

Property Derivatives Study Report

June 2007

Property Derivatives Study Group

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Outline of the Study Group workshops

The Property Derivative Study Group held three workshops from February to March 2007 to deliberate the following.

- First meeting (February 21, 2007)
 - Purpose of establishment of the study group
 - Current status of overseas property derivatives
- Second meeting (March 14, 2007)
 - Impact of property derivatives on the real estate market
- Third meeting (March 28, 2007)
 - Organization of previous discussions

The study group was established by Nomura Research Institute, Ltd., as the secretariat under consignment by the Ministry of Land, Infrastructure and Transport, Japan.

Committee members (As of March 31, 2007)

Chairperson: Yuichiro Kawaguchi; Professor, Graduate School of Finance, Accounting and Law, Waseda University

Member: Atsuo Akai; Managing Director, Morgan Stanley Japan Securities Co., Ltd.

Member: Takako Idee; Professor, Department of Economics, Seikei University

Member: Yasumasa Oshima; General Manager, Asset Management Headquarters, Millea Real-Estate-Risk Management, Inc.

Member: Kotaro Omae; Special Invited Associate Professor, Faculty of Policy Management, Keio University

Member: Chihiro Shimizu; Associate Professor, Department of International Economics, Reitaku University

Member: Yuichi Hiromoto; President and CEO, Mitsubishi Corp.-UBS Realty Inc.

Member: Takumi Matsuo; Group leader of General Coordination and Policy Planning, Derivatives Department, Tokyo Stock Exchange, Inc.

Member: Soichiro Moridaira; Professor, Graduate School of Finance, Accounting and Law, Waseda University

Member: Masaru Watabe; Commercial Property Investment Planning Department, Commercial Property Development & Investment Headquarters, Mitsubishi Estate Co., Ltd.

(In the order of the Japanese syllabary)

Note: Participation as observers by the Ministry of Land, Infrastructure and Transport, Development Bank of Japan, and The Association for Real Estate Securitization.

1. Introduction

Triggered by the breakdown of the "land myth," which was the long-held belief in Japan that land prices would continue to rise forever, due to the collapse of the bubble economy, properties are now being recognized as risk assets.

When risks exist, the need always exists to hedge and transfer them. Derivative transactions were developed and became widespread as one of the methods to respond to such needs, now becoming a vital element in currency exchange and interest rates in particular. Furthermore, with the development of deregulation and the need to avoid the risks of price fluctuations, derivatives are now actively used in diverse areas outside of finance, such as commodities and weather, which has an affect on electric power.

As for properties, the awareness of property as risk assets is widespread, and it is expected that the need to hedge or transfer risks will increase; simultaneously, there is a high possibility of an increased need for corresponding derivative methods.

In fact, in the US and the UK, property derivative transactions have been implemented in a variety of forms in recent years. In the United States, it has been observed that property investment income using property indexes and interest rates swap transactions are being conducted in a relative manner. In May 2006, futures and futures option transactions utilizing house price indexes were listed on the Chicago Mercantile Exchange; developing an environment where property derivatives can be widely used by individuals. In the UK on the other hand, even though it was for a very short period, derivatives of indexes indicating earnings rates of commercial properties were listed. In addition, indexes are currently being actively used for total return swap transactions.

Amid such circumstances, for better or worse, there is a high possibility of property derivative transactions taking place and becoming widespread in Japan in the future.

Once property derivatives become available, it will provide new investment opportunities for properties and allow developers and property owners to hedge against the risks of drops in property value. For example, the possibilities to hedge against land price fluctuation risks during urban development process, to avoid the risks of asset price declines due to the accounting for impaired assets, or to hedge against risks of decreases in assets value as collateral for a real loan may occur.

In particular, a project to create consistency with international accounting standards on a global basis (the so-called convergence problem) is currently proceeding. With such a movement, corporate property assessment must now be reassessed at the current market price, increasing the possibility that property values may influence account settlement (the lower-of-cost-or-market method will be applied to property for sale from FY 2008). For this reason, it is assumed that the need to avoid the risk of fluctuations in property value and to transfer the risk retaining the ownership of real estate, from the standpoint of realizing appropriate measures for account settlement, will expand in the future even for general corporate management. Property derivatives, therefore, have the potential to become a dominant measure for providing solutions to such needs.

Moreover, if such hedges are possible, it may allow real estate users to utilize property stably while avoiding the disruptions from land price fluctuations at the same time. Essentially, property requires maintenance and

management with a long-term perspective of 20 or 30 years; however, to do so, it is necessary to reduce short-term price fluctuation risks as much as possible. Property derivatives can play a major role in promoting property utilization matching the original attribution of property as "striving for effective utilization from a long-term perspective."

Furthermore, if future products in property derivatives are listed, for example, it may contribute to easing the rapid fluctuation in land prices by serving as an anchor for the market price of the underlying assets through the so-called *price discovery function* of the future market. When the economy and interest rates, which have a significant influence on land prices, are expected to change significantly in the future in the case of rising land prices, it may be possible to break the one-way expectation of an increase in land prices to a certain degree through the autonomous function of the market by indicating the futures price for the next one and one-half years. In the same way, in the case of falling land prices, it is assumed that the futures price will have the effect of easing the one-way expectation of a decrease in land prices.

While there are positive aspects to property derivatives in the property market, there are also negative effects. Specifically, as a characteristic of derivatives, if speculative transactions increase unilaterally, the variation in prices in the real estate market may expand due to the erratic fluctuation in prices of derivative products.

There are additional risks because derivative transactions have a speculative component. If an individual property owner intends to utilize derivatives and enters the market without sufficient knowledge, the potential exists for massive losses.

From the standpoint of the nation, properties essentially possess not only the aspect of simple assets, but also the aspect of the basis of the nation's housing, living, and socioeconomic activities. For this reason, forming a stable property market is of paramount importance.

Addressing such issues, property derivatives provide the positive aspects stated above, and at the same time, there is the possibility of negative effects. If property derivatives have no effect on the real estate market, it can simply be considered an issue of financial instruments.

However, such derivative transactions that have weak connections to real estate, it is only a money game, and there is no room for broad development as a socioeconomic system. (For example, the growing trend in today's currency derivatives was realized not because it was a money game, but because of the ability to respond to the needs as a hedge method for import-export businesses.) Consequently, property derivatives, which are questioned in this study, should have a deep relationship with the real estate market in one way or another. If so, from the standpoint of realizing stable property market creation, it is necessary to realize the property derivatives that will expand the positive aspects while reducing the negative effects as much as possible.

From such a viewpoint, this study group was established with the aim of elucidating the overall picture of each property derivative method currently being conducted or discussed for implementation throughout the world, while at the same time, evaluating the effect and influence of such methods on the real estate market from a

neutral standpoint and examining the desirable condition of property derivatives that contribute to stabilizing the real estate market and promoting effective utilization. This report summarizes the results of that examination.

This report will first provide an overview of the situation where the need for property derivatives expanded, simultaneously analyzing the possible effects on the real estate market from property derivatives, as well as the schemes and requirements to fulfill such a need, and then discuss future problems to be addressed.

In order to realize property derivative transactions, it is vital to obtain information on transaction prices and indexes of properties that is objective and suitable for data processing. Such information may be obtained by utilizing the Real Estate Transaction Price Data Services System, which is developed with the aim of enhancing transparency in the real estate market, and real estate appraisal databases where development is considered following the establishment of real estate appraisal standards on property securitization. Therefore, we will also discuss the utilization of land and property information in derivative transactions.

2 Increasing Potential of Property Derivatives

With the background of liberalization and intensified market competition in the financial market, the need to hedge against risks increased, leading to the appearance and expansion of derivative methods. At present, the amount of derivatives transactions increased to approximately 27 trillion dollars worldwide (as of December 31, 2006)¹ primarily in currency and interest rate derivatives.

On the other hand in the property market in Japan, an aspect of property as risk capital has developed along with a breakdown of the "land myth" due to the collapse of the bubble economy; consequently, the expectations for property derivatives to hedge against such property-related risks will certainly increase. The following analyzes such conditions including case examples of other assets.

2.1 Financial derivatives from the background of financial liberalization and market competition

2.1.1 Background of derivatives

Derivatives are financial products that were developed as a means to hedge against risks. Derivatives are financial products where their prices (present value) are determined by indexes and the prices of underlying assets, such as other securities, products, or events, etc. For example, in the case of derivatives for a certain stock, when the price of the stock, the underlying asset, changes, the value of the derivatives changes. It is possible to design derivative products with a variety of payoff such that the derivative prices may move counter to the share price (underlying asset) or fluctuations may be amplified. In fact, diversified derivatives products exist.

Underlying asset holders can use derivatives as an effective hedge measure against risks related to their assets. For example, assuming a derivative moving counter to an underlying asset prices, the portfolio risk combined with such derivatives and underlying assets is less than for the underlying asset itself. Therefore, by utilizing such derivatives, it is possible to hedge against risks while possessing underlying assets.

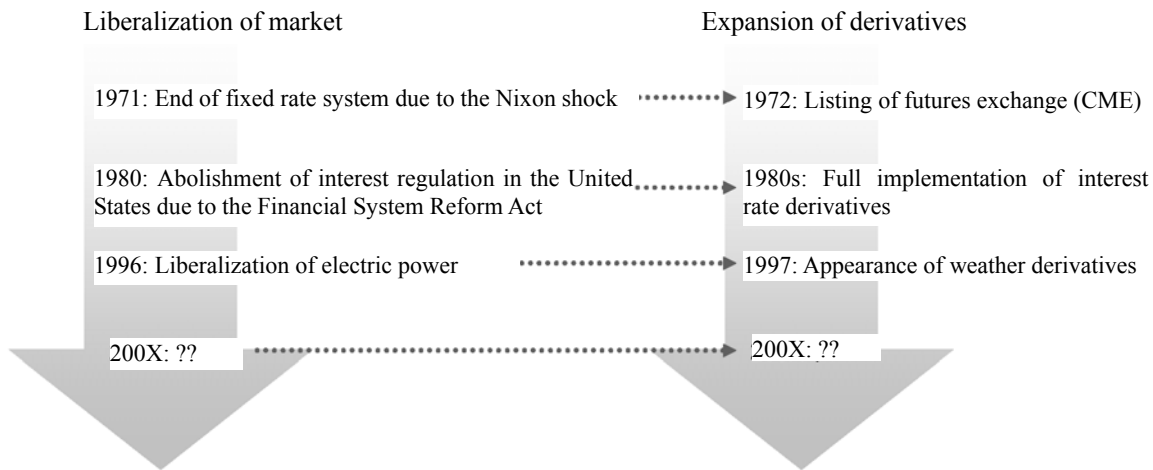
Derivatives have a very long history. It is believed that the first derivatives came into use² in Holland, amid the Tulip mania in 1634, triggered by the generation of futures trading in bulbs. The world's first market-traded derivatives are believed to have appeared in 1730 in Osaka, Japan, when the Edo shogunate gave permission for futures trading in rice to the Osaka Dojima Rice Market.

Derivatives continued to steadily develop and currently have expanded to approximately 27 trillion dollars in the balance of transactions worldwide (as of December 31, 2006), primarily in currency and interest rate derivatives. Taking into consideration the background of the development of derivatives, there are two major factors in their current widespread use: liberalization of the market and the environment of intensified market competition.

Figure: Market Liberalization and Derivatives Market Expansion

¹ Figure based on notional principals with details of OTC transactions of \$18.7 trillion, stock exchange transactions of \$8.5 trillion. Source: The Bank of Japan "Results of Regular Derivatives Market Statistics in Japan" (end of December 2006)

² In some cases, it is tracked back in time to when the Greek philosopher Thales sold options for olive press machines at low prices.



In 1971, the then US president, Richard Milhous Nixon, announced a major transformation in policy, which was later called the "Nixon shock." It transformed the conventional fixed rate system (Bretton Woods system) where dollars and gold were exchanged on a fixed ratio into a floating exchange rate system where exchange rates were freely exchanged based on the relationship between supply and demand, which had an enormous impact on the world economy.

In 1972, the year following the end of the fixed rate system, futures for seven currencies were listed on the Chicago Mercantile Exchange (CME). Since currencies became fluctuant assets, in other words, currencies became "risk assets," the need to hedge against such risks increased.

After this, as interest regulation in the United States was abolished according to the Financial System Reform Act in 1980, interest rate derivatives appeared and expanded (as for Japan, deposit interest rates were liberalized in 1994).

Moreover, electric power was liberalized in the United States in 1996, and in 1997, Enron Corporation developed weather derivatives. Weather derivatives continued expanding mainly in over-the-counter trading (OTC) and were listed on the Chicago Mercantile Exchange (CME) in 1999.

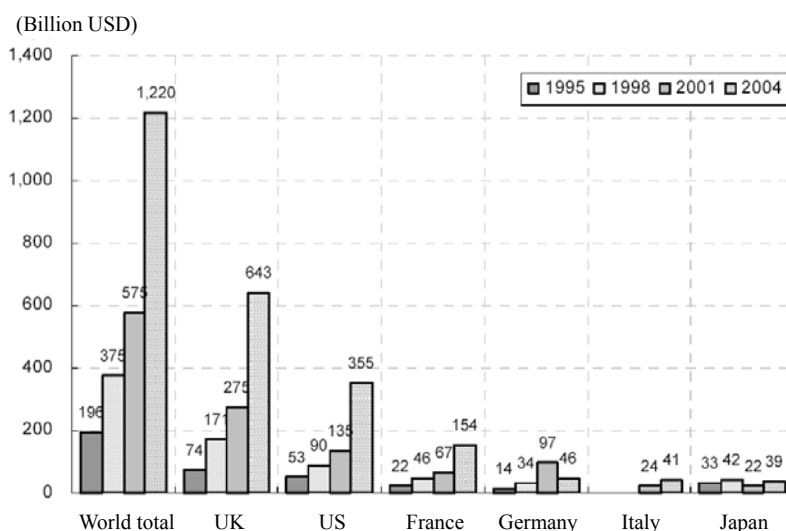
As stated above, the key factors in the development of derivatives were the liberalization of each product market. More specifically, liberalization of each product market made such products risk assets, creating a risk hedge need and triggering the development of derivatives with risk hedge functions.

The Japanese property market has never been restricted; however, triggered by the collapse of the bubble economy, the understanding of risks in property in Japan has been drastically converted from risk-free assets to risk assets. For this reason, there is potential in the property market in Japan to go through a similar history in the future.

2.1.2 Current status of the derivatives market

The derivatives market is growing rapidly with continued expansion in target asset classes of underlying assets. The amount of derivative transactions in Japan has not seen substantial changes for the past decade; however, the derivatives market has expanded rapidly throughout the world, reaching a daily average transaction amount of 1.22 trillion dollars as of April 2004. Most transactions took place in the UK and the US. The amount of derivative transactions in Japan ranked in the top six as of 2004.

Figure: Transition of Daily Average Amount of Derivative Transactions



Source: The Bank for International Settlements (BIS), The Bank of Japan

Affected by the above-mentioned rapid growth of the derivatives market, off-balance derivatives transactions are expanding approximately at 20 times the rate of the transaction balance of on-balance cash transactions in banks and other financial institutions.

The most popular form of derivative transactions is swap³ transactions. Approximately 60.6% of interest rate derivatives as of April 2004 consisted of swap transactions, approximately 22.7% were FRA (forward rate agreements),⁴ and approximately 16.7% were options.⁵

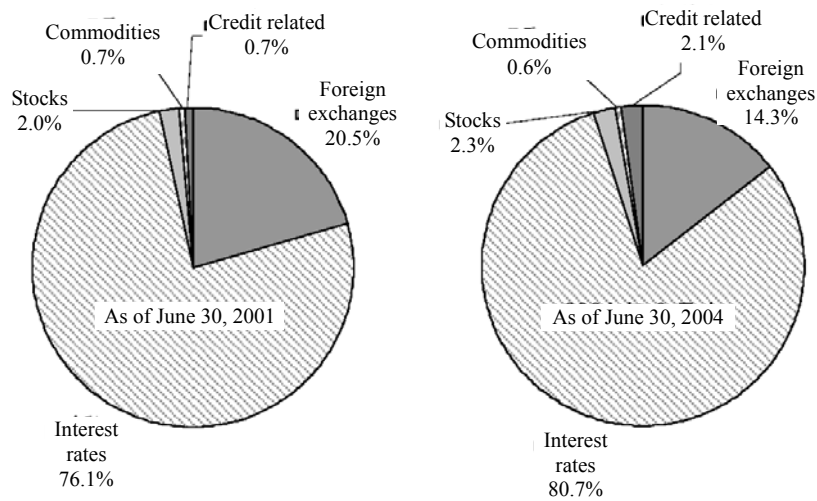
The majority of current derivative transactions are interest rate derivatives and currency derivatives. In particular, interest rate derivatives represent approximately 80% of the global OTC derivatives market. On the other hand, the amount of other derivative transactions, such as stocks and commodities derivatives, is very low compared to the overall transaction amount.

³ A deal to exchange cash flows, which can be obtained in the future, between two counterparties for a given period.

⁴ A relative transaction for settlement of the difference in interest rates from the actual value at the time of the transaction via an agreement at the present time regarding the interest rate determined at a certain point in the future.

⁵ A transaction of rights for the purchase and sale of a relevant product at a certain time in the future at a price determined at the present time.

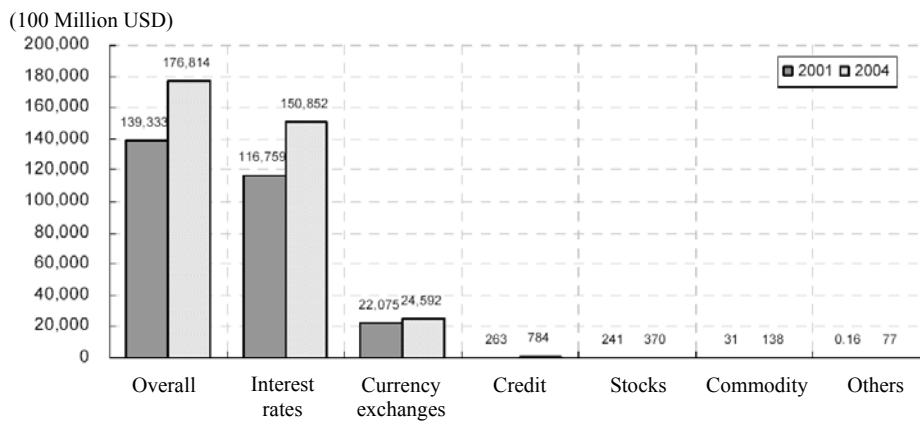
Figure: Transition of Notional Principals in the Global OTC Derivatives Market by Each Asset Class



Source: The Bank for International Settlements (BIS)

Recently, new derivatives, such as credit derivatives,⁶ weather derivatives,⁷ and economic derivatives,⁸ have started to appear, and the respective market size has tended to increase.

