Saturation of Piano Markets

——History of the U.S. and Asian Piano Industries——

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1. Technical development of the piano and how its market grew

The first acoustic piano was made in 1709 by Bartolomeo Cristofori, who was a harpsichord producer for the Medici family in Italy. The piano was originally built in the shape of a harpsichord. At the beginning pianos were played in relatively small rooms, such as in a salon of a noble residence. But pianos gradually came to be played at concert halls holding thousands of people. The sound of pianos needed to be more powerful and emotional. The only way was to increase the tension on the strings. New materials were needed since the existing wooden plates could not sustain such tension. Alpheus Babcock, who was a boiler shop owner in the U.S., invented the full iron frame piano in 1825. His pianos succeeded in obtaining more powerful tension than wooden frames and expanded the sound range by octaves. In 1837, Jonas Chickering, a piano engineer and a founder of Chickering & Sons in the U.S., improved Babcock's frames and a patent was granted to him in 1841. Steinway & Sons eventually played an even greater role in the evolution of the piano.

Steinway & Sons was established in 1853 in New York by Heinrich Engelhart Steinway, who was a German piano producer. This company made important inventions and improvements to the piano, for example the invention of the over-string scale (crossing the middle and bass strings) for grand pianos, quick response hammer action, and improvement of the full cast-iron plate. These were referred to as the Steinway System. All pianos use this system now. Steinway & Sons also had a positive attitude toward the marketing of pianos. In 1866 the company established Steinway Hall, which was the second largest concert hall in New York City. The hall had elegant showrooms for Steinway pianos. The company also presented their pianos to famous pianists and supported their musical activities in every respect. They came to be known as Steinway Artists. The company made use of their high reputation to increase their sales. They also sent their own products to international exhibitions such as the Paris Exposition in 1867. The company gained a high

reputation worldwide because of their excellent products and branding strategies. Sales of Steinway pianos gradually increased from the late 19th century (Steinway 1953; Lieberman, 1995; Goldenberg, 1996).

However, even though the Steinway System and their marketing strategies were excellent, the piano market itself only expanded slightly from 1850 to 1870. The worldwide piano market clearly expanded from the late 19th to the early 20th century (see Table 1). There was an especially big piano market in the U.S. The volume of American piano production increased about five times from 1890 to 1910. This resulted from a newly emerging consumer group, namely the middle-class family. Many people in this class bought pianos out of vanity to put into their living rooms. Their preference was for a reasonable piano, in other word the commercial piano. Commercial pianos were less expensive than artistic ones. They were made for profit, so artistic quality came after price. Joseph P. Hale was the one who started making these products. He sold commercial pianos at a lower price than the manufacturing cost of other excellent piano makers, and he made a huge profit from this business. Other excellent piano makers (e.g. Baldwin) followed his way later. This is how the piano boom started and many pianos were manufactured. Steinway & Sons got off the ground on this piano boom (Ehrlich, 1976; Ripin, 1998).

The Japanese piano industry developed slowly. Torakusu Yamaha started making musi-

Table 1. Estimates of Piano Production, 1850–1984

(Unit : Number of Pianos)

Approx. Year	England	France	Germany		USA	Japan	South Korea	Russia
1850	23,000	10,000			10,000			
1870	25,000	21,000	<15,000		24,000			
1890	50,000	20,000	7,000		72,000			
1910	75,000	25,000	>120,000		370,000			10,000
1920								
1930	50,000	<20,000	20,000		120,000	3,200		
1935	55,000	<20,000	4,000		61,000	5,600		
			(W)	(E)				
1960	19,000	2,000	16,000	10,000	160,000	48,600		88,000
1970	17,000	1,000	24,000	21,000	220,000	273,400	7,000	200,000
1975	18,000		27,000	24,000	200,000	316,700	26,000	174,000
1980			31,000	28,000	218,000	392,500	67,000	166,000

Source: Same data as Figure 7; Ehrlich, 1976; Ripin, 1989; The Records of the Korean Musical Instrument Industry Association.

cal instruments in 1887 and established the Nippon Gakki Seizo (now Yamaha Corporation) in 1897. In the early days, Nippon Gakki Seizo mainly manufactured organs and harmonicas (Nippon Gakki, 1977). The company started to produce pianos in 1889, but their pianos were patterned after the models of American makers. The company purchased almost all piano parts (iron frames, keyboards, actions, tables and so on) from Shanghai Moutoless Commercial Company's Kobe branch office. In 1892, they exported their organs from Kobe to London for the first time[2]. At that time, nobody thought that Yamaha would become the biggest musical instrument company in the world.

Koichi Kawai worked as Torakusu's right-hand engineer for pianos and organs. After Torakusu passed away in 1916, Yamaha was thrown into confusion and a labor dispute dragged on for months in 1926. Since Kawai wanted to concentrate on making pianos, he established his own company, Kawai Musical Instruments Manufacturing, in 1927 (Kawai Musical Instruments, 1997). The Kawai brand is now one of the most popular pianos for music lovers.

