Analysis of Civil Liability Arising from Railway Accidents in Iranian Law with a View to International Instruments

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Abstract

Within the framework of the governing system and structure of civil liability, a portion of liability imposition always occurs due to the occurrence of accidents and incidents. Specifically, this study focuses on civil liability arising from railway accidents. Fundamentally, the primary question and objective of this research, which has been conducted using a descriptive-analytical method, is to determine who bears civil liability in the event of an accident within the country's railway transportation network. In this regard, the findings of the study, based on an examination of domestic laws and regulations—such as the Civil Liability Act, the Free Access to the Railway Transport Network Act, the Amendment to the Road and Railway Safety Act, and the Executive Regulations of the Railway Accident Prevention Commissions—alongside international railway transport instruments, including the Convention concerning International Carriage by Rail (COTIF), the Convention on the Contract for the International Carriage of Goods by Road (CMR), the Agreement on the International Carriage of Passengers and Luggage, and the Agreement on the International Carriage of Goods by Rail, indicate that the civil liability system in railway accidents is justified based on the theories of risk and fault. Moreover, it is supported by jurisprudential principles such as the rule of La Zarar (no harm) and Itlaf (causation of damage) in domestic law. The elements of civil liability in railway accidents are established through the commission of an act leading to the railway accident, the occurrence of damage resulting from the accident, and ultimately, the causal relationship between the wrongful act and the inflicted harm. Depending on the circumstances, liability may be imposed on the government or the Ministry of Roads, private companies, the transportation operator, or the responsible individuals.

Keywords: railway, railway transportation, railway accidents, civil liability for railway accidents, international instruments.

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1. Introduction

The interconnected modern world inevitably carries everyone along its path. The noise of automobiles, driving, and transportation has eventually permeated our country, creating, to some extent, the same needs that emerged in industrial societies of the West. Today, accidents resulting from driving have become one of the tragic realities of life in major cities. It is rare to find a family that has not suffered harm from this dangerous means of transportation or has not been threatened with financial loss due to it. Consequently, if every victim were required to prove the driver's fault and endure the lengthy formalities of civil litigation, social tranquility would be severely affected, leaving little time for other concerns.

The Civil Liability Act of 1960 did not provide a remedy for this issue. However, the Compulsory Insurance of Civil Liability Act of 1968 stipulates that: "All owners of motor vehicles, including trailers and semi-trailers attached to such vehicles, as well as railway trains, whether natural or legal persons, are responsible for compensating bodily and financial damages caused to third parties due to accidents involving these vehicles or their products." This provision is an exception to the general rule set forth in Article 1 of the Civil Liability Act, and as such, it should not be applied by analogy to similar cases. For example, it cannot be argued that non-motorized vehicles or factories are equally hazardous and should be subject to compulsory insurance.

A railway transportation company is a legal entity established by natural and legal persons with a license from the Islamic Republic of Iran Railways, referred to in this law as "the Railway." In the field of land transportation, the enactment of the Civil Liability Act in 1960 and the Compulsory Insurance of Civil Liability Act of 1968 for motor vehicle owners towards third parties at the domestic level, along with Iran's accession to the Convention on the International Carriage of Passengers by Rail (CIM) and the Convention on the International Carriage of Goods by Rail in 1970, as well as its supplementary protocols on the international level, and the conclusion of international transportation agreements via road with certain countries, have introduced new concepts and standards into transportation contract law.

The Free Access to the Railway Transport Network Act, consisting of 11 articles and 14 notes, was enacted by the Islamic Consultative Assembly on September 28, 2005, and was subsequently approved by the Guardian Council. According to Article 2 of the Free Access to the Railway Transport Network Act, to ensure the safety of railway fleet movement, technical and safety conditions and guidelines related to the operation of railway vehicles are prepared and issued by the Railway Board of Directors, and operating companies are required to comply with them. The Railway is also responsible for overseeing the full implementation of regulations and technical and safety guidelines (Alsan, 2008).

According to Note 2 of this article, the determination of criminal and civil liabilities arising from railway accidents resulting from the implementation of this law and railway accidents caused by railway operations falls under the jurisdiction of the Railway Accident Prevention Commissions established in different regions. In the event of railway accidents, the Railway and the companies subject to this law are responsible for compensating damages and paying *diyah* (blood money) to the victims in accordance with the Civil Liability Act.

In addition to this law, there are domestic regulations stipulating that, under Article 16, any railway employee responsible for driving, forming, or operating a train who knowingly operates a defective locomotive, wagon, or any other vehicle that would pose a danger in operation, or who, in the course of duty, obstructs the formation or movement of a train, shall be sentenced to a term of six months to three years of corrective imprisonment. The same penalty applies to employees who, while aware of the defective condition of railway vehicles and being obliged by duty to inform the relevant authorities, fail to do so.

Article 17 states that train conductors, drivers, switchmen, and brakemen who, in violation of regulations, abandon their duty posts or neglect their responsibilities during the train's journey until its arrival at the destination, or when the train departs from or arrives at a station, shall be sentenced to corrective imprisonment of six months to two years (Namamian, 2007).

Pursuant to Note 039 of Article 2 of the Free Access to the Railway Transport Network Act of 2005, the Executive Regulations of the Railway Accident Prevention Commissions, approved on August 15, 2007, were enacted to enhance safety and establish standardized procedures in railway operations, defining the formation and responsibilities of regional and central accident commissions.

2. Civil Liability Arising from Railway Accidents in Iranian Law

The first section of this chapter explores the process of establishing and imposing civil liability within the framework of Iranian laws and regulations governing railway accidents.

2.1. Laws Governing Railway Accidents

Initially, an examination of domestic laws and regulations addressing liability in railway accidents is necessary.

2.1.1. Civil Liability Act

The Civil Liability Act, enacted on April 27, 1960, does not explicitly define liability but rather conditions individual or corporate liability—whether for private individuals or government employees—on intent or negligence. It does not address force majeure as a factor in the state's civil liability. Under the civil liability framework, a specific relationship arises between the injurer and the injured party in railway accidents, which is primarily aimed at compensating damages.

