

Analysis of the Bill of Lading in International Trade and Its Progress and Prospects for Future Development

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Abstract: Although the bill of lading is only a component of the international trade process, it establishes rules and details for the subsequent trade and transportation procedures, and clarifies the division of interests. However, disputes and loopholes often arise in international trade, and an analysis starting from the bill of lading itself reveals that paper bills of lading have caused some hidden dangers and problems. This paper proposes the possibility of improving to an electronic bill of lading in response to this situation, and through collecting information and understanding cases, it finds that the advantages of electronic bills of lading are significant, while also considering the possible problems that electronic bills of lading may face. But ultimately, this study believes that compared to paper bills of lading, electronic bills of lading have significant advantages, but require more time to complete official recognition, technical improvement, and sufficient practical experience. The development of electronic bills of lading is significant, and for this reason, electronic bills of lading still need more time to improve themselves.

Keywords: Bill of lading, Electronic bill of lading, Fraud prevention, Legal recognition, Blockchain technology.

1. Introduction

In international trade and shipping, the bill of lading is an significant document for the transportation agreement between the shipper and the carrier, as well as the receipt of goods. It has a variety of functions, generally speaking, its functions include confirmation of acceptance of goods for shipment, outline of the conditions of transport, and as a record of ownership that can be passed on to others, which makes it essential in international trade. This function streamlines international trade by offering a standardized approach to tracking and recording the transportation of goods between different countries. The benefits brought by the use of bills of lading are significant, such as the fact that the bill of lading details the carrier and the responsibility of the parties involved in the carriage of goods [1], reducing the contradiction between the two sides. The bill of lading does have several disadvantages, though. Conventional paper money may be more likely to be lost, stolen, or counterfeited, which could cause disagreements and delays. In an increasingly digital age, depending too much on physical paperwork can also cause delays and inefficiencies. Gao Shangquan proposed in a paper that economic globalization is an irreversible trend [2]. Under this trend, the demand for international trade is increasing. It is urgent to improve the function of bill of lading and reduce the negative impact of bill of lading in international trade procedures. This paper then examines the

strengths and weaknesses of the bill of lading in practice to propose specific and effective measures for improvement. This will make international trade and the flow of international money much smoother.

2. The Basic Function and Purpose of the Bill of Lading

One of the most essential and basic functions of a bill of lading is to serve as the basis for receipt, issued by the carrier, with the purpose of confirming or not receiving it from the shipper in accordance with the specified quantity and conditions. It is worth emphasizing that this receipt is crucial for the shipper, as it provides evidence that the goods have been handed over and also indicates that the carrier is now responsible. It not only confirms the transfer of goods, but also the condition of the goods during shipment. A clear and concise process for handling details is an important condition for reducing disputes.

Moreover, from a forward-looking perspective, a bill of lading also functions as a contract of carriage for the shipper and the carrier. This contract details the type, quantity and destination of the goods to be shipped [3]. This means that both parties have developed a formal agreement that defines the obligations and responsibilities of both parties. It helps to reduce the potential disputes in the transaction, avoid some predictable risks, and ultimately promote the smooth progress of the trade process.

The third function of the bill of lading is to facilitate financing. A certificate of ownership stated in the bill of lading can be used to secure financing, in which case the goods in transit are usually used as collateral. The financing function is very important for obtaining funds to sustain trade activities. Lin et al. wrote in their report: A vital part of trade finance will always be bills of lading [4]. This function allows exporters and importers to trade goods while efficiently managing important financial resources.

Last but not least, it is necessary that the bill of lading comply with regulations and customs. It gives all the necessary information regarding the nature, origin, and destination of the products, as well as other details needed for customs clearance. Ensuring that the required paperwork is in place contributes to efficient customs processing and compliance with global trade laws. Avoiding delays, fines, and other problems that can result from regulatory non-compliance depends on this compliance.

3. The Application of the Bill of Lading

The disadvantage of bill of lading is that it is likely to be subject to fraud and forgery. This will not only have an impact on the trade sector, but also bring a lot of trouble in the shipping process. Based on the information provided above, a bill of lading is an agreement that proves ownership of the goods between the shipper and the carrier. If these documents are forged and fraud occurs, the impact is often multifaceted.

