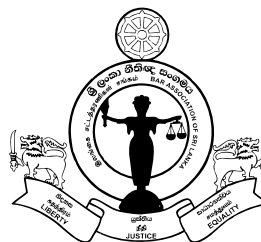

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Using an Electronic Bill of Lading as a Document of Title: Prospects and Challenges



K.A.A.N.Thilakaratne

LLB(Hons) (Colombo), Attorney-at-Law

Major H.S.D.Mendis

LLM, Attorney-at-Law



1 Introduction

International trade is growing at such an alarming rate that it is now globally indispensable. According to Chua¹, no country in the world can have any hope of economic prosperity without being a part of the global trade. It is a true façade of globalization where the whole world has become a single market place in which people are enjoying goods, products and services that are being brought to their footsteps through the use of international trade. In transporting goods from one country to another, the mode of carriage is key. Today, we see that carriage of goods by sea is the most favored method of all just as it was centuries ago as it allows a carrier to transport a bulk of goods and products at a

minimum cost in comparison to other modes of international transportation.

Paul Todd² states that, carriage of goods by sea can be initiated using two fundamental methods which includes a charter party and a bill of lading. However, these methods are fundamentally different from one another in several aspects as the charter party relates to the ship itself, while the bill of lading relates to the cargo aboard the ship. Wilson observes that the bill of lading originated initially as a non-negotiable receipt in the Fourteenth Century where it was issued by the ship-owner to a merchant who did not wish to take the journey.³

At the time, the document constituted details relating to the description of the goods. Subsequently, it also endorsed the terms of the

contract of carriage to resolve any disputes that may arise between the cargo owners and the ship owners. Finally, in the Eighteenth Century, the bill of lading was used to dispose of the goods that were in transit by endorsing the bill and surrendering it to another party who was then able to demand the cargo upon arrival of the vessel.⁴

2 The Main Functions of a Bill of Lading

A bill of lading is defined as 'a document which evidences a contract of carriage by sea and the taking over or loading of the goods by the carrier, and by which the carrier undertakes to deliver the goods against the surrender of the document. A provision in the document that the goods are to be delivered to the order of a named person, or to order, or to bearer, constitutes such an undertaking under the United Nations Convention on the Carriage of Goods by Sea 1978.⁵

The bill of lading is perhaps the most commonly used document of carriage as it performs several functions simultaneously. Firstly, it acts as a receipt for the cargo that is either ready to be loaded or already loaded aboard the ship. Secondly, it evidences a contract of carriage between the shipper and the ship owner. Finally, it acts as a document of title whereby the holder of such a document is able to transfer the goods represented in the document to another party by endorsement which enables such a party to effectively transfer the title of the goods.

As a receipt of goods that are shipped on board the ship, the bill of lading will detail the quantity and the quality of the goods. Under the common law, the ship owner is made liable to the final owner of the cargo as to the accuracy and correctness of the quantity and the quality of the goods. The quantity of the cargo may be described in weights (i.e. kilograms or metric tons) or in units. The quality of the goods refers to a general acknowledgement as to the apparent conditions of the goods which are visible to the naked eye. If the statements made in the bill of lading are found to be untrue, the cargo owner can then make a claim against the ship owner⁶ for the inaccuracies between the actual goods received and the description provided in the bill of lading concerning the goods.⁷

The bill of lading also acts as evidence of a contract of carriage between the shipper and the carrier. A bill of lading would normally incorporate the terms of the carriage on the reverse side of the document in fine print. In the case of *Crooks v Allan*⁸, it was held that a bill of lading is merely evidence of a contract of carriage between the shipper and the carrier and that a shipper is not bound to abide by all of the stipulations made therein. However, a bill of lading would become a contract of carriage between the carrier and a third party who is entitled to the cargo upon arrival of the vessel at the port of destination and the carrier would be estopped from proving anything to the contrary. In the case of *Leduc v Ward*⁹, it was held that a bill of lading, once endorsed for value to a *bona fide* third party, becomes conclusive evidence as to the terms of the contract of carriage between the carrier and the third party.

