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MARAD's Maritime Security Program: Exemplary Innovation in Acquisition Policy?

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Abstract

The potential of real call options to reduce the cost of meeting unpredictable variations in demand for support assets and services by government motivates this examination of an apparently successful instance by the U.S. Maritime Administration's Maritime Security Program (MSP). This case study, however, fails to find corroborating evidence of efficiency gains. The MSP's financing and structure obscures and understates the total cost of the acquired service and likely fails to minimize costs. Identified program modifications could increase transparency and strengthen program management.

Introduction

The principal defense-related function of the U. S. Department of Transportation's Maritime Administration (MARAD) is to ensure an adequate supply of U.S.-flag vessels to meet the DoD's sealift requirements in unpredictable defense and national emergencies. It does so through (1) the Maritime Security Program (MSP) and (2) maintenance of a Ready Reserve fleet (RRF). The MSP consists of MARAD operating agreements with owners of 60 privately-owned, commercially-active vessels in international commerce that are U.S.-flagged and operated by U.S. crews. Most of the MSP ships are owned by "documentation citizens," companies chartered and headquartered in the United States, but wholly-owned subsidiaries of foreign shipping companies¹ (Frittelli, 2015). The Ready Reserve Fleet (RRF) is made up of 46 government-owned, older vessels, partially crewed, loaded with support cargo, and berthed in accessible harbors (e.g., Baltimore, on stand-by call from the DoD).

Maritime Security Program

Under the MSP, MARAD pays an annual fee (currently about \$5 million per ship) to owners of 60 militarily-useful vessels. In exchange, owners commit to make participating ships, crews, and inter-modal transport networks available to the DoD at pre-established ("preference cargo") shipping rates on the call of the Secretary of Defense. MARAD also provides no-premium, war-risk insurance against losses of ships, crews, and cargos for merchant ships operating in war zones in support of DoD missions. The DoD reimburses MARAD for insured losses after the loss event.

When I submitted a proposal to the NPS organizers of this symposium, I assumed that the MSP retainers could be described accurately as the price/cost of a specified call

¹ Participation of large integrated international companies, via documentation citizenship, is one means government gains access to established inter-modal transportation networks. Small, U.S.-owned and -flagged shippers are unlikely to carry sufficient commercial cargo to warrant the development of inter-modal systems.



option on ship's services, that is, that the \$5 million compensated ship owners for the increase in cost from operating subject to the constraint of fulfilling the commitment to divert shipping capacity to the DoD on short notice. I also assumed that, absent this payment, the DoD would not have reliable access to the services of those ships when needed.

My interest and proposal were motivated by possible cost savings from the use of call options compared with the alternative of stockpiling and holding inactive assets to meet unpredictable and uncertain demand. Indeed, MARAD reports that the costs of maintaining a ship in the RRF is more than \$8 million per year, exclusive of capital costs. Compared with the \$5 million per year cost of an MSP vessel and the avoided up-front capital cost—in excess of \$200 million per ship—the MSP looks to be a cost-effective choice. Similarly, proposals to replace the aging RRF with new ships are non-starters given the reported lower cost of an MSP alternative.²

However, as closer examination has shown, framing the MSP as a purchase of a real call option on commercially viable international shipping services is a fundamental mischaracterization of the underlying reality.

First, U.S.-flag merchant ships, with the associated requirement for U.S. crews, cannot compete in international shipping markets without substantial government subsidies; their operating costs are about three times those of foreign-flag vessels (MARAD, 2011). U.S. flag ships can operate in international shipping only because the federal government has implicitly committed to absorb the losses of all 81 U.S. flags³ currently operating in international trade, even if they are not enrolled in the MSP. It is also a logical stretch to regard U.S.-flag ships as privately-owned, if government equity must be available to absorb operating losses. The principal risk facing U.S.-flag private equity appears to be political: that government might withdraw its implied commitment without notice.

Second, the annual MSP retainer is only a part of the government subsidy to U.S.-flags. Most of the balance is provided in premium rates paid to U.S. flags transporting U.S. government (preference) cargo.⁴ Preference cargos, including those shipped by the DoD during emergencies, are actively sought by all U.S. flags, including the 21 not enrolled currently in the MSP program, because it is their primary means of covering operating losses. MARAD has little need to purchase a call on asset services that are readily available to the government when needed.

