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An Examination of the Process of Corporate Reconstruction and Military Industrial Reconstruction in Post-World War II Japan: The Case of Mitsubishi Heavy Industries, Ltd.

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Since the formation of the second Abe administration in 2012, the Japanese government's "dexclusively defense-oriented" (Senshubouei) policy has undergone significant changes. Consequently, the nature of the defense industry may also be required to change. This paper focuses on the supply system for aircraft and guided weapons. The main equipment of the Japan Self-Defense Forces (JSDF) has been maintained by the Defense Agency and the Ministry of Defense. The top 20 companies with the largest procurement amounts account for approximately 70% of the central procurement. Among them, Mitsubishi Heavy Industries, Ltd. (MHI) is the largest arms manufacturer in Japan. As such, we examine the transition of MHI mainly during the period up to 1980s. During the late 1960s, more than 90% of the equipment used by the JSDF was procured "domestically". However, this does not necessarily indicate that the arms were domestically produced. An analysis of Japan's procurement of aircraft and guided weapons has indicated that the country relies on license agreements with US arms companies and "Foreign Military Sales." In this sense, Japan's defense industry is believed to be increasingly dependent on the United States.

Introduction

This essay is part of a study that traces the development process of Japan's defense industry and attempts to clarify how the Japanese defense industry is positioned in the development of international arms transfers and to examine the merits and demerits of the defense industry. Weapons produced by the defense industry constitute the material basis of defense capability based on the "right of self-defense" for national existence. Since the enactment of the Peace Constitution, successive Japanese administrations have developed defense policies based on the principle of "dexclusively defense-oriented" policy, and the domestic defense industry is thought to have been predicated upon such policies. However, since the formation of the second Abe Cabinet in 2012, there has been a shift in conventional defense policy, as evidenced by the easing of restrictions on arms transfers,[1]

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[1] The policy development regarding arms exports includes: (1) a reference to the Three Principles on Arms

the acceptance of the exercise of the right to collective self-defense, and the enactment of security-related laws. Moreover, this shift has been further accelerated since Russia invaded Ukraine in February 2022. In other words, the following legislative developments have rapidly transpired: the enactment of the Economic Security Promotion Act (Act on the Promotion of ensuring National Security through Integrated Implementation of Economic Measures) in May of the same year;[2] the Cabinet decision regarding the so-called "Three Security Documents" by the Kishida Cabinet in December 2022;[3] the Act on Enhancing Defense Production and Technology Bases in June 2023 (a law to strengthen the infrastructure for the development and production of equipment procured by the Ministry of Defense(MOD)); a discussion about reviewing the three principles of defense equipment transfer (the key issue is whether or not to lift the ban on exports of deadly arms) among the ruling parties in June 2023. All of these developments can be viewed as representing a shift from the "dexclusively defense-oriented" approach of previous administrations and will likely lead to new developments in the defense industry.

To examine the future of the defense industry in the face of such a shift, it is necessary to examine the Japanese defense industry's trajectory to date. In this paper, we first explore the development of the supply system of defense equipment of the JSDF from the post-World War II period to the 1980s, focusing on aircraft and guided weapons (missiles, etc.), which have become increasingly important as conventional weapons since the end of World War II. In general, economic globalization in the production of civilian products has the

Exports by Prime Minister Sato at the House of Representatives Committee on Accounts in April 1967 (prohibition of arms exports to the Communist bloc, countries prohibited from arms exports by UN resolutions, and countries involved in international conflict or at risk of such conflict), and (2) the expansion of the scope of the ban (banning arms exports to areas covered by the Three Principles on Arms Exports, restricting arms exports to other areas and equating arms manufacturing-related equipment with "weapons") by the Miki Cabinet at the House of Representatives Budget Committee in February 1976 led to the recognition that arms exports from Japan were in principle impossible. However, this was followed by (3) the Nakasone Cabinet of 1983 making exceptions for arms technology transfers to the U.S., (4) the Noda Cabinet of the Democratic Party of Japan in 2011 making "comprehensive exceptions" under the "Standards for Overseas Transfer of Defense Equipment, etc.," and (5) the Abe Cabinet in 2014 making new principles under the "Three Principles for Defense Equipment Transfer" (with this cabinet decision, arms exports were liberalized from the previous principle of ban and exception approval to liberalization in principle and limitation of prohibited items, and the policy of banning exports of defense equipment, including weapons, has been greatly relaxed (see Kutsunugi [2015]).

[2] The purpose of this law was to formulate a basic policy to take economic measures in an integrated manner to ensure security. These economic measures included ensuring the stable supply of specified critical commodities and the stable provision of specified social infrastructure services, supporting the development of specified critical technologies, and establishing a patent application closed-door system. The background to this is perceived as (1) economic globalization = interdependence, which poses a threat to national security, and (2) the parallel progression of the development of advanced technologies for military and civilian use (dual use). Therefore, it is considered necessary to work on preventing the outflow of advanced technologies, securing daily necessities such as semiconductors and pharmaceuticals (strengthening supply chains), and fostering collaboration in the development of important future technologies such as AI and biotechnology. In other words, the security policy of only managing the transfer of lethal weapons is not sufficient, and the government is striving to secure and stably supply essential goods, maintain and strengthen specific social infrastructure, and become involved in the development of technologies that are pivotal from a security perspective.

[3] The "Three Security Documents" are as follows: 1. National Security Strategy, a long-term guideline for foreign and defense policy: Revision of the National Security Strategy formulated at the beginning of 2013, which aims to acquire an enemy base attack capability (counterattack capability) and increase defense and supplementary spending to 2% of GDP by FY2027; 2. National Defense Strategy, a revised version of the National Defense Program Outline 3. "National Defense Force Builup Program," which extends the period of the Medium-Term Defense Force Buildup Program to 10 years: The plan entails ensuring the multilayered possession of hypersonic guided missiles and submarine-launched long-range missiles and the establishment of a permanent joint command post. The plan also calls for 43 trillion yen in defense expenditures between FY2023 and FY2027 (see Tokyo Shimbun, December 17, 2022). Therefore, the possession of an enemy base attack capability ("counterattack capability") was regarded as an acceptable right of self-defense, and the Defense Force Buildup Program encompasses the multilayered possession of hypersonic, long-range missiles and other weapons.

potential to precipitate the transfer of technology from advanced countries and regions with advanced technology and high production capacity to less developed countries and regions, gradually eliminating economic disparities in the process and enabling a more affluent life for all mankind. However, globalization in the context of the defense industry leads to the proliferation of the production and consumption of weapons that rely on advanced technology, resulting in greater carnage among hostile nations and peoples. The use of nuclear weapons among hostile nations, for example, has the potential to culminate in the extinction of the human race. There are two ways to conceptualize the defense industry: critically, as a "merchant of death," and positively, as facilitating a relationship of interdependence between the state and defense industry firms due to the necessity of the defense industry or because it contributes to the development of science and technology and has a ripple effect on other industries as a whole. The argument that emphasizes dual use in science and technology and views the defense industry in a positive light also belongs to the latter category.[4] To determine which view is appropriate, it is essential to clarify the actual state of the defense industry.

1. The Defense Industry in Postwar Japan

The defense industry is responsible for the production and distribution of defense equipment such as fighter aircraft, naval vessels, guided missiles, communication and information systems, fuel, and food and clothing used by the JSDF to execute their missions. It also encompasses contractors who provide services related to the repair and maintenance of these items. The Acquisition, Technology and Logistics Agency (ATLA) acquires those items through central procurement. According to the ATLA's "*Overview of Central Procurement FY2022 Edition*," there are approximately 8,000 registered suppliers in the Kanto and Koshinetsu regions alone that are capable of manufacturing and selling defense equipment and providing maintenance services for these items, and the number of companies involved is even higher for more complex and sophisticated products.

What are the leading firms in the defense industry? Table 1 indicates procurement from the top 20 firms via central procurement contracts by the ATLA (Procurement Implementation Headquarters, Contracting Headquarters, Equipment Headquarters, etc. prior to 2014) within the MOD (Defense Agency prior to 2006). The top 20 companies consistently account for 60-70% of the total value of central procurement contracts, and these companies are the core of Japan's arms industry. The top three companies are almost uniformly represented, producing fighter aircrafts, anti-submarine patrol aircrafts, and other aircrafts, as well as naval vessels, submarines, guided missiles, and other important weapons. Of the three, MHI has the greatest supply capacity in the production of naval vessels and fighter aircraft, and as a result, it has maintained the No. 1 position in terms of supply capacity almost consistently. This is also the reason for this article's focus on MHI.

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[4] Yokoi (2022) introduces the "merchant of death" theory as a criticism of the civilian arms industry in Britain in the 1910s and 1930s. Sato [2015] traces the lineage of the "merchants of death" theory and critiques it, in conjunction with the "military-industrial complex" theory, as being influenced by "false images created by forces supporting the pacifist movement as threat targets," but because he views the state and arms companies as having an "interdependent relationship," the "false image" theory lacks persuasive power. As mentioned in Shirato [2023] regarding the statements of business people who argue for dual use, it appears that the high technology of civilian products expands the possibility that they will be diverted to military use.

Table 1: Ranking of Contract Amounts for Central Procurement of Defense Equipment by Contracting Companies in FY2021 and Other Fiscal Years
(Top 20 Contractors, Unit: ¥100 million)

Contract company	Amount of money 2021	Ratio % 2021	Main procurement items	Rank in each year								
				2021	2020	2019	1980	1979	1978	1969	1968	1967
Mitsubishi Heavy Industries, Ltd.	4,591	25.5	Escort vessels, submarines, next-generation fighter aircraft	1	1	1	1	1	1	1	1	1
Kawasaki Heavy Industries	2,071	11.5	P-1 fixed-wing patrol aircraft, C-2 transport aircraft, standoff electronic warfare aircraft	2	2	3	3	3	4	2		7
Mitsubishi Electric	966	5.4	Medium-range surface-to-air guided missile, non-penetrating periscope, multifunction radar	3	4	2	4	2	3	4	2	3
NEC (Nippon Electric Company)	900	5.0	Automatic Warning and Control System, Ministry of Defense OA System Infrastructure Borrowing, Field Communication System	4	5	4	6	6	7	5	8	6
Fujitsu	757	4.2	Defense Information and Communications Infrastructure Communications Electronics Borrowing, Integrated IP Transmission System	5	3	5		13		19	15	
Toshiba Infrastructure Systems	664	3.7	Surface-to-air guided missile for base air defense, on-board radio measuring equipment, search radar	6	6	8	5	5	5	6	3	5
IHI	575	3.2	Establishment of maintenance base for next-generation fighter aircraft and its engine system, engines for P-1, and F-35	7	8	21	2	4	2	3	6	4

SUBARU	417	2.3	Multi-purpose helicopter, UH-1J airframe scheduled repair – refurbishment, U125-A airframe scheduled repair	8	25	9	□	16	16	13	11	13
Hitachi, Ltd.	342	1.9	Cyber Protection Analyzer Borrowing, Minesweeper Sonar System	9	9	13	14		11	7	13	8
Oki Electric Industry	277	1.5	Projectile passive sonar, future submarine sonar equipment	10	13	16	16	11	15	20	17	22
Komatsu Ltd.	183	1.0	120mmM, JM1 munition, 155mmH, M107 munition	11	10	7	11	9	9	8	10	10
Daikin Industries	181	1.0	Type 00 120mm tank gun shells, Type 10 120mm wing-stabilized armor-piercing ammunition with loading tube	12	12	12	19		14	12	12	15
Airbus Helicopters Japan	175	1.0	Comprehensive contract for TH-135 airframe maintenance, special transport helicopter airframe maintenance – maintenance services	13	518	555						
Japan Aerospace Exploration Agency	174	1.0	Space situational awareness (SSA) satellite system (satellite and ground)	14	37							
ENEOS	141	0.8	Aviation turbine fuel JetA-1	15	21	11	8	10	17	24	21	20
The Japan Steel Works, Ltd.	138	0.8	62 caliber 5-inch gun, Type 19 armored wheeled self-propelled 155mm cannon	16	14	10	9	12	10	23	5	30
Nakagawa Bussan	133	0.7	Diesel oil No. 2 (for ships) (duty free)	17	16	14						

GS Yuasa Technology	130	0.7	Submarine main storage battery (SLH)	18	15	17						
Idemitsu Kosan	110	0.6	Aviation turbine fuel JetA-1	19	22	22				49	44	46
ShinMaywa Industries, Ltd.	107	0.6	US-2 rescue amphibian, routine aircraft repairs	20	76	88		17	8	32	9	50
Total amount of 20 companies and ratio to total amount	13,032	72.3		72.4	62.0	50.1	72.1	61.2	66.6	72.1	68.9	62.2

The total annual central procurement amount for FY2021 is 1,803.1 billion yen, and the ratio is a percentage of this total.

