

Financial Standardization

— What distinguishes financial from engineering?

A few case studies —

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This paper reviews the standardization structure and process in the financial sector in contrast to the engineering sector. Particular attention is paid to the standardized fund transfer mechanism (SWIFT) as contrasted with local Islamic mechanism (Hawala) falling behind in modern financial transactions. Based on the case studies of financial transactions as compared with engineering standardization, the paper tries to derive some implications for future financial standardization including Islamic finance.¹

1 International standards

As the scope of human activities becomes globalized, the concept of standardization has been increasingly crucial in various fields for efficient, consistent and reliable data/information exchange, reasonable comparison, analysis or fair judgment. Unlike the *internationalization* that is based on a weak form of standards, the *globalization* needs a strong form of standards. In sports, for instance, due to unsophisticated rules (standards), Judo used to be only a local sport tens of years ago. Now, however, with an elaborate set of rules, it has grown into one of the most popular sports in the world.

In engineering, standards are often what unify technical specifications, methods, or processes. Together with the business standardization, the engineering standardization process has been often to maneuver for a dominant business position, which is exemplified by the case of “QWERTY” vs. “Dvorak” in keyboards², or “Window” vs. “Linux” in operating systems, filled with such interesting path-dependent stories.

In business, the standardization appears to be fragmented due to business strategies for market supremacy, though strongly affected by technological innovations. In the middle- or long-term, however, different standards tend to converge for consumers’ convenience and even for business coordination. In the meantime *de facto*³ standards dominate. The most recent case in Japan is electronic

monies which have adopted different standards so far. In the middle- or long-term, their standards will unavoidably converge due to the homogeneous nature of money in denomination and usage for consistent interoperability and liquidity. This convergence will also contribute to financial service efficiency in general.

In the above-mentioned business circumstances, at first sight, *de facto* standards appear to dominate in financial transactions. At second sight, however, it emerges that the essential parts of financial affairs have been integrated and regulated in the financial statutory regime (a great set of financial standards). A number of financial laws underlie a variety of financial activities in the economic sector. This is also the case with cross-border financial transactions, though more difficult to recognize due to the invisible underlying layer (regulatory framework) of statutory international agreements.

2 Difference between engineering and financial standards and its background

In essence, the standardization difference between engineering science and monetary finance seems to lie in the nature of basic infrastructural framework. While the standardization in engineering science pursues the process toward compatibility/quality, interoperability/ repeatability, and safety, the economic/financial standardization aims at fair, equal and transparent treatment among traders, and assurance of reasonable business expectations. While the standardization in engineering science focuses on technical specifications, criteria, methods, process, or practices, the economic/financial standardization focuses on establishment of transparent and mutual trust and stylization of business categories. While in the engineering standardization there remains much more room for *de fact* standardization as compared with *de jure* standardization, the financial standardization is based on a multi-layer system where the basic layer is formulated on an

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2 For a general analysis of technological innovations, see Everett M. Rogers “Diffusion of Innovations” (5th edition) 2003, Free Press, NY.

3 *De facto* standardization could include two types: strategic domination process and Darwinian evolutionary process.

international statutory agreement which, in turn, requires national legislation in each member country to ensure its effective implementation. While voluntary consensus standards dominate in engineering, statutory agreements dominate in economic fields, resulting in more usage of the term “agreement” or “rules” rather than “standardization” or “standards”.

There is a historical background for this statutory framework in finance; before the 2nd world War the financial standardization was based on a *de fact* framework represented by the gold standard system which had been evolutionally established through business practices in Europe centering on the UK for a couple of centuries. Previously, generally agreed standardizations had been very rare and sporadic if any. With the bitter and disastrous experiences in international trade and financial transactions during the interwar period of the 1920s and 1930s, there was a strong consensus among political and economic leaders on the need for international coordination and rule-based logical and practical framework for international trade and finance, culminating in the Bretton Woods Conference in 1944, which led to the establishment of the IMF and the IBRD and imperfectly the GATT.⁴ Despite many twists and turns for the last 60 years, these Bretton Woods institutions with the coordinated systems and standardizations are generally considered to have minimized conflicts over economic problems.

