

**Japan Real Estate Investment**

**REVIEW**

**2004**



NOMURA REAL ESTATE INVESTMENT MANAGEMENT

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## I . Outlook of Demand for Office Space Between 2003 and 2010

### Executive Summary

**2003-2010: One percent annual growth (8% cumulative growth) in demand for office space nationwide. Occupancy rate improvement expected in Tokyo, Osaka and Nagoya between 2003 and 2007.**

When forecasting the fundamentals of the office market, as the future supply is almost “given”, future demand is obviously the most difficult element to estimate. Thus office demand is always a major consideration in any real estate analysis. Furthermore, in relation with the “2003 problem” experienced by the Tokyo’s market, office demand has lately become the central subject of debate among Japanese analysts. Demand for office space is determined by multiple factors. Among them we can distinguish 1) economic factors and 2) social and cultural factors. These factors are currently undergoing major changes.

In concrete form, (1) the Japanese economy has recently begun to rebound. (2) At the same time, the composition of the nation’s output is changing; as in most developed countries, the service industry in Japan represents an increasing proportion of the output, which should create new demand for office space. (3) However, the Japanese society is aging and so-called “baby boomers” are expected to retire in large numbers by 2010, which would create a void in the number of office workers available to fill this demand. (4) Part of the answer will come from reductions in the waiting lists at daycare facilities, development of part-time jobs and suppression of tax exemptions for spouses, all of which will provide additional opportunities and incentives for women to work. (5) In addition, more and more workers will continue to remain in the workforce past the traditional Japanese retirement age as more and more Japanese corporations are shifting from a promotion by seniority system to an individual performance-based system. (6) This fits in with the fact that facility managers at the largest Japanese corporations are shifting management objectives away from “cost reduction” by mere space reduction to “improvement of productivity”.

Our work has consisted in determining the impact of all of the above changes on two components of office demand: (a) the number of office workers and (b) the office space per worker. Our approach to this analysis is unique from two points of view. 1) Contrary to the traditional forecasts of the number of office workers based on demographic projections (“supply-side forecast”), ours is based on the estimate of the number of employees necessary to achieve the forecasted output (“demand-side forecast”). 2) Some analysts believe that it is a “given” that since the space per worker is small in Japan compared to other countries, it should be expected to grow. We do not see any rational reason that such a change is pre-ordained. However, we believe that the space per worker is determined both by rents and by the revenue of the employers. Our forecast is based on this assumption and supported by a set of two quantitative models.

By combining our forecasts on the growth rate of the number of office workers and on the growth rate in the amount of office space per worker, we estimate the growth for office space demand between 2003 and 2010 to be approximately 1% growth per annum (8% cumulative growth).

By comparing the national cumulative growth in demand to the cumulative growth in supply in

the key marketplaces in Japan (Tokyo, Osaka and Nagoya) between 2003 and 2007, we have found that demand is expected to grow more than supply. Thus, since the growth rate of office space demand is expected to be above average in these key marketplaces, we are projecting an improvement of these markets' occupancy levels between 2003 and 2007.

## Introduction

Fundamentals of the Japanese office market have been worsening since 1998. This phenomenon is primarily characterized by a consistent weakening of demand, except in the year 2000 when the IT bubble was at its apogee. Thus, for several years, office demand has been under the tight scrutiny of real estate analysts. The objective of this report is to deepen the issue by providing an alternative to the current way of devising the office demand outlook.

Office space demand is traditionally defined as the product of two parameters: 1) the number of office workers by 2) the office space used per worker.

These two parameters are determined by various factors. Among them we can distinguish 1) economic and 2) social and cultural factors (see table below). These factors are currently undergoing major changes in Japan.

Economic	Social & cultural
GDP growth	Role of women
Economic structure	Corporate culture
Prices, rents	
Unemployment	
Demographics	

Exhibit 1: Economic and Social & Cultural parameters of office demand considered in our analysis

Therefore, our focus will be on forecasting the number of office workers and the space per office worker until the year 2010 by integrating expected changes in economic, social and cultural factors.

## I. Change in the number of office workers between 2000 and 2010

As in any market, the number of office workers has both a supply and a demand side. The model we use is **demand-determined**. It consists of estimating the number of office workers necessary to achieve the level and the composition of the forecasted output. On the contrary, the current forecasts are **supply-determined** as they are based on demographic projections.

After presenting the results obtained with the demand-determined model, we will explain why we believe this model will deliver a more accurate forecast of the number of office workers than the supply-determined model.

### I-1. Demand-determined forecast

#### I-1-1 Ratio of office worker per industry

For the industry "i", the number of office workers (OW) is estimated by multiplying the population of employees (E) by the percentage of the office workers in this population (OWR).

$$Owi = OWRi \times Ei$$

Based on the statistics provided by the MPMHAPT (Ministry of Public Management, Home

Affairs, Posts and Telecommunications), we have calculated the percentage of office workers per industry as of the year 2000 (see table below). We define the number of office workers for a given industry as the sum of the following items: “Professional and Technical Workers”, “Managers and Officials” and “Clerical and Related Workers”.

(1,000 workers, %)

	Number of workers	Number of office workers included	Ratio
Agriculture, forestry and fisheries	4,163	77	2%
Mining	57	11	20%
Manufacturing	11,298	2,846	25%
Construction	6,901	1,776	26%
Electricity, gas, heat supply, water	462	272	59%
Wholesale, retail	14,225	3,300	23%
FIRE	2,650	1,485	56%
Transport, telecommunication	3,931	1,206	31%
Service	22,882	12,625	55%
Others	30	2	5%
Sum./Average	66,599	23,600	35%

Exhibit 2: Percentage of office workers per industry as of the year 2000.

Source: Japan Center of Economic Research, in The 29th Japanese Economy Middle Term Forecast, MPMHAPT's Labor Survey 20

Along with the energy and water related industries and FIRE, the service sector shows a high percentage of office workers (55%). In our forecast of the number of office workers as of 2010, we will assume that the percentage of office worker for each industrial sector will not change between 2000 and 2010.

### I-1-2 Structural change of the economy and demand for workers

As in most developed countries, the service sectors represent in Japan an ever-increasing proportion of the output.

(trillion yen, %)

	2000	Share	2010	Share	Yearly Average Growth Rate
Agriculture, forestry and fisheries	14	1%	12	1%	-1.6%
Mining	2	0%	1	0%	-1.1%
Manufacturing	323	33%	330	31%	0.4%
Construction	83	8%	64	6%	-2.6%
Electricity, gas, heat supply, water	26	3%	29	3%	3.0%
Wholesale, retail	99	10%	103	10%	0.4%
FIRE	118	12%	126	12%	1.5%
Transport, telecommunication	61	6%	77	7%	5.1%
Service	249	25%	305	29%	4.4%
Others	6	1%	5	1%	-1.2%
Total	980		1,052		0.7%

Exhibit 3: Evolution of the composition of output between 2000 and 2010

Source: JCER in The 29th Japanese Economy Middle Term Forecast

As a consequence, between 2000 and 2010, it is projected that the demand for workers will decrease in most industries, except for the service sectors (see table below). Demand for workers in the service sectors, however, will increase by approximately +3.5 million persons between 2000 and 2010.

Note: Compared to METI's estimate, a 6 million increase between 2000 and 2010, this projection can be considered as relatively conservative.