Figure: Transition of Notional Principals in the Japanese OTC Derivatives Market by Each Asset Class



Source: The Bank for International Settlements (BIS), The Bank of Japan

⁶ A derivative transaction where the credit risks of bonds and loan earnings are quantified and conducted in the form of swaps and options. Derivatives were developed with the aim of hedging credit risks including the risk of default. The creditworthiness of debtors represents the underlying assets, and the conditions for gains and losses to be transferred in the future are determined on an individual basis, conducted on the over-the-counter market (OTC).

⁷ A derivative transaction that compensates for losses in the income of enterprises due to weather conditions, such as cold summers, warm winters, and typhoons. By paying certain option premiums in advance, it is possible to receive compensation when a pre-determined incident, such as abnormal weather, occurs. In accident insurance, insurance payments are not made unless the actual amount of losses is determined; however, in weather derivatives, compensation is paid immediately if the pre-determined conditions occur.

⁸ A derivative transaction assuming overall economic performance indicators, such as GDP and the job market, as underlying assets. It is a prospective method for hedging systematic risks that cannot be eliminated by diversified investments. Actually, such derivatives are listed on the Chicago Mercantile Exchange (CME).

2.2 Change of Property into risk assets and its background

2.2.1 Change of Land into risk assets due to the bubble collapse

Property in Japan has changed into risk assets in recent years. As for land, land prices in Japan had consistently been increasing reflecting the upward economy until the collapse of the bubble economy, except for a temporary decline in land prices around 1975. However, after the rapid rise in land prices during the bubble period in the late 1980s, land prices started declining after 1991, the breakdown of the "land myth." This means that land, a safe asset with an ever-increasing price, became a risk asset that its prices could increase and decline.

In Japan, amid the circumstances of capitalization of land risks due to the breakdown of the land myth, cash flow into the land market drastically decreased, leading to further decreases in land prices. However, a method of property securitization to transfer the risk to others by dividing and ramifying land risks has been rapidly expanding recently, becoming one of the factors to break the downward trend in land prices.

In other words, in the land market before the collapse of the bubble economy, there was a general trend when investing in land that capital gains generated from the land price increased, rather than income gains generated from the land use were focused on. Moreover, when financing land purchases, corporate finance was commonly used where loans depended on the creditworthiness of enterprises owning the land while using it as collateral, instead of depending on the earning capacity of the land itself.

Under such a land mortgage loan system, cash flow into the property market continues in a period of increasing land prices since the creditworthiness of enterprises owning the land increases. However, once land prices enter a downward trend, a drain of capital from the market tends to continue due to concerns over risks such as falling below the equivalent value of the collateral property. In fact, the market prices for collateral properties fell considerably below the set amount of security right after the collapse of the bubble economy, generating a large number of bad debts. Furthermore, cash flow into the property market did not proceed amid such conditions, leading to a negative circle of further decreases in land prices.

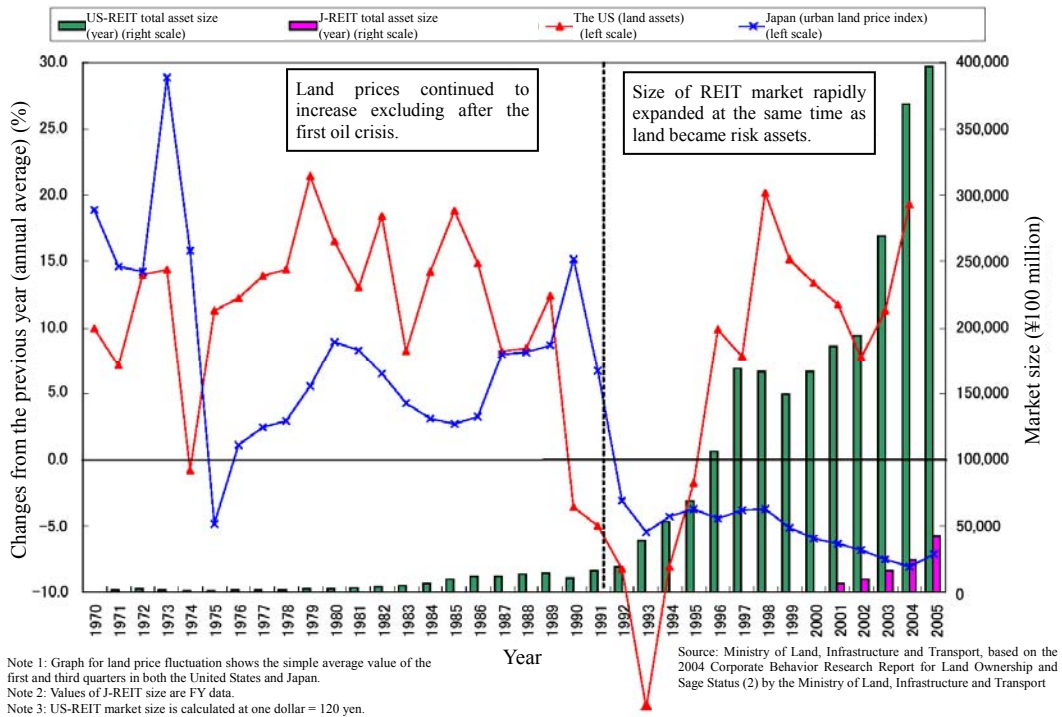
However, this situation changed due to the appearance of a method called property securitization. Property securitization is a method for financing from investors by issuing securities based on cash flow generated from the target property, focusing on earning capacity. Because of this, property finance separate from the indirect financing system from banks became possible because dividing and ramifying risks related to properties and the easing of property risk transfer became possible, creating a major trigger for breaking the cycle of decreases in land prices.

With regard to the institutional system, property securitization started functioning fully in the property market due to the Law on Securitization of Specified Assets by Special Purpose Companies (SPC Law) established in 1998, the Law on Securities Investment Trusts and Companies (Securities Investment Trust Law) established in 2000, and furthermore, due to the establishment of the Law Concerning Asset Liquidation (the Asset Liquidation Law)

in 2000, which was a full revision of the SPC Law.

As a result, a gradual recovery occurred from the downward trend in land prices due to the increase in actual demand through the autonomous function of the market. However, the method of property securitization can transfer risks, but not hedge the risk itself in nature. Moreover, as stated later, according to recent revisions to the corporate accounting system, which aims to further reflect the actual value, fluctuations in land prices affect corporate accounting more directly, increasing the need for methods to quickly transfer property risk. Hence, a new method is needed other than property securitization to facilitate the transfer and diversification of risks related to properties already categorized as risk assets.

Figure: Properties as Risk Assets



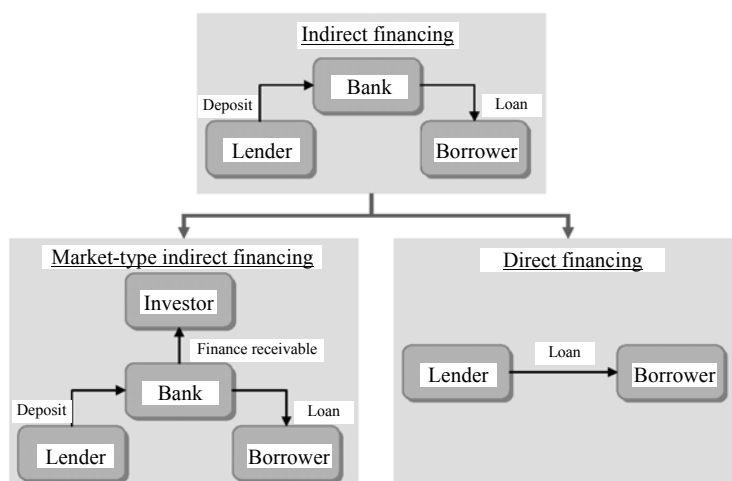
2.2.2 Spread of economic entity with risks

As stated before, liberalization of currency exchange and interest rates brought about the appearance and development of derivatives market. On the other hand, such financial liberalization and intensified market competition promoted the transition from indirect financing to direct financing or market-type indirect financing.⁹ As a result, as economic entities with risks increased, there has been a greater need for risk hedging by not only banks as before, but also individuals and enterprises, which provide risk money.

Until now, indirect financing played the main role in finance, and banks were the main body for assuming risks in Japan. Banks financed from lenders in the form of deposits and lent the money to borrowers as loans, and banks assumed the risks associated with the loans. For this reason, banks needed to hedge the risks while at the same time assuming them.

However, with the background of financial liberalization and intensified market competition, enterprises, seeking various financing methods with lower costs, tend to finance directly from the market more and more through direct financing methods. In financial institutions, along with development of the direct financial market, example of using market-type indirect financing is also increasing, with transfer of default risks for receivables to investors using such methods as securitization.

Figure: Transition from Indirect Financing into Market-Type Indirect Financing and Direct Financing



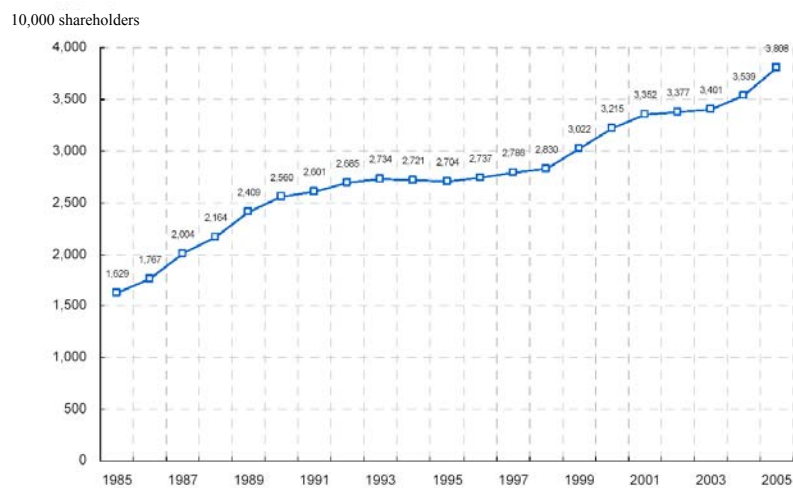
⁹ Market-type indirect financing is a financial financing method positioned between indirect financing and direct financing. In indirect financing, deposits collected by banks are loaned by the bank and under its responsibility; on the other hand, in direct financing, enterprises finance directly from individuals by issuing stocks and bonds in market. Therefore, banks assume the risks of indirect financing and investors assume the risks of direct financing. In market-type indirect financing, banks make loans as in indirect financing, but it allows banks to transfer risks to investors by selling securitized finance receivables to those investors.

Since such expansion of the direct financing market indicates the expansion of new investment opportunities, the amount of funds provided into the market is increasing by pension funds, enterprises, and individuals as investors seeking more beneficial investment opportunity.

Hence, the entities with risk are being spread to general enterprises and individuals other than banks. As a result, the entities with the need to hedge risks are also being spread.

Moreover, the method of market-type indirect financing has been expanding in the field of real estate with the background of progress in securitization, hence not only banks but also enterprises and individuals have a need to hedge property risks.

Figure: Trend in the Number of Individual Shareholders in Stock Exchange¹⁰

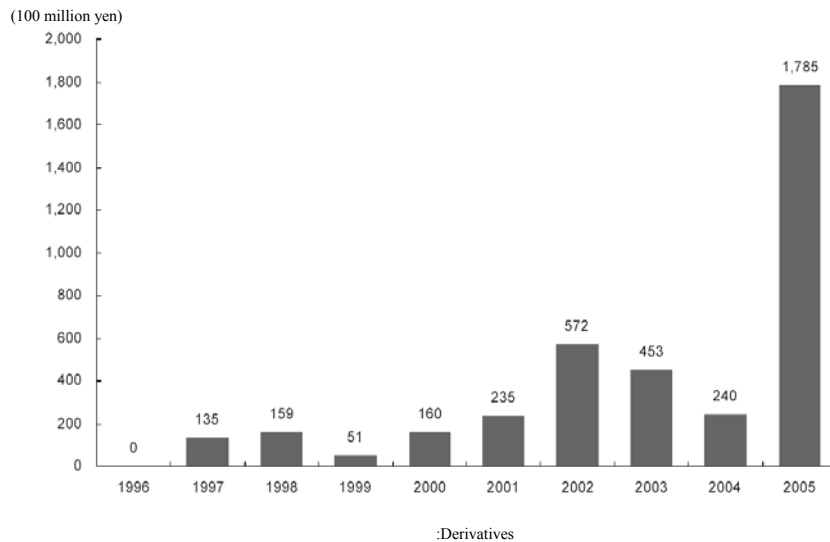


Source: Japan Securities Dealers Association "2005 Survey of the State of Share Distribution"

¹⁰ Values on the unit base. Total number of individual shareholders of enterprises listed on the five stock exchanges in Japan, excluding the JASDAQ Securities Exchange.

In fact, the amount of funds from individual investors in the derivatives market is also increasing. Of the total individual financial assets exceeding 1,500 trillion yen, the amount of derivatives has expanded to 178.5 billion yen as of 2005, which was zero in 1996. The major factor in this trend is that derivatives are easy to approach for not only institutional but also for individual investors and individuals with a need for new investment opportunities participated in the derivatives market. It can be considered that individual investors, getting to hold risk assets such as shares, entered the market seeking risk hedging opportunities.

Figure: Trend in Derivatives in Individual Financial Assets



Source: The Bank of Japan

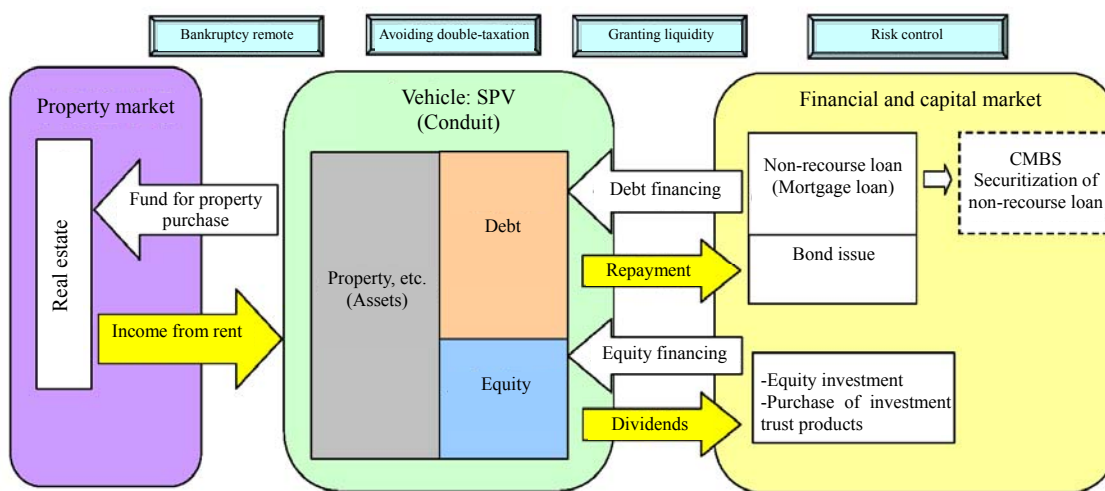
In addition to banks, enterprises and individuals are becoming main entities with risk as shown above. Amid the change of property into risk assets and the development of property securitization, the need for derivative methods in order to hedge against and transfer risk regarding properties is expected to increase.

2.3 Increasing need for advanced hedge methods against property risks

2.3.1 Elicitation of property risks

Currently, securitization is the most frequently used method to transfer property-related risks in Japan. The scheme of securitization is to finance through the Special Purpose Vehicle (SPV)¹¹ by taking investment profit and gains on the sales of properties as collateral, to acquire property and distribute dividends to investors. Within the framework of securitization, risks related to properties are transferred from the original property owner (Originator) to the SPV, such as the Special Purpose Company (SPC).

Figure: Scheme of Property Securitization¹²



Source: White Paper on Land (2006)

However, new risk hedging methods other than securitization may be required in the future for the following reasons:

First, although risk can be transferred easier by securitization, the risk itself for the securitized property cannot be hedged. For example, investment profit and gains on the sales of securitized properties are hedged against the risk of bankruptcy by original owner of the property (Originator); however, the risk of fluctuations in the return itself is not hedged, resulting in a condition where investors always face risks.

This is the same in securitization of loan receivables. Specifically, in residential mortgage-backed securities (RMBS), investors who purchase RMBS bear the risks of declines in housing prices. For this reason, when the risks of declines in housing prices are increasing, investors might require higher premiums, and it may be difficult to create RMBS for housing prices. This means that if there is no measure to hedge against the risks of declines in

¹¹ SPV (Special Purpose Vehicle) is a generic name of organizations such as for special-purpose companies organized established with the aim of securitization.

¹² "Real estate" in the Figure contains many transactions of beneficiary certificates, which are properties converted into a beneficial interest in trust. Also, CMBS stands for Commercial Mortgaged-Backed Securities, which are issued with a backup of non-recourse loans conducted by taking properties such as office buildings and shopping malls as collateral. It is classified by capitals "C" or "R" of RMBS (Residential Mortgage-Backed Securities). Non-recourse loans are such that if a borrower defaults and can no longer repay the loan, the lender has no recourse except to foreclose on the assets used as collateral for repayment claims.

housing prices, it is possible that banks cannot help being reluctant to make housing loans and this situation also creates negative effects for the housing market.

Second, since it requires a certain amount of funds and time to create securitization schemes, fluctuations in land prices have a direct effect on corporate accounts due to the revision in the accounting system as described later and the need for enterprises to quickly transfer property risks as a countermeasure for account settlement is expected to increase. However, it is hard to say that current securitization method can perform as those measures to respond to such needs appropriately.

Third, there is a possibility for off-balance transactions utilizing private funds, which has often been seen in such transactions as sale and leaseback¹³ in the property securitization market, to be dealt as nonconsolidated accounting more strictly in the future during worldwide reexamination of consolidated accounting standards. It will be difficult for enterprises to use securitization in the conventional manner easily for off-balance transactions.

Fourth, with the change of property into risk assets, elicitation of risks inherent in property itself, such as liquidity risk and development risk are becoming more prominent.

Liquidity risk refers to the risk in which property owners are not able to sell their properties at the desired price and time. Property always has liquidity risk due to its uniqueness aspect; however, elicitation of this risk is becoming more prominent due to the change of property into risk assets where prices may drop. More specifically, when property owners try to sell their property eagerly to hedge against the risks of falling prices; there is a higher possibility of such situations where rapid risk hedging cannot take place because their property cannot sell easily. Furthermore, because of this risk, cash flow into the market may be halted due to the low liquidity of property even when it is favorable to invest in securities issued on property or on profit as a risk hedging method in the stock market.