Thus, civil liability in its broadest sense encompasses both contractual and non-contractual liability. In both cases, within the context of railway accidents, the fundamental issue remains the obligation to compensate for damages. However, the primary distinction between these two types of liability lies in the existence or absence of a contractual agreement between the parties. Civil liability applies where no contractual obligation exists between the parties, whereas contractual liability arises from a breach of a private agreement. In other words, contractual liability occurs when a party fails to fulfill their obligations under a contract, causing damage to the other party. In such cases, liability can be broadly construed to include strict governmental liability for unforeseen incidents, such as railway accidents.

2.1.2. Free Access to the Railway Transport Network Act

According to Note 2 of Article 2 of this Act, the determination of criminal and civil liabilities resulting from railway accidents arising from the implementation of this law, as well as those due to railway operations, falls under the jurisdiction of the Railway Accident Prevention Commissions established in different regions.

If disputing parties object to the findings of these commissions, the case is referred to the High Railway Accident Commission, which includes a representative from the Railway Transport Companies Association. The decision of this commission is final and non-appealable and serves as expert testimony in judicial rulings. Under this law, the Railway and the companies subject to it are responsible for compensating damages and paying *diyah* (blood money) to accident victims as per the Civil Liability Act.

Article 8 further stipulates that freight railway transport companies, by entering into transportation contracts and issuing waybills, and passenger railway transport companies, by issuing tickets either directly or through authorized representatives, assume liability toward cargo owners and passengers. The note to this article states that the scope and execution of such liability shall be determined within the framework of existing laws and this Act, with the implementing regulations to be approved by the Minister of Roads and Urban Development.

2.1.3. Amendment to the Road and Railway Safety Act

This law addresses the issue of liability in two instances. First, Note 4 of Article 1 warns officials of the Ministry of Roads and the Railway that failure to fulfill their legal duties will result in liability. Under this provision, "Officials of the Ministry of Roads and Transportation, Railway, and law enforcement officers must monitor and report any encroachments on railway lines and their vicinities to the relevant authorities for necessary action. Any official or officer who neglects this duty shall be subject to the prescribed penalties."

Article 17 of the same law introduces another form of liability directed at the Ministry of Roads and Transportation. According to this article, "The construction of any buildings, walls, or facilities within a radius of 100 meters from the end of the railway right-of-way, along bypasses constructed or maintained by the Ministry of Roads and Transportation, is prohibited without obtaining a permit from the Ministry. The Ministry is required to take legal action against violators in accordance with Note 1 of Article 6 of the Road and Railway Safety Act."

2.1.4. Executive Regulations of the Railway Accident Prevention Commissions

Article 4 of this regulation stipulates that if railway employees are responsible for an accident, the Regional Director must notify the relevant authorities and refer the matter to administrative disciplinary boards or labor committees, as applicable. If the liability falls on railway transport companies, contractors, or other entities, the commission's findings must be communicated to them.

Any liable party who disagrees with the findings of the Regional Accident Commission may submit a written appeal to the regional railway office within 20 days of notification. The railway office must forward the appeal to the High Railway Accident Commission for review.

If a case is under judicial review and the parties involved contest the findings of the Regional Accident Commission, the matter will be referred to the High Accident Commission for further evaluation and expert opinion.

2.2. Elements of Imposing Civil Liability Due to Railway Accidents

This section examines the elements and components that constitute civil liability arising from railway accidents.

2.2.1. Commission of an Act Leading to a Railway Accident

In some cases, civil liability arises due to an act committed by railway officials that results in harm. When such an act is committed intentionally, the resulting civil liability is referred to as "intentional liability." Examples include assaulting passengers, deliberate damage to trains, and similar acts. This type of civil liability arises from the "principle of non-harm" because intentionally harming others disregards their freedom and equality and is therefore blameworthy and reprehensible (Calnan, 2009, p. 54).

It is noteworthy that in cases of intentional liability, railway officials are responsible for all direct and indirect damages caused. However, in cases of liability due to negligence, they are only responsible for direct and foreseeable damages. The intentional liability of railway officials may arise in different forms:

(a) Intentional Harm to Persons: In cases of intentional harm to persons or assault, railway officials inflict damage on passengers, usually in the form of physical assault. Any contact or interaction between railway personnel and passengers that results in harm can be considered liability-inducing. Therefore, the existence of physical violence or bodily injury is not necessarily required, as individuals have a right to bodily integrity that must be protected (Schaffer, 2009). However, ordinary and customary physical contact should not be considered liability-inducing; for example, a light tap to alert a passenger should not be regarded as intentional assault. Importantly, while threats of assault often accompany actual physical harm, it is not impossible for a threat to exist without actual violence. The mere creation of fear and intimidation is sufficient to establish this type of liability, provided that the threat is imminent, unlawful, and would reasonably affect an average person (Cooke, 2009).

(b) Intentional Harm to Property: This form of harm occurs through direct and physical contact with movable property, either brought onto the train by passengers or entrusted to the railway service for transport in exchange for a receipt. It is essential to note that for railway officials to be held liable for this type of harm, physical interference must have occurred.

Both forms of harm described above require a degree of intent or deliberate recklessness. Whether the misconduct of railway officials or employees qualifies as intentional misconduct is a legal determination left to the adjudicating court. The presiding judge must interpret the concept of deprivation or intentional wrongdoing according to national laws. This has led to variations in judicial approaches across different countries.

2.2.2. Occurrence of Damage Resulting from a Railway Accident

Another essential element in establishing civil liability for railway accidents is that the harmful act must result in actual damage or loss. If no damage occurs, civil liability cannot be established.

In railway accidents, the concepts of "damage" and "loss" are interpreted in different ways. Damage refers to the financial or non-financial harm suffered by an individual or entity due to a railway accident. Such harm may include direct financial losses (e.g., repair costs for vehicles, medical expenses) or non-financial losses (e.g., bodily injuries, reputational damage, loss

of business opportunities). The term "loss" generally refers to damage inflicted on property, vehicles, or other assets as a result of railway accidents. Losses can take the form of financial, physical, or environmental harm.

