

Mizuho Economic Outlook & Analysis

September 19, 2007

Recent trends in the real estate market
~ concerns regarding a bubble in
certain parts of central Tokyo ~

<Summary>

1. In 2007, the national average of published land prices increased across the board by 0.4 % from the previous year. This is the first rise in 16 years since 1991. In the five central wards in central Tokyo, commercial land prices rose by 19 % year-on-year (y-o-y), following a 7 % y-o-y increase in 2006, indicating that the rise in land-prices is accelerating. Office-space rent in large buildings in central Tokyo rose by more than 10 % from the previous year, leading to expectations that office rents will continue to rise.
2. The increase in real estate prices reflects expectations of economic growth in terms of economic fundamentals. By using the capitalization model, the recent decline of capitalization rates (cap rates) can be explained by the rise of the expected rate of growth. The surge of property purchases by Japanese and foreign real estate funds have considerable influence upon the rise of real estate prices. In FY2006, purchases by real-estate investment trusts (J-REIT) reached 50 % of all real estate transactions by listed companies. The inflow of Japanese and overseas funds to Japan's real estate market is rising along with the securitization of real estate. The aggressive investment stance among foreign investors in the Japanese real estate market stems largely from the fact that the yield gap in Tokyo is the highest among major cities of developed countries.
3. Looking at the 20 major cities of the world to provide an understanding of the correlation of global real estate markets, cities with large yield gaps in 2004 have experienced sharp falls in yield gaps since then to 2006. Given the globalization of real estate investment funds, yield gaps are leveling off due to the global arbitrage of yield gaps. However, in terms of REIT indexes of Japan and other countries, the correlation has been weakening since the beginning of 2007. In the light of the global tightening of monetary policy, conditions are changing from the days when investment in any region in the world would yield high capital returns. A more selective investment approach will be taken in the future.
4. In Japan, there is a bubble-like phenomenon in central Tokyo which needs to be monitored closely. We compared land prices in the 23 wards of Tokyo in 1991 during what was an asset bubble, with the latest prices in 2007, based upon data in the official land price survey. We took into consideration interest rates and other related factors. The results revealed that average land prices in 2007 are still only 60 % of what they were in 1991, providing us with reasons to believe that the 23 wards of Tokyo as a whole may not be described as a bubble yet. However, average land prices in the top 5 % group is higher in 2007 than it was in 1991, which is similar to what we saw during the bubble era.

5. Looking forward, Japan's real estate market as a whole should continue to improve as long as the economy continues to expand. However, note that the rise of office rents in the 23 wards of Tokyo is driven largely by "expectations". Considering the rising sensitivity of rents to expected inflation, as observed during the bubble years, there are concerns that conditions very similar to a mini-bubble are intensifying.
6. The global real estate market boom was fueled thus far by a "liquidity glut". However, note that the liquidity glut will eventually contract and dry up. Even though a gradual contraction of the liquidity glut would be desirable for the real estate market, "a gradual contraction" is not a simple matter. It is not yet certain at this point in time how the current financial market destabilization triggered by the subprime loan problem will affect the liquidity glut. Despite signs of a credit crunch in some parts of the world, the mechanism generating the liquidity glut - capital outflows from emerging countries such as China and oil-producing countries - appears to be in tact, reflecting the (1) fast-growing economies of emerging countries such as China, and (2) rising price of primary commodities such as crude oil. Moreover, monetary authorities may continue to take an accommodative stance because of concerns regarding the deterioration of economic conditions and the uneven distribution of liquidity. While this leads to the possibility that it will still take more time for the liquidity glut to shrink, the preservation or further expansion of the liquidity glut may be the most undesirable scenario for the real estate market.

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1. Japan's real estate market

(1) Overview of published land prices in 2007

a. Trends by land use and region

In 2007, the national average of published land prices increased across the board by 0.4 % from the previous year. This is the first rise in 16 years since 1991. When we look at the results in terms of land use, commercial land prices increased more than residential land prices, due to the rise of office rents, reflecting the growing economy. In particular, the rise was noteworthy in commercial areas of metropolitan areas where demand for office space is increasing. Meanwhile, land prices in small cities are still falling, due to the slow pace of local economic recovery and weak demand for office space. The demand for residential sites is also sluggish due to the declining population and slowdown in the rate of increase in households.

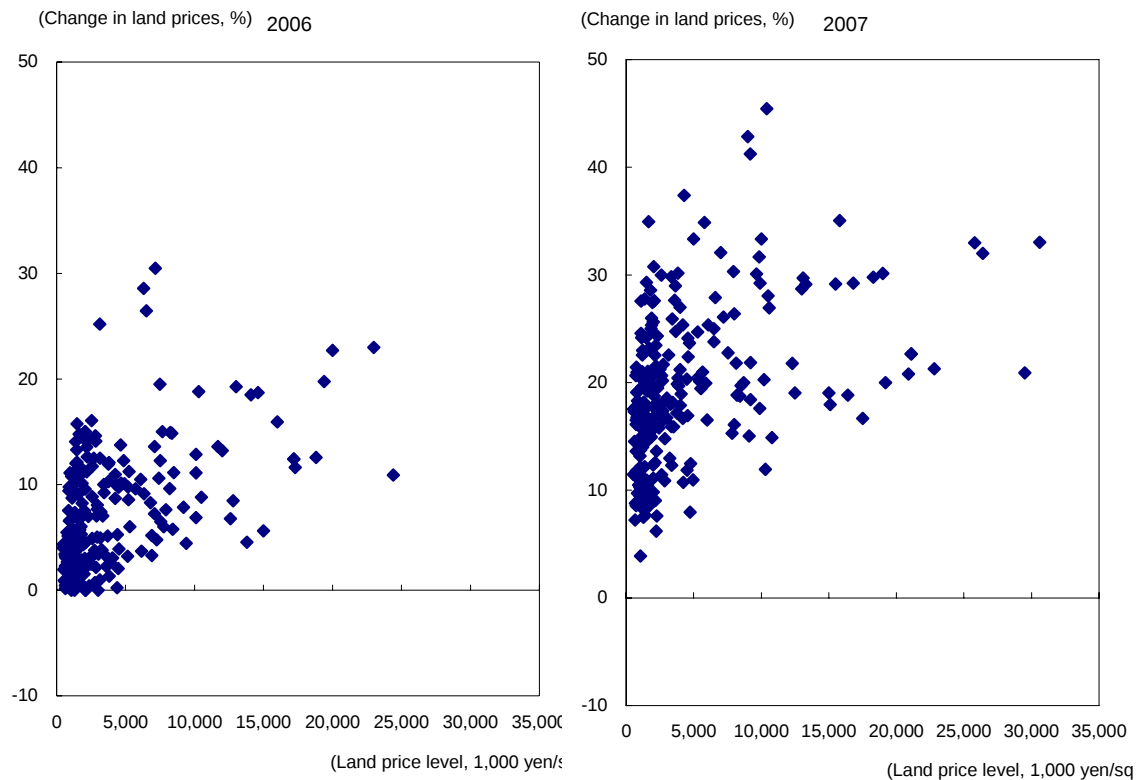
b. Price of commercial land in central Tokyo is rising at a faster pace

The rise of land prices is turning more prominent in central Tokyo, and the trend is spreading to surrounding areas and regional hub cities.

Moreover, the increase rate for commercial land prices in the five central wards of Tokyo (Chiyoda-ku, Chuo-ku, Minato-ku, Shinjuku-ku and Shibuya-ku) in 2007 was up 19 % from the previous year, following a 7 % rise in 2006. This suggests that the rise of land prices has started to accelerate. When we look at the price movement at locations in the official land price survey (**Chart 1**), about 70 % posted only a single-digit increase in 2006, but by 2007 this had fallen to about 10 %, while another 10 % registered a rise of more than 30 %.