The most important function of a bill of lading in international trade is its ability to represent the goods which are stated therein. This allows the bill of lading to act as a document of title which then becomes transferrable to another party via endorsement and delivery. Hence, by becoming a document of title, a bill of lading allows one owner to transfer the goods represented in the bill of lading by transferring the bill of lading itself without actually transferring the goods which are on board a ship. Therefore, possession of the bill of lading is equivalent to possession of the goods represented in it which allows the holder of the bill of lading to receive the goods upon discharge at the port of delivery, transfer the ownership of the goods while they are in transit and to use the bill of lading as security for credit facilities.¹⁰

A bill of lading is an established document of carriage utilized by many traders in the world, due to the diverse functions it performs, although it is merely a single document. It is, therefore, vital that any suggested alternative, including an alternative in an electronic mode, be able to perform the same functions. Attempting to replicate the functions of a bill of lading which is paper based with an alternative mode would require such an alternative mode to comply with the functional equivalence of the paper bill of lading. In particular, as a paper bill of lading is capable of transferring the title of the

goods represented in the bill of lading without essentially transferring the goods physically, it would be a *sine qua non* for any alternative mode such as an electronic bill of lading to replicate this function, in order to become an acceptable (electronic) document of ocean carriage.

3 The Need for an Electronic Bill of Lading

Paul Todd¹¹ observes that while the use of paper bills of lading is ubiquitous the world over, it has long been found unsatisfactory. It was noted in 1996 that an estimated 7 percent of the total value of international trade is wasted on paper administration.¹²

Furthermore, it is also estimated that nearly 10 to 15 percent of transport cost is accrued due to the use of paper-based documents. Such expenditure merely for the use of paper in today's computerized world is undoubtedly redundant and has subsequently resulted in many initiatives being taken to reduce not only the cost spent on paper but also the other issues related to paper usage. One such initiative is to replace the paper-based bill of lading with an electronic one. Dubovec¹³ observes that the recent trend in moving towards electronic modes of communication is the result of the sharp development in the telecommunication industry which has significantly influenced the shipping industry while attempting to invent novel methods of handling their documents (such as paper-based bills of lading) through electronic means.

The need for introducing an electronic bill of lading was recognized primarily due to the fact that cargo represented in the bill usually arrived at the port of destination prior to the bill of lading.¹⁴ In the absence of the bill of lading, the carrier faced the dilemma of either surrendering the goods without an actual bill of lading to the supposed owner of the cargo or having to await the arrival of the bill of lading and deal with the consequences of such delays thereafter. According to the traditional rules of paper-based bills of lading, the carrier is required to hand over the cargo to the holder of the bill of lading upon its surrender. If the carrier delivers the cargo without a bill of lading, he will become liable to the true owner of the cargo should the cargo be delivered to another party. To mitigate this potential risk, in the event a carrier surrenders the

cargo without receiving a bill of lading, he would usually demand a bank guarantee that could, if needed, indemnify him against a potential claim from the truthful owner of the cargo.¹⁵ However, the validity and vindication of such bank guarantees would sometimes become cumbersome and at any rate, would be an unnecessary risk on the part of the carrier to take on such a burden. Generating and processing paper bills of lading makes it comparatively more expensive in comparison to electronic means. Low¹⁶ finds that even at the beginning of the new millennium, an international commercial shipment in the United States usually required approximately 100 documents which cost approximately ten percent of the invoice value of the goods. Goldby¹⁷ claims that the use of an electronic system would significantly help reduce the processing time of transport documents, provide better security by encrypting data messages and exchanges and increase the efficiency and effectiveness of the process as a whole. Therefore, finding an alternative to paper-based transport documents has become a pressing need, and the electronic bill of lading has been introduced and discussed as a possible solution.

4 Introducing an Electronic Bill of Lading

Paul Todd¹⁸ states that the initiatives taken to introduce an electronic bill of lading or an equivalent alternative began in 1983, leading to the subsequent introduction of the BOLERO system. In 1990 the Comité Maritime International (CMI) published the Rules on Electronic Bills of Lading and in 2008, the United Nations adopted a new convention on 'Contracts for the International Carriage of Goods Wholly or Partly by Sea' (known as the Rotterdam rules) that permit and regulate the use of electronic bills of lading. Low¹⁹ states that, with the development of electronic means of telecommunication, many business entities have ventured into electronic transactions. He further states that the development of the Electronic Data Interchange (EDI) enables the exchange of information in standard formats by using computer networks. This allows companies to generate, transmit, receive, process and store information via electronic means which could also be used in

the documentation of maritime transportation, especially electronic bills of lading.

