possibility of Chapter 11 protection, is not theoretically sound." Pulvino (1998) provides empirical estimates of a 'fire sale discount' of up to 30% of the value of second hand aircraft.

Remarkably little is known about the actual operation of freedom of contracting regimes, partly because law reforms have pushed them close to extinction. In this paper, we study the resolution of financial distress in shipping, where the ex-territorial nature of the industry's assets has loosened (though not completely eliminated) the grip of national bankruptcy laws. While enabling freedom of contracting, the ex territoriality of assets creates a major challenge: how to establish the rule of law, so that contracts, and property rights in general, are strictly enforced. Operating across many jurisdictions, much of the time on the high seas, sometimes in ports notorious for corruption and lawlessness,

proponents of legal activism might expect to find an industry plagued by coordination failures. We find surprisingly little evidence to that effect.

We have three main findings. Firstly, in spite of the potentially chaotic environment in which the industry operates, the rule of law has been established: it is largely private, decentralized, highly differentiated, competitive and innovative. Even roperty rights (and, thus, security interests) are registered with the flag that each vessel flies. So called 'flags of convenience', of which there are many, are semi private and revenue oriented. Competition weeds out corrupt and disorderly flags because creditors refuse credit to vessels flying such flags. Upon default, a secured creditor has the right to repossess the vessel by 'arresting' it in port. Though many ports are corrupt and inefficient, there are a sufficient number that are not. Ports, like flags, compete on the quality of service. Most importantly, the industry has generated several contractual innovations that have improved the efficiency of the repossession process: within a shipping company, each vessel is incorporated separately to tighten the mortgage. Crews, who physically control the vessel, are made senior to the mortgage, which aligns their interests with the creditor rather than the owner in the event of default. Their collaboration helps in directing the vessel, in the event of arrest, towards high quality ports. The 'double mortgage', where the creditor takes a security interest in the equity of the vessel as well as on the physical vessel allows speedy repossession (and sale) on the high seas, thereby avoiding the costs of arrest and immobilisation. Using the case of Eastwind, a large operator that went into bankruptcy in 2009, we demonstrate how these particular elements generate an industry ruled by law.

Secondly, we take arrests as a proxy for coordination failures. In a Coasian world, companies that run out of capital lose their assets to better capitalized ones, but this transfer of ownership should not disrupt the assets from operating and generating cash. Anecdotal evidence indicates that practitioners understand this practical implication of the Coase Theorem and act accordingly: upon default, and under threat of arrest, vessels are sold 'voluntarily' and creditors are repaid. As a result, the amount of capacity under arrest as a proportion of total industry capacity is only 0.4% in recessions, and is close to zero at other times. Even more significant, we find that most of the arrests are caused by debtors who have vrtually shut down operations. At the same time, we find that debtors who have gone through serious financial distress, characterized by very significant downsizing (sometimes by more than 50%) but did not shut down, have largely avoided vessel arrests. It seems that the main economic cost of financial distress originates with dysfunctional debtors rather than with poorly coordinated creditors. Hence, a stay on security interests, which would leave assets with distressed owners for a longer period, may not have a compelling economic rationale.

Thirdly, we examine the so called fire sale discount. We begin by applying Pulvino's

methodology to our data, which yields similar estimates of the 'raw' discount. We hypothesize that much of the low price of arrested and auctioned vessels can be explained by their poor quality rather than the difficulty of finding a buyer at short notice. To that end, we use the survival rate of vessels under arrest as an instrumental variable: conditioning on arrest ages the vessel by about three years relative to its registered age. We then convert this age effect to a market value and conclude that between one half and a two thirds of the raw discount is due to the low quality of the arrested vessel, probably due to low maintenance during distress. Auctions executed in low quality ports decrease the auctioned price even further. It is also relevant that vessel arrests come from the low end of the value distribution, suggest these vessels have a low remaining economic life. Finally, evidence from hand collected data on UK arrested vessels (with sealed bid auctions) show a substantial number of bidders.

Our paper is related to a large literature on the economic analysis of bankruptcy law. In particular, it relates to a new set of results that have demonstrated the unintended consequences of law reform: Vig (2013) for India, Rodano et. al (2015) for Italy, and Lilenfeld-Toal et al. (2012).

Our paper is also related to a large legal literature on both the feasibility and the desirability of competition among legal systems: LoPucki and Kalin (2001), Kahan and Kamar (2002) and Bebchuk and Cohen (2003) and Romano (2005). We see this debate in the more general context of 'spontaneous' generation of law and institutions through the decentralized interaction of traders within competitive markets: see Hayek, (1979), Bernstein, (1992) and Greif et. al, (1994).

Lastly, our fire-sale results are related to Campbell et. al. (2011), Coval and Stafford (2007), Stromberg (2000), and Eckbo and Thorburn (2008). Shleifer and Vishny (2011) provide an excellent survey of the fire sale discount literature in both finance and economics.

The rest of the paper is organized as follows. In section 2 we describe our data. In Section 3 we discuss the institutional structure of the industry including how property rights are registered and enforced particularly in the case of an arrest of a ship. Section 4 provides an analysis of the economic costs of the arrest and immobilization of a vessel. Section 5 estimates the fire sale discount for arrested and auctioned vessels and section 6 concludes the paper.

2 Data

Our main data source is Lloyd's List Intelligence (henceforth LLI) originally part of Lloyd's of London, the famous syndicate of insurance underwriters.[1] Lloyd's has been collecting vessels' technical information (type of vessel, size, construction date etc.) and ownership information for more than two hundred years, but the data has existed in electronic form only since the mid 1990s.[2] Our sampling window ends in early 2011. We focus on merchant vessels (bulk, containers, reefers and tankers) excluding passenger ships and highly specialized technical vessels (e.g. oil exploration vessels). We also exclude small vessels below 10 dead-weight tons (DWT). Effectively, this is a survey of the world fleet for that sample period. The data contains information about both active and scrapped vessels. Each vessel is identified by an International Maritime Organization (IMO) number, which is attached to the body of the vessel, and remains intact when the vessel changes owner or name. Another important source is Clarkson Research Services Limited (CRSL), a shipping broker, which supplies transaction data of second hand vessels. The CRSL and LLI data sets can be matched through IMO numbers. LLI also has detailed information about vessel arrest: port of the arrest, length of arrest and in many cases a short narrative describing the circumstances of the arrest. We augment this source with records of the Admiralty Marshal, the officer who executes vessel arrests in UK. These records provide more detailed information about the direct costs of the arrest, e.g. port charges, and about the auction process, including all the bids submitted. Additional data sources are mentioned below.