(1000 workers, %)

	2000	2010	Change	Average Yearly Growth Rate
Agriculture, forestry and fisheries	4,163	3,534	-629	-3.0%
Mining	57	48	-8	-2.9%
Manufacturing	11,298	10,545	-753	-1.3%
Construction	6,901	5,457	-1,445	-4.2%
Electricity, gas, heat supply, water	462	396	-67	-2.9%
Wholesale, retail	14,225	14,204	-21	0.0%
FIRE	2,650	2,633	-17	-0.1%
Transport, telecommunication	3,931	3,971	40	0.2%
<b>Service</b>	22,882	26,344	3,462	3.0%
Others	30	30	0	0.0%
<b>Total</b>	66,599	67,162	563	0.2%

Exhibit 4: Change in the demand for workers between 2000 and 2010

Source: JCER in The 29th Japanese Economy Middle Term Forecast

Demand for labor will, therefore, partially shift from manufacturing sectors (with lower office worker ratios) to the service industry (with higher office worker ratios). Thus even if the total demand for workers does not grow, this structural change would be sufficient to explain an increase in the demand for office workers.

#### I-1-2 Demand for office workers

In addition to the shift in the composition of demand, the demand for workers as a whole is also expected to grow at +0.2% per annum in real terms (see Exhibit 4 above). This growth will generate new jobs that will mostly be directed to the service sector. As a consequence, the demand for office workers (see table below) in the service sector will increase more than it will decrease in the other sectors, translating into a net +1.3 million (+5.5%) increase in the overall demand for office workers between year 2000 and year 2010 (which would be +3.8% for the period 2003 to 2010).

(1000 workers)

	2000		2010		Change	
		Office Workers		Office Workers		Office Workers
Agriculture, forestry and fisheries	4,163	77	3,534	65	-629	-12
Mining	57	11	48	10	-8	-2
Manufacturing	11,298	2,846	10,545	2,656	-753	-190
Construction	6,901	1,776	5,457	1,404	-1,445	-372
Electricity, gas, heat supply, water	462	272	396	233	-67	-39
Wholesale, retail	14,225	3,300	14,204	3,296	-21	-5
FIRE	2,650	1,485	2,633	1,476	-17	-10
Transport, telecommunication	3,931	1,206	3,971	1,218	40	12
<b>Service</b>	22,882	12,625	26,344	14,536	3,462	1,910
Others	30	2	30	2	0	0
<b>Total/Average</b>	66,599	23,600	67,162	24,894	563	1,295

Exhibit 5: Change in the demand for office workers per industrial sector between year 2000 and year 2010

Source: MPMHAPT's Labor Survey 2000

**I-2. Supply-determined forecast**

Due to the fear of a large number of retirements within the baby boomer generation by the year 2010, some analysts estimate that the population of office workers in Tokyo's 23 wards will decrease by 5% from its level in the year 2000. Furthermore, as economic activity is assumed to continue its concentration into Tokyo, these analysts believe that regional cities will be confronted with a fall in the population of office workers even more drastic than Tokyo will experience. As this forecasting method is based on demographic forecasts, it represents the supply-side of the market for office workers.

Therefore, the demand-determined and the supply-determined models are delivering contradictory results. In fact this highlights that if past demographic and social trends continued unabated, a gap may appear between the demand for and the supply of office workers. The supply-side scenario assumes that this gap will not be solved, i.e. that the supply-side is the limiting factor. The demand-side, on the contrary, assumes that this gap will certainly be solved.

**I-2-1. Is supply really a limiting factor on the office workers market?**

We believe that the risk of a decrease in the supply of workers and eventually an imbalance between demand and supply will be avoided by 1) an increase in the contribution by women to the workforce and 2) the extension of activity by workers after the so-called "retirement age" of 60.

**I-2-2. Increase in the contribution by women to the workforce**

Women in Japan are still an under-utilized resource. They represent only 41% of the total workforce while the representation of women in the USA's workforce is approximately 47%. We see three main reasons for this situation.

The first reason is related to the organization of the Japanese family. Traditionally the husband was in charge of earning the family's living while the wife had the responsibility of taking care of the household. Today, this mentality is rapidly changing, as women also desire to pursue careers.

Second, despite a radical shift in the ambitions of women away from the household and towards self-achievement, the child-rearing period keeps being the major barrier to their increased participation in the work force. The labor participation rate by females in Japan has a characteristic "M-shape" which is due to their withdrawal from the labor-force during their child-rearing years (30-34 in particular).

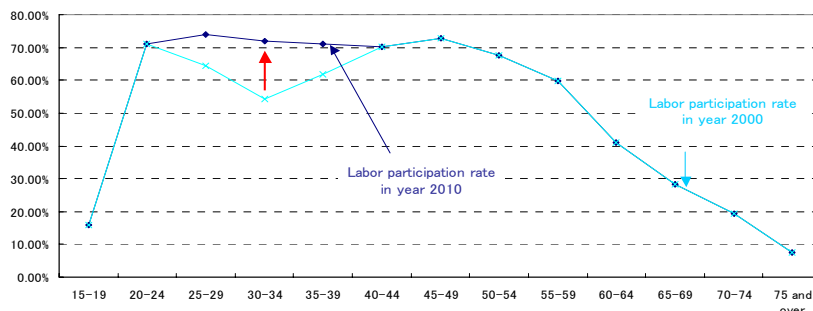


Exhibit 6: Change in female labor participation rate between 2000 and 2010

Source: MPMHAPT's Labor Survey 2000

We expect this curve to shift upwards, closer to the standards of other developed countries, as the government has endeavored to reduce or eliminate the waiting list at day care facilities by creating 150,000 additional places by 2006. The measures implemented to reach this objective are the deregulation of the approbation system for day care facilities, the creation of special day care facilities more adapted to part-time jobs, and the creation of “family support centers” for baby-sitting in case of unexpected overtime work.

Third, in addition to the rigidity of the employment system (full-time jobs only), tax exemptions for spouses were also disincentives for women to work. Thus, the development of part-time jobs and the suppression of the special tax exemption for spouses should also stimulate an increasing contribution by women to the work force.

### I-2-3. Extension of working years beyond the age of 60

Most of the economists point out that the main obstacle to the extension of working years beyond age 60 is the promotion by a seniority system in Japan’s corporate world. In such a system, after a certain age, the value of a worker’s contribution to the company becomes lower than the wage he receives (see figure below).

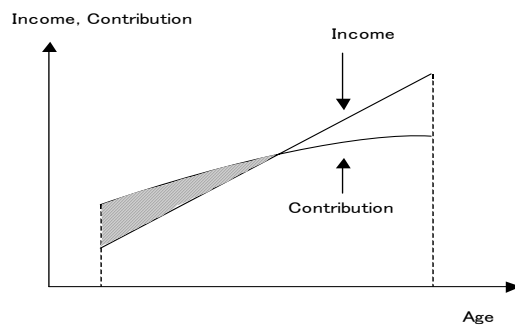


Exhibit 7: Wage and contribution

Source: Lazear (1979, 1981)

As such a situation is not economically sustainable, Japanese companies “have to ask their employees to retire” although these employees want to keep working.

If the wage system shifted to an individual performance-based system, the gap between the wages and the value of the contribution by labor would disappear, thus corporations would not be reluctant anymore to keep more employees after age 60. Is such a change under process in Japan? The answer is yes.

The list below presents an overview (non-exhaustive) of the largest companies that announced in 2003 their intention to shift from promoting by a seniority system to an individual performance-based system.