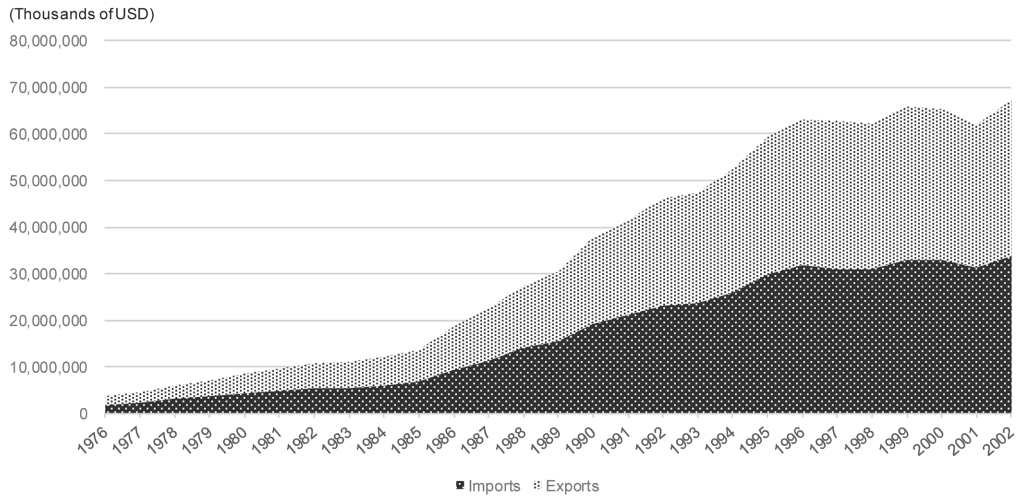
2. Piano market in the postwar period

The worldwide market for musical instruments grew steadily until the second half of the 1990s. In 2002, total export and import volumes increased to about 18 times what they were in 1976 (see Figure 1). According to Figure 2, the U.S. has been the greatest exporting country in the world since 1990[3]. But exports from the U.S. have been declining since 1997. Japan and Germany started catching up to the U.S. after World War II. Japan has been the top piano producing country from around 1970, and Yamaha became the biggest piano manufacturer in the world. The trend of import volumes from 1976 to 2002 is shown in Figure 3. The U.S. has consistently imported more than any other country due to the enormous musical instrument market in the U.S.

Figures 4 and 5 show the export and import volumes of the major companies making pianos from 1980 to 2002. Japan was the largest exporter and the U.S. was the largest importer in the world. The U.S. used to be the biggest producer of pianos until the 1960 (see Table 1), but due to the thrust of Japanese exports, the U.S. turned into the largest importer.

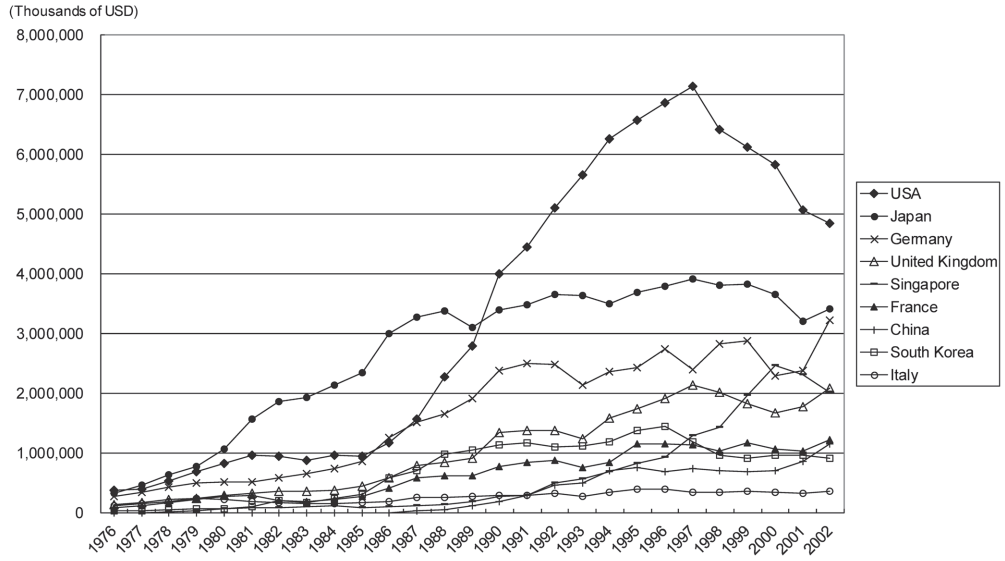
There were many famous piano makers in the U.S., such as Steinway & Sons (established in 1853), Baldwin (1859), Chickering & Sons (1892) and W. W. Kimball and Company (1857). Most of their pianos were shipped to the domestic market. Table 2 shows the

Figure 1. Worldwide Trade of Musical Instruments and Parts, 1976–2002



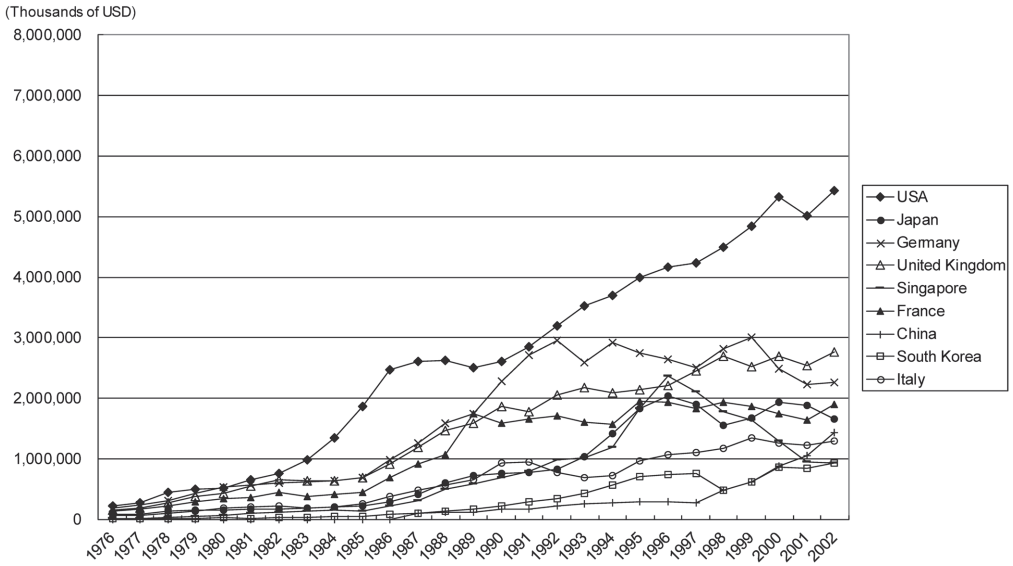
Source: United Nations Statistical Office, 1976–2003.
Notes: Musical Instruments and Parts include music media (CDs, Tapes etc.), metronomes, tuning forks, tuning pipes and musical boxes.

