

Article

Ensuring Fair Compensation: Analyzing and Adjusting Freight Forwarder Liability Limits

Miloš Poliak *  and Ekaterina Salamakhina 

Department of Road and Urban Transport, University of Žilina, 01026 Žilina, Slovakia;
salamakhina@stud.uniza.sk

* Correspondence: milos.poliak@fpedas.uniza.sk

Abstract: *Background:* Due to the absence of unified global regulations, defining the service and legal role of freight forwarders is challenging. This, as well as the lack of a standardized limit to the freight forwarder's liability for loss or damage to the cargo, introduces misunderstandings into his relationship with the client. The purpose of this study is to analyze the most widely used limit for freight forwarder's liability, set in Special Drawing Rights (SDR) units, and to adjust it, which will allow for maintaining the purchasing power of the compensation amount over different periods of time. *Methods:* In this study, two methods of adjusting the liability limit were proposed. In accordance with the first one, the limit was adjusted considering the impact of dollar inflation on the SDR unit. The second method involves changes in the limit of liability, taking into account changes in world prices for goods. *Results:* The result of this study showed that the second method is more functional, helping to preserve the purchasing power of the liability limit most effectively over time. *Conclusions:* This study revealed the fluctuating purchasing power of the forwarder's liability limit over time and suggests utilizing a methodology tied to changes in global goods' prices for adjustment.

Keywords: freight forwarding; transportation law; freight forwarder's liability



Citation: Poliak, M.; Salamakhina, E. Ensuring Fair Compensation: Analyzing and Adjusting Freight Forwarder Liability Limits. *Logistics* **2024**, *8*, 42. <https://doi.org/10.3390/logistics8020042>

Academic Editor: Robert Handfield

Received: 23 January 2024

Revised: 26 March 2024

Accepted: 9 April 2024

Published: 12 April 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Throughout the history of mankind, people have strived for unification, whether it is the unification of trade legal relationships, or even personal relationships, since standardization leads to the transparency of processes and mutual understanding. However, political and geographical interests, mutual distrust, and differences in traditions still do not allow us to assert that humanity has come to succeed in this matter. In the field of transport, now we can see some improvements, such as, for example, the creation in 1956 of the Convention on the Contract for the International Carriage of Goods by Road (CMR Convention), which, as of January 2022, has been ratified by more than 55 states [1]. However, for example, in the sphere of maritime transport, which covers a much larger volume of goods than land transport, there have been attempts at harmonization, which, however, have led to the fact that, even within the European Union, different countries have ratified different international treaties [2]. If we turn to freight forwarding, an area that is less straightforward than the transportation of goods by a certain mode of transport, we can notice that the unification of this type of activity is at a very low level.

In the process of unification, it is necessary to adhere to the principle of fairness in order to avoid skewing the interests of only one party—the freight forwarder or the client. The author of this study notes a similar injustice, arguing that, for example, the Warsaw Convention was undoubtedly designed to protect airlines from lawsuits by passengers. It was not a tool for protecting consumer rights, but rather the opposite [3].

The most pressing issue in the field of relationships between the freight forwarder and the consignor is the scope and limit of the freight forwarder's liability for loss and damage to the cargo. To set the limit of the freight forwarder's liability, when organizing

international transportation, the Special Drawing Right (SDR) unit is most often used. The SDR was established in 1969 to supplement existing reserve assets and thus achieve the objectives of the International Monetary Fund (IMF). The purpose of the SDR is to support the international monetary system and smooth the process of international adjustment [4].

It can be noted that in the territory of the countries that have ratified the CMR Convention, the most common liability limit in the field of forwarding is 8.33 SDR/kilogram gross of lost or damaged cargo, which corresponds to the limitation of liability established by this convention. This liability limit was established by the Protocol of 5 July 1978, to the Convention on the Contract for the International Carriage of Goods by Road, remaining unchanged from that moment. The adjustment of the value of this liability limit is made by adjusting the SDR unit carried out by the International Monetary Fund. Considering this fact, as well as the need to adhere to the principle of truthfulness, the following research questions were raised:

- (1) Does the purchasing power of the widely used freight forwarder's liability limit persist over time?
- (2) Is the IMF's regular adjustment of the SDR unit sufficient to compensate for USD inflation? How does this affect the preservation of the purchasing power of the forwarder's liability limit?
- (3) Is it possible to create a tool for regulating the forwarder's liability limit, allowing him to maintain his purchasing power over time?

To answer these questions, the theoretical background is presented below. Next, the calculation of the change in the purchasing power of the freight forwarder's liability limit are carried out, after which two methods of its regulation are presented. The Results section presents the results of the correction of the liability limit, in accordance with the presented methods, tested to preserve purchasing power.

2. Literature Review

In the field of modern economics, the concept of "forwarding" is widely known. The main reason for the emergence of forwarding companies is the need to pay attention to the development of the company's core competencies, i.e., orientation to the production and provision of services and the rejection of additional functions that are not typical for the company (transportation, physical distribution of goods, storage, etc.). In this case, there is a need to use outsourcing services from freight forwarding companies [5]. Since in most cases the processes of interaction between enterprises in the transportation market are organized by freight forwarders, the efficiency of the freight forwarding technological process fully determines the sustainable development of the transportation market as a macro-logistics system [6]. Freight forwarding is a service related to the handling of goods, packaging, transportation, storage, consolidation, distribution, and other services, and is not limited only to matters related to the customs, taxation, documentation, and warranty of goods [7]. One of the advantages obtained when contacting a freight forwarding company is a reduction in the cost of delivery, obtained, among other things, due to the ability of the freight forwarder to use its special rates when organizing transportation [8]. This study notes that in almost all cases of cargo transportation, it is the freight forwarders who make the decision on the choice of carrier for the shippers, which undoubtedly imposes a great responsibility on them [9]. At the same time, for each transport task, the freight forwarding company is allowed to choose the method of performance, i.e., for the performance of the relevant assigned tasks, freight forwarders can use their own vehicles (self-fulfillment), or an external carrier (subcontractor) receives a reward for the execution of the request (subcontracting) [10]. The field of freight forwarding is constantly expanding, and the role of freight forwarders is changing rapidly due to the new demand and diverse needs of their customers [11]. Freight forwarding can also provoke changes in the foreign and domestic policies of countries, the conclusion of economic alliances, and changes in borders [12]. In connection with the expansion of the service role of the freight forwarder, multimodal transportation has become very popular. The most characteristic feature of multimodal

transport is that the carriage of goods is carried out by at least two different modes of transportation. In addition, the entire process of international multimodal transportation is covered by a single contract signed between the multimodal transport operator and the shipper [13].