Table 1: The evolution of the fleet over the sample period

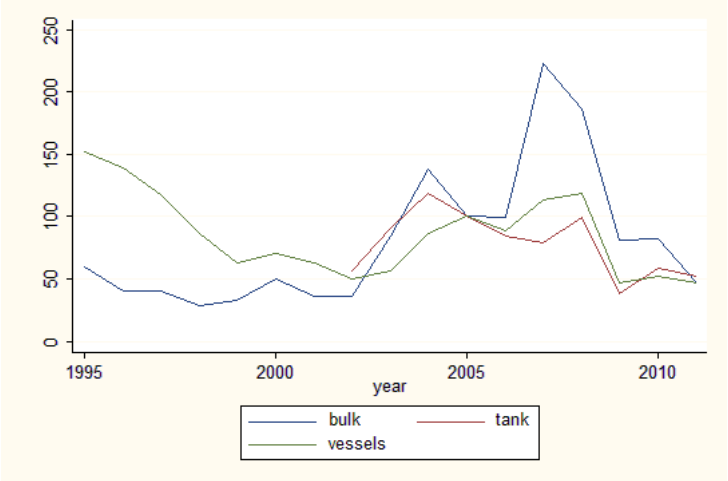
year	1995	2000	2005	2010
Number of vessels				
	19,424	21,312	23,840	29,555
Size of vessels (DWT)				
mean	32,027	33,664	37,808	44,460
median	13,466	14,519	18,835	25,160
SD	52,971	53,632	55,282	59,254
Age of vessels (years)				
mean	15.6	16.8	17.4	16.1
median	15.6	16.6	16.6	13.6
SD	9.8	11.0	12.2	13.4

[1] The intelligence unit is currently owned by Informa, a publisher.

[2] Lloyd's list, an industry news bulletin, exist since 1734 and Lloyd's vessel register exist since 1764.

With expanding international trade, the world's merchant fleet has grown steadily over the sample period, from 19,424 vessels in 1995 to 29,555 in 2010, an annualized growth rate of 2.8%; see Table 1. The table also reports the size of vessels (measured in deadweight tons, henceforth DWT) and their age, which are the main explanatory variables in our valuation estimates in Section 5 below. Vessel average size has increased through the sample period, but the fleet has aged slightly, with the average vessel age increasing from 15.6 years to 16.1 years. Since the early 2000s the industry has seen an unprecedented boom, with the Baltic Dry Index (tracking world-wide charter rates in bulk carrying, mainly raw materials like coal or iron ore) increasing more than four times before crashing to half its 2003 level immediately after the 2008 financial crisis. As Figure 1 shows, charter rates in the tanker business[3] have gone through a similar cycle, albeit of a less erratic nature. Figure 1 also plots a price index for vessels as estimated in Section 5.

Figure 1: Charter rates and vessel price indexes, $P_{2005} = 100$



3 Institutional structure

To establish its own bankruptcy procedures, the shipping industry has had to distance itself from national bankruptcy laws, particularly those that impose Chapter 11 type of restrictions on the rights of creditors, but taking care to promote an environment where the rule of law prevails. In this section we describe the largely private procedures that have evolved, including some highly effective contractual innovations that provide for enforcement in a potentially chaotic environment.

[3]We use the "Dirty tanker" index for crude oil.

3.1 Property rights

We begin with the industry's special ownership structure. A shipping operator is typically organized as a holding company with multiple subsidiaries, each one owning a single vessel. We shall use 'owner' and 'registered owner' to distinguish between these two levels of ownership. The legal separation of vessels within a holding company allows a lender to take collateral not only on the physical vessel but also on the shares of the company owning the particular vessel, referred to as a 'double mortgage'. We describe below how this double mortgage can, in the event of default, allow the lender to repossess a ship on the high seas without taking it into port.

The registration of property rights of a vessel is made with a sovereign country and 'flys' the flag of that sovereign. Though registration is a technicality, it is an important one since any mortgage on the vessel is recorded on the same register. It is not unknown for owners or lenders to find that their property rights have been tampered with in low quality flags; as a result, lenders will often stipulate in the loan agreement the country or flag of registration.

So-called flags of convenience register vessels with which they have no other material connection. In many cases, they belong to nations too small to have any significant trading activity and which may be located far away from any maritime route.. For example, the Marshall Islands, has a population of less than 100,000 people and an annual GDP/capita of about $9000. It is located in the Pacific Ocean (slightly north of the equator), away from any major maritime route. Flags of convenience charge an annual lump sum fee, often a significant source of income for such small economies. They also support a significant set of service providers, e.g. a domestic bar association. Effectively, flags of convenience are semi-private revenue driven institutions that operate in a highly competitive environment. In 2010, 49% of vessels and 61% of the DWT capacity in our sample were registered with flags of convenience. For example, the Marshal Island increased its registration from 66 vessels in 1995 to 1,378 vessels in 2010, constituting 5% of the world's vessels and 12% of the DWT capacity, indicating the quality of these vessels.

3.2 Legal diversity

It is not uncommon for a vessel to be registered with one sovereign, for the registered owner to be incorporated with another sovereign, and for the holding company to be incorporated with yet a third sovereign. Sister vessels owned by other subsidiaries may have a different flagging and ownership pattern. More significantly, the mortgage submits to the law of the flag, so that any dispute regarding ownership or mortgage would have to be resolved in a court of the flag. Such disputes tend to be of a technical nature,

as most of the substantial covenants are specified in the loan agreement, which usually submits to English or American law. Even then, disputes may be adjudicated elsewhere. For example, a loan agreement may submit to English law, but may specify that disputes are to be resolved by Singaporean arbitration. This may be done for reasons of expertise as well as expense. Then there are insurers, customers, bunkers (fuel suppliers), and other suppliers, whose contractual relationships with the operator are affected by their respective locations. Finally, in case of collision, salvage or arrest, the law of the relevant port or territorial waters takes precedence. As we shall see below, such legal diversity can create conflicts and potential coordination failures. At the same time, it provides a rich menu of legal choice on which competition thrives.

3.3 Arrest of vessels

The arrest of a vessel is the ultimate remedy that a creditor can take in order to enforce payment, or to prevent a debtor from taking an action that would affect the creditor's rights on the vessel. Arrest can be strategic, so as to improve the creditor's bargaining position or it may be the final act forcing the sale of the vessel. We have much anecdotal evidence indicating that banks arrest vessels only as a last resort, simply because a vessel cannot earn revenue when it is immobilised. The first course of action is for the bank to approach the distressed owner and use the threat of arrest in order to obtain a payment; only when this has failed might the bank force the sale of the vessel, sometimes to a buyer located by the bank. Typically, owners comply, since in the real world debtors and creditors recognise the practical implications of the Coase Theorem, even if not the theoretical apparatus that supports it.