The ratio of the top 20 firms to the total annual central procurement amount for each year is also shown in the ranking section.

Before FY2019, the rankings of IHI as Ishikawajima Harima Heavy Industries, Subaru as Fuji Heavy Industries, Toshiba Infrastructure Systems as Toshiba, and ENEOS as JXTG and Nippon Oil Corporation are applied. Note that Kawasaki Aircraft Industries (merged with Kawasaki Heavy Industries in 1969) was ranked second in FY1967 and seventh in FY1968, and the total contract value of both companies in FY1967 was slightly higher than that of Mitsubishi Heavy Industries.

source: https://www.mod.go.jp/atla/souhon/ousho/pdf/2-06.pdf and "*Defense Yearbook*" for each fiscal year.

Furthermore, based on the results of central procurement in FY2021, the degree of the procurement of guided weapons and aero-engineering equipment is high, indicating the importance of supplying this defense equipment in the defense industry. As the technology for developing aircraft and guided missiles improved in Japan, the leading companies in the communications and electronics industries gradually rose to the top of the procurement companies list. The rise of Fujitsu and Oki Electric Industry is a representative example. The linkage between weapons and information and communications technology is likely to progress further in the future, given the role of unmanned weapons such as ballistic missiles, military satellites, and drones.

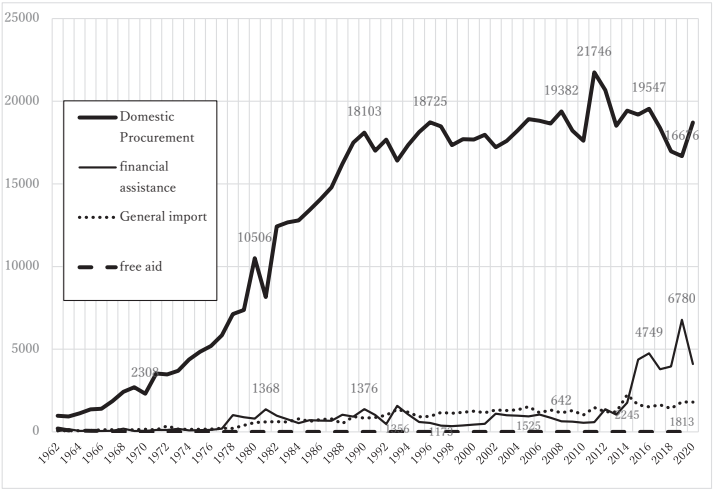
The JSDF's defense equipment (especially weapons) has been provided by the U.S. under the Japan-U.S. Security Treaty and the Japan-U.S. Mutual Defense Assistance (MSA) Agreement. Figure 1 illustrates the changes in procurement methods: In the early years after the establishment of the SDF in 1954, the JSDF relied heavily on grant aid from the U.S. Grant aid ended in 1969 and was replaced by paid aid (Foreign Military Sales [FMS]) and imports. On the other hand, domestic procurement increased rapidly. As a result, domestic procurement accounted for more than 90% of total procurement from 1967 to 1971, when the Third Defense Buildup Program was developed, and it appeared that "independence" in terms of arms supply had been achieved. However, as I have already noted in my article, this was far from independence in terms of equipment quality and technological dependence.[5] At any rate, it is evident that the amount of domestic procurement increased rapidly throughout the 1970s and 1980s. Subsequently, from the

[5] See Shirato [2023].

1990s onward, the amount of domestic procurement came to a standstill. This may be attributed to the collapse of the Soviet Union in 1989-91, the easing of military tensions following the end of the Cold War, and relatively positive Japan-China relations, which to some extent restrained further expansion of the SDF's equipment.

Figure 1: Procurement Contract Value by Procurement Method (Unit: ¥100 million)

(Figures from the Defense Yearbook were used for each year)



On the other hand, paid aid and general imports increased slightly from FY1978 to FY1982 and from FY1988 to FY1994. This will be discussed in more detail later, but a breakdown of the period when paid aid increased suggests that in FY1978-82, the F-15J fighter, P-3C anti-submarine patrol aircraft, and E-2C early warning aircraft were the subject of FMS, which may be related to the purchase of fighter aircraft and anti-submarine patrol aircraft from the United States that incorporate advanced technology. This is believed to be related to the purchase of highly technologically advanced fighter aircraft and anti-submarine patrol aircraft from the United States. In the 2010s, paid aid increased dramatically, and the domestic procurement rate fell below 90%. The U.S. has not yet determined whether it will procure classified aircraft. It is evident that the U.S. does not readily allow the licensed production in Japan of sensitive and highly capable fighter aircraft and other aircraft that cannot be procured by the general public.

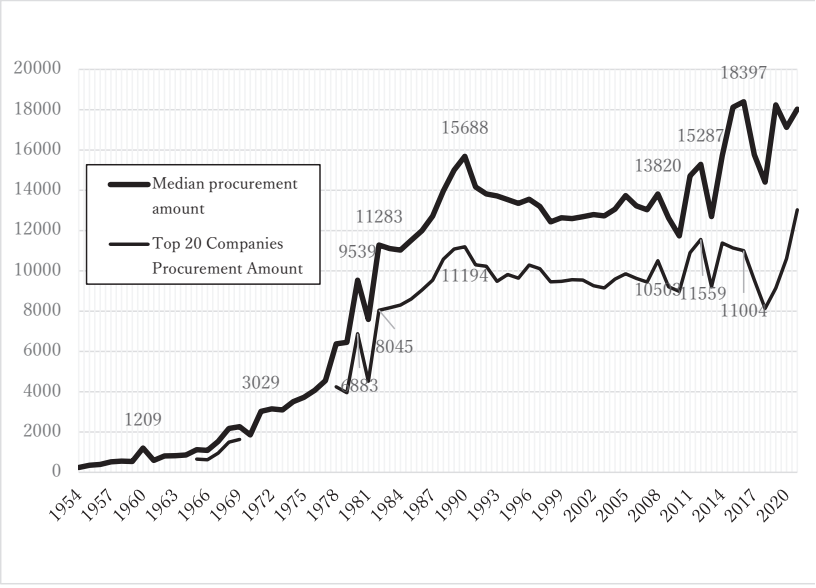
What is the difference between licensed production and paid assistance (FMS)? In licensed production, a license fee is paid to a foreign company, and the licensed company builds a production line to produce the product at its domestic factory. This requires an initial cost for the license fee and the construction of the production line. Conversely, FMS involves importing products produced by a foreign company; since the foreign company maintains the highly confidential technology, additional maintenance and servicing costs must be paid even after the acceptance of the product. The advantages of licensed production include the ability to increase production efficiency and repair parts domestically, thereby increasing the utilization rate and the wider scope of technological acquisition. From the recipient country's perspective, the advantage of paid assistance is

the ability to quickly use weapons with highly secretive capabilities and technologies without having to develop them in the recipient country. However, at present, the purchase price is high, and even if an excessive advance payment is made, it takes time for the weapon to be delivered, and unsettled amounts tend to accumulate.[6]

Let us return the discussion to trends in central procurement amounts. Central procurement includes the procurement of critical weapons, and Figure 2 illustrates the relationship between trends in central procurement amounts and the amounts procured from the top 20 suppliers. The trends in central procurement amounts are similar to the overall trends in domestic procurement amounts indicated in Figure 1, with the slight distinction that central procurement results have declined more from the 1990s to the 2000s. In the 2010s, the increase or decrease in each year was more pronounced, and the gap between the central procurement amount and the amount procured by the top firms seems to have widened a little. This point must be kept in mind when assessing the details of central procurement but will be left as an issue for the future. On a similar note, there was a sharp increase from the 1970s to the 1980s, reaching 1.57 trillion yen in FY1990. Although the procurement amounts of the top 20 firms were not captured for the entire period, they exhibit similar changes to the median procurement amount, accounting for almost 70% of the median procurement amount from the late 1970s to the first half of the 2010s. Therefore, by capturing the procurement details of these 20 companies, we can uncover what kind of equipment (weapons) the JSDF were equipped with at that time.

Figure 2: Central Procurement Results and Top 20 Procurement Amounts (Unit: ¥100 million)

(Figures from the Defense Yearbook and the Self-Defense Forces Equipment Yearbook were used for each year.)



6 See Tsuji [2022].

2. Trends of Prominent Private Companies as Leaders in the Defense Industry: The Case of MHI

This section examines the intentions and goals of companies engaged in the defense industry from the postwar reconstruction period to the period of rapid economic growth. However, it will focus on MHI, which was always at the top of the list in terms of central procurement performance.

(1) Restructuring of business activities under the Corporate Accounting Emergency Measures Act and the Corporate Restructuring and Improvement Act

In November 1945, General Headquarters, the Supreme Commander for the Allied Powers (GHQ) ordered the termination of wartime compensation for companies on the grounds that "it should be known that war is not profitable from an economic standpoint." The Japanese government was eventually forced to accept the order in July of the following year.[7] There was a strong possibility that leading companies would succumb to financial difficulties due to the loss of overseas assets and the deprivation of wartime compensation under the Act on Special Measures Concerning Wartime Compensation. As a remedy for this, the government issued the Act on Emergency Measures for Company Accounting, promulgated in August 1946, which made companies with capital of 200,000 yen or more eligible for special accounting companies if they had the right to claim wartime compensation or had overseas assets. They divided their assets into two accounts: a new account containing assets for business continuity and an old account containing other assets and special taxes and old debts equal to the wartime compensation. The old account was to be shelved to allow the companies to continue their business under the new account. Subsequently, in accordance with the Corporate Restructuring and Improvement Law promulgated in October of the same year, the company was required to submit a restructuring plan. If the extraordinary losses in the old account could be substantially reduced through increased valuation gains or profits, or if the old account could be liquidated at the expense of shareholders or former creditors, the new and old accounts would be merged and business could then continue. Otherwise, the government would have the special accounting company establish a second company, which would invest and increase the capital of the new account assets to continue the business. As of November 1948, there were 5,114 special accounting companies that had to submit development plans under the Corporate Restructuring and Development Law to obtain approval.[8] According to the remaining data, of the 4,695 special accounting companies as of the end of September 1952, 3,637 were still in existence and 1,058 had been dissolved. The special wartime compensation tax (= wartime compensation) was 37.6 billion yen, losses on overseas assets were 8.6 billion yen, total losses including these losses were 91.3 billion yen, total profits from old accounts and other accounts were 41.9 billion yen, and gains from asset valuation due to inflation and other factors amounted to 19.5 billion yen. After subtracting the total profits and valuation gains from the total losses, the extraordinary loss was 29.9 billion yen, which was calculated by subtracting the total profits and valuation gains from the total losses, most of which was borne by shareholders and creditors.[9] Furthermore, in December

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7 See SCAPIN337ESS/FI, "Removal of War Gains and Fiscal Reconstruction" (Ministry of Finance, Financial History Office [1981], pp. 517-519).

