

The autonomous ships and the ship mortgage: The panamanian legal perspective

Los buques autónomos y la hipoteca naval: La perspectiva legal panameña

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Fecha de recibido: 31 de octubre 2025

Fecha de aceptación: 2 de diciembre de 2025



DOI <https://doi.org/10.48204/2953-3147.8568>

Abstract

The emergence of Maritime Autonomous Surface Ships (MASS) presents novel legal and financial challenges for the shipping industry, particularly regarding registration and the use of vessels as collateral. This article examines the integration of MASS into the Panamanian Public Ship Registry, analyzes the applicability of ship mortgages to these autonomous vessels with specific attention to enforceability, creditor protection and insurance. The study employs a doctrinal-legal methodology, combining normative analysis of Panamanian legislation, including Law 55 of 2008 and Law 57 of 2008, with a comparative examination of registry practices and expert interviews with registry officials. Through this approach, the research examines the minimum mandatory requirements for a mortgage to be considered valid, the technical and legal adaptations necessary for autonomous ships, and the implications for creditor protection and insurance. The article also addresses

potential enforcement issues, liability considerations, and operational risks associated with MASS, highlighting Panama's role in providing legal certainty within an evolving maritime regulatory framework.

Key words: vessels, mortgage, maritime law, liens, depreciation.

Resumen

La aparición de los Buques de Superficie Autónomos Marítimos (MASS, por sus siglas en inglés) plantea desafíos legales y financieros inéditos para la industria marítima, particularmente en lo relativo al registro y al uso de los buques como garantía. El presente artículo analiza la integración de los MASS en la Dirección General de Registro Público de Propiedad de Naves de la Autoridad Marítima Panamá (PRPV, por sus siglas en inglés), examinando la aplicabilidad de las hipotecas navales a estas embarcaciones autónomas. El estudio adopta una metodología jurídico-doctrinal, combinando el análisis normativo de la legislación panameña, incluyendo la Ley 55 de 2008 y la Ley 57 de 2008, con un examen comparativo de las prácticas registrales y entrevistas con funcionarios del registro. A través de este enfoque, la investigación analiza los requisitos mínimos obligatorios para que una hipoteca sea considerada válida, las adaptaciones técnicas y legales necesarias para los buques autónomos, y las implicaciones para la protección de los acreedores y la cobertura aseguradora. Asimismo, el artículo aborda posibles problemas de ejecución, consideraciones de responsabilidad y riesgos operativos asociados a los MASS, destacando el papel de Panamá en brindar certeza jurídica dentro de un marco regulatorio marítimo en constante evolución.

Palabras clave: buques, hipoteca, derecho marítimo, gravámenes, depreciación.

Introduction

The rapid development of Maritime Autonomous Surface Ships (MASS) is reshaping the landscape of international shipping, posing both technological and legal challenges. As vessels evolve from traditional crewed ships to autonomous platforms, regulatory frameworks must adapt to ensure legal certainty, secure financing, and effective liability mechanisms.

Panama, as the largest open-flag registry in the world, faces the challenge of integrating MASS into its existing legal and administrative structures. While current legislation, including Law 55 of 2008 (the “Commercial Maritime Law of Panama”) and Law 57 of 2008 (the “Merchant Marine Law of Panama”), does not explicitly address autonomous vessels, preliminary assessments suggest that MASS could, in principle, be registered and serve as collateral under ship mortgages.

This article examines the characteristics and implications of ship mortgages for autonomous ships in the PRPV. In particular, it analyzes the minimum mandatory requirements for a mortgage to be considered valid under Panamanian law, highlighting the legal and technical conditions necessary to secure creditor rights, ensure enforceability, and provide certainty for financial and insurance institutions in the emerging market of autonomous shipping.

Methodology

This study employs a doctrinal and legal approach with comparative empirical elements to analyze the applicability of ship mortgages to Maritime Autonomous Surface Ships (MASS) under Panamanian law.

The design combined (i) a systematic review of Panamanian legislation (Law 55 of 2008, Law 57 of 2008, and related regulations), registry practices, and relevant case law; (ii) semi-structured interviews with officers of the Panama Maritime

Authority; and (iii) comparative analysis with international frameworks on ship registration and security interests.

The sample consisted of legal texts, administrative circulars, marine notices, registry extracts, and purposively selected officials. Data were collected between September 2019 to September 2025 in Panama City.

