

# Flag State Performance: An Empirical Analysis

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## Abstract

*Based on data available in mid-2006, the five cooperating international institutions of shipping – BIMCO, Intertanko, Intercargo, ICS, and ISF – have produced a summary of factual information on 106 flag states. These international institutions have intentionally avoided drawing conclusions on underperformance. This paper extends this assessment allowing for an in-depth empirical assessment of flags performance. Towards this end, the analysis uses weight factors reflecting the importance that an operator might wish to attach on the different variables before making his flag choice, and seeks to statistically (un)group ‘conventionally’ grouped flag states performance. The paper also examines whether IMO membership and/or active participation in the IMO is associated with a greater compliance of a flag-state to safety and relevant environment rules and thus to a better performance. The findings challenge the classic outright categorization of national flags as good performing ones and of commercial flags as those performing badly. They also support the idea that active IMO participation enhances compliance to international rules and flag performance.*

## Keywords

Flag-states; performance; empirical analysis

## 1. Introduction

Based on data available as of the end of June 2006, the five cooperating international institutions of shipping - BIMCO (Baltic and International Maritime Council), Intertanko (Independent Tanker Owners' Association), Intercargo (International Association of Dry Cargo Shipowners), ICS (International Chamber of Shipping) and ISF (International Shipping Federation) – have produced a summary of factual information on 106 flag states (Maritime International Secretariat, 2006), which is interesting in more than one ways. What these institutions have actually done was to produce a rough picture of performance by assigning one “black blob” for each case of inferior performance in the general fields of safety, environmental protection and social standards.

The international institutions have intentionally avoided drawing conclusions on underperformance, other than listing the seventeen worst flag states according to their “blob” count. The task of this paper has been from the outset to extend this assessment in ways that will allow for wider and at the same time more in-depth inquiry into this exciting area of shipping. Towards this end, the analysis uses weight factors reflecting the importance that an operator might wish to attach on the different variables before deciding his flag choice, and seeks to statistically (un)group ‘conventionally’ grouped flag states performance.

People involved in shipping have had fairly clear qualitative ideas on what flags are worth for years. However, the *Flag States Performance Table*, with the assistance of the weighting factors used in this study, allows for quantitative assessments which are more precise and render themselves to statistical analysis. Moreover, the paper examines whether IMO membership and/or active participation of a country in the IMO Council or meeting is associated with a greater compliance of a flag-state to safety and relevant environment rules and thus to a better performance.

## 2. Why is Flag Performance More Important Today?

Before going into specifics, one needs to explain why flag performance is nowadays important whereas it has been less so in the past. Flag administrations are responsible for the performance of their vessels in the two main concerns of the International Maritime Organization (IMO), i.e. safety and environmental protection. The implementation of this task is effected through the ratification of international conventions which they convert into national law. A clear hierarchy of responsibility for ensuring compliance with international rules and standards exists. Responsibility lies, in addition to the market, with the flag-state. The latter is responsible for applying the - converted into national law - international conventions to individual ships. It is also supposed to help the shipowner meet the requirements of its own maritime laws. To a great extent, maritime safety depends on the ability of flag-states to carry out their

responsibilities effectively.

For almost four decades, the expansion of open registries' shipping and the growing interest of several countries to increase the tonnage registered under their flags have allowed for the creation of new maritime nations. These registries, which are also known as *commercial registries*, have allowed easy registration access and transfer of ships owned and controlled by non-citizens, low taxation, manning rules that are free of nationality requirements and other facilitations conducing to lower management costs. These characteristics contrast with the traditional registries' requirements of ships to be owned, and/or managed, and to a certain extent manned by nationals of the flag-state.

The phenomenon of open registries dates back centuries and is probably as old as the invention of the flag itself, however, the years after the 1974 and 1978 oil crises have marked the beginning of the 'golden era' of open registries. Many shipowners have responded to shipping depression by exploiting the cost advantages of re-registering vessels under FoC and lowering the overall operating costs by approximately 30% (Yannopoulos, 1988). This massive flagging-out to third cheaper flags has transformed small countries with no national fleets to powerful flag-states in IMO with large merchant fleets which contribute significantly to their Balance of Payments. With shipowners prone to re-flag their vessels in such registries, shipping turned into the 'apotheosis of capital mobility' (Aspinwall, 1995) and a New International Maritime Order (NIMO) was evident by the mid-1980s (Cafruny, 1987).

The operation of vessels under open registries is today a structural characteristic of the world fleet. According to the UNCTAD (2007), at the end of 2005, the major open registries share 45% of the world total merchant fleet capacity (in deadweight) comparing to 21,6%, 31,1%, and 34,1% in 1970, 1980, and 1990 respectively. Depending on the advantages offered by such registries shipping capital is increasingly redirected to new favorable jurisdictions. For those countries that provide registration services, many of which are relatively small developing countries, the income generated from this business is quite interesting (Thanapoulou 1995).