Table 2: Arrests, by trigger and resolution

		Trigger					
		crew	mortgage	other	unknown	unsecured	total
Resolution	auction	11	131	10	50	32	234
	break-up	11	59	39	38	21	168
	sale	20	123	57	126	42	368
	same owner	35	83	428	402	283	1231
	unknown	1		4	187	2	194
	total	78	396	538	803	380	2,195

During the sample period LLI reports 2,195 arrests. This is a small number relative to the 370,000 vessel-years that are recorded in Table 1 above, a rate of about 0.6%. LLI narratives[4] reveal a variety of factors that provoke an arrest apart from financial distress: a drunken shipmaster, contraband, violation of international sanctions, fire, collision with another vessel, or disputes with suppliers. It is often difficult to distinguish financial from other factors that might trigger an arrest. For example, a client of the shipping company may have a vessel arrested on the grounds that the owner mishandled a cargo and caused damage. In such an event, it would be easy for a financially sound operator to find a bank that would guarantee payment, conditional on a court ruling in favor of the client; as a result, the arrest order would be quickly lifted. However, a distressed owner may not be able to post the bond, thereby prolonging the arrest and exacerbating the owner's distress.

Table 2 classifies arrests by trigger and resolution. The classification is made on the basis of LLI narratives in conjunction with other information such as a transfer of ownership. We can with confidence identify538 arrests that are not directly related to debt collection, and another 803 arrests as being unlikely, leaving 474 arrests as being definitely related to the failure to repay secured debt, as well as the wages of the crew; of these 474, 30% of the ships are auctioned and the proceeds distributed to the creditors. About 17% of all vessels arrested and auctioned end with the vessel being sold for scrap[5], an indication of the low quality of the vessels under arrest.

3.4 Ports of arrest

To initiate an arrest, a maritime port needs to verify that the creditor has a valid contractual right to seize the vessel, then execute the sale (if no settlement between debtor and creditor is reached) and distribute the proceeds among the creditors according to their priority. There are material differences in procedures across ports. For example, some ports such as those in the UK allow a sale by 'private treaty' whereby the creditor identifies a buyer and the sale is executed without a public auction, at a price that the Admiralty Court considers 'fair' on the basis of expert opinion. A sale by private treaty can be resolved in a matter of days. Other ports, such those in the Netherlands, accept only a public auction. There are also important differences in the speed of implementing the procedure, with some ports being more sensitive to the costs imposed by by the immobilization of the vessel. Other ports are hopelessly corrupt and inefficient and are to

[4]Based on a system of agents that Lloyd's has in major ports all over the world to report mainly insurance-related events.

[5]Much of vessel breakup, an extremely hazardous business, is done in poor countries like Pakistan or Bangladesh, which may cause owners to abandon a vessel under arrest ending with an extremely long resolution.

be avoided by creditors at all costs. We are aware of a case where it took the creditor ten years to receive the proceeds arising from an arrest and auction in a particular port in Asia.

Six ports and countries stand out for the effectiveness of their arrest procedure: Gibraltar, Hong Kong, Singapore, South Africa, the Netherlands and the UK. As a result, there are more arrests initiated by secured creditors[6] in these 'specialized' ports, relative to the volume of traffic.[7] While their share in the world's cargo traffic is only 12%, these six ports have a 39% share in the arrest activity; see Table 3. In contrast, in some of the world's busiest ports, such as Japan, China or the USA, the arrest volume is small relative to the volume of traffic. The following cross-county regression provides a formal test:

$$N - arrest_i = c + \underset{(2.34)}{0.30} \times volume_i + \underset{(8.46)}{2.97} \times D - specialized_i + \varepsilon_i,$$

where i is a country index, $N - arrest$ is the number of arrests, $volume$ measures the volume of traffic and $D - specialized$ is a dummy variable for the six ports above. $N = 55$, $R^2 = 0.59$ and t-statistics are in brackets below the estimators.

Table 3: Arrest and traffic activity in some specialized and high volume ports

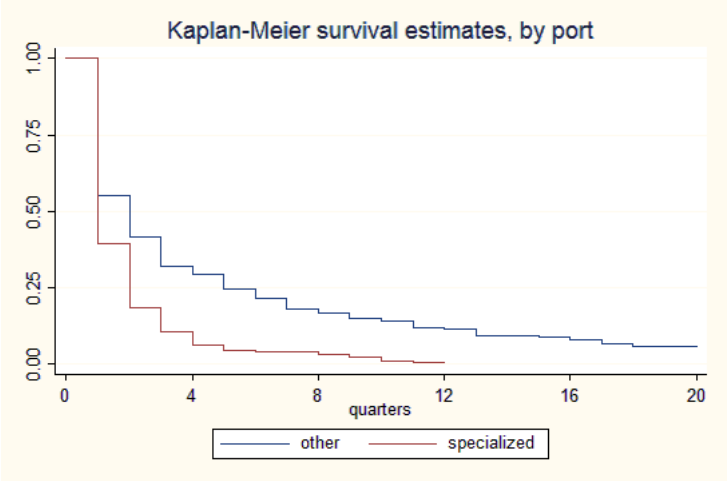
	N arrests	arrest (%)	traffic (%)
Arrest specialized ports			
Gibraltar	33	7	0
Hong Kong	19	4	1.7
Netherlands	37	7.8	3.5
Singapore	37	7.8	3.3
South Africa	19	4	1.2
UK	42	8.9	2.8
other	287	60.5	87.6
High volume ports			
Australia	9	1.9	5.1
China	5	1.1	15.8
Germany	6	1.3	2.3
Japan	2	0.4	6.6
South Korea	4	0.8	5.8
USA	23	4.9	11.9
other	425	89.7	52.5

[6]The 474 cases identified above.

[7]Traffic data are taken from the Institute of Shipping and Economics Logistics (ISL), Bremen, for the years 2005-2008.

Figure 2 plots a Kaplan-Meier (non-parametric) estimate of the duration of arrest, for the six specialized ports and all other ports. A log-rank test is consistent with the hypothesis that the two functions are different (significant at the 1% level with chi-squared statistic of 42.92). Clearly, arrest at a specialized port imposes significantly lower deadweight loss. Noticeably, both functions are affected by a long tail: even at a specialized port where an arrest can, in some extreme cases, drag on for up to three years. From the LLI narrative the impression is that such prolonged arrests may be a result of technical problems, for example, a shipyard placed a vessel under arrest so as to facilitate repossession in case the owner defaults on the repair bill. In other cases, a bankrupt owner disappeared while abandoning in port a vessel that had reached the end of its economic life rather than bear the cost of sailing it to a yard where it would be broken up and sold for scrap.

Figure 2: Duration of arrest in specialized and other ports



3.5 Innovations in maritime contracting

The results of Section 3.4 are consistent with the view that creditors frequently direct vessels to be arrested at an efficient port. Two contractual innovations, crew seniority and the double mortgage play an important role in achieving this result. It is worth noting that the word innovation does not imply a recent introduction of the instrument; the maritime lien was introduced prior to the twentieth century in some ports. Our focus here is not on the history and timing of the innovation but its specialized use in the shipping industry as a means of improving contract enforcement.