In addition to understanding the service role, it is necessary to be able to define the legal role of the freight forwarder. Freight forwarders act as a wide range of intermediaries, playing different roles in different legal systems (principals, a wide range of agents, carriers, customs brokers, and multimodal transport operators) [14]. Conceptually, freight forwarders' contracts differ in the systems of continental and Anglo-Saxon law. In civil law, the division of representation, which is unknown to English law, is traditionally applied as direct (real) and indirect (derivative). In the case of direct representation, the freight forwarder acts on behalf of someone else, legally binding the represented person and the third party directly. In fact, the freight forwarder acts, and the consignor acts legally. In the case of indirect representation, the freight forwarder (commission agent) acts in the interests of the consignor (principal), but on its own behalf. The freight forwarder acts both factually and legally. His actions bind him directly. The third party may not know that the freight forwarder is acting as a representative and the shipper may not know who the third party is. The Anglo-Saxon system does not recognize indirect representation. In turn, civil law does not recognize the doctrine of an "undisclosed principal". This is a unique legal concept of common law. Under this doctrine, a third party cannot conclude that the freight forwarder is acting in the interests of others and not in its own interests, while the shipper is legally acting [15]. To determine the legal role of the freight forwarder in the Anglo-Saxon system, the entire course of the business relationship between the freight forwarder and the shipper, including the contractual terms of the contract, is taken into account. A freight forwarder may act under contract as a principal, agent, carrier, or some other legal mixture or hybrid [16].

Determining the service and legal role of the freight forwarder is primarily necessary to determine its area and limit of liability to the shipper in case of loss or damage to the cargo. For example, in the last two years alone, the Transported Asset Protection Association (TAPA EMEA) has recorded more than 15,000 shipment losses in supply chains, with a total loss of approximately 424,000 USD in theft of goods every day in 2019 and 2020 [17]. Nowadays, the freight forwarder's liability limit is not unified. For example, in the countries of the European Union, the liability limit is set in most cases by the standard terms and conditions of national freight forwarders' associations and varies from 1.09 EUR per kilogram of damage in Austria to unlimited liability (in Croatia and Italy) [18]. It should be noted that often the limit of the freight forwarder's liability corresponds with the limit of the carrier's liability established by the relevant international treaty regulating a certain mode of transport. For example, the most common limit of the freight forwarder's liability in the European Union is 8.33 SDR per kilogram of damaged or lost cargo. This limit of liability corresponds to the limit of liability of a road carrier according to the CMR Convention [19]. This is logical, since the most convenient scheme is the one in which the amount of the freight forwarder's liability to the client is like the amount of the carrier's liability to the freight forwarder. Also, in the standard conditions of freight forwarders, there could be a limit to the freight forwarder's liability in the amount of 2 SDR, which corresponds to the limit on the carrier's liability in accordance with the convention's international rules for the international carriage of goods by sea, the Hague-Visby Rules [2]. In this case, the operator of multimodal transportation is liable for the cargo in accordance with the legal norms applicable to the part of the transportation route on which the damage occurred or for the entire transportation, if it is impossible to establish the location of the damage to the cargo [20].

At present, expeditionary activities are not regulated by international law. The role of the unifier is partially assumed by the International Federation of Freight Forwarders Associations (FIATA). FIATA members are national organizations that bring together entrepreneurs in the field of freight forwarding and logistics from 150 countries [21].

In 1967, UNIDROIT submitted a draft international convention in an attempt to unify different conceptual approaches, but it was never submitted to a diplomatic conference, mainly because of resistance from the FIATA [22]. In the field of multimodal transport, the 1980 United Nations Convention on International Multimodal Transport of Goods was established, but has not been ratified by the required number of countries. The UNCTAD/ICC Rules for Multimodal Transport Documents were created and incorporated into widely used multimodal transport documents such as the 1992 FIATA Bill of Lading—“FBL” and the Baltic and International Maritime Council’s “MULTIDOC 95” [23]. The lack of uniform legislation in the field of freight forwarding creates problems in communication between customers and freight forwarders, causing disputes and misunderstandings. There are many business factors that affect a company’s performance. Among these, accurate forecasts have the greatest impact on an organization’s ability to meet customer needs and manage resources efficiently in terms of costs [24]. It is for this reason that both the freight forwarder and the shipper need to clearly understand the areas and limits of responsibility, since the ability to predict potential costs helps to allocate the company’s budget. Even the already established international treaties do not guarantee the unification of all processes; an example of this is the different interpretation of the clauses of the CMR Convention [25]. At the same time, the complete lack of unification brings even greater confusion to business processes.

When tracking changed in the purchasing power of the freight forwarder’s liability limit, it was decided to refer to world prices for raw materials. The commodities essential to the life of modern society include almost all primary material goods used for production and consumption, such as energy, minerals, and agricultural products. In consumer and producer countries, a large part of income and wealth depends on the prices of these goods [26]. At the same time, commodity price shocks affect the corporate, household, government, and banking sectors of the economy [27]. Commodities are physical products that require storage and transportation and therefore may be slower to respond to changes in demand [28]. In this case, it can be assumed that linking the freight forwarder’s liability limit to changes in commodity prices will allow for the limit to be updated at certain intervals. However, in any case, it is necessary to take into account crises and sharp increases or decreases in demand for certain groups of goods. For example, innovations in technology drive the development of methods of production, transportation, and distribution, which in turn affect the supply and demand of commodities (e.g., the discovery of new methods of oil extraction, which have increased supply, and the fall in oil prices) [29]. Many studies have identified the role of dollarization denominated in commodities. In this context, the modest, if not significant, increase in commodity prices is attributable to the depreciation of the dollar [30]. In this paper, a study will be conducted on how dollar inflation can affect the purchasing power of the freight forwarder’s liability limit for temporary changes.

3. The Current State of the Research Question

The creation of an international treaty is a time-consuming task that requires step-by-step preparation. In this study, it was decided to focus on the creation of an optimal limit for freight forwarders’ liability. In this case, it is possible to propose a radically new value or use the liability limit traditionally used by most freight forwarders. The second option is preferable since the greatest problems in the implementation of new legislative acts arise from the reluctance of individual countries to deviate from their traditions. At the same time, it is also necessary to keep in mind the principles of fairness, defending the interests of both freight forwarders and their customers. It was decided to consider in the study the most used limit of liability in the European Union, in the amount of 8.33 SDR per kilogram of damaged or lost cargo, which is identical to the limit of liability of a road carrier, in accordance with the CMR Convention. The limit of liability of the road carrier, in the amount of 8.33 SDR per kilogram of cargo, was established by the Protocol of 5 July 1978, to the Convention on the Contract for the International Carriage of Goods by Road. Given the fact that the nominal value of the SDR is a variable value, it is necessary to understand

whether the real value of this unit remains stable, i.e., whether the purchasing power of the carrier in relation to the freight forwarder and, accordingly, the freight forwarder in relation to the client, is the same as it was more than forty years ago. If there is no stability in the purchasing power of the selected liability limit, methods for its correction will be proposed.