For instance, injuries to passengers, damage to railway vehicles, medical expenses, and disruptions in railway operations can all be considered damage and loss. These matters are defined and assessed according to the legal framework governing transportation accidents and the railway industry. However, what remains crucial is that for civil liability to be established in railway accidents, a proven and actual loss must have occurred.

2.2.3. Causal Relationship Between the Harmful Act and the Damage in a Railway Accident

A fundamental aspect of imposing civil liability is establishing a causal link between the harmful act and the resulting damage. If a meaningful connection between the act committed and the resulting harm does not exist, the elements of civil liability remain incomplete.

For example, in railway accidents, if the cause of harm or death of a passenger is due to the passenger's pre-existing medical condition or particular physical state, then a causal link does not exist. In such cases, it seems unlikely that the passenger could claim compensation from the railway operator for the aggravation of their condition or injury resulting from their own inability rather than from an external accident (Azizi, 2006).

Due to the lack of clear legal provisions in this regard, several scenarios must be considered:

If a passenger has a specific medical condition and neither the passenger nor the railway staff is aware of it, this situation can be divided into two subcategories. The first scenario is when the railway operator's failure to detect the medical condition results from their own negligence. The second scenario is when neither the operator nor its employees were negligent in identifying the passenger's medical condition.

In the latter case, where the railway operator has conducted a reasonable and customary health assessment of the passenger but was unaware of a specific medical issue, and the passenger suffers harm due to their condition rather than an external incident, the operator bears no liability. However, if the railway operator and its employees fail to take necessary precautions in assessing the passenger's medical condition, and the passenger suffers harm due to this negligence, then the operator will be held liable and cannot invoke the passenger's medical condition as a defense.

Another scenario arises when the railway operator is aware of the passenger's medical condition. In such cases, the operator must take special measures to accommodate such passengers. Failure to do so results in liability. For example, if a passenger with respiratory issues is aboard, appropriate medical equipment should be available to address potential respiratory distress.

Another situation that negates the causal relationship—and consequently civil liability—occurs when a train is properly inspected and equipped before departure but suffers unexpected damage during the journey due to external and unavoidable factors, leading to loss or injury to passengers or cargo. In such cases, the railway operator and company can invoke this defense to avoid civil liability.

Thus, if an accident occurs due to a passenger's unique condition or illness, civil liability cannot be easily imposed on the train driver, transportation operator, or railway company, as there must be a clear causal relationship between the inflicted damage and the harmful act.

2.3. Entities and Individuals Liable for Railway Accidents

Due to the occurrence of railway accidents, a variety of individuals and legal entities may be responsible due to their faults or negligence. This section will analyze the civil liability of institutions and individuals concerning railway accidents.

2.3.1. The State and the Ministry of Roads

A contentious issue concerning legal entities is the liability of entities with international legal personality, including states and governmental organizations. International legal personality refers to the capability of an entity to possess, accept, and enforce international rights and obligations (Dupuy, 1990).

Regarding the feasibility of criminal and civil liability for legal entities such as states, several theories have been proposed. One such theory is the real entity theory, which emerged under the influence of philosophers, sociologists, and psychologists

advocating for the doctrine of "social realism." Proponents of this theory consider a legal entity to be a reality. Given the undeniable importance of legal entities in social life, they attribute an independent, objective, external, and real existence to them.

According to this theory, legal personality is neither a legal fiction nor a state-created entity but rather an independent and separate existence from its constituent members. A legal entity has interests and objectives distinct from, and sometimes even conflicting with, those of its individual members. Supporters of this theory argue that a legal entity has a will and intent separate from its members, which follows the collective will of the entity. Some scholars believe that legal entities possess their own distinct will, leading sociologists to describe them using terms such as "collective spirit," "collective will," "collective conscience," and "collective consciousness" (Goldouzian & Ghorbani, 2012). However, this theory has been criticized for its lack of alignment with reality and its excessive assumptions, which have led to its rejection and impracticality (Rostami Far, 2009, p. 144).

Another theory is the fiction theory of legal personality, which emerged when contemporary jurists such as Walin and Radl introduced a new perspective on the nature of legal entities, arguing that legal personality is a legal fiction. This theory provides a better justification for social and legal realities than other theories. Proponents of this theory argue that the classification of legal persons as either real or fictional is an artificial construct and that legal personality is an abstract legal concept created by modern civilization (Goldouzian & Ghorbani, 2012).

Another relevant theory is the property assignment theory, which is derived from the classical theory of ownership. It holds that ownership cannot exist without an owner, and vice versa. According to this view, a person voluntarily separates a portion of their property from their total assets and assigns it to a specific purpose. Under the classical ownership theory, the portion of property thus assigned must have an owner, and a legal personality must be granted to it.

Conversely, some scholars support the doctrine of non-liability for legal entities, including states. Proponents of this view present several arguments:

Critics of legal entity liability argue that a legal entity cannot be rehabilitated or reformed. They also contend that imposing penalties on such entities lacks deterrence and punitive effectiveness.

In civil law, recognizing the rights of a legal entity requires that its objectives and purpose be lawful and not contradict existing laws. Therefore, if a legal entity is established for criminal purposes, recognizing its liability would contradict this principle. Opponents argue that the nature of legal entities prevents the enforcement of custodial penalties against them, making punishment impractical. They also maintain that holding legal entities liable contradicts the principle of personal responsibility for crimes, as a penalty imposed on a legal entity affects all its members indiscriminately, even those who played no role in the offense and did not intend its outcome.

On the other hand, supporters of legal entity liability present counterarguments. They argue that, despite claims that legal entities lack independent intent, they possess a collective will distinct from their individual members. Legal entities can act collectively, engage in commerce, and participate in professional activities.

Regarding the argument that enforcement of penalties, particularly custodial sentences, is impractical for legal entities, proponents assert that while a legal entity cannot be imprisoned, it can be subject to other penalties such as fines. Since legal entities possess wealth and assets, they are capable of paying monetary penalties. Furthermore, alternative sanctions, including dissolution, temporary or permanent suspension, and other administrative measures outlined in Article 20 of the Islamic Penal Code of 2013, can be imposed on them.