Crews have physical control of the vessel. If distressed owners refuse to cooperate with the bank, the collaboration of the crew is paramount. Since default is typically accompanied by wage arrears, the crew may no longer be loyal to the owner. The bank can thus contact the crew and direct them to sail the vessel to an efficient port for arrest

and if necesssary sale, promising to pay the wage arrears immediately the vessel is in port; in addition, the lender frequently offers to pay the crew's flight to their home country. Though the arrangement benefits both bank and crew, there is a commitment problem: once in port, the bank can renege on its commitment. The problem is resolved by a maritime lien, a security interest that the crew has on the vessel. Since the maritime lien is senior to the mortgage, a port with a high standard of contract enforcement would prioritize wage arrears to loan repayment. To the best of our knowledge, shipping is the only industry where labour is senior to capital for commercial considerations. It is an interesting twist on theories of control, which predict that the party in control should be junior and hold a residual claim; see Klein, Crawford and Alchian (1978) and Grossman and Hart (1986). When the residual claim is out of the money the senior claimant has to write down some of the debt so as to bring the party in control back into the money to restore value maximizing actions. Such renegotiation may be hard to implement when the physical communication between the senior and the junior claimants is imperfect. The alternative is to grant the crew seniority, at a time when the crew's contribution to the asset value becomes pivotal.

A second contractual innovation is the double mortgage. In this case the bank holds both a mortgage on the vessel and a security interest in the shares of the registered owner. The first security is on the physical asset i.e. the vessel, the second is on the title to the vessel i.e. the shares of the company that owns the vessel. The procedure through which the bank can repossess the shares is specified in the loan agreement. We illustrate how the arrangement works using the case of Eastwind Maritime Inc., a New York based company owning, at the time of the loan agreement, some 90 vessels. The company went into bankruptcy on June 22, 2009. Nordea, a Scandinavian bank with an extensive portfolio of maritime loans, took security interests in 12 Eastwind subsidiaries each of which owned one vessel. To facilitate repossession, the board members of these subsidiaries pledged signed but undated resignation letters. When Eastwind failed to repay interest on their loans, Nordea declared them in default, signed the resignation letters, and appointed new directors, who promptly sold the shares in the twelve subsidiaries to Samama's Draften Shipping, a company controlled by the Ofer family. We are informed the value of the proceeds of sale was more than $50 million dollars. The sale took only a few hours to execute and some of the vessels were on the high seas at the time. Crucially, the creditor did not have to instruct the crews to sail the vessels to a port to have them arrested and sold. The latter procedure would have taken more than one month, and the company's entry into Chapter 7 would likely have forestalled the sale of the ships.

3.6 Conflicts of jurisdictions and coordination failure

The structure of debt in the shipping industry, and the fact that ships sail the high seas both mitigate the effects of judicial activism of on-shore bankruptcy procedures. However, the separation is imperfect, and the friction between the contract and national bankruptcy law may be a source of a coordination failure. The Eastwind case highlights these frictions.

Nordea's repossession of the twelve vessels took place just hours before Eastwind's subsidiaries filed for bankruptcy under Chapter 7 of the US code in the Southern District of New York. Almost certainly, Nordea heard rumors that such filing was imminent.[8] The events that followed make clear how essential for Nordea was the early repossession of the ships. Upon filing for Chapter 7, a trustee was appointed by the court and a stay was imposed on all of Eastwind's assets. The trustee challenged the repossession of the vessels by Nordea and the sale, and claimed that the ships belonged to the bankruptcy estate. The dispute was settled in favor of Nordea although they had to pay $750k to the trustee. In return, the trustee acknowledged the validity of the repossession and accepted that the Eastwind subsidiaries 'lacked appropriate authority' to file for bankruptcy.[9] Had Nordea delayed the sale, the automatic stay would have applied and the bank's collateral would have been weakened. That is clear from another decision in the Eastwind case. Some vessels were insured in the UK and those contracts were written under English law, with clauses stating that the insurance would terminate in the event of the bankruptcy of the insured. The trustee in Chapter 7 litigated against the insurers, arguing that under US law they were obliged to extend the insurance until the bankruptcy procedures were completed. His reasoning was that without insurance the vessels could not leave port and those on the high seas would have had to terminate their voyages.[10] While recognizing that an English court would be likely to rule in favor of the insurer, the US court ruled in favor of the trustee. The judge also dismissed the insurers' claim that 'they did not anticipate such a result' on grounds that with 'more than 30 years experience with US bankruptcy law' they should have been aware of such an event and account for the consequences.[11]

[8] That Eastwind was an American company is irrelevant. Any debtor with assets in the US can file for US bankruptcy. In re Theresa McTague, Debtor, 198 B.R. 428. July 15, 1996, a precedent was established to the effect that a US bank account with $194 qualifies.

[9] The court's decision (case No. 09-14014-ALG, US bankruptcy court, Southern District of NY) is limited to confirming the settlement and, thus, has no detail on the substantial arguments for or against the legality of the repossession.

[10] Clearly, the trustee could buy insurance and for it from the revenue he would get from selling the vessels. The real issue here is the seniority of the insurance fee.

[11] Re Probulk Inc., Bankruptcy Court, Southern District of NY, Bankruptcy No. 09–14014–ALG.

4 The deadweight loss of coordination failure

In a world that operates according to Coase's Theorem, a company that runs out of capital might be forced to sell assets to a better capitalized company. However, such sales and de-leveraging should be accomplished without any disruption to operating performance, either by the current or new owners. In that respect, any arrest is a coordination failure, since the vessel is immobilised and ceases to earn income.

Figure 3: Eastwind's cycle of distress

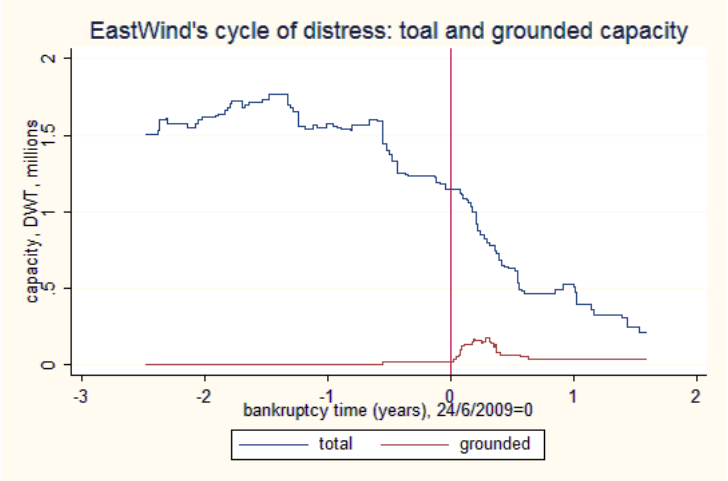


Figure 3 provides the dynamics of Eastwind's bankruptcy within a three-year window (a year and a half on each side of the bankruptcy filing, marked as $t = 0$). The panel shows changes in total capacity (in millions of DWTs) represented by the blue line, and the size of capacity that was immobilized due to arrests, shown by the red line. Eastwind started to downsize a year before bankruptcy, although accompanied by only a limited amount of capacity immobilized due to arrests. Most of the downsizing took place during bankruptcy, with a higher incidence of arrests. Yet, even then, only part of Eastwind's capacity was immobilized. In the first half year after filing for Chapter 7, capacity diminished by about 0.5m DWT. During the same period about 0.25m DWTs were immobilized due to arrest. Hence, about one half of the vessels that were sold off were immobilized.