8 See Ministry of Finance Fiscal History [1983], p. 753.

9 See Ministry of Finance Fiscal History [1983], p. 903, Table 5-4.

1947, the Law for the Elimination of Excessive Concentration of Economic Power was promulgated, and large companies subject to the law had to first submit a "reorganization plan" for approval before submitting a restructuring and improvement plan. This also delayed the submission of restructuring and improvement plans, and it was not until 1948 that restructuring and improvement plans were submitted.[10] In addition, among the 499 major companies that accounted for 62.5% of the special losses among the above-mentioned special accounting companies, 21 companies in the aircraft and former weapons industries were included. This special tax on wartime compensation was 3.93 billion yen, the highest amount, accounting for 17% of the total 22.47 billion yen, and the amount of extraordinary losses after deducting profits and valuation gains was also the highest (5.2 billion yen) of the total 18.7 billion yen.[11] In this regard, the continuation of the aircraft industry and other businesses entailed great sacrifices. In addition, according to the balance sheet tabulation of the special accounting companies separated into new and old accounts as of August 1946, the distribution of total capital and assets among the major companies in the entire industry (266 companies) was 36% in new accounts and 64% in old accounts, while the ratio of new accounts in the aircraft and old weapons sectors (11 companies) was extremely small (7% for the former and 93 %).[12] This would indicate that it was extremely difficult for the Aircraft and Old Weapons Division to continue with new business in relation to the occupation policy of dismantling the munitions industry.

For instance, MHI, which was the largest munitions company before the war, exemplifies such a restructuring process. When munitions production was banned by General Order No. 1 of the GHQ in September 1945, MHI amended its articles of incorporation at an extraordinary shareholders' meeting in October of the same year, removing weapons-related businesses such as naval vessels, aircraft, and mines from its business objectives and shifting to the peace industry. In addition, the number of operating facilities was reduced to 13: the Nagasaki, Kobe, Shimonoseki, Yokohama, Wakamatsu, and Hiroshima Shipyards & Machinery Works; the Mizushima, Kyoto, Tokyo, Kawasaki, and Ibaraki Machinery Works; the Mihara Car Works; and the Hiroshima Machine Tool Works. From January 1946 onwards, factories were designated for reparations one after another, with only four, including the Nagasaki Shipyard & Machinery Works, escaping designation, but this designation was eventually lifted due to a change in US policy toward Japan. However, due to financial difficulties, the number of employees was reduced to over 40,000 in 1949 as a result of several reorganizations. The plants that had produced aircraft, tanks, and other equipment "made makeshift products at a moment's notice," such as pots, kettles, weighing equipment, farm machinery, and even tractors, trucks, refrigerators, and bicycles.[13] In August 1946, the company was designated as a special accounting company under the Corporate Accounting Emergency Measures Law, and corporate losses resulting from the termination of wartime compensation were recorded in the old account and separated from the new account. However, as a large Zaibatsu-affiliated company, it was designated as a holding company by the Holding Company Consolidation Committee in December 1946, and 68% of its securities had to be transferred to the committee. In February 1948, MHI was declared a company subject to the Law for the Elimination of Excessive Concentration of Economic Power, and it was split up. In April 1946, MHI had already prepared and presented to GHQ a plan to split up the company into three separate companies by industry

10 See Ministry of Finance, Fiscal History, [1983], p. 881.
11 See Ministry of Finance Fiscal History [1983], p. 905, Table 5-5.
12 See Ministry of Finance Fiscal History [1983], pp. 762-773, Table 2-5.
13 See MHI [1967a], p. 19.

(shipbuilding, machinery, and rolling stock), an eight-company plan in August of the same year, and a plan in July 1947 to make all 23 plants independent companies in consideration of the dissolution order of Mitsubishi Shoji. However, as the East-West confrontation became more apparent, the U.S. policy toward Japan began to change, and in April 1948, the plan was changed to a six-company plan. MHI argued strongly to the Deconcentration Review Board, which came in May of the same year, that subdivision was not possible, and in November of the same year, it submitted a restructuring plan to the Holding Company Reorganization Committee with a single, non-divisional company plan. As a result, GHQ eventually ordered a three-company split, and in April 1949, the Holding Company Reorganization Committee issued a directive to decide on a three-company restructuring plan with three regional divisions (Kanto, Chubu, and Seibu) so that the three companies could compete independently in the shipbuilding and other machinery industries. In response, MHI drafted and applied for a restructuring plan under the Corporate Restructuring and Improvement Act, which was approved in November of the same year. In January 1950, Higashinihon Heavy Industries, Ltd. increased its capital to 700 million yen (Yokohama Dockyard, Nanao Dockyard, Tokyo Machinery Works, and Kawasaki Machinery Works), and Nakanihon Heavy Industries, Ltd. increased its capital to 1.3 billion yen (Kobe Shipyard & Machinery Works, Nagoya Works, Mizushima Works, Kyoto Works, and Mihara Railway Vehicles Works), and Nishinihon Heavy Industries also increased its capital to 900 million yen (Nagasaki Shipyard & Machinery Works, Shimonoseki Shipyard & Machinery Works, Hiroshima Shipyard & Machinery Works, Nagasaki Precision Machinery Works, and Hiroshima Precision Machinery Works).[14]

(2) Resumption of military production due to Korean special procurement and "new special procurement"

The outbreak of the Korean War in June 1950 brought special demand to Japanese companies and gave Japanese industry, which had been languishing under the Dodge Line, an opportunity to revive itself. Japan's "machine industry production index doubled from prewar levels between 1951 and 1952, and during this period, Nakanihon Heavy Industries also improved its corporate structure and gained a foothold for future development."[15] Special procurement in US dollar terms amounted to $2.37 billion from 1950 to 1953, and since Japan's exports during the same period were worth $5.23 billion, special procurement contributed approximately 45% of export revenues.[16] In August 1950, the US Far East Command established the Japan Logistics Command (JLC) in Japan, and the special procurement began in earnest. Nakamura [2012] and others have noted that special procurement demand for Korea lasted until July 1951 and that the period after that is distinguished as "new special procurement demand." However, since special procurement demand by the US military exceeded 20 billion yen until the US fiscal year 1954 (July 1953 to June 1954) but declined sharply in the following year; this period is the subject of this study. In 1952, when the production and repair of weapons and aircraft became possible with the permission of GHQ, the U.S. Military Procurement Department in Japan (JPA) placed the first order for mortars with Osaka Kikou, and by June 1957, the value of U.S. military special arms orders was approximately 52 billion yen. Table 2 indicates what

14 The former Mitsubishi Heavy Industries was dissolved in January 1950, and settlement operations were completed in September 1957, with overseas obligations and other unfinished business transferred to Ryoju Corporation (established in March 1957) (see MHI [2014a], p. 21).

15 See MHI [1967a], p. 26.

16 See Nakamura [2012], p. 569, and Asai [2002-2003].

types of weapons are being procured for use or preparation in the Korean War and which companies are responding to them. Of these, firearms and ammunition orders were by far the largest at 45.5 billion yen, and the Keidanren even called it "special demand for ammunition."[17] Eighteen companies, including Komatsu, Kobe Steel, Osaka Metal Industries, Sumitomo Metal Industries, and Asahi Kasei, had established production systems with capital investments totaling more than 4 billion yen by the end of 1954.[18] In some of these cases, facilities and equipment from the former arsenals were disposed of: Komatsu Manufacturing was disposed of by the former Osaka Army Arsenal Hirakata Works, and Osaka Metal Industries was disposed of by the former Army Arsenal Iwami Works and Kokura Army Arsenal.

Table 2: U.S. Military Orders for Weapons (Unit: ¥100million)

U.S. FY	Contract amount	Ordnance	Party receiving or accepting an order
1952	55	Mortars, mortar shells, mortar flares, smoke shells	Osaka Kikou, Osaka Metal Industries, Komatsu Ltd.
1953	207	Shrapnel, mortar shells, recoilless shells, rockets, grenade, bazookas, bayonets, grenade launchers, anti-tank mines, and bullets	Kobe Steel, Komatsu Ltd., Osaka Metal Industries, Daido Steel Co. Nippon Kentetsu, Howa Kogyo, Nippei Sangyo, Nippon Steel Corporation, Sumitomo Metal Industries
1954	228	Mortars, recoilless artillery, bullets, mortar smoke grenades, howitzer smoke grenades, rocket smoke grenades, smoke grenades, grenades, etc.	Howa Industry, Nippon Steel, Asahi Okuma, Toyo Seiki, Komatsu, Nippon Kentetsu, Kobe Steel, Osaka Metal

The U.S. fiscal year is from July of the previous year to June of the current year.

Source: Figures from Keidanren Committee on Defense Production [1964], pp. 77-79.

Following the lifting of the ban on arms production in March 1952 and the decision by MITI in April of the same year to reinstate the use of zaibatsu titles and emblems, the above three companies, which were created by splitting the former Mitsubishi Heavy Industries, changed their articles of incorporation in May and June of the same year, restored Mitsubishi in their company names and renamed them Mitsubishi Nihon Heavy Industries (formerly Higashinihon), Shin Mitsubishi Heavy Industries (formerly Nakanihon), and Mitsubishi Shipbuilding (formerly Nishinihon); furthermore, those companies restored the manufacture and repair of naval vessels and weapons (Mitsubishi Shipbuilding and Mitsubishi Nihon Heavy Industries) and naval vessels, aircraft, and weapons (Shin Mitsubishi Heavy Industries) to its business purposes.

During this period, the U.S. Far East Command also ordered the repair and modification of vehicles and aircraft. First, for vehicles, in the U.S. fiscal year 1954, it ordered the repair and modification of 10 companies, including Fuji Motors, Shin Nihon Aircraft, Victor

17 See Keidanren Committee on Defense Production [1964], p. 14.

18 See Japan Weapons Industries Association [1983], pp. 108, 109 for the amount of U.S. military orders, and Keidanren Committee on Defense Production [1964] and Sawai [2018] for the business offices.

