Analyzing the Phenomenon of a “Shake-out”

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Abstract: The phenomenon of a “shake-out” (sharp decrease) caused by a large number of companies in an industry occurs with the emergence of a “dominant design.” However, no such shake-out occurred in Japan’s online securities industry. This is because apart from Matsui Securities Co., Ltd., the creator of a dominant design and considered to be the “only winner” in online securities, this industry was not as impacted by “process innovation” as a manufacturing industry. This was because online securities firms implemented package software systems made for the securities industry by one of the two major vendors. As a result, while other companies did not have a high level of performance as Matsui Securities, they survived although they did not become major players. In other words, establishing dominant design for services, as opposed to products, may serve to suppress, rather than promote, the exit of companies.

Keywords: A–U model, dominant design, shake-out
Introduction: Meaning of Shake-Out

In newly formed industries, most companies are forced to exit within a short period of time in what is called a “shake-out.” This is a well-known phenomenon that has been discussed from time to time (e.g., Faflick, Johnson, & Murphy, 1983). While few studies have focused on shake-outs, some studies have examined such cases and mechanisms, beginning with Willard and Cooper’s (1985) study on the TV industry. For example, Klepper and Graddy (1990) analyzed 46 industries in the US to find that most industries over the course of several decades experience a shake-out to a certain extent, with more than 90% of companies exiting an industry in extreme cases.

Subsequent research on shake-outs have discussed them from the standpoint of economics or business management, with one representative school of thought based on “the relationship with the formation of a dominant design within innovation” (Abernathy, 1978; Utterback & Abernathy, 1975).¹

For example, Utterback and Suárez (1993) made the following assertions regarding the relation between establishing dominant design and shake-outs. First, when a dominant design is established, the occurrence rate of efficient production processes or process innovation increases. As a result, there is a shake-out effect wherein companies that are successful at process innovation drive out those that are not. Moreover, when a dominant design emerges, there are greater benefits to creating process innovations, and shake-out progresses with a higher frequency of process innovation. Using this mechanism, Utterback (1994) argued that the US automotive industry experienced a shake-out wherein the total number of companies dramatically decreased with the creation of the dominant

¹ Akiike (2013) provided a detailed discussion on the relation between dominant design and the A–U model.
design of an “all-steel closed body,” the most important key to mass production. 2 In addition, in an analysis of industries from 19th-century typewriters to late-20th century computers, studies have found that the number of companies in an industry peaks right around when a dominant design emerges (Suárez & Utterback, 1995).

Thus, because there is a tendency for a more severe shake-out in industries with significant technological changes, many researchers have indicated a causal relation between shake-outs and innovation (Agarwal, 1998). Simultaneously, Utterback (1994) demonstrated the limits of this thinking in noting the lack of shake-outs in IC chips and other industries but did not expound the reason for this.

This study uses the case of Japan’s online securities industry to consider reasons why shake-outs do not occur by examining the formation of dominant design in services rather than products and by examining the number of companies in an industry.

**Competition in Japan’s Online Securities Industry**

The history of online securities in Japan began with the entry of Daiwa Securities into that market in April 1996. Within less than a year, other major firms such as Nikko Securities and Nomura Securities and several smaller mainstay firms entered the market; within two years, their numbers had grown to almost 20 companies. Moreover, two events occurred around the same time to promote growth in the online securities market. The first was a change from a licensing system to a registration system for securities firms in December 1998. The second was the liberalization of fees in October 1999. With these two events, many firms from overseas or

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2 However, impossible to ignore is that when the Model T Ford, which Abernathy (1978) considered as a dominant design, appeared, there was no shake-out per se but rather the impact of the great depression.
from other industries entered the market, the total approaching 70 in March 2001.

The main players in the online securities market were not the existing major securities firms that enjoyed an overwhelming market position for many years but companies that worked exclusively online. The major securities firms could not extricate themselves from their primary business model of the past, in which brokering was performed by salespeople in retail stores. Deregulation allowed firms to be proactive in their strategies, and the market moved to individual stock transactions rapidly (Applegate, Umezawa, Ladge, & Egawa, 2003).

There was fierce competition among firms at the early stage of this industry although customers’ accounts were the most fiercely fought over by newly powerful firms. Many firms fell into the conventional wisdom of market dominance wherein new customers with little experience in trading stocks would grow quickly and become their main customers. They believed that “Selling to customers first requires them to experience actual stock trading”; firms attempted to capture these accounts after the liberalization of fees, setting off a price war that dramatically lowered fees. Consequently, prices dropped in some cases to 90% of what they were prior to liberalization, and some companies even had marketing campaigns with no fees, opting to forego profits in a war of attrition.