3.1. Verification of the Need to Change the Current Limit of Liability

It was decided to check the purchasing power of the selected liability limit by comparing the possibility of purchasing the same share of the basket of goods in different years of the study period, and the value of the basket of goods would be determined based on data on world prices for these goods.

To solve this problem, it was necessary to change the period under consideration from 1978–2022 to 1981–2022, due to the lack of data on the value of SDRs for the period of 1978–1980 inclusive, on the IMF website. In this case, the base year was 1981, with a limit of 8.33 SDR.

When solving this problem, reliable data were not found on the existence of a certain methodology for the selection of goods for the formation of a basket, with the help of which it is possible to check the purchasing power of the liability limit of the freight forwarder or carrier. In particular, the text of the 1956 CMR Convention, as well as the Protocol to the 1981 CMR Convention, do not contain information on the methods of setting a limit in a certain amount.

Considering that the limit of liability of the carrier or freight forwarder assumes the maximum amount of compensation for damaged or lost goods, it is assumed that the limit was formed on the basis of the average cost of transportation goods. Their identification is quite problematic, given that road transport involves the transportation of all existing goods, both the cheapest and the most valuable.

It is also necessary to consider the fact that the value of world prices for goods is sensitive to completely different factors, such as the political situation in the world, the formation or destruction of monopoly production, an increase or decrease in the production of certain goods, a decrease or increase in the cost of logistics, etc. This means that the purchasing power of the liability limit cannot be tested only based on a comparison of the purchase of a single product.

Considering this factor, as well as the lack of certain methods, it was decided to use the largest possible number of mined or cultivated goods in the basket. Moreover, manufactured goods, such as, for example, electrical appliances or automobiles, were excluded from the basket because technological progress over such a significant period has significantly changed the structure of such goods. From the point of view of the authors of the study, these changes exclude the possibility of saying that the functionality of a car produced in 1981 and in 2022 is equivalent and the goods are comparable.

For the calculation, data from the U.S. Bureau of Labor Statistics website, which provides a database of the world value of various goods over a large period of time, were used [31].

Table 1 shows the products that participated in the formation of the basket. Only those products whose value was indicated for each year under review were included in the cart.

To simplify the calculations, it was decided to combine the selected products into the following groups, presented in Table 1:

The cost of the formed basket of goods for each year was calculated by summing up the prices of all selected products according to the following formula:

$$\text{PrBG}_{cy} = \sum \text{PrG}_{cy}, \quad (1)$$

where

PrBG_{cy} —the value of the basket of goods in the corresponding year in USD;

PrG_{cy} —the cost of one unit of the selected product, according to Table 1, in the corresponding year in USD.

Table 1. Selected products for research.

Category of Commodities	Name of a Commodity	Units
Energy	Crude oil, average	USD/bbl
	Crude oil, Brent	USD/bbl
	Crude oil, Dubai	USD/bbl
	Coal, Australian	USD/mt
	Natural gas, US	USD/mmbtu
	Natural gas, Europe	USD/mmbtu
	Liquefied natural gas, Japan	USD/mmbtu
Beverages	Cocoa	USD/kg
	Coffee, Arabica	USD/kg
	Coffee, Robusta	USD/kg
	Tea, avg three auctions	USD/kg
	Tea, Colombo	USD/kg
	Tea, Kolkata	USD/kg
	Tea, Mombasa	USD/kg
Oils and Meals	Coconut oil	USD/mt
	Groundnuts	USD/mt
	Fish meal	USD/mt
	Groundnut oil	USD/mt
	Palm oil	USD/mt
	Soybeans	USD/mt
	Soybean oil	USD/mt
	Soybean meal	USD/mt
Cereals	Maize	USD/mt
	Wheat, US SRW	USD/mt
	Wheat, US HRW	USD/mt
Other Food	Banana, US	USD/kg
	Chicken	USD/kg
	Beef	USD/kg
	Lamb	USD/kg
	Shrimps, Mexican	USD/kg
	Sugar, EU	USD/kg
	Sugar, US	USD/kg
	Sugar, world	USD/kg
Other Raw Materials	Tobacco, US import u.v.	USD/mt
Fertilizers	Phosphate rock	USD/mt
	DAP	USD/mt
	TSP	USD/mt
	Urea	USD/mt
	Potassium chloride	USD/mt
Metals and Minerals	Aluminum	USD/mt
	Iron ore, cfr spot	USD/dmtu
	Copper	USD/mt
	Lead	USD/mt
	Tin	USD/mt
	Nickel	USD/mt
Precious Metals	Zinc	USD/mt
	Gold	USD/troy oz
	Platinum	USD/troy oz
	Silver	USD/troy oz

The nominal value of the SDR is a variable value that is determined by summing the values in US dollars based on the market exchange rates of a basket of major currencies (US dollar, euro, Japanese yen, pound sterling, and Chinese yuan). The value of the SDR currency is calculated daily (except on IMF holidays or whenever the IMF is closed for

work), and the valuation basket is reviewed and adjusted every five years. The study used historical data on the IMF website on the daily change in the currency value of the SDR [32]. Based on these data, the arithmetic averages of the cost of the SDR for each month were determined, after which, based on the monthly data, the arithmetic mean of the annual value of the SDR unit in dollars was determined.

The dollar value of the liability limit was calculated by multiplying the liability limit, which was 8.33 SDRs in each year under review, by the average annual unit value of the SDR in the corresponding year.

Then, for each year, the percentage of the basket available for purchase by the equivalent of the value of the liability limit was determined. The share of the 1981 basket was defined as the base one, with which the values obtained in other years of the period under review will be further compared. The calculation of the percentage of the basket available for purchase by the amount of the considered limit is made according to the following formula:

$$K_{cy} = \frac{SDRn_{cy} \times L_{cy}}{PrBG_{cy}}, \quad (2)$$

where

K_{cy} —the percentage of the basket of goods available for purchase in the corresponding year;

$SDRn_{cy}$ —the average annual nominal cost of SDR in USD in the corresponding year;

L_{cy} —the limit of liability in the SDR in the corresponding year;

$PrBG_{cy}$ —the value of the basket of goods in the corresponding year in USD.

The percentage change in the share of the basket of goods available for purchase in relation to the base year was calculated using the following formula:

$$Kpch = \left(\frac{K_{cy}}{K_{by}} \right) - 1, \quad (3)$$

where

$Kpch$ —percentage change in the share of the basket of goods available for purchase in relation to the base year;

K_{cy} —the percentage of the basket of goods available for purchase in the corresponding year;

K_{by} —the percentage of the basket of goods available for purchase in the base year.