As for commercial sites in regional hub cities, land prices rose in 12 cities, including Sapporo (where prices have risen for two consecutive years), Sendai, Hiroshima and Fukuoka. In Hamamatsu and Matsuyama, it is not only the economic recovery but also local redevelopment projects, such as downtown revitalizations, that are lifting real estate prices.

Chart 1: Trends in commercial land prices in central Tokyo



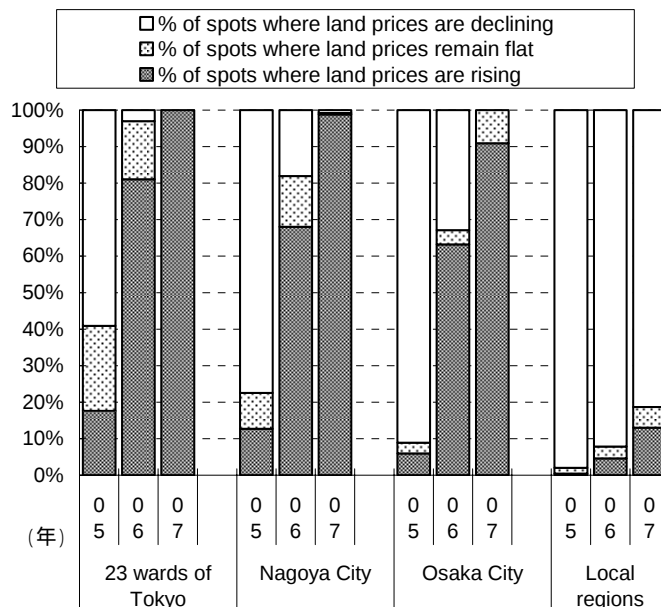
Note: Commercial zones in the five central wards of Tokyo (Chiyoda-ku, Chuo-ku, Minato-ku, Shinjuku-ku, Shibuya-ku)

Source: Ministry of Land, Infrastructure and Transportation, *Published Land Prices*.

c. Diversification of land prices

However, in local regions, published land prices are still dropping in 80 % of the survey locations (**Chart 2**). Of 150 regional hub cities with a population of more than 100,000, one third – or about 50 cities – registered a substantial decline, down by over 5 %.

Chart 2: Percentage of spots where land prices are rising/flat/declining



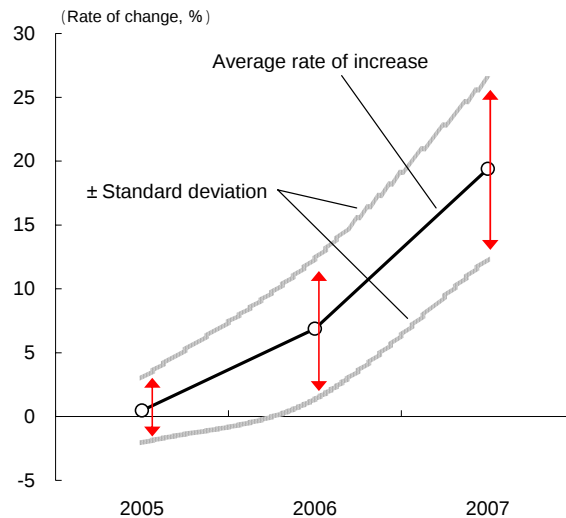
Source: Ministry of Land, Infrastructure and Transportation, *Published Land Prices*.

Local land prices are rising in some cities but still declining in most parts of the country. There is a sharp contrast between the trends.

In central Tokyo, despite the rise of average prices in survey locations, the standard deviation is growing greater, indicating a greater disparity among the survey locations (**Chart 3**). At one spot in Ginza, the published price exceeded 100 million yen per *tsubo* (3.3 m²) for the first time in 14 years since 1993. However, in Higashi Ginza and at some other spots in central Ginza off the main roads, prices/*tsubo* remained between 20 million yen and 30 million yen. This is very different from the bubble years, when prices in all survey locations in Ginza surpassed 80 million/*tsubo*.

The real estate market is growing as a whole, but land prices are more likely to be decided by the profitability of each property. As a result, land prices are increasingly diversified, or "individualized," by region or area.

Chart 3: Average rate of increase and standard deviation of commercial land prices in the five central wards of Tokyo



Source: Ministry of Land, Infrastructure and Transportation, *Published Land Prices*.

(2) Factors driving up the price of real estate

The recent rise of real estate prices reflects the rising demand for properties supported by the economic expansion and increase in real estate transactions as financial instruments.

a. Rise of real estate prices in terms of economic fundamentals

We shall first examine the rise of real estate prices from the perspective of economic fundamentals, using the capitalization model.

[The capitalization model]

$$P = \frac{C}{r + \rho - g}$$

$$\text{Land PER} = \frac{P}{C} = \frac{1}{r + \rho - g} = \frac{1}{\text{cap rate}}$$

P = Real estate price (land price), C = projected net profit during the period (office building rent),

r = interest rate of safe assets, ρ = risk premium, g = expected percentage rise of rent (expected nominal growth rate)

Even though land PER (land price ÷ rent)¹ based upon data regarding commercial

¹ Although land PER is calculated by (real estate price ÷ net profit), the land PER in this report is calculated by (land price ÷ rent).

land in the 23 wards of Tokyo declined after the collapse of the economic bubble, it has been rising after bottoming out in 2003 (**Chart 4**). While the rise of land PER indicates the decline of the cap rate, the cap rate fell 1.4% point during the period between 2003 and 2007. We analyzed the causes of this result by using the capitalization model. Although the rise of interest rates during the period lifted the cap rate by 0.8 % point, (1) the decline of the risk premium on real estate investment and (2) the rise of expected nominal growth rate lowered the cap rate by 0.4 % point and 1.8 % point respectively (**Chart 5**). The foregoing leads to our view that the recent rise of real estate prices is driven by expectations toward economic growth.

Chart 4: Trends in land PER in the 23 wards of Tokyo

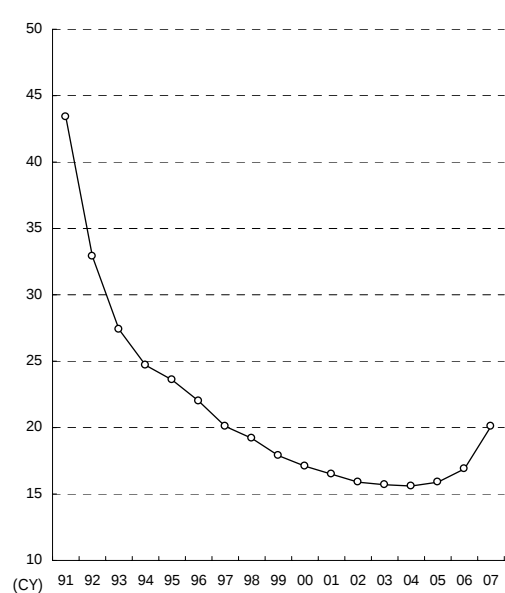
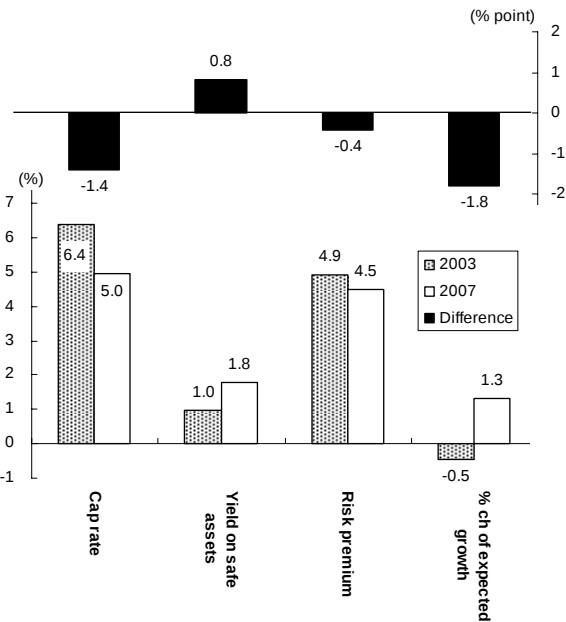


Chart 5: Factors contributing to the decline of cap rates



Note: Land prices refer to land prices in commercial zones in the 23 wards of Tokyo based upon published land prices.

