

# Standards: Basis of Credit for Social and Economic Activities\*

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**Abstract**—Modern society is a law-governed one based on credit. As the product of consensus among stakeholders, standards play an important role in social and economic activities. The article examines the way and mechanism that standards help building credit among stakeholders involved in social and economic activities, including as the basis of mutual trust for trade, the benchmark of conformity assessment, the support of legislation and the basis of justice and law enforcement. It has been wished that the study can facilitate the normative application of standards in social and economic activities, and improve the function of standards in social and economic activities as basis of credit.

**Keywords**—standard; credit; social and economic activities

## I. INTRODUCTION

Modern society is a law-governed one based on credit. A credit system authenticates the credit of a citizen through various evidences. As the quality of products or services is a concern to consumers, users and the public, not only manufacturers are expected to give a guarantee of quality products or services but also supporting evidences on their quality are necessary to heighten their confidence when they make a purchase. The specific standards on which the products and services are produced are the most important yardsticks for measuring the quality of products and services. Therefore, they are widely accepted as the basis for determining the conformity of products or services.

Being used as the basis of conformity enables standards to play a foundational role in social and economic activities, which includes: first, basis of trading activities. Both Party A and B conclude a contract where they agree on specific standards that products under the contract shall comply with. These activities include distributors' procurement and distribution (trade between sole distributors and retailers, companies and companies, countries and countries inclusive) and government procurement; second, supporting conformity assessment. Certification bodies evaluate products or services according to specific standards and provide the proof of conformity to users and society; and third, supporting the rule of law. Standards may support judgment about compliance with specific laws and regulations and as technical evidence, in turn final decision.

## II. ROLE OF STANDARDS IN SOCIAL AND ECONOMIC ACTIVITIES AND THE WAY THEY PLAY

### A. Standards: Basis of Mutual Trust for Trade

To describe what are procured and ensure those delivered are exactly what the other party desires, both Party A and B shall identify features of products under their agreement and ensure methods for quality control are in place. This helps identify both parties' accountabilities. As the easiest method, standards prevents unnecessary disputes when Party B provides products or services failing Party A's requirements or expectations or Party A is fastidious about their quality without reasonable justifications. From this point, standards are basis of mutual trust for trade.

A contract between Party A and B generally contains provisions of standards that products or services under the contract shall comply with. Party B delivers its products or services according to these standards. Party A accepts them according to them too ("Fig. 1"). "Fig. 1" shows an example of provisions of standards in a purchase contract between Party A and B.

As contracts based on product or service standards bring more certainty to trade, reduce disputes from transactions, promote mutual understanding, improve trading efficiency and reduce costs, a vast majority of contracts are based on standards. In response to Party's special demands, both parties may make adjustments to technical index contained in their contract or specify separate ones according to Party A's application and financial conditions in addition to technical requirements contained in agreed standards. As a majority of product or service standards don't generally address rules of acceptance, both parties may agree on them according to their respective demands and conditions. They may raise or relax rules of acceptance included in standards according to market conditions, manufacturing type and other factors.

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Purchase Contract for Plate-type Flat-welded Steel Pipe Flange					
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Article I Party A purchases RMB Yuan xxxxx in total. For product name, dimensions, quality (technical index), unit price and total price see the following table.					
Name	Dimensions (mm) and models	Product standards or technical index	Quantity (set)	Unit price (RMB Yuan/set)	(Yuan) Sum
Flat-welded steel pipe flange	DN50	GB9119—2010	100	xx.xx	xxxxx
Flat-welded steel pipe flange	DN100	GB9119—2010	500	xx.xx	xxxxx
Flat-welded steel pipe flange	DN200	GB9119—2010	350	xx.xx	xxxxx
Flat-welded steel pipe flange	DN285	GB9119—2010	50	x x.xx	xxxxx
Flat-welded steel pipe flange	DN505	GB9119—2010	10	xxx.xx	xxxxx
Article II Packaging dimensions and cost RMB Yuan xxx.					
Article III Justifications for acceptance in accordance with GB9119—2010					
.....					
Article VI Financial responsibilities					
1. Party B					
(1) Products inconsistent with provision for product, type, dimensions and quality in Article I of this contract are regarded non-conforming. They may be accepted by Party A at agreed price. The remaining ones shall be repaired, returned or replaced in accordance with the Warranty. Party B shall pay three ten thousandth of the total price as penalty for delay of delivery per day due to the above-mentioned causes.					
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Fig. 1. Example of Provisions of Standards in a Purchase Contract Between Party A and B.