The development risk also becomes a problem. Development risk consists of risks such as the period and expenses for development and land pollution and the like, which are difficult to forecast beforehand. The value of property fluctuates depending on such factors as changes during the development period (e.g., delay of construction due to environment pollution and local residents' campaigns, etc.) and variation in development expenses due to the rising cost of raw materials.

Elicitation of such risks may become prominent through the change of property into risk assets, and it is difficult to sufficiently hedge against such risks simply through securitization.

Fifth, it is also forecast that a need to hedge against price fluctuations of securitized products will increase. Due to the appearance and expansion of financial instruments using properties, such as real-estate investment trusts (J-REITs), coming into the market on September 2001, a new need to hedge against price fluctuation risks of such financial instruments will also increase. Especially in a market operating property assets, which is believed to have higher liquidity than the normal property market, such as the current J-REIT market, there are always risks of acquisition by other funds with strong finances if there is a variation between the total amount of operational

¹³ Sale and lease back is a typical form of liquidation where originators sell their existing assets to an SPC, concluding a lease contract between the originator and the SPC. As a result, originators are able to continue to utilize their assets while paying rental expenses to the SPC.

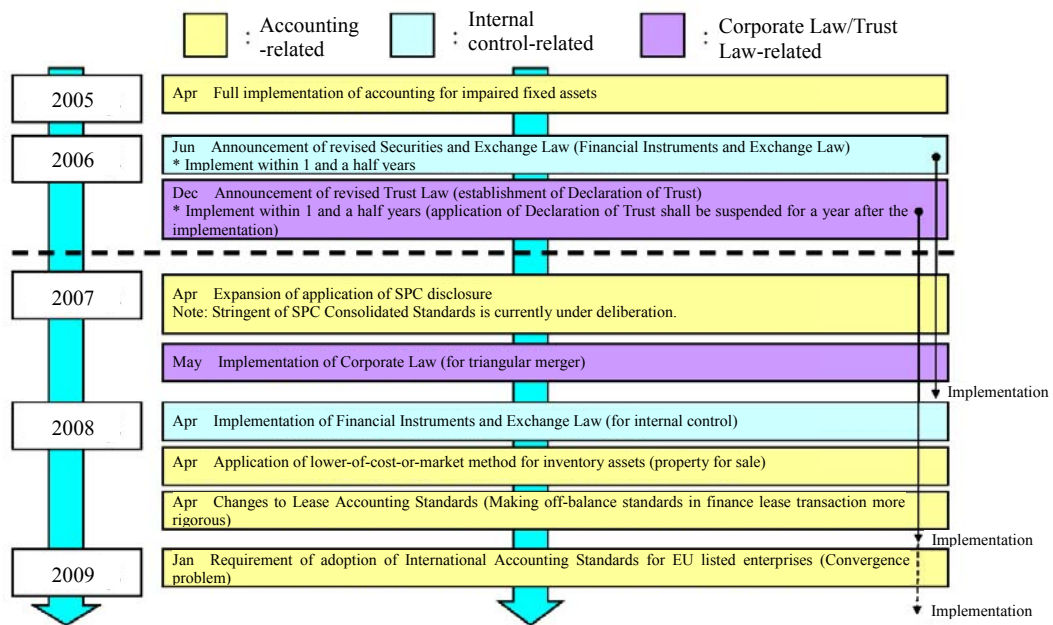
assets and aggregate market values. For this reason, there exists the opinion that expects property derivative products to serve as countermeasures to such acquisitions.

Regarding the issue stated above, through the establishment of the Financial Instruments and Exchange Law, the restricted range of exchange-traded derivative products to which used to be limited only to stocks, became broader and, for example, it is possible to list derivative products for real-estate investment trusts with notification to the prime minister. Therefore, with the enforcement of this law, it appears that the elicitation of the need for derivative products for financial instruments that securitize properties will rapidly become more prominent.

2.3.2 Increasing property risks in general corporate management

During the progress of economic globalization, revisions to various systems surrounding corporate management are being made in recent years. Even just focusing on the few years until 2009, there has been or has been planned a system modification every year related to properties in one way or another. Since revisions to the corporate accounting system brings changes in the system that further reflect market value fluctuations in accounting, resulting in corporate accounting being affected directly by fluctuations in land prices, there is a possibility of creating the need to quickly transfer property risks as a countermeasure for account settlement.

Figure: System Revisions that Affect Properties



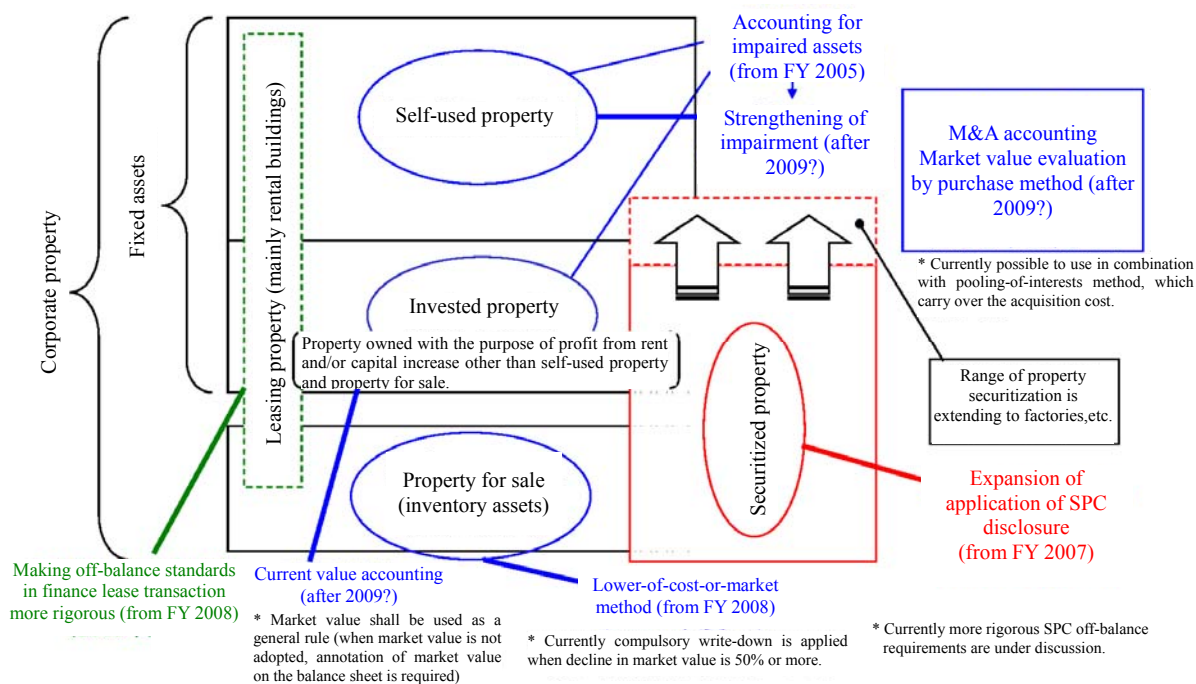
Corporate accounting systems have changed to further reflect market value fluctuations on accounting, including the recent implementation of accounting for impaired assets; however, these changes will further accelerate amid the trend in the convergence of accounting standards in each country into the International Accounting Standards.

The background of such system modification in the accounting system lies in the increasing demand for accountability by enterprises in the market more than in the past due to the economic globalization, progress in direct financing, and to improvements in the measurability of assets through IT development. As a result, the need to appropriately evaluate market values and present values of assets possessed by enterprises and to reflect them in accounting is increasing.

Concretely, first in April 2005, accounting for impaired assets related to fixed assets was adopted and applied to all listed enterprises. This forced enterprises to record the differences between the book value and the collectable value in the profit and loss statement as impairment loss under certain conditions when the prices of properties possessed by enterprises drastically decreased.

Furthermore, it is planned that the evaluation method for inventory assets (property for sale) will be unified with the lower-of-cost-or-market method starting from April 2008, making enterprises record losses if the market value of property for sale is lower than the book value.

Figure: Influences of Convergence of Corporate Accounting on Corporate Properties



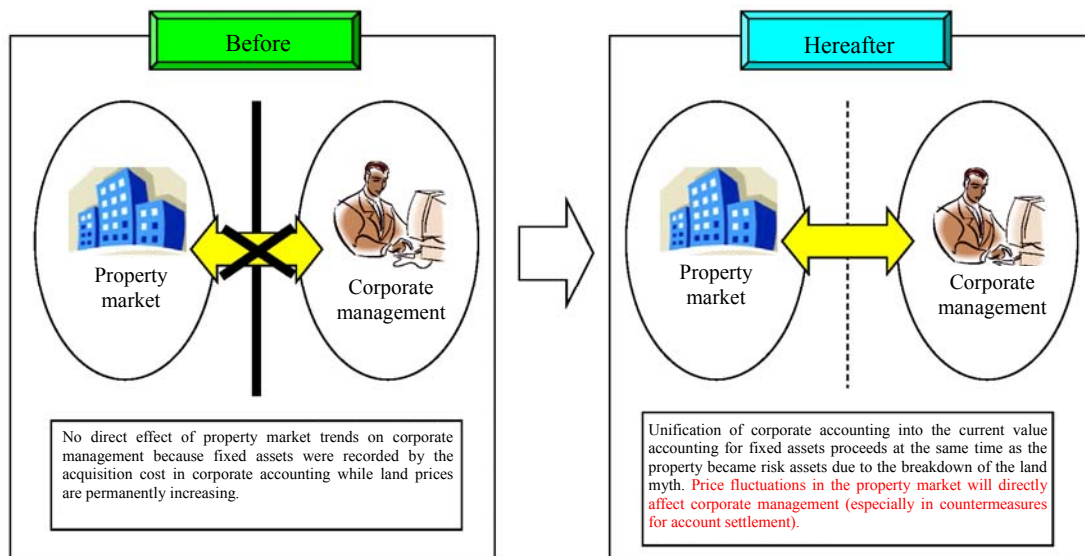
Furthermore, such trends to unify corporate accounting into the current value accounting are expected to come into full swing amid the convergence of accounting planned for January 2009.

The convergence of accounting is a movement to converge major national standards other than the International Accounting Standards currently existing around the world (accounting standards in Japan, the USA, and Canada) with international accounting standards. Since January 2009, all EU listed enterprises, including enterprises with their head office located outside the EU, such as Japan and the US, are required to create financial statements in accordance with International Accounting Standards or equivalent standards. For this reason, adjustment and convergence of accounting standards in Japan, the US, and Europe are underway, and it is planned to make the Japanese accounting standards closer to the International Accounting Standards during the course of this movement.

Since evaluation of assets in the International Accounting Standards reflects the current value to a higher degree than required by Japanese standards, there will be a higher possibility of land price fluctuation to directly affect corporate accounting as the changes take effect.

As stated above, the present values of owned properties are starting to affect accounting settlement and corporate management more directly due to recent changes in accounting systems. Especially in terms of countermeasures for accounting settlement, prompt transfer or hedges against price fluctuation risks of properties is required, and it appears that such a movement combined with the change of property into risk assets will increase the need for a hedge against fluctuation risks in the property market in corporate management.

Figure: Relationship between Corporate Management and the Property Market



3 Assumed Scheme of Property Derivatives

As previously stated, with the background of the change of property into risk assets and changes in the accounting system to further reflect current value, the increased expectation for property derivatives in Japan hereafter is forecasted.

However, there are no full-fledged property derivative products currently in Japan, except certain relative transactions and contracts similar to derivatives, such as sub-lease contracts. In this chapter, therefore, the scheme of property derivatives to actually hedge against property risks will be examined in accordance with case examples in other countries.

3.1 Concrete organization of property-related risks

In order to view the scheme to hedge against property risks, it is first necessary to specifically understand property risks. Therefore, concrete risks related to properties will be organized in this section.

Generally, risk indicates uncertainty for the future. In an economical perspective, it indicates the possibility of economic losses because of the existence of such uncertainties.

When discussing methods to hedge against risks considering them in terms of economic meaning as stated above, an approach that has to be avoided is to regard the existence of risk itself as abnormal and consequently to aim to change the prerequisite where such risk exists, for example, as to properties, the approach to regard fluctuations in property prices as abnormal and to create a system to fix property prices.

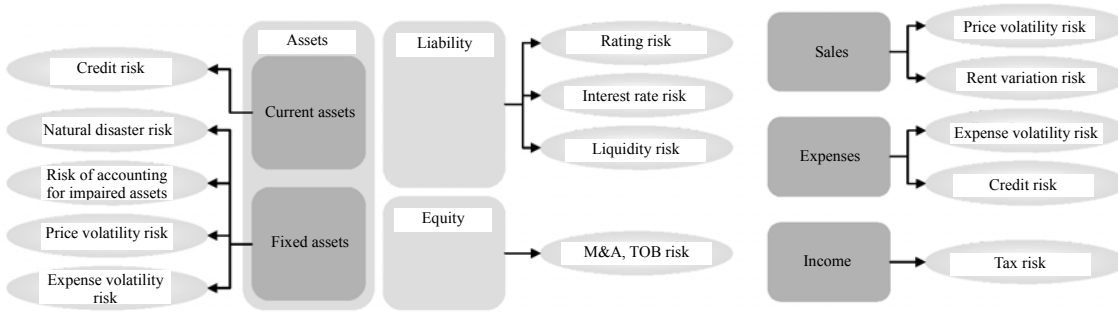
Indeed, in order to fundamentally eliminate risk itself, the idea of changing prerequisites as the source of such risk can be logical; however, when considering the market, with the existence of fluctuations of prices as a prerequisite, an efficient market can be formed by adjusting supply and demand, which is the source of the fluctuations, during market competition.

Accordingly, what should be considered primarily in the property market where prices fluctuate freely is to analyze the risks sufficiently under the prerequisite that prices fluctuate and at the same time, to manage risks appropriately by using methods such as property derivatives. The following are the classification and organization of risks inherent in properties based on the approach stated above.

3.1.1 Property risks in the balance sheet

In regards to property-related risks, there are rent variation risks, price volatility risks, natural disaster risks, risks of accounting for impaired assets, liquidity risks, credit risks. Each different economic entity has different property risks. Risks related to properties can be classified as follows by taking financial statements of enterprises, households, and investors into consideration.

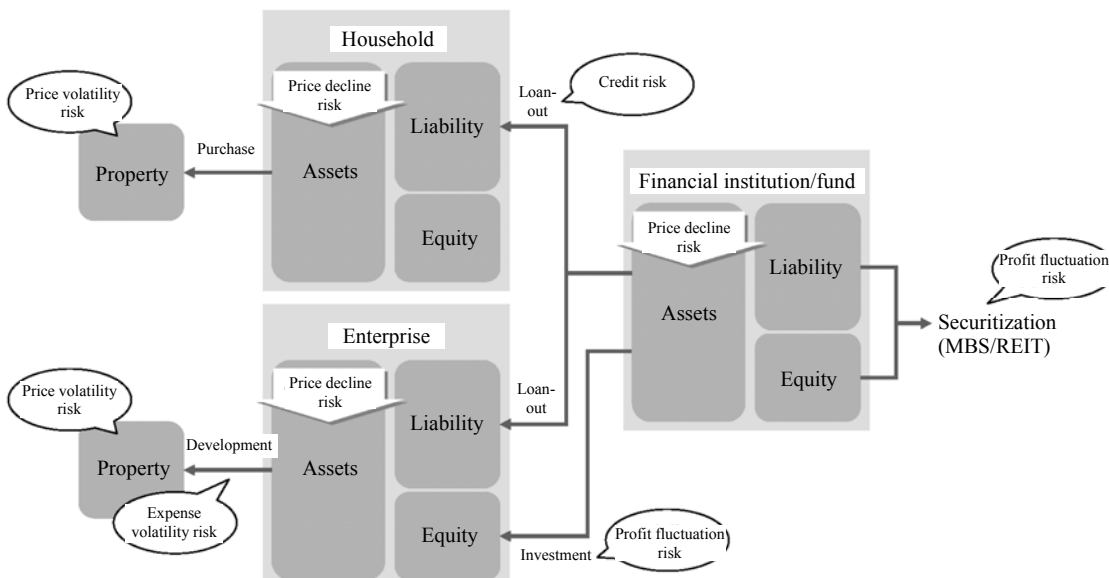
Figure: Image of Property-Related Risks in Financial Statements



Furthermore, Risk-taking behavior against property risks is different among enterprises, households, and investors. More specifically, players with property risks can be classified into the following: institutional investors and property funds as aggressive risk takers, households as reluctant risk takers that cannot but take risks even though they do not desire, and enterprises (developers, etc.) as risk taker on business.

It can be organized that each player is positioned to the asset side, liability side, or equity side in the balance sheet shown above. In other words, aggressive risk takers are mainly placed on the right side of the balance sheet and reluctant risk takers are mainly placed on the left side of the balance sheet.

Figure: Property risks in Balance Sheet by Economic Entity



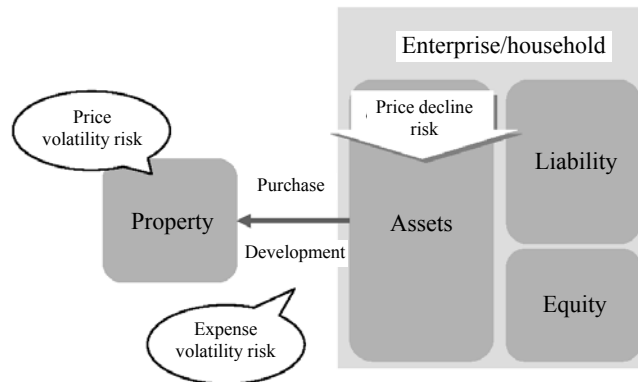
1) Asset side

Enterprises and households hold price volatility risks for their properties on the left side (asset side) of the balance sheet. In terms of enterprises, amid the progress in accounting system modifications with changing property into risk assets and further reflecting market value fluctuations in accounting, they are assuming risks that affect corporate accounting when the asset value of their properties declines. For developers, they assume a development risk, as previously stated, such as risks of variation in development expenses and price volatility due to changes during development periods.

For households, they assume the risk of price volatility for assets such as residential property. For example, a situation may occur where households may desire in vain to replace a home according to their lifestyle because repayment of the housing loan balance cannot be made with the result that refinancing is not possible due to risks of fluctuation in the value of their property. Furthermore, this risk also has an impact when purchasing assets. More specifically, when the risks of a drop in housing prices increases and debt suppliers, such as financial institutions, decide to reduce credit, the purchase of a home becomes difficult.

Consequently, two kinds of property risks are considered to exist on the asset side (left side) of the balance sheet: risk of price fluctuations in the asset itself and risk of variations in the expenses consisting of assets.

Figure: Asset Side Property Risks



2) Debt side

Debt suppliers for housing loans and mortgage-backed nonrecourse loans support the Japanese property market by steadily financing the debt side of the balance sheet.