Thus, I conclude that the MSP is not an exemplary use of a real call option to meet unpredictable demands for durable goods and services because the MSP is a form of

² The case for expecting the MSP's use of commercial vessels for military sealift to be less costly than a government-owned fleet—notably the revenues that may be earned from commercial shipping when not required by the DoD—is developed in Herberger et al. (2015). A second related source of expected lower cost is the advantage of private managers in attracting and servicing commercial trade. One difficulty with this claim is the absence of public information showing that commercial shipping rates are sufficient to yield marginal commercial revenues in excess of the associated marginal cost for U.S.-flag ships. Further, the recognition of capital costs can be deferred with MSP annual payments, but not avoided

³ U.S. fleet numbers are as of March 1, 2018, but are subject to month-to-month variation.

⁴ Federal income tax expenditures are also provided to U.S.-flags. For details, see Joint Committee on Taxation, 2017.



government ownership that, among other important features, avoids recognizing the up-front capital cost and debt financing of an asset purchase. It has more in common with a government-sponsored enterprise or a capital lease-purchase than a call option.⁵

If so, what are we to make of the MSP from an acquisition or budgetary perspective? Is it a cost-effective innovation to be considered for wider use? The remainder of this paper argues to the contrary: The financing and budgetary treatment of the MSP is inconsistent with good acquisition and budget policy because it fails to provide policymakers, administrators, and the public with a transparent and timely measure of the cost of this activity. Ironically, the MSP could be the most cost-effective of available alternatives, but under current practice, it is not possible to know if that is the case. The MSP is more clearly an example of the perils of acquisition without known prices.

The Operating Cost Differential of U.S. Flag Ships and Its Financing

MARAD (2011) in its last published estimate (for 2010) of the average operating cost of a U.S.-flag ship compared with the cost of a foreign-flag ship, found that U.S. flags had operating costs 2.7 times higher than a foreign-flag. Operating costs include labor, supplies, maintenance & repair (M&R), insurance, and overhead. This measure omits voyage cost, including fuel and port fees, and capital costs, meaning depreciation and financing costs, on grounds that those would be equal for all flags. (U.S.-flag ships do not have to be built in U.S. shipyards to be eligible for MSP or preference cargos. Jones Act ships that operate in U.S. domestic trade, without competition from foreign-flag ships, must be built in the United States.) The big drivers of the operating cost difference are labor cost and, a distant second, M&R. Repairs of U.S.-flag ships performed in foreign, rather than U.S. shipyards, are subject to a 50% ad valorem U.S. tax.

In dollar terms, the average U.S.-flag ship annual operating cost gap was \$4.6 million greater than the operating cost of a foreign-flag ship. In 2010, however, the MSR annual payment was only \$2.9 million, or 63% of the total operating cost difference, leaving an average cost gap of \$1.7 million for the 60 ships enrolled in the MSP. For non-MSP-U.S. flags, the full \$4.6 million had to be financed by other means.⁶ For both MSP and non-MSP vessels, that financing gap is covered mostly by a second subsidy, premium shipping rates for government preference cargo. Preference cargo rates must be “fair and reasonable,” but that standard may be defined in terms of the operating costs of U.S.-flag ships rather than international rates (for details, see Frittelli, 2015). Under current law and policy, most water-borne “government-impelled cargos” (100% of military and Ex-Im Bank-financed shipments and 50% of humanitarian food aid, i.e., USAID and USDA) must be transported in U.S.-flag ships.

⁵ Ship owners use the MSP agreements as collateral to obtain financing for ship construction or purchase (Econometrica 2009, p. 32), that is, the agreements are construed as an implied federal guarantee of the debt of MSP participants. An argument can be made that these agreements should be disclosed, if not recognized, as a debt of the U.S. government.

⁶ The 21 non-MSP ships are said to be niche carriers: for example, dry bulk (grain) carriers, which have no military use or, alternatively, operate under contract to the DoD.



What Is the Size of the Preference Cargo Premium?