### B. Standards: Basis of Certification Activities

Conformity assessment provides the credit of products, process, services, personnel and institutions that potential consumers and users are concerned. The third party's conformity assessment is more readily accepted than Party A's or Party B's one. Certification is the written confirmation by the third party that underlined products, process, services or personnel meet specified requirements [1], the most direct guarantee of credit for social and economic activities. What is in a standard is decided by consensus among stakeholders; therefore, they are used by an assessment body as specified requirements that products, process, services or personnel shall meet. A vast majority of certification bodies with well-known marks make a decision on the basis of relevant standards. For example, British Standard Institution (BSI) kite mark represents products certificated according to BSI's standards. American Insurance Company (UL) Certification by UL in the USA addresses production and business safety, making a decision according to relevant standards developed by UL or co-developed with other bodies. Germany's GS Certification is entrusted by Federal Employment Agency to German Association for Technical Supervision and other organizations, using European standards and German national standards. Only a few certifications are conducted according to technical regulations. For example, CE mark of European Union (EU) is granted to those certificated according to EU's directives. Compliance to corresponding European Harmonized Standards is a main approach to compliance to EU's directives. Standards have been accepted by certification bodies as the primary document, basis of certification activities.

Certification bodies develop certification specifications according to subject matters within the scope of their respective business. They identify relevant standards and inspection rules that candidate products or services are subject. Only those compliant with relevant standards are granted certification marks to prove that they meet requirements as stipulated in these standards. These specifications generally include scope, certification mode, essential implementation requirements, maintenance and change of certification certificates, use of certification mark, and suspension, withdrawal, cancellation and fee collection of certification. Essential implementation requirements identify the standards and related provisions that candidate products or services are subject. "Fig. 2" shows an example of provisions of standards in these certification specifications for motor vehicle-related tyres [2].

This example represents certification of product quality and reliability. Testing items, frequency and other provisions are developed for this purpose, and this certification objective is based on relevant product standards and test procedures. Other Certification objectives are based on different kinds of standards. For example, certification of services is based on service-related standards, quality control system on quality control-related standards and safety, environment, etc. on their respective standards.

**Implementation Rules of Compulsory Certification of Tyres for Motor Vehicles (Tyre Product)**

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3.2.4 Product standards and testing items

3.2.4.1 Product standards

Tyres for vehicles: tyres for lorries GB9744  
                                tyres for saloon cars GB9743

Tyres for motorcycles: tyres for motorcycles GB518

Note: existing version of product standards apply.

3.2.4.2 Testing items

For testing items see Attachment 3 Testing Outline for Tyre Certification

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Attachment 3 Testing Outline for Tyre Certification

Classification	Name	Standard	Testing item	Frequency	Method of operation
<b>1.Tyre for saloon car</b>	Tyre for saloon car	GB9743-xxxx	Dimensions of the outer edge	One year	GB/T521-xxxx
			Tyre strength		GB/T4503-xxxx
			Resistance to tyre bead unseating		GB/T4504-xxxx
			Tyre durability		GB/T4502-xxxx
			Tyre high speed performance		GB/T7034-xxxx
<b>2.Tyre for lorry</b>	Tyre for lorry	GB9744-xxxx	Dimensions of the outer edge	One year	GB/T521-xxxx
			Tyre strength		GB/T6327-xxxx
			Tyre durability		GB/T4501-xxxx
			Tyre high speed performance		GB/T7035-xxxx
<b>3.Tyre for motorcycle</b>	Tyre for motorcycle	GB518-xxxx	Dimensions of the outer edge	One year	GB/T521-xxxx
			Tyre strength		GB/T13203-xxxx
			Tyre durability		GB/T13205-xxxx
			Tyre high speed performance		GB/T13204-xxxx

Fig. 2. Example of Standards' Provisions in Certification Specifications.