According to Article 20 of the 2013 Islamic Penal Code:

"If a legal entity is found liable under Article 143 of this Code, depending on the severity of the offense and the resulting harm, it shall be sentenced to one or two of the following penalties, without prejudice to the liability of natural persons:"

a) Dissolution of the legal entity

b) Confiscation of all assets

c) Permanent or temporary prohibition (up to five years) from one or more professional or social activities

d) Permanent or temporary prohibition (up to five years) from public solicitation for capital raising

e) Temporary prohibition (up to five years) from issuing certain commercial documents

f) Monetary fines

g) Publication of the conviction in the media

"Note: The penalties outlined in this article do not apply to state-owned or public non-governmental legal entities in cases where they exercise sovereign powers."

In response to the argument that penalties against legal entities fail to achieve punitive objectives, proponents maintain that penalizing legal entities helps regulate their behavior and compels managers to comply with legal standards. Additionally, imposing liability on legal entities encourages members to be more selective in appointing executives and to oversee their actions more diligently, thereby achieving the deterrent effect (Namamian, 2007).

Ultimately, regarding the attribution of criminal and civil liability to legal entities such as states, it must be noted that liability consists of material attribution (linking the physical aspect of an offense to a specific actor, i.e., the causal relationship between the offender and the crime) and mental attribution (associating the offense with free and conscious intent). Material attribution is an objective matter unrelated to the psychological state of the perpetrator; regardless of the offender's intent, what matters is whether the criminal outcome was caused by their actions. However, material attribution alone does not establish criminal liability unless the wrongful act results from culpability or blameworthy conduct, making the perpetrator subject to criminal consequences.

Opponents argue that the impossibility of attributing fault to legal entities is the primary reason against their liability. They contend that legal entities have no physical form to commit a crime nor conscious intent to be deemed culpable (Stefani et al., 2004).

Conversely, proponents assert that the same legal will that enables legal entities to engage in commerce and enter into contracts also makes them capable of committing offenses and incurring liability. Therefore, legal entities possess collective intent, distinguishing them from natural persons.

These considerations lead to the crucial question: how can courts assign liability to legal entities, given that individual responsibility is a fundamental principle of liability? To address this, various theories on attribution have been developed.

One such theory is vicarious liability, which posits that a legal entity derives its liability from the actions of its members and employees. If employees commit an offense in the course of their duties, the legal entity is held civilly and criminally liable. Critics argue that this theory unreasonably expands liability, making legal entities responsible for offenses committed by any of their members, even if the act was unauthorized (Hasani, 1995).

An alternative is the secondary personality (direct liability) theory, which holds that certain high-ranking managers represent the legal entity itself, meaning their actions and decisions are directly attributable to it. However, this theory is criticized for being impractical for large and decentralized corporations, where significant decisions are often made at different levels of management.

The collective fault theory argues that legal entity liability arises from aggregated misconduct, where multiple negligent actions contribute to an offense, rather than from a single individual's wrongdoing.

The corporate policy theory suggests that liability should be based on the legal entity's institutional policies rather than the misconduct of individual members. Countries such as Australia have adopted this model to address challenges in attributing liability to corporations for offenses such as involuntary manslaughter (Hasani, 1995).

In the context of railway accidents, the Ministry of Roads or equivalent government agency plays a regulatory role, overseeing railway transportation safety. It is responsible for setting safety standards, conducting inspections, providing training programs, managing crises, and funding research to enhance railway safety and prevent accidents.

2.3.2. Private Companies

The liability of non-governmental entities (private companies and non-profit organizations) for compensating damages resulting from railway accidents generally depends on the legal framework of each country, as well as obligations specified in contracts and agreements. In this regard, liability may arise in two key areas:

Transportation Agreements: Private companies engaged in railway transportation may have agreements with railway operators or other transportation firms. These agreements outline conditions related to liability and compensation in case of accidents. Private companies may be required to cover potential damages, with such obligations being stipulated within transportation agreements.

Legal Obligations: Each country's laws may impose specific duties on private transportation companies and non-governmental entities regarding railway safety and accident compensation. Companies may be required to comply with safety standards and regulations, and failure to meet these obligations can result in legal liability.

Civil Liability: Even if private companies or organizations do not have explicit contractual liability for railway accidents, civil law may hold them responsible, especially if it is established that their actions or omissions contributed to the occurrence of an accident.

Compliance with local and national laws, agreements, and railway accident-related standards, as well as implementing preventive safety measures, can help private companies effectively identify and fulfill their responsibilities. Additionally, in the event of an accident, proper planning allows for efficient management of damage compensation.

2.3.3. Negligent Individuals

Previous studies have emphasized the role of human factors as a primary cause of railway accidents. Despite such emphasis, the frequency of railway incidents has not significantly declined. Today, human factors remain a critical component of railway accident liability. These factors include physiological and physical conditions of employees, psychological and behavioral issues, non-compliance with operational regulations, weaknesses in safety management, physical workplace conditions, lack of sufficient training and experience, among others. Among these, psychological and behavioral factors of employees have played the most significant role in railway accidents, while non-compliance with operational movement regulations by railway personnel has had a lesser impact. Scientific and technical solutions have been proposed to reduce human-related risks in railway incidents (Pakzad, 2015).

The Mashhad-Yazd train accident was attributed to human error, serving as a stark reminder for railway administrators to prioritize workforce training, timely warnings for railway personnel, and overall railway safety management. Unfortunately, reactive measures taken after accidents are often short-lived, and preventive efforts fade until another disaster occurs, forcing authorities to temporarily address safety concerns. Continuous education, regulatory enforcement, and the development of proper safety guidelines should be regarded as fundamental necessities ingrained in the mindset of policymakers to ensure a long-term reduction in railway accidents.

Understanding the factors contributing to human error and operational deficiencies is essential in selecting appropriate variables for modeling accident causes. Statistical analysis of railway incidents in Iran indicates that a significant percentage of accidents are attributed to human error. Such errors stem from various factors, including physical and physiological conditions, psychological and behavioral aspects, economic pressures, environmental conditions, availability of health and recreational facilities, and cultural-educational influences. These variables have a direct or indirect impact on accident occurrence.