Although MARAD documents acknowledge that preference cargo rates are “significantly higher than commercial rates” (MARAD, 2011), MARAD officials disavow knowledge of its magnitude. That missing information is problematic because the preference cargo premium and cargo volume are required to estimate the annual MSP retainer.

Absent a MARAD estimate, it seems reasonable to assume that, as a lower bound, the 81 U.S.-flag ships receive preference cargo premium rates sufficient to cover their operating cost differential, net of the MSP payment (Transportation Research Board, 2016).

In 2010, the MSP payment covered 63% of the operating cost differential. If we assume that the payment of \$5 million covers the same share of the cost gap, then the total current gap would be \$8 million per ship per year for 81 ships, or \$648 million. Payments to owners/operators of MSP ships were (60 x \$5 million) or \$300 million, which leaves \$348 million to be financed by the preference cargo premiums.

In Fiscal Year (FY) 2012, the last year for which data are available (MARAD, 2013, Appendix 3), carriage of U.S. government cargoes produced total revenues of \$3.718 billion for U.S.-flag ships. Assuming no change in the volume of government cargo, a preference rate premium of about 10% (348/3718-348) would have been sufficient to cover the operating cost differential of U.S.-flag ships, if the allocation of preference cargo were aligned to match the unfinanced cost differential for each owner/operator. In fact, MARAD offers a type of brokerage service for government agencies to assist in identifying commercial carriers likely able to provide shipping capacity as needed. In any case, the allocation of preference cargo cannot be assumed to match exactly the operating cost differential for each owner/operator. Thus, some excess of aggregate preference cargo subsidy is likely, even at the lower bound.

An upper bound for preference cargo rates is far more difficult to identify because of the presence of factors that can be expected to hold actual preference rates close to the minimum as well as others that suggest preference shipping rates might be well above the minimum.

First, there are many potential entrants into the U.S.-flag market, even though “flagging in” requires hardware modifications; a dry-dock, Coast Guard hull inspection; and fire and safety drills that may entail costs in the range of \$500,000–\$1 million (Transportation Research Board, 2016). Entry into the market is facilitated by the five documentation citizen MSP providers who have both U.S.- and foreign-flag ships in their fleets. For those companies, the ongoing relative costs and potential gains of operating in the U.S.-flag market are observable and easily exploited if available.⁷ Second, over 500 U.S.-owned vessels are currently engaged in international service, but foreign-flagged, mostly in the Marshall Islands, Singapore, and Liberia. Those operators could be expected to reflag in, if it were sufficiently profitable to do so. Finally, the DoD accounts for about 90% of all preference cargo shipments. That market dominance appears to offer sufficient negotiating leverage to minimize the premium in preference rates.

⁷ Flagging in/flagging out of U.S. registry is frequently observed. In the period of January 1, 2016–September 17, 2017, 20 ships were flagged in and nine ships flagged out (MARAD, 2017).



However, there are also market and financial indicators consistent with a substantial gap between the lower bound and actual rates. For one, ownership of U.S.-flag vessels is concentrated: Four participating documentation citizen companies own more than 45 of the 60 ships in the MSP. MARAD provides frequent opportunities for consultation and collaboration among MSP stakeholders, including carriers, labor unions, and the DoD. Legislation provides some exemptions from U.S. anti-trust laws for the industry. Further, estimated average charter rates reportedly paid in 2008 by the DoD (Econometrica, 2009, pp. 29–30) were more than 160% of 2010 daily operating costs. Even a generous allowance for voyage and capital costs suggests that the preference cargo premium could be several times the 10% lower bound. Further, in 2017, following years of decline in the U.S.-flag fleet, the number of vessels increased by nine, from 72 to 81, which is consistent with a preference premium sufficient in expectation to compensate operators for the costs of flagging in/flagging out and the operating cost differential.

Another factor that may tend to boost the preference cargo premium is the uncertainty of U.S. subsidies. MSP cash payments to participants are appropriated annually and subject to the uncertainties of congressional action, including dollar amounts. Indeed, the Trump administration has proposed to reduce the MSP retainer to \$3.6 million per ship in FY 2019, from its current level of \$5 million (MARAD, 2018). In addition, the amount of preference cargo revenue that a U.S. flag receives each year depends on both the volume of cargo it can secure and the size of the premium. For non-MSP vessels, revenue uncertainty may be especially high because preference cargo is its only means of covering operating losses.