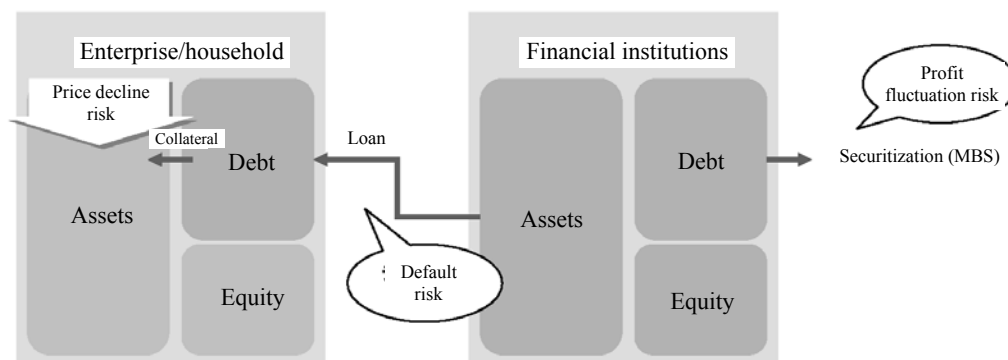
In terms of specific risks related to properties on the debt side of the balance sheet, there are default risks for receivables loaned, price volatility risks for collateral properties and profit risks of fluctuations in MBS (Mortgage-Backed Securities), which is the securitized mortgage loan. Specifically, default risk is the possibility of defaulting on loans provided by financial institutions. In such cases, defaulting on loans result in bad debts. Moreover, since the value of collateral properties for the loan fluctuates, there are always risks of fluctuations in the disposal prices. There are also risks of fluctuations in profits from MBS.

As stated previously, in the current situation where there is no method to directly hedge the risks of drops in property value, debt suppliers may reduce lending for properties as property-related risks increase; and amid the current trend of changing property into risk assets, such risks may inhibit the stable growth and development of the property market.

Distinct from risks in assets or equity (stated later), the debt side risks characteristically have only a downside risk. For this reason, once a credit crunch begins, there is no way for debt suppliers to hedge against risks other than reducing lending amounts, resulting in an increase in the equity ratio, which is subordinated to debt. In such cases, since the needs of investors on the equity side (described later) may not be fulfilled, there is a fear that the investment environment in the property market might become instable.

Consequently, risks of fluctuations in the performance of loans are considered major property risks on the debt side of the balance sheet.

Figure: Debt Side Property Risks



3) Equity side

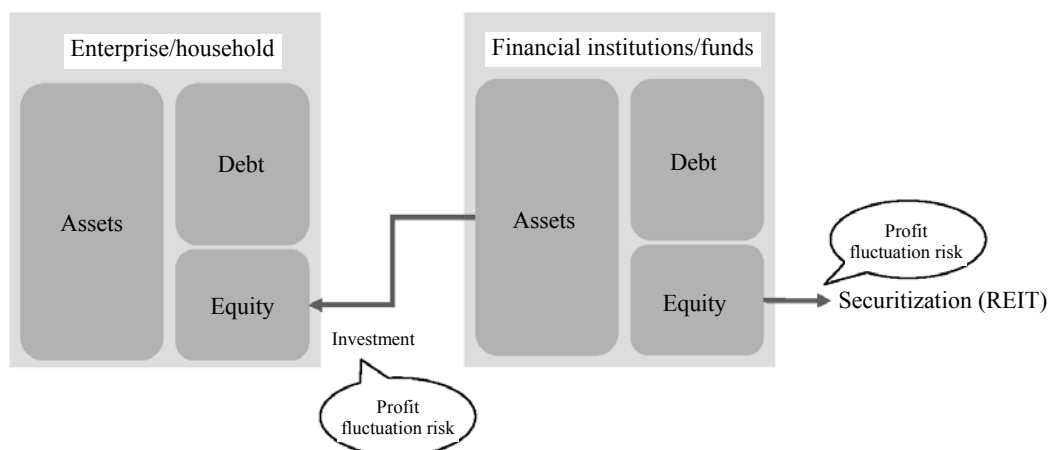
Institutional investors and property funds are considered to make investments on the equity side of properties. In other words, it can be defined that in addition to investors holding shares of real estate firms, property funds that manage funds from investors are investing in the equity of SPCs that purchase properties from enterprises and operate them.

In this case, the risks of fluctuations in profit or gain on the sales of assets will become issues. Property funds are required to pay stable dividend to investors; simultaneously, the investors desire to be paid stable dividends. However, there are always risks of fluctuations in investment profit or gains on sales as the investment return. Therefore, of course, property funds and institutional investors always face the risks of fluctuations in profit, and moreover, individual investors investing in real-estate investment trusts (J-REIT), securitized property investment, also face the risks of fluctuations in dividend amounts.

In this way, risks of fluctuations in investment returns from invested properties are considered major property risks on the equity side of the balance sheet.

Note, as previously stated, returns receivable by equity investors are subordinated to debt from loans by debt suppliers; hence, the rates of returns and risks of fluctuations in equity investment returns are linked to debt side property risks as well.

Figure: Equity Side Property Risks



3.1.2 Hedging methods for property-related risks

As organized in the previous section, property-related risks are positioned on the asset, debt, or equity side of the balance sheet, respectively, and investors who mainly take such risks also represent either the right or the left side of the balance sheet. More specifically, households and enterprises as reluctant risk takers placed on the left side (assets) of the balance sheet and financial institutions and funds as aggressive risk takers are placed on the right side (liability and equity) of the balance sheet.

Since, as stated before, risks assumed by these players have aspects where conventional countermeasures for such risks do not effectively function with the backdrop of changing property into risk assets and revision of the corporate accounting system, the elicitation of need for new hedge methods is becoming prominent.

Generally, insurance and derivatives are methods to hedge risks. Insurance, such as pension insurance, accident insurance, and life insurance, is a method to hedge against possible events that are difficult to predict and may occur randomly by gathering many groups likely to experience such events and increasing probabilistic predictability. For this reason, insurance is sometimes used as a method to hedge against the risks of financial instruments. However, since risks such as price volatility are not random events in many cases, the hedging methods using insurance have the defect of excessive costs.¹⁴ Therefore, methods using derivatives and instruments combining insurance with derivatives are also used as methods to hedge against the risks of financial instruments. The major means of such hedging methods are compensation for losses, warranty of income, and fixation of variations.

These are the same as the hedging methods for property-related risks. It is possible to hedge them by utilizing derivatives, contracts similar to derivatives, and contracts combining insurance with derivatives. Specifically, there are indemnification agreements and options for possible losses from property risks, warranty agreements, and swaps fixing revenues (rent, etc.) gained from properties, and futures transactions fixing volatile property prices. Furthermore, for countermeasures for account settlement by enterprises, it becomes possible to hedge against risks of declining enterprise value due to the implementation of the accounting for impaired assets by using futures or options based on the price index of properties announced at the settlement term end (each quarter).

The following organizes the schemes that are considered property derivatives.

¹⁴ There are more differences between insurance and derivatives: for insurance, an insurance payment never exceeds the actual loss. Conversely, in derivatives, the contracted amount is paid regardless of the actual loss. Furthermore, because assessment of the actual loss is not necessary in derivatives, the contracted amount is paid promptly. However, there are basis risks in derivatives, which may generate difference between the contracted amount and the amount of actual loss, while the amount of loss and amount paid matches in insurance.

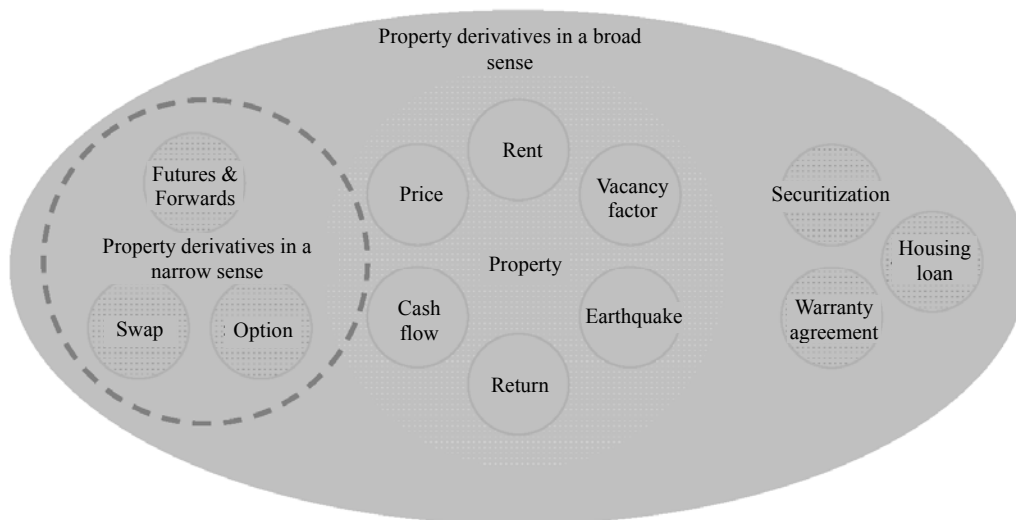
3.2 Schemes of property derivatives

3.2.1 Definition of property derivatives

As previously stated, derivatives are financial instruments where the prices (present values) are determined by the index and prices of other securities, products, or events (underlying assets). Property derivatives mean some forms of derivative financial instruments or contracts composed of property-related indices and events as underlying assets.

There are generally three forms of derivative transaction: futures and forwards, options, and swaps. However, securitized products and housing loans are included in derivatives in the broad sense, as well as warranty agreements that function similar to derivatives. In other words, it is possible to consider property derivatives as not only derivative financial instruments (futures and forwards, options, and swaps) that hedge against property prices, rent, and vacancy factors, but also securitized products using properties as collateral for loans and agreements to guarantee property rent and vacancy factors.

Figure: Definition of Property Derivatives



Furthermore, derivatives can be categorized into two types: listed derivative products and investment products (or contracts) with similar function to derivatives. For example, in the capital market, the Nikkei 225 Option is listed on the Osaka Securities Exchange; in addition, options for exchange rates are actively dealt among investors as relative transactions. Both of the above are derivatives; however, the difference is that the former is listed and exchange traded transactions and the latter is relative transactions (over-the-counter trading).

In this respect, there is no listed property derivative product in Japan so far. There have been recognized contracts and investment products with functions similar to property derivatives, though they are not so actively traded.

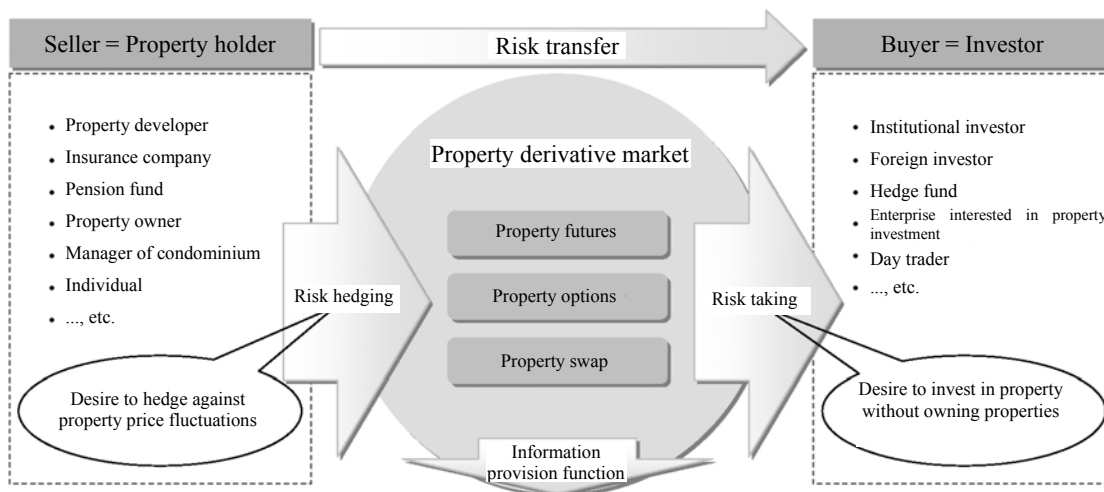
Fundamentally, the reason for using derivatives is to hedge against the risks of underlying assets. For example, in

order to create appropriate derivatives matching the need to hedge against risks of fluctuations in the price of properties, it is necessary to select appropriate underlying assets that correspond to such risks. In most cases, property prices are chosen as underlying assets; however, other than that, it could be the numeric indices of rent and vacancy factors or events like earthquakes. It is necessary to select underlying assets that have the best hedging efficiency to create appropriate derivatives.

3.2.2 The functions of the property derivatives market

The property derivatives market functions as a place matching sellers willing to hedge against the risks of the property and buyers aiming for portfolio distribution. At the same time, it functions to provide information regarding future fluctuations in property value. More specifically, sellers with property desire to hedge against future price fluctuations in the property, and buyers (investors) desire to invest in properties without owning them. The function of the property derivatives market is to match mutual needs and provide a place to disseminate information.

Figure: Overview of the Property derivatives Market



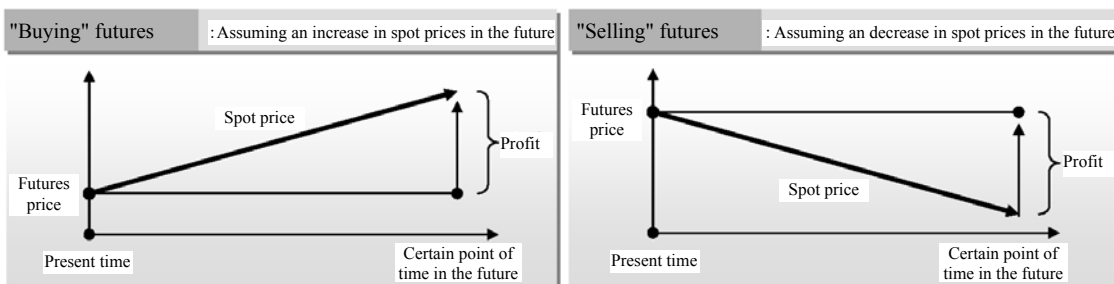
3.2.3 The types and overview of property derivatives

As previously stated, among the various property derivatives, three types are generally assumed: property futures, property options, and property swaps. This section briefly provides an overview of the function of these three types of property derivatives.

1) Property futures

This is a transaction to trade prices and index values of properties at a certain point of time in the future instead of spot trading of properties. For example, if a person who owns a property desires to hedge against its uncertain future prices, all the person has to do is sell futures of the property index. In this way, even if the property value declines in the future, the loss in the value of the property will be covered by the profit from the property index futures. In other words, *buyers* of property futures assume the risks that they may not be able to purchase the relevant property by waiting until a certain point of time in the future. On the other hand, *sellers* of property futures assume the risks that they may not be able to sell the relevant property by waiting until a certain point of time in the future. However, it is possible for both to hedge against such risks by determining prices at a certain point of time in the future and conducting the trade at the present time.

Figure: Positions of Buying and Selling of Property Futures

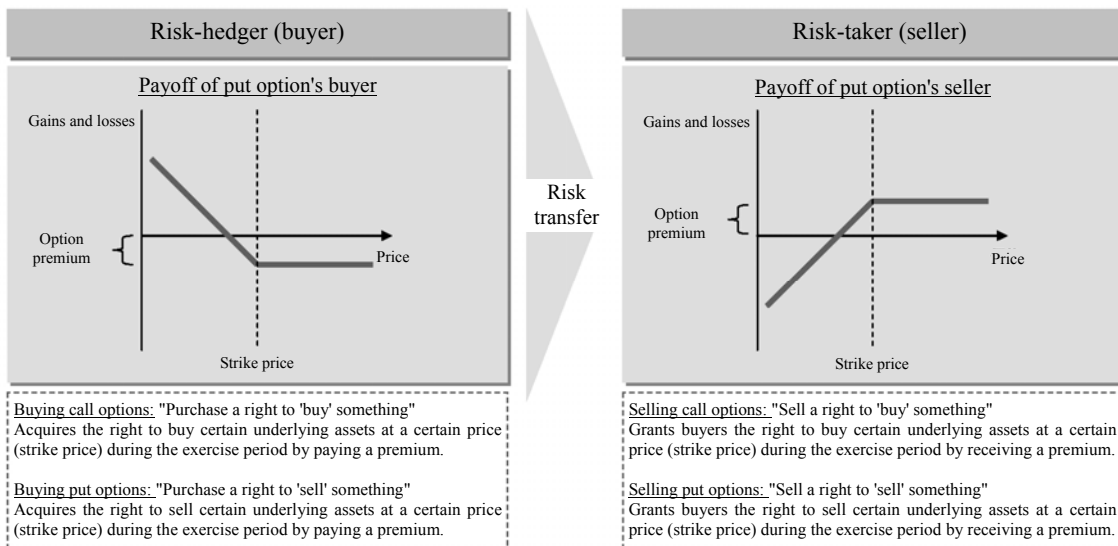


It makes an uncertain future certain; in other words, it decreases the risks of price fluctuations. However, at the same time, the seller may lose an opportunity to profit from the increase in property value.

2) Property options

This is a transaction to trade the rights to buying and selling prices and indices of properties during a certain period at a price determined at the present time instead of spot trading of properties. For example, if a person who owns a property desires to hedge against decreases in property prices in the future, all the person has to do is purchase put options of property indices. In this way, even if property values decline in the future, the person will be able to cover the loss from his own property value with the profit from property options. Moreover, if the property value increases in the future, it will also be possible to gain profit. However, the payment of commissions called option premiums is required when purchasing the rights as the cost for the rights.

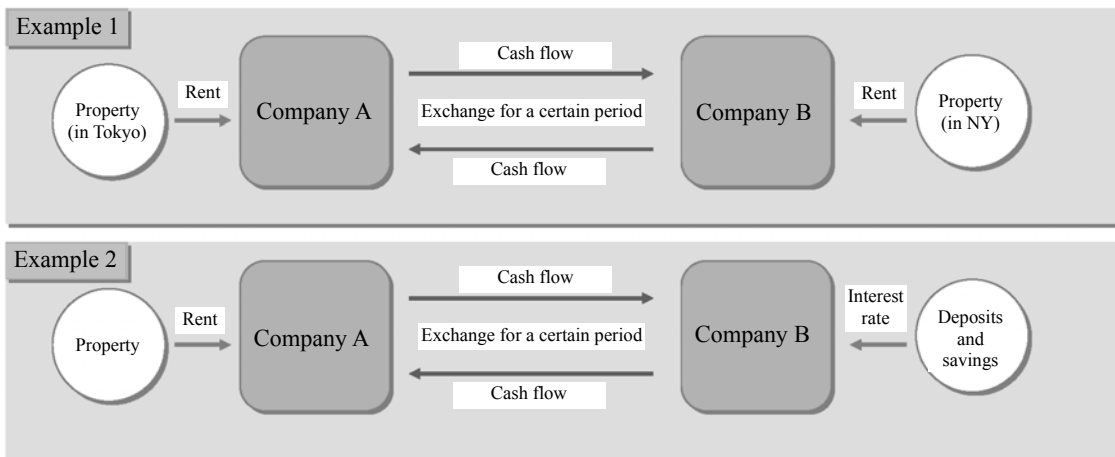
Figure: Payoff of Buyer and Seller of Property Options



3) Property swap

This is a transaction to exchange profit (cash flow) from properties with some cash flow between two counterparties instead of spot trading of properties. For example, if a person who owns a property desires to hedge against uncertain future cash flows from it, all the person has to do is trade a property swap with another person. In other words, the person pays cash flows obtained from the property to the other person and receives different cash flows from the other person. In many cases, such cash flows are received at fixed rates such as LIBOR. For this reason, even if cash flows from properties decline in the future, it will be possible to receive fixed cash flows from the other person. On the other hand, the other person will also be able to profit from the differences in variable interest rates by paying fixed cash flows. Moreover, from the perspective of the other person, this trade makes it possible to obtain cash flows equivalent to those with properties even without investing in properties.