Name	Announcement	Date
Sony Corporation	Total abolition of sundry allowances, allowance switch to performance-based system	Nov-03
Matsushita Electric Industrial Co., Ltd.	Abolition of a seniority wage system, impacts all employees	Nov-03
Sumitomo Special Metals Co., Ltd.	Abolition of occupational classification, change to a performance-based system, no seniority wage system	Nov-03
Tokyu Department Store Co., Ltd.	All employees to performance-based system	Nov-03
TDK Corporation	Apply performance-based standards to annual bonus, targeting all engineers	Nov-03
Okaya Electric Industries Co., Ltd.	Introduce an annual salary system from 2005, changing to performance-based from next year	Nov-03
Hitachi, Ltd.	Abolition of the seniority wage system, transparency of a personnel evaluation system as a premise	Nov-03
Toyo Engineering Works, Ltd.	Performance-based system for employees who wish it	Nov-03
Yakinikuya Sakai Co.,Ltd.	Performance-based system for senior shop managers	Nov-03
Shionogi & Co., Ltd.	The wage system based on occupational classification to fade away, allowances abolished for executives	Oct-03
Tohato Inc.	Performance-based system for all employees, wages paid based on the degree of achievement	Oct-03
Nojima Corporation	Semi-annual salary system introduced, performance-based	Sep-03
Keihin Electric Express Railway Co., Ltd.	Retiring-allowance point system, result reflected every year in points accumulation	Sep-03
Shinano Railway Co., Ltd.	Performance based, first to carry out as a semipublic enterprise in Nagano, maximum of 25% gap	Aug-03
Matsuzakaya Co., Ltd.	Recruits mid-careers by the annual salary system, year-round recruitment for sales reps and juniors	Aug-03
Daito Trust Construction Co., Ltd.	Change to performance-based system for all employees, abolition of age-linked wages	Jul-03
Mercian Corporation	Enlargement of performance-based system	Jul-03
Mitsubishi Pharma Corporation	Abolition of age-linked wages, unified service allowances	May-03
Takeda Chemical Industries, Ltd.	Unified allowances, performance-based system starting from next month	May-03
Kojima Group	Productivity improvement sought using performance-based system, targeting all executives	May-03
Best Denki Co., Ltd	Productivity improvement sought using performance-based system, assesses every three months	May-03
Mazda Motor Corporation	Abolition of periodic increment, performance-based system starting from next month	Apr-03
Nippon Conveyor Co., Ltd.	Change to performance-based system	Apr-03
Nikon Corporation	Performance-based system starting from July, reflected in bonus	Apr-03
Fujikyu Corporation	150 SCs boosted workplace morale using performance-based system	Apr-03
Seiko Instruments Inc.	Abolition of periodic increment and wages, change to performance-based system	Apr-03
Sekisui Plastics Co., Ltd.	Abolition of age-linked wages to all employees from July, change to performance-based system	Apr-03
Kinki Nippon Tourist Co.,Ltd	Abolition of age-linked wages, possible to become a manager at the age of 27	Apr-03
Isetan Company Limited	Salary fluctuates with employee contribution, performance-based system to target employees above assistant manager level	Mar-03
Daifuku Co., Ltd.	Abolition of age-linked wages for employees over 25, qualifications and results are reflected	Mar-03
Isuzu Motors Limited	Performance-based for all employees	Mar-03
Mori Seiki Co., Ltd.	Retiring-allowance point system for all employees	Mar-03
The Hachijuni Bank, Ltd.	Change to performance-based system from April, abolition of age-linked wages with periodic increments	Feb-03
Nippon Denwa Sshisetsu Co., Ltd.	Abolition of age-linked wages	Feb-03

Exhibit 8: From promotion by seniority system to individual performance-based system, Source: NREIM based on announcements published in the Nikkei Journal in year 2003

Although less advanced, such a shift is also in progress at small and medium businesses. According to a survey by the Tokyo Chamber of Commerce\*, 47% of the companies surveyed have already reformed their promotion by seniority system and 24% are considering reforming it in the short-term.

\*Note: As of June 2003, the companies surveyed were 1,400 small and medium corporations, members of the Tokyo Chamber of Commerce.

### I-3. Summary related to the outlook of the number of office workers

As a result of the increase of the labor participation rate of female and the extension of working years beyond age 60, we believe that supply will meet demand on the of labor market. Thus when forecasting the number of office workers, we believe that the demand-determined model is more accurate than the supply-determined model.

It is now appropriate to turn our attention to the second major component of the demand for office space, the space per worker.

## II. Change in the space per worker

Some analysts believe it is a “given” that since the space per worker in Japan is small when compared to other countries, it should be expected to grow. However, we do not see any rational reason that such a change is pre-ordained. In fact, we believe that the space per worker is really determined both by the rent and the revenue of the employers.

Based on this fundamental assumption of ours, in order to estimate quantitatively the change that will occur in the space per worker, we used two models. The first model is based on national series and the second model is based on an cross-section analysis.

### II-1. National series based model

In the national series based model, the office space per worker (OS/w) is the explained variable; while rent  $\textcircled{R}$  and real GDP are the explanatory variables. Using a simple linear regression, we obtained the results presented in the following Technical Highlight.

<u>Technical highlight 1</u>
$\text{LN (OS/W)} = 0.4259 \times \text{LN (GDP)} - 0.1329 \times \text{LN } \textcircled{R}$
<u>Data:</u> The series for rent and GDP are data ranging from 1983 to 2002. Rents and office space per worker series are provided by the BOMAJ (Building Owners and Management Association, Japan); GDP series are statistics from the Bank of Japan.
<u>Validity:</u> The coefficients obtained are all significant and the value for R2 is as high as 95%. Thus, we could claim to verify the validity of the model.

Using forecasts for real GDP and CPI provided by the JCER and assuming that rents will change according to the level of the CPI, we have estimated the future value of OS/w for the period 2003 to 2010. The graph below displays the evolution of both the real and the past theoretical values, as well as the forecast of the office space per worker.

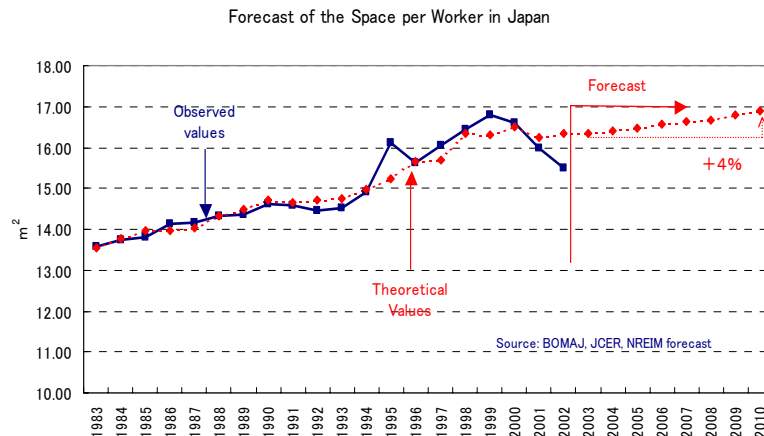


Exhibit 9: Forecast of the space per worker in Japan from year 2003 to year 2010.

Source: BOMAJ, JCER, NREIM estimate

The conclusion we derive from this model is that the office space per worker should increase by approximately 4% between the years 2003 and 2010.

This result is apparently in contradiction with the sudden fall that space per worker experienced in year 2002. However, the chart reveals that in both 1995 and 1999, although large divergences appeared between the real and the theoretical values of space per worker, in both cases, the real value quickly came back to the theoretical value. Thus we believe that the sharp decrease in space per worker that occurred in 2002 is only, as was the case in the past, a momentary over-reaction. We discuss this subject in more detail in paragraph II-2-3.

