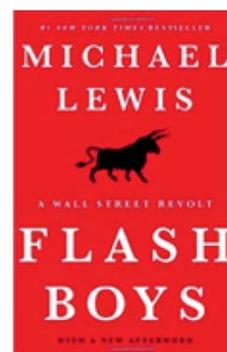


SPACE JAPAN BOOK REVIEW

From a satcom researcher point of view

Reviewer: Takashi Iida, Editorial Advisor



<http://www.amazon.com>

Michael M. Lewis: “Flash Boys; A Wall Street Revolt”, Writers House, 2014.

The round-trip propagation time of radio wave is about 0.3 seconds in the satellite communication using a geostationary satellite positioned at 36,000km altitude above the equator. So the satellite communication can not compete at all to discussion in this book that treats milliseconds (mS) and/or microseconds (μ S). Moreover, the satellite communications related person might feel far away this book increasingly, because it became a reputation in the market of stock trading. I, the reviewer of this book, am interested in this book precisely because the satellite communication can not compete at all. When I read it, even communication technology engineer, who has a technology goal to convey the information as quickly as possible, is awaked to that decreasing the propagation time produces much important and highly profitable worth rather than a market issue of stock trading. It is interesting that some of such examples have been described in this book. This review is based on Japanese translation version of this book.

The author, Michael Lewis (titles abbreviated, hereinafter the same), is a U.S. nonfiction writer who was born in 1960. He graduated from the Princeton University majoring art history and got the Master of Economics from the London School of Economics. And then, he entered Solomon Brothers and worked as a bond salesman. He debuted as a writer by the book “Liar’s Poker” that wrote based on his experience [1].

I felt with interest in the description in the first chapter that I started reading this book. A large profit is yielded by the trade using the price difference between the Chicago forward contract and the New York spot market, called as “spread trading”. Some of the commodity trading produces two hundred million dollars profit. There are thousands of moments every day that each of its price does not match. In order to obtain the profit margin, it is required to be dealt quickly in both markets at the same time. Such transactions can now be done by computers. The only obstacle was the communication latency between the data center at Chicago Mercantile Exchange and one of NASDAQ Stock Exchange at Carteret, New Jersey. The theoretical two way propagation time is about 7.7 mS for straight line distance of about 1150 km between Chicago and New York City. But the communication time varies from 14.65 to 17 mS via communication lines of communication carrier and the difficulty in stock exchange is occurred. Communication operators had been delayed to recognize a new motion seeking such a speed. So, a Mississippi-born person, Dan Spivey, planed constructing an almost straight optical fiber cable from Chicago to New York City and carried it out secretly. The history of the work has been told. There is the Appalachian Mountains between Chicago and New York City. Only straight way passed the mountains is the interstate high way. But constructing optical fiber cable along the high way is prohibited by law. A story is described that this difficulty was overcome by employing the most straight road within law permissible by investigating other roads in detail. When the construction has to make a detour around the wide parking area, the permission was gotten that the cable crosses straightly the parking area, because it loses many micro-seconds. Many such stories are described in this book. Then at last, the construction of the 1331 km optical cable with two way communication delay of 13 mS was succeeded. The development of users was done secretly at the same time of optical cable construction. The offered price was 14 million dollars for 5 year lease. Since the capacity of constructed cable is for 200 companies, the price was doubled immediately, while the number of users is prospect to be 400 companies. In final chapter, since the Appalachian Mountains passage becomes closer to a straight line if the microwave line is used, the communication delay is further reduced 2-3 mS than an optical fiber. Such communication link has already been constructed. In addition, about how much the

speed of the communication line is, it is interesting in example of pay \$15,000/month extra to 2 μS high-speed communication line.

In the story of ultra-high-speed trade from Chapter 2, a real person, Brad Katsuyama, appears [2]. Since a stock trading under the broker may occur to be fraud, the regulatory authorities of the government was determined to build a contract system in order to eliminate fraud. Faster orders by a computer are carried out from this time. In this case, it is obliged to provide the best market prices to customers by the US market system contracts. When the high-speed processing by the computer becomes possible, operation is made to issue a profit by buy and sell by anticipating customer orders that is called as front-running, and the stock price be lifted up or down phenomenon occurs instantly. Therefore, in order to grasp the faster information than others, and compete with the speed of communication lines, it began to compete with the speed of computer processing. Since the communication line speed depends on the distance, major securities company set up an office right next to the Exchange. However, improvement was claimed, because communication speed is not necessarily fast for just neighbor, if the communication line is bypassed. Also, much improvement of computer software was advanced. Here, software engineers are active, and it seems to be a situation that the engineers dominate the market than the traders. Moreover, the 70% of software engineers are Russians. In addition, questioning the length of the cable from the communication terminal to the computer so that the information reaches computer as quickly as possible, even the place where a computer is installed in the room is competed. In addition, with respect to the software engineer, an example that the battlefield experience of software development is useful has been reported.

As regards as the stock trading, there is not necessarily all stocks to be traded at an exchange. So, when a customer is going to buy stocks, the stocks are collected by negotiating with their owner. At this time, perceiving a change in stock trading at a high speed, the movement to purchase shares comes out proactively. Therefore, since thousands of deals have been already performed by the time that the stock is handed to the customer in actual, there is a case that the price becomes much different in the market order without limit. Therefore, the flash crash of stock prices might occur by high speed trading. In general, although the flash crash is taken up largely, it is like a reality that huge deal that does not go to the flash crash is performed in fact.

In order to fully understand this book, there is a need to understand the current state of market transactions and terms of dark pool, position and collocation. It is difficult for me to understand the first time story to me. Dark pools is not the transaction on the open market. It is individually performed trade closed. This is the deal that is not known by other and that does not become a victim of ultra-high-speed transactions and is widespread. Therefore, in the ultra-high-speed transactions, the software is made to guess the sign of deal. I imagine that advanced techniques have been made full use.

So whether or not there is such a ultra-fast transactions in Japan. This question is superficially denied. However, it seems to be usual that the negative means any affirmative on the back side.

It is interesting that description from the upbringing of the characters is included in this book. Also the real experiences of the 2001 9•11 terrorist attacks are also depicted. In addition, with respect to the satellite communications related stocks, Sirius satellite broadcasting has been introduced as a favorite brand of ultra-high-speed traders. Nikkei Shimbun Book Review [3] would be also helpful. Finally, I would like to read the book [4] about artificial intelligence in ultra fast trading.

References

- [1] https://en.wikipedia.org/wiki/Michael_Lewis
- [2] https://en.wikipedia.org/wiki/Brad_Katsuyama
- [3] Yoshiaki Shikano: " 'Flash Boys by Michael Lewis' The warning to ultra-fast trading for impairing trust of market", Nikkei Shimbun, Nov.30, 2014.
- [4] Scott Patterson: "Dark Pools: The Rise of the Machine Traders and the Rigging of the U.S. Stock Market", Crown Business, 2013.