

Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy

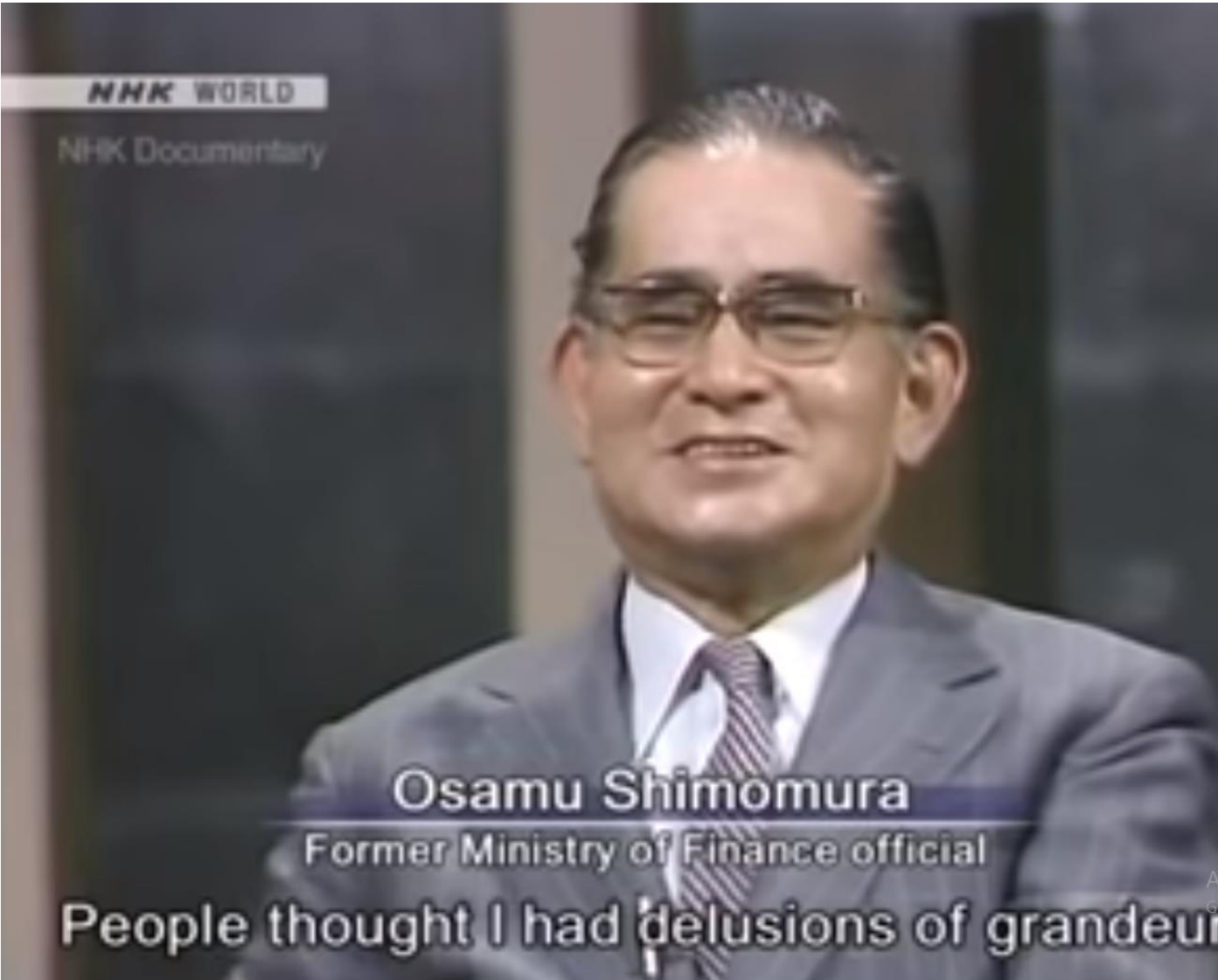
EE482 Industrialization: Role of Public and Private
Sectors

(Section 046401)

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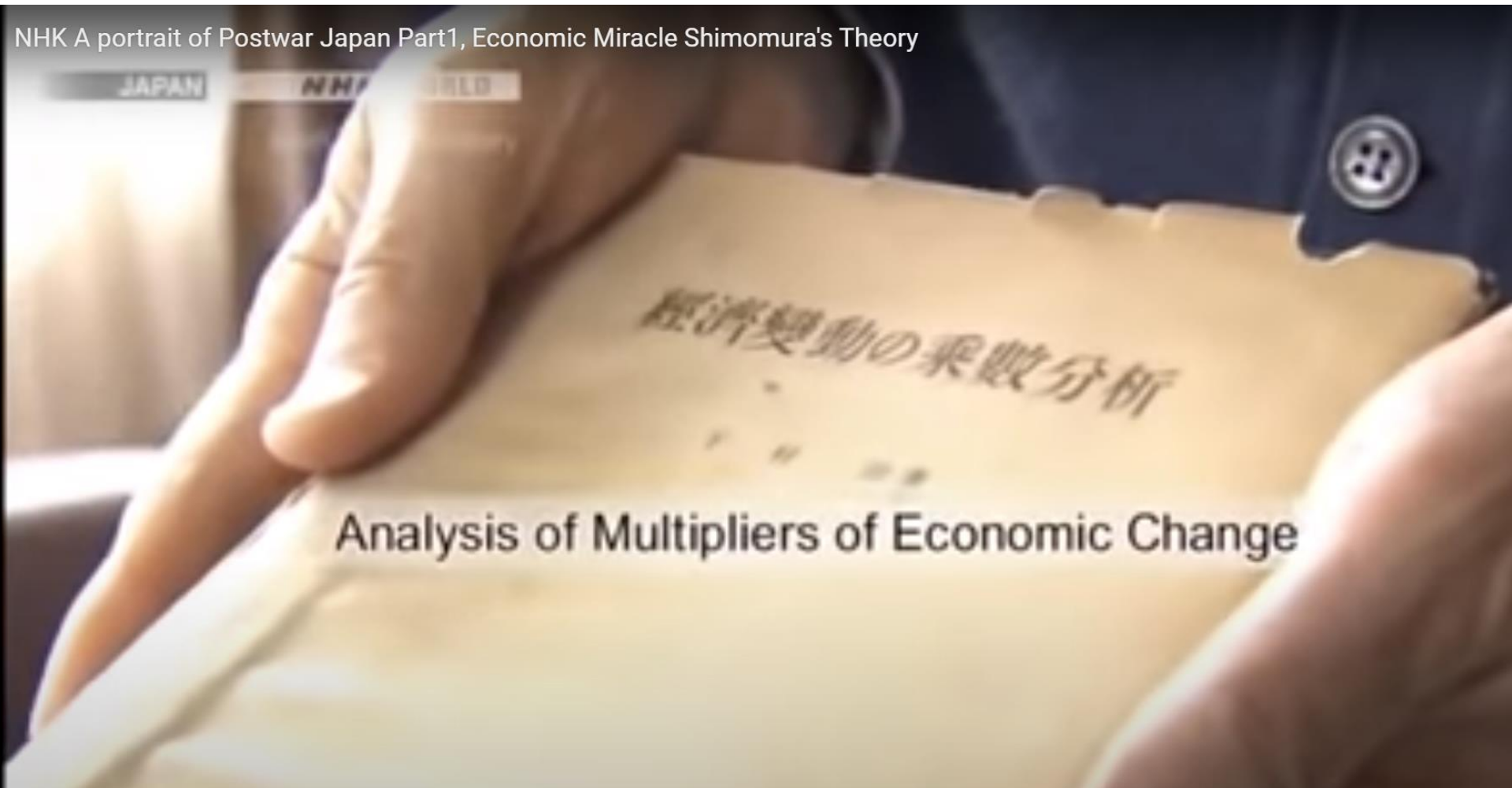
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NHK A portrait of Postwar Japan Part1, Economic Miracle Shimomura's Theory