3.2. Result of Verification of the Need to Change the Current Limit of Liability

Table 2 shows the results of the calculation. It can be noted that even though the arithmetic average percentage change in the share of the basket of goods available for purchase for the entire period in relation to the base year does not exceed 5%, the percentage changes in individual years are quite large, reaching a maximum value of -74.26% in 1993. Based on the calculations, it can be stated that the period of 1982–2005 was more profitable for the client than for the freight forwarder, since the real purchasing value of the compensation for this period was significantly higher than the purchasing power of the compensation from 1981. And vice versa, the period of 2006–2022 shows that the amount of compensation the freight forwarder paid to the client for the goods was unfair to the client if we take the purchasing power of the liability limit in 1981 as a standard.

Table 2. Verification of the need to change the current limit of liability.

Year	PrBG _{cy} , [USD]	L _{cy} , [SDR]	SDRn _{cy} , [USD]	L _{cy} , [USD]	K _{cy} , [%]	Kpch, [%]
1981	34,257.73	8.33	1.17998	9.83	0.02869	
1982	29,476.32	8.33	1.10429	9.20	0.03121	−8.77
1983	30,968.25	8.33	1.06917	8.91	0.02876	−0.23
1984	30,999.14	8.33	1.02527	8.54	0.02755	3.98
1985	28,274.81	8.33	1.01624	8.47	0.02994	−4.35
1986	21,301.83	8.33	1.17375	9.78	0.04590	−59.97
1987	24,143.71	8.33	1.29389	10.78	0.04464	−55.59
1988	36,534.89	8.33	1.34433	11.20	0.03065	−6.83
1989	37,990.94	8.33	1.28207	10.68	0.02811	2.02
1990	31,129.81	8.33	1.35772	11.31	0.03633	−26.63
1991	28,681.07	8.33	1.36872	11.40	0.03975	−38.55
1992	27,380.62	8.33	1.40877	11.74	0.04286	−49.38
1993	23,264.87	8.33	1.39644	11.63	0.05000	−74.26
1994	26,193.61	8.33	1.43211	11.93	0.04554	−58.73
1995	30,327.72	8.33	1.51745	12.64	0.04168	−45.26
1996	29,368.30	8.33	1.45180	12.09	0.04118	−43.52
1997	28,808.48	8.33	1.37614	11.46	0.03979	−38.68
1998	24,741.58	8.33	1.35670	11.30	0.04568	−59.20
1999	24,692.41	8.33	1.36747	11.39	0.04613	−60.78
2000	27,400.44	8.33	1.31904	10.99	0.04010	−39.76
2001	23,098.65	8.33	1.27315	10.61	0.04591	−60.02
2002	23,436.90	8.33	1.29533	10.79	0.04604	−60.46
2003	28,822.97	8.33	1.40093	11.67	0.04049	−41.11
2004	39,523.00	8.33	1.48120	12.34	0.03122	−8.80
2005	40,597.80	8.33	1.47739	12.31	0.03031	−5.65
2006	58,193.31	8.33	1.47142	12.26	0.02106	26.59
2007	82,194.42	8.33	1.53077	12.75	0.01551	45.93
2008	73,028.63	8.33	1.58094	13.17	0.01803	37.15
2009	54,236.33	8.33	1.54158	12.84	0.02368	17.48
2010	73,858.06	8.33	1.52604	12.71	0.01721	40.01
2011	86,554.05	8.33	1.57884	13.15	0.01519	47.04
2012	74,594.47	8.33	1.53175	12.76	0.01711	40.38
2013	70,220.66	8.33	1.51975	12.66	0.01803	37.17
2014	70,600.57	8.33	1.51964	12.66	0.01793	37.51
2015	55,911.31	8.33	1.39919	11.66	0.02085	27.35
2016	55,065.11	8.33	1.39011	11.58	0.02103	26.71
2017	60,998.58	8.33	1.38677	11.55	0.01894	34.00
2018	63,932.28	8.33	1.41607	11.80	0.01845	35.69
2019	60,988.72	8.33	1.38169	11.51	0.01887	34.23
2020	60,366.67	8.33	1.39311	11.60	0.01922	33.00
2021	88,979.76	8.33	1.42458	11.87	0.01334	53.52
2022	97,884.24	8.33	1.21891	10.15	0.01037	63.85

Based on these calculations, it can be argued that the frequently used liability limit of 8.33 SDR needs to be adjusted to preserve its real purchasing power.

4. Methodology

The authors proposed two ways to correct the most frequently used freight forwarder's liability limit, described in this chapter.

4.1. Adjustment of the Freight Forwarder's Liability Limit to Take into Account Dollar Inflation

As a first step, it was decided to check whether it was possible to adjust the liability limit, provided that the impact of dollar inflation on the real value of SDRs was determined.

For this purpose, data on dollar inflation were studied and used current U.S. inflation, on the basis of which the average annual nominal value of the SDR was purified from inflation according to the following formula [33]:

$$\text{SDRr}_i = \frac{\text{SDRn}_i}{(1 + i_1) \times (1 + i_2) \times \dots \times (1 + i_n)}, \quad (4)$$

where

SDRr_i —the real average value of the SDR, cleared of dollar inflation in the corresponding year;

SDRn_i —the nominal average annual value of the SDR in the corresponding year;

i_n —average annual inflation in USD in the corresponding year.

Based on the derived real value of SDR, the percentage change in the real value of SDR in relation to the previous year was calculated using the following formula:

$$\text{SDRrch}_{cy} = \frac{\text{SDRr}_{cy} - \text{SDRr}_{py}}{\text{SDRr}_{py}}, \quad (5)$$

where

SDRrch_{cy} —the percentage change in the real value of the SDR in the corresponding year;

SDRr_{cy} —the real value of SDR in the corresponding year;

SDRr_{py} —the real value of SDR in the previous year.

Next, the arithmetic mean of the change in the real value of the SDR from 1981 to 2022 was determined.

$$\text{SDRr}_{am} = \frac{\sum_{i=1}^n \text{SDRrch}_{cy}}{n} \quad (6)$$

where

SDRr_{am} —arithmetic mean of the change in the real value of the SDR for the period under review;

SDRrch_{cy} —the percentage change in the real value of the SDR in the corresponding year;

n —the number of years studied.

This value is the coefficient for calculating the adjusted liability limit, calculated using the following formula:

$$\text{La}_{cy} = \text{L}_{by} + (\text{L}_{by} \times \text{SDRr}_{am}), \quad (7)$$

where

La_{cy} —adjusted limit of liability in the corresponding year;

L_{by} —freight forwarder's liability limit in the base year;

SDRr_{am} —arithmetic mean of the change in the real value of the SDR for the period under review.

4.2. Adjustment of the Liability Limit on the Basis of Changes in World Prices for Goods

When creating this methodology, the following actions were taken:

(1) The value of the basket was determined by summing up the cost of all selected products;

(2) The cost of the selected goods in each selected group was summed up;

(3) Each selected group of products was assigned a weight in accordance with the percentage ratio of the cost of goods in the selected group of products to the cost of the whole basket;

(4) An index of changes in the value of goods in each individual group in relation to the base year, 1981, adjusted by the assigned weight of the group of goods, was determined;

(5) The average annual index of price change was calculated by adding the adjusted indices of each group of goods;

(6) The next step was to adjust the liability limit using a price index and taking into account the change in the nominal value of the SDR.

