Investment in an Advanced Information Infrastructure for the Securities Market - JSTPC Concept

Yasuyuki Fuchita

1. The Commencement of the Use of Electronic Systems in Japan's Securities Trading Operations and the Objectives Ahead

The securities market in Japan depends to a great extent on manual work and paper for many transactions and operations in areas such as order placement, execution, confirmation of trades, and settlement,etc. Instructions using the phone or fax and the physical transportation of documents are prevalent. Compared to the markets in Europe and the US where electronic networks linking market players engaged in securities trading have developed to a considerable extent, Japan is markedly behind in this aspect.

Due to the recent advances made in line with the Big Bang in Japan, there is an increasing awareness of the need for more efficient trading methods and a reduction of risks on the part of the participants and the stock exchanges. In view of this, there is a movement getting underway to introduce securities trading using electronic networks.

For example, it has been decided that a system will be introduced in which a major life insurance firm will place orders to securities firms and receive contract notification electronically, etc. through a network. There is also a movement underway to put mechanisms in place for electronic network transactions between major asset management firms and the securities firms they deal with and between member securities firms and non-member securities firms.

On the Osaka stock exchange, trading on the floor has already been abolished, and a total switchover has been implemented to system trading. In addition, the Osaka exchange has announced the introduction of OptiMark, an advanced securities trading system which is scheduled to come into operation soon in the US.

These movements are basically desirable. However, even so, if the various players in the market introduce their own individual systems and they lack mutual connectivity, there is a danger that the benefits of the use of electronics in transactions will be limited. The goal aimed for in the use of electronic trading in securities transactions is STP (Straight Through Processing). The STP system achieves a series of processes through a digital information flow, all without using manual work or paper. This process includes the decision to invest on the part of the investor, the placement of an order with a securities firm, the placement of an order from the securities firm to the stock exchange, and settlement and delivery. Needless to say, it would be impossible to achieve STP if the system participated in by an investor is not compatible with the system used by the securities firm

involved or if the system used by a securities firm is not compatible with the system used by the stock exchange.

In Europe and the US, various players have introduced electronic securities trading systems at various levels of trading. However, there is a problem in terms of a lack of mutual connectivity. Consequently, in order to achieved STP, it is considered essential to achieve a standardization of protocols in terms of electronic trading.

2. Lessons from the Standardization of Securities Trading Protocols in Europe and the US

Typical examples of this movement towards the standardization of securities trading protocols in Europe and the US can be seen in the engagement in this objective by the FIX (Financial Information Exchange) committee and the ISITC (Industry Standardization for Institutional Trade Confirmations)[1].

FIX is a movement mainly directed toward the standardization of front office messages such as indications of interest and order placement. ISITC is a movement mainly directed toward back office message standardization such as trading confirmation and settlement instructions.

At the moment, the situation is that although efforts are being made to introduce FIX and ISITC, they have not become de factor standards covering more than half the players. Also, if FIX and ISITC become the standards for front office and back office work respectively, it will be necessary to establish connectivity between FIX and ISITC. FIX is becoming more involved in the protocol for latter processes in transactions such as trade confirmations. On the other hand, the SWIFT protocol supported by ISITC is coming to provide protocols for the initial processes of transactions such as order placement. Thus, the future relationship between FIX and ISITC is unclear.

Standardization for STP has not yet been completed in Europe and the US, and globally speaking even less so. In November 1997, leading European and the US management firms and investment banks gathered and formed a committee (GSTPC: Global Straight Through Processing Committee) to expedite the realization of STP globally. The aim is to realize global STP by the year 2001. In detail, this involves accepting standardizations such as FIX and SWIFT protocols and the creation of a joint information-processing center, and through this achieve an integrated STP from front to back office processes.

Thus, in the European and US markets, after a process of trial and error lasting over more than ten years, a mood is finally emerging in which it will be possible to standardize securities trading. Japan will more or less start from zero in terms of the use of electronic systems in securities trading. However, this process of trial and error should not be repeated.