Figure 2. Export Position of Each Country in World Trade (Musical Instruments and Parts), 1976–2002



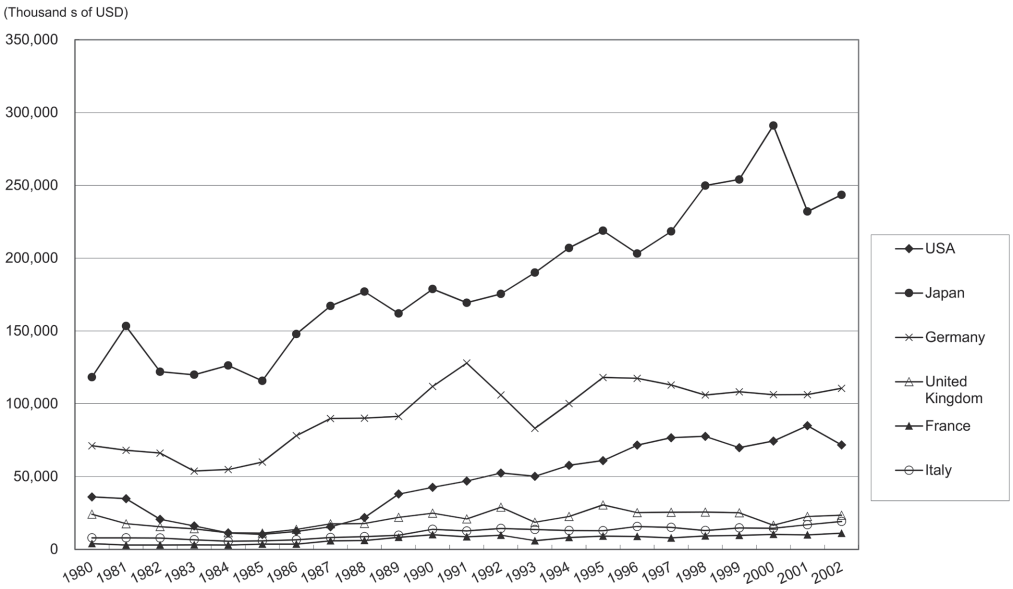
Source: Same data as Figure 1.

Figure 3. Import Position of Each Country in World Trade (Musical Instruments and Parts), 1976–2002



Source: Same data as Figure 1.

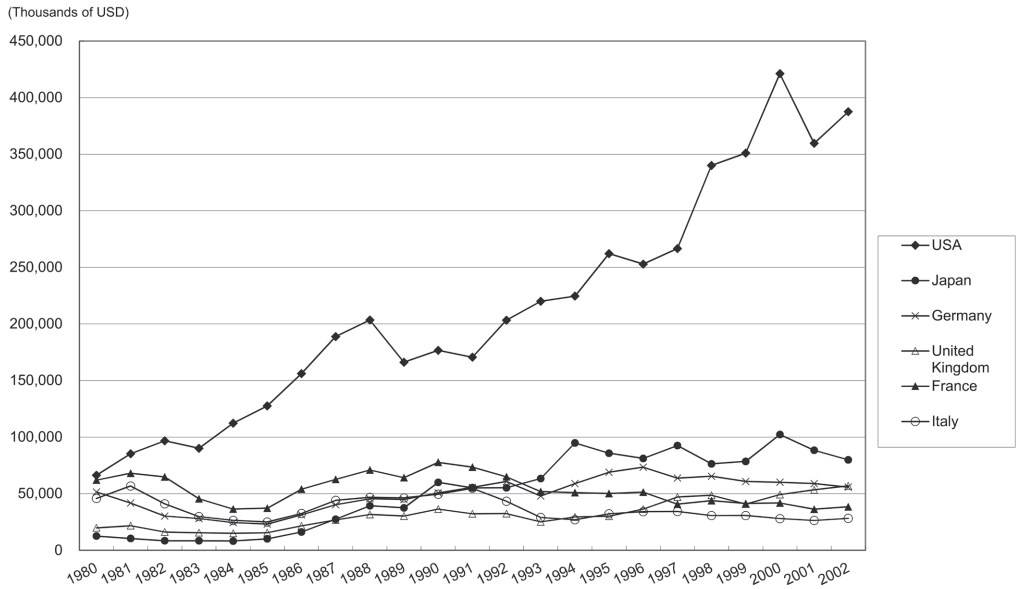
Figure 4. Worldwide Exports of Pianos, 1980–2002



Source: United Nations Statistical Office, 1980–2003.

Notes: 1980, USA=USA and Puerto Rico. 1980–90, Germany=Federal Republic of Germany+German Democratic Republic.

Figure 5. Worldwide Imports of Pianos, 1980–2002



Source: Same data as Figure 4.

number of American piano shipments from 1900 to 1955. Many acoustic pianos were shipped in the 1900s. After the 1910s, shipments of acoustic pianos gradually declined, while shipments of player pianos increased. The shipments of pianos as a whole largely decreased in the first half of the 1930s due to the severe economic depression in the U.S. and a consumer movement toward ready-made music from radios and phonographs. Except for this period and World War II, the demand for pianos did not drastically decrease (see Table 2). This market structure differed from the Asian market as stated in Chapter 3.

Figure 6 shows the data of major piano exporters to the U.S. from 1980 to 2002. Japan and South Korea were by far the top two countries to export pianos to the U.S. until 2000. But since then, the U.S. piano market has become increasingly dependent on Chinese manufacturers. The volume of imports from China caught up with Japan in 2002. China has become an important country for the U.S. piano market.

3. Unique characteristics of the piano markets in Japan and South Korea

Some countries in Asia both produce and export pianos. Some countries in Asia also have large piano markets. This chapter focuses on two countries, Japan and South Korea.

Table 2. Historical Piano Shipments in the U.S.