The total cost of calculating the adjusted liability limit can be represented as a formula:

$$La_{cy} = \Delta I \times L_{by} \times SDRa_{cy}, \tag{8}$$

where

La_{cy} —adjusted limit of liability in the corresponding year;

ΔI —weighted average change in the price index for the entire basket in the corresponding year;

L_{by} —freight forwarder’s liability limit in the base year;

$SDRa_{cy}$ —correction that takes into account the annual change in the nominal value of the SDR in the corresponding year.

At the same time, the formula takes the following general form:

$$La_{cy} = \sum_{i=1}^n (\text{Weight}_i \times I_{cy}) \times L_{by} \times (1 + (1 - \frac{SDRn_{cy}}{SDRn_{by}})), \tag{9}$$

where

La_{cy} —adjusted limit of liability in the corresponding year;

Weight_i —the weighting factor in accordance with its share in the total value of the basket;

I_{cy} —price change index in the corresponding year relative to the base year;

L_{by} —freight forwarder’s liability limit in the base year;

$SDRn_{cy}$ —the nominal value of SDR, in the corresponding year;

$SDRn_{by}$ —the nominal value of SDR, in the base year.

5. Results

5.1. Adjustment of the Freight Forwarder’s Liability Limit to Take into Account Dollar Inflation

This section presents the results of the correction of the forwarder’s liability limit in accordance with the methodology that considers the impact of dollar inflation on the real value of the SDR. The calculation results are shown in Table 3.

Table 3. Adjustment of the freight forwarder’s liability limit to take into account dollar inflation.

Year	SDRn _{cy} , [USD]	i _n , [%]	SDRr _{cy} , [USD]	SDRrch _{cy} , [%]	La _{cy} , [SDR]
1981	1.17998		1.17998		8.33
1982	1.10429	6.16	1.04021	11.845	8.52
1983	1.06917	3.21	0.97581	6.191	8.71
1984	1.02527	4.30	0.89716	8.060	8.90
1985	1.01624	3.55	0.85877	4.279	9.10
1986	1.17375	1.90	0.97338	−13.346	9.31
1987	1.29389	3.66	1.03513	−6.344	9.52
1988	1.34433	4.08	1.03332	0.175	9.73
1989	1.28207	4.83	0.94006	9.025	9.95
1990	1.35772	5.40	0.94453	−0.475	10.18
1991	1.36872	4.23	0.91353	3.282	10.40
1992	1.40877	3.03	0.91261	0.101	10.64
1993	1.39644	2.95	0.87870	3.715	10.88
1994	1.43211	2.60	0.87832	0.044	11.12
1995	1.51745	2.81	0.90522	−3.063	11.37
1996	1.45180	2.93	0.84140	7.050	11.63
1997	1.37614	2.33	1.16774	−38.784	11.89

Table 3. Cont.

Year	SDRn _{cy} , [USD]	i _n , [%]	SDRr _{cy} , [USD]	SDRrch _{cy} , [%]	La _{cy} , [SDR]
1998	1.35670	1.55	0.75666	35.203	12.16
1999	1.36747	2.19	0.74631	1.367	12.43
2000	1.31904	3.38	0.69635	6.695	12.71
2001	1.27315	2.83	0.65362	6.135	12.99
2002	1.29533	1.59	0.65460	−0.150	13.29
2003	1.40093	2.27	0.69225	−5.751	13.58
2004	1.48120	2.68	0.71282	−2.970	13.89
2005	1.47739	3.39	0.68767	3.527	14.20
2006	1.47142	3.23	0.66346	3.521	14.52
2007	1.53077	2.85	0.67109	−1.151	14.85
2008	1.58094	3.84	0.66746	0.542	15.18
2009	1.54158	−0.36	0.65319	2.137	15.52
2010	1.52604	1.64	0.63618	2.605	15.87
2011	1.57884	3.16	0.63803	−0.290	16.23
2012	1.53175	2.07	0.60645	4.950	16.59
2013	1.51975	1.46	0.59303	2.212	16.97
2014	1.51964	1.62	0.58354	1.601	17.35
2015	1.39919	0.12	0.53664	8.037	17.74
2016	1.39011	1.26	0.52652	1.885	18.14
2017	1.38677	2.13	0.51430	2.321	18.54
2018	1.41607	2.44	0.51266	0.319	18.96
2019	1.38169	1.81	0.49132	4.162	19.39
2020	1.39311	1.23	0.48936	0.399	19.82
2021	1.42458	4.70	0.47796	2.331	20.27
2022	1.21891	8.00	0.37866	20.775	20.72

According to the calculation, the arithmetic mean percentage decrease in the real value of the SDR from 1981 to 2022 was 2.25%. This suggests that, on average, the freight forwarder's liability limit should increase by 2.25% every year. In this case, the adjusted liability limit for the specified period should have increased from a base value of 8.33 SDR per kilogram of cargo to approximately 21 SDR per kilogram.

This methodology was also tested by determining the possibility of purchasing a fraction of the basket of previously selected products equivalent to the 1981 baseline. The results are presented in Table 4.

Table 4. Checking the functionality of the methodology.

Year	PrBG _{cy} , [USD]	La _{cy} , [SDR]	SDRn _{cy} , [USD]	La _{cy} , [USD]	K _{cy} , [%]	Kp _{ch} , [%]
1981	34,257.73	8.33	1.39644	9.83	0.02869	
1982	29,476.32	8.52	1.43211	9.41	0.03191	−11.21
1983	30,968.25	8.71	1.51745	9.31	0.03007	−4.79
1984	30,999.14	8.90	1.45180	9.13	0.02945	−2.65
1985	28,274.81	9.10	1.37614	9.25	0.03272	−14.05
1986	21,301.83	9.31	1.35670	10.93	0.05130	−78.78
1987	24,143.71	9.52	1.36747	12.32	0.05101	−77.79
1988	36,534.89	9.73	1.31904	13.08	0.03581	−24.81
1989	37,990.94	9.95	1.27315	12.76	0.03358	−17.05
1990	31,129.81	10.18	1.29533	13.81	0.04438	−54.67
1991	28,681.07	10.40	1.40093	14.24	0.04965	−73.04
1992	27,380.62	10.64	1.48120	14.99	0.05473	−90.76
1993	23,264.87	10.88	1.47739	15.19	0.06529	−127.54
1994	26,193.61	11.12	1.47142	15.93	0.06080	−111.92

Table 4. Cont.