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<https://www.youtube.com/watch?v=mKN7ya6Dq7E&t=1897s>

るのではなく、一定の期間をへておこなわれることをしめすことになる

これはフィッシャーによって伸縮的な加速因子 (flexible accelerator) と

られたものであり、(7.2)式はこれが前提する投資函数と同一形式である

純投資が (7.2)式のようなかたちで決定されるとすれば、加速因子は
投資をどのようなかみに累積せしめるかを考えてみよう。

有効需要は、まえにのべたとおり、

$$(7.3) \quad D = k(rK + \dot{K})$$

であるから、これを (7.2)式に代入すれば、

$$(7.4) \quad \dot{K} - \frac{1 - kxr}{kx - \xi} K = 0$$

がえられる。これに $k = \frac{1}{s_1 + s_2}$, $x = \frac{1}{d} = \frac{s_1}{r}$ を代入すれば、

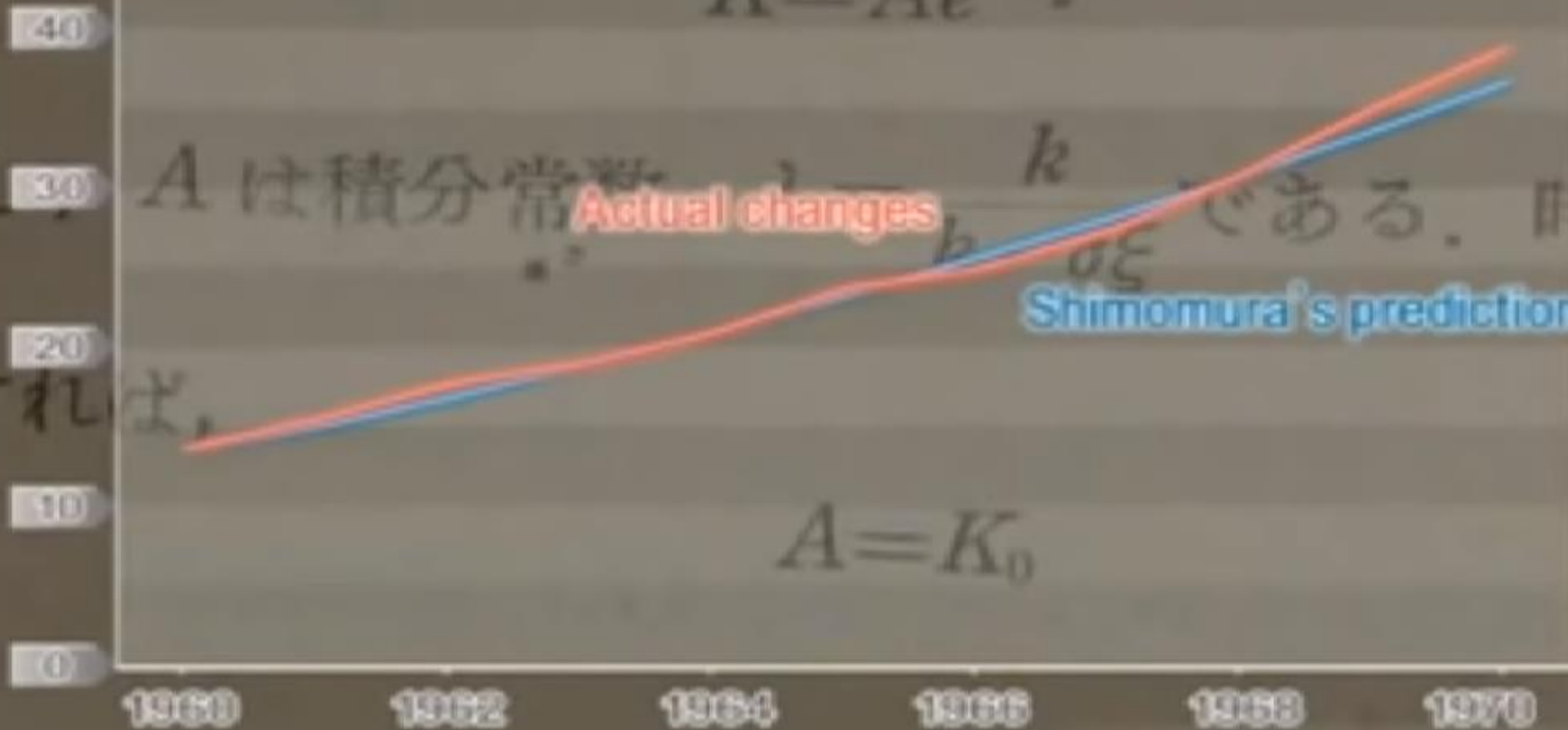
$$(7.5) \quad \dot{K} - \frac{s_1 r}{s_1 - (s_1 + s_2) r \xi} K = 0$$

Changes in GNP

NHK Documentary

(Trillion yen)

$$K = Ae^{rE_2 \sigma t}$$



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Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy

Authors: **Horiuchi**, Kozo, **Otaki**, Masayuki

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Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy



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- This book elucidates the economic conditions and policies during the **post War Japanese economy** from the view point of an **influential policy maker**.
- Dr. Osamu Shimomura is one of the **most eminent economists** in Japan. He entered the Ministry of Finance and **played a crucial role in actualizing the High-Growth era** from the late **1950s to the early 70s**.
- The **Doubling Income Plan**, which is issued by the Ikeda cabinet, **originates from him**.
- It should be noted that while **most economists held pessimistic view** on the future, **Shimomura is brave and foresighted**.
- Shimomura's theory is not merely one of the pioneer works in macroeconomics, but also **suits the economic conditions of Japan**. Shimomura **extends the principle of effective demand**, which means that his theory **includes effects of capital accumulation to production capacity**.
- While one may argue that Harrod (1939) and Domar (1946) have already achieved that, Shimomura's theory centers policy recommendations for sustaining the high economic growth against the productivity growth that would cause excess supply in the market.
- Succinctly, Shimomura is a **Keynesian** who **believes the vigor in its private sector** but recognizes that Japanese economy urgently needs the **government's auxiliary macroeconomic policies**.
- This book emphasizes that the **rapid Japanese growth** owes mainly to affluent entrepreneurship filled in the economy not to the sheer government's planning. **Dr. Shimomura's theory endorses our assertion**.

Source: Directly quoted from <https://www.goodreads.com/book/show/35470799-dr-osamu-shimomura-s-legacy-and-the-postwar-japanese-economy>

Economics of Shimomura

- Dr. Shimomura is **well known in Japan**. He was the **first economist** who **discovered** that the Japanese economy **would realize high (rapid) growth in the 1960s**.
- He also proposed that the government should take very positive fiscal and monetary policies to attain high economic growth in Japan.
- He was one of the private members who **assisted Prime Minister Hayato Ikeda** and contributed significantly toward the framing of the **National Income Doubling Plan (1960–1970)** of the government.
- The high economic growth policy of the Ikeda administration was **successful** and the **Japanese economy** began to **grow very rapidly**.
- People felt as if they were **driving over the new expressway**.

Economics of Shimomura (cont'd)

- The vision, theory, and policy of Dr. Shimomura encouraged Japanese who had lost confidence after World War II.
- People were zealous for economic expansion as if they were participating in “economic Olympics.” They were interested to see Japanese economy catching up with economies of the West
- The **first oil crisis** broke out in **1973**. Dr. Shimomura dramatically changed his vision of the Japanese economy immediately after the crisis. He asserted that the **high growth period was over** and the Japanese economy would be forced to divert discontinuously into a “**zero growth**” (a very low growth) trajectory.
- He argued that economic agents, such as consumers, labor unions, corporate managers, banks, and the government, should exercise moderation and keep **their own disciplines** in the “**zero growth**” era.

Source: Directly quoted from Horiuchi, K., & Otaki, M. (2017). *Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy*. Singapore: Springer.

Economics of Shimomura (cont'd)

- In the era of great transition from high growth to “zero growth,” the principle of laissez-faire would not guide the real economy to a stable and equilibrium state.
- The economic agents should observe discipline by considering the whole and exercising self-restraint.
- Dr. Shimomura **emphasized that discipline** on the part of major economic players was critically important.
- **Discipline is a code of conduct** that must be adopted during an era of “zero growth,” and has a lot in common with “sympathy”.

Economics of Shimomura (cont'd)

- Currently, the **Japanese economy** as a whole is **not on the right track**.
- The fundamental issue is a lack of a holistic vision of the economy and the corporation.
- Regrettably, economic agents **neglected the warnings of Dr. Shimomura**. The Japanese economy is in a state of **serious disequilibrium**.
- Dr. Shimomura **passed away in 1989**.
- Since then, for more than a quarter of a century, the Japanese economy has been **unstable and stagnant**.
- This scenario will be analyzed closely by referring to the “zero growth” vision.

Career of Dr. Shimomura

- Dr. Shimomura was a descendant of the **Samurai family**. He had a strong **propensity to serve the public**. He was a temperate man and liked to have an independent view as an economist.
- He was also very logical and preferred to argue with other economists.
- He studied economics at the **Tokyo Imperial University**.
- At that time, the Japanese economy was highly influenced by the Great Depression. He thought economics could help people in hardship.
- However, the **Marxian economic teachings** in the university made him realize that economics was **not beneficial** for **finding ways to overcome severe depression**.
- Concerning the period after the completion of his studies, it is believed that he was advised to continue with his studies and become a scholar at the university.
- However, he decided to **work for the Ministry of Finance** in 1934.

Source: Directly quoted from Horiuchi, K., & Otaki, M. (2017). *Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy*. Singapore: Springer.

Career of Dr. Shimomura (cont'd)

- He was **sent to New York** in 1936, as a practice of the Ministry of Finance. At this time he obtained the **first edition of The General Theory** by **J.M. Keynes** .
- At that time, he had expressed difficulty in understanding Keynes' work thoroughly. However, apparently, it was a **turning point** for his **understanding of macroeconomics**.
- The theory of **effective demand** and **multiplier effect** constitutes a **key element** of the **Shimomura theory**.
- In a wartime-controlled economy, Dr. Shimomura was engaged in **deciding the wages** and **salaries of workers** and **executives of private corporations**.
- This was a very **strict incomes policy** to **control prices**. Based on this experience, he was convinced that a **controlled economy does not work well**.

Economics of Shimomura (cont'd)

- Immediately **after the war**, **aggregate demand exceeded aggregate supply in Japan**.
- As a government officer, he had to cope with **soaring inflation**. His economic policy was **not aimed** at **suppressing aggregate demand** but at **increasing aggregate supply**.
- His favorable mindset toward economic expansion led to the development of a high growth policy in the 1960s. Despite being a government officer, he **trusted the free activities** undertaken by the **private entrepreneurs**.
- Concerning the research conducted as the economist, Shimomura (1951) completed a **theoretical paper** on **economic fluctuation and growth**, following the works of P.A. Samuelson , R.F. Harrod, and J.A. Schumpeter.
- This thesis formed the **basis** for **the Shimomura theory**. Later, he received a **doctor's degree** for his research on the subject.
- He became **well known** in the **professional academic circle**.

Career of Dr. Shimomura (cont'd)

- In 1953, he was appointed as a member of the **monetary policy committee** of the Bank of Japan while representing the Ministry of Finance.
- In 1958, as an economist of the Ministry of Finance, he published a **famous paper** to **realize the economic growth** in Japan.
- In the postwar Japanese economy, aggregate demand had exceeded aggregate supply.
- However, he had recognized that the **aggregate supply would tend to exceed aggregate demand** around the end of 1950s.
- It was a historically important **turning point** for the **Japanese economy**.
- He insisted strongly that the government should **reduce tax** and **increase expenditure** to **increase aggregate demand**.