(Unit: Number of Pianos)

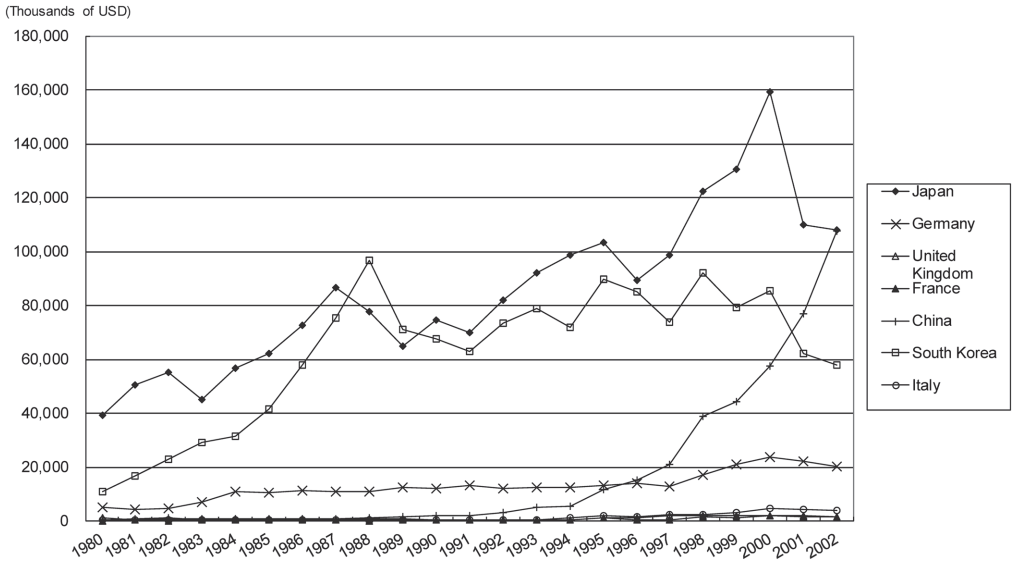
Year	Total Pianos (1+2)	Upright Pianos (1)	Grand Pianos (2)	Player Pianos	Year	Total Pianos (1+2)	Upright Pianos (1)	Grand Pianos (2)	Player Pianos
1900	171,138				1956	206,040	201,240	4,800	
					1957	192,934	188,378	4,556	
1904	259,329			1,868	1958	180,707	176,663	4,044	
					1959	197,500	193,000	4,500	
1909	330,029			34,516	1960	196,000	191,000	5,000	
					1961	191,600	186,100	5,500	
1919	156,158			180,399	1962	208,200	202,200	6,000	
					1963	215,600	209,100	6,500	
1921	106,931			114,279	1964	220,000	213,000	7,000	
					1965	243,600	235,600	8,000	
1923	150,337			197,252	1966	243,800	234,800	9,000	
					1967	222,300	211,800	10,500	
1925	137,391			169,193	1968	224,636	213,378	12,000	
1926					1969	219,657	205,633	14,024	
1927	122,686			95,454	1970	193,814	178,814	15,000	
					1971	205,214	189,214	16,000	
1929	112,192			18,781	1972	232,507	215,507	17,000	
					1973	247,701	232,701	15,000	
1931	51,752	20,075	31,677	183	1974	248,405	232,405	16,000	
1932	27,274	9,528	17,746		1975	217,329	203,329	14,000	
1933	34,303	12,923	21,380		1976	240,235	224,235	16,000	5,000
1934	47,193	22,184	25,009		1977	252,918	234,918	18,000	5,000
1935	65,086	35,162	29,924	418	1978	276,172	256,172	20,000	5,000
1936	90,358	58,958	31,400		1979	269,800	250,800	19,000	5,000
1937	106,009	76,055	29,954		1980	228,028	210,028	18,000	4,283
1938	89,504	69,915	19,589		1981	220,911	200,978	19,933	4,447
1939	114,043	94,450	19,593		1982	194,660	174,077	20,583	2,620
1940	136,332	116,791	19,541		1983	189,031	168,691	20,340	3,200
1941	159,824	139,799	20,025		1984	168,438	142,226	26,212	2,400
					1985	143,826	116,185	27,641	700
1946	68,955	67,738	1,217		1986	165,176	131,776	33,400	600
1947	143,955	139,641	4,314		1987	169,500	131,000	38,500	500
1948	163,807	157,869	5,938		1988	141,697	109,348	32,349	
1949	133,401	128,163	5,238		1989	126,317	97,691	28,626	
1950	172,531	166,417	6,114		1990	111,928	84,186	27,742	
1951	147,365	142,007	5,358		1991	106,941	79,086	27,855	
1952	151,407	147,402	4,005		1992	102,882	73,513	29,369	
1953	160,883	156,913	3,970		1993	126,424	98,811	27,613	
1954	162,314	158,143	4,171		1994	94,793	65,794	28,999	
1955	189,704	184,953	4,751		1995	94,044	66,055	27,989	

Source: The Internal Records of Steinway Japan; Steinway Asia, LLC: Lieberman, 1995, Chapter 20, endnote, 31, 36.

Notes: We left the cell empty when we could not find information.

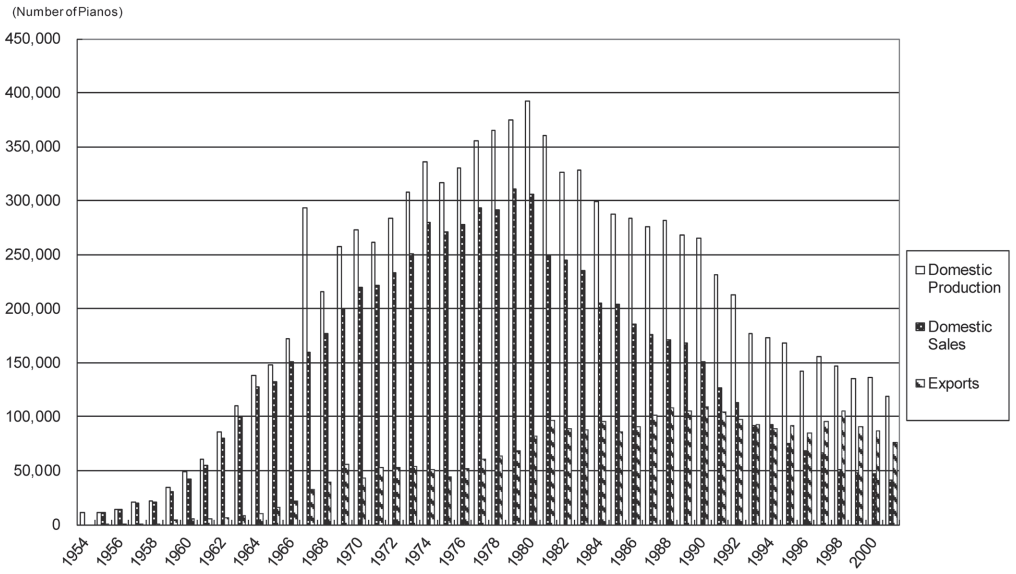
Japanese piano production and sales increased exponentially until 1980 (see Figure 7). In 1995, the volume of piano exports exceeded domestic sales. In other words, the Japanese piano industry was supported by domestic demand for a long time. The size of the Japanese market was comparable to the United States from the 1970s to the early 1990s (see Figure 8), although the Japanese population was less than half that of the U.S. Additionally, we see that after Japanese sales increased at a rapid rate, sales marked a sharp decline. This trend in Japan was similar to what happened in the South Korean market