Table 4, below, shows that the deadweight loss due to financial distress was low by industry standards. We interpret these findings in the spirit of the Coase Theorem: as long as the company has a chance to recover, it has an incentive to collaborate with creditors. That incentive vanishes once the company implodes, and this increases the economic cost of financial distress.

Figure 4: Immobilized capacity as a percentage of total capacity, by claimant

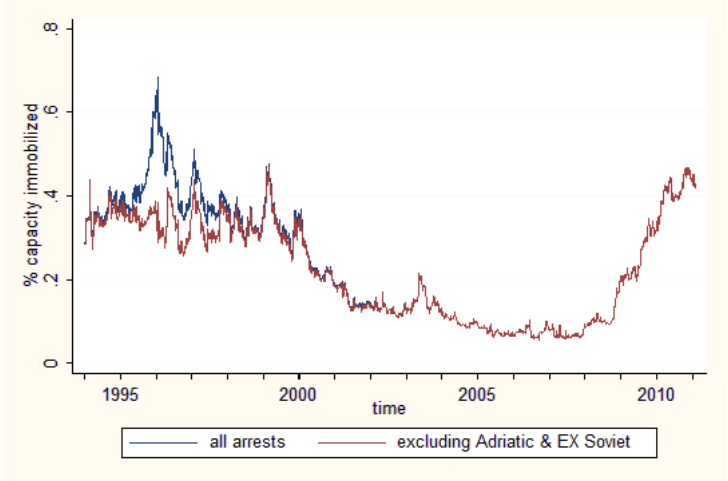


Figure 4 plots the amount of immobilized capacity as a percentage of total industry capacity, excluding arrests triggered by 'other' clearly identified as not related to distress. Even at times of severe slowdown, barely 0.4% of industry capacity is immobilized due to conflicts between creditors.

To better understand the dynamics of financial distress and the economic cost that it imposes we develop the following statistical analysis. We calculate, for any company that was active during the sample period, its end-of-year capacity. We then calculate the change in

capacity during the year. We interpret any downsizing event as an indicator of financial distress of some severity. We also calculate the amount of capacity that was left immobilized during the year due to arrest. We include all types of arrest in that measure (due to the difficulty of sorting arrest by trigger). We then run regressions of capacity immobilization on the change in capacity. To bring all observations to the same order of magnitude we deflate both sides of the equation by the capacity at the end of the previous year. Hence:

$$\frac{imob_{i,t}}{capacity_{i,t-1}} = \alpha + \beta \frac{capacity_t - capacity_{i,t-1}}{capacity_{i,t-1}} + \varepsilon_{i,t}, \tag{1}$$

where i is a company index, t is a time index (yearly frequency) and *capacity* and *imob* are capacity and immobilized capacity, both measured in DWT. The results are presented in *Panel A* of Table 4. A $\beta = 0.5$, say, should be interpreted as follows: on average, one out of two vessels that were sold was immobilized for a year. Put differently, every vessel that was sold off as part of the downsizing was, on average, immobilized for six months. To account for the various levels of distress we conduct the analysis within 'downsizing bins', increasing in the severity of financial distress from left to right: 0 to 10% downsizing, 10% to 20% downsizing etc..

The top row of Table 4 has the number of observations per bin. Overall, the procedure yields 76,471 company years. Taking downsizing of company fleet as a proxy for financial distress, we identify 9,469 events of distress, some very mild, others very severe. [12]. On average, the probability of financial distress (of varying severity) for a shipping company is 12%. Clearly, the low rates of industry immobilization as reported in Figure 4 above (0.4% during periods of industry recession) cannot be explained by low levels of distress but, rather, by a relatively effective mechanisms for dealing with financial distress.

Panel A reports the base line estimation of equation 1. $\triangle cap$ is the independent variable as defined in equation 1, namely the rate of downsizing per year. For the five bins with downsizing of less than 50% β has, at best, border-line statistical significant with extremely small economic significance. However, we observe both economic and statistical significance in the last bin, where companies have downsized by 50% or more.

To better understand the economic significance of this result, we make a distinction between downsizing that ended in company implosion and downsizing that did not. We do so be defining the dummy variable *Dbust*: it takes a value of 1 for the last year of a company's life (as reported by LLI) zero otherwise. $Dbust\,(-1)$ is similarly defined for the penultimate year of a company's life. We multiply both dummies by the Δcap variable so as to get a dummy slope interpretation. The results are reported in Panel B of Table 4. The interpretation of the β coefficient is identical to the above.

Notice, first, that the bin with 50% downsizing loses statistical significance. Namely, even acute events of financial distress yield no significant arrest activity, provided that the company survives and does not implode. Notice that implosion is not that common, even conditioning on serious distress: of 2,145 events of serious distress (more than 50%-plus downsizing, out of the 9,469 cases of financial distress at any level), only 275 have ended in implosion of the company. At the same time, financial distress that does end with the company imploding yields very large amounts of distress. Indeed, in the low bins the coefficient of the slope dummy exceeds 1. Take, for example, the first bin where companies downsize by 5% (the midpoint of the first bin, namely 0 to 10%). Arrests, being a strong forward predictor of implosion, is 5 times the downsizing (this relationship also having a very high statistical significance). Namely, a quarter of the fleet was already immobilized during the punultimate year of the company's life. Overall, the long-run economic loss of the implosion was 75% of the annual capacity (25% in the penultimate year and 50% in the last year). The same calculation for the other bins is reported in the bottom line of Table 4 and yields similar results.