Finally, under long-standing policy—usually referred to as “commercial first”—the DoD has used U.S.-flag commercial shipping despite its higher cost, to the extent feasible from a military perspective, rather than U.S. government vessels for the transport of military cargo (Frittelli, 2015; Herberger et al., 2015). This policy limits the ability of the DoD to use its monopsony market power to restrain increases in the preference cargo premium.

Those competing, potentially offsetting drivers of the preference cargo rate premium and the paucity of data that would permit assessment of their net effect obscures the true cost of the MSP program. Budgeting and acquisition decisions must be made without salient, full-cost prices, which is equivalent to the phenomenon of market failure in the face of external costs.



Getting Better Cost Information and (Possibly) Increasing Value for Money

MARAD could significantly improve the measurement of the full cost of current policy—using proprietary information it receives from U.S.-flags as a condition of MSP participation and eligibility for preference cargo, and industry data—by

- updating its 2011 estimate of the daily average operating cost for U.S.- and foreign-flag ships;⁸
- preparing a comparable estimate of the daily average operating revenue for U.S.-flag and foreign-flag ships by source, i.e., commercial and government cargo, distinguishing MSP and non-MSP U.S.-flag vessels; and
- reporting daily average net income for U.S.-flag ships.

The objectives of acquisition and budget policy, however, go beyond simply providing a defensible estimate of the cost of a current service to offering some assurance to policymakers and the public that government is getting the best value for the money. At present, the use of cargo preference to deliver a subsidy muddies budget transparency, is costly to deliver to intended recipients, and hides part of the cost of a DOT program in the budgets of other agencies. It also adds a costly and unnecessary element of uncertainty to the expected revenues of U.S.-flag vessels.

To achieve the more important objectives of acquisition policy, the financing of the MSP needs to be modified to reduce the uncertainty of the MSP subsidy and to increase the incentives of service providers to operate efficiently and minimize costs.

One means of advancing those objectives would be to replace the current dual subsidy system of annual cash payments and preference cargo premia with annual cash payments over the 10-year life of the operating agreement, with up-front, full-budget authority scored at contract agreement. In effect, the cargo preference component of the subsidy to U.S.-flags would be cashed-out through more reliable and predictable annual payments, as originally proposed by the Eisenhower administration (Frittelli, 2015).⁹

It is also undesirable to place the onus for determining a fair and reasonable price of a purchased service on the purchaser, who can never know as much about the minimum costs of delivery as the provider. Accordingly, MARAD should solicit bids from all U.S. international shipping companies for the limited number of MSP slots. Bidders would be required to demonstrate the capability to provide a U.S.-flag vessel of the desired condition and type (container, roll-on/roll off, tanker) with U.S. crews, as well as the inter-modal network services normally provided by commercially-active international carriers.¹⁰

Use of real call options to meet unpredictable demands for support assets and services is a promising alternative to government stockpiling, but the MSP, in its current

⁸ They could also disclose the estimated average voyage and capital costs which are excluded from the reported operating cost measure.

⁹ The drawdown of U.S. forces in Afghanistan and Iraq and the shift in humanitarian aid from commodities to cash have reduced the volume of preference cargo in recent years. This development may provide a convenient opportunity to terminate the practice completely.

¹⁰ Exceptions to the inter-modal network requirement might be provided for carriers with few ships active in international trade. Equivalent services could be purchased by the DoD through fee-for-service agreements.



form, does not provide an informative trial. Indeed, it is a poster child for the antithesis of good budgeting/good acquisition policy: acquiring goods and services without knowing the price of the chosen alternative.

If the U.S. government increases the number of U.S.-flag and U.S.-crewed ships beyond those the market will support, at best the United States will have to give up the value lost by diverting U.S. labor and capital from their higher-valued uses. A worse case is that costs will be significantly higher than the minimum. A loss cannot be avoided by obscuring its cost, but making cost transparent can enable it to be managed more effectively.

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