Instruments included a documentary legal review, interview guides, and case study authorized by the Panama flag Administration. Data was analyzed through content analysis and hermeneutical interpretation of legal texts.

This methodology ensures both normative rigor and practical insight, allowing replication by future researchers.

Results and Discussion

1. Concept of Ship Mortgage in Maritime Law

A ship mortgage, also referred to as a ship mortgage, is a legal instrument by which a vessel is pledged as security for the fulfillment of an obligation, typically the repayment of a loan. Unlike a possessory lien, a ship mortgage does not require the creditor to retain physical possession of the ship. Instead, it creates a real right in favor of the mortgagee, which follows the vessel irrespective of changes in ownership and grants priority over unsecured creditors. For Raphael Morenon, a ship mortgage is “a security interest, meaning that it relates directly to an asset -the ship- to guarantee payment of a debt. It is said to be conventional, because it necessarily arises from an agreement of wills, from a contract between the shipowner and his creditor” (Moreron, 2025, sp).

In maritime law, the ship mortgage plays a dual role. On the one hand, it facilitates access to credit in the shipping industry, enabling shipowners to finance

the construction, acquisition, or refurbishment of vessels. On the other hand, it constitutes one of the categories of privileged maritime claims, ranking behind certain statutory liens (such as crew wages, salvage, or port charges) but generally ahead of ordinary creditors.

The enforceability of a ship mortgage depends on proper registration in the ship registry of the flag State. Registration serves both as a condition for the mortgage's validity against third parties and as a notice mechanism within the international maritime community. While the International Convention on Maritime Liens and Mortgages (1993) provides a harmonized framework for many jurisdictions, Panama is not a party to this instrument. Instead, Panama relies on its own legislation, namely Commercial Maritime Law of Panama, which establishes the substantive and procedural rules governing maritime liens and mortgages within its registry, reflecting its status as the largest open registry in the world.

Ultimately, the ship mortgage reflects the balance between creditor protection and the promotion of maritime commerce, ensuring that vessels, valuable but highly mobile assets, remain viable security in the global financing framework of the shipping industry.

2. Characteristics of a Ship Mortgage in Panama and its relevance for Accounting Professionals

Under Panamanian law, particularly the Commercial Maritime Law of Panama, the ship mortgage is characterized as a real right over a vessel, duly registered in the PRPV, that grants the mortgagee security for the fulfillment of an obligation. Its principal characteristics include:

1. **Constitutive Effect of Registration:** A ship mortgage only acquires legal existence and enforceability against third parties upon registration in the Panamanian Ship Registry. This public act ensures transparency and legal certainty, essential in the international financing of vessels.
2. **Accessory Nature:** The mortgage is accessory to the principal obligation, commonly, a loan agreement. If the debt is extinguished, the mortgage is automatically released.
3. **Right of Preference:** Mortgagees enjoy priority over ordinary creditors. However, their rights are subordinated to statutory maritime liens, such as crew wages, salvage, and port dues, which rank higher in order of payment.
4. **Indivisibility:** The mortgage extends over the entire vessel, including her appurtenances, regardless of partial payments of the secured debt.
5. **Enforcement Mechanism:** In the event of default, the mortgagee may seek judicial enforcement before Panama's Maritime Courts, which are known for their efficiency and specialization in maritime claims.

From the perspective of accounting, finance, and maritime-law professionals, ship mortgage constitutes a pivotal instrument in the capital and operational structure of shipping companies. For clarity, the accounting standards referenced here are defined at first mention:

- IAS 16 (International Accounting Standard 16: Property, Plant and Equipment, IASB) governs recognition, measurement, depreciation and impairment of vessels as tangible fixed assets;
- IAS 37 (International Accounting Standard 37: Provisions, Contingent Liabilities and Contingent Assets, IASB) addresses the recognition and disclosure of legal contingencies;
- IFRS 7 (International Financial Reporting Standard 7: Financial Instruments—Disclosures, IASB) prescribes the disclosure of risks associated with financial instruments; and