Career of Dr. Shimomura (cont'd)

- He **published a crucial paper** that gave birth to **The National Income Doubling Plan** of **Prime Minister Ikeda** in **1960**.
- In 1960, he was appointed as a member of the executive board of the Japan Development Bank (JDB), and, in 1966, he became the first director of the Research Institute of Capital Formation (RICF) of JDB.
- He was **active in economic analysis** and **forecasts** throughout his lifetime.
- The **Japanese entrepreneurs** held Dr. Shimomura in **high regard**, and paid attention to and appreciated his unique view.

Career of Dr. Shimomura (cont'd)

- Several people referred to Dr. Shimomura and his works.
- Professor H. Uzawa had an opportunity to study under Professor N. Kaldor, one of the leading disciples of J.M. Keynes. According to Uzawa (1991), **Kaldor and Shimomura** had **one thing in common**.
- They used a **simple number** to express the **core of economic analysis**.
- In case of Dr. Shimomura, as we will see later, the **output-capital ratio** of the Japanese economy **was 1.0**, and the annual rate of economic **growth was 10%** in the **1960s** and **“zero” %** after **1973**.
- However, Uzawa pointed out that Shimomura was different from Kaldor in having a **sharp intuition** in **macro economy**, which was demonstrated in the **famous growth controversy** in 1959.

Source: Directly quoted from Horiuchi, K., & Otaki, M. (2017). *Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy*. Singapore: Springer.

Career of Dr. Shimomura (cont'd)

- Dr. Shimomura was **well known in Japan** as an economist who formulated policies for high growth. He was a charismatic figure.
- Contrarily, he was **almost unknown abroad**.
- However, there is one exception. Hedberg, a Swedish journalist, wrote in his book *the Japanese Challenge* (1969) that Dr. Shimomura was a **strong candidate** for the **Nobel Prize for Economics** in the **1970s**.
- In his life, Dr. Shimomura **published 10 books**.
- He also published **many written materials**, such as papers for publication in economic journals; transcriptions of lectures, talks, and debates with economists; and interviews by journalists, which in total amounted to approximately **1,150**.

Source: Directly quoted from Horiuchi, K., & Otaki, M. (2017). *Dr. Osamu Shimomura's Legacy and the Postwar Japanese Economy*. Singapore: Springer.

Shimomura Theory

- Dr. Shimomura had sharp intuition for grasping complicated economic situations and making economic forecasts.
- He did **not depend on fashionable theories** or **large-scale econometric computer models**.
- He used **his slide rule** and had his **own economic dynamics**, which is referred to as the **Shimomura theory**.
- He had **completed his theory before the commencement of high economic growth**.
- This enabled him to forecast the approaching era with confidence.

Shimomura Theory (cont'd)

- During the immediate postwar period, Dr. Shimomura was in charge of the price control policy in the Ministry of Finance and the Economic Stabilization Board.
- Owing to the complex nature of the task, he experienced **recurrence of lung disease** and had to take a **long leave to receive medical treatment**.
- He started to **write a thesis** while he was **bedridden**.
- On completion of the work, the full text of the thesis appeared in the monthly research journal of the Ministry of Finance in 1951.
- In 1952, he published the thesis titled “**Economic Fluctuation and Multiplier Analysis**”. He received a **doctoral degree** for the paper in 1956.

Shimomura Theory (cont'd)

- In the preface of the book, Dr. Shimomura (1952) argued that the theory of **Keynes was effective** to solve actual problems, but that it was also necessary to **develop** the **dynamics of the Keynes theory**.
- Dr. Shimomura wrote as follows.

*“When I was a staffer at the Ministry of Finance and later a member of the Commodity Price Agency and the Economic Stabilization Board for several years after the War, the thing that helped me most in tackling my duties in analyzing actual economic trends and prescribing measures to deal with them was the theory of Keynes. At the same time, however, in the process I also became aware of the **incompleteness** of the **theory of Keynes**”.*

(Shimomura (1952), Economic Fluctuation and Multiplier Analysis).

Shimomura Theory (cont'd)

- The main features of the “Economic Fluctuation and Multiplier Analysis” are as follows:
 - (a) Economic **fluctuation** is **different** from **economic growth**. The former is caused by **responsive investment** and the latter is realized by **autonomous investment**.
 - (b) **Profit of a firm fluctuates** according to the changes in **aggregate demand** and **aggregate supply**. The **investment** of a firm changes in **response to** changes in **profit**. This is called as **responsive investment**, which causes **business cycle** in the macro economy. Dr. Shimomura substituted the actual data with parameters of his mathematical model and concluded that a **stable investment cycle** of approximately **9 years** exists in the **Japanese economy**.
 - (c) Responsive investment changes as the profit changes. Through the **feedback system** of his model, it realizes stability of the Japanese economy. To conclude, although the capitalist economy fluctuates, it is **considered stable**.

Shimomura Theory (cont'd)

(d) **Autonomous investment** of a firm facilitates economic growth, which is **not influenced by boom and recession** of the economy. An entrepreneurial risk taker carries out investment with a long run perspective. This investment concept is based on **Schumpeter's model**, which embodies **innovation and technological changes**. In his model, **autonomous investment** is expressed as **a function of time**.

(e) The **output-capital ratio** estimated by Dr. Shimomura was **1.0**. He used 1935 data from the Cabinet Statistics Bureau and calculated the ratio of national income to industrial asset. In order to **consider the potential of high growth in the 1960s**, it was very important that output-capital ratio is 1.0.

Shimomura Theory (cont'd)

- **Responsive investment leads to a stable business cycle.** Dr. Shimomura's model dynamically demonstrated that the capitalist economy was stable.
- He expressed confidence in the market mechanism.
- **Innovation results in autonomous investment.**
- **Dr. Shimomura** developed this idea to formulate **a high growth theory**, and **Schumpeter** completed the **innovation theory** to explain business cycles.
- Dr. Shimomura was the first economist who explicitly used **autonomous investment** to explain **high economic growth**.

Shimomura Theory (cont'd)

- He developed a **dynamic Keynesian theory**, following R.F. Harrod and P.A. Samuelson.
- However, Dr. Shimomura's conclusion was **different from Harrod's** in that the **latter emphasized** the **instability of the capitalist economy**. Dr. Shimomura's model, referred to as the Shimomura theory, attracted attention.
- He came to be **known among the theoretical academicians**. However, he did not seem to be interested in developing his mathematical model further.
- Instead, he chose a career as an economist who **worked out solutions to actual issues** concerning the economy. He was interested in economic forecasting for entrepreneurs.
- The Japanese economy entered a **stage of high growth** in the second half of the 1950s, which was **a one-in-a-million event**.