Creation of Dominant Design of Service

On the other hand, Matsui Securities Co., Ltd. distanced themselves from this price war and continued with their strategy of “providing an environment for active users with significant trading experience, which provides the benefits of a system that does not complain no matter how many trades they make or how small, and in which advanced stock trades are easy to make.” As a result, Matsui
securities were profitable and successful enough to be called the “sole winner” by some (e.g., Matsushima & Mizukoshi, 2008; Sawada, 2014).

Competitors gradually noticed that Matsui Securities provided the best service and began to imitate them one after another from the latter half of 2001. Among online-only firms, Manex Securities was the slowest to do so; however, they had also adopted similar services by mid-2003. Thus, a dominant design in this industry was established for services rather than products.

What types of services are included under this dominant design? Matsui Securities preferred to use the metric of “turnover rate” to raise their profits. In the brokerage business, one of the primary businesses of securities firms, firms charge a certain fee whenever customers make a trade. Accordingly, firms must either increase the number of customers or the number of trades to increase profits. While other companies focused on increasing their customers, Matsui Securities alone focused on “turnover rate” or on increasing the number of transactions.

Moreover, Matsui Securities prepared “attractive services” for customers who had experience in trading stocks and who understood the benefits of a system that did not complain about the size or frequency of trades.

First was margin trading. Matsui Securities began this type of trading when it entered the online securities market in May 1998. Margin trading includes trades where a customer deposits a certain amount of money as collateral to borrow the money needed to buy stocks. In other words, through margin trading, investors could make purchases beyond their capital and sell stocks they did not own, thereby increasing the number of transactions given the same amount of capital. There were obvious risks to this business for securities firms, but the service was highly attractive to active investors.
In conjunction with the liberalization of fees, the use of a fixed commission system was introduced; here, the same fee of 3,000 yen was charged for a contract price of, for example, three million yen, no matter how many times a trade was made. Matsui Securities used a commission structure called “box rate” that was unseen either domestically or internationally. In this structure, fees were determined by a matrix of the number of trades and the total contract amount. This structure attempted to challenge the system of fees increasing along with the number of trades. Even for customers who were not day traders, active users that made multiple transactions, whether in one month or over several months, had certain days where multiple trades would be made. Even where one-time fees were at a minimum, these customers found Matsui Securities’ system ideal since it assumed from the start that they would be making multiple trades.

The combination of margin trading and a fixed commission system was a “dominant design” (Takai, 2006). In other words, through both margin trading and a fixed commission system wherein active users could make as many trades as they needed to, that service became a de facto standard in the industry, and profits improved for the companies that implemented that dominant design (Takai, 2004).

Changes in the Aspect of the Industry:
Occurrence of the Shake-out

How did the number of companies in the online securities industry change around the time the dominant design of margin trading and a fixed fee system was introduced?

Figure 1 depicts how the number of companies in the online securities industry changed through new entries, exits, and mergers. Matsui Securities was the first firm to use a dominant
design in October 1999; however, the number of companies entering the market more than doubled from 20 to 50 between 1998 and 1999. In addition, companies relatively quick to follow Matsui Securities, such as E*trade Securities and DLJ Securities, began using this dominant design in 2001; however, that was the time new companies began to dwindle, and the number of companies exiting the market, or exiting through mergers, increased. Consequently, the number of firms in the overall market began to decrease. However, this trend bottomed out in 2002, flattening to approximately 40 firms.

Much of this decrease in the number of companies was due to mergers with parent companies or a rethinking of the local securities business (Takai, 2017a). Considering this, there was no shake-out
after the dominant design was established.

Why was there no shake-out after a dominant design was created in Japan’s online securities industry?

**Effect of Process Innovation**

One reason is that the impact of a shake-out on a service industry is more limited than that on assembled products.

Once a dominant design is created, competition shifts to “process innovation” or to making products more efficiently, safely, or stably. At those times, other companies are impacted, and many companies not able to generate process innovation fail or are forced to exit or merge, leading to a shake-out.

How did process innovation develop within online securities, a service industry? The A–U model is purported to be applicable to product–process innovation in a service industry, namely the US banking industry, just as it is in the manufacturing industry (Damanpour & Gopalakrishnan, 2001). Given the examples of the implementation of information systems such as ATMs or accounting systems or process improvements in audits or document creation for process innovation, the timing of implementing these process innovations...

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3 Damanpour and Gopalakrishnan (2001) understood the following 14 innovations to be process innovations: truncation of check handling process, automated mortgage generation, computerized loan document generation, online teller terminals, derivatives (swaps, options futures/forwards), lobby automation (video banking), automated voice response systems, high speed image processing of checks, high speed image processing of office documents, automated check reconciliation systems, loan tracking system (retail), risk management systems (tracking a bank’s financial exposure), customer information file, and treasurer work station. 1982, one of the years examined in that study, was a period of large-scale deregulation in the financial industry that occurred between 1978 and 1982. While there are differences between the banking and securities industries and between the US and Japan, after deregulation (a type of financial “big bang”), the innovation that occurred through new
innovations greatly impacts company performance.