In addition to forecasting the space per worker based on the analysis on national time series, we have also used an international cross-section analysis.

## II-2. Cross-section analysis based model

In addition to our first assumption (related to the role of rents and revenue of corporations in the determination of the space allocated per worker), the cross-section analysis requires a second assumption: We assume that Japanese companies will tend to align the ratio of their costs as a percentage of their revenue in order to maintain their competitiveness in the international marketplace.

Based on this assumption we have developed a model that relates the space per worker to the ratio between the annual revenue per worker and the rent level.

### Technical highlight 2

Thus, we have assumed that the weight of the annual facility management costs (FC) against the revenue of the corporations (S) would be the same (K) as in any developed country, i.e.  $FC \div P = K$  ①.

Then, by dividing FC and P by the number of office workers, we obtain  $FC_{/w} \div P_{/w} = K$  ②.

We define the facility cost per worker ( $FC_{/w}$ ) as the product of the space per worker ( $OS_{/w}$ ) and the rent  $R$ . Thus relationship ② becomes  $(OS_{/w} \times R) \div P_{/w} = K$  ③.

We can also rewrite the relationship ③ as  $OS_{/w} = K \times P_{/w} \div R$  ④.

This relationship means that in our model the space per worker is a function of the ratio between the annual revenue per office worker and the annual rent.

Using this model, we plotted the space per worker (Y axis) against the revenue per worker (X axis) for selected major international cities (see graph below), which we assume to be representative of each country.

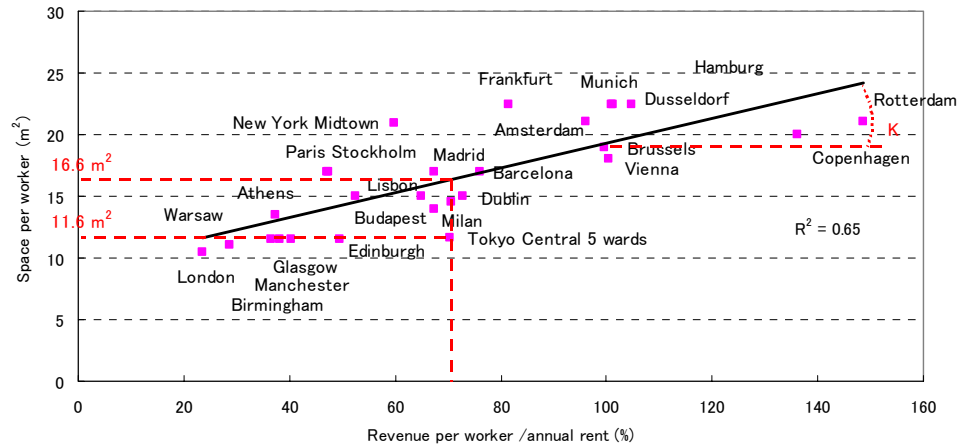


Exhibit 10: Space per worker in selected countries as of 2003

Source: DTZ, PMA, NREIM's estimate

**Technical highlight 3**

By regressing  $P_{/w} \div R$  against  $OS_{/w}$  we obtained the following equation.  $LN(OS_{/w}) = 0.4458 \times LN(P_{/w} \div R) + 0.1028$  ⑤

Data: The statistic for the space per worker is the space per workstation provided by DTZ in its Global Occupancy Cost Survey 2003; the statistic for the revenue per worker is the gross city product (GCP) per capita provided by PMA (Property Market Analysis); and the statistic for rent is provided by DTZ (in Euro/m2/year).

Validity: We obtained coefficients that all were significant, and a value for  $R^2$  as high as 65%. Thus, we feel we verified the validity of our assumptions.

We observed that the theoretical level of space per worker was 1.5 times larger than the real level for Tokyo. In other words, Japanese business entities could increase their space per worker by 50% while maintaining their competitiveness. This finding means that the facility cost to a Japanese business entity is not an expense that needs to be further reduced in order to improve its international competitiveness. As a result, in our view there is no reason to believe that the space per worker in Japan will decrease.

Having said that, the question is: will it increase? In order to answer this question, we have to analyze the impact that the future economic and cultural changes will have on the space per worker. Indeed, we believe that the change in space per worker is determined by 1) changes in the value of rents and revenue of business entities (according to relationship ⑤, See Technical Highlight 3) the space per worker; and by 2) future changes in Japan's corporate culture, specifically in the objectives of the facility managers. Let's explain those two points in the next paragraphs.

### II-2-1. Growth in space per worker due to changes in economic factors

Based on the cross-section analysis and assuming that the revenue of corporations in Tokyo grows at the same pace as the national GDP (+0.7% yearly average) and that rents will grow in accordance with the CPI, we calculate that the space per worker will grow by approximately 4% from 2003 to 2010. This result is similar to the one obtained using the national regression based model discussed above.

#### Technical highlight 4

As noted above, equation ⑤ provides a relationship between the amount of space per worker and the ratio between revenue per worker and rent. Notwithstanding that explanatory variables may change, this relationship can be of help in predicting the future value of the space per worker in Tokyo. Of course, due to the divergence between the real and theoretical values for Tokyo we cannot use the entire relationship. However, according to our assumptions, due to international competition the trade-off between space and rents should be the same in Japan as it is in the other countries in the world. Thus, the slope (0.4458) determined in equation ⑤ should also be true for Japan.

### II-2-2. Growth in space per worker due to changes in corporate culture

As we wrote it above, the second factor that will determine the level in space per worker is future changes in Japan's corporate culture, specifically in the objectives of the facility managers.

As noted in the introduction to this Part II, we do not believe the argument that simply because the space per worker in Japan is small compared to that in the USA or Europe, it will inevitably increase. Indeed, we believe that the difference between the real and the theoretical values of the space per worker in Japan (according to the cross-section analysis) is principally due to corporate culture related factors.

One way to prove our postulate is to compare the space per worker between Japanese entities and foreign-affiliated entities doing business in Japan. The graph below shows that the divergence between the space per worker at Japanese companies and foreign-affiliated companies doing business in Japan is similar to that evidenced in the cross-section analysis. Thus, this means that most of the divergence can only be explained by non-economic or "cultural" reasons. However it argues against the likelihood of Japanese entities conforming to international standards overnight, it does not mean that this divergence will last forever. "Culture" is indeed changing.

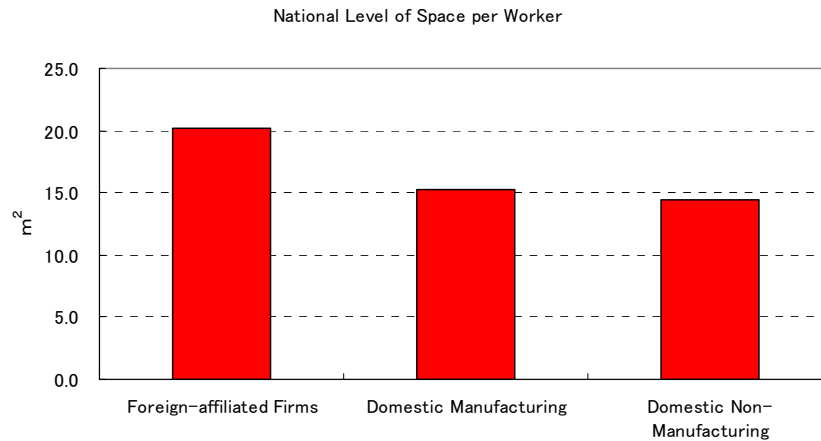


Exhibit 12: Comparison between the space per workers at domestic and foreign-affiliated corporations located in Japan as of 2002

Source: BOMAJ

According to the New Office Promotion Association (NOPA, March 2003)\*, the traditional management objective of lowering the entity's costs will have its level of priority downgraded from the second highest to the eighth highest position between 2002 and 2005. Likewise, the management objectives of facility managers are also progressively changing. According to Mister Watanabe\*\* (Facility Manager at SONY), "management objectives are shifting away from space reduction to improvement of productivity". Although this change is currently happening principally at the largest corporations, we believe that this way of thinking will ultimately spread to the entire market. The potential impact of such a change in corporate culture is discussed below.