### C. Standards: Tool to Support the Rule of Law

As more progress in science and technology is made, the rule of law in a modern society increasingly involves technical decision about products, service and manufacturing process. Only these issues are addressed in an efficient way, so are safety, healthcare, environmental protection, and other issues within legal framework. Standards are recognized as the most effective solution to these issues because inclusion of standards into laws and regulations eases the burden upon lawmakers by warding off attention to details and avoiding technical, temporal and financial resources being wasted due to these efforts for the same repeated program. Particularly standards for safety, healthcare and environmental protection have a purpose close to legislation. Developed by consensus among stakeholders through a well-established process, standards are widely accepted. This makes standards a strong support for legislation. Additionally, the effect of laws and regulations significantly depends on its operability and standards can support the operation of the law, especially in enforcement and administration of justice, convincing the persons concerned of the rationality of the enforcement.

According to International Standards Organization (ISO), International Electro technical Commission (IEC), Economic Commission for Europe, European Commission, Asia-Pacific Economic Cooperation Organization and Asia Europe Meeting, lawmakers shall take into account inclusion

of national, regional and international standards into laws and are encouraged to reference to them. In fact, the practice of reference standards in their laws and regulations is popular among countries all over the world. For example, the USA's Code of Federal Regulations makes reference to American standards by references No. and name for compact purpose. All governments tend to reference to standards in their laws and regulations rather than develop technical requirements. For example, EU develops their directives through New Approach, i.e. reference to substantial number of European standards rather than developing technical requirements. Reference to standards in laws and regulation however varies with country in the way. It may be classified by the degree and certainty of reference as follows:

1) *Degree of reference*

Exclusive reference refers to a statement that compliance with standards refereed is an exclusive approach to compliance with laws and regulations [3]. That is to say, compliance with basic requirements specified in relevant laws and regulations is an exclusive approach for products, process or services to comply with these laws and regulation. Any product, process or service incompliant with standards referenced in laws and regulations is considered incompliant with the latter.

For example, Article 23 of Regulations for Information Security Classification and Protection say, "operators and

users shall build information security infrastructure matching their status in accordance with GB17859—1999 Computer-based Information System Security Protection Classification Rules and other technical standards." It is apparent that compliance with GB17859—1999 and other technical standards is an exclusive approach to compliance with Regulations for Information Security Classification and Protection.

Indicative reference refers to a statement that compliance with standards referenced is an approach to compliance to relevant laws and regulations [3]. That is to say, compliance with the standards referenced in basic requirements which specified in relevant laws and regulations is an approach for products, process or services to comply with these laws and regulation. Any product, process or service which is not through standards referenced in laws and regulations but compliant with other ones accepted in them, is considered compliant with these laws and regulations.

For example, Section "Incorporation by reference", Article 3280.4, Manufactured Home Construction and Safety Standards, Code of Federal Regulations (CFR) say, ".....The specifications, standards and codes of the following organizations are incorporated by reference in 24 CFR part 3280 (this Standard) pursuant to 5 U.S.C 552(a) and 1 CFR part 51 as though set forth in full. The incorporation by reference of these standards has been approved by the Director of the Federal Register. Reference standards have the same force and effect as this Document (24 CFR part 3280) except that whenever reference standards and this Document are inconsistent, the requirements of this Document prevail to the extent of the inconsistency [5]..."

Another example is EU 2009/48/EC Directive of the European Parliament and of the Council on the Safety of Toys, which states "toys which are in conformity with harmonized standards or parts thereof, the references of which have been published in the Official Journal of the European Union, shall be presumed to be in conformity with the requirements covered by this directive. Toys which were not manufactured in accordance with harmonized standards but granted EC-type examination certificate shall be presumed to be in conformity with basic security requirements [6]." In this case, compliance with not standards referenced in these laws and regulations but other ones accepted is an approach to compliance these laws and regulations.