1 On the subject of FIX, please refer to “Toward the Introduction of the FIX Protocol in Japan” by Yasuyuki Fuchita, *Capital Research Journal*, Autumn 1998

3. The Significance and Functions of JSTPC

Fortunately, there is an increasingly strong possibility emerging that a FIX Japan committee and an ISITC Japan committee will be formed within this year. This gives rise to expectations of progress in standardization in terms of front office and back office operations. In particular, with regard to FIX, a seminar was held on October 7, 1998 on the idea of formally introducing FIX in Japan, and this attracted considerable attention. Subsequently, on December 15, 1998, FIX Japan steering committee was formally established. In Europe and the US, FIX has been established to facilitate communications between securities firms and institutional investors. However, in the case of Japan, the situation is somewhat different, and the stock exchanges are indicating an active desire to participate in FIX right from the start. Consequently, there may be a possibility of a more full-scale engagement in FIX in Japan than in Europe and the US.

However, in order to realize true STP in Japan, merely expediting the standardization of front and back office processes through FIX and ISITC will not be sufficient. It will be necessary to expedite a GSTPC type of plan in Japan that integrates FIX and ISITC to realize true STP.

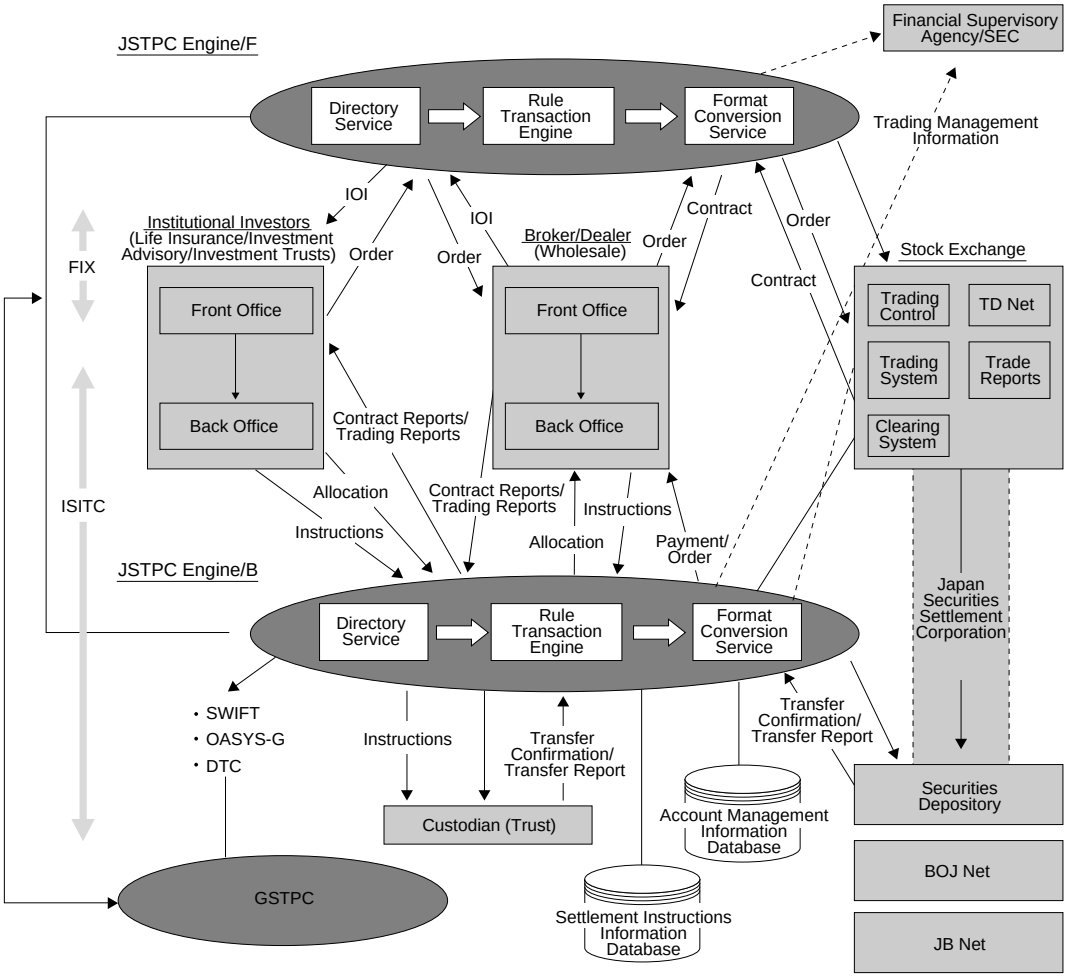
The establishment of a JSTPC is one possible way of realizing a GSTPC type scheme in Japan ahead of the rest of the world. JSTPC is a committee to achieve the realization of STP in Japan (Japan Straight Through Processing Committee) as well as being a joint information processing center (Japan Straight Through Processing Center).