Year	PrBG _{cy} , [USD]	La _{cy} , [SDR]	SDRn _{cy} , [USD]	La _{cy} , [USD]	K _{cy} , [%]	Kpch, [%]
1995	30,327.72	11.37	1.53077	17.26	0.05690	−98.30
1996	29,368.30	11.63	1.58094	16.88	0.05748	−100.32
1997	28,808.48	11.89	1.54158	16.36	0.05679	−97.93
1998	24,741.58	12.16	1.52604	16.49	0.06665	−132.31
1999	24,692.41	12.43	1.57884	17.00	0.06883	−139.90
2000	27,400.44	12.71	1.53175	16.76	0.06118	−113.22
2001	23,098.65	12.99	1.51975	16.54	0.07162	−149.62
2002	23,436.90	13.29	1.51964	17.21	0.07343	−155.93
2003	28,822.97	13.58	1.39919	19.03	0.06603	−130.12
2004	39,523.00	13.89	1.39011	20.57	0.05206	−81.43
2005	40,597.80	14.20	1.38677	20.98	0.05168	−80.13
2006	58,193.31	14.52	1.41607	21.37	0.03672	−27.97
2007	82,194.42	14.85	1.38169	22.73	0.02765	3.62
2008	73,028.63	15.18	1.39311	24.00	0.03287	−14.55
2009	54,236.33	15.52	1.42458	23.93	0.04412	−53.78
2010	73,858.06	15.87	1.21891	24.22	0.03279	−14.30
2011	86,554.05	16.23	1.39644	25.62	0.02960	−3.18
2012	74,594.47	16.59	1.43211	25.42	0.03407	−18.76
2013	70,220.66	16.97	1.51745	25.78	0.03672	−27.98
2014	70,600.57	17.35	1.45180	26.36	0.03734	−30.14
2015	55,911.31	17.74	1.37614	24.82	0.04439	−54.71
2016	55,065.11	18.14	1.35670	25.21	0.04579	−59.58
2017	60,998.58	18.54	1.36747	25.72	0.04216	−46.94
2018	63,932.28	18.96	1.31904	26.85	0.04200	−46.38
2019	60,988.72	19.39	1.27315	26.79	0.04392	−53.08
2020	60,366.67	19.82	1.29533	27.62	0.04575	−59.44
2021	88,979.76	20.27	1.40093	28.87	0.03245	−13.10
2022	97,884.24	20.72	1.48120	25.26	0.02581	10.05

The calculations obtained indicated that such a method is non-functional for adjusting the liability limit since it changes the purchasing power of the limit even more significantly than the limit, which was fixed at 8.33 SDRs throughout the period under review. The maximum deviation from the basket base share was 155.93 percent in 2002, with an arithmetic mean of 60.45 percent for the entire period.

To solve this problem, in this case, a method of adjusting the liability limit based on changes in world prices for goods is proposed.

5.2. Adjustment of the Liability Limit on the Basis of Changes in World Prices for Goods

This section presents the results of calculating the freight forwarder's liability limit in accordance with a methodology that considers changes in world prices for goods. The results of the calculation, as well as the verification of the methodology, are presented in Table 5.

Table 5. Adjustment of the liability limit based on changes in world prices for goods and checking the functionality of the methodology.

Year	PrBG _{cy} , [USD]	ΔI, [%]	La _{cy} , [SDR]	SDRn _{cy} , [USD]	La _{cy} , [USD]	K _{cy} , [%]	Kpch, [%]
1981	34,257.73	1.0000	8.33	1.39644	9.83	0.00029	
1982	29,476.32	0.8687	7.70	1.43211	8.50	0.00029	−0.55
1983	30,968.25	0.9091	8.28	1.51745	8.86	0.00029	0.32
1984	30,999.14	0.9191	8.66	1.45180	8.88	0.00029	0.18
1985	28,274.81	0.8341	7.91	1.37614	8.04	0.00028	0.88

Table 5. Cont.

Year	PrBG _{cy} [USD]	ΔI, [%]	La _{cy} [SDR]	SDRn _{cy} [USD]	La _{cy} [USD]	K _{cy} [%]	Kpch, [%]
1986	21,301.83	0.6611	5.54	1.35670	6.50	0.00031	−6.32
1987	24,143.71	0.7360	5.54	1.36747	7.17	0.00030	−3.46
1988	36,534.89	1.0799	7.74	1.31904	10.41	0.00028	0.71
1989	37,990.94	1.1345	8.63	1.27315	11.07	0.00029	−1.54
1990	31,129.81	0.9338	6.61	1.29533	8.97	0.00029	−0.43
1991	28,681.07	0.8777	6.14	1.40093	8.41	0.00029	−2.16
1992	27,380.62	0.8421	5.65	1.48120	7.97	0.00029	−1.40
1993	23,264.87	0.7130	4.85	1.47739	6.77	0.00029	−1.45
1994	26,193.61	0.7872	5.16	1.47142	7.38	0.00028	1.74
1995	30,327.72	0.8935	5.31	1.53077	8.06	0.00027	7.33
1996	29,368.30	0.8842	5.67	1.58094	8.23	0.00028	2.33
1997	28,808.48	0.8912	6.19	1.54158	8.52	0.00030	−3.04
1998	24,741.58	0.8020	5.68	1.52604	7.71	0.00031	−8.55
1999	24,692.41	0.7619	5.34	1.57884	7.30	0.00030	−3.03
2000	27,400.44	0.8224	6.04	1.53175	7.97	0.00029	−1.40
2001	23,098.65	0.7210	5.53	1.51975	7.04	0.00030	−6.26
2002	23,436.90	0.7195	5.41	1.51964	7.00	0.00030	−4.16
2003	28,822.97	0.8591	5.82	1.39919	8.15	0.00028	1.47
2004	39,523.00	1.1570	7.18	1.39011	10.63	0.00027	6.25
2005	40,597.80	1.1943	7.44	1.38677	10.99	0.00027	5.62
2006	58,193.31	1.7734	11.12	1.41607	16.37	0.00028	1.97
2007	82,194.42	2.5241	14.78	1.38169	22.62	0.00028	4.09
2008	73,028.63	2.1972	12.08	1.39311	19.10	0.00026	8.83
2009	54,236.33	1.6085	9.29	1.42458	14.33	0.00026	7.94
2010	73,858.06	2.2038	12.97	1.21891	19.80	0.00027	6.57
2011	86,554.05	2.5662	14.15	1.39644	22.34	0.00026	10.04
2012	74,594.47	2.2102	12.92	1.43211	19.79	0.00027	7.52
2013	70,220.66	2.0726	12.29	1.51745	18.68	0.00027	7.27
2014	70,600.57	2.0827	12.36	1.45180	18.78	0.00027	7.31
2015	55,911.31	1.6599	11.26	1.37614	15.75	0.00028	1.80
2016	55,065.11	1.6332	11.18	1.35670	15.54	0.00028	1.61
2017	60,998.58	1.7932	12.32	1.36747	17.08	0.00028	2.38
2018	63,932.28	1.8845	12.56	1.31904	17.78	0.00028	3.06
2019	60,988.72	1.8026	12.45	1.27315	17.20	0.00028	1.70
2020	60,366.67	1.7858	12.19	1.29533	16.98	0.00028	1.96
2021	88,979.76	2.6470	17.48	1.40093	24.90	0.00028	2.47
2022	97,884.24	2.9387	23.67	1.48120	28.85	0.00029	−2.74

Based on the calculations, it can be seen that when the liability limit is changed, the percentage of the basket available for purchase changes much less than in the situations described in the study earlier. The maximum deviation value was reached in 2012, in the amount of 10.04%. The average annual deviation is 1.39%.