3.1. Impact on the Economy

A forged or fraudulent bill of lading may cause confusion and dispute over ownership of the goods. These confusions and disputes may exist between multiple partners. The legal disputes and economic losses caused by it will consume a lot of time and manpower to solve, thus disrupting the normal trade order. The 2017 failure of Hanjin Shipping illustrates this situation. A report by the BBC's Illmer stated that burdened with \$5.4 billion (£4.1 billion) in debt as of August 2016, the company was unable to secure any additional funding from its creditors [5]. At the same time, the bankruptcy of Hanjin Company also led to the issuance of multiple bills of lading contracts for the same goods, which not only caused economic losses, but also caused confusion in the field of logistics networks.

3.2. The Impact on the Transportation Process of Goods

Disputes over ownership and distribution of liability between the owner and the parent carrier arising from a forged bill of lading may have more negative effects in the subsequent transport of the goods, such as delays in transport and increased transport costs. This theme is also addressed in the report by Singhanian et al., who examine the case of *Motis Exports Ltd. v. Dampskibsselskabet*. They conclude that at times, an otherwise astute buyer or shipping company may be insufficiently vigilant, resulting in the delivery of goods without the original bill of lading or after a fake bill of lading is presented. The shipping business would be liable in these situations [6].

3.3. Legal Disputes and Risks

Dealing with forged bills of lading has serious legal consequences, the company will also receive due punishment, and may be required to bear the cost of resolving the dispute. For example, in 2021, Indonesia seized Iranian and Panamanian flagged tankers [7], while cruise ships were suspected of illegally transferring oil. In this case, forged documents were used to state the ownership and true origin of the oil.

3.4. Damage to the Company's Reputation

Fraud in bills of lading has a long-term bad influence on the companies involved. Others will doubt the ability of the affected company to handle trade cooperation and transportation, and reduce trust, which will eventually lead to the loss of a lot of cooperation opportunities for the relevant company, and its market share will be correspondingly reduced.

In summary, the situation of bill of lading fraud and forgery disrupts the economic order of the market, causing a lot of economic losses, legal disputes, and the damage of the reputation of the companies involved. Bill of lading fraud occurs largely because the document between the two parties is susceptible to tampering. If issues arise within the bill of lading itself, the author believes that an electronic bill of lading could help mitigate the risks and occurrences of fraud.

4. Applications of Electronic Bill of Lading

According to research, Winter puts forward a positive idea for the electronization of bills of lading: the world where E-Bills finally become the standard in every area of the transportation business must be the object of the immense gravitational pull [8]. But only through comprehensive analysis and combined with actual cases can trading companies make a new step to try.

4.1. Validity of Electronic Bill of Lading

The electronic bill of lading must have the same legal force as the paper bill of lading in order for it to progressively replace the old paper form. Richardson et al. [9] analyzed the feasibility of large-scale implementation of electronic bills of lading in the future by analyzing the laws on electronic bills of lading in the UK and Singapore. In the UK, the legal validity of a bill of lading is established by the Carriage of Goods by *Sea Act 1992 (COGSA)*, meaning that the legal recognition of electronic bills of lading would also need to come from COGSA. Currently, COGSA does not acknowledge electronic bills of lading. In addition, with the growing advantages of electronic bills of lading, there is increasing demand within the UK trade market for their acceptance. On April 30, 2021, *the Law Commission for England and Wales* initiated a consultation to consider whether electronic trade documents should hold the same legal validity as paper documents. While the UK does not yet have full, formal recognition of the legal status of electronic bills of lading, we still see the possibility of progress. As a major trading country close to the world's busiest strait, the Strait of Malacca, and one

of the countries at the forefront of the digital process, Singapore has made notable progress in the adoption of electronic bills of lading. The recent enactment of the *Electronic Transactions (Amendment) Act* provides legal recognition for electronic trade documents, such as bills of lading. It recognizes its legal effect, validity and enforceability. But there are still some constraints to making this work. The progress of the United Kingdom and Singapore will encourage more countries to actively promote the development of electronic bills of lading.

4.2. The Driving Force for the Development of Electronic Bills of Lading

E-bills of lading are increasingly supported by trading companies and can not be separated from the electronic technology development. As early as in 2003, Scripta, et al. already discussed the technical basis of electronic bills, and summarized key encryption, biometrics and other methods to achieve security protection of electronic bills in the report [10]. Yet today, the technical underpinning of electronic bills of lading remains critical to reliability, security and efficiency. Today's development of blockchain technology, encryption and other work is more rigorous than before. The use of electronic technology to safely track the location of goods, and thus observe the progress of transport, is also a big step forward in cargo management. In short, if there is no strong technical foundation, then the subsequent transportation of the electronic bill of lading machine may result in incomplete data, security loopholes and other problems. This in turn impedes progress in preventing bill of lading fraud and streamlining shipping processes.