The postwar financial standardizations have been largely dependent upon the internationally agreed rules of the Bretton Woods system. These basic rules categorize economic and financial transactions in accordance with the economic reasoning and regulate them statutorily.

3 Cases of financial standards and their standardization process

Upon this basic framework, there have been a wide range of private-sector rules/standards for specific financial

purposes. The Society for Worldwide Interbank Financial Telecommunication, SWIFT⁵, is a typical case of standardization (or stylization) for cross-border fund transfer. The SWIFT, established in Brussels in 1973 by the private banking sectors in the advanced countries, is now a worldwide financial messaging network to facilitate international fund transfers by using a standard format (bank identifier codes and other financial message code⁶).

Focusing on financial standards, so much attention has been paid to technological matters in financial transactions, particularly payment and security issues. Structurally, however, it could be interpreted that the deeply underlying layer of infrastructure for financial transactions is formed by WTO’s free trade and trade-related agreements, IMF’s monetary rules as well as OECD’s rules for capital transactions and other international agreements. These international arrangements are ensured and supplemented by the second layer of national legal arrangements of member countries. (See the diagram below.)

On the basis of these layers, there are a variety of standardizing activities for financial business purposes. For example, there are trans-national activities of ISO (International Organization for Standardization established in Geneva in 1947) as a federation of about 150 member countries, each providing its representative national standards body. The ISO has “Technical Committee 68” (TC68)⁷, which, in turn, is in charge of its three sub-committees (SCs)⁸. TC68 itself is also responsible for the most versatile syntax ISO20022 for harmonious financial payments and related matters⁹. Part of financial payment codes was explored and activated by the SWIFT, which is now in a position to enjoy the benefits brought by ISO20022. The SWIFT is a liaison organization in TC68 and its three sub-committees and others. In line with the financial infrastructure based on the above-mentioned standards, national bank associations and securities associations in many countries prescribe their own

4 The IMF was intended to achieve the economic stability and growth through the coordinated international financial and economic management. The IBRD (World Bank) aimed at the reconstruction and development of devastated national economies. The GATT, the General Agreement on Tariffs and Trade, was first formulated within the framework of the Bretton Woods System and signed in 1947 but the USA failed to join. The GATT was designed to provide an international forum that encouraged free trade between member states by regulating and reducing tariffs on traded goods and by providing a common mechanism for resolving trade disputes. The GATT has evolved into the WTO, the most important international organization to promote international trade including cross-border IPR transactions.

5 SWIFT is a member-owned cooperative consisting of more than 2,200 financial organizations, through which cross-border financial operations are conducted with speed, certainty and confidence. More than 8,000 banks, securities houses in more than 200 countries have been dependent on the SWIFT network, which is