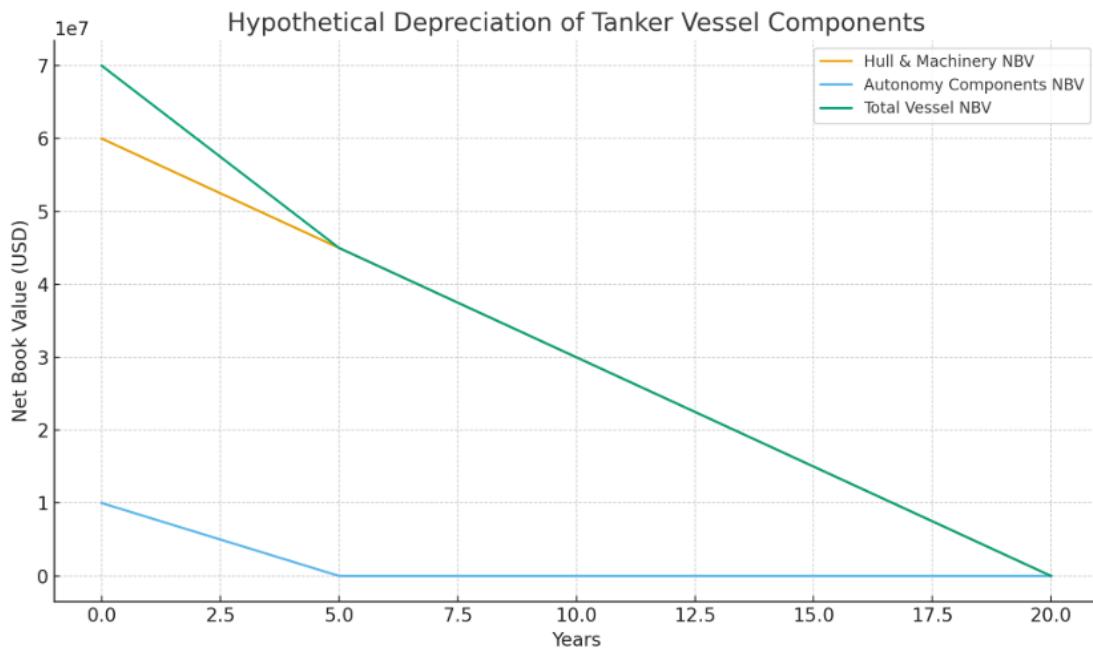
- IFRS 9 (International Financial Reporting Standard 9: Financial Instruments, IASB) regulates their classification, measurement and expected credit loss modelling.

Ship mortgages intersect with the above-commented standards because, although a mortgage is a security interest, the obligations it secures (whether traditional loan facilities, consolidated obligations under Master Agreements, or leasing structures such as finance leases and sale-and-leasebacks) generate recurring operational outflows (interest service, amortization and compliance costs) that directly affect the vessel's financial profile and the company's operating expenses.

Moreover, the legal scope of a Panamanian ship mortgage could affect not only the mortgagor but also any guarantor who undertakes joint or several liability, thereby creating dual exposure that must be assessed under IAS 37 and IFRS 9 when evaluating provisions, contingent liabilities and credit risk. Priority rules in Panamanian maritime law may subordinate the mortgagee's position to certain maritime liens, which can generate contingent legal claims requiring disclosure, depending on probability and materiality.

The accounting relevance of these interactions becomes more evident when analyzing the vessel's valuation and depreciation under IAS 16. Suppose, for analytical and illustrative purposes only, a hypothetical Panamanian-flag tanker with a cost of USD 70,000,000 is acquired with an estimated economic / operational life of twenty (20) years. Under a straight-line method, annual depreciation would be USD 3,500,000. However, because technologically advanced vessels integrate autonomy-related components (sensors, control systems, and MASS-grade software) whose useful lives are significantly shorter, IAS 16 requires componentization. In such a case, the hull and main machinery (USD 60,000,000) may be depreciated over 20 years (USD 3,000,000 annually), while autonomy

hardware and software (USD 10,000,000) may require a five-year useful life (USD 2,000,000 annually), increasing total annual depreciation to USD 5,000,000. Any accelerated obsolescence of autonomous functions or regulatory changes may trigger an impairment indicator requiring an IAS 36 recoverable-amount test. These variations affect not only the entity's reported net book value but also the credit-risk profile of lenders and guarantors under IFRS 9, given that the secured asset's recoverable value directly influences the expected credit loss assessment. Similarly, IFRS 7 requires disclosure of the nature of such secured liabilities, the risks associated with technological obsolescence, and the dependence on collateral subject to statutory maritime priorities.