These results have important implications for understanding the economic costs of financial distress and the effectiveness of various legal measures that might be imple-

[12] Just add up across bins of financial distress.

mented to decrease these costs. To be sure, we do find evidence of deviations from the Coase Theorem, though the aggregate magnitude is not that high (only 0.4% of total industry capacity during an industry slowdown). At the same time, apart from company implosions, even severe incidents financial distress (of which there are many) yeilds a low incidence of arrest and immobilization. Hence, the result is consistent with the hypothesis that the resolution of financial distress is not economically costly because of coordination failures among creditors but, rather, when company owners have given up trying to save the company. Such dysfunctionality might be caused by incompetence, or because the owners have lost all their capital and thus, lost any incentive to contribute towards decreasing the economic cost of resolving the distress. We observe this in under maintained vessels, which can turn from an asset into a liability. Ships close to the endof their economic life, may need some maintenance, fuel and crew just to sail to a break-up yard.[13] Anecdotal evidence suggests that owners in such a situation prefer to give up all ownership responsibilities and leave their ship in port to rust. If this is an accurate picture of the problem, it is far from clear that a stay on creditors rights will improve the bankruptcy process.

4.1 Direct costs of arrests

In this section, we describe the direct costs of arrests of twenty two ships in UK ports over the period 1995-2010. The data were collected from the court records of the Admiralty Marshall of the UK who is responsible for the arrest and sale of vessels in UK ports. The records contained full information on the direct costs including port fees, crew wages and supplies, court fees, and those relating to the sale of the vessel for example legal fees, brokerage fees and advertising. In Table 5 we show that the median period the vessle was immobilized was 71 days or about two months. The median direct costs of arrest are 8%. It is significant that the average sale value of the ships is $1 million dollars well below the median value of non arrested ships sold.

[13]Vessel break up is a hazardous, polluting job. Many yards are located in poor countries such as Bangladesh or Pakistan.

Table 4: Immobilization per distressed sales

	sample	-0.1<Δcap<0	-0.2<Δcap<-0.1	-0.3<Δcap<-0.2	-0.4<Δcap<-0.3	-0.5<Δcap<-0.4	Δcap<-0.5
Observations	76,471	2,163	1,740	1,361	1,088	972	2,145
of which bust							275
Panel A							
Δcap_t	0	-0.049	-0.063	-0.088	0.091	-0.074	-0.638
	(-0.01)	(-2.06)	(-1.87)	(-1.98)	(1.07)	(-1.08)	(-16.85)
Constant	0.007	0	-0.005	-0.017	0.04	-0.023	-0.381
	(19.77)	(-0.11)	(-1.05)	(-1.51)	(1.35)	(-0.72)	(-13.61)
R^2	0	0.002	0.002	0.003	0.001	0.001	0.117
Panel B							
Δcap_t	0	-0.03	-0.016	-0.091	0.09	-0.079	-0.009
	(-0.01)	(-1.39)	(-0.56)	(-2.12)	(1.07)	(-1.19)	(-0.21)
$Dbust(+1)\times\Delta cap_t$		-5.085	-2.366	-0.595	-0.111	-0.409	-0.266
		(-22.67)	(-27.95)	(-9.48)	(-1.49)	(-6.77)	(-3.85)
$Dbust\times\Delta cap_t$							-0.501
							(-22.44)
Constant	0.007	0	0	-0.019	0.039	-0.026	0.004
	19.77	0.25	0.1	-1.72	1.34	-0.86	0.15
R^2	0	0.194	0.312	0.065	0.003	0.046	0.287
Long term effect		0.77	0.91	0.69	0.55	0.77	0.85

OLS estimates. The independent variable is $\frac{imob_t}{capacity_{t-1}}$, namely the capacity immobilized during the year divided by the capacity at the end of the previous year, both measured in DWT. The variable $\triangle cap_t$ is defined as $\frac{capacity_t - capacity_{t-1}}{capacity_{t-1}}$, namely capacity downsizing during the year. The estimation is done in "buckets" of downsizing. *Dbust* is a dummy variable that gets a value of 1 if the current year is the last year of the company's life and zero otherwise. *Dbust* (+1) is a dummy that gets a value of 1 if the next year is the last in the company's life and zero otherwise. The long term effect captures immobilization in both the last year and the penultimate year. For example, for the 0 to −10%, the long term effect is $(1 + 0.05) \times (-0.05) \times (-5.085) + (-0.501) \times (-1)$ where 0.05 is the midpoint of the bucket.

Table 5: Direct costs of arrests

	Immobilization (days)	Sales price (USD, millions)	Total costs as % of sales price
mean	111	3.25	18%
median	71	1.09	8%
st.dev	165	8.16	30%
min	19	0.04	2%
max	835	38.65	105%
Observations	22	22	21

5 Estimating the Fire Sale Discount

The fire-sale discount analysis in this paper uses data from ship transactions in the secondary market that occured between 1995 and 2012. Ships are quite homogenous assets, especially within a particular category of ship, allowing us to obtain an accurate estimate of the benchmark price. Furthermore, this homogeneity allows us to carry out comparative institutional analyses that are largely free from selection issues that affect most comparative studies. The number of sales of ships transacted in the secondary market varies from 1300 in 2006 to about 380 in 2012. There is also considerable variation in the number of arrests, which peaks in 1996 (48 arrests) with zero arrests in some other years.

The arrest narratives, which we have used in order to classify arrests by trigger and resolution (see Table 2 above) have many references to the poor technical condition of arrested vessels: 'auxiliary engines and boiler trouble', 'ingress of water into engine-room; hull in bad condition; cargo holds water contaminated', 'cracks in hull', 'survey revealed unseaworthiness', 'bottom damage requiring considerable steel renewal' etc. These descriptions suggest that one implication of Myers (1977) underinvestment problem is poor maintenance of assets. If so, it raises trhe question whether a substantial part of Pulvino's (1998) 'raw' discount may have less to do with market liquidity (in the sense of the ease with which a buyer may be found at short notice) and more to do with quality of assets, an issue discussed by Pulvino, although he acknowledges that lack of data prevents him from to examining this important issue in depth. To test this hypothesis, we use the detailed technical information that LLI provides us, particularly the age at which a vessels is scrapped (or broken up in industry jargon). As a first step, we execute duration analysis to demonstrate that the life expectancy of vessels under arrest is shorter than that for non-arrested vessels. Put differently, the effective age of an arrested ship is roughly 2 years greater than the registered age.We then convert this higher effective age to a price

effect to show that at least half of the raw discount is due to poor maintenance.

The fire-sale discount is calculated using a hedonic model that maps characteristics of the ships to the prices at which they were transacted. We have over 20,000 shipping sales that allow us to obtain a precise estimate of this mapping. In the second stage, we calculate the difference between the transacted price of the arrested ship and the counterfactual price that comes from the hedonic model. The difference between the actual (transacted) price and the counterfactual price (imputed from the hedonic model) provides an estimate of the fire-sale discount.