Rent refers to average rent in the 23 wards of Tokyo. Land PER is based on RENEX of Urban Research Institute

Corp. The level of each year is calculated based on data regarding 2005: net cash yield is 6.27% and its reciprocal number is 15.9. The risk premium is calculated, based upon differences in other factors.

Sources: Cabinet Office, *National Income Statistics*, *Annual Survey of Corporate Behavior*, Ministry of Land, Infrastructure and Transportation, *Published Land Prices*, CB Richard Ellis, *Office Market Report*, Urban Research Institute Corp., *RENEX*.

The recovery of economic growth expectations may be reworded as expectations that office rents will rise in the office market. In July 2007, office rents for existing large

buildings in the five central wards in central Tokyo rose by 11.2 % from a year earlier, indicating a clear upward trend of office rents. In the background is the tight supply-demand of office space. In June 2007, the vacancy rate of the five central wards of Tokyo was 1.7 %, falling below 2 % as in the March survey. This is the first time in 16 years since 1991 that the vacancy rate fell below 2 %. Moreover, investors are becoming more confident that office rents will continue to increase (**Chart 6.**) According to the capitalization model on page 7, when office rents (c) or expected percentage rise of rent (g) increases, real estate price (P) rises.

Chart 6: Rent levels five years from now

Level of rents in 5 years (level of rents at the time of survey = 100)					
Survey	October-03	October-04	October-05	October-06	April-07
Marunouchi/Otemachi	100	101	105	107	110
Nihonbashi	98	100	100	105	105
Toranomon	98	100	100	105	105
Nishi Shinjuku	97	100	100	105	104
Shibuya	98	100	100	105	105
Roppongi	98	100	101	105	105
Ueno	95	97	98	101	101
Shinagawa	100	100	100	105	105
Shiodome	100	100	100	105	105
Sapporo (main street facing Sapporo Station)	95	95	98	100	100
Nagoya (area facing Nagoya Station)	95	100	101	103	104
Osaka Midosuji	95	98	100	103	103
Fukuoka Tenjin	95	98	100	102	102

Source: Japan Real Estate Institute, *Japanese Real Estate Investor Survey*.

b. Rise of real estate prices in terms of market supply and demand

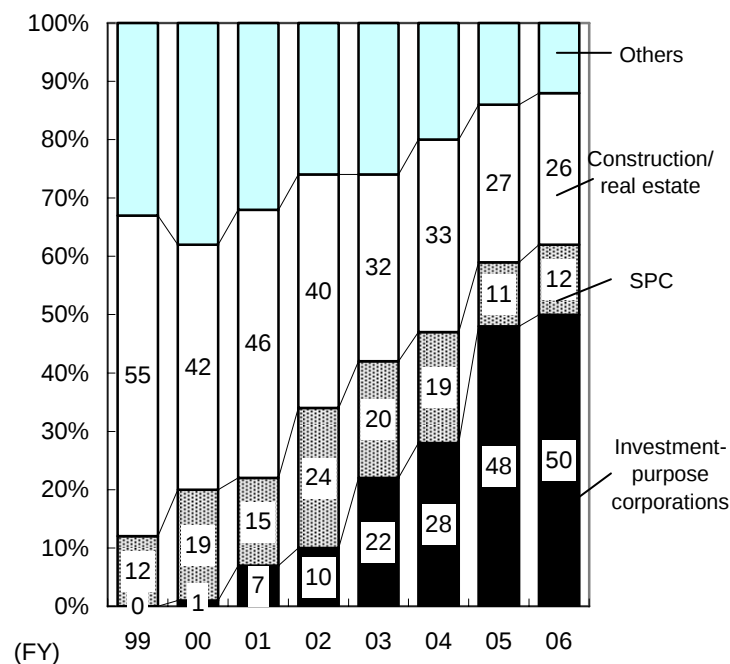
In light of supply and demand, the surge of real estate purchases by J-REITs (Japanese real-estate investment trusts) and private real estate funds are driving up prices.

According to a survey on real estate trading by listed companies in FY2006 conducted by Urban Research Institute, Corp., the number of sold properties surged by 16 % y-o-y and the sales value rose by 7 % y-o-y. Looking closer at the type of buyers, the ratio of purchases by investment corporations, most of which are J-REITs, is increasing, reaching 50 % in FY2006 (**Chart 7**). Purchases by SPCs (special-purpose companies) are also increasing, and the combined ratio including investment corporations is as high as 62 %.

As mentioned above, the impact of real estate investment involving securitization schemes of investment corporations or SPCs is growing stronger. Real estate securitization is expanding every year. In FY2006, the value of real estates or trust beneficiary rights amounted to about 7.8 trillion yen, up 13 % y-o-y. The cumulative total since FY1997 had reached 33 trillion yen.

As a result of securitizations, the flow of funds from investors worldwide, including private investors, into Japan's real estate market is accelerating.

Chart 7: Trends in real estate purchases by industrial sectors



Note: No. of transactions (excluding purchases from affiliated companies).

Source: Urban Research Institute, Corp., *Fudosan Baibai Jittai Chosa (Survey on Real Estate Transactions)*.

c. Difference in yield gaps in major cities of the world

Foreign investors are increasing their investment portfolios in Japan's real estate market, because investment costs in Tokyo are among the lowest in the developed world.

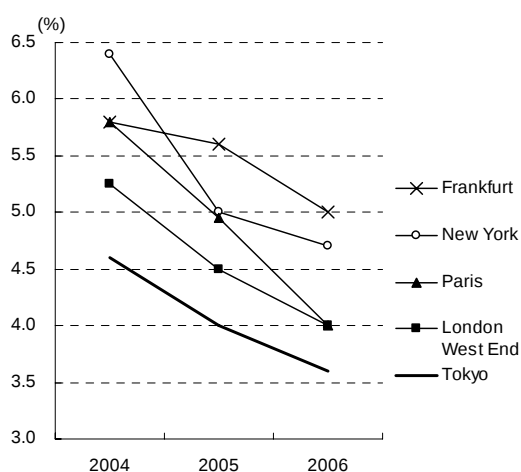
Cap rates in Tokyo, New York, London, Paris and Frankfurt declined from 2004 to 2006 due to the rise of real estate prices. As for the rates of decline during the period, the largest was 1.8 % point in Paris, while the smallest was 0.8 % point in Frankfurt (**Chart 8**). Regarding the level of cap rates in 2006, Frankfurt had the highest cap rate (5 %), while Tokyo had the lowest cap rate at 3.6 %.