This analysis acquires an additional dimension in the context of MASS. It must be expressly noted that, as of today, no MASS of level 4 of autonomy, meaning 100% unmanning, is registered under the Panamanian flag, and therefore no Panamanian ship mortgage has yet been constituted over a MASS, resulting in an absence of precedent on how Panama will apply its mortgage registration

regime, priority system and enforceability rules to vessels whose asset value depends heavily on rapidly depreciating technological components.

The lack of practical cases also raises open questions regarding the future treatment of guarantors, the valuation of autonomy-related components as mortgageable interests, and the evidentiary requirements for impairment, useful lives and contingencies under IAS 16 and IAS 37 in a MASS-context. Comparative experience, however, is emerging. Singapore, having enabled the registration of autonomous vessels through its Maritime and Port Authority (MPA), has advanced regulatory adaptation by clarifying issues of operational control, liability allocation, and the treatment of security interests in MASS, including the legal characterization of software-based navigation systems.

A recent illustration of this technological and regulatory progress is the containership Ever Max (IMO 9935208), which in October of this year successfully completed a transoceanic voyage of more than 5,000 nautical miles under the guidance of an autonomous navigation system developed by Samsung, marking one of the most significant real-world deployments of MASS-related software integrated into the operation of a conventionally crewed vessel. Although Panama has not yet implemented equivalent measures, the Singaporean model signals the type of legal-financial harmonization that jurisdictions may pursue as autonomous technologies become integrated into standard shipping operations.

3. What are the minimum mandatory requirements for a Panamanian ship mortgage to be binding on the parties to the ship mortgage and third parties?

Articles 249 to 277 of the Commercial Maritime Law of Panama refer specifically to ship mortgages granted on Panamanian registered vessels. Reference is made therein to the provisions of the Civil Code on Mortgages on



Immovables (Real Estate) and these provisions apply to the extent that they do not contradict the special provisions of the Commercial Maritime Law of Panama. Therefore, the Commercial Maritime Law of Panama governs all aspects of Panamanian ship mortgages, including but not limited to, the requirements and procedures for their registration with the PRPV, the central office charged with registration of titles to Panama vessels, and ship mortgages recorded thereon.

As a complementary explanation of the internal structure of the Panama Maritime Authority (PMA), please note that the PMA is the highest authority overseeing the shipping interests of the Republic of Panama, including the Panamanian Ship Registry. The PMA has the status of Ministry of Maritime Affairs and comprises four operating Directorates, to wit:

- The Directorate General of Merchant Marine is in charge of the ship registration process and related matters;
- The Directorate General of Seafarers is responsible to issue seafarers certifications and to comply with the provisions of international seafarer conventions;
- The Directorate General of Public Registry of Property of Vessels of the Panama Maritime Authority (the “PRPV”) is responsible for the registration of ownership titles/property titles, ship mortgages and other kinds of registered encumbrances against Panamanian vessels; and
- The Directorate General of Ports and Ancillary Maritime Industries handles all the matters, licenses and permission related to ports and ancillary maritime industries (Mosquera, 2022, p. 3).

In terms of mandatory requirements to be fulfilled by a Panamanian ship mortgage, Article 260 of the Commercial Maritime Law of Panama provides that the ship mortgage may be executed in any language and should be in writing through a (i) private document or a (ii) public deed, or may be executed according



to the formalities of the laws of the place of execution. For the purposes of its final registration at the PRPV, the document must be translated into Spanish and protocolized into a Public Deed through a Notary Public in Panama.

In the case that the ship mortgage is executed in a private document outside of the Republic of Panama, the same must be notarized by way of an acknowledgment of the legal capacity of the signatories and the authenticity of the signatures thereof. Thereafter, the Notary's signature must be legalized by a Panamanian Consul or by way of Apostille.

While a ship mortgage may include additional provisions, it must contain the following requirements as it may be recapped from Article 260 of the Commercial Maritime Law, to wit:

- a. The name and domicile of the party granting the mortgage (the mortgagor) and of the party secured by the mortgage (the mortgagee).
- b. The fixed or maximum amount secured by the ship mortgage. The ship mortgage is deemed to secure, in addition to principal, all of the accrued interest, judicial costs, collection expenses, amounts arising from fluctuations of currency or of other means of payment, and all other sums stated in the ship mortgage. It is presumed, both between the parties and with respect to third persons, unless there is evidence to the contrary, that the sums owed by the mortgagor, be it in respect of principal, interest or other sums, are secured by the ship mortgage.
- c. The dates of repayment of principal and interest, or the manner to determine such dates, unless the ship mortgage is executed to secure obligations due on demand, future obligations, or obligations subject to a condition precedent.