The figure shows the functions that should be incorporated into the JSTP Center. The basic functions should include the following. The front office should adopt FIX protocol for trading indications and order placing, and the back office should adopt ISITC protocol. There should be a series of electronic trading processes from the front to back office extending from investors to securities firms, stock exchanges, custodians and settlement organizations. The various participants can use the systems and networks they are familiar with. These will flow via JSTPC and ensure connectivity among all the participants. By connecting this up to the Financial Supervisory Agency's systems, major progress will be made in using electronic systems in trading supervision. These functions could be incorporated as the first phase.

In addition to these basic functions, the JSTP Center may well develop to have many other functions. These could include the introduction of a settlement instruction information database that would control data such the bank name and account number of the parties effecting settlement and a database to control status information on transactions and settlements for each account. In addition to custody transfer mechanisms, if it were possible to realize a link up with other financial product settlement mechanisms such as BOJ Net and JB Net, it would be possible for a single player to gain an understanding of the integrated positions of various products and the market. This would make it easier to control settlement risk. Naturally, if GSTPC for a global STP were completed and in place, it would be possible to achieve connectivity with the GSTPC center.

As Japan is starting up from an undeveloped position, it should actively introduce the latest systems in its JSTPC. In Europe and the US, it is difficult to undertake such radical innovations because existing networks are already in place.

Figure. JSTPC



Source:Nomura Research Institute

4. Utilization of XML in Securities Trading

The utilization of XML will be the key to the realization of advanced technological features in JSTPC. Today, when HTML, a common language, is used in a normal sentence, people all over the world can send and receive information to each other using diverse types of terminals through the WWW of the Internet. However, HTML only allows the expression of text under predetermined rules (tags). This limitation has been overcome by XML. In the realm of XML, it is possible to set up rules in accordance with the needs of the work. This allows two-way handling of text and numerical data in an integrated state.

If XML is used in securities trading, it will be possible to integrate text and numerical data relating to trading in a common format, and this will allow the parties involved in the transaction to reflect this in their own in-company data bases. XML is rapidly attracting attention in the electronic commercial trading sector. If the application of XML extends to cover accounting and tax procedures, this will lead to a general application of electronic systems to administrative work after securities trading such as accounting, tax procedures, disclosure and submission of various documents to the authorities concerned, in the corporate sector and various organizations. The introduction of XML is just one example. If JSTPC is realized keeping in view advanced technology of

today and the future, the infrastructure of Japan's market will rapidly become a world leader, and it is possible that it would become the model for the STPs of various other countries or a global STP. To this end, at this point in time, before various differing systems and networks come into general use, it is desirable that the initiative for this plan should be taken now.

5. Expectation Placed on Real Public Sector Initiative

Desirable Public Sector Support in the Age of Japan's Big Bang

In the areas of FIX and ISITC, the major European and US players have voluntarily gathered, and are engaged in discussions aimed at standardization. Up to now in Japan, overall sector adjustments were mainly made by the supervisory ministries and sector organizations. However, regarding the Japan committees for FIX and ISITC, expected to be set up, it is thought likely that the main players will take the initiative voluntarily as is the case in Europe and the US. In the area of standardization, it is necessary to transcend the vested interests of various individual sectors. Rather than implementing matters based on the general consensus of opinion, the leadership of the heavy users will be vital. In this age of Japan's Big Bang, changes are expected to take place in the conventional decision-making mechanisms now in place such as a harmonious cooperation among the sector players or the initiative being taken by the public sector.

Basically, interest has finally built up in FIX and ISITC due to the persuasive efforts of those concerned in Europe and the US. In Japan, efforts cannot be relaxed in terms of ensuring that the movement to achieve a standardization of FIX and ISITC goes smoothly. Some people say that even if all the major players voluntarily gather, it will be difficult to attain in-company agreement on injecting resources into the involvement in those committees.

In the same way as there are differences in the customs and practices of the US and the UK, the customs and practices of Japan also have distinctive features, and so in spite of the standardization, it will not just be a matter of translating FIX and ISITC in the Japanese language. It will be necessary for the Japan committees of FIX and ISITC to respectively exert efforts to achieve a standardization that incorporates Japan's circumstances. This work will require the expenditure of managerial resources in a firm, and so it will not be easy to realize the JSTPC plan as it is ahead of Europe and the US.