Indicative reference brings flexibility to market access. It gives room to trade by showing methods for meeting governing laws and regulations and suggesting alternative ones.

## 2) Certainty of reference

Dated reference refers to the reference to a standard or standards in laws and regulations by noting standard code, serial number, date of issues and standard name (sometime, name exclusive) [3]. It means that versions included by reference apply to these laws and regulations but sequent revisions or amendments do not. If the specific content of a standard (such as a specific type, level or category, specific

test method) is referenced in laws and regulations, which means the specific chapter or article, table, chart or appendix in the standard is referenced, then the standard date of issues shall be noted.

For example, Examinations for Radiation Operator in Appendix 2 of Regulations for Radiation Operators' Occupational Health (Ministry of Health of the People's Republic of China Order No. 55) specifies that "essential examinations and medical treatment" for radiation exposure and resulting injures shall be made in accordance with GB 18196—2000, GB/T 18199—2000, GB/Z112—2002, GB/Z 104—2002, GB/Z 96—2002, GBZ/T 151—2002, GB/Z 113—2002, GB/Z 106—2002 and other standards". Apparently, these standards are included by reference to their standard codes, serial numbers and dates of issue.

This reference not only identifies technical paths to compliance with governing laws and regulations but also increases operability to them. It is used as an effective way where the trend of technology is unclear.

As standards bodies modify or revise existing standards in response to technical advances, however, lawmakers have to examine the usability of technical changes for relevant laws and regulations after being informed of these changes and if yes, take into account referencing to the changes in laws and regulation after modification or revision.

Undated reference refers to the reference to a standards or standards in laws and regulations by noting standard code, serial number and standard name except for date of issue. It otherwise states that the latest version of standards referenced apply, either modified or revised. It should be noted that undated reference doesn't apply to reference to the specific content of a standard, in a word, section, paragraph, table, figure or appendix.

For example, according to Paragraph 1, Article 23-2, Enforcement Regulation of Pharmaceutical Affairs Law in Japan, requirements for thermometers as medical device "... shall meet JIS T 1140 Clinical Electronic Thermometers with Maximum Instrument [8]", where only code, serial number and name of the standard is included, except for date of issue. It may also be changed into "... shall meet the latest version of JIS T 1140 Clinical Electronic Thermometers with Maximum Instrument".

This reference provides flexibility so that lawmakers needn't revise existing laws and regulations by themselves but to reference to the latest standards in response to technical advances. In a word, lawmakers accept technical changes in standards so that it is unnecessary to initiate legislative program for revision of these laws and regulations whenever technical changes are made to these standards.

Like dated reference, undated reference requires lawmakers to trace the modification or revision of a standard and evaluate the necessity of accepting technical changes. If these changes are accepted, no revision is made to relevant laws and regulations; if not accepted, comments or suggestions may be made at an early stage of standard amendment or revision so that the final public of the new

version of the standard can also meet the legislative objectives.

General reference refers to the reference to all standards (not listed one by one) which developed by a particular organization or in a specific sector in laws and regulations [3].

For example, Article 33, Chapter IV Food Manufacturing and Operation, updated Food Safety Law of the People's Republic of China says, "food manufactures and operators shall meet food safety standards", where standards for food safety are referenced but not listed one by one.

General reference applies to general rules and not notes specific standards, so that lawmakers need to publicize list of standards according to the law enforcement.

### III. CONCLUSION

With rapidly growing and increasingly market-based economy in China and the integration of world economy increasingly emerging as a new order of world economy, a social credit-based system sees its importance rise. It has also been accepted as an important part of our socialist market economy system and social governance.

Standards are the integration of science, technology and experience, the basis of building technological order and the "software" of implementing credit system for social and economic activities. As the basis of mutual trust for trade, they facilitate trading activities; as the most important form of document on which conformity assessment is based, they have become the benchmark for conformity assessment; as the basis of technical decision, they have become an important foundation for the rule of law. Therefore, utilizing standards in a proper and normative way helps standards to serve as a basis of credit and promotes social and economic activities to be conducted in a sustainable way.

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