Note: This result is based on a survey of 2,712 listed companies as of year 2002.

\*\* Note: In "The study of the space per worker" (direct translation), Sanko Estate Homepage, 2003

### II-2-3. Conclusions regarding the expected impact of a key cultural change on the space per office worker

In both cases reviewed above (the national series-based model and the cross-section analysis based model), we found that the current level of space per worker in Japan is significantly lower than its theoretical value. We believe that the divergence between the theoretical and the real values of the space per worker evidenced in the cross-section analysis results from national changes in economic and cultural conditions. Thus, in the following paragraphs, we analyze the potential impact of future changes in corporate culture at national corporations.

After the collapse of Japan's bubble economy, the balance sheets of Japanese companies were damaged by asset depreciation. To deal with this problem, corporations began to reduce their costs. Office occupancy cost was one, and facility managers were given objectives in terms of "space reduction". As a consequence (see Exhibit 10), between 1990 and 1993, the space per worker decreased by design. However, from 1993, facility managers failed to achieve this objective as the space per worker increased as a result of the development of office automation.

After 2000, however, the reduction in the size of computers used by office workers and the growth of outsourcing of the IT function provided new opportunities to facility managers (still acting upon the objectives of the early 90's) for additional space reductions. This translated into a further decrease in the space per worker.

In the shift of the facility managers' objectives from mere "space reduction" to "improvement of productivity", we believe there will be a "return to economic rationality". Thus, we expect that the real value of space per worker will converge towards the theoretical value calculated in our model.

We believe that this key cultural change will have a positive effect on the space allocated per worker in Japan, and we think that our projection of a 4% growth in space per worker should be regarded as a conservative estimate, as it ignores the positive impact of corporate cultural changes (see figure below).

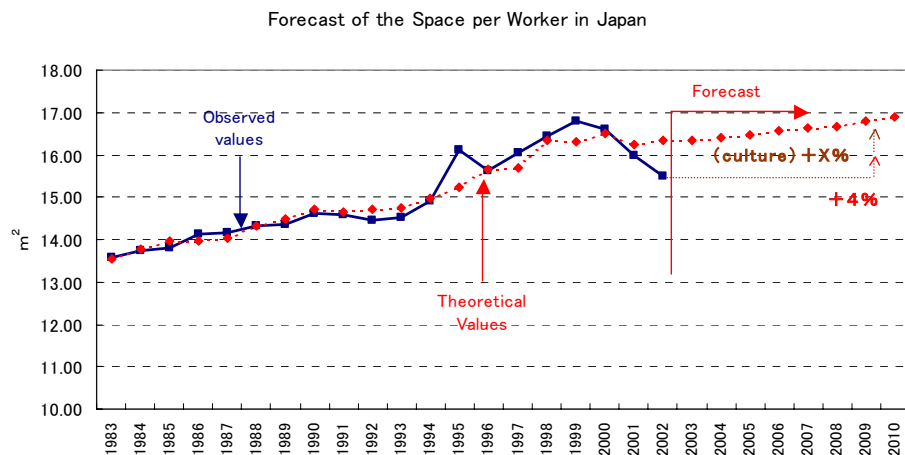


Exhibit 13: Economic and cultural factor contributions to the growth of space per worker between 2003 and 2010 (conceptual scheme)

### III. Conclusion regarding the outlook of demand for office space in Japan

By combining the expected growth rate of the number of office workers and the space allocated per office worker, we estimate the expected growth for office space demand between 2003 and 2010 to be approximately 1% growth per annum.

As this estimate does not take into account the positive effect of corporate culture changes, and assumes an average economic growth lower than what is currently expected by most of the economists, we believe that an average +1% growth per annum in office demand should be considered as a conservative estimate.

By comparing the national cumulative growth in demand to the cumulative growth in supply in the key marketplaces in Japan (Tokyo, Osaka and Nagoya) between 2003 and 2007 (2007 is the limit for forecasting supply with reasonable accuracy), we have found that demand is expected to grow (+5% between 2003 and 2007) more than supply (see table below). Thus, since the growth rate of office space demand is expected to be above average in these key marketplaces (they concentrate most of the economic activity in Japan), we are expecting an improvement of these markets' occupancy levels between 2003 and 2007.

Gross Building Area (Tsubo)	Tokyo 23 wards		Osaka		Nagoya	
	Stock ※1	New Supply ※2	Stock	New Supply	Stock	New Supply
2001	23,888,100		8,380,090		3,412,219	
2002	24,266,888	378,788	8,409,639	29,549	3,417,084	4,865
2003	24,924,464	657,576	8,464,812	55,173	3,434,742	17,658
2004	25,230,525	306,061	8,562,209	97,397	3,450,470	15,728
2005	25,454,767	224,242	8,611,922	49,713	3,494,771	44,301
2006	25,666,888	212,121	8,611,922	0	3,494,771	0
2007	25,897,191	230,303	8,611,922	0	3,596,166	101,395
Growth rate (03—07)	3.9%		1.7%		4.7%	

The stock as of the year-end 2001 is based on data provided by the MPMHAPT. For further details on the method, see Review Summer 2003. New supply is provided by Ikoma (ex-Tokyo 23 wards) and Mori Building (Tokyo 23 wards). New supply is comprised of rental and owner-occupied buildings but ignores smaller scale buildings.

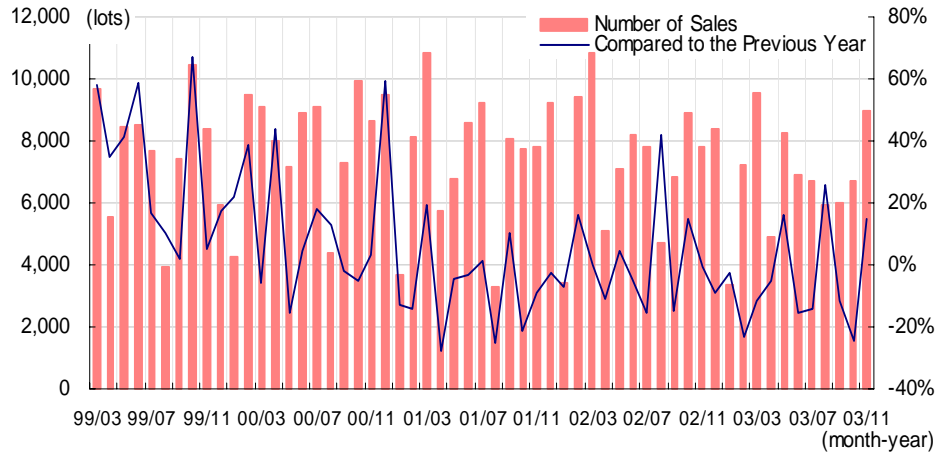
Exhibit 14: Estimate of the cumulative growth rate of office supply between 2003 and 2007