Auto, Bridgestone Tire, Mitsubishi Nihon Heavy Industries, and Hino Diesel. In the area of aircraft, as shown in Table 3, it first ordered overhauls of light liaison aircraft from Showa Aircraft in 1952, followed the next year by orders for P-51 reciprocating fighters and T-6 reciprocating trainer aircraft from Kawasaki Aircraft, B-26 and C-46 aircraft from Shin Mitsubishi Heavy Industries, and ship-based aircraft from Nippon Aircraft. In 1953 and 1954, it ordered the overhaul of F-86 jet fighters and T-33 jet trainer aircraft, and in 1955, a contract was concluded with Nippon Aircraft for the overhaul of the F-86D all-weather fighter and with ShinMaywa Kogyo for the repair of twin-engine aircraft and airships for the US Navy. Those orders led to the domestic manufacture of vehicles and aircraft.[19]

Table 3: U.S. Military Orders for Repair of Aircraft and Related Equipment

(unit: $10,000)

U.S. FY	Contract amount	Model	Party receiving or accepting an order
1953	164	Light liaison aircraft, P-51 reciprocating fighters, T-6 reciprocating trainer aircraft, B-26 light bombers, C-46 transport aircraft, shipboard aircraft	Showa Aircraft, Kawasaki Aircraft, New Mitsubishi Heavy Industries, Nippon Aircraft
1954	559	F-86 jet fighter, T-33 jet trainer	New Mitsubishi Heavy Industries, Kawasaki Aircraft
1955	403	F-86D all-weather fighter, naval twin-engine aircraft and flying boats	Nippon Aircraft, ShinMaywa Industries, Ltd.

The U.S. fiscal year was from July of the previous year to June of the current year. Thereafter, the contract amount gradually increased to $6.27 million in FY1956, $7.33 million in FY1957, and $7.42 million in FY1958.

After June 1953, the contractors for repairing equipment included Tokyo Aviation Keiki, Tokyo Keiki, Japan Radio, Shinko Denki, Japan Aviation Electronics Industry, and Kayaba Industry.

Source: Figures from Keidanren Committee on Defense Production [1964], pp. 86, 87.

Since the former MHI-affiliated companies received large orders here, the section below examines procurement from them and how the companies responded.

First, Higashinihon Heavy Industries (renamed Mitsubishi Nippon Heavy Industries in June 1952) was centered on its shipbuilding division based at Yokohama Dockyard and Nanao Dockyard, but it also had Tokyo Works and Kawasaki Works, which manufactured the Army's main tanks, large buses, and high-speed diesel engines before the war, and during the postwar occupation, it was engaged in rebuilding and repairing vehicles for the occupation forces. This company appears to have been extremely busy when the Korean war broke out. As characteristic examples, it "manufactured bulldozers using its tank production technology early in the postwar period" and increased production of construction machinery, or it partnered with an American export company to assemble the "Henry J" passenger car on a knock-down basis and established the Fuso Motor Sales Company in 1949 to boost its business performance.[20]

Nakanihon Heavy Industries (renamed Shin Mitsubishi Heavy Industries in May 1952)

19 See Keidanren Committee on Defense Production [1964], pp. 76-87.
20 See MHI ed. [1967b], pp. 87-102, and ibid. [2014a], p. 24.

was established with 40% of the facilities and personnel of the former Mitsubishi Heavy Industries. Immediately after its establishment, however, the company fell into the red due to the reconstruction of war-damaged plants and damage from Typhoon Jane, and it closed the Tsu Plant of the Nagoya Works and the Shizuoka Plant of the Mihara Railway Vehicles Works. In its first year of operation, the company's sales by division were 37% shipbuilding, 40% machinery, and 23% automobiles. However, the company developed its own technology and aggressively introduced advanced overseas technology to launch new businesses such as chemical fiber machinery, diesel engines for locomotives, silk spinning machines, steam turbines, and boilers. The company had five offices. The company's five business units were as follows: Kobe Shipyard & Machinery Works, which built and repaired ships; Nagoya Works, which switched from prewar aircraft manufacturing to bus bodies, textile machinery, and scooters; Mizushima Works, which switched from aircraft to small tricycles; Kyoto Works, which switched from aircraft engines to automobile engines and small general-purpose engines; and Mihara Rolling Stock Manufacturing, which manufactured rolling stock. With the outbreak of the Korean War, the company received large orders to manufacture bus bodies and trailers for jeeps for the U.S. military, as well as repair work for trucks and passenger cars. In 1950, the company received an order from the Japan Coast Guard for two patrol boats.[21]

Furthermore, Nishinihon Heavy Industries (renamed Mitsubishi Shipbuilding in May 1952) differed from the other two companies in that it had three shipyards in Nagasaki, Hiroshima, and Shimonoseki, and its shipbuilding business was significantly more important than theirs. Since the company's business was heavily dependent on shipbuilding, the postwar period was heavily affected by developments in the shipping industry, which had lost its military presence. The number of new shipbuilding permits received between 1950 and 1951 doubled from 310,000 tons to 610,000 tons, which can be attributed to the special demand from Korea. Orders not only for newbuildings but also for ship repairs increased, and although the company was in the red in the first half of FY1950, when Nishinihon Heavy Industries was established, it was in the black from the second half, and in the second half of the next fiscal year, orders for boiler and turbine projects for power development were active.[22] Taking these factors into consideration, it is thought that the special demand for Korean War was also a factor for the company.

(3) Full-scale production of fighter aircraft

In 1954, the Japanese Self-Defense Forces (JSDF) were organized, creating a stable domestic demand for defense equipment, which is believed to have formed the foundation for the existence of the defense industry. Although much of the equipment used by the JSDF at the time of its establishment was provided by the U.S. military, it was necessary to update this equipment and to equip it with sufficient performance to accommodate evolving weaponry. In this sense, the defense industry will be required to domestically produce and stably supply equipment that can handle new weapons. Domestic production of defense equipment is considered to be a process to realize, in terms of equipment, a defense capability that can withstand initial attacks quantitatively and qualitatively. The full-scale production of defense equipment is considered to be the stage at which Japan can maintain self-sufficiency in equipment for an adequate defense capability. In this regard, it is necessary to clarify the meaning of "domestic production" when examining whether Japan

[21] See MHIed. [1967a] pp. 24, 25, 41, 88.
[22] See MHI ed. [1967c], pp. 59-68.

can achieve self-sufficiency (i.e., domestic production) in what corresponds to its existing weaponry capabilities. Conventionally, the term "domestically produced" has been employed to include all purely domestic production, licensed domestic production, and international joint development and production.[23] This section will focus on the aircraft field, which required extremely advanced and cutting-edge technology among defense equipment, and will examine MHI's activities during the period from the establishment of the JSDF to the time when its equipment was being prepared under the Defense Force Buildup Program. The Korean War triggered a resurgence in the defense industry and the production of complete weapons, but as we have already discussed, this was an unstable market that mainly consisted of consumables such as guns and ammunition, and the repair and replenishment of equipment. The creation of the JSDF, with its three domains of land, sea, and air, and the need for continuous reinforcement, has established a stable domestic market, and the need to respond to the evolution of weaponry has provided the basis for the development of the defense industry.

Table 4 outlines trends in domestic aircraft production since 1953, when the armistice agreement for the Korean War was signed. Three main examples of the spread of aircraft production in Japan are noted there. The first is the introduction and production of the F-86F jet fighter, the second is the introduction and production of the F-104J jet fighter, and the third is the production of the YS-11 medium transport aircraft. The first two were the introduction of U.S. jet fighters, while the third was aimed at the independent production of commercial aircraft.

Table 4: Development of Aircraft Production at Mitsubishi Heavy Industries

y/m	Related Matters
1952.3	Nakanihon HI received order to overhaul Pratt & Whitney R-2000 Engines ordered by Northwest Airlines.
1953.5	First contract with the U.S. Air Force: repaired Curtiss C-46 transport aircraft and Douglas B-26 light bombers.
1954.2	Shin Mitsubishi HI repairs U.S. F-86F Jet Fighter.
1954.6	**Aircraft Manufacturing Business Law: amended to "coordinate" the disorderly and business activities of small companies.**
1954.7	Shin Mitsubishi HI has entered into a technical tie-up with North American for parts production and repair of the F-86F. A Japan-U.S. inter-agency agreement has been established for the domestic production of the T-33A jet (Keidanren Committee on the Defense Production negotiated directly with the U.S. side to make this happen).
1954	Shin Mitsubishi HI began assembly and repair work on the Defense Agency's S-55 helicopter.
1955.3	Cabinet meeting decided to produce jet aircraft domestically on a Japan-U.S. joint sharing basis → 55.6 Japan-U.S. agreement reached on production of **F-86F** and **T-33A** (by Kawasaki Aircraft).

[23] Study Group on Defense Production and Technology Infrastructure [2012] Final Report of the Study Group on Defense Production and Technology Infrastructure - Toward the Construction of a "Living Strategy"https://www.mod.go.jp/atla/soubiseisaku/soubiseisakuseisan/2406 See houkoku.pdf.

1955.6	The first Japan-U.S. agreement for domestic production of the F-86F was signed between the U.S. Department of Defense and the Japan Defense Agency. Shin Mitsubishi HI became the primary contractor for the F-86 fighter, and the U.S. government provided equipment, etc. for 70 planes at no cost. Kawasaki Aircraft became the primary contractor for the T-33 trainer, but only domestic production of some parts for the first 67/97 planes was completed.
1955.8	The Defense Agency informally announced the production of 70 F-86F jet fighters to Shin Mitsubishi HI → Technical tie-up with North American for complete production. (An inspection and training mission was sent to the U.S. and accepted a technical delegation from North American.) → Assembly of Japan's first jet fighter began in March 1956.
1955.9	Shin Mitsubishi HI delivered the first F-86F. 1955-1957 jet production plan: 300 F-86Fs and 210 T-33As Japan's budget share was 54% each, but the first year was largely dependent on the U.S. → The domestic production rate in 1957 was 48% for the F-86F and 43% for the T-33A.
1956.9	New Mitsubishi HI Nagoya Works completed the first F-86F fighter for the Japan Defense Agency → 1961.2 delivered the final aircraft and produced a cumulative total of 300 aircraft.
1956.10	New Mitsubishi HI spun off the Aircraft Division of Nagoya Works and established Nagoya Aircraft Works.
1956	The **first flight of the T-33A, a jet trainer aircraft** manufactured by Kawasaki Aircraft, was successfully **completed**. (the previous year, Kawasaki had entered into a technical agreement with Lockheed Aircraft Company for the production of the T-33A).
1957.4	The third Japan-U.S. Arrangement for the production of F-86F and T-33A was signed.
1957.5	With the full support of the aerospace industry, the Foundation for Transport Aircraft Design and Research was established, and research into the design of a mid-size transport aircraft was initiated with a subsidy from MITI and financial and technical cooperation from six companies involved in aircraft (Shin Mitsubishi HI, Kawasaki Aircraft, Fuji HI, NIPPI, ShinMaywa Industries, and Showa Aircraft).
1957.9	The National Defense Council decided to domestically produce the P2V-7 anti-submarine patrol aircraft.
1958.1	**The first domestically produced jet trainer aircraft, the T1F2, successfully made its maiden flight at** Fuji HI's Utsunomiya Works**.** The Japanese and U.S. governments signed a joint production arrangement for the domestic production of the P2V-7 anti-submarine patrol aircraft (42 aircraft were to be manufactured by March 1963 at a total cost of 30.7 billion yen (15.1 billion yen for Japan and 15.6 billion yen for the U.S.).
	Primary Defence Buildup Program (1958-60) (54% aircraft in budget)
1958.4	New Mitsubishi HI and United Aircraft Corporation entered into a technical tie-up for the repair and parts production of the F-86F. The National Defense Council Members' Advisory Panel informally offered Grumman's F11-1F, but the proposal was subsequently disputed and the matter was put back on a blank slate to be reconsidered.
1958.5	The Law for the Promotion of the Aircraft Industry was promulgated.
1959.3	The Defense Agency and Kawasaki Aircraft were contracted to produce the P2-v anti-submarine patrol aircraft. Kawasaki began domestic production with ShinMaywa as a production partner, reassembling two aircraft and knocking down production of 12 aircraft, and by March 1963, the delivery of 42 aircraft was completed. However, the number of aircraft produced was small and the rate of domestic production of parts was extremely low.