- d. To the extent applicable, the parties must determine in the ship mortgage the interest rate or the manner in which to calculate the interest rate. Among others, the interest rate may be stipulated to by referencing the prevailing rate in a determined market or to the bank rate granted to selected borrowers in any market. The interest rate may be stipulated by reference to the rate existing at the time of execution of the ship mortgage, or in accordance with the fluctuations which it may undergo within the term of the contract. The sums secured by a ship mortgage are not subject to a maximum interest rate.
- e. The name of the ship, number of the Navigation Patente also known as registration number (provisional or statutory), call sign, and registered dimensions and tonnages; and
- f. If several vessels are mortgaged to secure a single credit, the amount or part of the mortgage for which each vessel is liable may be stated. If said statement has not been made, the creditor can collect the totality of the sum secured by the ship mortgage from any of the vessels or from all of them.

The requirements mentioned in point (c) above (i.e. the dates of repayment of principal) and (d) (i.e. interest) may be included in the ship mortgage or in extracts, contracts, exhibits, or schedules thereto.

In the event that the ship mortgage is executed as security for a specified and described credit or one whose amount may not be determined at the time of execution of the ship mortgage, it will suffice to mention the essential information which will allow the credit obligation to be identified and that a pre-determined limit be assigned to the amount of the mortgage liability.

Additionally, there is no need to set out a specific date or a schedule of payments in order for these requirements to be considered duly fulfilled in the ship



mortgage, as the law expressly allows that as long as there is a way for the parties to determine the repayment date of the principal (also known as maturity date) and the interest rate, this will be accepted and in line with the minimum mandatory requirements indicated in Article 260 of the Commercial Maritime Law. In fact, it is a common practice in Panama to put phrases like: "the maturity date/repayment date will be determined in accordance to the terms of the Loan Agreement" or "The maturity date under this Mortgage is immediately on demand by the Mortgagee", to refer to the methodology to determine the maturity date/repayment date.

To summarize the applicable law on ship mortgages in Panama, there are five (5) minimum requirements that a ship mortgage must contain to be effective: (i) the name and domicile of the mortgagor and mortgagee; (ii) the maximum amount secured by the ship mortgage; (iii) the maturity date; (iv) the applicable interest rate or confirmation that no interest will be charged, if that is the case; and (v) full description of the vessel being mortgaged, including her name, call sign, tonnages and dimensions.

4. What is the procedure for a ship mortgage registration in Panama?

Article 7 of the Commercial Maritime Law of Panama states that all titles of ownership and encumbrances to be registered against a Panamanian vessel must be lodged with the PRPV, which may be accomplished through any Merchant Marine Panamanian Consulate abroad. For further clarification, please note the following quotation:

The ownership of the vessel or part of the ownership thereof will be transferred in the manner provided for in this law. The requirement of the delivery or completion of ownership transfer may be complied with if the parties expressed in the contract that the ownership is transferred immediately to the buyer.



The seller will be obliged to deliver to the buyer, in the act of the contract, certification of the registration of the ship in the Public Registry until the date of the sale.

Titles of ownership of vessels and their encumbrances subject to registration may only be submitted for registration at the Panama Public Registry in accordance with the provisions established in this law.” (Law 55 of 2008,)

The Commercial Maritime Law of Panama provides the right of the creditors, including but not limited to the mortgagees, to pursue the vessel as she is considered affected and liable of the debts of her owner, whether they are common or privileged (i.e. maritime liens), and until the debts are paid in full by the vessel owner. For better reference, please note the following quotation:

Article 4: Vessels will be subject to payment of the debts of their owner, be they common or privileged, and creditors will have the right to pursue them even if they are in the possession of third parties while their liability is in effect. (Law 55 of 2008)