## II. Real Estate Market Trends

### 1. Trends in the Condo Market

#### ① Trends in the Number of Sales

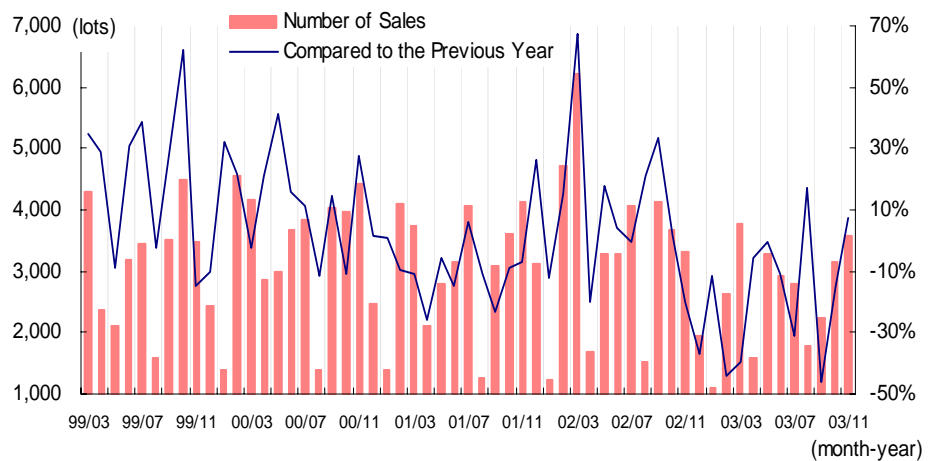
<Tokyo Metropolitan Area>



Source: Real Estate Economic Institute

According to the Real Estate Economic Institute, the number of condominiums sold in November 2003 was approximately 8,970 units, up 15.0% from the same month the year before.

<Kinki Area>

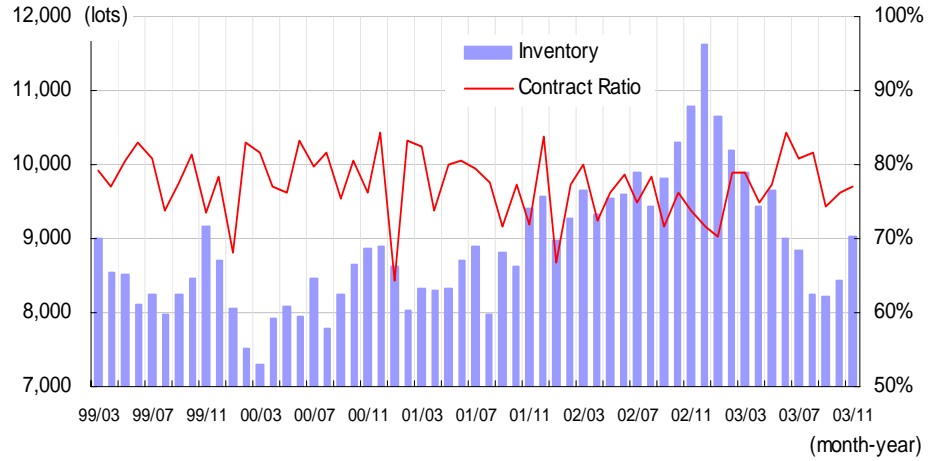


Source: Real Estate Economic Institute

Some 3,576 condominiums were sold in the Kinki Area in November 2003. Comparing this to last year's sales, they were up 7.7% from the same month of the year before.

② Trends in Contract Ratio and Inventory

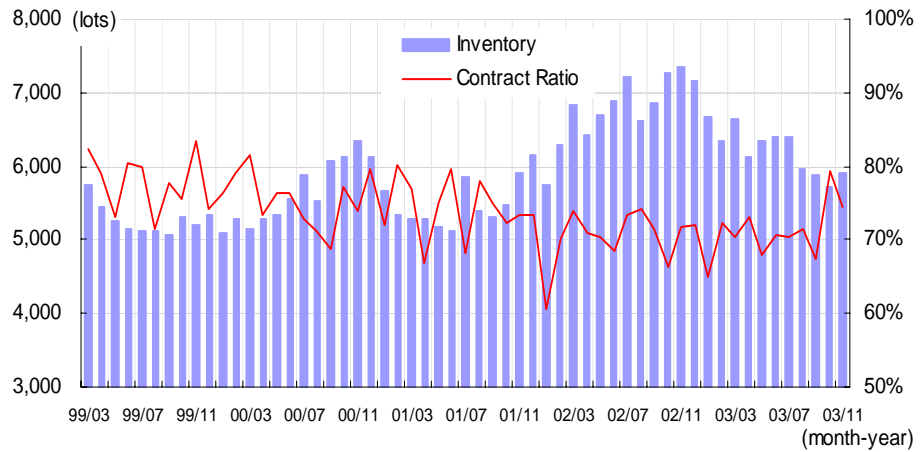
<Tokyo Metropolitan Area>



Source: Real Estate Economic Institute

The year-on-year change of the contract ratio for November 2003 has remained at a satisfactory level of 76.9%. Moreover, it represents an increase of 3% from the same month of the year before.

<Kinki Area>



Source: Real Estate Economic Institute

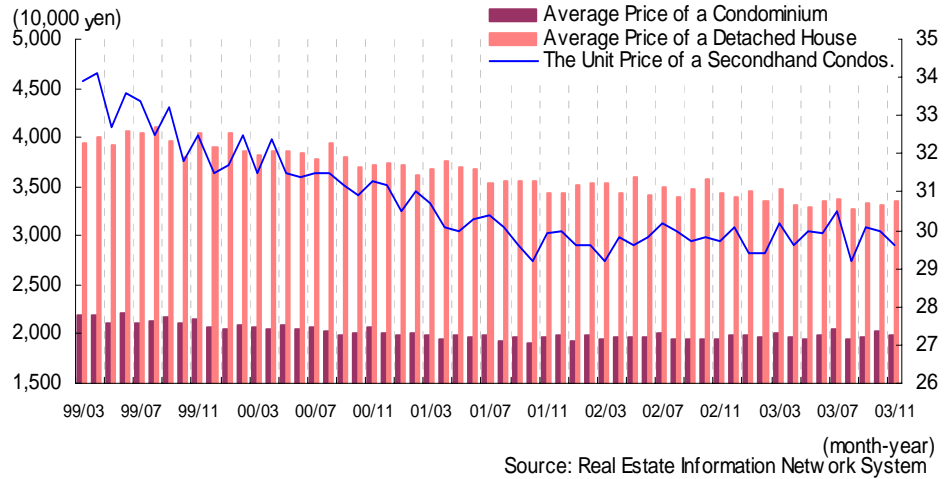
The contract ratio for November 2003 was 74.4%, the second consecutive month in which a year-on-year increase from the same month was recorded.

The inventory at the end of October decreased to 5,911 units (down 19.5% from the same month of the year before). It was the 9<sup>th</sup> consecutive month of decrease.