1959.6	Nihon Aircraft Manufacturing Co.,Ltd. established as a public-private joint venture, succeeding to the projects and research results of the Transport Aircraft Design and Research Association→Promoted domestic production of the YS11 medium-size transport aircraft
1959.11	National Defense Council **decides on Lockheed's F-104J as the next fighter** (F-104C converted for Japanese use), with Shin Mitsubishi HI as the main contractor and Kawasaki Aircraft as a partner company.
1960.1	The Cabinet decided to adopt the F-104J, with 200 aircrafts to be procured at a unit cost of 484 million yen, with the Japanese side sharing 69.8 billion yen and the U.S. side 27 billion yen.
1960.4	The U.S. and Japanese governments formalized an exchange of official documents for the joint U.S.-Japan production of the F-104J.
1960.5	The first flight of the T-1B jet trainer, a purely domestic aircraft, was successful (development of the aircraft began in 1958, and FHI received the order. Shin Mitsubishi, Kawasaki Aircraft, and other companies cooperated in the prototype development. The engine was developed by Japan Jet Engine Co.).
1960.6	The U.S. and Japanese governments signed a detailed agreement for joint production of the F-104J. The main contractors were Shin Mitsubishi HI (airframe) and Ishikawajima-Harima HI (engine).
1960.7	Shin Mitsubishi HI entered into a technical tie-up with Lockheed of the U.S. for the production of the F-104J.
1961.2	All F-86Fs were delivered from Shin Mitsubishi HI. The domestic production rate of the final 300th aircraft was 60%.
1961.3	Shin Mitsubishi HI received an order for 180 F-104J fighters and 20 F-104DJ jet trainers, for a total of 200 aircrafts. 21 F-104J aircrafts were domestically produced starting with the F-104J, and were produced jointly with Kawasaki Aircraft, with Shin Mitsubishi HI responsible for the central fuselage and main wings, and Kawasaki Aircraft for the forward and aft fuselage and tail wing. The aircraft was equipped with domestically produced engines manufactured by Ishikawajima-Harima HI.
1961.7	Shin Mitsubishi HI formed a technical alliance with Lockheed for F-104J production.
1962	Shin Mitsubishi HI repaired the F-102 supersonic jet fighter, the U.S. Air Force's first-line aircraft at the time. With the progress of the Defense Buildup Program, the company mainly repaired Defense Agency aircraft rather than U.S. military aircraft.
	The second Defense Buiup Program (1962-1966) was established.
1962.3	Shin Mitsubishi HI delivered the first unit. Of the first 20 planes, three were reassembled as completed planes, and 17 were assembled with parts, with domestic production beginning with No. 21. (The final aircraft was delivered in December 1967, for a total of 230 aircrafts, with jet engines manufactured in Japan by Ishikawajima-Harima HI starting with the No. 21 aircraft).
1962.8	The first prototype **YS-11 twin-engine turboprop medium transport** aircraft successfully made its first flight (discontinued in 1973).
1963.9	The first MU-2 twin-engine turboprop multi-purpose aircraft, "a small multi-purpose aircraft developed completely on its own" by Shin Mitsubishi HI since the fall of 1959, successfully made its first flight.
1964.6	**New Mitsubishi HI is renamed MHI and becomes the surviving company; Mitsubishi Nippon HI and Mitsubishi Shipbuilding are dissolved.**
1965	MHI completed production of 200 F-104J aircrafts.

1966	Kawasaki Aircraft successfully completed the first flight of the P2V-Kai (P-2J) anti-submarine patrol aircraft.
	Thrid Defense Buildup Program(FY1967-71) 1966.11National Defense Council determined outline of Third Defense Buildup Program (1967.3 Cabinet determined major items)
1967.2	MHI was named the prime contractor for the development of the domestically produced T-X supersonic advanced trainer aircraft. In the same year, production of an additional 30 F-104J aircrafts was completed (total of 230 aircrafts produced).
1967.7	MHI Nagoya Aircraft Works took delivery of the first MU-2 Liaison Reconnaissance Aircraft (LR-1) for the Defense Agency (last aircraft delivered in 1987.1, total 762 aircrafts).
1968.11	Japan Defense Agency **Selects McDonnell Douglas F-4EJ to Replace F-104J** MHI was named the prime contractor and signed a license agreement.
1969.1	The National Defense Council decided on a basic policy of producing 104 F-4EJs under license by the end of FY1977. The main contractor was MHI, with Kawasaki HI as a partner, and the engines were to be manufactured by Ishikawajima-Harima Heavy Industries.
1971.1	MHI **successfully completed the first flight of the XT-2 supersonic advanced training plane** (T-2 from 1974) and delivered it to the Japan Defense Agency in the same year. In the same year, mass production of the F-4EJ fighter began.
	Fourth Defense Buildup Program (FY1972-76; Cabinet approved changes to major items in the Program in December 1975)
1972.10	At the National Defense Council meeting, the PXL and AEW anti-submarine patrol aircraft were returned to the drawing board for domestic production (Kawasaki HI had already been commissioned to conduct a technical study on domestic production in FY1971).
1972.10	Nagoya Aircraft Manufacturing Komaki-Kita Plant was completed, and an assembly plant for JT8D jet engines and liquid rocket engines for C-1 transport aircraft and a test cell for engines for JT8D and other large aircraft were constructed.
1976.7	Former Prime Minister Tanaka arrested in the Lockheed case (Bribery for selling Lockheed's Tristar. However, the next anti-submarine patrol aircraft was determined to be Lockheed's P3C as opposed to being domestically produced).
	(1976.10 51The Cabinet approved the National Defense Buildup Program Outline)
1977.1	Defense Agency **selects F-15J/DJ as successor to F-104J; MHI** becomes **prime contractor** and licenses it to McDonnell Douglas, 1978.6. National Defense Council officially decides to adopt the P-3C as the next anti-submarine patrol aircraft.
1978	Contracted with Boeing Co. to jointly develop Japan's first commercial transport aircraft, the Boeing 767. In charge of manufacturing the rear fuselage; first aircraft shipped in 1980; 1,000 aircraft shipped in 2010.
1979.1	**Douglas Grumman case: Hachiro Kaifu, vice president of Nissho Iwai Corporation, bribed and sold Grumman's E-2C early warning aircraft to Japanese government officials, 1979.9 FMS procurement decision.**
1987.10	The Japanese and U.S. governments have hastily decided to jointly develop the **FS-X next-generation support fighter** based on the U.S. General Dynamics **F-16**.

1988.1	MHI was selected as the main contractor for the next-generation support fighter, while General Dynamics (which later sold its military aircraft business to Lockheed Martin), Kawasaki HI, and Fuji HI were selected as partner companies (MHI had begun research and prototype development of a carbon fiber composite main wing with the Defense Agency's Technical Research and Development Institute in 1981, based on the assumption that the next-generation support fighter would be developed in Japan). (MHI had begun research and prototype development of a carbon fiber composite wing for the next-generation support fighter in Japan).
1989.11	**Delivered the first F-4EJ modified fighter for** the Japan Defense Agency (last aircraft delivered in March 1999; cumulative total of 89 aircrafts).
1995	The first flight of the FS-X (**F-2**) was successful. Continued improvements were made thereafter. **(1995.11 07 Defense Program Guidlines approved by Cabinet)**
1996	Fighter developed as the next-generation FS-X support fighter was formally adopted as the F-2. Officially deployed in 2000.
2003.9	MHI has officially decided to be in charge of the wing of Boeing's next-generation 7E7 (787) aircraft. **(2004.12 16 Cabinet Approval of the National Defense Program Outline)** **(2010.12 22 Cabinet Approval of the National Defense Program Outline)**
2011.1	Government decides to adopt the F-35A as FX's next mainstay fighter (final assembly and inspection also started at MHI's Nagoya Aerospace Systems Works on 2015.12).

・Mainly only the aircraft production in which the new and merged Mitsubishi Heavy Industries (MHI) was involved is covered. It also includes a few unconfirmed items in the description of the schedule.

Sources: Keidanren Committee on Defense Production [1964], Kondo and Osanai [1978], MHI [1967a], MHI [2014a], MHI [2014b], etc.

Shin Mitsubishi Heavy Industries, which frequently appears in Table 4, was the company that had the highest potential in the aero-engineering field among the three former Mitsubishi Heavy Industries companies and had positioned aircraft as its business objective. After the GHQ memorandum lifting the ban on weapons manufacturing, including aircraft production, was issued in 1952, the articles of incorporation were amended at the general shareholders' meeting in May of the same year to add the manufacture, sale, and repair of naval vessels, aircraft, and weapons to the company's business objectives. In August, in accordance with the Aircraft Manufacturing Law enacted in July (amended to the Aircraft Manufacturing Business Law in September 1954), an Aircraft Business Committee was established at the Shin MHI Head Office when the Temporary Aircraft Plant Construction Department was established at the Nagoya Works, and construction of an aircraft plant (Komaki Plant) began on a site adjacent to Komaki Airfield, and an aircraft engine Aero Engine Repair Plant was also established in the Daiko Plant of Nagoya Works. In 1953, the company established an Aircraft Department in the Nagoya Works, and in 1952-1959, the company made a capital investment of 3.8 billion yen for the aircraft business, and Nagoya Aircraft Works was spun off as a separate company in 1956. On the management side, this Works established its management base with the production of the F-86F jet fighter and began to post profits from around 1961-62,

when it started producing the F-104J and YS-11.[24]

First, with the introduction of the F-86F, repair work by the Shin Mitsubishi Heavy Industries began in 1954. As Table 4 shows, U.S. military personnel were quick to pay attention to MHI's Nagoya Works and ordered overhauls of aircraft engines and repairs to the fuselage. This aircraft had served in the Korean War and was introduced to Japan as its first major postwar fighter. During the same year, Shin Mitsubishi Heavy Industries concluded a technical agreement with North American, the manufacturer, regarding parts production and repairs.

The agreement was signed between the U.S. and Japanese governments for the production of the F-86F and the T-33A (awarded by Kawasaki Aircraft) between 1955 and 1957, and over a three-year period, the domestic production rate of parts and other items was increased to 48% for the F-86F and 43% for the T-33A. Both the 300 F-86Fs and 210 T-33As were planned to be borne 54% by Japan (22.6 billion yen for the F-86F and 8 billion yen for the T-33A) and 46% by the U.S. (19.3 billion yen for the F-86F and 6.7 billion yen for the T-33A), which means that they were still dependent on the U.S. for a significant amount.[25] In August 1955, Shin Mitsubishi Heavy Industries concluded a technical agreement with North American for complete manufacturing, dispatched engineers to the U.S. to inspect the manufacturing process, accepted a technical delegation from North American to prepare for the project, and delivered completed aircraft to the Japanese Defense Agency starting in September of the same year.