Meanwhile, the yield gap (cap rate minus government bond yields) fell during the

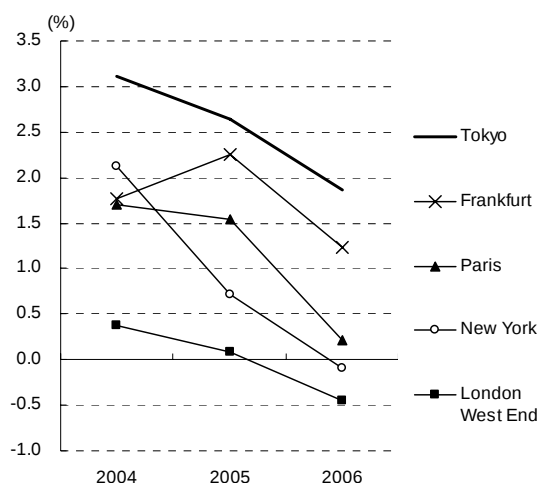
period from 2004 to 2006, because government bond yields remained virtually flat (**Chart 9**). Tokyo recorded the highest yield gap in 2006 (2 %), followed by Frankfurt (slightly above 1 %). The yield gaps were negative in both London and New York.

This indicates that in London and New York, it is growing more and more difficult to profit from real estate investment since real estate is traded at levels below government bond yields. In contrast, yield gaps in Tokyo remain at a certain level. Hence, the extremely low vacancy rates and therefore, expectations of future rise of rents, are driving real estate investment by overseas investors.

**Chart 8: Cap rates of major cities
in the world**



**Chart 9: Yield gaps of major cities
in the world**



Note: Yield gap = cap rate minus government bond yield.

Source: Colliers International, *Global Office Real Estate Review*

d. Trends in J-REITs and private funds

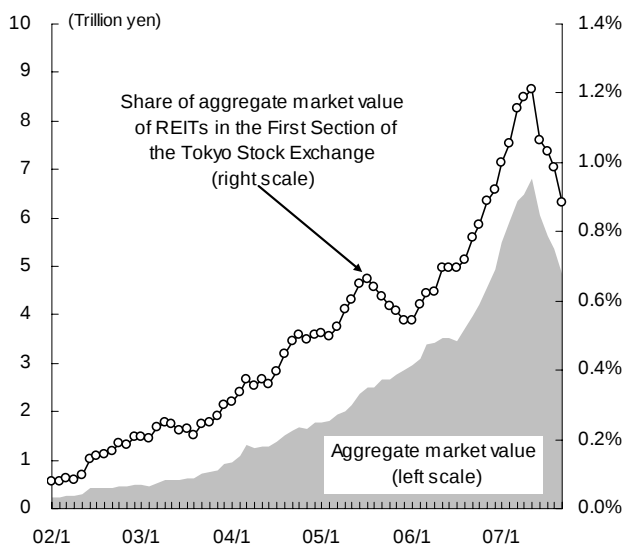
In this section, we shall look closer at the trends of real estate funds, such as J-REITs and private real estate funds.

First, in terms of the amount of operating assets as of the end of December 2006, J-REITs recorded 5.4 trillion yen, up 59 % from the previous year, and private funds recorded 8.3 trillion yen, or an increase of 35 % year-on-year. This indicates that the size of the market is expanding.

J-REITs started with 2 issues in September 2001. This rose by 9 in FY2006, and the latest total is 41. The aggregate market value of J-REITs was about 6 trillion yen as of the end of July 2007, more than 1 % of the total market value of the Tokyo Stock Exchange (**Chart 10**). The causes for the expansion of the aggregate market value are:

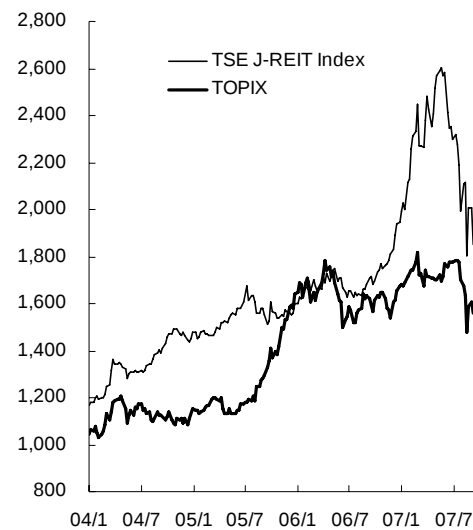
(1) the increased number of listed J-REITs; (2) capital increase of existing J-REITs; and (3) rising prices of investment units. The number of investment units increased by 1.5 million to 6.4 million from the previous year as of the end of June 2007. Investment unit prices have surged during the period from mid-2006 to May 2007 due to expectations toward the recovery of the real estate market, and eventually outperformed the TOPIX by a wide margin (**Chart 11**).

Chart 10: Aggregate market value of J-REITs



Source: Nikkei FQ.

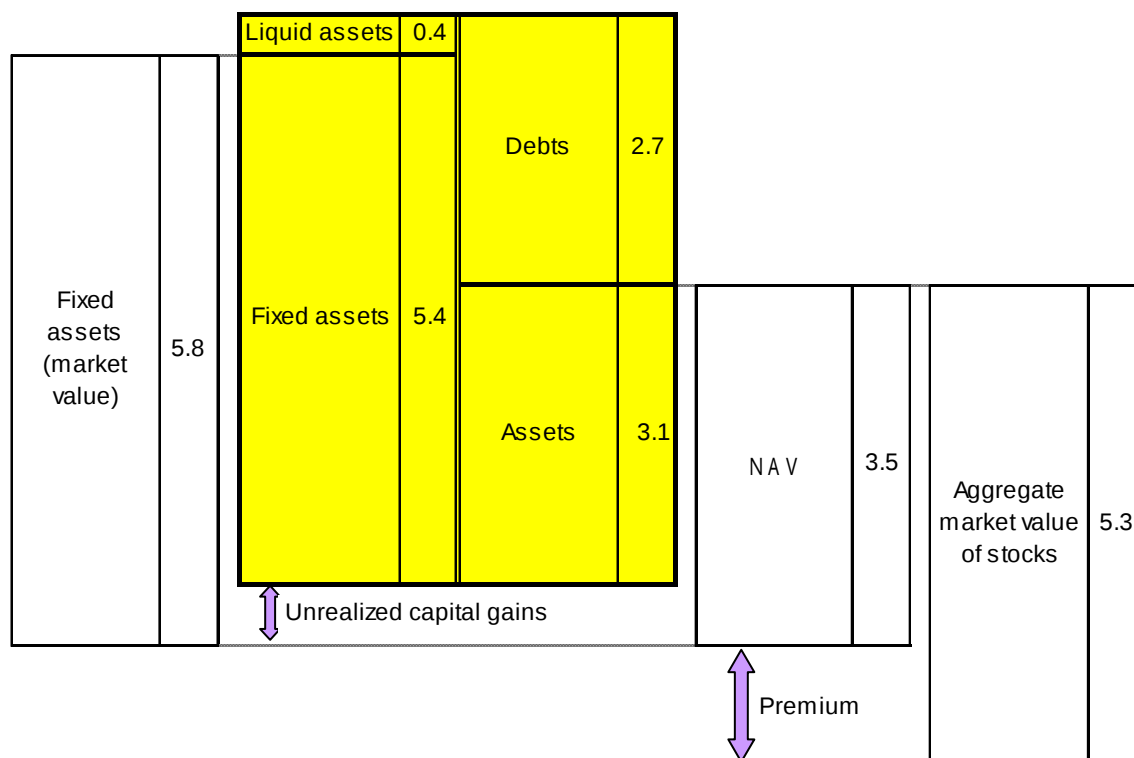
Chart 11: Trends in TSE J-REIT Index



Source: Nikkei FQ

When we combine the balance sheets of all J-REITs, total assets reached 5.8 trillion yen, equity capital is 3.1 trillion yen, and debt 2.7 trillion yen (**Chart 12**). The amount of interest-bearing debt is 2.0 trillion yen and the LTV (Loan to Value) is about 40 %, which indicates sound operations.

Chart 12: The balance sheet of J-REITs



Note: Based upon data of 40 investment-purpose corporations for the latest accounting term. The market value of fixed assets is based upon the appraised value by each of the investment-purpose corporations.