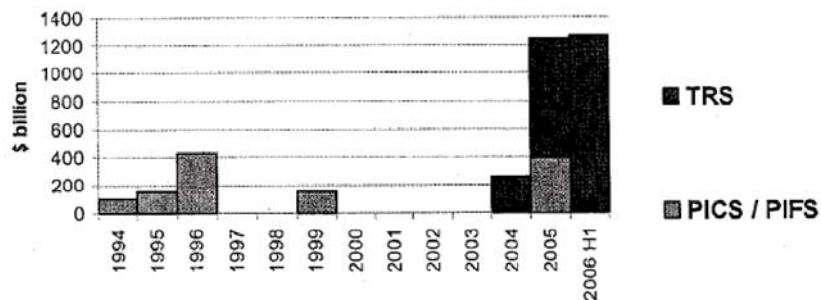
Figure: The Scheme of the Property Swap



1) Current status of property derivatives in the UK

In the UK, property derivatives using PICs and TRS are being established. In 1994, PICs appeared as index-linked bonds using the IPD Index, then in 1996, PIFs (property index forwards)¹⁸ were brought in. TRS appeared in 2004. The amount of transactions has increased with a speed exceeding the amounts in PICs.

Figure: Development of Property Derivatives in the UK



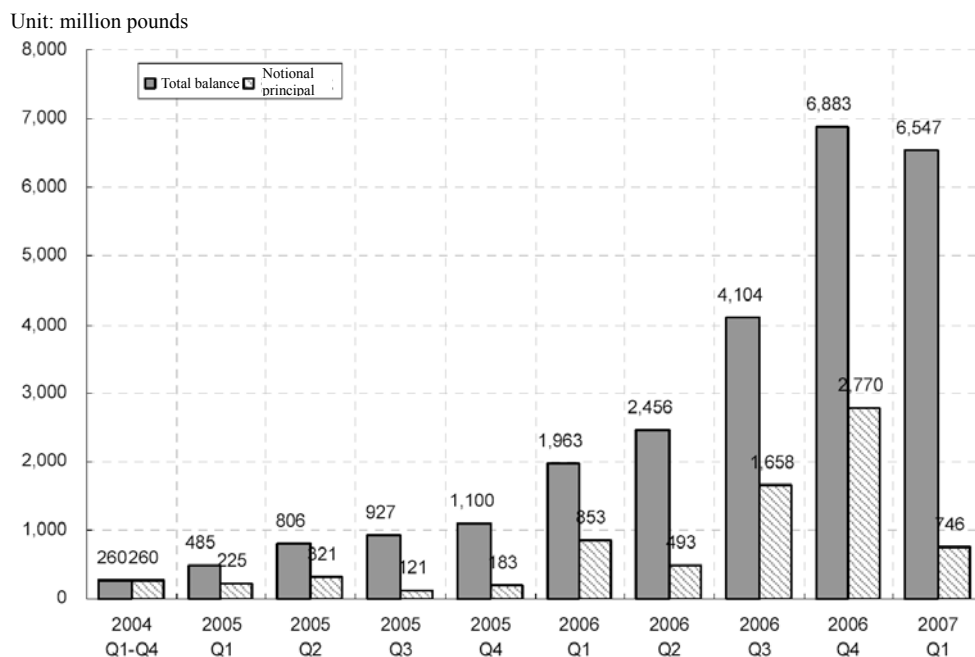
Source: Protego, IPD

According to recent data, the market size¹⁹ of derivatives using the IPD Index has been expanding, reaching a total of approximately 1.4 trillion yen for the 1Q 2007. The IPD Index is a property investment index released by IPD (Investment Property Databank Ltd.) and is used as underlying assets for major property derivatives deals in the UK.

¹⁸ PIFs (Property Index Forwards) are property derivative instruments issued by BZW in November 1996 in the same manner as PICs stated later. PIFs were derivatives (forwards) based on simple privately negotiated transactions, and BZW played the role of the market maker. The difference between PIFs and PICs was that PIFs provided investors with only exposure to risks, other than that, it had the same structure as PICs.

¹⁹ The transaction balance based on notional principals is used here as the market size of property derivatives.

Figure: Transition of the Market Size of Property Derivatives using the IPD Index



Note: Values announced on April 25, 2007, were used.

Source: IPD

As previously stated, the major factor in the development of property derivatives in the UK was the difficulty in securing exposure²⁰ for properties, since there has been no REIT for a long time as a method for investing in properties.

More specifically, when investors in the UK (e.g. pension fund and institutional investors) desired to add properties into their portfolios as an asset class, there was no method other than investing in real assets, which required very high transaction costs. Because of that, property derivatives, which made it possible to easily obtain property earnings rates, developed dramatically.

Furthermore, the sellers of risks were mainly institutional investors such as insurance companies in the UK. They utilized property derivatives as a measure that enabled them to freely change property exposure without selling their properties. In this regard, environmental improvements related to property derivatives, such as changes in the taxation system, were also one of the major backdrops of the development in property derivatives.

²⁰ Exposure generally indicates the investment amount facing risk factors.

2) Current status of property derivatives in the US

In the United States, property derivatives have been listed on the Chicago Mercantile Exchange (CME) and the Chicago Board of Trade (CBOT).

Moreover, other than the above, multiple brokers and investment banks, such as CB Richard Ellis-GFI²¹ and Goldman Sachs, are considering the establishment of a market for privately negotiated property derivative transactions.

Table: Approaches of the USA over Property Derivatives

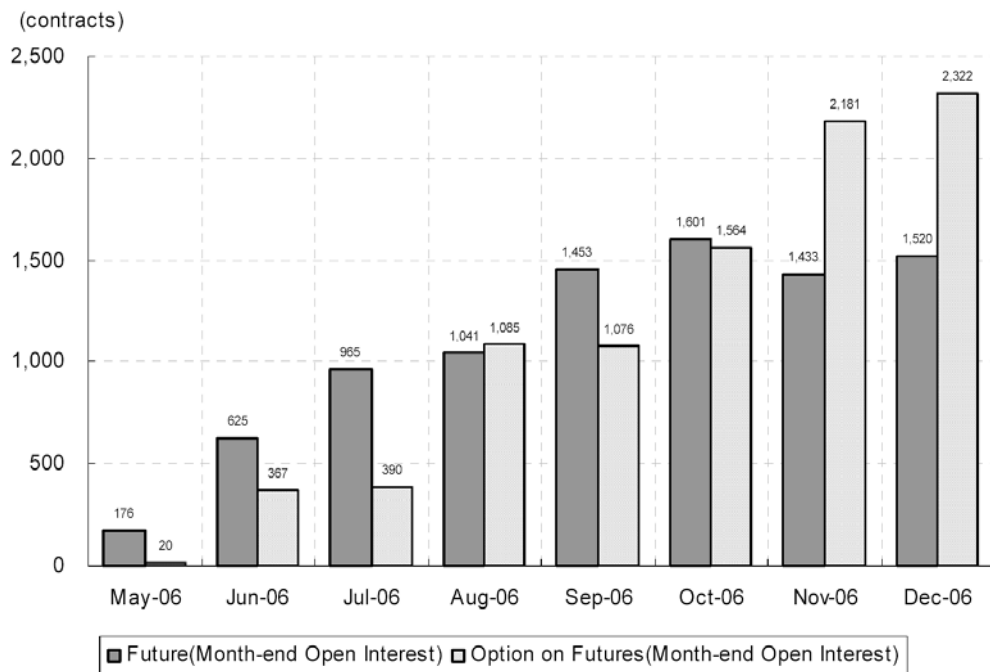
Transaction type	Player	Approach overview
Stock exchange	Chicago Mercantile Exchange (CME)	- May 2006: Listing of home price index derivatives - Afterward, listing of commercial property price index derivatives has been under consideration.
	Chicago Board of Trade (CBOT)	- February 2007: Listing of REIT index futures
Over the counter (Privately negotiated transaction)	CB Richard Ellis-GFI	- November 2006: Established the market as a broker of property derivatives.
	Investment banks, etc.	- Planned to establish the OTC market for futures, options, and swaps for US House Price Index in 2007. - Establishment of the derivative market reflecting trends of the US commercial property market in 2008 is currently under consideration. - Especially, in order to establish the commercial property derivatives market based on the index developed by the National Council of Real Estate Investment Fiduciaries (NCREIF), 4 companies: Bank of America, Credit Suisse, Goldman Sachs, and Merrill Lynch were granted an exclusive NCREIF license. ²²

²¹ CB Richard Ellis-GFI is an exclusive property derivatives broker jointly established by GFI Group, a major derivatives broker, and CB Richard Ellis (CBRE), a leading commercial real estate services provider.

²² The index provided by the NCREIF is called as NCREIF Property Index (NPI). In Japan, the Association for Real Estate Securitization utilizes data from J-REIT and is tentatively providing the index using the same methods as NCREIF.

In particular, futures and futures options for the home price index (S&P/Case-Shiller Home Price Index) were listed on the Chicago Mercantile Exchange (CME) on May 22, 2006. The market size has been steadily expanding even though there are not so many transactions. At the end of 2006, the number of open interest for futures totaled 1,520, and its total value has now increased to approximately 90 million dollars (approx. 10 billion yen).

Figure: Transition of the Market Size of Property Derivatives on CME



Source: NRI based on CME Volume Report

However, trading of property derivatives on CME is not as active as it was initially assumed for the present period. It is important to research the factors for what kind of investors actually purchase it and whether or not it fulfills their concrete need in the future. It is also important to focus on future trends because there has not been sufficient accumulated track record since property derivatives were listed.

3.3.2 Organizing the schemes of overseas case examples

As previously stated, property derivatives have been developed and been in use overseas. Those property derivatives can be classified into derivative securities, such as property index futures, contracts for swaps, and various warranties, such as TRS, and other derivatives, such as REIT and MBS. However, by excluding the category of other derivatives, which are derivatives in a broad sense, derivatives appearing in other countries can be classified into five types as shown in the figure below.

Table: Types of Property Derivatives

Classification	Overview	Major products
Index-linked bonds	Bonds where the amount of coupon payments are linked to the performance of a specific property-related index.	- PICs
Swap contract	A contract to exchange the performance of a specific index related to properties, and the performance of an index determined with reference to interest rates.	- TRS
Price index derivatives	Futures and futures options for a specific property-related index listed on the stock exchange.	- CME Housing Futures and Options
REIT index derivatives	Futures and options for a price index of real-estate investment trust (REIT) transacted OTC or listed on the stock exchange.	- CBOT Dow Jones US Real Estate Index Futures - FTSE EPRA/NAREIT Global Real Estate Index (ETF)
Debt derivatives	A contract to swap returns in the debt side in order to transfer risks of mortgage-backed securities (MBS).	- MBS-related derivatives - CDS, CLN

The following provides the overview of derivatives in each scheme.

1) Index-linked Bonds

In 1994, Barclays De Zoete Wedd (the predecessor of Barclays Capital and Aberdeen Property Investors) developed a property derivatives product called PICs (Property Index Certificates).

PICs were a type of certificate (index-linked bonds) linked to the performance of a property index. Investors can receive income returns and capital growth from the properties by investing in PICs. On the other hand, while sellers of risks pay investors income returns and capital growth, they can receive LIBOR instead.

Through investment in PICs, investors can obtain returns that are equivalent to investing in properties without actually investing in properties. As for sellers of risks (property owners), it is possible to hedge against the risks of fluctuations in income returns and the capital growth of properties.

The property index provided by IPD (Investment Property Databank Ltd.) is used for the calculation of income return and capital growth.

Figure: Scheme and Issuance Overview of PICs

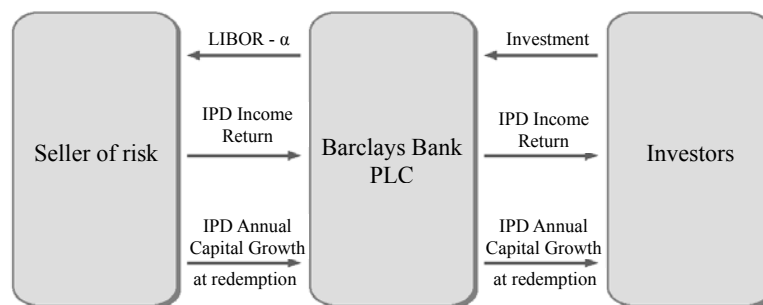


Table: Issuance Overview of Property Index Certificates

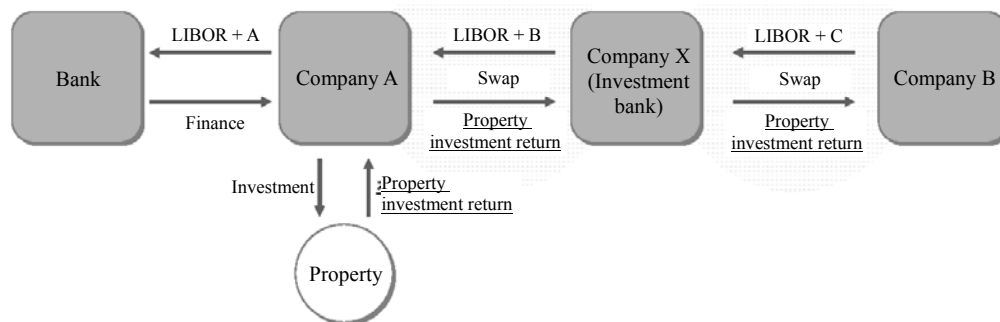
	Date of issue	Limit amount (Pounds)	Type
PIC I	1994	160 million	Public offering
PIC II	July 1995	240 million	Public offering (listed on the LSE)
PIC III	January 1996	40 million	Private offering
PIC IV	February 1996	640 million	Private offering
PIC V	1996	400 million	Public offering
PIC VI	1999	240 million	Private offering

2) Swap contract

This is a swap contract that exchanges total return (a total value of income return and capital growth) with interest rates, such as the London Interbank Offered Rate (LIBOR).

As for the period of swaps, it is said that three-year contracts are predominant. And, the property index provided by IPD and an index issued by NCREIF are used for the calculation of such total returns. Property owners concerned about declines in property value receive interest rates in return for paying total returns of the property index. Conversely, investors anticipating property value to be listed receive total returns equivalent to investing in properties by paying interest rates.

Figure: Scheme of TRS



- 1) Company A finance at LIBOR + A and invests in a property.
- 2) Company A obtains a property investment return from an invested property and makes a swap contract with Company X for it.
- 3) For company A, values subtracting A from B becomes positive carry (no fluctuation risks of property investment return).
- 4) Company X makes a swap contract with Company B, which wants a property investment return and obtains a commission from subtracting B from C.

Note: Various means of hedging transactions other than the above are possible for Company X as a swap counterpart.

3) Price index derivatives

In May 22, 2006, the Chicago Mercantile Exchange (CME) provided futures and futures options for home prices based on the S&P/Case-Shiller Home Price Index. It was the home price index of the all US and 10 US cities based on the repeat-sales model²³ (announced on the last Tuesday of each month). Furthermore, listing of commercial property price index derivatives in the future is under consideration.

Target areas

All US and 10 US cities

- All US

- New York, Washington DC, Boston, Miami, Chicago, Denver, Las Vegas, San Francisco, Los Angeles, and San Diego.

Product overview

There are two types of property derivatives listed: futures and futures option

Table: Product Overview of Property Derivatives Listed on CME

	Futures	Futures option
Contract size	\$250 x Index	One (1) futures contract
Tick Size	0.20 index points (\$50.00)	0.10 index points (\$25.00)
Trading Hours	5:00 p.m. to 2:00 p.m.	8:00 p.m. to 2:00 p.m.
Months	Feb, May, Aug, Nov	Feb, May, Aug, Nov
Strike price	NA	5 point intervals above and below market price

In the US housing market, it is possible to estimate the market participants' expected rate of change of home prices to a certain degree through the price index derivatives market. In fact, after the listing of property derivatives, futures were traded at about 10% lower prices compared to the price of underlying assets for a while. Therefore, market participants were foreseeing that housing prices were going to drop around 10% in the future at that time.

²³ The repeat-sales model is a method for calculating property indices through regression analysis of data on properties that have sold at least twice.