Figure 6. Major Countries Exporting to the American Piano Market, 1980–2002



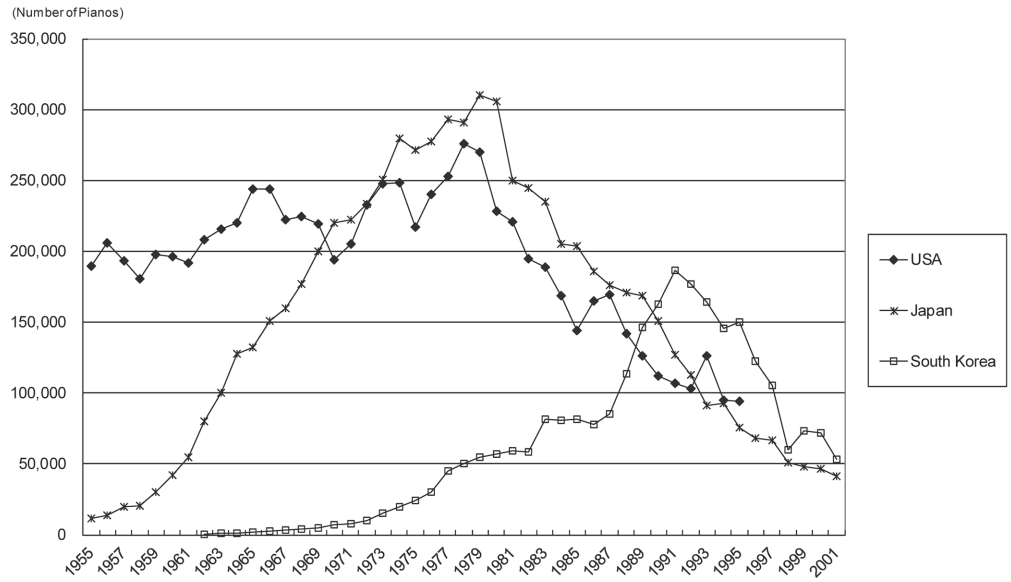
Source: Same data as Figure 4.

Figure 7. Production and Sales of Pianos in Japan, and Exports of Pianos from Japan to the World from 1954–2002



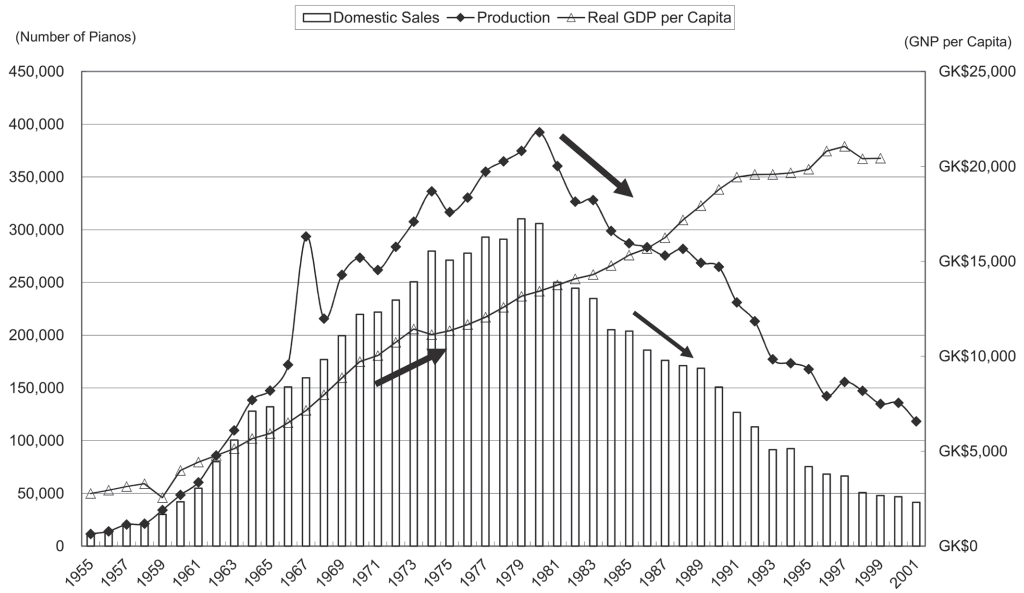
Source: Research and Statistics Department Economic, 2001–2002; Research and Statistics Department Minister's, 1955–1965; Research and Statistics Department Minister's, 1966–2000.