Human error and operational failures may be committed by various train operation and safety personnel, such as locomotive drivers, dispatchers, and track inspectors. In some cases, passengers and individuals near railway lines may also contribute to accidents. Examples of railway staff errors include improper track switching (misaligned or partially closed switches), failure to heed signals, exceeding speed limits, lack of familiarity with routes, improper brake control, errors in issuing movement permits, improper loading procedures, failure to make timely decisions, and inadequate train inspections.

Additionally, certain passenger-related errors contribute to accidents, such as negligence during boarding and disembarking, throwing objects that injure other passengers or railway staff, and children entering railway tracks to play.

A general review of accident statistics suggests that factors such as experience, age, and education level influence accident occurrence. Age is a crucial determinant in an individual's ability to perform tasks efficiently. As age increases, physical and cognitive abilities decline, reaction speed in emergencies diminishes, resilience in demanding work conditions weakens, fatigue increases, and accident risk escalates. Conversely, greater experience correlates with enhanced knowledge and situational awareness, reducing accident probability.

A study revealed that train operators are more likely to be involved in accidents during the early years of their careers due to insufficient experience and the psychological pressures associated with youth. Additionally, higher education levels correlate with a broader perspective on work conditions, reducing errors and accident likelihood. Data from railway authorities further support this correlation (Forouhid, 2018).

2.3.4. Carrier Liability in the Convention on the Contract for the International Carriage of Goods by Road (CISG)

Transportation is one of the fundamental pillars of the economy, trade, social welfare, security, sovereignty, and policy. International carriage of goods refers to the transfer of goods from the country of origin, usually the seller, to the country of destination, typically the buyer. This definition is completed by specifying that transportation extends from the country where the carrier receives the goods to the country where they are to be delivered (Carr, 2009).

Among the various modes of transportation, road transport holds a significant position and has a long history. For instance, in 1997, approximately 42% of transportation between European countries was carried out by road transport. In this regard, the Convention on the Contract for the International Carriage of Goods by Road (CMR) was drafted and adopted on May 10, 1956, in Geneva, with one of its main subjects being the liability of the road carrier for transported goods.

Iran's accession to the Convention on the Contract for the International Carriage of Goods by Road (CMR) in 1997 necessitates an examination of its provisions, particularly those related to carrier exemptions, to ensure that carriers and goods owners engaged in international transport are familiar with its terms. It is important to note that the CMR applies exclusively to the international carriage of goods by road and does not extend to passenger transport or their luggage (Jabari et al., 2014).

Regarding the basis of the carrier's liability under the CMR, different perspectives have been presented. However, the prevailing view, which aligns closely with the convention, is the maximum care theory. Scholars have expressed this concept in various languages, describing it as an approach that goes slightly beyond the presumption of fault but does not significantly differ in substance. Some scholars have explained that carrier liability under the CMR is based on the presumption of liability, supplemented by the carrier's duty to exercise maximum care (Duygu, 2011).

According to Article 17(1) of the CMR, the carrier has a contractual obligation to deliver the goods in the same condition as received to the entitled person; otherwise, it constitutes a breach of contract. Article 17(2) states:

"The carrier shall be relieved of liability if the loss, damage, or delay was caused by the wrongful act or negligence of the claimant, by instructions given by the claimant that were not due to the carrier's fault or negligence, by the inherent defect of the goods, or by circumstances which the carrier could not avoid and the consequences of which he was unable to prevent."

Thus, if the carrier proves that negligence on the part of the claimant caused the loss, damage, or delay, the carrier shall be partially or fully exempt from liability (Jabari et al., 2014). A key point in this article is the interpretation of the term "claimant." This term should not be understood literally but rather in light of other provisions of the convention, where it refers to individuals authorized to issue instructions, such as the sender or consignee (Clarke, 2002).

Article 22 of the CMR specifically addresses dangerous goods and stipulates:

1. When a sender delivers dangerous goods to the carrier, they must inform the carrier of the precise nature of the danger and, if necessary, specify the precautionary measures to be taken. If this information is not included in the consignment note, the sender or consignee must provide alternative proof that the carrier was aware of the dangerous nature of the goods.
2. If the carrier was not informed of the presence of dangerous goods as required in paragraph (1), they may at any time and place unload, destroy, or neutralize the goods without compensating the sender. Additionally, the sender is liable for any damages, costs, loss, or harm resulting from the transportation or delivery of such goods.

This provision clarifies how a carrier can use it as a defense to avoid liability. Dangerous goods are those that inherently pose a risk of significant financial and bodily harm under normal transportation conditions. Thus, such goods are inherently hazardous rather than becoming dangerous under exceptional circumstances.

For example, large mineral rocks, such as iron ore, can cause major hazards if improperly loaded, especially on steep inclines and declines. However, such materials are not generally classified as dangerous goods (Alsan, 2008).

If the carrier was not informed about the dangerous nature of the goods, they may unload, destroy, or neutralize them at any time and place without compensating the sender. Furthermore, the sender is responsible for covering all costs, losses, or damages incurred due to the transportation or delivery of such goods.

In one case, a shipment of toxic chemicals was misrepresented by the sender as simply "chemicals," without disclosing their hazardous nature. Additionally, an intermediary falsely declared to the carrier that the cargo contained "pharmaceutical products." Other goods were loaded alongside this shipment, and during transit, a leak from one of the barrels caused damage

to the other goods and the trailer. The court ultimately determined that the accident occurred due to the sender's failure to disclose the dangerous nature of the goods and held the sender solely responsible for the incident.

The carrier's right to unload or destroy hazardous materials is not absolute and must consider environmental and public health regulations. In such cases, the carrier has no contractual obligation to the contracting party. Additionally, the sender is responsible for reimbursing any costs incurred by the carrier. Furthermore, if the carrier suffers direct losses, such as damage to the vehicle, the sender must compensate for these damages as well (Jabari et al., 2014).