Based on the above calculations, it can be argued that the method of changing the freight forwarder's liability limit, taking into account changes in world prices for goods, is the most effective. The reason for this is its ability to significantly reduce changes in the purchasing power of the freight forwarder's liability limit, which helps to adhere to the principle of fairness both in relation to freight forwarders and their customers.

6. Discussion

Currently, there are no studies in current scientific sources devoted to the study and correction of the forwarder's liability limit.

Many studies have identified the role of commodity-denominated dollarization. In this context, the rise in commodity prices is moderately, if not significantly, explained by the fall in the dollar [30]. However, the study indicated that linking the correction of the

freight forwarder's liability limit to dollar inflation is not effective since other factors have a significant impact on world prices.

When solving the chosen problem, it was necessary to change the period under consideration from 1978–2022 to 1981–2022, due to the lack of data on the cost of SDR on the IMF website for the period of 1978–1980 inclusive. It can be assumed that the change in the period under review could affect the final result of the study, given the fact that the cost of a basket of goods in 1978 and 1981 was different. This, in turn, affects what percentage of the basket of goods available for purchase for the equivalent of the freight forwarder's liability limit will be for the basis for further calculations. When considering the indices of changes in nominal prices of goods in 1978 and 1981 (2010 is the base year), it can be seen that the 1978 index is 27.4%, whereas the 1981 index is 48.72%, which indicates that it was theoretically possible for the same freight forwarder's liability limit of 8.33 SDR to buy more goods in 1979 than in 1981. However, do not forget that the final value of the liability limit is also affected by the cost of the SDR unit over different time periods.

It should also be noted that the calculations given in the study do not represent the only correct solution, since it is possible to propose an almost infinite number of changes in actions. An example is the use of quarterly or monthly data for calculations, not annual averages, but, for example, with the help of which, more accurate results can be obtained. Also, for example, it is possible to use medians instead of the arithmetic mean to exclude extreme values. In addition, it is not necessary to take the limit of 8.33 SDR as a standard; for example, the liability limit of two SDRs, established based on the Hague–Visby Rules governing the carriage of goods by sea, is no less often used among freight forwarders.

The great advantage of the methodology for correcting the liability limit based on changes in world prices for goods is its flexibility. When using it, it is possible to create any basket of goods. Moreover, it is possible to change the base year, the base liability limit, and even the calculation currency, while the calculation method itself remains functional.

The limitations of this technique include the fact that, when using it, it is impossible to predict the liability limit in the future. Calculations are made only based on already-generated data for the completed year. However, if we consider the fact that over the past forty years the lack of correction of the liability limit has led to rather unfair terms of compensation for goods, first for freight forwarders and then for customers, the ability to adjust the limit only once a year is not very critical. Since goods are physical products that require storage and transportation, they may show a slower response to changes in demand [28].

In this case, it can be assumed that linking the forwarder's liability limit to changes in product prices will allow for updating the limit at certain intervals, for example, once every five years, which will help reduce the bureaucratic burden that arises when integrating the changed liability limit. However, it is necessary to take into account crises and a sharp increase or decrease in demand for certain groups of goods. For example, innovations in technology stimulate the development of production, transportation, and distribution methods, which in turn affect the supply and demand for commodities (for example, the discovery of new oil-production methods that have increased supply and decreased oil prices) [29].

The following limitations of using the methodology include the fact that in order to maintain a certain year as the base year, it is necessary to adhere to initially selected variables, such as, for example, the structure of the formed basket, units of measurement of the volume of goods (if during one period of time the price of sugar is indicated in dollars per kilogram, and then in dollars per ton, this change will affect the accuracy of calculations in the future), and the currency of the calculation.

In the event of a change in the structure of the basket of goods, it is necessary to recalculate the percentage of the basket available for purchase to the equivalent of the freight forwarder's liability limit in the base year by bringing the structure of the basket to the form in which it is presented after the implemented changes. According to the authors, in the event of a change in the structure of the basket, a simpler option is to change the base

year; the base year must be set to the year in which the basket was changed, and from there to calculate new liability limits in the future.

Another advantage of this technique is its wide range of use; it can be used both to correct the liability limits of freight forwarders and carriers as well as for any other contracts, according to which the liability limits of the parties are expressed in SDR units.

It can be argued that in this study, it was confirmed by the research question—it is possible to adjust the liability limit so that it fulfills its main function: the ability to cover an equal share of damage in any period.

According to the authors, the need to visualize the existing problem—the lack of unification of the freight forwarder's liability limit and successful tools for its correction—is long overdue. A significant contribution of this study is both the presentation of the imperfection of the method currently used—adjusting the cost of the SDR unit, and the creation of a methodology that allows for a fairly large change in the liability limit while maintaining its purchasing power.

7. Conclusions

This study showed that the issue of the unification of the regulation of forwarding activities and the liability limit of the forwarder is insufficiently studied. The freight forwarder's liability limit, which is most used in the European Union, in the amount of 8.33 SDR, is not flexible enough to ensure that its purchasing power remains unchanged over a long period. The reason for this is the regulation of the cost of SDR units, which is not synchronized with changes in world commodity prices.

The authors have developed a methodology that allows for the correction of the forwarder's liability limit in accordance with the principles of fairness. This study showed that when using the proposed method of correcting the limit, considering changes in world prices for goods, the purchasing power of the forwarder's compensation to the client for lost or damaged cargo is preserved over time.

According to the authors, in order to successfully use this technique, it is necessary to focus on further goals, such as determining the structure of the basket of goods, the interval for reviewing the liability limit, setting the base year, and the base liability limit.

For the European area, it may be recommended to carry out calculations in euros, with the caveat that the base year will be the year of the introduction of the euro into circulation or later. At the same time, it is worth considering the option of fixing the liability limit based on the prices of goods in Europe, since a single measure of world prices may not reflect various economic changes in certain territories of countries or state unions well enough [34].

Author Contributions: Conceptualization, M.P. and E.S.; methodology, M.P. and E.S.; software, E.S.; validation, M.P.; formal analysis, E.S.; investigation, E.S.; resources, E.S.; data curation, E.S.; writing—original draft preparation, E.S.; writing—review and editing, E.S.; visualization, E.S.; supervision, M.P.; project administration, M.P. and E.S.; funding acquisition, M.P. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Slovak Research and Development Agency under the Contract no. APVV-22-0524.