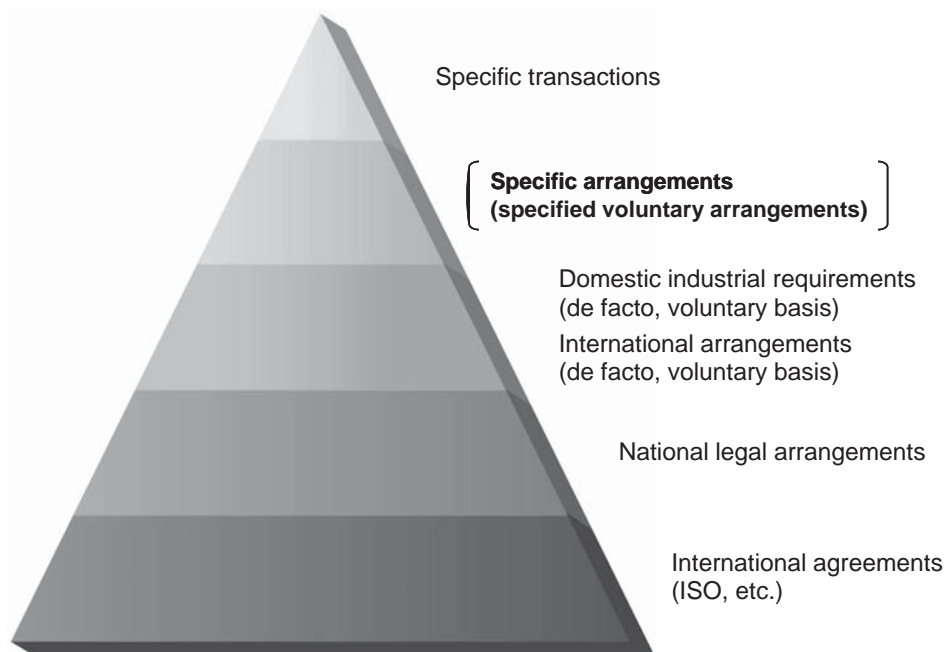
available 24 hours a day, and every day of the year.

6 This is popularly called “SWIFT codes”.

7 TC1 deals with standardization for screw threads, and TC2 for fasteners. Each TC is numbered and listed in numerical (currently from 1 to 245) and chronological order. TC68 is in charge of financial services. To create a new standard, each TC follows ISO’s rules of standard development (http://www.iso.org/iso/standards_development.htm).

8 SC2 is in charge of security in general, SE4 is for securities and related financial instruments, and SC7 is for core banking matters, whereas TC68 itself is also responsible for ISO 20022 (UNIFI).

9 ISO20022 (UNIFI), formulated in 2004, provides the financial industry with a common platform for the development of messages in a standardized XML syntax. Its scope is all financial messages including ‘payments’, ‘foreign exchange’, ‘trade finance’ and ‘securities’. SWIFT and other organizations have already begun to embrace it on the SWIFT net services.



Source: produced by the author

Multi-layer standardization

Foreign exchange and derivatives market activities

(in billions of US dollars)

(April)	1989	1992	1995	1998	2001	2004	2007
Traditional foreign exchange instruments	590	820	1,190	1,490	1,200	1,880	3,210
Other foreign exchange derivative instruments	—	—	196	375	575	1,220	2,090

(Average daily turnover) BIS press release

Main Economic Indicators (population: 6.750 bn) (UNFPA 2008)

Nominal value of world output (IMF, 2007) ————— \$54.6 trn

GNI (world total in 2005 (WB)) ————— \$45.1 trn

GNI per capita (in 2005 (WB)) ————— \$7,011

World trade (export + import, UN, 2006) ————— \$22.5 trn
WTO, 2006: \$(11.8+2.7) × 2 trn. = \$29 trn

Stock market capitalization (2006) ————— \$50,826 bn

Debt securities (IMF, 2006) ————— \$68,734 bn

Bank assets (IMF, 2006) ————— \$70,860 bn

Source: IMF, World Bank, and UN

voluntary standards for domestic purposes.

On the platform supported by these multi-layers, so many financial data exchanges are being carried out every day to support business activities of worldwide financial institutions. To introduce only part of the entire financial transactions, the scale of foreign exchange transactions has amounted to more than \$3 trillion on an average daily basis as compared with the total of GDP of all the countries

amounting to \$50 trillion on an annual basis; this implies that the scale of foreign exchange transactions for two weeks would be equivalent to the total annual GDP in the world. (See the table above.)

The international financial community is closely related to accounting/auditing standards that are now being rapidly revised and reframed.¹⁰ Although these standards underlie the whole economy including the financial sector,

10 Major corporate financial scandals in the early part of this decade eroded public trust in the reliability of corporate financial reports and their audit opinions, leading to the strong requirement for

corporate governance reform that impacts both conventional accounting and auditing processes.