Once the title of ownership of a vessel to be mortgaged has been preliminarily registered at PRPV, a preliminary mortgage may thereafter be recorded on the vessel even though title thereto has not been permanently registered at said directorate. Upon permanent registration of the title of ownership thereto at the PRPV, the mortgagee will cause the mortgage to be permanently registered at the PRPV. To register a mortgage against a Panamanian vessel, it is mandatory that a title of ownership over the referred vessel must be registered first or at least, simultaneously with the ship mortgage. For this purpose, the PRPV contemplates the following two (2) procedures:



a. Preliminary registration: This may be completed through Panamanian Consulates abroad or locally and is valid for six (6) months, granting the same rights as a permanent registration under Article 10 of the Commercial Maritime Law. It provides immediate security, especially for parties outside Panama or outside business hours. Consulates collect basic mortgage information and fees and coordinate with the PRPV to issue the Certificate of Preliminary Registration. When done locally, the designated law firm files directly with the Panama Maritime Authority. Preliminary registration is optional but must be followed by permanent registration within six (6) months.

b. Permanent registration: This mandatory registration must be completed in Panama through the designated law firm. The mortgage is translated into Spanish and elevated to a public deed before a Notary Public. Alternatively, the mortgage may be registered in English if an Extract of Mortgage is executed by both parties, requiring only the Extract to be translated into Spanish and expediting the process.

From the PRPV perspective, in the event that a ship mortgage to be registered at PRPV, whether preliminary or permanent, does not meet the minimum mandatory requirements above indicated, the ship mortgage will be rejected by the PRPV. Consequently, a ship mortgage registration will not be completed until the interested parties amend the deficiencies identified by the PRPV and re-lodge the public deed duly amended. This is a key point of the ship mortgage registration process, which differentiates Panama from other flag registries.

Consequently, a mortgage that has been accepted by the PRPV has been reviewed by the PRPV and deemed valid by the PRPV as of the date of recordation.

Moreover, the only Panamanian authority that has the power to declare that a title of ownership or a ship mortgage to be registered against a Panamanian vessel



is defective is the PRPV. No private entity nor any individual, including but not limited to private Panamanian lawyers, law firms, companies, etc., are able to declare a document that has already been registered by the PRPV to be defective.

5. What are the legal effects generated after a ship mortgage registration takes place?

Every mortgage registered against a Panamanian vessel is considered by the Panamanian law (the Law of the Flag) to be a maritime lien. Therefore, every mortgagee of a Panamanian vessel is entitled to enforce the ship mortgage against the respective vessel.

The order of maritime liens in the Republic of Panama up to the mortgage rank as established by Article 244 of the Commercial Maritime Law of Panama, is as follows:

1. Judicial costs incurred in the common interests of the maritime creditors;
2. Expenditures, indemnities and salaries for assistance and salvage due for the last voyage;
3. Salaries, payments and indemnities due to the Master and members of the crew for the last voyage;
4. Ship mortgages;
5. ... (Law 55 of 2008, Art. 244)

The Commercial Maritime Law of Panama provides the right of the creditors, including but not limited to the mortgagees, to pursue the vessel as she is considered affected and liable of the debts of her owner, whether they are common or privileged (i.e. maritime liens), and until the debts are paid in full by the vessel owner.



6. Mortgages on Autonomous Ships (MASS) in the PRPV

The emergence of MASS poses a new challenge for registries and financial institutions worldwide. In the Panamanian context, neither the Merchant Marine Law of Panama nor the Commercial Maritime Law of Panama expressly prohibits the registration of MASS, since at the time of their enactment such vessels were not contemplated as viable alternatives of navigation. Consequently, from a legal standpoint, there appears to be no obstacle to their recognition within the PRPV, provided that reforms adapt existing norms to these novel technologies.

With respect to mortgages, the Registry officials consider that, once a MASS is duly registered as a vessel under the Panamanian flag, it could indeed become the subject of a ship mortgage in accordance with current legislation (Sandoval, 2025). The rationale rests on the principle that any vessel inscribed in the Merchant Marine may secure financing through a mortgage, with creditor approval ultimately determining the feasibility of granting credit. This approach is comparable to the treatment of vessels under lay-up status, which, although inactive, may still serve as collateral for mortgage financing.

A distinctive feature for MASS is the likely need to incorporate technical differentiators in their registry entries -such as specialized certification of control systems, unique identification sheets, and risk classifications- to distinguish them from conventional ships. These adaptations would also have to be reflected in the electronic platform of the Registro Electrónico de Naves (REN based on its Spanish acronym), ensuring transparency and traceability for creditors, insurers, and stakeholders.