Source: Data releases by investment-purpose corporations.

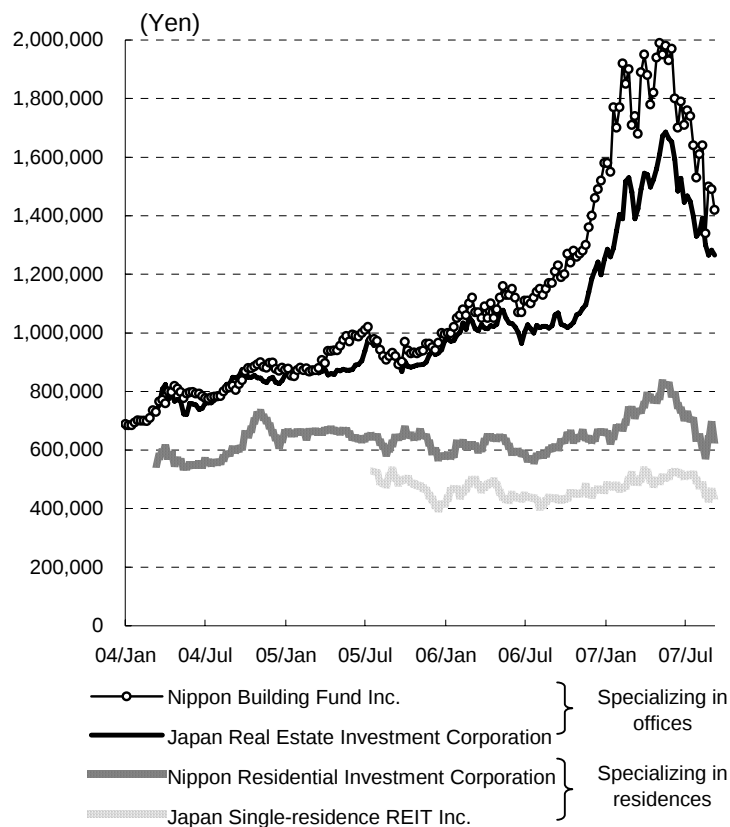
The amount of fixed assets on the balance sheet (book value) is 5.4 trillion yen, its appraised value (market value) is 5.8 trillion yen, and there is approximately 10% of unrealized capital gains on real estate held. Therefore, the NAV (net asset value) is estimated to be 3.5 trillion yen. Since the total market value of listed shares is approximately 5.3 trillion yen, the premium for NAV is about 50 %. This provides reasons to believe that the pricing of J-REIT's factors in the future rise of real estate prices.

J-REITs are increasingly diversified in terms of their founders, investment portfolio, and operational policy. While the main investment targets are still offices, two J-REITs targeting hotels were launched in 2006 (Japan Hotel and Resort, Inc. and Nippon Hotel Fund Investment Corporation). Furthermore, existing J-REIT sponsors have also established and listed investment corporations for usages other than conventional purposes. (Mitsui Fudosan Co., Ltd., which is a sponsor of Nippon Building Fund Inc. specializing in offices, established Nippon Accommodations Fund specializing in residences. Pacific Management Corporation, a sponsor of Nippon Residential Investment Corporation specializing in residences, set up Nippon Commercial Investment Corporation to

specialize in offices and commercial facilities.)

As for investment unit prices, market trends are bipolarizing depending upon the targets of investment. Up until May 2007, prices of J-REITs specializing in offices rose sharply due to expectations toward the rise of rents (**Chart 13**). However, the rise was limited regarding J-REITs specializing in residences, given the difficulty to expect a spectacular rise of rents.

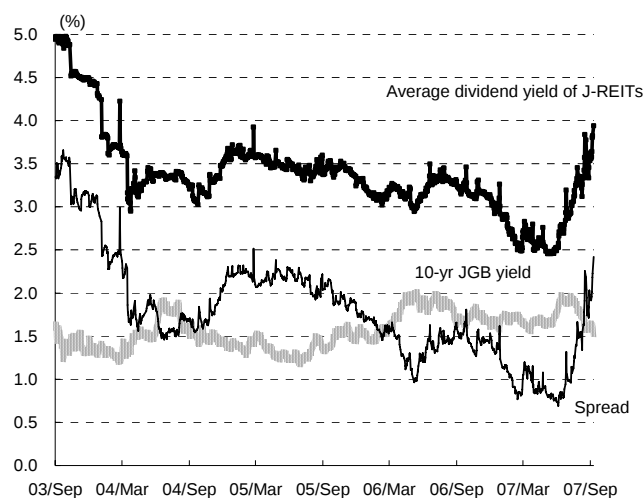
Chart 13: Unit price of J-REITs (by investment target)



Source: Bloomberg.

Under these conditions, investment unit prices of J-REITs have suffered sharp falls since May. In the background is the movement among investors to reduce risk assets because of the destabilization of financial markets triggered by the US subprime loan problem. Turning to J-REIT trends by investors, foreigners which were large net buyers in the past have turned into net sellers since June. Even though the spread between dividend yields and 10-yr government bond (JGB) yields fell below the 1 % level at once point, the spread has recovered to the 2.5 % level as a result of the surge of dividend yields due to the sharp fall of J-REIT prices (**Chart 14**).

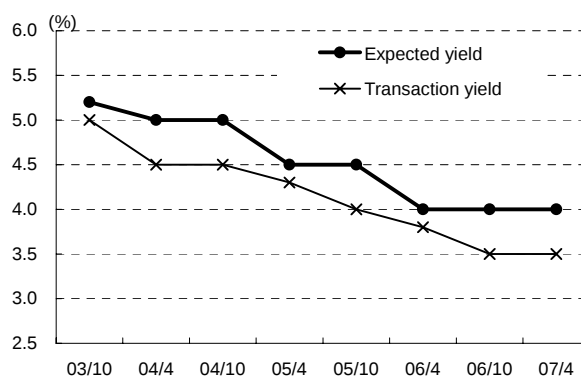
Chart 14: J-REIT yields and 10-yr JGB yields



Source: Bloomberg.

According to a questionnaire survey of real estate investors, real estate prices appear to have peaked in some areas, evidenced by cap rates bottoming out in the Marunouchi/Otemachi business district of central Tokyo (**Chart 15**). However, as evidenced by purchases of properties at cap rates at the 2 % level among investors expecting a considerable rise of rents such as private funds, the fierce competition to acquire properties is still continuing.

Chart 15: Marunouchi/Otemachi cap rates



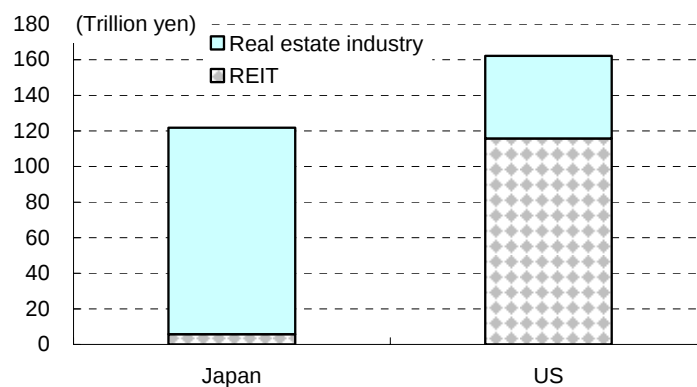
Source: Japan Real Estate Institute, *Japan Real Estate Investor Survey*.

Amid these conditions, there are shifts in the strategies among real estate funds. J-REITs are turning more dependent upon sponsors for external growth. Pipeline support agreements with foreign corporations are considered to be part of this effort. As for internal growth, the key tool in the past was "cost reduction". More recently, "raising rents" has become a more important tool. Meanwhile, private funds used to depend on the "decline of cap rates" to increase their capital gains, but now they appear to be aiming

at enhancing real estate value by "increasing rents."