According to the 'conventional' perception of these developments (cf. Li & Wonham, 1999), the mavericks of the industry prefer to operate under these particular flags. This was because due to the lack of either essential infrastructure or the necessary political willingness, these flag-states used to sign international agreements and then they failed to make sure that ships flying their flag complied with the totality of the resulting obligations. Operating under these flags results - according to an OECD study - in substantial economic benefits to their owners and the market operates to a significant scale under a kind of 'maritime Gresham's Law' (the less safe ships driving out the better one - Goss, 1994).

In the meantime, galloping developments in the WTO

(World Trade Organization) front have been reshaping the traditional cargo flows and a substantial amount of manufacturing activity has been deserting Europe and the United States moving towards cheap labor destinations. The consequences of rampant globalization on the economies of the EU members lie outside the scope of the present paper, although their effects are already felt and about to become more evident. Nevertheless, shipping has been enjoying a long lasting spring as a result, longer than anybody in it can remember.

Coming back to the question of flag performance, are the maritime nations that have emerged in recent decades neglectful in respect of international standards, or is this just a misconception? Which are the flag-states that have in practice relatively poor records is an issue that is worth to be clarified - particularly as OECD maintains - there is considerable scope to deliberately avoid compliance to internationally applicable rules to obtain the subsequent cost advantages.

Moreover, the extent of the contemporary internationalization of registration and employment partners has affected the policy attempts to address safety and environmental problems. The development of the Port State Control (PSC) system in Europe, Asia, and Latin America, is closely related to a search for alternatives that would not be limited by the 'routes to escape'. As endemic mobile shipping capital and seagoing labor offer transportation services that are *per se* localized, there has been a redirection towards second best (reactive) policy actions based on 'port visits' that complement optimum (proactive) 'flag state' policies (see: Pallis, 2002). Compliance to Port State Control rule is today a major issue for flag-states.

The performance of the flag state from a business point of view, in other words as seen by ship operators, has direct implications on the targeting factor of a vessel, that is on the probability to be identified as a candidate for priority Port State Control (PSC) inspections. Bad performing flags lead to more PSC inspections, whereas well performing ones provide for a less stringent inspection regime. Port State Control inspections- and detentions in the case of deficiencies identification - cost money to operators.

In the case of the European Union (EU) repeated detentions may lead to complete banning of a vessel from entering all EU ports. The number of ships to which a refusal of access order to Community ports pursuant Directive 95/21/EC (as amended) on PSC has been imposed up to March 2007 have been 55, while there are 15 currently active bans<sup>1</sup>. Ships of a certain type are refused access to EU ports if:

- they fly the flag of a state appearing in the black list as published in the annual report of the Paris MOU on port state control, and have been de-

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<sup>1</sup> For a detailed list see the EMSA (European Maritime Safety Agency) website: [www.emsa.europa.eu](http://www.emsa.europa.eu).

tained for the third time in the course of the last 24 months or;

- they fly the flag of a state described as "very high risk" or "high risk" in the black list, as published in the annual report of the Paris MOU on port state control, and have been detained for the second time in the course of the last 36 months.

This "ban" becomes applicable only after the ship has been released from the second or third detention.

Charterers also check the performance of vessels they intend to charter during such inspections prior to making up their minds and this also directly affects the commercial performance of a ship.

To conclude, the need to know which the underperforming flags are in reality is essential. On the one hand, there is a link therefore between flag state performance and vessel performance which is object of careful assessment from the part of those contemplating a flag choice. On the other hand, there is the need of policy-makers to have a thorough knowledge of the facts within a global perspective in order to proceed to essential flag-state and PSC policy adjustments. As customary ethical codes governing shipping are increasingly taking the form of explicit written rules and, thus regional initiatives develop (Corres & Pallis, 2006), certain policy parameters might be wrongly designed or questions might be asked. For example, in the EU case one might question the validity of a policy based on a 'black list' of flags that is based only on the application of the European PSC process. A global assessment of flag-states performance might produce entirely or partially different results and benefit both market actors and policy-makers. The forthcoming analysis aims precisely to provide this assessment.

### 3. The Flag State Performance Table: Weighting Factors

The five international institutions have assessed the performance of each one of the 106 flag states according to 18 criteria grouped under four categories. These categories examine PSC performance, ratification of international conventions, fleet average age, STCW (Standards of Training, Certification and Watchkeeping for seafarers) and ILO (International Labour Organisation) reporting and attendance of IMO meetings. These categories do not exhaust all criteria which could validly be employed to assess flag state performance, yet they give a fairly extensive coverage which enables one to clearly distinguish between the good and the bad performers. It must be stated here that not all flags are open to all operators. There are national flags which are not generally accessible unless one is citizen of that state (or the company is registered in this country). At the other end, there are flags which are free for all. It is worth examining the criteria used in each one of the categories.