Figure 8. Comparison of Piano Markets in the U.S., Japan and South Korea



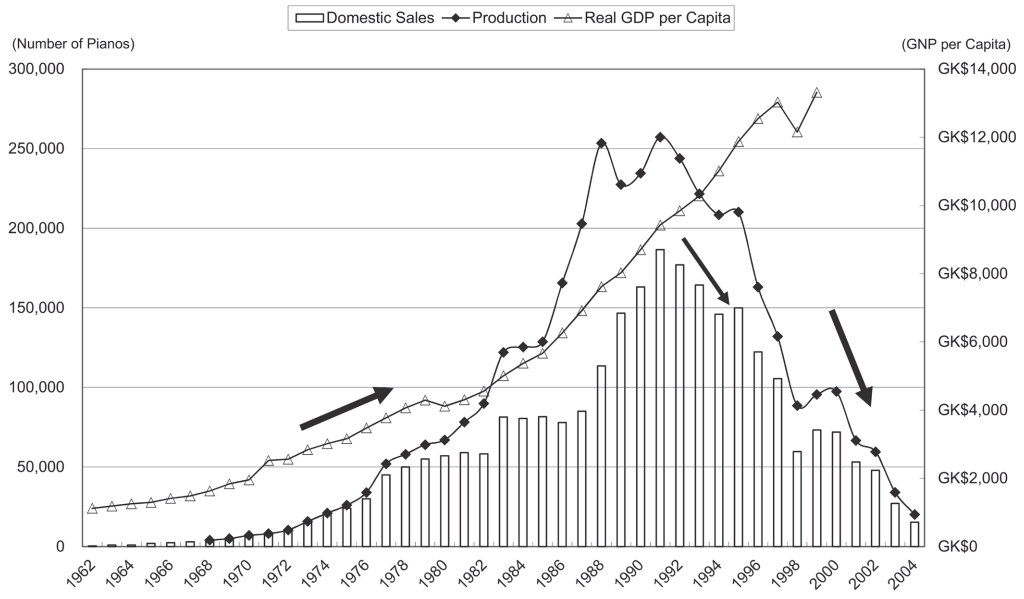
Source: Same data as in Figure 7; the Internal Records of Steinway Japan; Steinway Asia, LLC; the Records of the Korean Musical Instrument Industry Association.
Notes: We could not find data about the U.S. from 1996 to 2001.

Figure 9. Japan Piano Industry and Economics



Source: Same data as Figure 7; Maddison, 2001.
Notes: $=1990 Geary-Khamis Dollars.

Figure 10. South Korean Piano Industry and Economics



Source: The Records of the Korean Musical Instrument Industry Association; Maddison, 2001.
Notes: $=1990 Geary-Khamis Dollars.

(see Figure 8). Why did Japan and South Korea show drastic increases and decreases?

Figures 9 and 10 provide more information on the Japanese and South Korean piano industries[4] and their economic situations. Piano demand did not correlate closely with the growth of GDP because there is a limit to piano demand. Generally, it is said that the maximum diffusion rate of pianos is 20–25%. Table 3 shows the diffusion rate of pianos and consumer durable goods in Japan from 1959 to 2004. The diffusion rate of pianos in Japan stopped at around 21–23%. The South Korean diffusion rate of pianos also stopped at around 22% (see Table 3). In contrast, in Japan, the diffusion rate of so-called white goods (household appliances like refrigerators, etc.) reached close to 100% and that of cars exceeded 80% (see Table 3). This situation resulted from the peculiar character of the piano's origin. As mentioned in Chapter 1, the technology of pianos basically stayed with the Steinway System and there were no big model changes like with cars. Moreover, pianos are products that last for a lifetime (Steinway pianos can play for 100 years). However, the American piano market did not exhibit the same type of drastic changes as Japan and South Korea. This difference was caused by the different characteristics of musical culture in the countries involved.

American culture has been familiar with piano music for a long time, but before World

Table 3. The Diffusion Rate of Main Durable Goods in Japan

(Unit: %)

Year	Pianos	Stereos	Cars	Color TVs	Washing machines	Refrigerators	Sewing machines	Pianos in South Korea
1959	1.6				33.0	5.7	68.3	
1960	2.0				40.6	10.1	69.5	
1961	2.7	3.7	2.8		50.2	17.2	74.1	
1962	3.3	7.2	5.1		58.1	28.0	75.8	
1963	3.7	10.8	6.1		66.4	39.1	79.1	
1964	2.6	9.0	6.0		61.4	38.2	76.2	
1965	3.4	13.5	9.2		68.5	51.4	77.4	0.1
1966	4.2	16.7	12.1	0.3	75.5	61.1	76.6	0.1
1967	4.8	19.8	9.5	1.6	79.8	69.7	81.7	0.1
1968	5.2	24.1	13.1	5.4	84.8	77.6	82.6	0.2
1969	6.1	27.3	17.3	13.9	88.3	84.6	84.6	0.2
1970	6.8	31.2	22.1	26.3	91.4	89.1	64.5	0.3
1971	7.3	33.9	26.8	42.3	93.6	91.2	84.4	0.4
1972	8.6	40.4	30.1	61.1	96.1	91.6	83.0	0.5
1973	9.7	44.4	36.7	75.8	97.5	94.7	84.6	0.7
1974	10.2	47.0	39.8	85.9	97.5	96.5	84.2	0.9
1975	11.8	52.1	41.2	90.3	97.6	96.7	84.7	1.2
1976	12.2	53.8	44.0	93.7	98.1	97.9	84.7	1.5
1977	13.0	54.9	48.7	95.4	97.8	98.4	85.3	1.9
1978	14.9	56.3	51.7	97.7	98.7	99.4	83.8	2.5
1979	15.5	56.5	54.6	97.8	99.0	99.1	84.0	3.0
1980	15.8	57.1	57.2	98.2	98.8	99.1	83.8	3.6
1981	16.7	58.5	58.5	98.5	99.2	99.2	83.1	4.1
1982	18.0	61.5	62.0	98.9	99.3	99.5	83.8	4.6
1983	17.4	59.0	62.9	98.8	98.2	99.0	82.1	5.4
1984	17.6	58.0	64.8	99.2	98.4	98.7	80.2	6.1
1985	18.3	59.9	67.4	99.1	98.1	98.4	81.2	6.9
1986	19.2	60.5	67.4	98.9	99.6	98.4	82.4	7.6
1987	20.9	58.9	70.4	98.7	99.2	97.9	81.5	8.3
1988	19.9	58.9	71.9	99.0	99.0	98.3	81.4	9.3
1989	21.9	61.2	76.0	99.3	99.3	98.6	81.9	10.6
1990	22.7	59.3	77.3	99.4	99.5	98.2	80.9	12.0
1991	23.3	57.9	79.5	99.3	99.4	98.9	80.6	13.6
1992	23.3	61.0	78.6	99.0	99.2	98.1	81.0	15.1
1993	23.2	61.3	80.0	99.1	99.2	98.0	80.2	16.4
1994	23.3	60.1	79.7	99.0	99.3	97.9	78.2	17.5
1995	22.2	57.7	80.0	98.9	99.0	97.8	79.1	18.7
1996	22.0	58.2	80.1	99.1	99.2	98.4	76.6	19.6
1997	22.3	56.3	82.6	99.2	99.6	98.7	76.2	20.3
1998	22.3	55.2	83.1	99.2	99.3	98.1	73.3	20.6
1999	22.9	54.6	82.5	98.9	99.0	98.4	73.6	21.1
2000	21.4	55.5	83.6	99.0	99.3	98.0	72.0	21.5
2001	22.8	52.9	85.3	99.2	99.3	98.4	72.5	21.8
2002	23.6	54.9	84.4	99.3	99.3	98.4	71.9	22.1
2003	23.3	55.2	86.4	99.4	99.6	98.9	71.3	22.6
2004	23.6	55.5	86.0	99.0	99.0	98.4	69.3	22.6