While the percentage of REITs in the real estate sector (based on total assets) is 70 % in the United States, it is only 5 % or so in Japan (**Chart 16**). Furthermore, given the strong tendency of real estate ownership among Japanese corporations, only 30 trillion yen – or less than 10 % – of the total value of real estate owned by corporations in Japan (500 trillion yen) is securitized (**Chart 17**). On the other hand, companies are required to realize the potential value of their real estate to enhance their corporate value. Looking forward, we expect a further progress in the securitization of real estate.

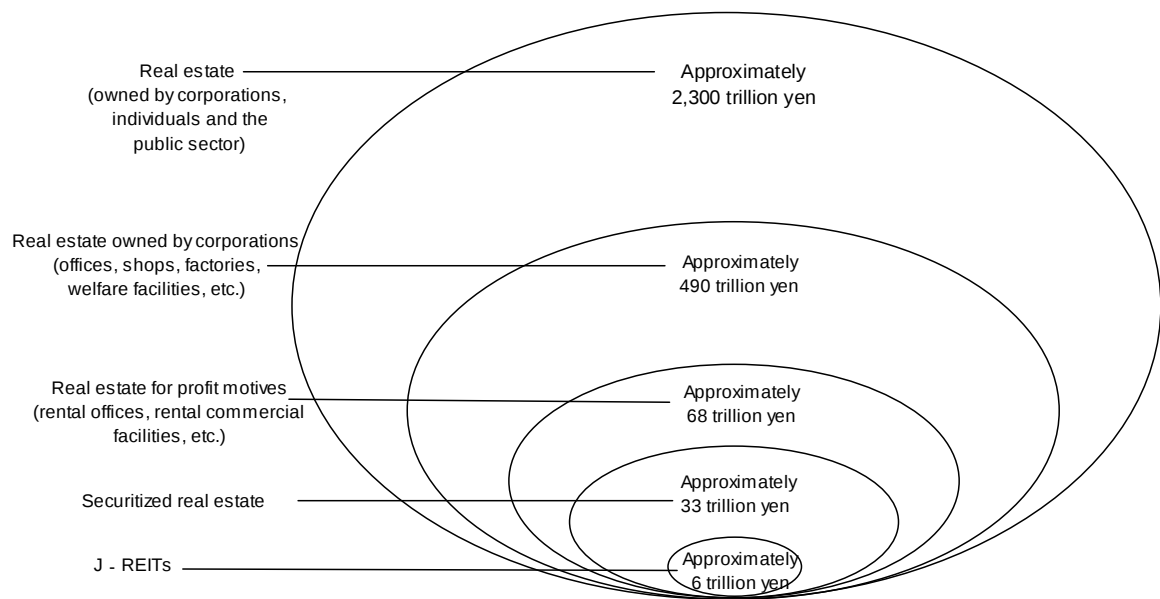
Chart 16: REITs in the real estate sector



Note: The real estate sector represents total assets of listed real estate companies and REITs. Data on Japan are as of the end of 2006 and data on the US are as of the end of 2004. The exchange rate is 104.12 yen/dollar.

Sources: Ministry of Finance, US Internal Revenue Service.

Chart 17: The size of Japan's real estate market



Note: Data on securitized real estate and J-REITs are adjusted to 2006 data by Mizuho Research Institute

Source: Ministry of Land, Infrastructure and Transportation.

2. Highlights of the real estate market

This section focuses on the key issues in the real estate market, including (1) the correlation of global real estate markets and (2) concerns regarding the possibility of another land price bubble in the 23 wards of Tokyo.

(1) Correlation of global real estate markets

a. Correlation of markets in terms of yield gaps of major cities

First, this section will take a look at the correlation between the markets in terms of cap rates and yield gaps of 23 major cities in the world.² The data reveals that cities with large yield gaps in 2004 have experienced sharp falls in yield gaps since then to 2006 (**Chart 18**). In other words, the higher the city's investment profitability, the larger the inflow of global investment money and hence the fall of profitability through the rise of real estate prices.

² The 23 cities are as follows: Amsterdam (Holland), Brussels (Belgium), Cape Town (South Africa), Copenhagen (Denmark), Frankfurt (Germany), London City (Britain), Milan (Italy), Moscow (Russia), Paris (France), Stockholm (Sweden), Mexico City (Mexico), New York (US), Los Angeles (US), Beijing (China), Hong Kong (China), Seoul (South Korea), Sydney (Australia), Tokyo (Japan), Dublin (Ireland), Lisbon (Portugal), Oslo (Norway), Singapore, and Delhi (India).

The data on the 23 cities also shows that the higher the level of long-term interest rates of the city (or the country), the steeper the decline of the yield gap between 2004 and 2006 (**Chart 19**). Even though the level of long-term interest rates and the breadth of yield gap falls are usually considered unrelated, it appears that global investment behavior to keep the actual yield gap high by investing funds raised in other low-interest rate countries has had some impact in the case of investment toward countries with high interest rates.

Given the globalization of real estate investment funds, the arbitrage of cap rates and yield gaps in the major cities of the world are serving to level out the profitability among these cities.

Chart 18: Change in yield gap

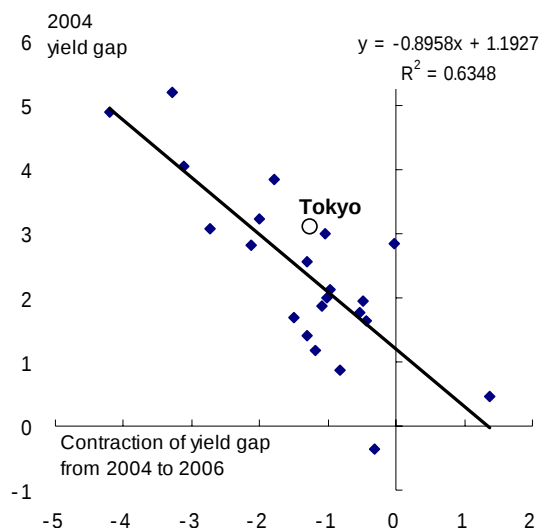
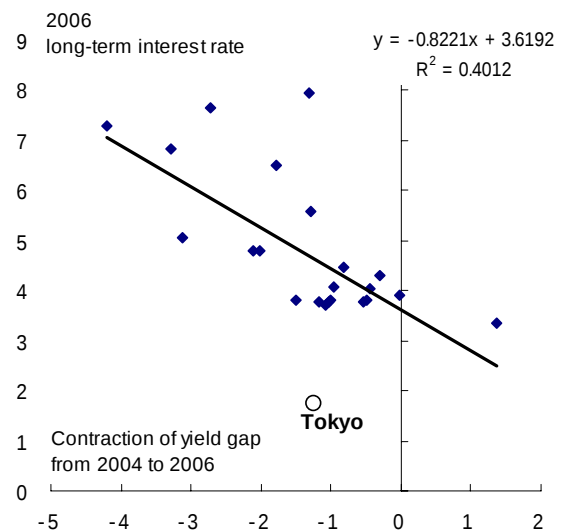


Chart 19: Long-term interest rate and change in yield gap



Source: Colliers International, *Global Office Real Estate Review*. Source: Colliers International, *Global Office Real Estate Review*.

b. Correlation of markets in terms of REIT indexes

Next, we shall look at the correlation between the markets in terms of the REIT indexes of respective countries.

The REIT indexes of the US, Australia, Canada and Japan, all rose from early 2005 until the end of 2006, showing a stronger upward tendency around the end of 2006. However, since the REIT indexes of the US, Australia, and Canada peaked in 2007, the US index has dropped sharply and those of Australia and Canada have gradually started to fall. Even though the Japanese index continued to rise until around May, it has suffered

sharp falls since then.