It is argued that the benefit of introducing an electronic bill of lading is that it would help get rid of delays that are caused by paper bills of lading. As explained above, in many instances the goods arrive at the port of discharge before the bill of lading. However, an electronic bill of lading would help reduce the delay in transferring the document from one party to another as they would not have to wait until they receive a physical bill of lading. It is further argued that an electronic bill of lading would help reduce the cost of documentation and increase the efficiency of the transactions.²⁰

While it would be fairly easy to define an electronic bill of lading as a bill of lading which is generated and negotiated through electronic means, it would not be as simple to both generate and negotiate a bill of lading through electronic means in a manner that is both reliable and acceptable to those who trade internationally. This is evident from the fact that, while the idea of an electronic bill of lading has existed for nearly four decades, it is yet to play a significant role as a transportation document which can be used in the carriage of goods by sea.²¹ Ziakas²² states that when it comes to the reaction of the community regarding the acceptance of an electronic bill of lading, 'it can be described as perfunctory and facile rather than coordinate and prosperous.'²³ The BOLERO rulebook defines an electronic bill of lading as 'an instrument, created and evidenced by the transmission into the System of Messages, which operates as a receipt for a consignment of goods shipped and/or received for shipment by the Carrier and *as evidence of a negotiable contract of carriage*, which instrument has the legal effect described in these Rules.'²⁴ It is important to note that irrespective of there being a definition of the term "electronic bill of lading", the practicality and the feasibility of such an initiative will entirely depend on the ability of an electronic bill of lading to replicate the functions performed by a paper based bill of lading.

5 Challenges in Using an Electronic Bill of Lading as a Document of Title

Kuester²⁵ explains that an electronic bill of lading '[should be] the legal and functional equivalent of a paper B/L. The e-Bills must digitize the core functions of a paper B/L, namely its legal acceptance as a receipt, as evidence of or containing the contract of carriage and as a document of title.'²⁶ The main use of a bill of lading is its ability to act as a title to the goods which are represented in the bill which allows a holder of the bill to transfer the title to the goods represented in the bill to another party by a simple endorsement. This negotiability of the bill of lading allows a holder to receive the cargo upon its presentment to the master, to transfer it to a third party and to use the bill of lading as collateral to obtain credit and other monetary facilities from banks. An electronic bill of lading, if successfully implemented and widely accepted, would have to match up to the functional equivalence of the paper-based bill of lading. Low²⁷ observes that the mechanism introduced to enable the use of electronic bills of lading would have to face several challenges. Firstly, it would have to find a way to replicate the negotiability of a paper-based bill of lading. Secondly, it would have to amend or introduce laws to suit the issuance and the use of electronic bills of lading. Thirdly, it would have to popularize the use of electronic bills of lading in conducting international transactions where the goods are to be transported through the use of (an electronic) bill of lading.

Paul Todd²⁸ states that an electronic bill of lading should be able to establish the right of its holder to take up possession of the goods with its presentation. It should be able to transfer the rights and duties under the contract of carriage and should also allow for the transfer of the title to the goods represented in the bill. Further, it should also be capable of providing the legal recourse to carriers that would protect them from liability when they deliver the goods upon the presentment of the bill of lading while also protecting their right of refusing to do so when no bill of lading is presented.

One of the main problems encountered in introducing electronic bills of lading is the fact that they could be easily forged in an era of heightened technological advances. While encryption of electronic messages or documents provides security, decrypting such messages would not be challenging in modern times. This matter is further exemplified by the fact that when a carrier surrenders the goods upon the presentation of a bill of lading, he is not generally required to extensively verify the authenticity of the documents provided to him, unless there are some obvious and visible flaws in the document. Under the current mercantile practice, when a paper bill of lading is issued, it is issued as a set of three originals and the carrier is relieved of his liability if he delivers against the presentation of any of the originals. As for an electronic bill of lading, whatever mechanism is used for its generation, storage and transmission, a carrier should be offered the same protection which would have been given to him had he used paper bills of lading. Failure to do so would result in carriers refusing to undertake the delivery of cargo under an electronic bill of lading. Therefore the process of generating, storing and transmitting an electronic bill of lading would have to be compatible with the current practices of international trade. While it would be relatively easy to record the quantity and the quality of the goods that are loaded on board a ship via electronic means, it would be far difficult to create a mechanism for the transfer of an electronic bill of lading from one party to another.