**The first category** examines PSC performance in six

different ways. We have added to each one of these ways a weight factor which – according to our subjective judgment- reflects the importance that an operator would attach before deciding his flag choice (Table 1).

**Table 1: Weighting factors of non- PSC Compliance**

	Penalty Points
Not on Paris MOU White List	10
On Paris MOU Black List	20
Not in Tokyo MOU White List	10
On Tokyo MOU Black List	20
Not in USCG Qualship 21 List	5
On USCG (US Coastguard) Safety Target List	10

While not being included in an MOU White List is serious enough for a flag, being on its Black List is –at least- twice as annoying from an operator's point of view. This reasoning covers items one to four. Not being included in the US Coast Guard's (USCG) QualShip list is not very serious, as only a handful of flags are included, therefore this penalty item has been given a low mark. On the other hand, being included in USCG's Target List is annoying, despite a small number of otherwise decent registries found to be in that list. For this reason, a 10 penalty points rating has been given.

**The second category** deals with ratification – in fact with non-ratification – of International Conventions. International Conventions are important to operators as they increase the respect of the flag and raise the level of certainty of operation. The weight factors used are shown in Table 2.

**Table 2: Weighting factors of non-ratification of International Conventions**

Non ratification of	Penalty Points
SOLAS 74 (and 88 Protocol)	10
MARPOL (incl. Annexes I&II)	20
MARPOL ( Annexes III-VI)	10
LOADLINE 66 (plus 88 Protocol)	10
STCW 78	20
ILO 147	20
CLC/FUND 92	20

The non- ratification of SOLAS convention, or its 1988 Protocol, is a serious matter for any commercial flag, to the point of not making it a candidate. Most flags have ratified it making it less worthwhile for comparisons. For this reason, only ten penalty points have been awarded. Maximum points have been given for MARPOL Annexes I and II, and CLC/FUND conventions. The reason for this has been their extreme importance in connection with tanker trading<sup>2</sup>. Maximum penalty marks have also been awarded to non-compliers with the two manning related conventions (STCW and ILO 147) which immediately render a vessel a bad candidate for Port State Control inspection. Finally, lower penalty

<sup>2</sup> Annexes I and II deal with specifications, requirements, certifications and so on, while CLC/FUND jointly take care of the aspect of compensation of marine pollution accident victims.

marks have been given to the last three MARPOL Annexes and the Loadline 66 Convention signaling that compliance with these is important, but perhaps not critically so.

**The third category** deals solely with the average age of ships in flag. High age is indicative of the image of the flag in ports and – indirectly – of the kind of tonnage trading under that flag. There are flags which run very tight tonnage limits and others that have no age restrictions at all. High fleet age is generally considered as a negative parameter, but not as serious as being included in a MOU black list and for that reason the two criteria have been awarded 10 penalty points each.

**The last category** consists of three considerations, of which the first one – that concerning inclusion in the latest STCW White List - is important. The other two cover less important considerations from an operator’s point of view i.e. non completion of ILO Reports and participation in IMO’s meetings. The rating of the first of these categories (not in STCW White List) is 20 negative points and 10 penalty points for the second one (ILO Reports) - the issue of active flag-state participation in IMO activities and the extend that this is associated with better flag performance than else will be separately discussed in Section 4 of the paper.

### 3. Global Flag Performance: The Findings

The first question as regards the 106 flags reviewed is whether there are flags with zero penalty points. These are actually only two, those of Norway and of the Isle of Man, a UK dependent territory. At the other extreme, which are the worst performing flag states? Honduras and Bolivia lead the bad flag states category each one scoring a maximum of 185 penalty points. A summary distribution of the flags according to their rating as explained above is shown in Table 1 below:

**Table 3: Global Flag State Performance Rating**

	Number of Flags
Excellent Flag States (up to 30 penalty points)	26
Good Flag States (from 31 to 80 penalty points)	34
Mediocre Flag States (from 81 to 130 penalty points)	27
Bad Flag States (upwards of 120 penalty points)	20
<b>Total of Rated Flag States</b>	<b>106</b>

Some descriptive statistics help illustrate the case. The global average performance rating stands at 72,78 penalty points which places it rather marginally within the “Good” flag states’ category. Yet the standard deviation of 48 points suggests that further analysis of this performance is essential. Among all these flags, the 22 EU flag-states for which data are available stand out with an impressive average rating of 26.36 penalty points, which is clearly within the “Excellent” flags category,

while the standard deviation of these 22 countries sample (15,21) suggests a more homogeneous performance than in the rest of the world (the respective standard deviation is 46,21). The EU flags have demonstrated a significantly better performance than the US flag which scores 40 points, Russian Federation which scores 45 points and the 50 points achieved by the Chinese flag state, excluding the excellent Hong Kong registry.