When we compare the movement of respective REIT indexes by using correlation coefficients (**Chart 20**), the correlation was growing stronger during the period from 2005 to 2006. However, the correlation coefficient in 2007 fell from the previous year, indicating a weaker correlation between the markets.

Real estate prices remain high in many areas around the globe, given the market surge up to now. In the light of the global tightening of monetary policy, conditions are changing from the days when investment in any region in the world would yield high capital returns. A more selective investment approach will be taken in the future.

Chart 20: Correlation coefficient of REIT indexes in the US, Australia, Canada and Japan (upper row: 2005, middle row: 2006, bottom row: 2007)

	US	Australia	Canada	Japan
US	1.00	0.57	0.88	0.79
		0.94	0.94	0.74
		0.40	0.60	-0.17
Australia		1.00	0.67	0.18
			0.90	0.77
			0.56	0.39
Canada			1.00	0.60
				0.83
				0.38
Japan				1.00

Notes: Correlation coefficient of weekly data. Data on 2007 is based upon data up to the end of June 2007.

Source: Bloomberg.

(2) Concerns regarding a real estate bubble in the 23 wards of Tokyo

a. Concerns regarding a bubble in terms of office rents

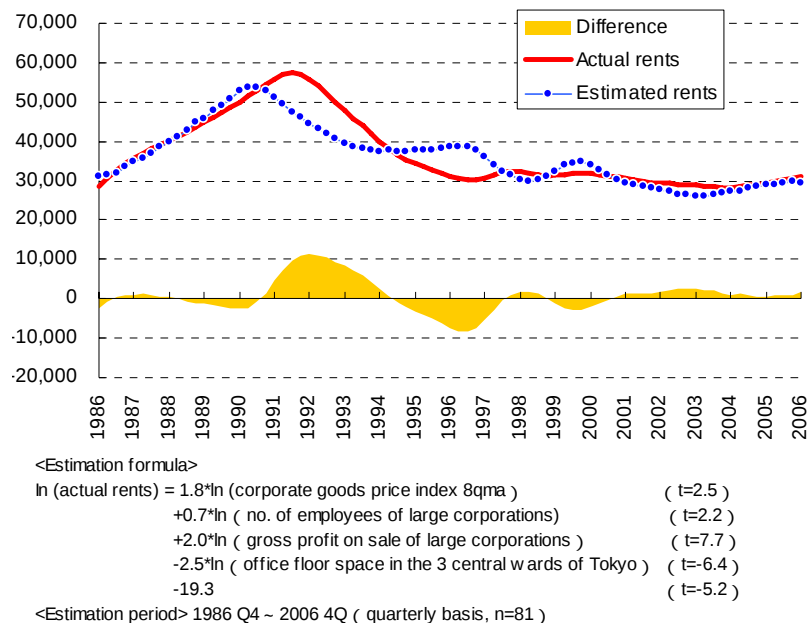
The second key issue in the current real estate market is the possibility of a land price bubble in the 23 wards of Tokyo.

Given the widespread use of the capitalization model for the evaluation of real estate prices, there are many who contend that a bubble would not possibly be created since there would not be a substantial gap between real estate prices and cash flows generated by these properties. However, if evaluations are based on overly optimistic or pessimistic forecasts of rent levels or future outlook, doubts would arise regarding the evaluation of

real estate prices based on the capitalization model. Thus, the validity of rent levels must be examined carefully. In this report, we calculated office rents in terms of fundamentals and compared them with actual rents to examine the validity of recent rent levels. The explanatory variables are: (1) the number of employees of a company; (2) the company's gross profit; (3) floor area of office space; and (4) corporate goods price. Each are proxies of: (1) the actual demand for office space; (2) the tenant's ability to pay rents; (3) office space supply; and (4) expected inflation.

The results of estimations are as shown in **Chart 21**. Recent office rents are almost at the same level of those calculated by using the four explanatory variables, and there is not a large gap in terms of fundamentals.

Chart 21: Results of estimations on office rent



Source: Ministry of Finance, Tokyo Metropolitan Government, Building Owners and Managers Association, Japan.

However, regarding one of the explanatory variables, corporate goods price (expected inflation), the sensitivity of office rents to the variable (how much office rents change when the corporate goods price changes by 1 %) has been rising in recent years. Given a similar phenomenon during the bubble economy era, we must keep in mind that the rise of rents is driven by "expectations."

b. Concerns regarding a bubble in the 23 wards of Tokyo in terms of land PER

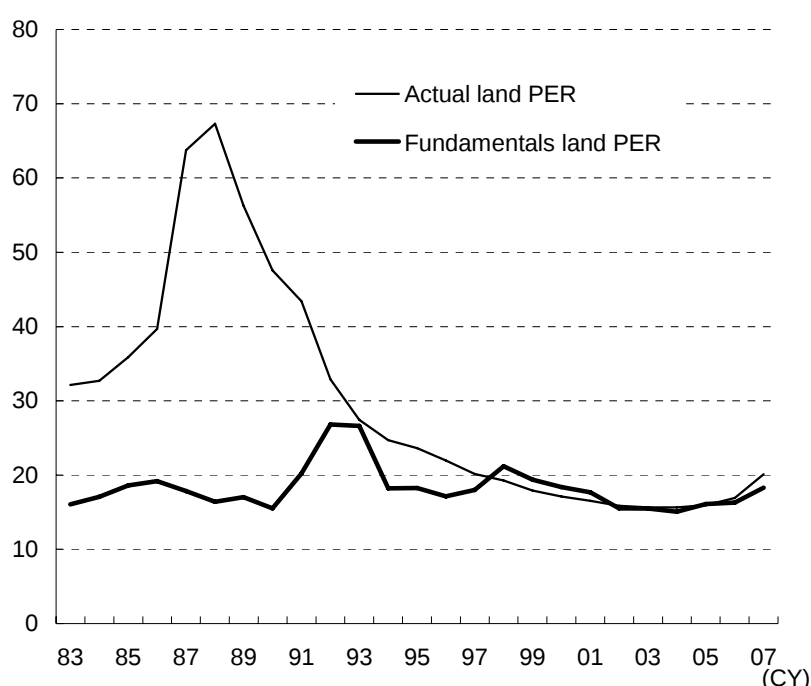
Next, we shall examine whether the entire real estate market in the 23 wards of

Tokyo may be described as a bubble, by using land PER based on the capitalization model on page 7.

We compared the land PER (hereinafter called "actual land PER") calculated by using actual land prices and rents of the 23 wards of Tokyo with the land PER calculated based on economic fundamentals ($=1 \div (\text{safe asset yield} + \text{risk premium} - \text{expected rate of change in rents})$) (hereinafter called "fundamentals land PER"). The risk premium is assumed to remain at 5 % (**Chart 22**).

From the mid-1980s to the early 1990s, the level of the actual land PER was considerably higher than that of the fundamentals land PER, indicating that this period was a bubble era. However, in recent years, the actual land PER and the fundamentals land PER are moving at about the same level. As we mentioned earlier, the recent level of office rents in the 23 wards of Tokyo is almost the same as the level calculated in terms of fundamentals. Therefore, land prices in the 23 wards of Tokyo do not indicate the formation of a bubble.

Chart 22: Land PER trends



Note: Actual land PER = land prices in the 23 wards of Tokyo (published prices) $\div$ office rents (CB Richard Ellis). The level of the data thus obtained is adjusted by using data on net cash yields of offices in the 23 wards of Tokyo in 2005 prepared by the Urban Research Institute, Corp.