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The origin of Zaibatsu

- In the 18th century, most of **oldest Japanese merchant families** established their **economic role** and **social status**.
- Mitsui, Sumitomo, Kinokuniya, Yodaya (Konoike) strengthen their influence despite the authorities' restrictions.
- Since these families were from **landlord families** and **Tokugawa shoguns** were **supported** by **merchant capital**.
- Hachirobei Takatoshi Mitsui, was a **founder of Mitsui**. His first business was the **silk trading** established in the middle of 17th century.
- Then, Mitsui extended his trading to other commodities. He also established **rice trading, money exchange shop** and **local credit company**.
- In 1680, his son founded **Echigoya warehouse** company covering the areas of Edo, Kyoto and Osaka.
- This company later became the **chain of courier service**. Mitsui started to **acquire land** and extended the **business activity to agriculture**.

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

The origin of Zaibatsu (cont'd)

- **Sumitomo** family originally conducted the medicaments and **iron-ware trade** in **Kyoto**.
- In the early years of Tokugawa period, Sumitomo operated the **copper mining** and conducted the copper trading in Osaka.
- After acquiring modern technique of copper smelting, Sumitomo has extended its production capability and eventually became the **largest copper producer in the world**.
- In 1783, Sumitomo was **the Shogun's representatives** in **Kansai** region.
- Later Sumitomo extended its industrial productions to **textiles, clothing, sugar** and **medicines**.
- Also Sumitomo established the **money exchange business**.

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

The origin of Zaibatsu (cont'd)

- From the beginning of the period of Japanese economy and society modernization, **the lack of strong middle class** operating the **industrial-oriented finance** and business development was a **significant problem**.
- Leading merchant families experienced in banking and business activity in the Tokugawa period supported the economic changes of the Meiji, earning the name of the so-called '**political merchants**' (Seisho).
- The political merchants that developed into **major Zaibatsu** can be categorized into **three groups**:
 - (1) *Mitsui* and *Yasuda* were licensed to handle **national tax revenues**.
 - (2) *Okura* and *Fujita* were **trading companies** supplying goods and services.
 - (3) *Mitsubishi* operated the **shipping** and **logistics business** with government's subsidies.

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

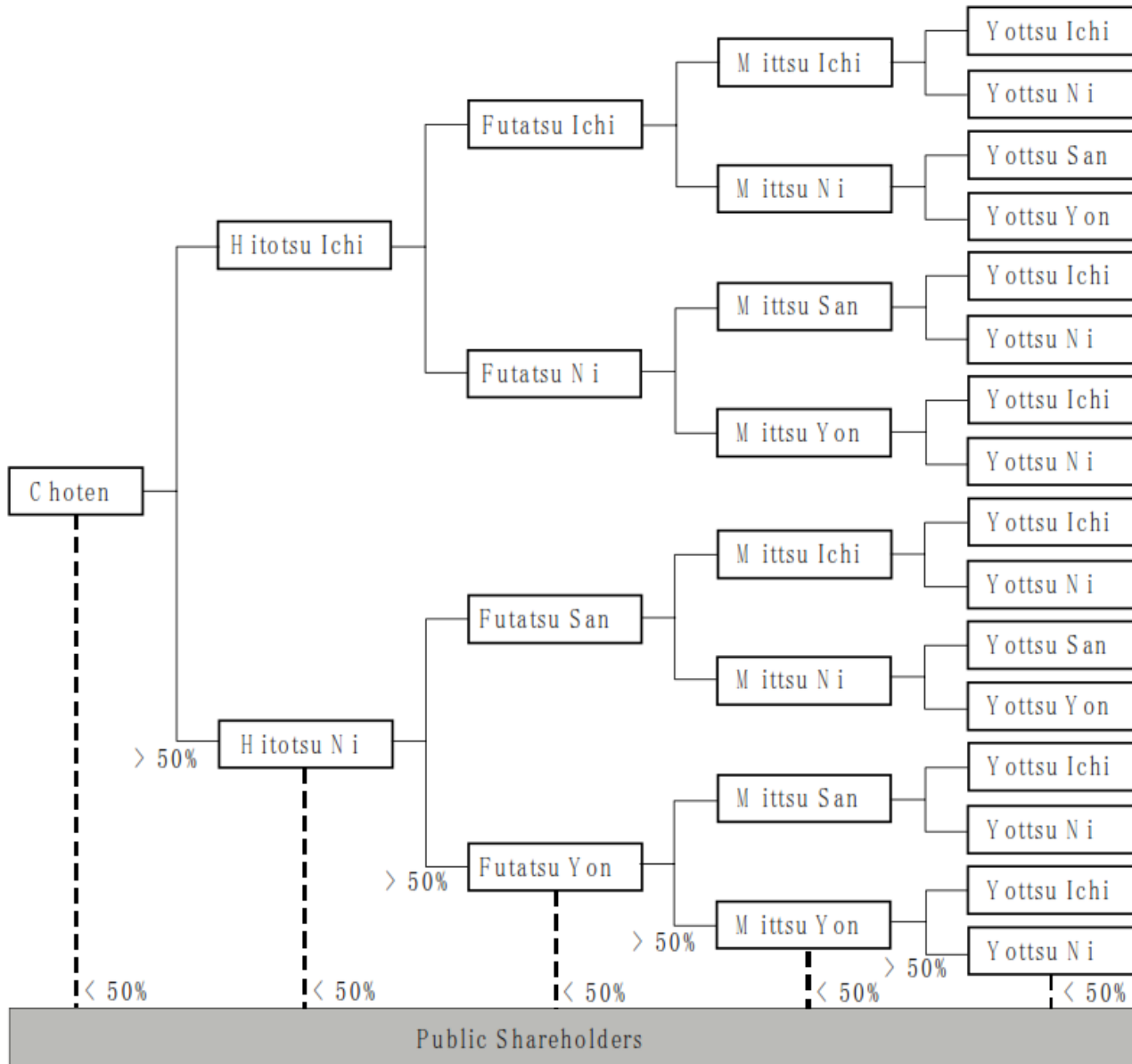
Group-specific origins in 19th century Japan