2.3.5. Civil Liability in the International Agreement on the Carriage of Passengers and Luggage (CIV) and the International Agreement on the Carriage of Goods by Rail (CIM)

With the expansion of railway lines beyond national borders and the increase in international exchanges between states and their citizens, the need for institutions, organizations, and legal frameworks to regulate these relationships became increasingly evident. In this regard, states and international organizations worked extensively to establish uniform and harmonized railway transport regulations and to create exclusive international organizations dedicated to railway transport.

In 1893, at the initiative of two Swiss jurists, the Convention on the International Carriage of Goods by Rail was drafted. Subsequently, in pursuit of further organization and regulation of international rail freight transport, several countries convened in Bern, Switzerland, on October 25, 1952, and established regulations known as the International Agreement on the Carriage of Goods by Rail (CIM). Later, in 1970, Uniform Rules for the Contract of International Carriage of Passengers and Luggage by Rail (CIV) were developed.

In a subsequent meeting held on May 9, 1980, the contracting parties to these conventions, in implementation of Article 69(1) of the CIM and Article 64(1) of the CIV (dated February 7, 1970), as well as Article 27 of the Additional Agreement to the CIV (dated February 26, 1966), concerning railway liability for passenger death and injury, reached a consensus on the need for an international organization to standardize railway transport regulations and adapt them to economic and technical requirements. As a result, these conventions were restructured and consolidated into the Convention Concerning International Carriage by Rail (COTIF), which consists of a preamble, 28 articles, and 6 annexes. The Islamic Republic of Iran has also acceded to this convention.

Upon the enforcement of the COTIF, the CIM, CIV, and the Additional Agreement to the CIV of 1966 on railway liability for passenger death and injury were officially repealed. In 1982, additional provisions were incorporated into COTIF 1980, and in 1985, following Ukraine's accession, the convention entered into force. The Islamic Republic of Iran acceded to the 1980 Convention in 1994 and later joined the 1999 Protocol of Amendment in 2002 (Rasouli, 2013).

For a railway transport contract to fall under the provisions of the COTIF, the following conditions must be met:

1. The railway transport contract must be in exchange for remuneration, meaning the carriage must be performed for a fee.
2. The railway transport contract must be international in nature. Under the 1980 regulations, the international character of transport was recognized when the journey traversed the railway lines of at least two different countries. However, under the 1999 regulations, the loading and unloading countries must both be COTIF members. If only one country is a COTIF member, the application of these regulations depends on the parties' agreement. If neither country is a COTIF member, these regulations will not apply unless the competent court accepts them as the governing law based on the parties' agreement.
3. COTIF regulations apply exclusively to railway transport contracts where the designated route is part of railway infrastructure registered in the list of lines covered by the convention.

It is also relevant to discuss two railway traffic control systems, whose operational negligence can lead to civil liability.

Centralized Traffic Control (CTC) refers to the remote control of railway switches at stations from a central command. With a single click at the traffic control center, switches at a distant station can be adjusted to determine train movement routes. Generally, rail safety at a local station is ensured through interlocking systems and traffic operators who monitor signaling devices via control panels (Mousavi Kia et al., 2012).

Rail traffic safety relies on telephone communication between neighboring stations and the traffic command center. In the past, these phone calls were the primary means of tracking train movements. Consequently, coordinating train operations and

modifying schedules required significant time. The introduction of centralized traffic control systems has significantly addressed these challenges by allowing operators to remotely manage the interlocking systems of each station.

Another critical system is Automatic Train Control (ATC), which automatically regulates train speeds according to signal indications and information received from trackside equipment. The ATC system continuously monitors and maintains train speeds below permitted limits.

The operation of ATC follows these steps:

1. Initial route and track data are transmitted from external control systems to onboard train systems.
2. Based on this data, the system calculates static speed curves and determines speed restrictions.
3. Using this calculated profile, train characteristics such as length, maximum deceleration, and stopping requirements are analyzed to derive dynamic speed curves.
4. The speed control system can be continuous or discrete. In discrete mode, speed restrictions are applied stepwise, while in continuous mode, a specific speed limit is assigned to each point along the route (Yazdani, 2014).

Traffic congestion, increased operational redundancies, and heightened workload pressures have led to an increase in driver errors, sometimes resulting in catastrophic accidents. The frequency of such incidents prompted railway engineers to develop advanced control systems such as ATO (Automatic Train Operation), ATP (Automatic Train Protection), ATS (Automatic Train Supervision), AWS (Automatic Warning System), and finally, ATC (Automatic Train Control).

Despite these technological advancements, the implementation of optimized, safe, and fully automated train operation between departure and destination remains the ultimate goal. This approach enhances passenger comfort, safety, stopping accuracy, travel time efficiency, energy consumption optimization, and speed maximization, while ensuring gradual deceleration according to a predefined profile, ultimately surpassing the performance of even the most experienced train operators (Karimi, 2009).

2.4. Elements of Imposing Civil Liability Due to Railway Accidents

This section examines the elements and components that constitute civil liability arising from railway accidents.

2.4.1. Commission of an Act Leading to a Railway Accident

In most European countries today, a significant part of railway liability and acts leading to damages arise from negligence. Negligence-based liability is one of the most incoherent areas of civil liability law, where achieving a fully systematic approach in terms of substance, structure, and enforcement is highly challenging (Von Bar & Drobnig, 2004). This legal domain is rooted more in customary practices and social norms than in strict ethical principles. In negligence-based liability, the balance between social risks justifies the concept of negligence. If this balance is not maintained, a strict liability approach may be necessary (Postema, 2002).

Negligence is defined as the failure to exercise the level of care and precaution that a reasonable and prudent person would apply under similar circumstances. In other words, negligence constitutes a careless act that results in a blameworthy breach of duty. Thus, in negligence-based liability, an individual or entity is held liable for an unreasonable or blameworthy act or omission that results in damage to the claimant. Consequently, three conditions must be met to establish liability for negligence:

- First: The existence of a duty of care
- Second: Breach of that duty
- Third: Occurrence of damage

Based on the principle of negligence-based liability, railway accident liability can be defined under the following conditions:

In common law and other legal systems, no individual owes a duty of care to all members of society; rather, the duty of care applies only to a specific group. In railway accidents, railway personnel are obligated to exercise care and caution solely concerning the safety of passengers and the goods they transport. Despite the various legal limitations, immunities, and exemptions, there is a lack of extensive judicial precedent that explicitly defines the scope of this duty, as courts tend to be reluctant to establish broad obligations of care.