An electronic bill of lading should be able to record all the incidents from its creation to the loss of negotiability through the delivery of cargo to the ultimate holder. Whereas, if it was a paper bill of lading, it would have been possible to record every transaction that affects the bill of lading on the face of the bill of lading itself. However, when it comes to an electronic bill of lading would most likely require a central system²⁹ to record all transactions that affect it. A registry model could operate to identify the person in control of a given electronic bill of lading. Under this system, the registry would be required to ascertain and establish the owner of an electronically transferable record (an electronic bill of lading) and the creation, issuance and transfer of the electronically transferable record

could be monitored through the registry in order to ascertain its integrity and authentication.³⁰

The BOLERO system which is currently in operation uses such a central register system to record each and every transaction that affects a bill of lading issued under the BOLERO system, which are referred to as BOLERO bills of lading.³¹

The system will record the chain of transfers by which an ultimate holder would be able to identify the encumbrances placed upon the bill of lading prior to committing to such an (electronic) bill of lading. This system would be similar to the system used at a land registry to search the pedigree of a particular piece of land. This registry will be able to record every transaction that affects the bill of lading and store such information in a system that would be made accessible to a registered party to the system through an issuance of a key which could be used to login to the system and access the information. However, the prevalent issue with the BOLERO project is that it is not an open project for any one who wishes to use the service. Instead, only registered users can use the facilities that are provided by the BOLERO system. So, whether you are a shipper, a carrier or a consignee, you would have to be a registered member of the system to use the system.³²

If this mechanism is to help in the creation of an electronic bill of lading, it would have to be a system which would be open to anyone in the world interested in utilizing its facilities.

The next obstacle in the adoption of an electronic bill of lading would lie in the domestic recognition and acceptance of such under the existing legal regime. For an electronic bill of lading to become truly meaningful, it should acquire the same parlance that is accorded to a paper-based bill of lading. Paul Todd³³ referring to the current situation in the United Kingdom observes that, as for the contemporary law, there are many situations in which an electronic bill of lading would not fall under the ambit of a particular legislation. He points out that, under section 19 (2) of the Sale of Goods Act of UK, the presumption that a seller retains the right of disposal when the bill of lading is issued deliverable to the order of the seller or his agent will only apply to a paper-based bill of lading and not to an electronic bill of lading. Therefore, Paul Todd argues that, regarding

an electronic bill of lading, the property in the goods should always remain with the holder of the electronic bill of lading.

To draw upon another example, the Carriage of Goods by Sea Act of 1992 (UK) provides for the utilization of electronic methods for the transmission of maritime documents. Section 1(5) of the Act, which was amended by the Communications Act of 2003, allows the Secretary of the State to make provisions by way of regulations for the utilization of electronic bills of lading. However, as of 2020, regulations have not been made. If an electronic bill of lading is not to be considered as a bill of lading under the 1992 Act, no shipper, carrier nor consignee would be able to claim any protections under the Act. While the Act allows the holder of the bill to be transferred with certain rights against the carrier, this would not become possible under an electronic bill of lading as it is not recognized as a valid bill of lading under the 1992 Act.³⁴

When focusing on the Sri Lankan context, the Carriage of Goods by Sea Act No 21 of 1982 incorporates the Hauge-Visby rules into the Sri Lankan law. Section 4 of the Act makes reference to a bill of lading by stating that any bill of lading should be issued under the rules specified in the Act (refers to the Hauge-Visby rules). However, it must be noted that the Hauge-Visby rules were enunciated in 1968, a time in which electronic bills of lading were not thought of. It would therefore be problematic to issue an electronic bill of lading under this Act. While the Rotterdam rules of 2008 allows for the issuance and use of electronic bills of lading, it is yet to come into effect, and it is unlikely that it would come into operation in the foreseeable future. Article 8 of the Rotterdam rules provide for the issuance and use of electronic documents in maritime transportation and it also grants an electronic document the same capacity afforded to a paper-based document. Article 9 provides for the procedure to be adopted in using negotiable transportation documents. The procedure relates to the issuance and transfer of the document, retaining its integrity, a manner for the holder to demonstrate that he is the holder and confirming the delivery in accordance with the other provisions of the convention. Article 10 provides for the replacement of a paper-based document with an electronic one when a paper-based document has been initially issued.