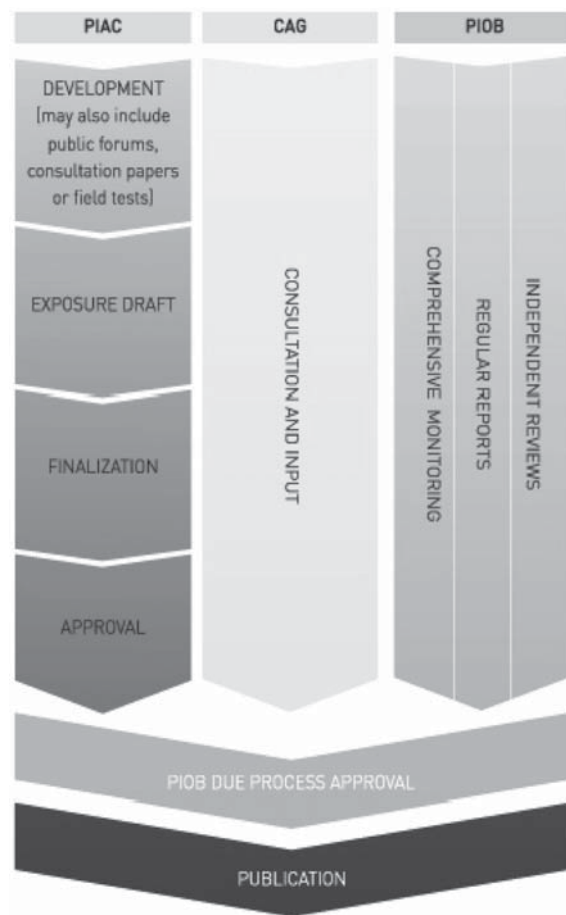
they have been increasingly recognized in connection with capital market requirements. The information obtained from corporate financial statements based on generally acceptable accounting framework and reasonable auditing process is now crucial to efficient and constructive allocation of financial resources. These accounting/auditing standards are expected to significantly reinforce clarity, transparency, verifiability and cross-border compatibility of financial information for capital markets.

A general understanding is that those setters of engineering standards are independent of the manufacturers of the commodities for which they develop standards. In the field of ICT, they usually form voluntary consensus standard-setting bodies such as the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT), the World Wide Web Consortium (W3C), etc. They often go hand in hand with the international bodies such as ISO¹¹ and ITU. In the case of information network architecture, the IBM, the most influential corporation during the 1970s and 1980s, contributed to the basic infrastructure and stimulated these international bodies to create the OSI framework architecture comprising two major components: an abstract model of networking, widely called the Basic reference Model or seven-layer model, and a set of specific protocols. The voluntary approach dominated continuously.

By contrast, while the setting process of accounting and auditing standards has been managed by a group of practitioners and non-practitioners with expertise in the IASB¹² and IAASB¹³ respectively, it has been monitored by many stakeholders including national regulators. Emphasis has been increasingly placed on the “due process” of standards setting. The essence of the due process in this context is to ensure due considerations to various comments on standards setting which include public comments from stakeholders. A typical case is shown by the flow chart of auditing standards setting process.

As shown in the chart below, the audit standards setting process has been subject to consultation with outsiders and oversight by the independent body (PIOB). In this setting process, standard setters and related parties have become more aware of the importance of due process. In setting new standards or revising previous standards, the

concept of due process is essential. With the tendency toward more openness and globalization of the world, standard setters and related parties have become more aware of the importance of due process. One of the well-established due process frameworks could be found in accounting/auditing standard setting processes.¹⁴ The accounting and auditing standards govern the preparation of external financial reports and the audit of those reports. The rapidly changing economic conditions and recent financial scandals have obliged those standards to be critically reviewed and revised to restore the reliability of management integrity, financial reporting rules and audits and to establish the public’s confidence in capital markets. In this process, much attention has been increasingly paid to the process by way of which new or revised standards are developed.