For example, in English law, railway operators are implicitly committed to ensuring passenger safety, and based on the implied safety obligation, they are held liable for damages incurred by passengers. Furthermore, beyond direct passenger liability, courts have sometimes recognized carrier liability even toward the deceased passengers' next of kin. Additionally, railway operators are responsible for any loss or damage to goods in their possession during transit.

To establish liability, it must first be proven that railway personnel had a duty of care. Once this is established, it must then be shown that they breached this duty. A breach occurs when railway personnel fail to exercise the level of care and caution that a reasonable and prudent person would under similar circumstances (Garner, 2004).

If the passenger or cargo owner fails to prove this breach, railway personnel cannot be held liable. Even if negligence is proven, railway personnel have the right to defend themselves by denying their fault or invoking force majeure as an exemption from liability (Hosseini Nejad, 2010).

One of the main criticisms of fault-based liability as a foundation of civil liability is the difficulty of proving negligence for most claimants. In railway accidents, it is often challenging for the injured party to establish negligence on the part of railway personnel. In many cases, proving such negligence is impossible.

To overcome this issue, courts and legal scholars have shifted from personal fault toward objective and social fault as the standard for liability. In such cases, if railway personnel can prove their lack of fault concerning the damaging accident, they will be exempt from liability. If railway personnel can demonstrate that they and their agents took all necessary precautions to prevent the damage, or that taking such measures was impossible, they will not be held responsible.

This provision is absolute, meaning the railway operator can use it as a defense to avoid liability for death, bodily injury, and even delays (Fakhari & Moslem, 2007).

It is essential to note that the standard for exercising care and caution is based on reasonable care. Reasonable care serves as a benchmark in civil liability law, enabling courts to assess the conduct of the railway personnel based on an objective standard (Amini & Noei, 2012).

Several factors influence the determination of the duty of care, including:

- The likelihood of damage occurring
- The severity of the potential damage
- The feasibility of avoiding the risk
- The social utility of the defendant's actions
- The typical (but not necessarily reasonable) practices of railway personnel

If the railway operator fails to act in a reasonable and prudent manner under the given circumstances, they are deemed to have breached their duty of care and will be held liable (Calnan, 2009).

Thus, the standard of care defines what railway personnel should have done, not merely what they could have done. If railway personnel engage in negligence and thereby breach their obligations toward passengers or cargo, and if the passengers or cargo owners successfully prove these elements, they must further establish that the negligence caused them actual harm.

Accordingly, no matter how severe or blatant the negligence of railway personnel may be, if no damage results from it, no liability will arise.

2.4.2. Occurrence of Damage Resulting from a Railway Accident

Another essential element in establishing civil liability in railway accidents is that the harmful act committed by the liable party must result in damage or loss. If no damage occurs, civil liability cannot be established. In the context of railway accidents, the concepts of "damage" and "loss" are considered in various forms.

The term damage refers to the extent of financial or non-financial harm inflicted on an individual or entity due to a railway accident. Damages may include direct financial losses (such as repair costs for vehicles, medical expenses, etc.) or non-financial damages (such as bodily injury, reputational damage, or business losses).

The term loss primarily refers to physical damage to property, vehicles, or other assets resulting from railway accidents. Losses may take the form of financial harm, physical harm, or environmental damage.

For example, passenger injuries, damage to vehicles, medical costs, and disruptions caused by railway line closures are considered damage and losses. These aspects are defined and assessed according to transportation accident regulations and railway industry laws. However, the key point is that for civil liability in railway accidents to be established, actual damage must be proven.

International Damages in Railway Accidents

International damages in railway accidents refer to losses that, despite occurring in one country, produce effects and consequences in other countries. These damages may manifest across economic, social, environmental, and even political dimensions. Some potential international damages from railway accidents include:

1. Impact on Trade and Economy: Railway accidents may disrupt international transport lines and cargo transit, reducing trade and economic exchanges between countries.
2. International Financial Losses: The financial consequences of railway accidents can have cross-border implications, sometimes involving international insurers and suppliers.
3. Impact on Foreign Policy: Railway accidents can influence diplomatic relations and international negotiations between countries.
4. Impact on Regional Security: If an accident occurs in border areas, it may affect regional security and stability.
5. Environmental Implications: Railway accidents may cause severe environmental damage, with cross-border repercussions affecting multiple nations.

International damages in railway accidents underscore the interconnected nature of railway networks, where the impact of an incident extends beyond national boundaries, producing significant global consequences.

2.4.3. Causal Relationship Between the Harmful Act and the Damage in Railway Accidents

A crucial aspect of establishing civil liability is the causal link between the harmful act and the damage incurred. If there is no meaningful connection between the act and the resulting damage, civil liability cannot be established.

To prove compensable damage, it must first be demonstrated that there is a causal relationship between the perpetrator's act and its consequences. The concept of causation in law is generally based on common understanding—meaning that if an event is widely perceived as the cause of another event, a causal relationship is assumed.

For instance, if a train experiences mechanical failure immediately after repairs, without any negligence or delay on the part of the railway operator, common perception may still recognize a causal link between the incident and the actions of the repair company. In this case, the negligence of the railway company's repair staff directly caused the accident and subsequent damages. However, the burden of proving causation rests with the injured party (Jafari Tabar, 2010).

For an event to be considered a legal cause of damage, it must be a necessary condition for the occurrence of harm—meaning that, without it, the damage would not have happened. Thus, if it can be established that the harm would have occurred even with full due diligence, then the defendant's fault was not the cause of the damage, as there is no causal link between their actions and the loss.

For example, if a train that had not undergone pre-departure inspection derails, but subsequent investigations reveal that the mechanical defect could not have been detected through inspection, the technical inspector cannot be held responsible. Instead, the repair company would bear liability.