However, as Sri Lanka is yet to sign the Rotterdam rules, and it is unlikely that the provisions of those rules would become a part of the domestic law in the foreseeable future. However, should it become a part of Sri Lankan law, the issuing and circulation of electronic bills of lading could be governed under the Electronic Transactions Act No 19 of 2006 (as amended) as it does not exclude bills of lading which are generated and circulated through electronic means.³⁵

Another aspect which needs to be addressed is the legal recourse which would be made available to the carriers. Under common law, when a paper-bill of lading is used, it provides the defence of conversion against a cargo owner irrespective of whether or not the carrier has a specific contract with the cargo owner. However, should an electronic bill of lading be used, this common law rule would not be applicable as it is limited to paper-based bills of lading. Further, as the carrier is required to surrender the cargo against the presentment of the bill, where there is an electronic bill of lading, a carrier should be afforded adequate protections against forgery given that it would be impossible for the carrier to authenticate an electronic bill of lading.

Paul Todd³⁶ explains that in a closed system such as BOLERO where every party to a contract of carriage, whether they come into the transaction which is initially negotiated or subsequently by becoming a holder of a bill by subscribing to the system, agrees that they have at all times a contract between them. It is therefore easy to solve complications that may arise between such parties as they are contractually bound at all times. However, implementing such a system in an open system would be far more challenging and therefore, appropriate technologies such as blockchain contracts would have to be utilized. A blockchain contract allows for the recording of all transactions in a hosting platform, such as a registry. This information can then be made available to anyone who wishes to use its services. However, granting any party that logs in to the system access to such information may be viewed as a set-back of the system, as such an act would allow any party, including competitors, to acquire information which would not otherwise have been available to them. Most parties would most likely be reluctant to expose their dealings in such a manner. Addressing such issues prior

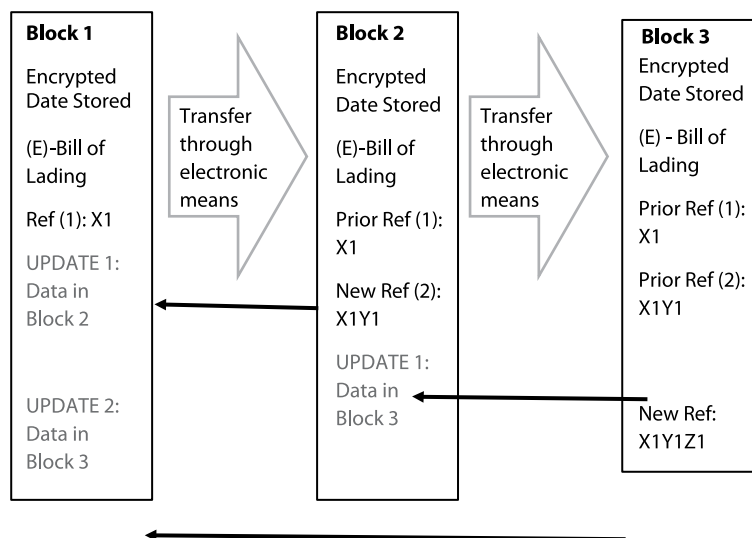
to introducing such a system would therefore be of utmost importance, so as to ensure that the system is practical and usable. Another key issue pertaining to the use of an electronic bill of lading lies in changing the perception of those involved in maritime transportation, especially those who are reluctant to use electronic means instead of paper. It would be somewhat challenging to convince such persons of the convenience and security afforded by electronic bills of lading as opposed to paper-based bills of lading without having an adequate system/mechanism in place to support such claims.

6 Opportunities in Using an Electronic Bill of Lading

For an electronic bill of lading to truly replace the paper-based bill of lading, it would have to be made freely available so as to make the use of electronic bills of lading universal. Amongst some of the promising solutions that can be provided to enable the use of electronic bills of lading, the use of blockchains and smart contracts are the most noteworthy. Blockchain is a method for storing and linking data. This allows for greater decentralization (having to use a central registry as in BOLERO) of the process which makes it possible to have an open system. Under a blockchain system, each lock will make a reference to another, and altering a single block would not help a fraudster tamper with the electronic records. This can be explained with the following diagram.