**Table 4: Average Penalty Points**

	Number of flag-states	Penalty Points (Mean)	Standard Deviation
<b>Total</b>	<b>106</b>	<b>72,78</b>	<b>48,00</b>
Commercial (Open) Registries	25	63,80	52,11
Non-commercial Registries	81	75,55	46,66
EU members	22	26,36	15,21
Non-EU Members	84	84,94	46,21

It is also interesting to see how some flag states known for their tough stance in connection with Port State Control inspections have performed. Australia with 55 penalty points clearly misses the “excellent” flag state category, as does Canada with its 70 points, while Ukraine – famous for its sensitivity to atmospheric pollution – only manages 115 points putting itself in the “mediocre” flag states’ category. In the ‘mediocre’ category one can also find South Africa with its unique “sister ship” definition, which scores 105 points.

Which are the worst flag states according to the data-set provided in the flag states performance table and the – subjective – rating of various deficiencies importance? A list of the 16 worst ones that represent the ‘bad’ flag-states category appears in Table 5.

**Table 5: Worst Ranking Flag-States in the Global Performance**

	Flag State	Penalty Points	EU Black List of Flags
1	Honduras	185	Very High Risk
2	Bolivia	175	Very High Risk
3	Suriname	165	Not in the List
-	Thailand	165	Not in the List
5	Albania	155	Very High Risk
-	Costa Rica	155	Not in the List
-	Dem. Rep. of Congo	155	Not in the List
-	Mongolia	155	Not in the List
9	Cambodia	145	High Risk
-	Dem. People’s Rep of Korea	145	Very High Risk
-	Kuwait	145	Not in the List
-	Sao Tome & Principe	145	Not in the List
13	Georgia	135	High Risk
-	Papua New Guinea	135	Not in the List
-	Syrian Arab Republic	135	High Risk
-	Tonga	135	Very High Risk

Notably, only half of them are in the EU Black list of flags, as published in the most recent Paris MOU annual report (2005) and is effective from July 1st 2006. On the

other hand this Black list includes several other flag that are not in the group of the worst performed flags. The ‘Very high risk’ flags category of the EU also includes Comores, and Slovakia (data are not available for these two flags); the ‘High risk category’ includes Algeria (only 65 penalty points, and classified in the ‘good’ categories) and Lebanon (125); the ‘Medium to High Risk’ category includes St. Vincent & Grenadines (85) and Turkey (105); and, finally, the ‘Medium Risk’ category contains 4 countries, namely Brazil (105), Egypt (95), Ukraine (115) and Taiwan (no data available). The above may be explained to some extent if one considers that the Paris MoU black list is consequent to individual vessel inspections, i.e. from the bottom up rather than from a top down approach as the one adopted by the Flag States Performance Table exercise.

The performance of what shipping calls ‘commercial’ or ‘open’ flags”, i.e. flags which are not restricting their access to their own nationals, is even more important from an operator’s point of view. Before going into specifics, it may be worth checking their global performance. That is done in Table 6.

**Table 6: Global Flag State Performance of Commercial Flags**

Flag-State Category	Commercial (Open) Flag	Penalty points
Excellent	Isle of Man	-
	Bermuda, Hong Kong, Liberia	10
	Bahamas	15
	Barbados	20
	Cayman Islands, Cyprus, Singapore	25
	Marshall Islands	30
Good	Malta	35
	Vanuatu	40
	Netherlands Antilles	45
	Panama	65
	Belize	70
Mediocre	Dominica, Mauritius	75
	St Vincent	85
	Bangladesh, Trinidad	95
Bad	Georgia, Tonga	135
	Cambodia, Sao Tome & Principe	145
	Honduras	185

As other scholars have already indicated (cf. Alderton & Winchester, 2002), the era when “flag of convenience” were synonymous to flags with poor performance is gone. Ten of the 25 commercial registries listed as commercial registries (40%) belong in the “excellent” category, and another 7 (28%) are classified in the “good” category. At the other end, only five (20%) of these flag-states belong to the “bad” performance category, and another four (20%) in the “mediocre” category. The first two categories account for 68% of the total, while “excellent” to “bad” ratio is 2,5:1. As Table 2 has already illustrated the total of this group of 25 flag-states is performing better than the rest of the 86 flag-states under examination (63,8 versus 75,55 penalty points).

### 3.1 Does IMO Membership Improve Compliance and Performance?

Policy-making in the IMO is associated with the responsibility for implementation residing to national administration. In this section we explore the possibility that variations in flag-states compliance and ultimately vessels flagging these flags performance are affected by the extent that flag-states actively participate in the IMO decision-making process and are involved in shaping the rule making process.

Although the benefits from such participation are multiple, complex and potentially ambiguous, there are a number of reasons they can be expected to influence, directly or indirectly, the willingness of flag-states to implement the IMO conventions. First, there is calculative and self-interest behavior to implement their own decisions (Underdal, 1998). A second potential mechanism through which membership and participation might influence effective rules implementation might be the willingness of the participants to strengthen the actual power of IMO decision, as they are part of the organization (for a recent theorization of the influence of membership benefits in supranational regimes: Perkins & Neymayer, 2007).