Source: Cabinet Office, 2005; The Internal Records of Steinway Japan; Steinway Asia, LLC

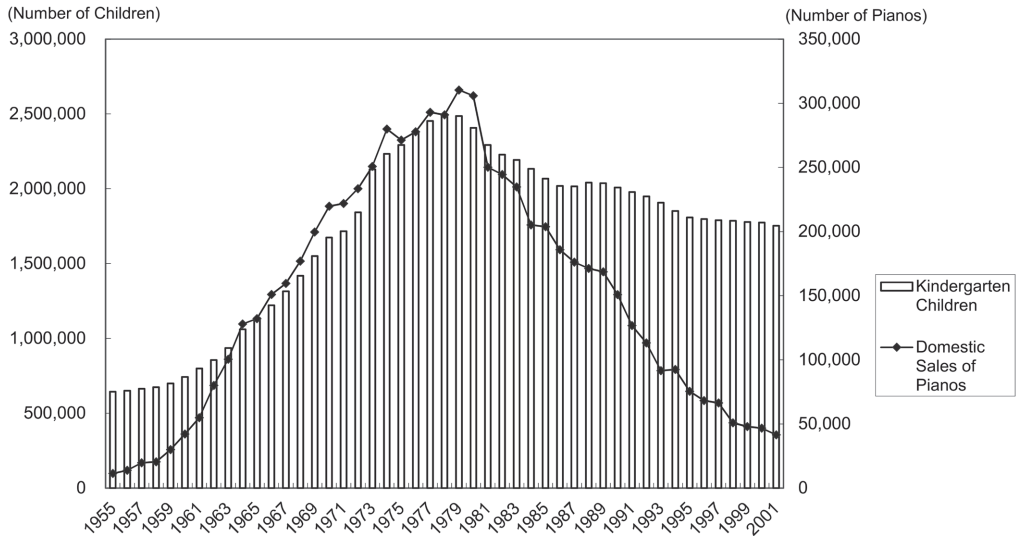
War II, people in Japan and South Korea considered pianos to be musical instruments of distant countries. General customers were even less familiar with pianos than organs, because they were very expensive. Yamaha manufactured more organs than pianos (e.g. they produced 1,219 pianos and 5,917 organs in 1930[5]) until WWII, but that situation changed in the postwar period. Asian piano manufacturers, especially Yamaha and Kawai, succeeded in producing low-priced pianos with a cheap labor force and modern factories which made possible mass production. Piano lessons by the Yamaha Music School were the most popular culture lessons (*o-keikogoto*) in Japan. In 1993, 63.7% of culture lessons for Japanese girls were related to music, most of them piano lessons (Ministry of Education, 1993).

Yamaha established music schools in their directly managed stores and dealers' stores from 1954 (the first school was established at the Ginza Yamaha Store in Tokyo). There were 150 students at the beginning. After two years (1956), the number had increased to 1,000 students (10 schools), and to 20,000 students (700 schools) in 1959. Yamaha expanded its music schools overseas in 1964. In 2000, it reached 610,000 students worldwide (547,000 students in Japan) and 13,000 schools (6,000 schools in Japan)[6]. The educational system used by Yamaha Music School was innovative. Classes in the U.S. and and Europe were standardized individual lessons. The method used by Yamaha Music Schools emphasized group lessons to children (especially kindergarten children) enabling them to keep the price of lessons down. Music lessons in the U.S. usually start in elementary school, but Yamaha Music Schools provided a unique type of preschool education[7]. Figure 11 shows the correlation of increasing piano sales with the number of kindergarten children. This shows how kindergarten children supported the growth of the Japanese piano market until the 1970s[8]. The Yamaha education system was imitated by other Japanese musical instrument makers, e.g. Kawai and Roland. In this way, the piano became a familiar musical instrument for the general Japanese public. The Japanese piano market expanded due to reasonable pricing and piano lessons.

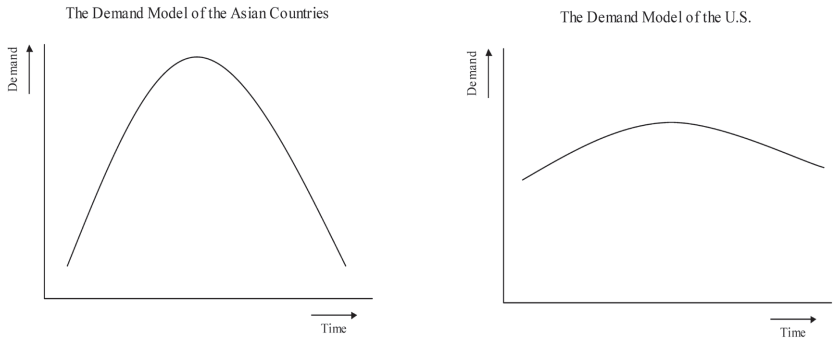
The drastic increase that went up to the demand ceiling caused a drastic decrease in piano sales. The expansion of the used piano market from the 1980s also accelerated the decrease of new piano sales. The accentuated shape of the demand curve for pianos in Japan was different from the gradual American curve.