This was followed by the introduction of the F-104J, a supersonic aircraft that heralded the arrival of a new era in the aircraft industry.[26] In 1959, the National Defense Council selected the F-104J as the next fighter, with Shin Mitsubishi Heavy Industries as the main contractor and Kawasaki Aircraft as the subcontractor. The following year, at a cabinet meeting, the two governments exchanged official letters of intent, specifying that the number of aircraft to be procured would be 200, with Japan sharing 69.8 billion yen and the U.S. 27 billion yen, and that, similar to the F-86F, the aircraft would be jointly produced by the U.S. and Japan. After the intergovernmental agreement, a technical cooperation agreement was concluded with Lockheed, the manufacturer. The actual assembly of the first 20 aircraft began in 1962, with the first three being reassembled as completed aircraft, the remaining 17 being assembled from parts, and the 21st aircraft to be domestically produced, with production shared with Kawasaki Aircraft Industries. Kawasaki was in charge of the front fuselage, rear fuselage, and tail wing. The jet engine was also domestically produced by Ishikawajima-Harima Heavy Industries starting from No. 21.[27]

In both of the above two cases, Shin Mitsubishi Heavy Industries was the main contractor for the introduction of fighter aircraft from U.S. airlines as Self-Defense Forces aircraft. The company with experience in repairing the same type of aircraft for the U.S. military was selected as the main contractor after the introduction agreement and joint production decision by the two governments and then began production through technical cooperation with the manufacturer. The actual production method was a carefully planned licensed production method, whereby aircraft completed in the U.S. were first disassembled and

24 See MHI [1967a] pp. 140, 221, 481, 558.

25 See Keidanren Committee on Defense Production [1967], p. 127.

26 According to Fujiwara [1987], p. 86, as the U.S. military entered the missile age and refrained from purchasing fighter aircraft, U.S. fighter aircraft manufacturers were frantically trying to sell their products to Japan, and the so-called "Grumman Riot" also occurred.

27 See MHI[1967a], pp. 483-486.

brought to Japan for reassembly, assembled from U.S.-made parts, and finally assembled from the next stage, using a certain amount of licensed Japanese parts. In 1968, the McDonnell Douglas F-4EJ fighter jet was selected as the successor to the F-86J, and Mitsubishi Heavy Industries was the primary contractor, delivering 140 aircraft from 1971 to 1981.[28]

The third case of the YS-11 is a famous example of domestic production. This aircraft was developed as a twin-engine turboprop medium-sized transport aircraft, and the first prototype successfully made its maiden flight in 1962. The company that developed this aircraft was Japan Aircraft Manufacturing Corporation (established in 1959), a joint venture between the public and private sectors, but as already mentioned, its starting point was the Transport Aircraft Design and Research Foundation, which was established in 1957 with the full support of the aviation industry. The Keidanren Committee on Defense Production called for national measures to foster the aircraft industry for homeland defense, transportation, and as an export industry, as was the case in other developed countries (see Table 3 for 1957 and 1958 requests). As this was the first independent development of aircraft after the war, six companies involved in the aircraft industry, including Shin Mitsubishi Heavy Industries, Kawasaki Aircraft, Fuji Heavy Industries, NIPPI, ShinMaywa Kogyo, and Showa Aircraft, cooperated in providing funds and technology, including the designers of the "Zero-sen," "Hayabusa," and "Shiden Kai." The aircraft's fuselage was manufactured by Nippi for the auxiliary wings and flaps, Kawasaki Aircraft for the main wings and nacelles, Shin Mitsubishi Heavy Industries for the front and middle fuselages and overall assembly, ShinMaywa (which changed its name in 1960) for the rear fuselage, Showa Aircraft for the honeycomb structure, and Fuji Heavy Industries for the tail wing. However, most of the engines and electronics had to be imported. Nevertheless, the fact that the original design was put to practical use in less than five years of development must have been a source of immense confidence for the participating companies.

In addition to fighter aircraft, there have been strong demands for the domestic production of trainer aircraft to cope with the jet age and anti-submarine patrol aircraft to respond to the development and threat of submarines. The Keidanren Committee on Defense Production requested the domestic production of trainer aircraft as well as fighter aircraft immediately after the establishment of the Air Self-Defense Force, and the Defense Agency also aimed for the domestic production (firstly, licensed production) of economical and superior jet intermediate trainer aircraft. In February 1955, the Defense Agency requested cooperation from Shin Mitsubishi Heavy Industries, Kawasaki Aircraft, Fuji Heavy Industries, and ShinMaywa Industries for the development of a trainer aircraft. The following year, Fuji Heavy Industries, ShinMaywa, and Kawasaki submitted basic design plans, and Shinmaywa's plan was highly evaluated; as a result, a prototype was ordered. In 1957, the company completed the T1F2, a domestically produced jet trainer plane using engines from Bristol of England, at Fuji Heavy Industries' Utsunomiya Works, and the first flight was successfully completed in January 1958. This model was renamed T-1B with domestic engines from Ishikawajima Harima Heavy Industries starting with the 21st model, and a total of 66 aircraft were delivered.[29] As for anti-submarine patrol aircraft, it was determined at the 1957 National Defense Conference to domestically produce the Lockheed P2V-7, and in 1959, the Defense Agency contracted with Kawasaki Aircraft Industries, Ltd. to begin licensed production. However, as already noted, the Defense Conference of 1972 resulted in a blank piece of paper, and confusion ensued.

The case of the government's sudden decision in 1987 to jointly develop a Japan-U.S. aircraft based on the U.S. General Dynamics F-16 over the development of the FS-X next-

[28] See MHI [2014b], p. 246.
[29] See Fuji Heavy Industries [1984], p. 90.

generation support fighter is somewhat different from the conventional trend of MHI to produce fighter aircraft under license from U.S. companies. Regarding the development of the next-generation support fighter, MHI had taken the lead in initiating the development of the domestically produced F-2A/B as a successor to the domestically produced F-1 support fighter. However, due to the trade friction between Japan and the U.S. at the time, this was changed to a Japan-U.S. joint development project based on the F-16. The process of reaching a manufacturing contract was quite difficult due to these circumstances, but it was finalized as a licensing technical assistance agreement, and a design team for the next support fighter was formed with MHI as the main contractor, General Dynamics (later to become Lockheed Martin) as the US partner, and Kawasaki Heavy Industries and Fuji Heavy Industries as Japanese partners. The F-2 was born, using composite materials researched in Japan to reduce the weight of the fuselage.[30]

Furthermore, for the introduction of the F-35, which was selected in 2011 as the successor to the Air Self-Defense Force's F-4EJ, the company was awarded the FMS contract and will purchase the aircraft from Lockheed Martin. The final assembly and functional testing were to be performed by MHI, but the cost to the nation's finances will be significant, at around 11 billion yen per aircraft.[31]

(4) Trends in the production of guided weapons

As a guided missile that captures and shoots down targets by radar, the Nike was developed in 1953 as a surface-to-air missile to intercept high-altitude bombers. The Hawk was developed in 1954 as a surface-to-air missile to shoot down low-altitude intruders. The Nike Ajax (with a non-nuclear warhead) was deployed in Japan in 1963, followed by the Hawk in 1965. As indicated in Table 5, their introduction was considered early on by the Defense Agency and the Keidanren Defense Production Committee (renamed Committee on Defense Industry in 2015), and interest was high from the outset. Interest in the domestic production of these expensive and destructive missiles was also high at the corporate level, and from around 1955, Shin Mitsubishi Heavy Industries (renamed from Nakanihon Heavy Industries in 1952, which became MHI in 1964 through a merger) was engaged in the development of surface-to-air guided missiles (SAMs) in accordance with the research and development policy of the Defense Agency and was in charge of the development of SAMs and their accessories in general. From 1961, MHI was also engaged in research and development regarding an air-to-air guided missile (AAM). In doing so, MHI also collaborated with NEC for the infrared homing device and NIHON Yushi for the solid-fuel rocket.[32]

Table 5: Guided Missile Production in Japan

Y/m	Related Matters
1953.9	Fourteen companies including Toshiba, NEC, Hokushin Electric, Hitachi, and Shin Mitsubishi HI established a guided missile subcommittee within the Keidanren Defense Production Committee. 11. GM (guided Missile) was reorganized as a Roundtable Meeting.

30 See MHI [2014b], p. 246.
31 See MHI [2014b], p. 248.
32 See MHI [1967a], pp. 493-494.

1954.1	Guided Missile Research Committee established within the Defense Agency.
1958.6	Proposal to establish Keidanren Defense Production Committee and Defense Industry Study Group; Keidanren Defense Production Committee and Japan Weapons Industry Association, Aircraft Industry Association, and GM Council formed.
1963.1	The Ground Self-Defense Force deployed surface-to-air guided missile Nikes (non-nuclear warhead type) to the 1st Nike Battalion in the Tokyo area as U. S.-provided equipment in the second phase of defense.
1964.5	The GM Council was reorganized and the Japan Rocket Development Council was established.
1965.3	The Ground Self-Defense Force deployed a battalion of Hawk surface-to-air missiles at Chitose for the purpose of intercepting low-altitude intruder aircraft.
1966.3	Air Self-Defense Force organized the 2nd Nike Battalion.
1967.10	Foreign Minister Miki and U.S. Ambassador to Japan Osborn exchange a "U. S.-Japan Memorandum of Understanding for the Acquisition of Nike Hawk" under the U.S.-Japan Mutual Defense Assistance Agreement.
1968.3	Government approves "Technical Collaboration Agreement for Design and Manufacturing of Nike Hercules Missile"between MHI and McDonnell Douglas, and "Technical Collaboration Agreement for Manufacturing of Hawk System" between Mitsubishi Electric Corporation and Raytheon Company of the U.S. → Nike and Hawk are now domestically produced.
1968	MHI and others developed the AAM-1 air-to-air missile and began mass production for use aboard the F-104J.
1970.3	Nagoya Aircraft Works took delivery of the first domestically produced Nike J surface-to-air guided missile for the Defense Agency. In the same year, development of the air-to-air guided missile (AAM-2) proceeded at the Oe Works of Nagoya Aircraft Manufacturing Co.
1970-71	The Air Self-Defense Force deployed the Nike Battalion to Chitose and Naganuma as the 3rd Anti-aircraft Group under the 3rd Defense Buildup Program.
1972	Raytheon and Mitsubishi Electric began domestic production of the air-to-air missile, Sparrow III (AIM-7E), through a technical tie-up between the two companies.
1973	The U.S. approved the export of the **AIM-4D** "Falcon" to Japan. The Air Self-Defense Force suddenly decided to introduce the same missile → **Development of the AAM-2** under development at MHI was cancelled. At the end of the same year, development of the Type 80 **Air-to-Ship** Guided **Missile** (**ASM-1)** for the JASDF began (a high-performance missile that hits its target by active radar guidance when it gets close to the target).