A first view of the relevant data, as illustrated in Table 7, would suggest that the seven non-IMO members (Bermuda; Cayman Islands; Gibraltar; Hong Kong; Isle of Man; Netherlands Antilles; and St Vincent & Grenadines) that are listed in the 106 flag-states under examination have performed substantially better than the rest that are IMO members. Yet, the fact that most of these flags are territories of traditional maritime nations that have for long being IMO members, and not least the size of this sample rather diminishes the validity of this conclusion.

**Table 7: Compliance and IMO Membership**

IMO Membership	No of flag-states	Penalty Points (Mean)	Standard Deviation
Non-IMO Members	7	28,57	28,82
IMO Members	99	75,90	44,65
Membership Since:			
	1948-1960	31	50,32
	1960-1970	25	82,20
	1970-1980	23	88,04
	1980-1990	6	110,83
	1990-2000	14	86,42
<b>Total</b>	<b>106</b>	<b>72,78</b>	<b>48,00</b>

However, an analysis of the 99 IMO members performance suggests that the performance record of the 31 traditional’ maritime nations that joined the IMO since its early post-World War II days have a performance record (mean of penalty points: 50,32) that is substantially lower than the record of the other IMO members or the overall performance of the world fleet. On the

contrary the maritime nations that emerged in the early or the subsequent days of the NIMO, and joined the IMO since the early 1970s, have a worse performance.

The results of the analysis that are presented in Table 8 strongly support of the view that better performance of a flag is enhanced when this flag-state is actively involved in the works of the International Maritime Organisation. One needs just to compare the mean of 53,36 penalty points observed in the case of the 64 flag-states that are attending IMO meetings in various capacities (i.e., members of the Council or just members of the Organisation) with the respective mean of 102,38 penalty points of those flag-states that have opted for not participating in these IMO meetings. The standard deviation from this mean of penalty points is also lower in the former case (38,58 and 42,44 respectively).

**Table 8: Compliance & Active Participation in the IMO**

Participation	No of flag-states	Penalty Points (Mean)	Standard Deviation
No	42	102,38	42,44
Yes	64	53,36	38,58
Of those attending IMO Meetings			
Council Members*	39	53,58	35,37
Council Member Category A	10	30,00	21,86
Council Member Category B	9	41,11	32,96
Council Member Category C	20	71,00	42,48
Members attending Meetings	25	53,00	44,18
Total	106	72,78	48,00

\* The number of observations is 39 as one Category B Council Member (Bangladesh) does not attend IMO meetings.

**Category A:** 10 States with the largest interest in providing international shipping services; **Category B:** 10 other States with the largest interest in international seaborne trade; **Category C:** 20 States not elected under (a) or (b) above which have special interests in maritime transport or navigation, and whose election to the Council aims to ensure the representation of all major geographic areas of the world.

A more detailed analysis of the performance of the 64 attendees of IMO meetings leads to some very interesting conclusions. In general, being an IMO Council member improves performance further; however the three categories of flag-states that participate in the 40-members strong IMO Council demonstrate different performances. The 10 states (China, Greece, Italy, Japan, Norway, Panama, Rep. of Korea, Russian Federation, UK, USA) that participate in the IMO because they represent the major flag-states in the world and have the largest interest in providing international shipping services (Category A) represent a sample with a remarkably positive performance. Their average performance (30 penalty points) is marginally within the ‘excellent’ category. Significantly positive is also the performance of the Category B Council members. The 9 States with the largest interest in international seaborne trade (Argentina, Brazil, Canada, France, Germany, India, Netherlands, Spain, Sweden) and attend IMO meetings have a remarkably good average performance (41,11 penalty

points). This average that would be better if the one extreme observation, that of Brazil (105 penalty points), would be excluded. The 71 penalty points record of the third group of IMO Council members, which are the 20 flag-states not elected under Category A or B and special interests in maritime transport or navigation, and whose election to the Council aims to ensure the representation of all major geographic areas of the world, is worse than the performance of the two previous categories. Yet their performance remains remarkably better than that of the flag-states that are not attending IMO meetings.

That active participation in the IMO is linked with better flag performance is illustrated by another fact as well: One of the countries that by default is a Category B IMO Council member has opted for not attending IMO meetings. This is Bangladesh, the performance of which (95 penalty points) is worse than the average performance of any group of Council Members, or flag-states attending IMO meetings.

Overall, active participation in IMO decision-making rather than membership per se is an important issue for enhanced flag-state performance. The states that participate in the decision-making of the IMO, and benefit from this participation as they contribute in the shaping of IMO decisions, have a better record of complying with international rules and a better flag performance. On the other hand, the performance of (the small sample of) non-IMO members suggests that membership per se is not enough to enhance performance.