As shown above, the first block will contain the initial electronic data which is stored in block 1 and the second and the third blocks will contain its own electronic data and reference to the data which is stored in the chain prior to them. In this type of situation, a fraudster will have to alter all of the data in the preceding block in order to make a fraudulent document. For example, since block 1 would record (update) all the transactions that are made subsequently, if a fraudster alters the data in block 3 only where such information would not be updated in block 1 and 2, such alteration would not enable him to trick the system since he would not have a genuine link or a chain to prove his title.

In working out the above explained situation two models, i.e. successive assignments and novation, could be used. Under the successive assignment scheme, the rights under the electronic bill of lading would be assigned to the subsequent holder of the electronic bill of lading. Such an assignment and the electronic bill of lading then would be required to trigger the payment against the presentment of the bill. However, the downside to this,, is that, when a buyer is wanting to make a purchase, he would be required to inquire in to the chain of assignments in which if one chain is broken that would break down the whole system apart. This was not possible until recently, where the blockchain mechanism allows a buyer to get such a verification of the chain of transactions affecting the electronic bill of lading. The other



method of novation would require a new contract to be entered upon each time a bill is negotiated. Under this system, the payment can be triggered by the tendering of the electronic bill of lading along with the offer of entering into a new contract by the carrier. The successive novation will enable the ultimate holder of the electronic bill of lading to have a contractual relationship with the carrier at the end. This method was used in the CMI rules on electronic bills of lading that were introduced some three decades ago. The above mechanisms show the possibility of using electronic bills of lading in particular as a document of title which is the most important function performed by a bill of lading which allows the holder of the bill to use it as collateral to get credit and to transfer the title to the goods without transferring the goods physically. However, if we are to conduct a system of trade based on electronic bills of lading, much would still have to be done. The legal regime and the attitude of those who are involved in the trade would have to be open to change.

7 Conclusion

Initially, the bill of lading served as a mere receipt of acknowledgement that the cargo had been loaded on board a ship. It later served as evidence of a contract of carriage between the carrier and the shipper. Finally, it became a document of title, enabling its holder to transfer the goods represented in the bill by transferring the bill of lading itself without having to physically transfer the goods. This function in particular made the bill of lading a most convenient method to be employed in maritime transportation. However, with the rapid developments in the maritime industry, many ships began arriving at the port of discharge before the bill of lading was transferred, which made it problematic for both the carrier and the individual entitled to demand the cargo upon the presentation of the bill of lading. In an effort to overcome this, a more reliable and speedy alternative of introducing an electronic bill of lading was subject to discourse in the early 1980's. While there have been several attempts to use an electronic bill of lading in an open environment, it is yet to become a complete success.

The main issue in introducing an electronic bill

of lading as an alternative to its paper-based counterpart has been the use of an electronic bill of lading as a document of title. While, safety and security can be considered as advantages of using an electronic bill of lading, on the same token with the new advances in technology, the possibility of counterfeiting such electronic documents are a real threat. While several initiatives have been developed and introduced with regard to the use of electronic bills of lading such as the BOLERO and CMI projects, they are, for the most part, closed projects, which only allow access to those who have subscribed/registered with the system. However, this does not cater for an open system that we currently find with the paper-based system which is open to all.

To introduce an electronic bill of lading system, a feasible proper infrastructure has become important and to this end, as of today blockchains and smart contracts have the potential to enable such a feasible system. In addition to the infrastructure, the current legal regime should also be reshaped and adapted to cater to the needs of a system which would utilize electronic bills of lading. However, for the most part, the possibility of using electronic bills of lading will depend on the attitude and the willingness of those engaged in the trade as it is they who, through their mercantile practices, gave birth to the paper-based bill of lading and the functions that it performs.

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- 35 Section 23 of the Original Act and the subsequent amendments thereafter do not include electronic bills of lading as excluded subject matter from the coverage of the Act.
- 36 P. Todd, 'Electronic bills of lading, blockchains and smart contracts' [2019] *International Journal of Law and Technology* 339
- 37 P. Todd, 'Dematerialization of Shipping Documents' [1994] *Journal of Business Law* 410