Regarding the security of the mortgage, the Registry's position is that the absence of a permanent crew does not undermine legal certainty or creditor confidence (Sandoval, 2025). However, to guarantee enforceability, it is recommended to expressly identify and evaluate the unique risks of MASS, including

operational liability, cyber risks, and the role of shore-based operators or software providers (Gabaldon, 2020, s.p). This step would enhance not only creditor protection but also insurance underwriting for these assets.

In terms of enforcement, MASS are not exempt from liability for default under Panamanian law. Creditors would retain the right to pursue judicial foreclosure or arrest orders through the Maritime Courts, regardless of whether the ship is manned or unmanned. The greater challenge lies in updating the legislative framework and digital registry systems to adequately capture the new legal and operational realities of MASS, ensuring that Panama continues to offer the legal certainty that has historically made its Ship Registry attractive to global financiers.

Ultimately, the main challenge for Panama is not the admissibility of ship mortgages over MASS, which appears feasible under current principles, but rather the regulatory modernization required to sustain confidence in the system, by adapting laws, registry practices, and technical requirements to the evolving paradigm of autonomous shipping.

Conclusions

The emergence of MASS represents a transformative development in maritime transport, challenging not only traditional legal frameworks but also the financial, accounting, and asset-management structures that underpin maritime operations. From a financial-reporting perspective, MASS would be recognized as property, plant, and equipment under IAS 16 (Property, Plant and Equipment), subject to depreciation that reflects technological obsolescence, including accelerated wear due to rapid advances in autonomy software and sensor-based navigation systems. A hypothetical USD 70-million tanker operating under autonomous technology, for instance, could experience shortened useful life or accelerated depreciation rates under IAS 36 (Impairment of Assets) if its navigation

software becomes outdated, thereby affecting its balance-sheet treatment and its suitability as collateral in maritime financing.

Panama, as the largest open-flag registry in the world, has the legal and institutional capacity to integrate MASS into its existing legislation, particularly the Commercial Maritime Law and the Merchant Marine Law. Although current laws do not expressly regulate autonomous ships, legal analysis and registry practice confirm that MASS can, in principle, be registered and serve as collateral for ship mortgages. These mortgages also constitute a significant operational expense and financing obligation for shipping companies, especially when structured under IFRS 9 (Financial Instruments) for secured debt or through leasing schemes regulated by IFRS 16 (Leases), where the vessel may function as a right-of-use asset backed by a mortgage. Likewise, a Master Agreement or long-term financing framework may consolidate several credit exposures secured by ship mortgages, binding not only the mortgagor but also any guarantor, who becomes jointly affected by the enforcement and financial-reporting obligations associated with the mortgage.

The Panamanian legal framework sets out clear mandatory requirements for a valid ship mortgage, i.e. identification of mortgagor and mortgagee, maximum secured amount, interest rate, maturity date, and accurate vessel description.

Compliance with these requirements ensures enforceability, transparency, and creditor protection, while preliminary and permanent registration procedures before the PRPV reinforce legal certainty. Although no autonomous vessel (MASS) currently sails under the Panamanian flag and therefore no Panamanian ship mortgage over a MASS has yet been registered, this absence does not preclude legal feasibility; rather, it highlights a regulatory and financial opportunity for early modernization.



The integration of MASS into the mortgage and financing regime requires specific regulatory adjustments to account for their distinctive features, software-dependent navigation, cybersecurity risks, digital identification systems, and potentially shorter depreciation cycles. These elements affect both risk classification and financial-instrument valuation under international standards. Other jurisdictions, like Singapore, provides a useful comparative example: by enabling autonomous-vessel registration through its Maritime and Port Authority (MPA), it has begun adjusting its frameworks to clarify liability, operational control, and the treatment of security interests in MASS. This trend is illustrated by technologically advanced vessels such as the “Ever Max,” which recently completed a transoceanic voyage guided by autonomous navigation software.

Ultimately, Panama’s experience demonstrates that the incorporation of autonomous vessels into an established maritime legal and financial framework is feasible, provided that regulatory modernization parallels technological advancement. By updating legislation, registry practices, digital systems, and complementary financial-reporting guidance, Panama can continue offering legal certainty and financial reliability. Doing so will ensure that ship mortgages, whether over conventional or autonomous ships, remain a cornerstone of international maritime commerce, asset-backed financing, and long-term fleet sustainability.

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