#### 2.4 Focus on Port State Control performance

There is no question that PSC performance is a powerful criterion for any flag administration assessment. The reasons of this importance for shipping operators have already been explained in earlier sections of this paper. One should also take into consideration that it is very unlikely that a high performing flag state in the area of PSC will be willing to take on ships that do not fit within a *quality* format for the fear of spoiling the game for the rest of the ships already flying it. From that point of view, one would therefore expect - as PSC authorities do - a positive systemic relationship between quality operators and quality flags. On the contrary, low quality operators and/or overage tonnage operating on a shoe-string basis would have to opt towards flags of comparatively worse performance, as high performance flags would be outside their reach.

The emerging question is whether the above leads us to an unofficial “class distinction” among flag administrations. On basis of what is observed in the *Flag State Performance Table* that is under examination, despite the good efforts of its drafters, the answer is positive. However, this is not a new idea. People involved in shipping have had fairly clear qualitative ideas on what flags are worth for years. The *Flag States Performance Table*, with the assistance of the weighting factors used in this study, allows for *quantitative* assessments which

are more precise and render themselves to statistical analysis.

Does the global picture on flag state performance changes significantly if one focuses on PSC performance only? To answer this question, the flags have been grouped, similarly to what have been done before, in four quality categories. The outcome is illustrated in Table 9. The total number of flag states assessed is 105, one less than before, as the US flag cannot be assessed in the case of two of the assessment criteria. Almost one third of the flag states reviewed falls in the last two categories indicating that for numerous flag states Port State Control continues to be a problem.

**Table 9: Global Flag PSC Performance Rating**

	Number of Flags
Excellent Flag States (up to 15 penalty points)	30
Good Flag States (from 16 to 30 penalty points)	45
Mediocre Flag States (from 31 to 45 penalty points)	20
Bad Flag States (upwards of 46 penalty points)	10
<b>Total of Rated Flag States</b>	<b>105</b>

However, the average of the PSC ranking as shown in Table 10 stands at 26.83 penalty points, placing itself again in the “good” category. Table 10 illustrates two further issues. First, EU member-states have a better PSC performance than the rests of the world, with an average that just misses the ‘excellent category’. The second and perhaps most important conclusion is that poor PSC performance is not necessarily associated with commercial, or ‘open’, flags in general. The average performances of these flags and of the rest of the world flag-states are similar. At the same time there is a note of caution. In the case of commercial registries the standard deviation (24,28 points) from this mean is higher than in any other group under examination: while it is not really worthy grouping all these flags it is worth considering them on a case-by-case basis.

**Table 10: Average PSC Penalty Points per Category of Flag**

	Number of flag-states	Penalty Points (Mean)	Standard Deviation
<b>Total</b>	<b>105</b>	26,83	17,32
Commercial (Open) Registries	25	27,40	24,28
Non-commercial Registries	81	26,66	14,72
EU members	22	17,27	8,12
Non-EU Members	84	29,34	18,23

The more detailed analysis of the PSC performance of the 25 commercial flags, as presented in Table 11, emphasizes the aforementioned need. Of the 25 commercial flag states listed in Table 11, 11 (45%) belong to the

“excellent” performers, while only 5 (20%) belong to the poor performers, a ratio over 2:1. Overall, the commercial flag states score well in the Port State Control area with as many as 17 flag states occupying the first two categories and only eight the last two.

**Table 11: Port State Control Performance of Commercial Flags**

Flag-State Category	Commercial (Open) Flag	Penalty points
Excellent	Isle of Man, Hong Kong, Liberia, Marshall Islands	-
	Bahamas, Singapore	5
	Barbados, Bermuda, Vanuatu	10
	Cayman Islands, Cyprus,	15
Good	Malta, Mauritius, Netherlands	35
	Antilles, Panama, Sao Tome & Principe, Trinidad	
Mediocre	Belize, Bangladesh, Dominica	45
	St Vincent	55
Bad	Georgia, Tonga	65
	Cambodia, Honduras	75

The change from the previously mentioned widely accepted perception that ‘flags of convenience’ are simply bad performers in general is striking. The outcome of this exercise in PSC performance of the various flags is important, a fact that is highlighted by Table 12, that present the worst ranking flag-states in PSC worldwide. Nine of the worst ranking under this criterion flag-states are also listed as the worst overall performers, a fact that indicates that Port State Control performance is a strong determinant of poor overall flag state performance.

**Table 12: Worst Ranking Flag-States in PSC**

Flag State	Penalty Points	Ranked as ‘Worst Flags’
Honduras, Cambodia	75	Yes
Bolivia	65	Yes
N. Korea, Tonga, Georgia	65	Yes
Egypt	55	No
Brazil, St. Vincent, Ukraine	55	No
Albania, Mongolia, Syria, Thailand	45	Yes
Algeria, Bangladesh, Dominica, Indonesia, Lebanon, Myanmar, Papua, Turkey, Viet Nam	45	No

On that basis, it is interesting to examine whether good overall flag state performance correlates with good flag state performance in Port State Control. Table 13, where the top and bottom five commercial flag states are compared, makes apparent that global and PSC performance levels are related indeed. The similarities between the relevant are striking and lead to the suggestion that, as a rule, excellent performing flag states in ‘global’ terms are also excellent port state control performers. At the opposite end, a bad performing flag state in port state control has a high probability of doing badly at the global performance level. The inverse is also true. An equally high probability is applicable to the excellent performers.