Source: Third Public Report of the PIOB, June 2008
Process of international auditing standard setting

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11 The ISO is a worldwide federation of national standards setters in about 130 countries.

12 The International Accounting Standards Board is an international body to develop, in the public interest, a single set of high quality, understandable and international financial reporting standards

(IFRSs) for general purpose financial statements.

13 The International Auditing and Assurance Standards Board is an independent standard setting board that develops international standards and other pronouncements (ISAs) dealing with auditing, review, other assurance, quality control and related services. The PIOB oversees the work of the IAASB.

14 IFRSs are now being set by the IASB, a standard-setting body of the IASC Foundation, whereas International Auditing Standards and related standards by the PIACs (Public Interest Activity Committees) established under the auspices of IFAC.

In the process of auditing standards setting, for instance, due consideration of public interest, transparency and accountability are strongly required. With a view to achieving these targets in a wide range of activities for standard setting processes, the procedural framework of comprehensive monitoring, regular dialogue, independent reviews and due process approval has been seriously pursued by the Public Interest Oversight Board. The oversight process, where independent standard setting boards (PIACs), consultative advisory groups (CAGs) and the PIOB discuss each other regularly, openly and tensely for final approval, is illustrated above. Those members who engage in PIACs and CAGs consist of high quality experts, practitioners and non practitioners as well as public members for public interest with due consideration to gender and geographic provenance. In brief, the standard setting process has continued to evolve to respond to public interest needs.¹⁵

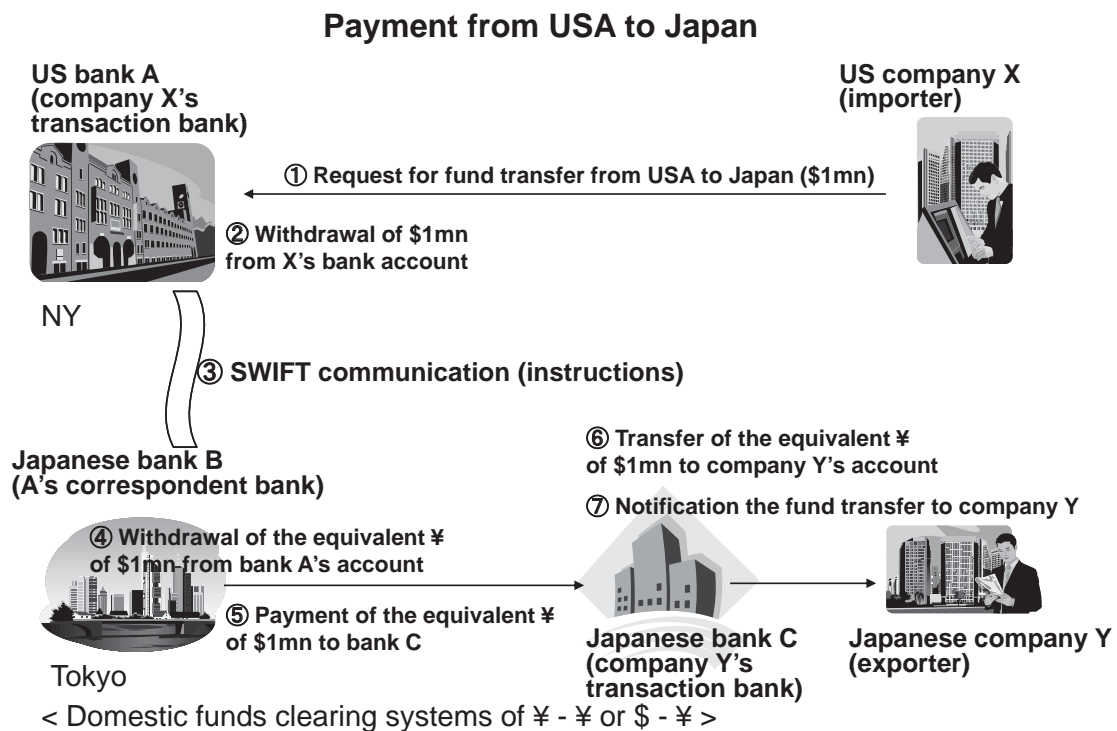
4 Case studies of ongoing standardization of Islamic finance