1977.2	The third launch of the N-1 rocket was successful. Kiku-2 became Japan's first geostationary satellite. Five of the eight Hawk units of the Japan Ground Self-Defense Force began converting to the improved Hawk, which has twice the capability of the basic Hawk.
1979	The development team for the Type 88 **Surface-to-Ship** Guided **Missile (SSM-1)** for the Japan Ground Self-Defense Force (main contractor: MHI; development cooperation: Kawasaki HI, Fuji HI, etc.) began research and prototype production; technical testing was completed in 1986, and after practical testing in the United States in 1987, the weapon was formally adopted and deployed in 1988.
1981.2	The first launch of the National Space Development Agency of Japan's N-II rocket (the largest domestically produced rocket) was successful.
1982	MHI began licensed production of the U.S. AIM-9L → 1986 saw the development of its successor, the Type 90 air-to-air guided missile (AAM-3), a purely domestic missile, was started. 1990 saw its formalization and mass production.
1983	A missile assembly plant was built at the Komaki North Plant to serve as a production base for engines and missiles for Nagoya Aircraft Manufacturing Co.
1988	MHI formalized the Type 88 surface-to-ship guided missile (SSM-1) as the first step in the development and conversion of the ASM-1 and began mass production → Delivered the first model in 1990 and deployed in SSM regiments nationwide → Began mass production of the SSM-1 successor, the Type 12 surface-to-ship missile (12SSM), in FY2012.
1989.7	Nagoya Guidance & Propulsion Systems Works was established by separating and spinning off the Komaki-Kita Plant of Nagoya Aircraft Works. Nagoya Aircraft Works was renamed Aerospace Systems Works. Delivered the first mass-produced surface-to-air guided missile, the Petriot, to the Japan Defense Agency.
1990.12	Delivered the first Type 88 surface-to-ship guided missile (SSM-1) for the Japan Defense Agency (→ final delivery in 2014.1)
1992.11	MHI manufactured the Type 90 ship-to-ship guided missile (**SSM-1B**) as a successor to the Harpoon based on the SSM-1 (design: Technical Research and Development Institute, MHI), and delivered the first model. In the same way, the Type 91 **Air-to-Ship Guided Missile (ASM-1C**) was manufactured (design: Technical Research and Development Institute, MHI) for use on P-3C fixed-wing patrol aircraft in 1994.3, and the first unit was delivered.
1993.3	Japan's first Aegis ship "Kongo" (7,200 displacement tons) was delivered to the Defense Agency.

2003	Government decides to introduce ballistic missile defense (BMD) systems → Air Self-Defense Force begins procurement of surface-to-air guided missiles, Petriot PAC-3; Maritime Self-Defense Force begins procurement of SM-3 for Aegis ships.
2004	The Air Self-Defense Force began procurement of PAC-3 (surface-to-air guided missile Petriot. Procurement of PAC-3 began licensed production in Japan) . The Maritime Self-Defense Force began procurement of SM-3 Block IA missiles for Aegis ships. The Japanese government made exceptions to the Three Principles on Arms Exports for projects related to ballistic missile defense systems.
2009.2	MHI took delivery of the first PAC-3 for the Ministry of Defense.
2012	The surface-to-ship guided missile (SSM-1(Kai)/12SSM, mass production started by MHI), the successor to the SSM-1, has a longer range than the SSM-1 and improved hit accuracy due to its data lin0k function with ground equipment.

Sources: MHI [1967a], [1967b], [1967c], [2014a], [2014b], *Equipment Yearbook* [1982], [1985], *Defense Yearbook* [1976], [2022], etc.

In October 1967, based on the MDA Agreement, Foreign Minister Miki and Ambassador Osborn exchanged a "Memorandum of Understanding between Japan and the United States for the Acquisition of the Nike and Hawk," and in 1968, the Japanese government authorized MHI and McDonnell Douglas & Company to enter into a "technical cooperation agreement between MHI and McDonnell Douglas for the design and manufacture of the Nike Hercules missile (an improved version of the Nike)" in 1968. In addition, the Japanese government approved a technical cooperation agreement between Mitsubishi Electric and Raytheon Company of the U.S. for the production of the Hawk system. The Japanese government also approved a technical tie-up agreement between Mitsubishi Electric and Raytheon Company for the production of the Hawk system. After the Third Defense Buildup Program (FY1967-71), domestic production began to be used, with Mitsubishi Electric in charge of guided missile launchers and Toshiba in charge of pulse acquisition radars, etc.[33] As for Nike, MHI was the prime contractor in charge of domestic production, and in a technical alliance with McDonnell Douglas, NEC was responsible for the guidance section, Asahi Kasei and Nippon Oil & Fat for propellant, and Daicel for warheads; additionally, ground equipment such as radar was dependent on imports from the United States.[34] As a result of such domestic production, MHI's Nagoya Aircraft Works took delivery of the first domestically produced Nike J (4.5 tons in weight, 130 km range) for the Defense Agency in 1970.[35]

As described above, the development and production of the Nike and Hawk were also initially provided by the U.S., and eventually, as with fighter aircraft, were replaced by domestic production through technical tie-ups with U.S. companies and licensed production. The Type 80 Air-to-Ship Guided Missile (ASM-1) for the Air Self-Defense Force, which began development in 1973, exemplifies such a case. This missile was to be the primary weapon for the F-1 support fighter, which was under development in parallel. It was being developed primarily by MHI, based on a design by the Defense Agency's

[33] See *Equipment Yearbook* [1982], p. 52.
[34] See *Equipment Yearbook* [1982], p. 369, and *Defense Yearbook* [1985], p. 540.
[35] See MHI [2014b], p. 427.

Technical Research and Development Institute, with the cooperation of engineers from Kawasaki Heavy Industries and Fuji Heavy Industries. On the other hand, the development of a similar anti-ship guided missile, the Harpoon (range 90 km), had been underway since 1971 for the U.S. Navy with McDonnell Douglas Astronautics as the prime contractor. The Maritime Self Defense Forcehad had already decided to introduce it under an FMS contract from the United States. The original development in Japan tended to be expensive due to the large cost burden on the company and the limited market, and there was a possibility that the Air Self-Defense Force would switch to Harpoon. Therefore, while pursuing thorough cost reduction and high performance, they produced it with considerations regarding versatility and future potential for conversion to surface-to-ship and ship-to-ship applications, and as a result, "eventually succeeded in significantly reducing mass production costs compared to the 'Harpoon'" and was deployed in the F-1 support fighter from 1980 as planned.[36] The development and conversion of the ASM-1 was designed by the Defense Agency's Technical Research and Development Institute and produced by MHI, and the first step, the Type 88 surface-to-ship guided missile(SSM-1), was formalized in 1988 and started mass production. The first model was delivered in 1990 and deployed in SSM regiments of the Japan Ground Self-Defense Force nationwide. The Type 90 ship-to-ship guided missile (SSM-1B) based on the SSM-1, the Type 91 air-to-ship guided missile (ASM-1C) for P-3C fixed-wing patrol aircraft, and the Type 12 surface-to-ship missile (12SSM, 200 km range), the successor to the SSM-1, have also been in mass production since 2012. As technological improvements have progressed, the Type 12 guided missile has a longer range than the SSM-1, and its accuracy has further improved due to data links with ground equipment.[37]

Conclusion

At the outset, I noted that Japan's defense policy will soon undergo a major change, and I described the significance of clarifying the current state of achievement by reviewing the trajectory of Japan's defense policy and defense industry since the end of World War II. I aimed to examine this particularly from the perspective of the history of the defense industry. As criteria for judging the "right of self-defense" and "dexclusively defense-oriented policy," it is important to consider what kind of weapons Japan retains and what type of diplomatic relations it has established, along with its policy philosophy.

Therefore, we first examined the bearers of the defense industry. Focusing on the top 20 companies in central procurement announced by the Ministry of Defense, we confirmed that the leading companies in heavy industry and telecommunications, led by Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Mitsubishi Electric, NEC, Fujitsu, and Toshiba, are almost consistently at the top of the list. However, we also found that over the past 40-plus years, electronic equipment and information and telecommunications companies have gradually been ranked higher. In the 1970s, aircraft accounted for about 40% of procurement by item, and the territorial defense capability by aircraft increased. In the 1990s, the percentage of guided weapons, communications, electro-acoustic equipment, radio surveillance systems (radar and communication networks), and electronic equipment increased. The development and performance of guided weapons has improved remarkably

[36] See MHI [2014a], p. 384.
[37] See MHI [2014a], p. 387, and ibid. [2014b], pp. 253-254.

worldwide, and competition for such powerful weapons is developing, and in this regard, the performance of electronic equipment, communications equipment, communications satellites, radar, etc., is a major factor, making this a business opportunity for companies in these industrial areas.

In addition, when central procurement results are examined by contract type, domestic procurement accounted for 90% of all procurement around 1970. This is considered to be the"domestic production" of arms, but when technology transfers such as licensed production are taken into consideration, it cannot be regarded as domestic production in a self-sustaining sense only in terms of the numerical ratios. Furthermore, the recent increase in paid-for assistance (FMS), as represented by high-tech fighter aircraft, and the rise in general imports do not necessarily mean that independent domestic production of arms is progressing. Rather, it should be regarded as a deepening of U.S. dependence in high-tech arms. Of course, as we have already noted, a state of potential competition with U.S. firms has arisen, as evidenced by the relatively short-range guided missiles, and it should be considered that there is some technological catch-up to be made. Furthermore, it would be necessary to examine the possibility that the recent increase in the defense budget has been linked to an increase in licensed production of arms and FMS contracts.

It should be noted that many of the leading companies in the top 20 survived the postwar corporate restructuring process and took advantage of the growth opportunities presented by the Korean War and the resumption of arms production. Komatsu Ltd., Daikin Industries (Osaka Metal Industries), and ShinMaywa Industries are representative examples of companies that took advantage of this period to make a leap forward. This paper focuses on special procurement demands, the establishment of the JSDF, and MHI's business development during the process of defense force enhancement. The special procurement demands and the establishment of the JSDF provided an unparalleled business opportunity for Japanese heavy industry in the postwar reconstruction process. The formation, expansion, and sustained demand for the domestic market for weapons resulting from the creation of the JSDF is not a small market for companies in this area. However, the ban on munitions production and aircraft production, the disappearance of wartime compensation, and the forced corporate divestitures caused management difficulties and technological delays, and even if they were able to enjoy the special demand, the technological gap was not easily filled. The paper is limited to the aircraft sector and guided missiles, and because it is limited to MHI, it is far from a complete picture of the defense industry and only examines a narrow range of business development; however, it is possible to identify some characteristic business development methods. During this period, Shin Mitsubishi Heavy Industries (later MHI) was in charge of producing two types of jet fighters as the prime contractor, but both were produced under license, and their business development process was as follows: repair and inspection of weapons → intergovernmental agreement (Japan-U.S. joint production) → selection of Japanese prime contractor company → technical tie-up between Japanese company and U.S. manufacturer → reassembly in Japan of finished products assembled by the U.S. manufacturer → knockdown production of manufacturer's produced parts →licensed production using some parts manufactured by the Japanese company. As for guided weapons, while Japan's own research and development was underway, licensed production of U.S.-made missiles, as seen in the Nike J, was conducted, and so-called domestic production was promoted. Through such licensed production, Japan acquired the latest technology, but in many cases, specific parts were supplied by the manufacturer without being disclosed, and not all parts could be replaced

by those made in house. When the rate of domestic production is indicated, it is the ratio of parts and equipment in monetary terms; thus, it does not necessarily reflect independence in terms of technology, contracts, etc. On the other hand, however, sustained contracts allow production facilities to be set up, parts production and assembly operations to be repeated, and technological mastery to be achieved. Given that MHI became the main contractor for the F-104J and then the F-4EJ after the F-86F, it is believed that the company was able to accept the order based on its well-equipped facilities and proficiency in fighter aircraft manufacturing.

In the area of guided weapons production, we have highlighted the case of Nike J acquiring technology through licensed production, and the case of MHI, etc., seizing the opportunity of domestic production using Japan's own technology and capturing the market while creating a potentially competitive situation with U.S. firms. These and other examples suggest that the Japanese defense industry has reached a point where it can catch up with and even compete with leading U.S. firms.