Data Availability Statement: All used data are available on request from the author.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Fillers, A. The CMR in the practice of Latvian courts. *Unif. Law Rev.* **2020**, *25*, 168–201. [[CrossRef](#)]
2. Su, T.-J.; Wang, P. Carrier's liability under international maritime conventions and the uncial draft convention on contracts for the international carriage of goods wholly or partly by sea. *Transport* **2009**, *24*, 345–351. [[CrossRef](#)]
3. Bernard, N. Taking air passenger rights seriously: The case against the exclusivity of the Montreal Convention. *Int. Community Law Rev.* **2021**, *23*, 313–343. [[CrossRef](#)]
4. Truman, E.M. The case for annual special drawing right allocations. *Atl. Econ. J.* **2023**, *51*, 65–70. [[CrossRef](#)]

5. Miao, X.; Bao, X. Agile forecasting of dynamic logistics demand. *Transport* **2008**, *23*, 26–30. [CrossRef]
6. Naumov, V. Substantiating the logistics chain structure while servicing the flow of requests for road transport deliveries. *Sustainability* **2020**, *12*, 1635. [CrossRef]
7. Nurwahyudi, N.; Rimawan, E. Analysis of customer satisfaction in freight forwarder industry using Servqual, IPA and FMEA methods. *Pomorstvo* **2021**, *35*, 109–117. [CrossRef]
8. Burkovskis, R. Efficiency of freight forwarder's participation in the process of transportation. *Transport* **2008**, *23*, 208–213. [CrossRef]
9. Fanam, P.D.; Nguyen, H.; Cahoon, S. An empirical analysis of the critical selection criteria of liner operators: The perspective of freight forwarders. *Int. J. Shipp. Transp. Logist.* **2018**, *10*, 567. [CrossRef]
10. Krajewska, M.A.; Kopfer, H. Collaborating freight forwarding enterprises. *OR Spectr.* **2006**, *28*, 301–317. [CrossRef]
11. Shang, K.; Lu, C. Customer relationship management and firm performance: An empirical study of freight forwarder services. *J. Mar. Sci. Technol.* **2012**, *20*, 8. [CrossRef]
12. Bendeković, J.; Naletina, D.; Bojić, A. The role of international freight forwarders in the reporting of shipment and delivery of goods in the European Union over the Intrastat. In *Economic and Social Development, Proceedings of the 5th Eastern European Economic and Social Development Conference on Social Responsibility, Belgrade, Serbia, 21–22 May 2015*; ZBW: Kiel, Germany, 2015; Volume 301, Available online: https://bib.irb.hr/datoteka/768837.dora_naletinaP.doc (accessed on 11 November 2023).
13. Zelenika, R.; Lotrič, T.; Bužan, E. Multimodal Transport Operator Liability Insurance model. *Promet-Traffic Transp.* **2012**, *23*, 25–38. [CrossRef]
14. Stojanovic, D.; Velickovic, M. Freight forwarding industry—The contemporary role and development trends in Serbia. In *Proceedings of the 4th Logistics International Conference, Belgrade, Serbia, 23–25 May 2019*; pp. 132–141.
15. Tushevaska, B. Civil law versus common law concept of freight forwarders. *Balk. Soc. Sci. Rev.* **2014**, *4*, 45–66.
16. Cain, P. Complexity, confusion and the multifaceted legal roles of the international freight forwarder. *Macquarie Law J.* **2014**, *14*, 13–14.
17. Liang, X.; Fan, S.; Lucy, J.A.; Yang, Z. Risk analysis of cargo theft from freight supply chains using a data-driven Bayesian network. *Reliab. Eng. Syst. Saf.* **2022**, *226*, 108702. [CrossRef]
18. Poliak, M.; Šimurková, P. Harmonization of market conditions in provision of freight forwarding. *MATEC Web Conf.* **2017**, *134*, 00048. [CrossRef]
19. Radionov, N. Limitation of liability right in road freight carriage in Croatia: An extinct institute. *Unif. Law Rev.* **2016**, *21*, 457–468. [CrossRef]
20. Jashari, N. Liability of the multimodal transport operator. *Case Kos. Soc. Sci. Res. Netw.* **2017**, *31*, 77–91. [CrossRef]
21. Mindur, M.; Mindur, L. The influence of the selected international organizations on the development of transport. *Sci. J. Silesian Univ. Technol. Ser. Transp.* **2023**, *119*, 171–187. [CrossRef]
22. Ramberg, J. Unification of the law of international Freight forwarding. *Unif. Law Rev.* **1998**, *3*, 5–13. [CrossRef]
23. Faghfour, M. International regulation of liability for multimodal transport. *WMU J. Marit. Aff.* **2006**, *5*, 95–114. [CrossRef]
24. Mosquera, J.T.; Holguín, C.J.V.; Kressner, A.; Acuña, E.L. Forecasting System for Inbound Logistics Material Flows at an International Automotive Company. *Eng. Proc.* **2023**, *39*, 75. [CrossRef]
25. Schelin, J. CMR Convention in a law and economics perspective. *Unif. Law Rev.* **2016**, *21*, 434–440. [CrossRef]
26. Zhang, Q.; Hu, Y.; Jiao, J.; Wang, S. Exploring the Trend of Commodity Prices: A review and bibliometric analysis. *Sustainability* **2022**, *14*, 9536. [CrossRef]
27. Ngepah, N.; Da Silva, M.L.A.; Saba, C.S. The impact of commodity price shocks on banking system stability in developing countries. *Economies* **2022**, *10*, 91. [CrossRef]
28. Siqueira, E.L.; Stošić, T.; Bejan, L.; Stošić, B. Correlations and cross-correlations in the Brazilian agrarian commodities and stocks. *Phys. A Stat. Mech. Its Appl.* **2010**, *389*, 2739–2743. [CrossRef]
29. Gubler, M.; Hertweck, M.S. Commodity price shocks and the business cycle: Structural evidence for the U.S. *J. Int. Money Financ.* **2013**, *37*, 324–352. [CrossRef]
30. Ullah, I.; Iqbal, J. Commodity market dynamics: Who's behind booms and busts? *Borsa Istanbul. Rev.* **2023**, *23*, 55–75. [CrossRef]
31. CPI Home; U.S. Bureau of Labor Statistics. Available online: <https://www.bls.gov/cpi/#tables> (accessed on 15 February 2023).
32. SDR Valuation. Available online: https://www.imf.org/external/np/fin/data/rms_sdrv.aspx (accessed on 6 December 2023).
33. Current, U.S. Inflation Rate. Available online: <https://www.officialdata.org/current-inflation-rate> (accessed on 6 December 2023).
34. Fernández, A.; Schmitt-Grohé, S.; Uribe, M. World shocks, world prices, and business cycles: An empirical investigation. *J. Int. Econ.* **2017**, *108*, S2–S14. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.