Though Islamic finance has gathered momentum for the last two decades against the background of expanding oil money, Islamic financial transactions have not achieved international commonality yet, mainly due to the lack of

international standardization. In the eyes of the general public in non-Muslim regions, it remains most enigmatic both in nature and in efficacy; who have the ultimate authority of economic interpretation and formulations of the religious proposition, how the interpretation and implementation process is developed when different views are presented, whether Islamic finance works without any concept of interest, etc.

The Islamic Financial Services Board (IFSB), headquartered in Kuala Lumpur, appears to take the initiative in enhancing the process of Shariah governance in Islamic finance. Although details of the initiative have not yet been brought to light, it is most likely to attract the financial industry's interest in observing how the process of determining Shariah compliance will be discussed for Islamic financial instruments and services.

In many Islamic communities, there is a traditional but informal fund transfer mechanism called Hawala¹⁶. It is based on performance and honor of a network of money brokers/changers who do business in Middle East and some parts in South Asia and Africa. Hawala is believed to have originated in the financing of long distance trade in the medieval period in Muslim regions and influenced Medieval Europe. Before its replacement by conventional banking system in the earlier part of the twentieth century,



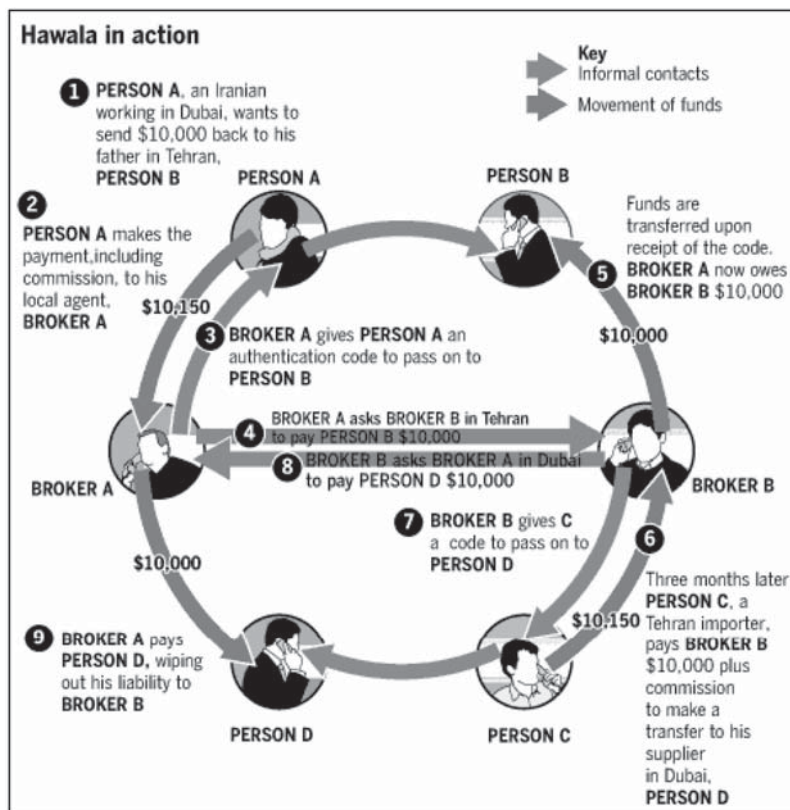
Source: produced by the author

Payments between SWIFT member banks

15 For details, refer to the third Public Report of the PIOB, May 2008 (pp.9-17).

16 The modern standardized fund transfer mechanism has been

provided the above-mentioned SWIFT. Its mechanism is shown by the following chart;



Source: Financial Times, "How Iranians are avoiding sanctions", by Anna Fifield in Teheran (April 14, 2008)

Hawala

it had played an important role for fund transfer in Middle East and South Asia. Today, Hawala is believed to remain functional in some regions for migrant workers' remittance to their home countries.