**Table 13: Global and PSC Performance of Commercial Flags: Comparing Top and Bottom Performers**

	<b>Global Performers</b>	<b>PSC Performance</b>
Top-5 performers	Isle of Man, Hong Kong, Bermuda, Liberia, Bahamas	Isle of Man, Hong Kong, Marshal Islands, Liberia, Bahamas
Bottom-5 performers	Honduras, Cambodia, Sao Tome, Tonga, Georgia	Honduras, Cambodia, Georgia, Tonga, St. Vincent

### 2.5 National vs. Commercial Flags in the Area of Quality

Following the above indications about good and bad performers in the area of commercial flags, another question is worth to be considered: Are national flags generally better performers according to the criteria examined by the flag performance table when compared with open registries, or not?

Table 14 lists the top-10 and the bottom-10 performing flags, in each one of the two categories together with their penalty rating.

**Table 14: Top Ten World Performing Flags Global Measurement in Penalty Points**

	<b>National Flags</b>		<b>PSC Performance</b>	
	Flag	Penalty Points	Flag	Penalty Points
Top-10 performers	Denmark	5	Isle of Man	-
	Greece	5	Bermuda	10
	Germany	5	Liberia	10
	Norway	5	Bahamas	15
	UK	5	Barbados	20
	Hong Kong	10	Gibraltar	25
	France	15	Cayman Islands	25
	Finland	25	Cyprus	30
	Sweden	25	Marshall Islands	35
	Bulgaria		Malta	
<b>Average performance of Top-10</b>		<b>11,5</b>	<b>19,5</b>	
Bottom-10 performers	Syria	135	Dominica	75
	Korea	145	Mauritius	75
	Kuwait	145	St Vince	85
	Albania	155	Bangladesh	95
	Costa Rica	155	Trinidad	95
	Congo	155	Georgia	135
	Mongolia	165	Tonga	135
	Suriname	165	Cambodia	145
	Thailand	175	Sao Tome	145
	Bolivia		Honduras	185
<b>Average performance of Bottom-10</b>		<b>155</b>	<b>117</b>	

The average penalty rating of the top-10 national flags stands at 11.5 compared with 19.5 of the commercial flags. When examined from all different perspectives, i.e. according to all criteria examined, however good commercial flags may be, they do not manage to match to the performance of the best of the national flags. The latter are most commonly the flags of the most traditional maritime nations. According to the analysis that is based on weighting the various non-compliance or other deficiencies, commercial flags are penalized at almost twice the rate of the national flags. This picture would be worse if the number of these flags was increased to fifteen.

It is interesting to see how the situation at the bottom end of the performance scale is.

Surprisingly perhaps, the situation is very different. When the focus is on the bad performers worldwide, there is apparently national flags perform significantly worse than commercial flags. The average penalty rating for the former is 150, a substantially worse performance than the respective performance (117 penalty points) of the 10 worst performing commercial flags.

As regards the overall homogeneity of the two groups, the standard deviation from the mean in the case of commercial flags has been lower, irrespective of the criterion used. This means that the flags of this group generally perform in a more homogeneous, one could perhaps argue 'in a more predictable way', than national flags. One should bear in mind however that the number of commercial flags examined is only 25, compared to 81 national flags. This implies that the ten flags at the national flags' spectrum include more observations far from the median, while due to fewer observations the commercial flags' sample includes observations getting nearer to the median.

### 2.6 Which Are the Shipowners' Options?

From the point of view of a shipowner flag choice remains a complicated matter. In the case of some national flags, it is compulsory for physical persons or legal entities that are established in this country to register their vessels under the country's flag. For these shipping companies, there is obviously no question of choice.

For all the other however, choices are to be made on two levels. The first choice is whether to prefer a national flag or a commercial flag. The choice between these two options is fundamental. Of course there is virtually no choice if the decision is to opt for the National flag. If however the shipowners choice is for a commercial flag, a second decision should be taken: which commercial flag should he prefer?

Unlike the case of many national flags, commercial registries are using primarily age barriers to keep out older ships. These barriers are often reasonably negotiable, as age is only used as a proxy to the quality of op-

eration. If the quality of the operator is already known and acceptable, through the track record of other vessels under his management in the registry, the shipowner might realize the presence of a significant degree of national administrations' flexibility in accommodating older tonnage.