5.1 Hedonic Regression

To calculate the fire-sale discount, we need the sales price of a given (arrested) ship had it not been involved in a forced sale. We calculate the discount in two stages. In the first stage, we estimate a hedonic model (characteristics based approach) to calculate the benchmark price of a ship which is not under arrest. The graph below shows that arrested ships have a shorter life expectancy than non-arrested ships, suggesting significant quality differences between the two groups. We control for this quality difference by calculating the remaining life expectancy of the [distressed] ship and use this as an extra control variable in our first-stage regression. As can be seen in Table 6, columns 1 and 2, the hedonic model provides a good benchmark (R-square is approx. 88 percent) for the price of a ship. In the second stage, we use the coefficients from the hedonic model to calculate the fire sale discount on arrested ships. The overall fire-sale discount without any quality correction is quite large at 25.9 percent. However, once we control for the quality of the ship, the discount is significantly reduced to 13 percent, suggesting the importance of the quality correction. All else equal, arrested ships seem to be of inferior quality compared with non-arrested ships.

The first stage equation of the hedonic model is given by:

$$log(Price)_{ijt} = \beta_j + \beta_t + \sum \beta_i X_{it} + \epsilon_{ijt} \tag{2}$$

The subscript i indexes a ship, j indexes the type of the ship and t indexes the year. β_j and $\beta_t$are ship-type and year fixed effects and X_{it} are ship characteristics which are used as controls. These include whether the ship sold was part of a block sale of ships or was sold individually (captured by a indicator variable Block), the age of the ship, the deadweight tonnage (Sale DWT) and other physical characteristics of the vessel such as the length, breadth, freeboard and draft of the ship. A key innovation of this study is that it controls for the quality of the ship at the time of sale using the imputed life expectancy of the ship. The life expectancy is calculated using a cox proportional hazard model.

Figure5 plots the hazard function for both arrested and non arested sales of ships. The graph shows that for a given age of a ship the probability of it dying, i.e., being scrapped, is higher for arrested ships than for non arrested ships.We use this hazard function to calculate the life expectancy of both arrested and non arrested ships at the point of sale; and, we add life expectancy as a further control variable in our first stage.

The results of the first stage hedonic regression in Table 6 show that ships sold in blocks command 3.3 percent higher prices than those sold individually. The variable 'Life Expectancy' suggests that an extra year of life expectancy commands a 7.5% higher price. Given the difference in the fire-sale discount of 12.5 percent (25.9 minus 13.4 percent) this suggests that for two ships, one arrested and the other non arrested, with same age the non arrested ship has a life expectancy 1.7 years greater than the arrested ship. Other control variables are also significant: proxies for the size of the ship including length, breadth and depth, are positively correlated with the price of the vessel.

Figure 5: Hazard Regression

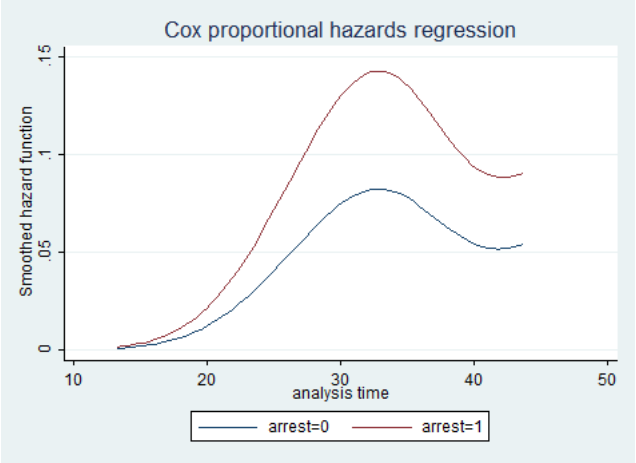


Table 6: Hedonic Model

	(1) Without quality correction	(2) With quality correction
Block	0.033***	0.024**
	(0.010)	(0.009)
Sale age	-0.001	0.145*
	(0.081)	(0.081)
Sale age x sale age	0.001***	-0.001***
	(0.000)	(0.000)
Special unit	0.007**	-0.002
	(0.004)	(0.004)
Sale DWT	-0.000	-0.000
	(0.000)	(0.000)
Gross	-0.000***	-0.000***
	(0.000)	(0.000)
Length	0.005***	0.005***
	(0.000)	(0.000)
Breadth extreme	0.034***	0.035***
	(0.003)	(0.003)
Depth	0.042***	0.046***
	(0.005)	(0.005)
Draft	0.012***	0.014***
	(0.005)	(0.005)
Freeboard	-0.000	-0.000
	(0.000)	(0.000)
Life Expectancy		0.075***
		(0.011)
Observations	10,893	9,479
Adjusted R2	0.877	0.873
FE (year & type)	Yes	Yes

Table 7: Second stage (residuals)

	(1) Without quality correction	(2) With quality correction
Arrested	-0.259***	-0.134***
	(0.035)	(0.035)
Constant	-0.000	0.000
	(0.003)	(0.003)
Observations	9,673	9,673
Adjusted R2	0.011	0.003

5.2 Exploring cross-sectional heterogeneity

We conduct two cross-sectional tests to investigate the heterogeneity in the fire-sale discount documented above. The first test examines how the fire-sale discount varies with institutional differences such as the quality of the ports. We expect the quality of a country's jurisdiction to increase the length of time a ship spends in port after arrest. i..e the period of immobilization, and the resulting economic costs. These increased costs derive from higher port charges, payments to suppliers and crew and any side payments (bribes) to officials. Sales of an arrested ship can be sold within six weeks of the arrest in an efficient port while the periood of immobilization may take years in an inefficient port. [what is the average immobilization in corrupt ports versus non corrupt ports] For this purpose we use a country corruption index described below. We would expect the fire sale discount of the arrested ship to be positively correlated with the corruption index. In the second test, we examine how the fire-sale discount varies with the value of the arrested ship. Given that liquidity is the prime reason in the literature for a fire sale discount, one would expect a negative correlation between the fire sale discount and the value of the ship; low valued ships may attract more buyers and are therefore more liquid than high valued ships.

5.2.1 Corruption Analysis

For a corruption index we use the one devised by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) which has a range from 0 to 10. We split the data of arrested ships into two sub samples, depending upon whether they were arrested in high or low corruption countries. A cutoff of 8 was used to separate the two samples, and provides the following two groups of countries. The high corruption countries include: Bahamas, Chile, Cyprus, Greece, India, Italy, Malaysia, Malta, Mexico, Panama, Sri Lanka, Trinidad and Tobago, Turkey and Venezuela. The low corruption countries include: Australia, Belgium, Canada, Denmark, France, Germany, Gibraltar, Holland, Hong Kong, Israel, Japan, Montenegro, Netherlands Antilles, South Africa, Singapore, Tahiti, the UK and the US. As can be seen in Table 8 , ships arrested in countries with less corruption (above 7.9 for the corruption index), observe a smaller fire sale discount, 11 percent in low corruption countries compared with 21.4 percent in high corruption countries; this difference is statistically (at the 10 percent level) and economically significant.