Figure: Property Derivatives Listed on the Chicago Mercantile Exchange

CME DATASITE CME REAL ESTATE OVERVIEW CME HOUSING

CME Real Estate Futures Intra-commodity Spreads Calendar Spreads

Trade Date: Monday, February 12, 2007

Select a Housing Contract

Select a Contract Month: February 2007

February 2007

City	Bid Price	Bid Size	Ask Price	Ask Size	High	Low	Volume	Last	Net Change
Composite	219.00	2	-	-	-	-	-	223.20S	0.0
Boston	197.20	5	175.20	5	-	-	-	171.60S	0.0
Chicago	195.20	5	169.80	5	-	-	-	167.40S	0.0
Denver	138.00	1	158.00	5	-	-	-	137.60S	0.0
Las Vegas	228.60	2	239.60	4	-	-	-	232.00S	0.0
Los Angeles	270.00	5	-	-	-	-	-	273.20S	0.0
Miami	278.20	1	283.00	2	-	-	-	280.80S	0.0
New York Metro	208.40	10	217.40	2	-	-	-	211.40S	0.0
San Diego	230.00	2	243.20	2	-	-	-	240.00S	0.0
San Francisco	209.60	4	216.60	2	-	-	-	212.80S	0.0
Washington DC	237.20	2	241.60	2	-	-	-	240.60S	0.0

HOUSING RESOURCES
[Product Info](#)
[Intra-Day Block Trades](#)
[S&P/Case-Shiller® Metro Home Price Indices](#)
[View Open Interest on the p. 46 of the Daily Bulletin](#)
[Indicative Housing Options Quotes](#)

Source: CME

Figure: Transition of the S&P/Case-Shiller Home Price Index



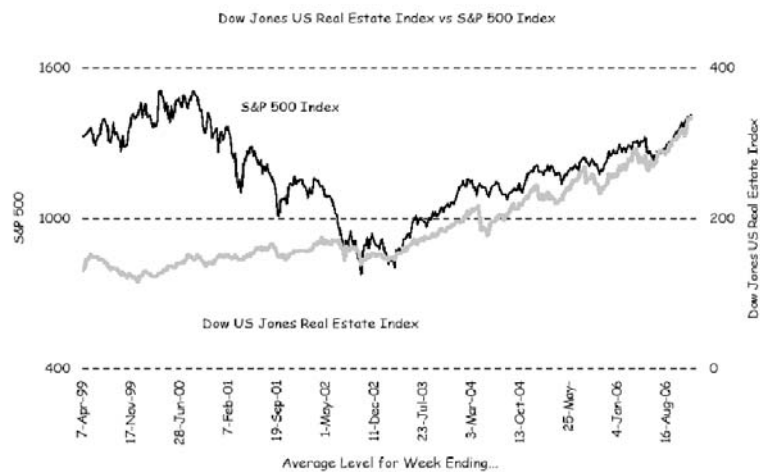
Source: Standard & Poor's

4) Real-estate investment trust (REIT) index derivatives

The real-estate investment trust (REIT) index is an index based on REIT prices. In Japan, the Tokyo Stock Exchange releases the Tokyo Stock Exchange REIT index. Moreover, there are derivatives on such REIT indices available overseas. In particular, FTSE EPRA/NAREIT Global Real Estate Index by FTSE²⁴ is an index based on REIT prices around the world, and EFT (Exchange-Traded Fund) for this index is actively traded. Also, futures of the Dow-Jones US Real Estate Index, a REIT index, were listed on February 21, 2007, on the Chicago Board of Trade (CBOT). However, it is said that transactions are not very active, starting in low gear.

Due to the appearance of the futures market, it is possible to estimate investors' future expectations of value regarding relevant underlying assets to some extent (this is called the price-discovery function). For this reason, it may be possible to estimate the trend in the real estate market, in addition to future expectations of value by investors regarding REIT, through transactions of derivatives on the REIT index. However, in the strictest sense, since the fair value of futures is calculated by adding carry costs (holding costs); it is necessary to carefully deliberate the effect that REIT index futures have on the real estate market.

Figure: Transition of the Dow Jones US Real Estate Index



Source: CBOT

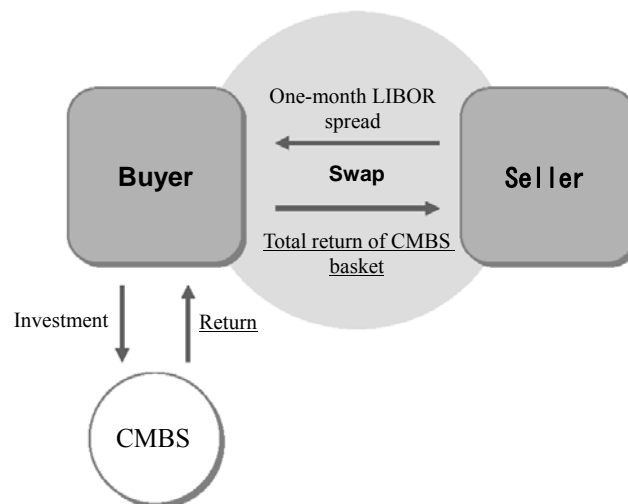
²⁴ FTSE is a provider of indices jointly owned by the Financial Times and the London Stock Exchange.

5) Debt derivatives

Derivatives are utilized not only as hedging methods for assets, but also to hedge against risks on the debt side of property securitization products.

Along with the trend in property securitization, nonrecourse loans with cash flows from property as collateral were actively transacted. Since there are property-related risks in such debt-like funds, financial institutions are utilizing debt derivatives as an effective tool in risk management. For example, property derivatives are utilized in the field of MBS (mortgage-backed securities); contracts to swap MBS returns are actively traded as hedging methods mainly to address the price volatility risks of collateral properties and positions.

Figure: An example of Total Return Swap in CMBS



Furthermore, there are other derivative products traded, such as the credit default swap (CDS), a swap instrument to receive a fixed amount when an event such as default occurs in return for paying commissions, and credit linked notes (CLN) where credit risks are linked to the credit of other notes.

Since it is possible to hedge the performance of property loans and price volatility risks of collateral properties with such debt derivatives, there is a strong need for them by loan providers to manage risks appropriately.

4 Requirements for the Realization of Property Derivatives in Japan

As stated, methods to hedge against property-related risks using property derivatives have appeared around the world. In Japan, the need for property derivatives will increase in the future due to the change of property into risk assets.

In order for property derivatives to be realized in Japan, it is necessary to develop institutional conditions; in addition, it is also a vital requirement that its existence is valuable in the national economy. Therefore, this chapter organizes the requirements for the establishment of property derivatives in Japan from two perspectives: necessary conditions in the institutional system and sufficient conditions from a national economic view.

4.1 Necessary conditions (aspects of institutional system and infrastructure)

4.1.1 General description

Currently, property derivatives are transacted around the world; however, efforts to realize property derivatives have been a series of failures and challenges.

By viewing property derivatives in the past and case examples of other derivatives markets, both successful and unsuccessful, considerations were made regarding the general factors required for the sound development of the derivatives market in order to provide useful information for the future development of the derivatives market in Japan.

1) Lessons Learnt from failed examples of property derivatives in the past

The London FOX (London Futures and Options Exchange)²⁵ listed property derivatives for the first time in the world on May 9, 1991; however, the transaction was abolished about after five months. Also, in the United States, trading MBS futures listed on the CBOT (Chicago Board of Trade) in June 1989 was discontinued once within less than 3 years.²⁶

The main reason for the trading halts was insufficient volume of transactions to keep the operation economically on the exchanges. There have been several investigations of the reasons for property derivatives becoming such financial instruments.

Main reasons considered in this investigation were insufficient understanding of participants, lack of liquidity, and methods to construct indices.²⁷

²⁵ After this, London FOX changed its name to the London Commodity Exchange, and in 1996, it merged with the London International Financial Futures and Options Exchange. It became a member of the Euronext Group in January 2002.

²⁶ Reference: Nothaft, F. E., V. Lekkas and G. H. K. Wang (1995), "The Failure of the Mortgage-Backed Futures Contract," *Journal of Futures Markets*, Vol. 15, No. 5, 585-603.

²⁷ Reference: Patel, K. (1994), "Lessons from the FOX Residential Property Futures and Mortgage Interest Rate Futures Market," *Housing Policy Debate*, Vol. 5, Issue 3., etc.

a) Insufficient understanding of participants: Gaps between related parties of the property market and the financial market

It is believed that it was difficult for participants in the property market to fully understand complicated derivative transactions. For this reason, there was no incentive for participants to join derivative transactions proactively.

Additionally, related parties in the financial market did not have a good understanding of property as the underlying asset of derivatives, however, transactions were started in the market before property derivatives had been widely known and explained to investors.

For these reasons, it is believed that gaps between those involved in the property market and the financial market were generated, and incentives to actively participate in transactions did not function.

b) Lack of liquidity: Undeveloped framework for securing liquidity

The London FOX at that time was in the midst of a depression and was not in the market environment where investment for new derivatives was being made. Also, there was a one way current of funds, and parties to serve as a counterpart did not exist even if a party were willing to invest. Because of this, the framework to secure liquidity had not been developed, and it was not an environment conducive to investments in new derivatives.

c) Questionable methods to construct indices: reliability of indices and frequency of publication

One of the four listed derivatives used the NAHP²⁸ index as underlying assets; however, it was pointed out that its reliability was questionable. It is believed that investors were not able to trust whether this index had the same movements as those of real estate prices. Furthermore, the IPD index, underlying asset other than the NAHP index, was only announced annually and was not appropriate for underlying assets of derivatives. Hence, it always faced basis risks,²⁹ and the frequency of announcements of the index as underlying assets arose as an issue.

²⁸ NAHP is an abbreviation for Nationwide Anglia Building Society House Price public. It is published by Nationwide Building Society, the largest building society in the UK.

²⁹ Basis risk is where gaps in price occur between underlying assets and derivatives. Basis risks exist where the frequency of publication of property values and the indices of underlying assets differ. Other than this, there are basis risks due to the uniqueness of the property.

Table: Overview of Property Derivatives Listed on London FOX

	Residential property futures	Mortgage interest rate futures	Commercial property futures	Commercial rent futures
Trading unit	£ 500/Index point	£ 500,000/Lot	£ 500/Index point	£ 500/Index point
Contract month	March, June, September, December	March, June, September, December	March, June, September, December	March, June, September, December
Expiry day	5th business days of the calendar month following contract month	3rd Wednesday of the delivery month	5th business days of the calendar month following contract month	5th business days of the calendar month following contract month
Last trading day	3rd Friday of the calendar month	11:00 AM of the maturity date	Last business day of contract month	Last business day of contract month
Liquidation value	The Nationwide Anglia Building Society house price index	100 minus the rate of interest	IPD capital growth index	IPD rental growth index
Settlement price	The NAHP index released on the 1st business day of month following the contract month	The index released on the 3rd Wednesday of the contract month	The IPD Growth Indices released on the last Wednesday of the month following the contract month	The IPD Growth Indices released on the last Wednesday of the month following the contract month
Tick size	0.05 of one index point (£ 25)	0.01 of one index point (£ 12.50)	0.05 of one index point (£ 25)	0.05 of one index point (£ 25)
Trading hours	9:30 AM - 11:30 AM 2:30 PM – 4:30 PM	9:30 AM - 11:30 AM 2:30 PM – 4:30 PM	9:30 AM - 11:30 AM 2:30 PM - 4:30 PM	9:30 AM - 11:30 AM 2:30 PM - 4:30 PM

2) Requirements for success as seen from other derivatives markets

It is possible to examine the requirements for the realization of the derivative market not only from failed examples, but also from derivatives markets for other asset classes. Therefore, this section focuses on the derivatives markets for other asset classes.

a) Currency derivatives

Currency derivatives appeared in 1972. Although it saw low-pitched transactions in the beginning, it came into a current trend by meeting the needs as a hedge method for import-export businesses.

The transaction of currency derivatives was flagging when it first appeared; however, the need to hedge against currency risks increased in the business of import-export enterprises, currency derivatives then started being traded actively. Nowadays, currency derivatives function as industrial infrastructure in international transactions.

b) Commodity derivatives

In contrast to currency derivatives, commodity derivatives does not meet actual needs as seen in the commodity futures market in Japan and slump due to problems or low liquidity caused when speculative transactions simply occupy the majority of the market.

Differing from other countries, speculative transactions by individual investors make up a major portion of the Japanese commodity futures market. For this reason, problems with investors and immature market functions have been identified.

Though, in the transactions for real products like petroleum products, prices in the commodity futures market have been used as indices, and such commodity derivatives have been functioning as a part of the industrial infrastructure in Japan. Furthermore, the volume of transactions has gradually increased in recent years due to the greater need for business operations in trading companies.

3) Institutional requirements for the realization of derivatives

Taking the case examples stated above into consideration, not only general legislation (institutional aspects such as laws), but also market aspects (indices and standard contracts) and appropriate market environments (understanding by market participants, need of interested parties and a market with liquidity) are important for the sound development of the property derivatives market.

According to the lessons learnt from the case examples of currency derivatives and London FOX, it becomes clear that the actual need of interested parties is necessary for the sound development of the property derivatives market. Moreover, in addition to the existence of hedgers who actually hedge against risks, the existence of legitimate speculators and arbitrators who take such risks are also important for the market. It is necessary to create a market with liquidity while maintaining the balance of these three counterparties.

Furthermore, it is fundamental to obtain understanding of property derivatives by both participants in the property and financial markets, and to do so, both participants must be sufficiently informed. It is also necessary to examine the development of the property investment indices as underlying assets.

The following are the specific necessary conditions for the realization of property derivatives.

4.1.2 Requirements in regard to legislation

This section organizes requirements in legislation, i.e., requirements with regard to laws and accounting systems, for the realization of property derivatives. First, the positioning of property derivatives under the existing legal system, expected positioning of property derivatives in future under the Financial Instruments and Exchange Law, and account processing of property derivatives are organized. Then, the required legislation conditions for the realization of property derivatives in Japan are deliberated.

1) General description

a) Positioning under the existing legal system

Under the existing legal system, laws such as the Securities and Exchange Law, Financial Futures Trading Law, and the Commodity Exchange Act are applicable to derivative transactions regarding equity. However, regarding property derivatives, no laws exist that specifically define and apply to property derivatives, except off-market derivative transactions (privately negotiated transactions) for property-related products defined as marketable securities or deemed securities (such as REIT, preferred investment securities based on the Asset Liquidation Law, and investment in anonymous association). For this reason, property derivatives with property-related products, other than marketable securities or deemed securities, as underlying assets, such as TRS, are likely to be able to be traded without restriction by the Securities and Exchange Law, if it is a privately negotiated transaction and unless it breaches the Crimes of Gambling.

Table: Positioning of Property Derivatives under the Existing Laws

		Securities and Exchange Law	Financial Futures Trading Law	Commodity Exchange Act	Hedge Accounting	Crimes of Gambling
(1) Listed derivatives		Currently unable to list; though regulations differ according to the type. (Note 1)	Not applicable	Not applicable	Hedge accounting procedure is applicable if fulfilling the requirement for the hedging purpose.	There is no specific legal basis to reject the illegality.
(2) Privately negotiated derivatives (except credit derivatives) (Note 2)	Property futures (Forwards)	No restriction	No restriction	No restriction		
	Property swaps (TRS)					
	Property options					
(3) Privately negotiated credit derivatives		No restriction	No restriction	No restriction		

Note 1: Securities index futures are restricted to products related to equity. As for securities futures and securities options, though they are not restricted to equity-related products, market operators are required to determine the standards and methods; in addition, approval by the prime minister is necessary. Currently there are no such products related to property (the same is applied to securities index futures regarding regulations on listing). Note that since there are no provisions for listed swaps and listed credit derivatives, exchange trading for these is not possible.

Note 2: Privately negotiated derivatives in (2) do not include derivatives for marketable securities and deemed securities.

Looking at the objects in each law, the Securities and Exchange Law positions business transactions for futures and option trading related to marketable securities as a part of the securities business, restricting certain business and activities in derivative transactions. The Financial Futures Trading Law targets derivative transactions for currency and interest rates, and the Commodity Exchange Act targets derivative transactions for farm crops, noble metal, and natural resources.

b) Positioning after the implementation of the Financial Instruments and Exchange Law

The Securities and Exchange Law was significantly revised and newly established and officially announced as the Financial Instruments and Exchange Law in June 2006. The new law is scheduled to be enforced within one and one-half years from the announcement, planned for around September 2007. The aim of this law is to extend its target to all transactions involving financial instruments. As for the positioning of property derivatives, it may be applicable depending on the government ordinance entrusted by this law. (According to the draft of the ordinance (public comment draft) announced on April 13, 2007, (hereinafter referred to as the "ordinance draft"), the ordinance does not appear to apply to property derivatives products other than security-related and credit derivatives. (As for credit derivatives, most property-related trading is likely outside this scope if it is a privately negotiated transaction; however, individual judgment in each case is required for precise judgment of whether it applies.))

Table: Positioning of Property Derivatives after the implementation of the Financial Instruments and Exchange Law

		Financial Instruments and Exchange Law Note 1:				Hedge accounting	Crimes of Gambling	
		Application	Business regulation					
				Entry regulation	Restriction on assets			
(1) Exchange-traded derivatives (except credit derivatives)	Securities/ securities index derivatives	To be applied	(When conducted as a business) The second financial instruments business	Registration	(For corporations) Minimum capital requirements (For individuals) Business security deposits			
	Non-securities/non-securities index derivatives	Possible to be applied depending on the government ordinance (it is considered no to be applied in the currently announced ordinance).	In cases where the Financial Instruments and Exchange Law applies					
(2) Privately negotiated derivatives (except credit derivatives) (Note 2)	Property futures			(When conducted as a business) The first financial instruments business	Registration (Approved only when operating the PTS (Note 4) market)	CAR regulation Policy reserve for financial instruments trading liability Minimum net asset requirement Corporation Regulation	Hedge accounting procedure is applicable if fulfilling the requirement for the purpose of hedging.	There is no specific legal basis to reject the illegality.
	Property swaps (TRS)							
	Property options							
(3) Credit derivatives (Note 3)	Exchange-traded credit derivatives	Possible to be applied depending on the trading	In cases where the Financial Instruments and Exchange Law applies					
			(When conducted as a business) The second financial instruments business	Registration	(For corporations) Minimum capital requirements (For individuals) Business security deposits			
	Relative credit derivatives		In cases where the Financial Instruments and Exchange Law applies					
			(When conducted as a business) First financial instruments trading business	Registration (Approved only when managing the PTS market)	CAR regulation Policy reserve for financial instruments trading liability Minimum net asset requirement Corporation Regulation			

Note 1: The Financial Instruments and Exchange Law does not apply to the Commodity Exchange Act.

Note 2: Privately negotiated derivatives in (2) do not include derivatives for marketable securities and deemed securities.

Note 3: Credit derivatives are derivatives for credit risks, such as corporate bonds and loan earnings as underlying assets. Note that privately negotiated credit derivatives in (3) do not include transactions for obligation guarantee contracts and loan compensation agreements, according to the ordinance draft.

Note 4: PTS stands for *proprietary trading system*.

2) Law related requirements

This section specifically focuses on the positioning of property derivatives in the Financial Instruments and Exchange Law, for enforcement in the future as legal requirements, and at the same time, attention is paid to requirements to prevent breaching the Crimes of Gambling.

a) Definition, range, and regulations on business law of derivatives in the Financial Instruments and Exchange Law

According to Article 2 of the Financial Instruments and Exchange Law, the following categories are defined as derivatives transactions for both exchange-traded derivatives and privately negotiated derivatives (OTC derivatives).

- (1) Futures transaction of financial instruments
 - (2) Futures transaction of financial indices
 - (3) Option transaction of financial instruments or financial index-related
 - (4) Swap transaction of financial instruments or financial index-related
 - (5) Credit derivative transaction
 - (6) Transactions similar to transactions (1) to (5) or transactions that possess the same economic features as those and are designated by the ordinance.
- (No new designation was made in the ordinance draft.)

The "financial instruments" stated here indicate the following.

- (1) Marketable securities
 - (2) Claims based on deposit agreements and other rights designated by the ordinance
 - (3) Currencies
 - (4) Products other than (1) to (3) of which there exist numerous identical types and are assets with significant volatility in value; further, protection of investors regarding derivatives transactions related to such assets is required as a designation of the ordinance.
- (No new designation was made in the ordinance draft.)
- (5) Standard products of (1), (2), and (4) as designated by the ordinance and their conditions are standardized and set by the financial instrument exchange in order to facilitate derivatives transactions. (No new designation was made in the cabinet office ordinance draft announced at the same time as the ordinance draft.)