Similarly, process innovation in online securities can apply to new settlement service systems for immediate deposits and withdrawals, mobile trading systems, and chat-based customer service systems (Takai, 2017b). In presenting a dominant design, Matsui Securities stood at the forefront of the industry and was the only major firm to create its own homegrown system. It was the first company to create unique services such as the fixed-rate commission system, and costs of maintaining and managing the system, as well as the short periods between system releases, generated an overwhelming performance in the industry (Takai, 2004). Simultaneously, other firms implemented package systems created for securities firms from one of the two major vendors and were not able to generate a high performance of Matsui Securities. However, as these major package vendors began to develop add-ons available for purchase by securities firms, securities firms were able to provide new services such as fixed commission fees several months after Matsui Securities (Takai, 2006).

Considering the above facts, while success or failure in process innovation within the online securities industry impacted company performance and competition, they did not lead to a shake-out.

Discussion

This paper can be simply summarized by saying that a dominant design appeared at an early stage in the online securities industry, and companies that used the dominant design to develop trading systems were able to survive though they may not have become major players. In other words, the establishment of a dominant design did not promote the exit of companies but rather suppressed it, and a technologies such as information systems is similar to the early days of the online securities industry in Japan.
shake-out did not occur.

Utterback (1994) suggested limitations to counter-evidence of shake-outs in IC chip industries of the material manufacturing; however, the study did not discuss the causes for the same. In addition to providing an explanation to this question, this mechanism may also provide a new perspective to view the merits and demerits of a dominant design.

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References

Abernathy, W. J. (1978). The productivity dilemma. Baltimore, MD: Johns Hopkins University Press.

Agarwal, R. (1998) Evolutionary trends of industry variables. International Journal of Industrial Organization, 16, 511–525.

Akiike, A. (2013). Where is Abernathy and Utterback Model? Annals of Business Administrative Science, 12, 225–236. doi: 10.7880/abas.12.225

Applegate, L. M., Umezawa, H., Ladge, J. J., & Egawa, M. (2003). Transforming Matsui Securities. (Harvard Business School Case No. 804-064).

Damanpour, F., & Gopalakrishnan, S. (2001). The dynamics of the adoption of product and process innovations in organizations. Journal of Management Studies, 38(1), 45–66.

Faflick, P., Johnson, T., & Murphy, J. (1983). Shake-out in the hardware wars. Time, 121(26), 72.

Klepper, S., & Graddy, E. (1990). The evolution of new industries and the
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determinants of market structure. Rand Journal of Economics, 21(1), 27–44.
Matsushima, N., & Mizukoshi, K. (2008). Seidotekisenryaku no dynamism: Online syouken gyokai ni okeru kigyokankyo so to sijyo no sohatsu [Dynamism of institutional strategy: Competition among companies and emergence of market in the online securities industry]. Organizational Science, 42(2), 4–18 (in Japanese).
Sawada, N. (2014). Kyogokigyo tono sogosayo ni motozuku business system no keisei oyobi do-prosess ga umidasu sijyo needs tono mismatch [The mismatch between the formation of a business system based on the interaction with competitors and the market needs generated by that process]. Organizational Science, 47(4), 48–70 (in Japanese).
Suárez, F. F., & Utterback, J. M. (1995). Dominant designs and the survival of firms. Strategic Management Journal, 16(6), 415–430.
Takai, A. (2004). The early stage competition in the Japanese online securities industry: Research based on case studies of leading companies. Annals of Business Administrative Science, 3, 53–72. doi: 10.7880/3.53
Takai, A. (2006). Competition and the formation of inter-firm differentiation following the dominant perception: A case study of the online securities industry. Annals of Business Administrative Science, 5, 19–40. doi: 10.7880/abas.5.19
Takai, A. (2017a). What kind of companies are withdrawing? The case of the Japanese online securities industry. Annals of Business Administrative Science, 16, 41–54. doi: 10.7880/abas.0161220a
Takai, A. (2017b). Shijyoreimeiki ni okeru kyoso to gakusyu no “Moten” [The competition and “the learning scotoma” in early stage of industry]. Yokohama Management Research, 37(3・4), 29–43 (in Japanese).
Takai, A. (2017c, February). Shakeout and oligarchization. Paper presented at ABAS Conference 2017 Winter, University of Tokyo, Japan.
Utterback, J. M. (1994). Mastering the dynamics of innovation: How companies can seize opportunities in the face of technological change. Boston, MA: Harvard Business School Press.
Utterback, J. M., & Abernathy, W. J. (1975). A dynamic model of process and product innovation. *Omega*, 3(6), 639–656.

Utterback, J. M., & Suarez, F. F. (1993). Innovation: Competition and industry structure. *Research Policy*, 15, 285–305.

Willard, G. E., & Cooper, A. C. (1985). Survivors of industry shake-outs: The case of the U.S. color television set industry. *Strategic Management Journal*, 6, 299–318.