In the Hawala mechanism, money is transferred through a network of brokers. A client hands a sum of money together with some commission to a Hawala broker in his city and asks him to transfer it to a recipient living in a foreign country. The broker communicates with another Hawala broker in the recipient's place (or brokers in between), instructs him to transfer the money to the recipient, and promises the initial client to settle the money transfer. Its unique characteristics are that there is no formal paper note to guarantee the transfer between brokers and that the entire mechanism is based on the honor system without any legal and juridical arrangements. Because of the nature of this performance- and honor-based transaction, there has never been any detailed standardization as such. As a result, there seems to be practically no room for Hawala to develop into an international model in the modern world. (Compare the two diagrams above.)

5 Implications from the case studies

Economic behavior is not fully explained by a simple model described in ordinary economic textbooks. The most modern "behavioral finance" theory pays attention to cognitive and emotional biases in each economic entity's

decision-making.

Apart from the long-term and broad efficacy of market mechanism, identical with price mechanism, the short-term nature of market mechanism has recently been reviewed increasingly critically for its deficiencies: in particular the myopic tendency (negligence of long-term consequences of economic transactions), the composition of market participants (possession of money rather than intellectual insight), and the dominance of ephemeral market sentiment (image-based rather than principle/ substance-based).

Regardless of those market deficiencies, the financial standardization has accelerated and expanded market transactions enormously for the last several decades. In efficiency terms, the standardization has been extraordinarily successful, achieving quickness and security to realize accurate mutual understanding and transact consistent business. This success has to be justifiably evaluated and advocated. If any financial transaction is not based on widely accepted standards, it will be obliged to remain local. This is illustrated by the contrast between SWIFT and Hawala.

Our most recent financial experiences in 2008 and 2009, however, have clearly demonstrated that standardization for the sake of efficiency is not sufficient at all. For instance, the standardized "securitization" process has recently revealed its weakness of responsibility shift among economic transactors (the original responsibility of

the lender tends to dissipate from the subsequent securitization processes) and its difficulty in identifying original risks and rescheduling its securitization process (the traditional reschedule approach turns out to be inapplicable to the multi-stage securitized financial products). This implies that even after being standardized, the standard would have to be reviewed critically and dynamically in the constantly changing economic environments.

It has also to be admitted that it is unrealistic to standardize every business practice and product into a single standard (or channel). There could be multiple standards for choice for the same economic purposes. For instance, the standardized financial intermediation channel through capital markets could be as vulnerable as the standardized banking financial intermediation channel. In extreme cases, a standardized channel for financial intermediation through public financial institutions could be lifesaving.

More importantly, the comprehensive standardization of business practices would likely stiffen opportunities of other potential standardizations. The de facto standardization of internet languages into English might have simplified linguistic delicacy and susceptibility that other languages might have. In Islamic finance, Hawala could have led to another network-linked standardization if it had been intellectually sophisticated.

Islamic finance has posed controversial arguments centering on the prohibition of “interest” and the principle of goods- or real asset-backed transactions. It had grown very rapidly up until 2008 and occupied an essential part of financial markets in some Muslim countries. Its financial instruments and services replicated many of those available in conventional finance and affected even conventional financial institutions in London, and Singapore. Still, it does not appear to have grown out of its locality or regionality, mainly due to the fact that many financial practices remain to be standardized. In this connection, there remains a very precarious requirement that the concept of “interest” remains to be theoretically integrated in different Muslim regions. Without this theoretical standardization, many Islamic financial transactions will be obliged to remain local. This implies that standardization needs a strong theorizing in its structure.