	Origins	Growth and Relations with the Government
<i>Mitsui</i> *	Dates back to 1673; “ <i>political merchants</i> ” who provided financial services to the <i>Tokugawa</i> regime since the late 17 th century.	Historically close ties to various governments. Growth and diversification through acquisitions, in part through establishment of new business, in part through government privatization and contracts.
<i>Mitsubishi</i> *	Founded by a former Samurai after the <i>Meiji</i> Restoration.	Initially investment in shipping enjoyed government protection, subsidies, loans etc. Subsequent growth and diversification patterns broadly similar to Mitsui’s.
<i>Sumitomo</i> *	Dates back to the late 16 th century with ties to the <i>Tokugawa</i> regime.	Diversified from mining into trading, finance, and industry. Again, diversification and growth through both acquisitions and through the establishment a new business, with government support.
<i>Yasuda</i> *	“ <i>Political merchants</i> ” from the <i>Meiji</i> Restoration period. Mainly provided financial services (including the establishment of the third national bank in 1876).	Less diversified than the other large groups more focused on banking and finance. Again, both acquisitions and new business as mechanism of growth.
<i>Asano</i>	Around 1870, no previous political ties.	Initial fortune out of various investments. Growth through cooperation with separate financial institutions.
<i>Fujita</i>	Origins: supplier of good and engineering works to the new government (with contacts to major figures in the <i>Meiji</i> government).	An internal family feud led to the dissolution of this group and its reorganization as the <i>Kuhara zaibatsu</i> .
<i>Okura</i>	Merchant (groceries) before the <i>Meiji</i> restoration; converted into gun production in 1860s and then into overseas trading starting 1873.	Growth mainly through acquisitions. Despite substantial operations overseas, government contracts remained major sources of income.

* denotes the “*big four*” *zaibatsu* groups
Source: T. Khanna, Y. Yafeh (2005, p. 83)

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

A Stylized Representation of a Z Contral Pyramid



Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

A Structure of Zaibatsu

- This pyramid structure was described by Yoshisuke Ayukawa, the founder of Nissan.
- This tactics was applied by other **Japanese mercantile families** during the prewar period.
- During the period of **Meiji Restoration**, the **Big Four Zaibatsu** (*Mitsui, Sumitomo, Mitsubishi and Yasuda*) has been formally established.
- All of them applied the **pyramidal structures**. Also each Zaibatsu conducted both terminating the low-competitive firms and constantly establishing new holding companies.

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

A Structure of Zaibatsu (cont'd)

- In 1876, **Mitsui Bank** was **the top** of Mitsui pyramidal network.
- Earlier, at the end of Edo period, the **clothing production** and **money exchange** were **the top** of its Zaibatsu structure.
- However, the **decline of textile industry** during 1870s triggered the restructuring process, assigning the **commercial bank on the top** of the pyramid while moving **all industrial firms** to **the lower levels**.

A Structure of Zaibatsu (cont'd)

- **Sumitomo** *Zaibatsu* structure was **very similar** to that of Mitsui.
- Financial company (**Sumitomo Bank**) was **the top**, while **industrial corporates** were placed in **the lower level**.
- The Zaibatsu included the bank, the trading company (Sogo Shosha), an insurance company, a coal mine and department store.
- Also the Sumitomo's pyramidal structure included **Sumitomo Chemical (1934)**, **Sumitomo Metal Industries (1935)**, **Sumitomo Electric Wire and Cable Works (1937)**

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

A Structure of Zaibatsu (cont'd)

- Yasuda Zaibatsu was **different** from others.
- Yasuda bank was the **largest bank**, established from the **merger of 11 minor banks** in 1913.
- Yasuda managed the capital of **150 million yens**.
 - Mitsui Bank: 600,000 yens
 - Sumitomo Bank: 500,00 yens
 - Dai Ichi Bank: 430,000 yens
 - Mitsubishi: 300,000 yens

A Structure of Zaibatsu (cont'd)

- Mitsubishi was the **industrial-oriented** Zaibatsu, focusing on the heavy industry and sea transport.
- In addition, Mitsubishi recruited high-skilled managers from outside the family.
- There were also other groups of industrial-oriented Zaibatsu. Most of them **concentrating on industrial productions** and were **lack of bank and financial institutions** as the member of Zaibatsu.
- *Asano, Kawasaki, Furukawa, Shibaura Manufacturing Work* (now *Toshiba*) and *Hitachi* were examples of **leading industrial-oriented Zaibatsu**.
- During the economic and financial expansion from 1917 to 1919, the **new industrial-oriented Zaibatsu were established**: *Nissan, Nichitsu, Mori, Nisso* and *Riken*.

Concentration of Fourteen Zaibatsu Subsidiaries in Heavy Industries (Paid-in Capital, 000's Yen)

	1937				1947			
	<i>14 zaibatsu*</i>		Total companies (within Japan)		<i>14 zaibatsu*</i>		Total companies (within Japan)	
Manufacturing and mining	2 039 348	25.3	8 056 601	100.0	10 440 200	100.0	22 089 231	100.0
Heavy industries	985 504	27.3	3 612 502	100.0	7 919 585	54.9	14 430 619	100.0
Metal	174 478	19.1	911 752	100.0	1 655 406	43.2	3 829 681	100.0
Machinery	385 312	29.4	1 311 471	100.0	4 302 777	56.4	7 632 409	100.0
Chemical	425 714	30.6	1 389 279	100.0	1 961 402	66.1	2 968 529	100.0

* the fourteen zaibatsu are: *Mitsui, Mitsubishi, Sumitomo, Furukawa, Asano, Okura, Yasuda, Nomura, Ayukawa (Nissan), Nitchitsu, Nisso, Mori, Riken, Nakajima.*

Source: H. Morikawa (1992, p. 234)

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

A Structure of Keiretsu

- Keiretsu was the **crucial factor** in influencing **the economic growth**, enhancing **productivity** and enabling **technological improvement**.
- This transformation **bridged the gap** between **Japan and other developed economies**.
- Keiretsu is a cluster of independently managed firms maintaining the **network of collaboration** via many mechanisms such as **cross-ownership** and **interlocking directorates**.
- The **horizontal keiretsu** is the structural connectivity of firms linked by **cross-shareholding, intra-group financing** and a central (often shadowy) body of directors.
- The **vertical keiretsu** is the cluster centralizing around one big company and comprised of a **multi-layer supply chain system** systematically serving the production of the core manufacturing firm.

Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

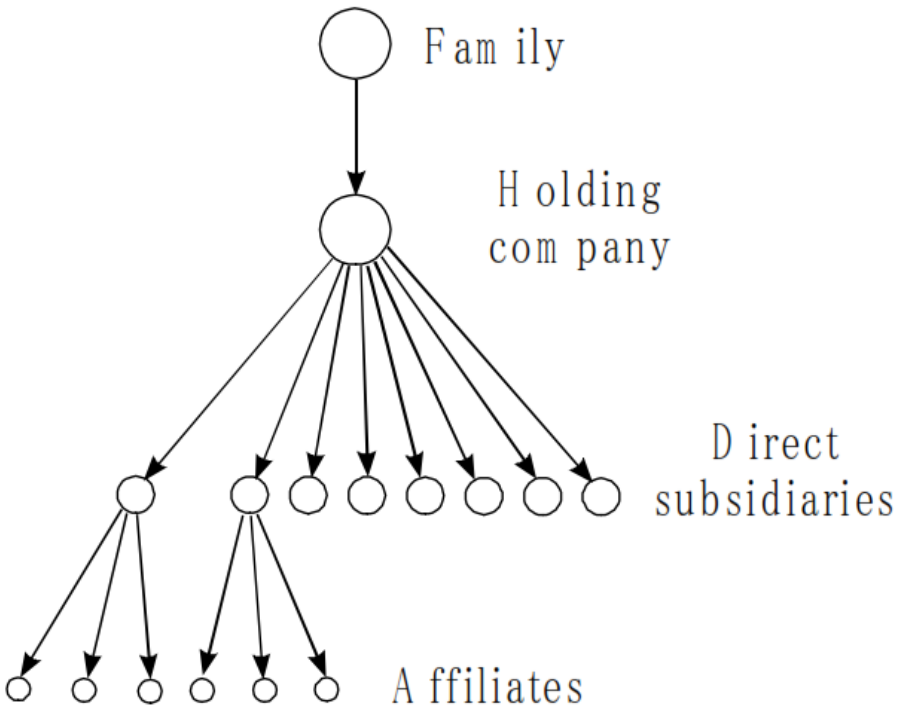
A Structure of Keiretsu (cont'd)

- The essential feature of the Japanese companies **distinguishing them** from the **American and the European** ones is the long-term character of the **relations connecting** with the **banks within the Keiretsu groups**.
- The most important determinants of these relations include: the banks combining the function of a **lender and shareholder**, the key role of indirect finance, particularly loans provided by the main bank, in the company's capital structure, and the dominant role of banks in the process of the **companies' monitoring** in the situation when financial results get worse.
- The main bank provides the group companies with a **full range of banking services**, including: financing, deposits, foreign exchange transactions, payments, securities sub-issue and others.
- The main bank carries out **permanent monitoring** of the companies on behalf of other lenders as well.

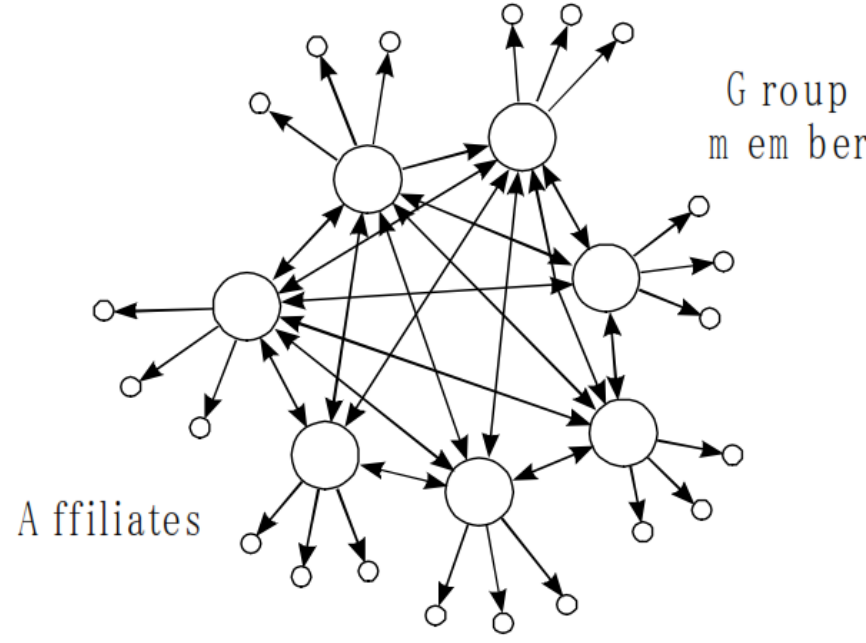
Source: Directly quoted from Grabowiecki, J. (2006). Keiretsu groups: Their roles in the Japanese economy and a reference point (or a paradigm) for other countries. IDE-JETRO Visiting Research Fellow Monograph Series NO. 413.