Also, "financial indices" are indicated as follows.

- (1) Prices or interest rates of financial instruments
- (2) Observed values of weather
- (3) Indices where it is difficult or impossible to affect volatilities and which have a serious impact on business activities or statistical values related to socio-economic conditions, designated by the ordinance from the

standpoint of the protection of investors.

(According to the ordinance draft, observed values of terrestrial phenomena, ground motion, geomagnetism, geo-electricity, and water phenomena, as well as the resulting values of national economic accounting, designated, registration, and other similar statistics of such values are additionally designated.)

(4) Numeric values calculated based on (1) to (3).

Taking into consideration the above, although the Financial Instruments and Exchange Law does not apply to property derivatives, excluding security-related and credit derivatives, it may apply depending on the content in (4) of the "financial instruments" or (3) of the "financial indices" stated above.

However, since there is no additional designation in property-related derivatives in the current ordinance draft, it is considered that privately negotiated transactions of property derivatives, other than security-related and credit derivatives, can take place without regulation by the Financial Instruments and Exchange Law, unless it breaches the Crimes of Gambling.

On another front, in terms of exchange-traded derivatives transactions, the Financial Instruments and Exchange Law is applicable to transactions of security-related derivatives on the REIT index. And, it is possible to deal with it after notification of the prime minister if the relevant exchange sets up such provisions.

Conversely, as for exchange-traded derivatives for indices of land prices, which are currently not security-related (excluding credit derivatives transaction), in the same way as privately negotiated transactions, whether the Financial Instruments and Exchange Law is applicable depends on the content of (4) of the "financial instruments" or (3) of the "financial indices" stated above. Accordingly, if the content of the ordinance draft is passed, the Financial Instruments and Exchange law is not applicable. However, transactions that are not the objects of this law are not allowed to be listed, hence exchange-traded derivatives for the land price index are not likely to be applicable for a time.

Furthermore, according to the draft of the ordinance, regarding credit derivatives, whether it is listed or privately negotiated, since trigger factors for transactions include all items related to the credit status of corporations and individuals, abnormal natural phenomena, wars, and civil disturbances, precise judgment is also required in each case individually as to whether the property related credit derivatives are outside the range of the Financial Instruments and Exchange Law. Note that as for privately negotiated transactions, the current draft of the ordinance does not include transactions such as obligation guarantee contracts and loan compensation agreement. It is considered many of property-related transactions such as rent related contracts are not included in the ordinance draft as well; however, precise judgment is also required in each case individually.

Note that, if such derivatives transactions become objects of the Financial Instruments and Exchange Law, regulations for the trading business may accordingly be enforced, requiring the registration of the first financial instruments business for privately negotiated derivatives transactions and second financial instruments business for exchange-traded derivatives transactions when executing derivatives transactions as a business.

b) Items to be examined for the sound development of property derivatives

As seen above, it is unlikely that the Financial Instruments and Exchange Law will be applicable to property derivatives except for security-related and credit derivatives; however, it may be applied to property derivatives by simply revising the ordinance from a legal system perspective. Therefore, if property derivatives spread widely in Japan in the future, it is supposed that the legal positioning of property derivatives will come under discussion.

With regard to property derivatives, clarification of the positioning within the legal system is required in connection with the Crimes of Gambling as stated later. On the other hand, it is necessary for regulations not to be excessive such that business restrictions of the Financial Instruments and Exchange Law is uniformly applied to sales strategies similar to property derivatives or property swap agreements over the counter by developers, even if the Financial Instruments and Exchange Law is applied to property derivatives in the future, which was established as a cross-sectional legal system regarding financial instruments from the perspective of consumer protection. In addition, it is also necessary to organize its relationship to the current property related transaction regulation in the Building Lots and Buildings Transaction Business Law.

Accordingly, it will be required in the future to sufficiently investigate and examine how property derivatives should be positioned in the Financial Instruments and Exchange Law and what kind of regulations and supervision for it is necessary.

c) Relations between property derivatives and the Crimes of Gambling

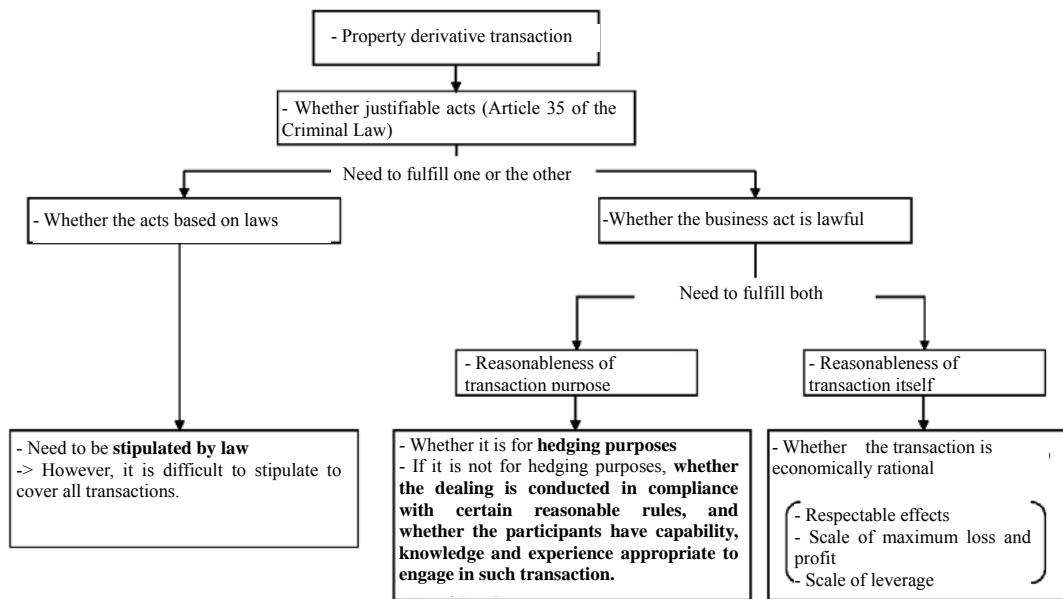
Derivatives transactions are sometimes mentioned as a sort of gambling (Article 185 of the Criminal Law) since money is transferred according to the value of relevant indices at a certain point in the future.

For this reason, when executing derivative transactions, it is necessary to reject any illegality in such an act. According to Article 35 of the Criminal law, "an act performed in accordance with laws and regulations or in the pursuit of lawful business is not punishable," the illegality shall be generally rejected if such an act is recognized as a justifiable act. Therefore, the illegality of current transactions in stock futures and commodity futures are considered to be rejected by law, such as the Securities and Exchange Law and the Commodity Exchange Act.

Therefore, it is necessary for property derivatives transactions to be recognized as justifiable acts, and to do so, such transactions are required to fall under legal acts (whether the act is based on laws) or justified business acts (whether the business act is lawful).

According to the opinions of the Financial Law Board announced in 1999, it is fundamental to fulfill the reasonableness of both the purpose of the transaction and the transaction itself in order to fall under justifiable action. In particular, as for reasonableness of purpose, it basically requires transactions to be fulfilled for hedging purposes.

Figure: How to Prevent Property Derivatives from application of the Crime of Gambling



Source: Based on opinions in the paper by the Financial Law Board (secretariat: The Bank of Japan) published on November 11, 1999.

3) Accounting requirements

In terms of legislation requirements, it is necessary to consider accounting requirements in addition to law related requirements already organized. The issue of accounting for property derivatives is generally a direct management issue of enterprises, as well as dominant requirements for the realization of property derivatives.

Hedge accounting is for adjusting the lag between recognized periods of gain and loss on the hedge transactions and the hedged item. At the present time, it appears possible to apply hedge accounting for property derivatives as far as its purpose is non-speculative and the requirements for hedging accounting are fulfilled.

Therefore, in order to conduct hedging accounting for property derivatives, it has to have hedging purposes and is required to fulfill requirements such as hedge effects being periodically observed.

Chapter 5: Hedge Accounting

I. Definition of the Hedge Accounting

The hedge accounting is special accounting for reflecting effects of a hedge, where, if a hedge transaction meets certain conditions, gains and losses on the hedged item and gains and losses on the hedging instrument are recognized in the same accounting period.

II. Hedged Items

Hedged items to which hedge accounting is applied are assets or liabilities that are exposed to losses from market volatility and to which the related market volatility is not reflected in their measurements, to which the related volatility is reflected in their measurements but the changes in the measurement are not included in earnings, or to which the related cash flows can be fixed with volatility of cash flows decreased. The hedged items include assets and liabilities that would occur by forecasted transactions.

III. Conditions for Applying the Hedge Accounting

To apply the hedge accounting, all of the following conditions should be met:

1. Conditions at the Date of Hedging Transaction

It is objectively confirmed at the date of hedging transaction that the hedging transaction is consistent with the entity's risk management policy, demonstrated by either of the following facts:

- a. It is confirmed by documentation that that transaction is consistent with the entity's risk management policy.
- b. There are explicit internal rules and control system over the entity's risk management policy, which are expected to be followed when that transaction is processed.

2. Conditions after the Date of Hedging Transaction

After the date of hedging transaction, effectiveness of the hedging instruments should be confirmed on a regular basis, demonstrated by the fact that the gains and losses on the hedged items and the gains and losses on the hedging instruments continue to be offset or the fact that the cash flows on the hedged items are fixed to mitigate volatility in the cash flows.

Source: Business Accounting Deliberation Council "Accounting Standards for Financial Instruments"

Discrimination of Hedged Items

Hedged Items applicable to Hedge Accounting

148. Assets or liabilities that are exposed to losses from market volatility (including those would occur by forecasted transactions) and to which the related market volatility is not reflected in their measurements, to which the related volatility is reflected in their measurements but the changes in the measurement are not included in earnings may become a hedged items which offset market volatility as a general rule. Loans payable and loans at fixed interest rates are equivalent to hedged items because their volatilities in market value may occur due to volatilities in market interest rates but are not reflected in their measurements.

149. Those items which cash flows from assets or liabilities are volatile, such as variable rate loans, may become hedged items which can fix cash flows.

Source: The Japanese Institute of Certified Public Accountants "Guidelines to Accounting for Financial Instruments"

4.1.3 Requirements in market aspects

As previously stated, the requirements in regard to legislation and the requirements in market aspects and market environments are important for the establishment of the property derivatives market. Of those above, this section examines requirements in regard to market aspects.

1) General description

The main requirements for the realization of property derivatives in regard to market aspects are development of indices as underlying assets and standard contracts.

Currently, though several indices related to properties have been developed and publicized in Japan, there are few indices developed for underlying assets of property derivatives. Development of such indices is expected in the future. Furthermore, in order for property derivatives to be actively traded after its realization, it is desirable that standard contracts be developed. The following are specific requirements for each item.

2) Requirements for indices

In order to realize property derivatives, the existence of some indices related to properties as underlying assets of property derivatives is significantly important.

a) The importance of index for the origination of property derivatives

Not limited to property derivatives, underlying assets are generally required to originate derivatives. For example, stock derivatives cannot be originated without published stock prices as underlying assets. It is extremely important that there exists information that fulfills such requirements as not arbitrariness, verifiable by anybody, and frequent confirmation possible.

In the cases of property derivatives, underlying assets are quantified numeric values indicating risks related to properties. That is, for derivatives to hedge against property price fluctuation risks, property price index is vital. Accordingly, the development of indices as underlying assets is the premise to originate property derivatives; moreover, derivatives cannot exist without such underlying assets.

b) Current status of property investment index in Japan

There has been several property investment indices developed and publicized in Japan.

Property index and property investment index

The property index is an index of prices, rent, and vacancy factors calculated based on actual data of real assets (as for rent, advertisement rent or contracted rent are used).³⁰ On the other hand, the property investment index is an index where assumed yield (= earning rate) of property investment is converted into index.

³⁰ There are very few indices using calculated based on contracted rent for its calculation in the present state.

Market index and benchmark index

The market index is an index indicating trends in the overall market, mainly used for comparison with other financial instruments. The benchmark index is an index enabling the comparison and assessment of performance of property investment in individual property or funds, generally indicating trend of property in the same area or type. Basically, benchmark indices are expressed as earning rates. There are not many such indices possible to use as a benchmark at the present time.

Target assets and area

The target assets are offices, residential properties, commercial properties, distribution facilities, and hotels. As for offices, major brokers possess data of rent and publish reports by processing their data statistically. Also, in regard to residential properties, major brokers possess contracted rent data and contracted price data, making efforts towards indexation actively. However, there exists no index specializing in other assets such as commercial properties, distribution facilities, and hotels. In terms of target areas, they vary from specific areas to nationwide.

Calculation method

There are weighted averages, the hedonic approach, and repeat-sales model as calculation methods for indices. The weighted average is a calculation method using weighted average in the same way as the TOPIX. The hedonic approach is a method for evaluating benefit regarding the property's unique characteristics as explanatory variables, calculated monthly, with quality adjustment based on transaction examples. The repeat-sales model is a calculation method for property indices through regression analysis of purchasing price data of properties that have sold at least twice.

Forward- looking and backward-looking

There are forward-looking and backward-looking approaches as a perspective at the time of calculating indices. In forward-looking, calculations are made incorporating future prospects, as well as the original assessment of properties and the investors' intent. On the other hand, backward looking is an approach to calculation only based on past data.

c) Requirements for the property indices from the viewpoint of origination of derivatives

In general derivative contracts, there are three requirements for property indices as underlying assets: verifiability, frequency, and representativeness.

Verifiability

The verifiability indicates the condition where the method of creating indices is disclosed, and it is possible for third parties to conduct verification (if they intend to). Actually, the verifiability is guaranteed for the Nikkei 225 index as well as TOPIX in the stock market and GSCI in the commodity market. It is also important that indices be published by reliable institutions and that there is no arbitrariness in issuing bodies of derivatives.

Liquidity and frequency (update frequency)

There are types of frequency such as real-time, daily, weekly, monthly, quarterly, and yearly; however, when originating general derivatives, "monthly" level is the minimum requirement. Counterparts of derivatives require liquidity to enable them to transfer (or hedge against) risks undertaken to others whenever necessary, therefore, there is no motivation to trade derivatives actively with indices published on a yearly level. Accordingly, the update of indices in a short span necessary for market value evaluation (marking to the market) of possessing risks is required regardless of the period of derivatives transaction itself.

Representativeness and basis risks

It is necessary that indices as underlying assets reflect fluctuations appropriately in the actual markets to a certain degree and represent the whole or a part of the market. As for indices of assets with highly unique characteristics, such as properties, since there exists basis risk (gaps between indices and possessing portfolios), it is essentially important to secure the representatives.

3) Requirements for market infrastructure

There are two requirements for market infrastructure: existence of a standard agreement and specialists.

Derivatives contracts are generally concluded based on the ISDA Master Agreement, which is published by the International Swap and Derivatives Association (ISDA). The ISDA has already developed and published the 2007 ISDA Property Index Derivative Definition with forms for standard agreement regarding property derivatives.³¹ According to this, derivatives contracts can be concluded based on some indices, such as S&P Case-Shiller Index as underlying assets TRS and forward agreements.

However, since the ISDA Master Agreement is written in English, it may be difficult to conclude property derivatives contracts based on this agreement in Japan among general corporations, local financial institutions, and let alone general investors. For this reason, it is necessary for the realization of active transactions of property derivatives in Japan to develop a standard agreement for property derivatives, for example, written in both English and Japanese.

Furthermore, it is also important in respect to market infrastructure to have specialists who are equipped with a sufficient understanding and study of property derivatives. In situations where general corporations and financial institutions conduct property derivatives transactions, it is essential to have specialized agencies with high specialty covering both property and financial fields. However, in the current condition in Japan, there are not enough specialized agencies and specialists; therefore, the development of specialists is required in the future.

³¹ This is a standard agreement form for Total Return Swaps (TRS) and forward agreements. The form for option agreements is scheduled to be published in the summer of 2007.

4.1.4 Requirements for market environment

1) General description

There are two major points for requirements with respect to the market environment for the realization of property derivatives: securing of liquidity and understanding by market participants. From the case example of London FOX, where the world's first property derivatives were listed, liquidity and understanding by market participants have been seen as vital requirements.

It is generally difficult in a market with low liquidity to settle possessed positions or retain new positions. For example, there may be cases where no counterpart exists even though a party is willing to invest in property derivatives. On the other hand, a party possessing property derivatives is not able to swiftly settle the position, causing inappropriate risk management.

In this manner, if there is insufficient liquidity in the property derivatives market and appropriate risk management for positions carried out, incentives for active use of property derivatives do not function, resulting in further low liquidity.

Moreover, the insufficient understanding by market participants may result in further low liquidity. Property derivatives require knowledge of both the property and financial market and they are not familiar financial instruments for both the property industry and the financial industry. Therefore, in order to facilitate the realization of the property derivatives market, it requires educational activities for market participants to have sufficient understanding.

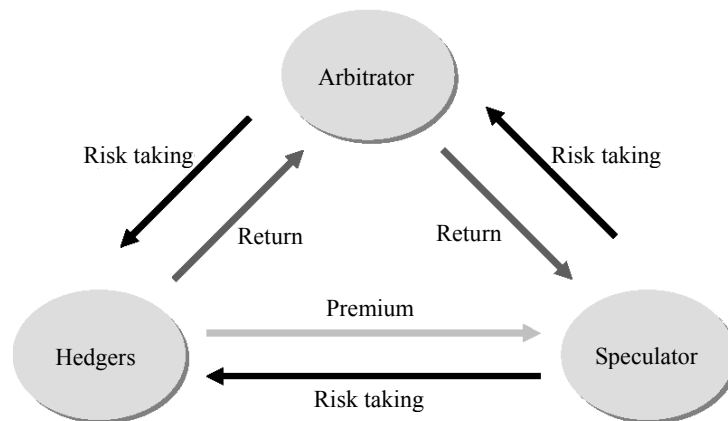
2) Securing of liquidity

As already stated, lack of liquidity has been a major factor in failed examples of property derivatives in the past. Securing liquidity is the most important requirement not only for the property derivatives market, but also for the entire derivatives market.

First, it is necessary to secure sufficient a number of market participants in order to secure liquidity of the derivatives market. The structure of the derivatives market generally consists of three types of players: the hedgers, speculators, and arbitrators. The economical significance of derivatives differs for each player, and a sound derivative market can be developed through a good balance of these players.

The hedgers pay premiums to avoid risks, and speculators analyze the fundamental of prices, and then trade in order to manage assets by taking risks. And arbitrators perform trading by utilizing price differences across multiple markets.