2. Trends in the Distribution Market

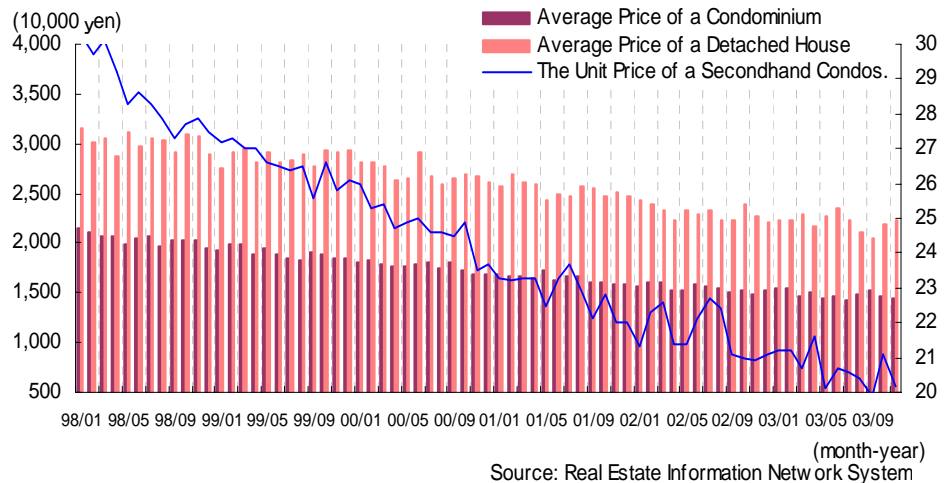
① Trends in Average Contract Price

<Tokyo Metropolitan Area>



According to the Real Estate Information Network for East Japan, the average price of condominiums sold during November 2003 was ¥19.93 million, the 3<sup>rd</sup> consecutive month of increase.

< Keihanshin Area >

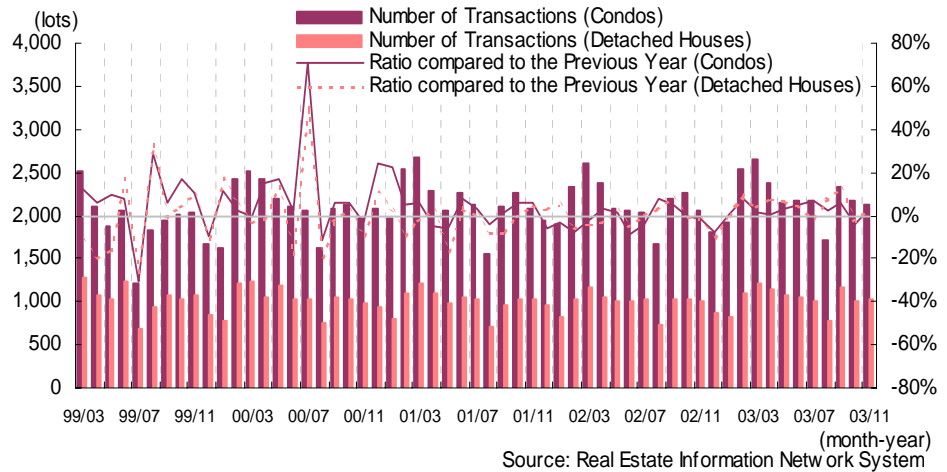


According to the Real Estate Information Network for Kinki Region, the average price of condominiums sold in November 2003 in the Keihanshin Area was ¥14.44 million.

However, the average price of detached houses was ¥22.31 million, the 5<sup>th</sup> consecutive decrease from the same month of the year before.

② Trends in Number of Transactions

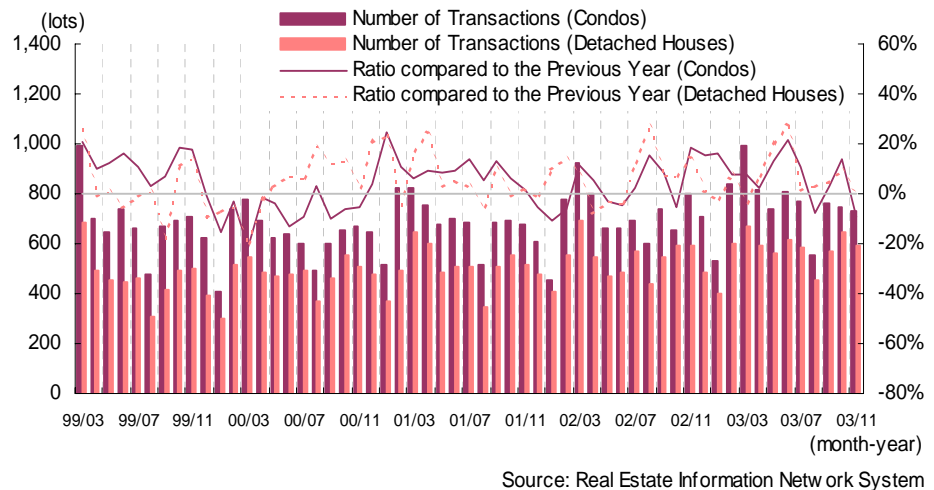
<Tokyo Metropolitan Area>



According to the Real Estate Information Network for East Japan, the number of contracts concluded for condominiums in November 2003 was 2,134, which is up 3.4% from the same month of the year before.

Meanwhile, some 1,039 contracts (up 3.4% from the same month of the year before) were concluded for detached houses.

< Keihanshin Area >



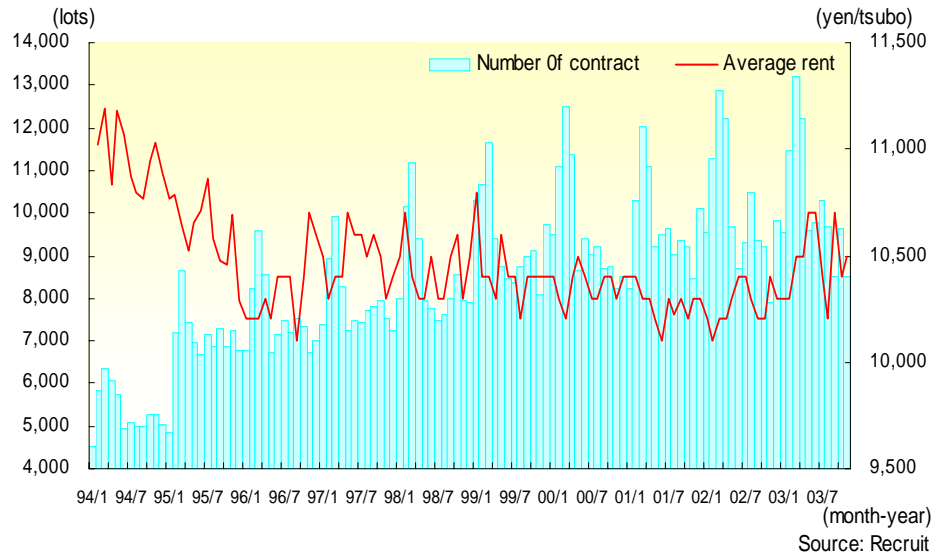
According to the Real Estate Information Network for Kinki Region, 730 contracts (down 9.1% from the same month of the year before) were signed for condominiums in November 2003.

The number of contracts signed for detached houses was 593. This was the 8<sup>th</sup> consecutive month in which a year-on-year increase was recorded.