Assuming, for example, the case of a 10 years old vessel which has, due to the operators past record, a generally good access to all commercial registries. In this case the owner has to choose *which* registry to go for. High quality registries are generally more expensive in way of flag related expenses than low quality ones. It is those registries however which enjoy a high reputation in Port PSC performance and a corresponding low prioritization in relevant inspection. Average fleet age there is lower than otherwise. The case however of a 28 years old ship, the situation is different. Her owner will soon find there is no access for his vessel to the best of commercial flags and as a result he will be obliged to register her for a second or third class commercial registry.

There is a vital question to be answered: Are low quality commercial registries bad performers due to their indifference to comply with international legislation, or their bad performance is due to problems of high age ships that these are prepared to take on? Table 15 describes the situation of the quality chart of commercial flags.

On the one hand, these data emphasize that high fleet age is associated with low levels of compliance with international conventions. This situation suggests that the avoidance of ratification of international conventions pulls older vessels in these commercial registries.

On the other hand, in Table 15 none of the top-10 performing flag-states in terms of international conventions compliance appears to have a high age problem.

**Table 14: Commercial flags Age and Convention Penalty Points**

	Age Penalty Points	Conventions Penalty Points
Barbados, Bermuda, Cayman Islands, Isle of Man, Liberia	0	0
Bahamas, Cyprus, Dominica, Hong Kong, Netherlands Antilles, Malta	0	10
Marshall, Singapore, Vanuatu	0	20
Belize, Mauritius	0	30
Panama, St Vincent	0	40
Cambodia	10	30
Bangladesh	10	40
Tonga, Trinidad	20	30
Georgia	20	40
Honduras	20	70
Sao Tome	20	70

For high quality commercial flag states compliance with all international conventions is a selling point, when aspiring to high calibre customers who in turn serve the transportation needs of demanding charterers. At the

same time, these flags exercise quite strict entry requirements largely based on vessel age. Age restrictions largely aim at keeping the Port State Control targeting factors applicable to their fleet on the low side, thereby rendering the ships under their flags low priority candidates for Port State Control boarding. These two factors largely explain why the probability for one of these flags to have high fleet age penalty points is virtually zero.

### 3. Conclusions

This paper has attempted a systematic examination of some aspects of flag-state performance. The examination of this rather insufficiently explored issue of shipping has been based on empirical evidence collected and published by the Maritime International Secretariat, (2006), in the form of a *Flag States Performance Table*. Weighting factors have been used in order to assess a number of different flag-state performance criteria. This has allowed for a *quantitative* assessment which is more precise and helps drawing specific conclusions on (under)performance, an exercise that has been, intentionally we believe, avoided by the cooperating international institutions of shipping that have produced the initial factual information on 106 flag states.

The analysis suggests a great performance variation among the 106 flag- states of the world which have been examined. There are 26 excellent, 34 good, 27 mediocre and 20 'bad' performing flags. The findings also emphasize the exceptionally good performance of the EU registries, and the particularly good performance of several more 'traditional' maritime nations. On the other hand a declaration of a tough policy attitude by a national administration does not necessarily result in a better performance by the respective flag. The analysis also suggests that Port State Control performance of flag states is a strong determinant of its overall performance in both commercial and national flags.

Most significantly, the findings challenge the conventional 'grouping' of the commercial flags and the negative approach as regards their performance. There are clear signs that the bad traditional image of commercial registries is changing fast. The mean performance of this group is significantly better than the corresponding statistic for the total of national flags. The reasons for this phenomenon may have to do either (or both) with the expectations of exacting shipowners operating under tough quality regimes of their charterers, and the decisive importance of the flags performance in Port State Control. Targeted research in this direction will shed more light into what exactly the reasons are.

When the overall performance of national and commercial flags is compared the top-10 performing national flags were found to be considerably better on average than their corresponding commercial counterparts, while at the bottom ten there was little to choose from. As a general observation, the best commercial flags are lag-

ging behind the best national flags, while the worst commercial flags are no worse than their national counterparts. This, along with the observed standard deviation from the mean performance of this group, suggests that commercial flags should be examined for quality on a case by case basis.

The analysis has also suggested that fleet age correlates with a flag's compliance with international conventions. In the case of commercial flags, all well performing flag states were found to have low average age fleets reflecting perhaps strict vessel age control as a means to preserve the quality of the registry.

There are also some policy implications from the conducted analysis. The comparison between badly performing flag states in the present exercise and the Paris MoU black listed flag states suggests that not all of the worst performing flags are included in the current black lists of the Paris MoU. This may be partly due to geographical factors, but it also indicates that an inspection driven regime such as the one of the Paris MoU may have its limitations when compared to a detailed assessment with broader than ship inspection considerations.

An equally important policy related finding has been that active participation in IMO decision-making (rather than IMO membership per se) plays a role for ensuring good flag-state performance. The states that participate in the decision-making of the IMO benefit from this participation while they contribute in the shaping of IMO decisions and that is reflected in a better record of compliance with international rules and a better overall flag performance.

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