Structures of *Zaibatsu* and *Keiretsu*

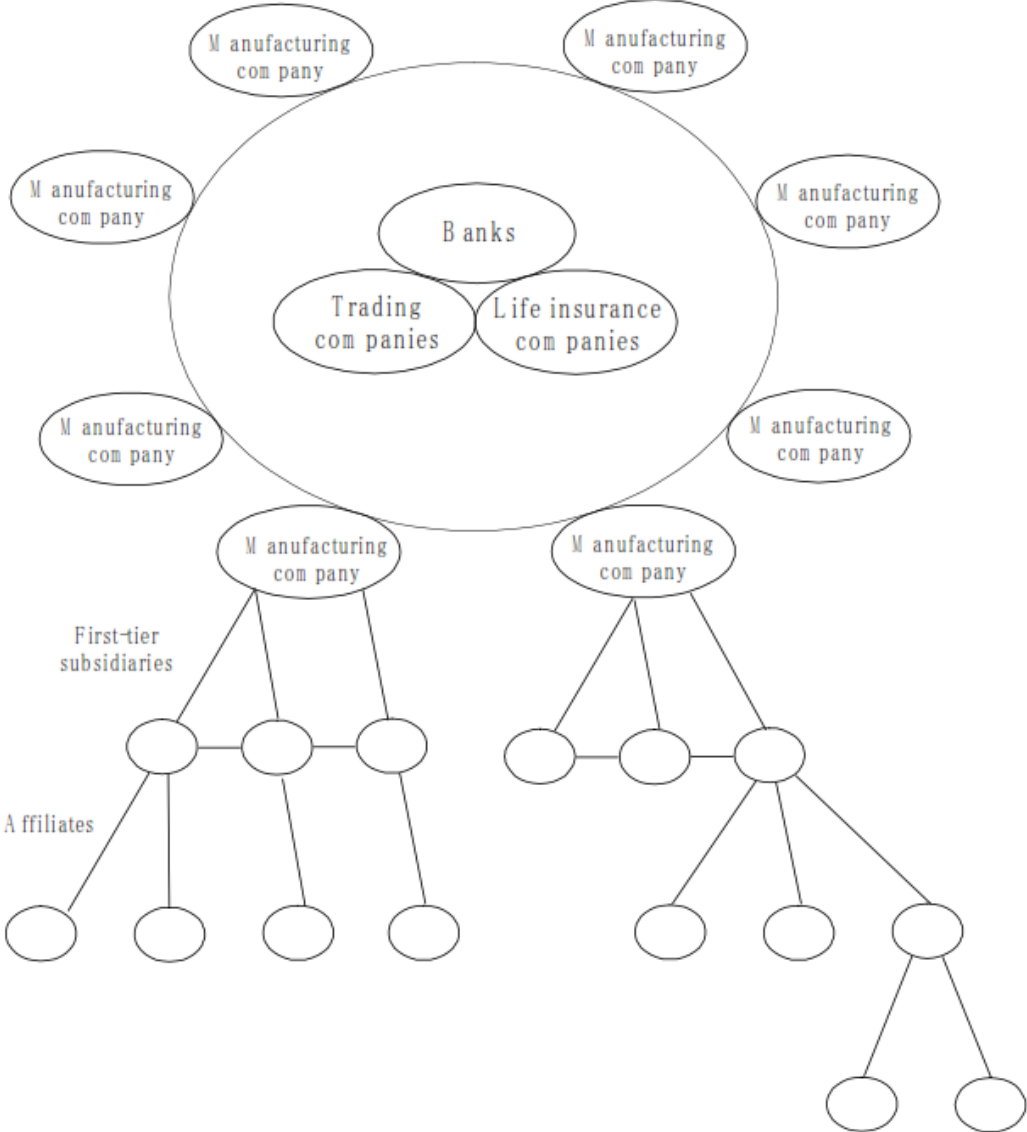
Zaibatsu



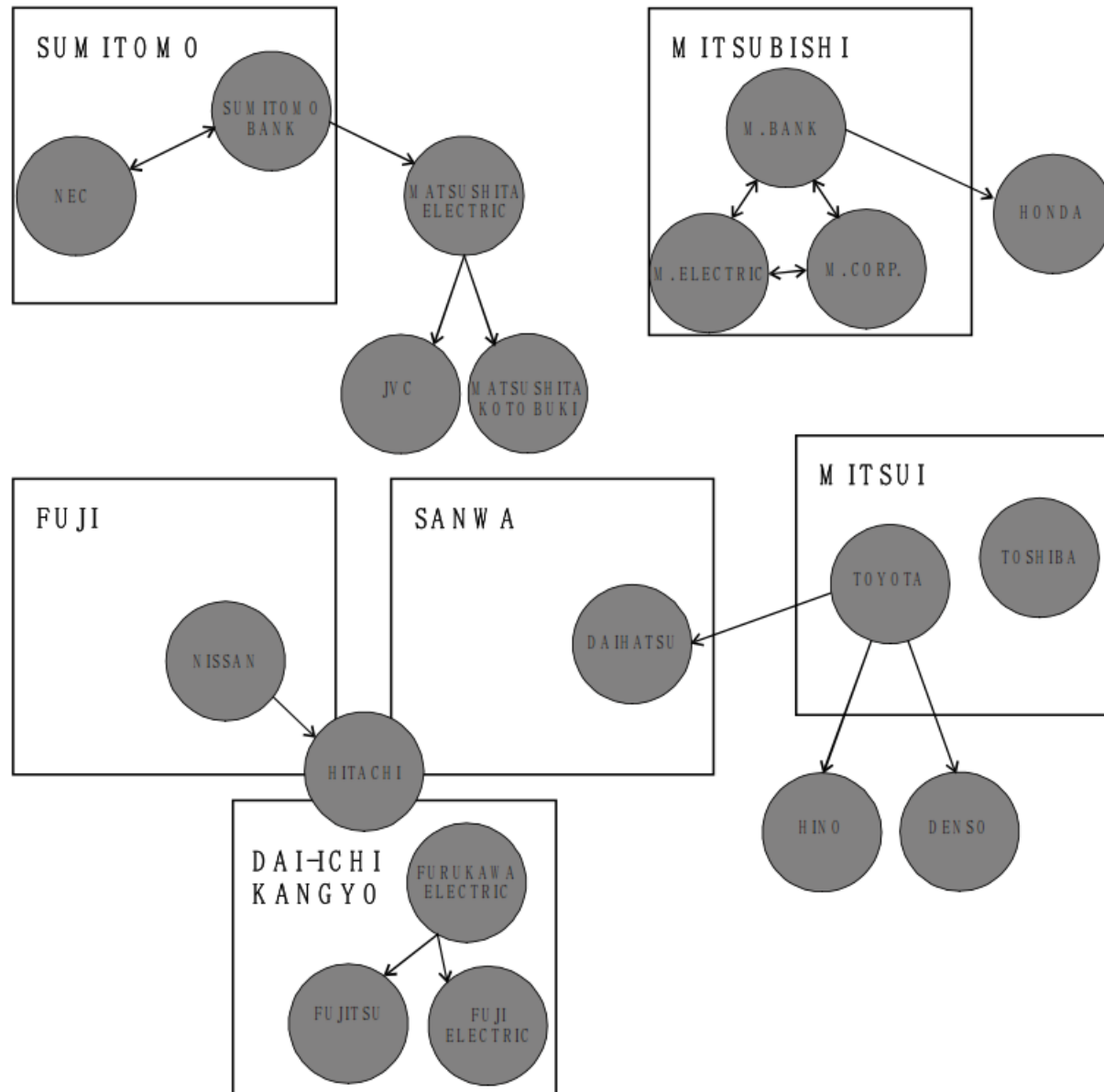
Keiretsu



Structure of *Keiretsu*



Integration of Horizontal and Vertical Keiretsu



Cross-Shareholding of Major Horizontal Keiretsu (% of total share value)

Group ^a	1987	1999	2000	Change ^b 1987-2000
<i>Mitsubishi</i>	11.16	11.62	9.15	-18.01
<i>Mitsui</i>	6.35	6.95	4.78	-24.72
<i>Sumitomo</i>	10.95	9.43	8.46	-22.73
<i>Sanwa</i>	4.75	4.79	4.07	-14.31
<i>Fuji</i>	5.27	4.31	3.70	-29.79
<i>Dai-Ichi Kangyo</i>	6.99	6.32	5.87	-16.02
Cross-shareholding ratios of the six corporate groups (value basis)	28.01	20.36	16.71	-40.34
Cross-shareholding ratio of overall market (value basis)	18.4	10.6	10.2	-44.56
Intra-group cross-shareholding ratio (value basis)	12.10	9.39	7.47	-38.26

^a Group firms as identified by Nippon Life Insurance

^b Percentage change in cross-shareholding from 1987-2000

Source: NLI Research Institute (2001, pp. 30-1)