It is necessary to consider another reason why MHI has been able to remain such a leader in the defense industry. Tetsuya Senga, secretary of the deliberative office of the Keidanren Committee on Defense Production and later executive director of Keidanren, stated the following: "It is difficult to be a prime contractor in the defense industry unless a company is able to make capital investments with its own funds. Technological accumulation is also necessary, of course. As a result, the prime contractor in the defense industry was decided mainly by large companies."[38] In the case of MHI, it is indeed a large company with strength in terms of capital size, business development areas, and technological capabilities, as noted. Furthermore, in the case of defense equipment, there are many confidential matters, so even if the bidding process is open to general competitive bidding, participation qualifications may be limited, and in the end, it is highly likely that the number of contractors will be limited.

Furthermore, in the case of defense equipment, the order is placed only with the Defense Agency (now the MOD), and even if MHI were to win an order, there would be concerns about the scale of the order in terms of profitability. Even in the case of MHI's aircraft manufacturing division at that time, profitability was enhanced by applying the technology acquired through aircraft production to civilian products, such as small gas turbine generators, ships, and construction equipment, and hydraulic equipment to various industrial machines and vehicles. In addition, the arms manufacturing division was a small part of MHI's overall management; thus, while it may have been able to withstand fluctuations in orders, its position in the overall management of the company will have to wait for another day.

As mentioned above, there are many issues that remain to be addressed. These include whether the performance of recent fighter aircraft and guided weapons (missiles, etc.), which are becoming increasingly important as defense equipment, can remain within the framework of "dexclusively defense-oriented policy," verification of the recent increase in paid aid and licensed production of weapons consisting of high-tech technologies, expansion of the companies to be examined, and the ideal state of the Peace Constitution and Japan's defense policy. The Peace Constitution and Japan's defense policy are all important issues to be considered. These are also issues that should be considered in the future.

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38 See Kondo and Osanai [1978], p. 265.

Document List

Asagumo Shimbun [2022] (view) *Bouei Handbook downroad* (*Nihon no Bouei Keikaku*). https://www.asagumo-news.com/hbdl/bouei/bouei-menu.html

Asagumo Newspaper Editorial Bureau [each year], *Jieitai Soubi Nenkan*, Asagumo Newspaper (abbreviated as *Soubi Nenkan* [...])

Ryo Ikeuchi, Miho Aoi, and Koji Sugihara [2017], *Boukoku no Bukiyushutsu: Bouei Iten Sangensoku ha Nani wo motarasuka?,* Godo Syuppan

Financial History Office, Ministry of Finance [1981], *Showa Zaiseishi: Shusen kara Kouwa made, Vol. 17, Document (1)*, Toyo Keizai Shinposha, Inc.

Financial History Office, Ministry of Finance [1983], S*howa Zaiseishi: Shusen kara Kouwa made, Vol. 13*, Toyo Keizai Shinposha, Inc.

Akira Ohashi and Satoru Nakamoto [2023] *Gendai Amerika Keizairon: Atarashii Dokusen no Hirogari*, Nippon Hyoronsha,

Koshiro Okakura [1962] *Shi no Shounin* [revised edition], Iwanami Shoten,

Hiroshi Okumura [1981] *Mitsubishi: Nihon wo ugokasu Kigyoshudan*, Diamond Inc.

Ministry of Foreign Affairs of Japan [2017] *Nihon Gaiko Bunsho: Senryoki, vol. 2* Rokuichi Shobo

Takao Kamakura [1981] *Nihon no Gunjika to Heikisangyo*, Nihon Shakaito Chuohombu

Masao Kihara [1994] *Nihon no Gunji Sangyo* Shin Nihon Shuppansha

Keidanren Bouei Seisan Iinkai (Defense Production Committee) [1964] *"Bouei Seisan Iinkai 10-nen shi*" Keidanren Bouei Seisan Iinkai

Atsushi Kouketsu [2020] *Omoi Tobira no Mukoni: Rekishiwakai to Senzenkaiki no Soukoku*, Ryokufu Shuppan

Kanichi Kondo, Hiroshi Osanai,the Economist editors [1978] *Sengo Sangyoshi heno Syogen: Enerugi Kakumei Boueiseisan no Kiseki*, Mainichi Shimbun Company

Haruhito Takeda [2019] *Nihon Keizai Shi*, Yuhikaku

Kazuo Tomiyama [1979] *Nihon no Bouei Sangyo,* Toyo Keizai Shinposha

Shingo Nakajima [2006] S*engo Nihon no Bouei Seisaku –'Yoshida Line' wo meguru Seiji, Gaiko, Gunji*, Keiodaigakushuppankai

Keiichi Nagamatsu [1979] *Nihon no Bouei Sangyo* Kyoikusha

Takafusa Nakamura [2012] *Showashi (2)* Toyo Keizai Shinposha

Japan Weapons Industry Association [1983] *Nihon Heiki Kogyokai Sanjuh Nensihi*, Dai-Ichi Hoki Shuppan Co.

Akira Fujiwara [1987] *Nihon Gunjishi: Gekan Sengo Hen*, Nippon-Hyoron Co.

Fuji Heavy Industries Ltd. company history compilation committee [1984] *Fuji Jukogyo Sanjuh Nenshi*, Fuji Heavy Industries Ltd.

Peace Economy Planning Council Monopoly White Paper Committee [1983] *1983 Nendoban Kokumin no Dokusen Hakusho Gunju Sangyo -Gunkaku no Keizai Kozo* -, Ochanomizu Shobo

Japanese Defense Agency [various years] *Nihon no Boei* (Defense of Japan)

Defense Yearbook Publishing Society [various years] *Boei Nenkan (Defense Yearbook)*, Defense Yearbook Publishing Society (abbreviated as *Defense Yearbook* […])

Mitsubishi Heavy Industries, Ltd.[1967] *Shin Mitsubishi Jukogyo Kabushikigaisya Shi,*Mitsubishi *Heavy Industries, Ltd.*(MHI[1967a])

Mitsubishi Heavy Industries, Ltd. ed. [1967] *Mitsubishi Nihon Jukogyo Kabushikigaisya Shi,* Mitsubishi Heavy Industries Ltd. (MHI[1967b])

Mitsubishi Heavy Industries, Ltd. ed. [1967] *Mitsubishi Zosen Kabushikigaisya Shi* (MHI[1967c])

Mitsubishi Electric Corporation company history compilation room[1982] *Mitsubishi Denki Syashi Souritsu 60 syunen,* Mitsubishi Electoric Corporation

Mitsubishi Heavy Industries, Ltd. Company History Compilation Committee [2014]*Umi ni Riku ni soshite Uchu he 2: Enkaku , Showa kara Heisei he* (MHI[2014a]) Mitsubishi Heavy Industries, Ltd.

Mitsubishi Heavy Industries, Ltd. Company History Compilation Committee [2014] *Umi ni Riku to Uchu he [Gijutsu Seihin Jigyohen]*,(MHI[2014b]) Mitsubishi Heavy Industries, Ltd.

Katsuhiko Yokoi and Tomoji Onozuka (eds.) [2012], *Gunkaku to Bukiiten no Sekaishi: Heiki ha Naze Youi ni Hiromattanoka*, Nihon Keizai Hyoronsha, Inc.

Katsuhiko Yokoi [2021] *Reisenki Ajia no Gunji to Enjo*, Nihon Keizai Hyoronsha

Katsuhiko Yokoi [2022] *Kokusai Bukiiten no Shakaikeizai Shi*, Nihon Keizai Hyoronsha

Kousuke Yoshitsugu [2018] *Nichibei Anpo Taisei Shi*, Iwanami Shoten

List of Papers

Hiroshi Adachi [1981] Trends in the Japanese Military Supply Industry, *Nagasaki General University Bulletin, Vol. 22, No. 1.*

Yoshio Asai [2002-2003] Special Demand in the 1950s (1)-(3), *Seijo University Economic Research Journal, No. 158-160*

Yoshie Aoi [2020] Japan's Assistance to Other Countries in Building Maritime Law Enforcement Capacity: Focusing on the Provision of Patrol Vessels and Self-Defense Forces' Equipment, National Diet Library, Research and Legislative Review Bureau, *The Reference, No. 831*, National Diet Library.

Susumu Ishii, [2003-2004] The MSA Agreement and Japan: The Formation of the Postwar Economic System (1), (2), *Gakushuin University Journal of Economics and Management, Vol. 40, No. 3 and 4.*

Kazuto Kutsunugi, [2015] Review of the 'Three Principles on Arms Exports, etc.' and the New 'Three Principles on Defense Equipment Transfer', *Legislation and Research, No. 361*, Planning and Coordination Office, Secretariat of the House of Councilors.

Heigo Sato, [2015] A Preliminary Study on the Genealogical Theory of the "Merchant of Death" Theory, *Overseas Affairs, 63(3)*, Institute for Overseas Affairs, Takushoku University.

Minoru Sawai [2018] From Special Demand Production to Defense Production: The Case of Osaka Prefecture, *Bulletin of Nanzan University, Academia, Social Sciences, No. 14.*

Shinichi Shirato, [2023] Post-World War II Japan's Defense Force Development Plans and the Functions of Industry Associations in the Reconstruction of Military Industries: With a focus on trends in the 1950s-1970s regarding the "domestic production" of defense equipment, *International History of Arms Transfer, No. 15.,* Institute for International History of Arms Transfer, Meiji University

Akihito Tsuji (Diplomatic Defense Division, Research and Legislative Review Bureau, National Diet Library) [2022] Overview and Issues in the Procurement of Compensated Assistance (FMS), *Research and Information – ISSUE BRIEF-, No. 1176*, National Diet Library.
https://dl.ndl.go.jp/view/download/digidepo_12132542_po_1176.pdf?contentNo=1

Shingo NAKAJIMA, [2004] IV The History of the National Defense Agency and Self-Defense Forces and Oral History: Focusing on the Oral History of Osamu Kaihara, *The Annuals of Japanese Political Science Association, vol.55*

Shingo Nakajima and Hiroshi Nishida [2020], The Role of Former Military Aviation Officials and the Involvement of the U.S. Air Force during the Founding of the Air Self-Defense Force, *NIDS Security Studies Volume 22 Number 2*, The Ministry of Defense.

Minoru Fujita, [2018], The Civilianization of Military Demand and the Civilianization of Military Demand in Postwar Japanese Capitalism, *Quarterly Journal of Economic Theory, Vol. 55, No. 3.*
https://dl.ndl.go.jp/view/download/digidepo_11486061_po_083104.pdf?contentNo=1&alternativeNo=

Study Group on Defense Production and Technology Infrastructure [2012] Final Report of the Study Group on Defense Production and Technology Infrastructure – Toward the Construction of a "Living Strategy".
https://www.mod.go.jp/atla/soubiseisaku/soubiseisakuseisan/2406houkoku.pdf

Hirofumi Miwa and Shiro Sakaiya [2020], Constitutional Attitudes of Postwar Japanese: An Analysis Using the Public Opinion Survey Accumulation Method, *Annual Review of Political Science 2020-I.*
https://www.jstage.jst.go.jp/article/nenpouseijigaku/71/1/71_1_34/_pdf/-char/ja.

Yo Inman [2006] The Historical Significance of 'Enterprise Development' in Japan during the Reconstruction Period: A Case Analysis of the Automobile Industry, *Tokyo COE Monozukuri Management Research Center, Discussion Paper, No. 77*, Management Education Center, University of Tokyo.

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