In order to overcome these hurdles, a new form of public sector support will become valuable. This will not be a case of the conventional intervention in which the public sector intervenes in matters which really should be decided by those concerned in the private sector on their own responsibility based on competitive considerations. The new type of public sector support required is that which emerges when it is difficult for the private sector to realize a goal alone, and without such intervention public benefit would be lost. This is not a matter of just issuing commands to the private sector. What is required it to create an environment where the initiative of the private sector can be fully deployed.

The work of standardization is, by nature, difficult to implement on a private sector basis. The people involved in this work would have to bear the cost of the operation. However, the benefits deriving from standardization would be enjoyed over a wide area including the market players not participating in the work. This means everybody would have the incentive to become a free rider.

The work of standardization might lead to a result not to the advantage of the users due to influences being exerted by powers with vested interests. For example, recently the opinion has been voiced that there should be more public sector intervention in the process of setting digital TV standards in the US. Consequently, in the work of standardizing something such as JSTPC, the significance of public sector involvement should not be dismissed.

The Positioning of Investment in Advanced Information Infrastructures

The creation of JSTPC could also be positioned as a public sector investment to create the economic infrastructures for the next generation society in the area of advanced information utilization. As can be seen in the Super Information Highway concept in the US, in this area there are many example of national level initiative being taken by the public sector. In Japan, too, in the electronic commerce sector, there are already many examples of considerable results being achieved. This has been done by the government providing a framework including budgetary measures to generate private sector initiatives, creativity and constructive cooperation. JSTPC can be considered to be a form of electronic commerce between companies and can be seen as an extension of efforts in this area.

There may very well be a number of different opinions as to how to determine to what extent the public sector should intervene to create public infrastructures and how far the private sector should go in terms of competing to create good systems.

If we compare this to a road, one way is to standardize things by determining if it should be a right-hand drive or a left-hand drive road and what kind of road signs should be used. Alternatively, things can be taken a step further, and one section of the road could be built and managed as a public road with many privately built and run roads linking up to it based on defined standards. An extreme case could also be envisioned in which the vehicles running on the road are manufactured at a state-run factory and are built to standardized specifications.

This kind of discussion on methods of realizing this plan should be studied after the concept of creating a common infrastructure has been launched based on some kind of public sector support. Now, what is needed is a common vision in terms of creating some kind of a platform for STP to be built on. Today, many firms are hurrying to build up new systems compliant with the Y2K problem, etc. If this vision is not in place, it may come about that many private roads are built and the users will have to select different types of vehicles suited to the roads they use.

If the FIX and ISITC Japan committees are rapidly and smoothly formed, even if discussions on standardization proceed swiftly at these committees, the best that can be hoped for is that a highway will be created for a certain distance, and then it will be necessary to travel over an interchange on to a different highway. It may even be necessary to change the vehicle being used. It is of course very desirable to aim for a single literally straight through highway leading to the destination right from the start.

Those engaged in securities information processing must be aware of the fact that they are standing at the crossroads and they must give priority to selecting which road they will take. One choice is to have a common vision and build up a common infrastructure to a certain extent, and then based on this, they can deploy their own initiatives and creativity and engage in competition. Alternatively, they can proceed with no coordinated cooperation. If they select the first alternative, the next theme to be discussed would be the nature of the common infrastructure. If they select the

latter alternative, they must be prepared to encounter the same process of trial and error as experienced by Europe and the US.

The securities market is an important public infrastructure in the economy of a nation. The promotion of electronic systems in the securities market will bring about greater efficiency and improved convenience. The benefits of this will not be limited to individual investors, but also be enjoyed by the general public which is indirectly involved in the securities market through their pension funds. This will also benefit those engaged in fund procurement such as the corporate sector. In addition, the improvement of supervision and the reduction of settlement risk through the introduction of electronic systems will contribute to improving the fairness and safety of the securities market and this will lead to increased confidence in the market.

If the JSTPC concept is brought to reality, and the introduction of electronic systems to the Japanese securities market is achieved at one fell swoop, it will become possible to achieve an innovative reform from a market with an infrastructure on the developing country level to a powerful, competitive market supported by the most advanced technology in the world. In order to achieve JSTPC, now is the right time to clearly demonstrate innovation, creativity and constructive cooperation on the part of the private sector and appropriate public sector support.