Table 8: Corruption - High corruption countries (<8) and low corruption countries (>8)

	(1) High Corruption	(2) Low Corruption
Corrupt	-0.214***	-0.110***
	(0.060)	(0.040)
Constant	0.000	0.000
	(0.003)	(0.003)
Observations	9,550	9,627
Adjusted R2	0.003	0.002

5.2.2 Heterogeneity in Price

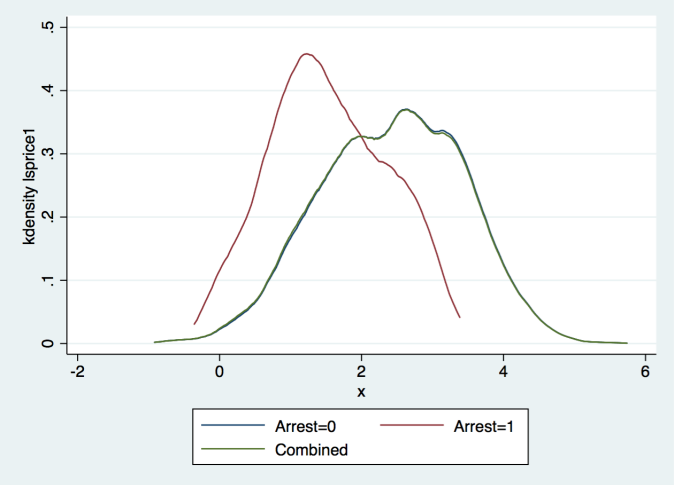
We next examine how the fire sale discount varies with the value of the arrested ship. The following facts emerge from our analysis. First, the median price of the arrested ship is significantly lower than the price of a median transacted ship (3.3 million USD vs. 9.0 million USD). Second, within the sample of arrested ships, the fire sale discount comes from the lower priced ships. As can be seen in Table 9, where we separate the sample of ships sold into two groups, those above and below the median price of arrested vessel, the fire sale discount is 9.3 percent for ships with a price below the median; whereas there is no discount for ships with a price above the median. It seems that the fire sale discount is largely concentrated in low quality ships and is negatively correlated with the ship's value.

Table 9: Quality correction: Median regressions

	(1) Above median	(2) Below median
Arrest	0.047	-0.093**
	(0.054)	(0.039)
Constant	0.084***	-0.084***
	(0.004)	(0.005)
Observations	4,763	4,910
Adjusted R2	-0.000	0.002

In Figure 6we show the distribution of values of ships sold under arest and those sold privately. The values of arrested ships are signifcantly lower.

Figure 6: Value distribution of arrested and non arrested ships



5.3 Auctions

In Table 10 we describe the average number of bidders for a vessel arrested and sold in UK ports. The average number of bidders, based upon a small number of sales, is high at 8, which is consistent with the view that the market in second hand vessels is liquid. In one case the number of bidders reached twenty three. However, the evidence is of a significant spread between the top two bidders. This may reflect the small sample.

Table 10: Auction data from UK ports

	No. of bids	Spread between: Top 2	Top 3
mean	8.5	24%	30%
median	8	22%	31%
st. dev.	4.9	20%	10%
min	1	1%	10%
max	23	79%	60%
Observations			

6 Conclusion

Shipping provides an important laboratory for testing Hayek's natural experiment in 'spontaneous order'. Because ships move from one jurisdiction to another, and often 'go bust' on the high seas outside any country's territorial waters and jurisdiction, the creditor (with or without the debtor's assistance) can arrest and auction a ship at a maritime port. Ideally it will wish to choose the port of arrest to minimise costs. The proceeds of auction will then be used to repay creditors, according to the laws of that jurisdiction.

There are two important qualifications. First, creditors of shipping companies rely on maritime courts to arrest ships, in the event of default, and auction them in a timely and cost efficient manner. Thus, there is an important role of enforcement for the courts. Second, the courts of some countries, for example the US, may sometimes try to thwart the arrest or auction of ship in foreign ports, where the debtor is in some way connected with the US and seeks protection under Chapter 7 or Chapter 11 of the 1978 Bankruptcy Code. However, the exercise of US 'imperium' in shipping bankruptcies can and has been thwarted by contractual innovations, as illustrated in the case of Eastwind.

This paper has addressed the question of how costly are bankruptcy procedures which have largely evolved out of private commercial contracts, with the courts playing little more than the role of contractual enforcer. There are three measures of costs. First, how frequently do creditors of distressed and defaulting shipping companies resort to the bankruptcy procedure of arrest and auction in maritime ports? We find a relatively low proportion of arrests, with the debtor frequently resorting to the private sale of ships. Only when the debtor seems to have run out of cash, or when the ships are of such a low value that the debtor or owner's equity is far out of the money, do we find arrests and forced sales taking place. This is evidenced by the value of arrested ships which is far below the median value of ships sold by non-distressed companies. The value of those forced sales is frequently close to, or at, 'break up' value'.

Second, using a hand collected sample of ships arrested and auctioned in UK ports, we find that the direct costs of arrest and sale are around 8 percent of the proceeds of auction. The arrests are triggered by both the mortgage holder, crews (who are owed wages) and unsecured creditors including suppliers to the ships. The costs vary with the value of the ship suggesting a fixed element.

The third cost is the 'fire sale discount'. Following Pulvino (1998) we might expect a significant discount from the arrest and forced sale of ships due to the illiquidity of the market for second hand ships. We find on average a discount of 26 percent compared with ships of similar age and use. This is very similar to the discount estimated by Pulvino. However, we also find that ships which are arrested and sold are of lower quality than comparable ships sold outside distress. Forced sales of ships tend to be under-maintained

and are therefore of lower quality. In effect this lower quality is equivalent to an age premium of 1.7 years compared with other ships. Adjusting for this factor reduces the discount from 26 to 13 percent. This average discount is for ships sold in both inefficient and efficient ports. As a proxy for efficiency we have used La Porta et al's (1999) corruption index and when we re-estimate the index for arrests and sales at low corruption ports we find the discount is 11 percent compared with 21 percent for high corruption ports.

Finally, we explore how the discount varies with the price of ships. Our results suggest that where the price is above the median value of arrested ships the discount virtually disappears. The fire sale discount of 11 percent is almost wholly concentrated in ships with values below the median. The evidence is that these low valued ships are very low quality and are frequently purchased by 'breakers' who will tow the ship to Pakistan or India to be sold for scrap. The overall conclusion from this evidence suggests that in terms of distress and bankruptcy the shipping industry passes Hayeck's test of 'spontaneous order'. The question remains however, to what extent these results might extend to other industries? Do we need Chapter 11 type reorganizations to mitigate the risk of fire sale discounts which was one of the motivations for the original legislation? Shipping has advantages in so far as there is a large market for second hand ships, and the brokers who sell the ships are able to market the vessels to a global market. In that respect, we would be cautious in suggesting that our results extend to other industries.

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