The success of Japanese piano makers can be expressed as an analogy to large-scale plantations in the desert (the Japanese piano market), where plants ordinarily don't grow without irrigation (potential piano market). Since ground water or potential piano mar-

Figure 11. The Correlation between Kindergarten Enrollment and Piano Sales Numbers in Japan



Source: Same data as Figure 7; Ministry of Education, 2001.



kets are limited natural resources, excessive use causes the resource to dry up. As often seen in large-scale farms around the world, e.g. Punjab in India and the American Middle Western states (Kansas etc.), or as seen in the demand for pianos in Japan and South Korea, drastic increases and decreases occur due to overuse of the resource. Japan and South Korea will probably have to wait about 100 years until the Japanese and South Korean markets return.

4. Conclusion—brief forecast of the Chinese piano market—

China is the last huge piano market in the world. Piano manufacturers around the

world pay attention to this market. As the last step in our analysis, we will discuss the Chinese piano market and its future.

According to research by an American piano company reference, the Chinese piano market has been expanding every year. Chinese domestic sales in 2000 were 181,710 units. This sales volume was comparable to the peak of South Korean piano sales (186,584 units). However, the diffusion rate of pianos in China in 2000 was 1.26% (Wángnàdá, 2003). South Korean sales volume was 24,000 units when its diffusion rate became 1.20% in 1975, and Japan sales were 30,071 units when its diffusion rate was 1.60% in 1959. This means that Japanese and South Korean sales volumes reached a peak when their diffusion rates were around 13–15%. That is to say, it is likely that Chinese piano sales will be about 2,070,000 units[9] at their peak. However, all sales volume will not come from the sale of acoustic pianos. In 2001, domestic Japanese electronic piano[10] sales were 133,879 units, and acoustic piano sales were 41,553 units. Eventually, it is likely that sales of acoustic pianos in China will be one-third of total piano sales, about 690,000 units.

The American musical instrument market (including pianos) in 2015 was 7.1 billion US dollars which accounted for 44% of the world market (16.2 billion US dollars). The second market was China with 1.5 billion US dollars, and the third market was Japan with 1.2 billion US dollars (Music Trades, 2016a, p. 3). These figures also indicate that China has already become an important market for the piano industry. This situation influences musical instrument trade shows. Music industry officials used to regard the National Association of Music Merchants (NAMM) Show (held in the U.S.), the Musikmesse (held in Germany) and the Musical Instrument Fair (held in Japan) as the three largest world trade shows. Although, there were still 115,085 visitors to the NAMM Show in 2018, the Music CHINA show in 2017 was a second ranked trade show that recorded 105,125 visitors. The Musikmesse in 2018 saw 82,442 visitors and the Musical Instrument Fair in 2016 had 46,976 visitors. These previously international shows are gradually becoming local events[11]. Many musical instrument companies make product strategies aimed at the markets of the U.S. and China. The most popular piano maker in their markets and the world's biggest company is Yamaha (estimated revenue in US dollars was 4.26 billion in 2015: Japan). The second largest company is Gibson Brands (1.73 billion US dollars: U.S.), and the third is Harman Professional (1.05 billion US dollars: U.S.)[12]. Gibson Brands went into bankruptcy in May, 2018, so Yamaha overwhelmingly gained ground in its ranking in the world[13].

The market for pianos will dry up in China sooner or later. There is almost no doubt

that China will repeat the demand model of Asian countries (drastic increase and decrease). It is most important for piano makers to find potential demand (unexplored piano markets) quickly and protect themselves from the market forces that will dry up their demand.

Notes

1) See the following books for information about early piano technical history. Dolge, 1911; Omiya, 1994; Nishihara, 1995; Nakatani, 2001.
2) "Japan Woodwork Company and Nippon Gakki Seizo," *Nichigaku Shahou*, no. 189, 1965, p. 22.
3) The U.S. recently became the fourth largest exporting country. The U.S. was still the top importing country in 2016 (United Nations Statistical Office 2017).
4) There are two famous piano makers in South Korea, Young Chang Ltd (Founded 1956) and Samick Music Co. (Founded 1958).
5) Local Management and Economic Conference, 1994, p. 71.
6) See the internal records of Yamaha Co. and Yamaha Music Foundation.
7) Music teachers and PTA in the U.S. were interested in the documentary movie of Japanese Kindergarten children, "*The Music Training of Kenchan*" produced by Yamaha Music School in 1966. "Yamaha Music School in the U.S." *Nichigaku Shahou*, no. 192, 1966, p. 20.
8) The divergence of piano sales and number of kindergarten children is due to increased digital piano sales.
9) $186{,}584 \times 14 \,/\, 1.26 \fallingdotseq 2{,}072{,}948.24$ (units)
10) The major Japanese piano companies (Yamaha, Roland, Casio, Kawai and Korg) began to make digital pianos in the early 1980s. The quality of digital pianos is approaching that of acoustic pianos. In this paper, 'piano' means the acoustic piano. See this article about the historical relation between the acoustic piano and digital piano in Japan. Tanaka, 2012.
11) The association of Japan Music Fair (2016) "The Number of Musical Instrument Fairs in 2016"; "2017 music CHINA" Japan Music Trades, November 1, 2017, p. 6; "2018 NAMM Show" Japan Music Trades, March 1, 2018, p. 9; "Report on Musikmesse 2018: Focus on all the events. Business booms even though attendance is down. The remarkable trend towards a consumer oriented show!" Japan Music Trades, May 1, 2018, p. 11.
12) Music Trades, 2016b, p. 16
13) "Gibson Files for Chapter 11 Bankruptcy" *The Music Trades Online* (Breaking News), May 2, 2018.

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