Source: Ministry of Land, Infrastructure and Transportation, *Published Land Prices*, CB Richard Ellis, *Office Market Report*, Cabinet Office, *National Income Statistics*, *Annual Survey of Corporate Behavior*, Urban Research Institute, Corp.

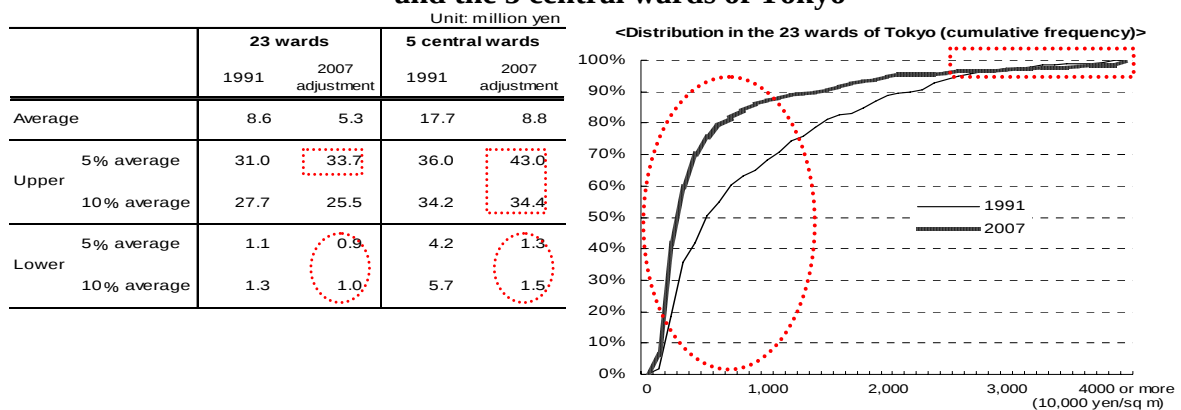
c. Concerns regarding a bubble in certain locations in the 23 wards of Tokyo in terms of adjusted land prices

In some part of the 23 wards of Tokyo, we can see a bubble-like situation in the real estate market. We considered whether this is a mini-land price bubble.

In the process, we used the data of land prices at all locations for the official survey to calculate published prices in the 23 wards of Tokyo. We compared the latest 2007 prices with those of 1991 during the bubble period. Given the differences in economic conditions between the two periods, such as interest rates and estimated growth rates, we adjusted the published prices of 2007 so that they may be compared with those in 1991 under the same economic conditions (hereinafter called "adjusted land price in 2007.")

The adjustment method is as shown in **Chart 23**. The land price (L_t) during the term "t" can be calculated by using rents (α_t) and discount rate (r_t): $L_t = \alpha_t \div r_t$. Therefore, the adjusted land price in 2007 (L'_{2007}) can be calculated by using the published price in 2007 (L_{2007}), discount rate in 2007 (r_{2007}), and discount rate in 1991 (r_{1991}): $L'_{2007} = L_{2007} \times (r_{2007} \div r_{1991})$. As for the discount rates for respective years, we used income return rates.

Chart 23: Distribution of land prices in the 23 wards of Tokyo and the 5 central wards of Tokyo



Note: Land prices are adjusted as follows:

$$L_t = \alpha_t / r_t \quad L_{t+n} = \alpha_{t+n} / r_{t+n}$$

$$L'_{t+n} = \alpha_{t+n} / r_t = \alpha_{t+n} / r_{t+n} \times r_{t+n} / r_t = L_{t+n} \times r_{t+n} / r_t$$

L_t : land price during term t α_t : rent during term t

r_t : discount rate during term t L'_t : adjusted land price during term t

Source: Ministry of Land, Infrastructure and Transportation, *Published Land Prices*, Ikoma Data Service System,

MTB-IKOMA Real Estate Index.

Then, we compared the adjusted land prices in 2007 with land prices 1991. As for

the average land prices of the survey locations, the adjusted land price in 2007 is 5.3 million yen/m², which is only 60 % of the level in 1991 (8.6 million yen/m²) (**Chart 23**). Regarding the five central wards in central Tokyo, the level was below 50 %. When we look at the land price level in terms of the "average price," therefore, the current situation cannot be considered a bubble.

In order to find out whether there is the possibility of a bubble at each spot, we analyzed the distribution of price levels. In the 23 wards of Tokyo, adjusted land prices fell below 10 million yen/m² at 87 % of the survey spots, while the percentage was 68 % in 1991. This means that adjusted land prices in 2007 are distributed in a relatively low price range (**Chart 23**), while distributions at higher price levels in the two periods are very similar. Regarding the average land price of the top 5 % in the 23 wards of Tokyo, the adjusted land price in 2007 was 33.7 million yen/m², which is higher than the average land price in 1991 (31.0 million yen/m²). In the five central wards of Tokyo, the average adjusted land price of the top 10 % was 34.4 million yen/m², which is more or less the same as the average price of the top 10 % in 1991 (34.2 million yen/m²).

The foregoing indicates that, as a whole, the real estate market in the 23 wards of Tokyo may not be described as a bubble, despite the fact that prices for some properties are as high as those recorded during the bubble years.

3. Conclusion

Japan's real estate market is continuing to recover, boosted by sustained economic expansion and expectations that the economy will emerge out of deflation. In the 23 wards of Tokyo, the impact of the real estate investment market is growing stronger. Coupled with expectations toward the rise of office rents, the inflow of money from overseas is driving up the price of real estate.

Japan's real estate market should continue to recover as long as the economy continues to expand. As mentioned earlier, some properties in the 23 wards of Tokyo have posted high prices of the kind witnessed during the bubble years. Note, however, that the current rise of office rents in the 23 wards of Tokyo is driven by "expectations." Considering the rising sensitivity of rents to expected inflation, as observed during the bubble years, there are concerns that conditions very similar to a mini-bubble are intensifying.

Turning to the global real estate market, conditions in which yield gaps are negative as seen in certain parts of the world would not be sustainable, leading to our view that investors will grow more selective regarding their investment targets.

Even though the magnitude of the impact stemming from the financial market

destabilization triggered by the US subprime loan problem is uncertain, the decline of investor risk tolerance should lead to the exodus of investment funds from the real estate investment market. Having said so, the shift may be desirable in some respects as a “reevaluation of risks” in the light of excessive investments in some cases. At the current juncture, the liquidity glut is only “uneven” and not “contracting sharply”. If the financial market regains stability and the US economic slowdown turns out to be benign, the global real estate market may avoid a significant negative effect.

On the other hand, if the credit crunch spreads through the deterioration of financial conditions among banks, it may lead to a considerably large negative impact upon the global real estate market along with a global economic downturn. Since the housing boom was not only limited to the US and experienced more widely in countries such as the UK and Spain, it is possible that the vicious cycle of the housing market correction and economic downturn could spiral out. If events unfold in this manner, the odds are high that the real estate market will suffer a significant correction proportionate to the rise of prices thus far.

The liquidity glut has played a significant role in the maintenance of the real estate market boom up to now. Even though a gradual contraction of the liquidity glut would be desirable for the real estate market, “a gradual contraction” is not a simple matter. It is not yet certain at this point in time how the current financial market destabilization triggered by the subprime loan problem will affect the liquidity glut. Despite signs of a credit crunch in some parts of the world, the mechanism generating the liquidity glut - capital outflows from emerging countries such as China and oil-producing countries - appears to be in tact, reflecting the (1) fast-growing economies of emerging countries such as China, and (2) rising price of primary commodities such as crude oil. Moreover, monetary authorities may continue to take an accommodative stance because of concerns regarding the deterioration of economic conditions and the uneven distribution of liquidity. While this leads to the possibility that it will still take more time for the liquidity glut to shrink, the preservation or further expansion of the liquidity glut may be the most undesirable scenario for the real estate market.

- End -