4.3. Market Adoption and Cooperation of Electronic Bills of Lading

Collaboration within the trade industry is essential for the implementation of bills of lading, as practical application provides the most direct insight into the strengths and weaknesses of electronic bills of lading. Through multiple practices, trading companies and partners can make the use of electronic bills of lading more standard, but also convenient to improve the use of electronic bills of lading process in a timely manner. The Digital Container Shipping Association (DCSA) has expressed a very positive attitude towards the practice of electronic bills of lading in trade, and the DCSA (2023) clearly mentioned in a press release that electronic bills of lading by 2030 [11]. What's more, DCSA has facilitated the signing of commitments from many trade and shipping groups. Members mainly include the heavy sea shipping company, Hapag-Lloyd Company and so on. The DCSA press release not only gives the world a commitment to trade exchanges, but also shows the determination of DCSA and each member who signed the pledge. Similarly, the FIT Alliance also issued an electronic bill of lading statement [12]. The consortiums promoting eBL include ICC, Swift, BIMCO and FIATA. The electronic bill of lading is seen to become a new reform direction in international trade. There is also a lot of support in the industry.

Up to now, whether it is official legislation, basic technical support, or industry practice, electronic bills of lading have been strongly supported. The comprehensive support of these three aspects will also lead to more reforms and innovations on electronic bills of lading. In this way, it is conducive to promoting the gathering of social resources, widely accepting the suggestions of experts, and looking forward to the transition from paper bills of lading to electronic types. Ultimately improve the efficiency of international trade, reduce disputes, and promote peaceful transactions.

5. Further Challenges Posed by Electronic Bills of Lading

Although some achievements have been made in the development of electronic bills of lading, there are plans for future development. But this new thing - the electronic bill of lading isn't mature, and still needs to consider some possible negative obstacles.

5.1. Official Recognition

Although the above mentioned some countries to give legal status to electronic bills of lading, such progress is still relatively one-sided. Objectively speaking, electronic bills of lading still lack universal legal recognition in the world. Different regions have different legal standards and trade rules. A hasty and widespread adoption of electronic bills of lading could lead to significant controversy. While the United Nations Commission on International Trade Law has introduced *the UNCITRAL Model Law on Electronic Transferable Records*, certain countries or regions have yet to fully recognize the legal validity of electronic bills of lading. Consequently, in some areas, these electronic files remain beyond the scope of legal regulation. This indicates that electronic bills of lading are not yet prepared for global implementation.

5.2. Technical Security

Although the development of technology is rapid, blockchain technology is also relatively mature. However, electronic bills of lading are also a new thing, and the international trade volume is huge, involving the interests of multiple parties. Integrating blockchain technology into electronic bills of lading presents a significant challenge. As noted by Krebs [13], after examining the integration of blockchain and distributed ledger technology, traditional intermediary-based registry systems offer many advantages over blockchain technology.

6. Conclusion

With the rapid advancement of economic globalization, the demand for and circulation of international trade have increased substantially, making efficient trade processes more crucial than ever. A key element in these transactions is the bill of lading, a document essential for confirming ownership, detailing shipping terms, and defining responsibilities among trade parties. However, traditional paper-based bills of lading are prone to various issues, including fraud, tampering, and complex legal disputes. These challenges not only slow down trade but also create uncertainties in ownership and increase the risk of litigation. The introduction of electronic bills of lading (e-BL) addresses several of these issues by enhancing security, reducing the chances of forgery, and streamlining documentation processes. Despite these benefits, widespread adoption of e-BLs still faces challenges. For electronic bills to be fully integrated, they require official recognition across multiple jurisdictions, as legal frameworks in many countries currently lack provisions to validate e-BLs. Moreover, advanced technologies such as blockchain and biometric verification, which promise greater security and traceability, still need time to mature and integrate into these systems. Additionally, limited practical experience with e-BLs means there are fewer standardized practices in place, which slows broader adoption. These challenges highlight that while e-BLs are a promising solution, more time is required to transition fully from traditional paper bills.

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