**3. Trends in the Rental Condominium Market**

Trends in Average Rent and Number of Transactions

<Tokyo>



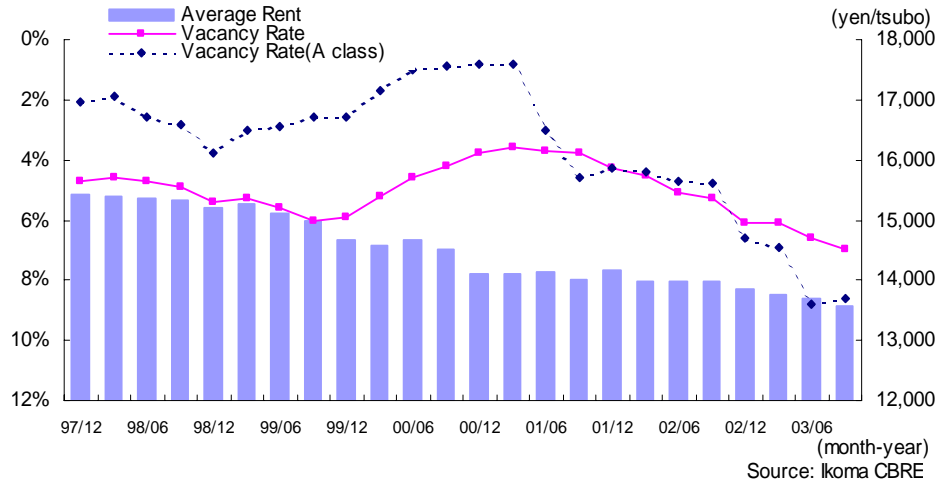
According to Recruit, the number of rental transactions in Tokyo City in November 2003 was 8,521, which is down 11.4% month-on-month but up 7.6% from the same month of the year before.

Meanwhile, rent was 10,500 yen/tsubo per month, up approximately 1% on a month-on-month basis and 1% on a year-on-year basis.

4. Trends in the Office Market

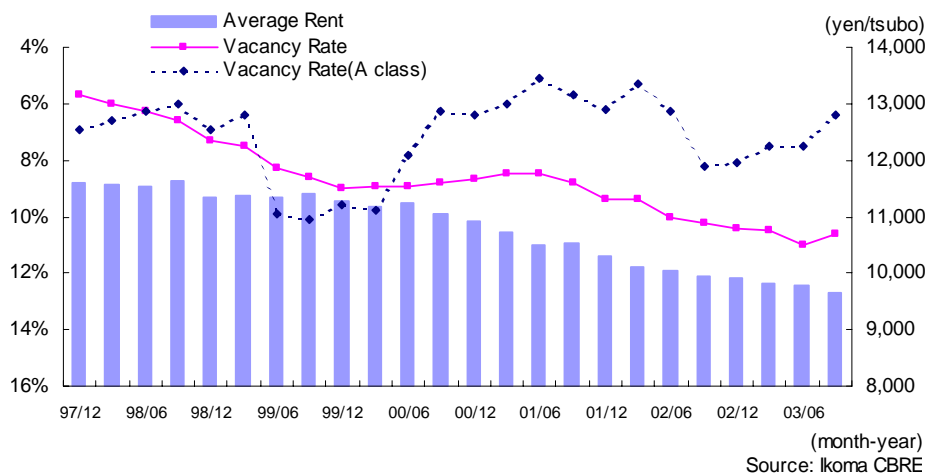
Trends in Asking Rents and Vacancy Rates

<Tokyo 23 Wards>



According to Ikoma CBRE, the average vacancy rate for Tokyo's 23 Wards in September 2003 was 7.0%, a consistent increase since March 2001. However, average asking rent keeps trending downward, at 13,570 yen/tsubo per month in September 2003. Meanwhile, the vacancy rates for Class A buildings are at 8.6%, a 0.2% decrease compared to June 2003. After 7 months of deterioration, the vacancy rates for Class A buildings have begun to improve.

<Osaka city>

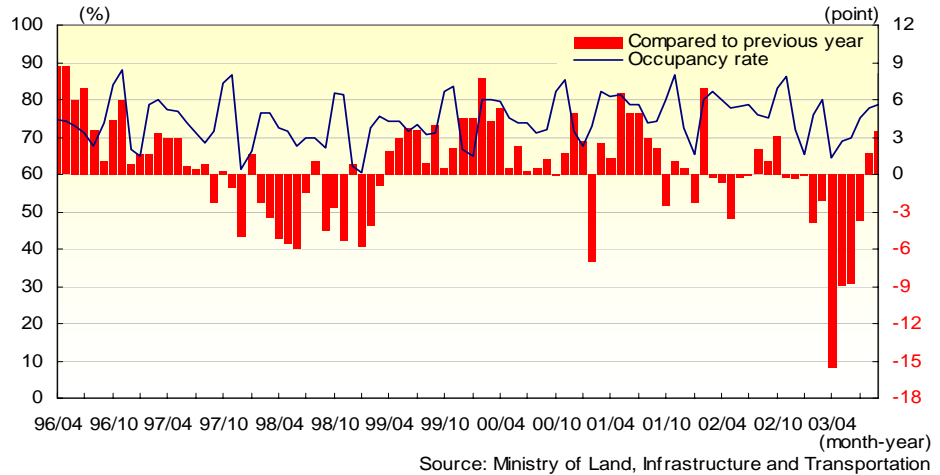


According to Ikoma CBRE, the average vacancy rate for Osaka City as of September 2003 was 10.6%, down 0.4 points compared to previous month. Average asking rent fell to 9,650 yen/tsubo per month. Meanwhile, vacancy rates for Class A buildings improved by 1.1 points from the previous month to 6.4%.

**5. Trends in the Hotel Market**

Trends in Occupancy Rates

<Tokyo and Osaka Areas>



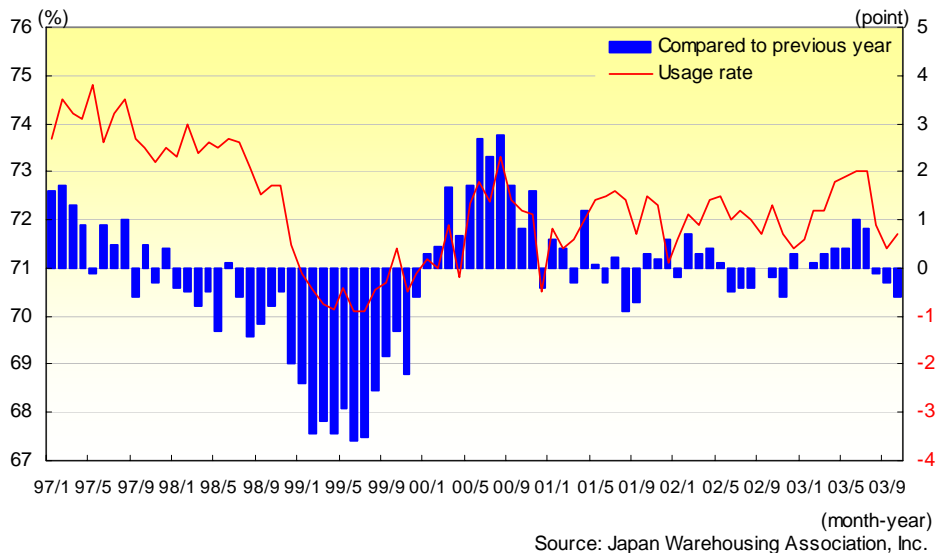
According to the Ministry of Land, Infrastructure and Transport, the hotel occupancy rate for September 2003 improved by 3.5% year-on-year to 78.8%.

Source: Ministry of Land, Infrastructure and Transport

**6. Trends in the Logistics Market**

Trends in Warehouse Usage Rates

<Major 21 Companies>



According to the Japan Warehousing Association, the warehouse usage rates for 21 major warehousing companies for October 2003 went downward slightly on a year-on-year basis to 71.7%.