Additionally, the following legal principles should be noted:

- First: In contractual liability, when an obligation is breached in a way that prevents a specific result, such as the railway operator's obligation to safely transport passengers and cargo, the burden of proof shifts to the defendant. To escape liability, the defendant must prove that a force majeure event caused the breach, thereby disproving the presumed causal link between their actions and the damage. Otherwise, they remain liable for compensation.
- Second: In liability for the actions of others, proving a causal link between the principal's act and the damage is not necessary. Instead, the injured party only needs to establish a causal link between the actions of the subordinate (such as a railway worker or transport operator) and the damage.
- Third: In legal systems that require proof of negligence, the injured party must not only establish causation between the defendant's actions and the damage but also prove that the defendant was at fault (Ghorbanpour, 2006, p. 24).

A key challenge arises when damage occurs inside the train or during passenger boarding/disembarking, but the incident is unrelated to the railway operator's actions. For example, if a passenger suffers a fatal asthma attack while on the train, this does not establish causation with the railway operator's conduct.

In railway accidents, if the passenger's pre-existing medical condition or special circumstances were the true cause of the harm, no causal link exists between the railway operator's actions and the damage.

In a specific case, railway staff failed to recognize that a passenger was disabled and did not provide necessary assistance, leading to liability for the railway operator. However, if an accident occurs due to a force majeure event, affecting all passengers equally, then the railway operator may be exempt from liability. This is because the cause of damage is an external event, rather than the passenger's specific medical condition that the operator failed to address.

To qualify as force majeure, an event must be directly responsible for the damage and must place all passengers in a similar risk. However, if the accident merely exacerbates an existing medical condition, making the damage worse, the railway operator remains liable. The burden of proof in such cases lies with the injured passenger. For instance, in a legal case, a passenger who suffered a heart attack and sustained bodily injuries was required to prove that the attack was triggered by the railway accident, rather than an unrelated pre-existing condition.

Thus, if an accident or injury occurs due to a passenger's special medical condition, civil liability cannot automatically be imposed on the train driver, transport operator, or railway company. Instead, a causal link between the damage and the harmful act must be established.

Another scenario in which causation may be negated, thereby preventing the imposition of civil liability, is force majeure—a concept widely recognized in international railway law.

Force majeure, originally introduced in the French Civil Code (Napoleonic Code) and later adopted by other legal systems, is also a key principle in international law. Under this doctrine, damage must be unavoidable, and its consequences must be beyond human control.

For example, earthquakes may cause severe damage to cargo, passengers, or railway tracks, leading to delays in transportation. Since such disasters are unavoidable, the railway operator cannot be held liable.

However, railway personnel must still make reasonable efforts to minimize risk. The "maximum effort" standard requires not only proper caution and compliance with safety laws but also a duty to take all reasonable actions under the circumstances.

Some scholars argue that it is unreasonable to expect individuals to act beyond what is expected from an ordinary, prudent person in similar circumstances. Consequently, preventive measures must be both reasonable and economically justified.

Strict interpretation of force majeure conditions has even led courts to reject claims that certain railway accidents were truly unavoidable. Moreover, a railway operator's duties extend beyond preventing accidents and include efforts to mitigate damages.

While common law systems rarely use the term "force majeure," they address similar issues under doctrines such as "frustration of contract" or "impossibility"—which, though conceptually distinct, often lead to similar legal outcomes (Jabari et al., 2014).

3. Conclusion

Based on the findings of this research, it can be concluded that the key concerns examined, such as who bears civil liability and compensation obligations in the event of a railway accident in the national transportation network, the legal foundations of civil liability in railway accidents, and which party holds civil liability in the event of a collision between two land vehicles, demonstrate that, in principle, under the Compulsory Civil Liability Insurance Act of 1968, "all owners of motor vehicles, including trailers and railway trains, whether natural or legal persons, are liable for bodily and financial damages caused to third parties due to accidents involving these vehicles or their products."

Additionally, it has been clarified that the foundation of civil liability in railway accidents is based on fault. Furthermore, in collisions between two land vehicles, under Article 335 of the Civil Code, Article 1 of the Civil Liability Act, and Paragraph 5 of Article 4 of the Compulsory Insurance Act, if fault is proven, a judgment of shared civil liability will be issued. The judicial precedents related to railway accidents play a crucial role in decision-making and court rulings in similar cases.

The results indicate that the primary distinction between civil liability in railway transportation and other modes of transportation lies in the determination of liability in accidents and its referral to railway accident prevention commissions, which are established in the regional railway directorates and central railway headquarters.

Ultimately, the research findings, through an analysis of domestic legal frameworks, including the Civil Liability Act, the Free Access to Railway Transport Network Act, the Amendment to the Road and Railway Safety Act, and the Executive Bylaw of Railway Accident Prevention Commissions, along with international railway transportation regulations, such as the COTIF Convention, the International Road Transport of Goods Convention, the Agreement on the Carriage of Passengers and Luggage by Rail (CIV), and the Agreement on the Carriage of Goods by Rail (CIM), confirm that the civil liability system in railway accidents is justified based on the theories of risk and fault, supported by Islamic jurisprudential principles such as the "La Zarar" rule (no harm principle) and the "Itlaf" rule (wrongful destruction) in domestic law.

The elements of civil liability in railway accidents include the commission of an act leading to a railway accident, the occurrence of damage as a result of the accident, and the causal link between the harmful act and the resulting damage. Depending on the circumstances, liability may be imposed on the government, the Ministry of Roads and Urban Development, private railway companies, transport operators, or negligent individuals.

It is recommended that the legislative framework governing railway transportation and relevant bylaws, many of which date back several decades and fail to address technological advancements and new forms of damage, be reviewed and updated. Additionally, it is suggested that in the process of amending and revising these laws, special attention be given to the latest legislative developments at the international level, as well as transnational conventions and regulations. If there are international conventions to which the Islamic Republic of Iran has not yet acceded, efforts should be made to address potential obstacles and utilize the provisions of these conventions and regulations to enhance the domestic legal framework.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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