Figure: Structure of Derivatives Market



Accordingly, it is necessary to develop a market by enhancing transparency where hedgers, speculators, and arbitrators can easily participate in order to secure liquidity of the property derivatives market.

3) Understanding by market-participants

Another requirement for the realization of property derivatives in regard to market environment is enhancement of the understanding by market participants in order to secure a sufficient number of investors and development of the service industry to link the property and financial market.

As previously stated, one of the factors in failed examples of property derivatives in the past was insufficient understanding of property derivatives by both the property and financial industry.

In order for property derivatives to be widespread in the future market, it is necessary that not only the financial industry but also the property industry, which possesses the need of hedging against property-related risks, participate in the market. To do so, it is extremely important for the property industry to understand the function and features of derivatives correctly, and at the same time, it is important for the financial industry to deepen the understanding of the characteristics and function of property assets.

Therefore, in addition to developing specialists in mutual fields of the property and finance industry, and in order to promote this movement and deepen the understanding by market participants, the industry must strive to establish new property solution businesses that will support property derivatives market. Property derivatives are transacted mainly by general corporations and financial institutions; hence, highly specialized knowledge covering both fields of property and finance is necessary. For this reason, support by such an external specialized agency is vital and effective.

In Japan, there are not enough specialists who are capable of cross-sectional discussion regarding property and financial fields; furthermore, the external support agencies specializing across both fields are not sufficiently

developed either. For this reason, the need for the development of personnel with a specialty across both property and financial fields is urgent.

4.2 Sufficient conditions (Raison d'etre of the national economy)

In order to examine the requirements for property derivatives, it is necessary to consider not only the necessary conditions but also the sufficient conditions, i.e. whether there exists a raison d'etre from the standpoint of the national economy. Based on such an understanding, we organize below the sufficient conditions, considering past arguments about derivatives in general.

4.2.1 Organizing past arguments about derivatives in general

In the early 1990s, pros and cons of derivatives were discussed by the Ministry of Finance and the Economic Planning Agency, amid the bankruptcy of Barings and the massive losses caused by the interest swap of P&G, as well as the losses of Showa Shell Sekiyu K.K. and Kashima Oil Co., Ltd., in Japan.

1) Significance of derivatives

In 1995, the Financial System Research Committee of the Ministry of Finance defined the significance of derivatives as "reconstituting risk allocation by the unbundling of risks." In other words, it means that, by utilizing derivatives, the unevenly distributed risks at that point in time can be broken down and shared among economic entities that evaluate those risks differently.

There are also opinions that a derivatives transaction is nothing but a risk transfer between the transaction participants and has no significant economic impact, only expanding the possibility of a zero-sum game.

Derivative transactions have achieved market equilibrium appropriate for desirable risk sharing from the standpoint of the national economy, by enabling reallocation of risks among economic entities with different evaluations of future risks that cannot be sufficiently covered by spot transactions and by transferring risks to economic entities who are willing or able to bear the risks.

Source: Committee for Examining Fundamental Problems, Financial System Research Committee, Ministry of Finance, 1995

Furthermore, the Economic White Paper (the Economic Planning Agency) of the same year argues that derivatives are the means to change the composition of risk allocation and that examples of derivative-related losses have not been the result of the product scheme itself.

Right from the start, financial products have played a role in allocating risks, which is obvious from the fact that, even when providing the same amount of funds, the risk allocation between a fund provider and a fund raiser is largely different depending on whether the fund is financed in the form of equities (shares) or loans. In the case of a loan, the fund providers' return is limited to the interest on deposit, though their business risk is also limited, whereas, in the case of equity, investors usually take an enormous business risk and, as a result, may receive a substantial return.

Derivatives can be deemed a product that has purely pursued the intrinsic risk allocation function of financial products. Where the total risk volume is increasing along with the expansion of financial transactions and the needs of investors and financial institutions for risk-taking have diversified, nothing else but derivatives can change the composition of risk allocation by unbundling risks, instead of the past practice where either financial institutions or investors assume all risks.

Although there is a point of view that derivatives might be products that intrinsically accompany greater risks than conventional financial products in view of the examples of recent derivative-related losses, such as the bankruptcy of Barings in the U.K. and the recording of massive losses by Japanese corporations due to speculative use of derivatives, we can understand that such a point of view is not appropriate when considering the above. It is true that derivatives enable us to set up a high-risk, high-return product scheme by unbundling risks. However, with regard to the examples of derivative-related losses, they should not be attributable to these product schemes themselves, and the real problem lies in the fact that risk management and operations were not sufficient despite taking high risks.

Source: Economic White Paper, Economic Planning Agency, 1995

Considering the above, we believe that it is important not to deem derivatives negative as intrinsically risky but to deem them positively as a means that enable reconstitution of risk allocation by unbundling risks and, when utilizing them, to establish a system for appropriate risk management and operations depending on the amount of risks taken.

2) Impact of derivatives on the financial market

The Economic White Paper of 1995 also refers to the following four points as the impacts of derivatives on the financial market:

i) Facilitation of risk management/strengthening of risk allocation function

In addition to providing an efficient and extremely flexible means for corporations and financial institutions to implement market risk management, derivatives strengthen the risk allocation function through the transfer of certain risks to market participants who are considered to have the ability to take and manage those risks.

ii) Enhancement of market liquidity

With the introduction of derivatives, transaction opportunities are provided at much lower cost than the cost to transact the underlying assets (original assets against derivatives), and transactions such as hedging and dealing increase, which enhances the liquidity of the financial market.

iii) Promotion of price formation efficiency

With the spread of arbitrage and hedge transactions, the relationship of price formation between markets, which had been severed, moves closer, and market mechanisms can be reflected in pricing better.

iv) Provision of new market information

Derivatives provide new market information in that they incorporate useful information to estimate the future price fluctuations of underlying assets through elicitation of various risk prices.

Source: Economic White Paper, Economic Planning Agency, 1995

Namely, it points out that derivatives facilitate risk management by corporations and financial institutions, enhance liquidity, and promote price formation efficiency in the underlying assets market. And new market information will be provided from the derivatives market.

On the other hand, it also refers to the possibility that derivatives may magnify fluctuations in market prices as described below:

(4) Possibility of magnifying fluctuations in market prices

From the analysis described above, derivatives in normal times enhance liquidity across the board in the financial market and reallocate risks to entities that are considered better able to take the risk and therefore are expected to enhance the resilience of the financial market against any shock. However, it is necessary to note that such a possibility is not deniable that derivatives may magnify price fluctuations in the financial market in an abrupt change in market conditions.

Concrete mechanisms for magnifying price fluctuations are as follows:

i) Dynamic delta hedge associated with option transactions

With regard to the dynamic delta hedge for option transactions (i.e., operations of selling or purchasing additional underlying assets depending on the option price fluctuations after retaining reverse positions in underlying assets in order to hedge the option price fluctuation risk), option sellers who take a huge risk tend to hedge positively, compared to option buyers whose risk is limited within the premium; therefore, the dynamic delta hedge may function to magnify the price fluctuations of underlying assets.

ii) Hedging overhang

Hedge transactions are effective in an ordinary market where prices could move either upward or downward. However, where prices change abruptly in a certain direction and hedge transactions are executed simultaneously by many market participants, the possibility is pointed out that hedge transactions could cause major price fluctuations.

However, what is to be noted here is that, as obvious from the above-described mechanism, derivatives are not the direct cause of abrupt changes in market conditions, although they may magnify price fluctuations.

Source: Economic White Paper, Economic Planning Agency, 1995

However, it also points out that definite evidence for derivatives causing spot price fluctuations has not been shown yet.

Empirical analysis have been made so far to identify whether or not derivatives cause spot price fluctuations in such a way as follows:

i) To regress spot price variations with futures price variations to test the significance of the parameter.

ii) To test the time precedence relationship between spot prices and futures prices.

However, definite evidence that derivatives cause spot price fluctuations has not been shown yet.

Source: Economic White Paper, Economic Planning Agency, 1995

In addition, with regard to this issue, a similar view was pointed out in a past academic paper.³² For example, regarding the futures market, the futures market prices include estimates for future spot market prices and, since unexpected fluctuations in future spot prices deviated from the current expected prices are not supposed ones (i.e. unpredictable), the long term average of the futures market prices should be zero. Therefore, although changes in the future estimates of spot prices should naturally have an impact on future prices, future price fluctuations

³² Black, F. (1976), "The Pricing of Commodity Contracts," Journal of Financial Economics, Vol. 3, 167-179.

should not have an impact on spot prices. (Therefore, Investor profits mean the difference between the current futures price and the current expected future spot price, i.e. risk premium.)

As stated above, it is also necessary to focus on the fact that a question was raised about the impact of derivatives on prices of the underlying assets.

3) Positive aspects and negative aspects of derivatives

To organize the above arguments, we can say that derivatives have positive aspects that further stabilize the market during normal times; however, they have negative aspects that increase market volatility, including the underlying asset market when the market undergoes an abrupt change.

Based on the foregoing arguments, we can summarize the positive and negative aspects of derivatives in general as follows³³:

a) Positive aspect

At normal times when the market is functioning properly, the derivatives market is deemed to have a stabilizing effect on the underlying asset market in view of the fact that asset prices promptly adjust to reflect economic fundamentals. That is to say, derivatives improve the efficiency of the financial market.

- Derivatives enable the break down and absorption of price risks incorporated in the underlying assets and, as a result, facilitate the risk transfer to counterparties capable of assuming and managing the risk.
- Low transaction costs for derivatives increase the transaction opportunities in the financial market and enhance liquidity in the financial market.
- Various risks that have not been priced independently in the past are substantiated in derivatives transactions, and to promote price formation, new information flows efficiently by their price information transmission function.
- Asset substitutability improves both domestically and internationally by investment and arbitrage strategies across various markets taking form.

b) Negative aspect

When the market undergoes an abrupt change, there is the possibility that derivatives will increase the volatility of prices in the underlying asset market.

- Aggravating price fluctuations due to dynamic hedging by option sellers
- When the same (hedge) transaction is executed by a large number of market participants, price fluctuations tend

³³ See the Eurocurrency Standing Committee, Bank for International Settlements (BIS), "A discussion paper on public disclosure of market and credit risks by financial intermediaries," September 1994; Shounosuke Shiratori and others, "A Study on Financial Derivatives," 1996, etc.

to become greater.

- There is a possibility that the increased burden of margin deposits and additional collateral due to aggravated price fluctuations may result in a position adjustment. As a result, there is a possibility that the number of investors unable to deposit the margin call may increase, confusing the market.
- If the price fluctuations in the underlying asset market become greater, it may bring about a situation where continuity of prices in the underlying asset market cannot be maintained. In that case, uncertainty of price evaluation of derivatives themselves increases and has a significant influence on liquidity in the derivatives market.

4.2.2 Notices in the discussion on property derivatives in the national economy

So far, we have been organizing the positive and negative aspects of derivatives in general based on past arguments. Based on these, we now wish to consider the national economic significance of property derivatives. Before doing so, as a prerequisite, it is necessary to examine the extent that what applies to derivatives in general can apply to property derivatives and whether there are any special conditions for property assets. In what follows, we will first take a closer look at such notices in considering the significance of property derivatives:

1) Relationship between derivatives in general and property derivatives

First of all, we will examine the extent that what applies to derivatives in general can apply to property derivatives.

As stated earlier, property derivatives are something we have not often had in Japan, but the assumed functions and structures are not so different from those of derivatives for other types of assets. In addition, the expected effects of property derivatives, in the first place, are hedge effects, which are the same as the effects of derivatives for other types of assets. Therefore, it seems appropriate to consider that what has been pointed out for derivatives in general can apply to property derivatives as well.

2) Features of property assets and property derivatives

However, as stated below, since properties have characteristics as assets, compared to derivatives in general, property derivatives are considered to have somewhat different points where attention should be paid and points that are regarded as important. In what follows, we are going to examine some of these points.

The first point is that properties are indispensable assets, such as houses as a place to live, factories as a place to manufacture, offices as a place to work, and land as a foundation for national economic activities. For this reason, abrupt price fluctuations, such as the steep rise in house prices experienced during the period of the economic bubble in Japan, will have a tremendous negative effect on the nation's life; therefore, properties have the characteristic that excessive volatility in the spot market is all the more unfavorable than that of other assets. Therefore, with regard to property derivatives, it is important to fully analyze the extent to which price fluctuations in property derivatives have an influence on the spot market.

The second point is that as a characteristic of the properties as assets themselves, the same properties do not exist and uniqueness of property is very prominent, liquidity in the property market is lower than the one in the financial market, and properties are not assets traded as frequently as financial products. For this reason, we believe it is extremely important from the standpoint of the *raison d'être* of the property derivatives market to further ensure market liquidity by developing the proper market conditions to establish a market that will meet the needs of a large number of market participants.

Furthermore, for example, where the liquidity of the underlying asset market is low, it is difficult to apply such methods as the previously described dynamic hedge of derivatives in general. This is one of the examples that

leads us to consider it necessary to pay attention to the fact that derivatives in general and property derivatives specifically need to be grasped from the different perspectives of market characteristics and asset characteristics.

The third point is that, when we think about the relationship between the nation's life and property derivatives, property derivatives are insurance for future property price fluctuations but cannot be a means for new asset management. That is to say, investors in property derivatives receive rewards by undertaking the short-term volatility of product prices whereas most households and corporations are likely to be involved in property derivatives market primarily as hedgers. In this sense, property derivatives will not generate funds for investment from households and corporations.

For this reason, in order to make the property derivatives market meaningful from the standpoint of the national economy, we believe it is absolutely important to establish a property derivatives market that enable an effective hedging function.

As explained above, when considering the national economic significance of property derivatives, it is considered to be important that, based on an understanding of the argument about derivatives in general, important points should be examined in consideration of the characteristics of property as assets. In what follows, we will review the pros and cons of property derivatives from the national economic viewpoint:

4.2.3 Positive aspects of property derivatives

Based on past arguments about derivatives in general and the notices to examine the national economic argument about property derivatives, the positive aspects of property derivatives can be summarized in the following three points:

1) Stabilization of the property market by efficient risk sharing

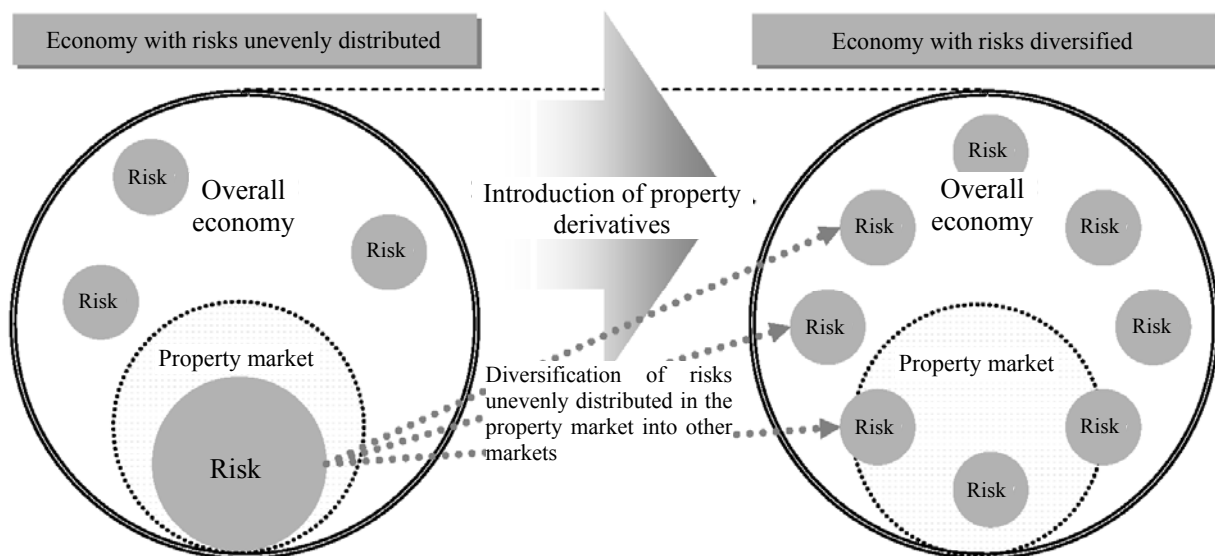
Property derivatives, just like derivatives in general, function to allocate risks efficiently throughout the whole economy. Therefore, efficient risk sharing can be achieved by transferring unevenly distributed risks efficiently. As a result, it will lead to stabilization of the property market partly because it becomes possible to hedge risks that are mainly distributed to mortgage lenders, which is expected to lead to stable capital inflow into the property market and partly because derivatives can also provide insurance-like functions to individuals.

a) Efficient risk sharing by risk allocation function

The balance of property derivatives is always cancelled to zero in the overall economy. Therefore, the introduction of property derivatives does not reduce the risk in the overall economy.

Instead, by adding the specific payoff of property derivatives to the property portfolio, risk allocation among investors can be efficiently achieved, making risk allocation in the overall economy and risk sharing among investors possible.

Figure: Risk allocation through the introduction of property derivatives

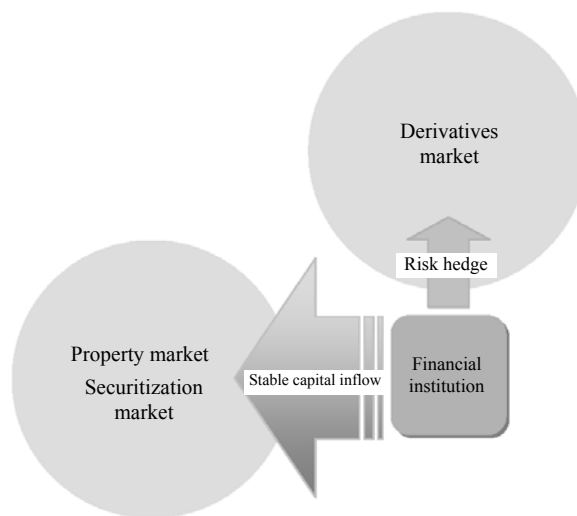


Furthermore, investments in property derivatives in Japan by overseas investors are exactly the same as transferring property risks in Japan to overseas markets. Among others, overseas investors are considered to have strong investment needs for low-cost property derivatives rather than purchasing individual properties in Japan. As obvious from the foregoing, by the introduction of property derivatives, it will become possible to share property risks not only in Japan but also throughout the whole economy, including overseas markets, making more efficient risk sharing possible as well as contributing to the globalization of the property market.

b) Promotion of stable capital inflow

In the past, the only means for banks to hedge the risks of residential mortgage loans and non-recourse mortgage loans were to hold back lending. In general, lenders of liability capital have controlled their own risks by reducing the loan amount as the risk increased. As a result, if a risk increases in the property market, capital inflow into residential mortgage loans and non-recourse mortgage loans decreases. Under these circumstances, it is quite likely that the property market may fall into an environment where stable financing is impracticable.

Figure: Possibility of stable financing utilizing property derivatives

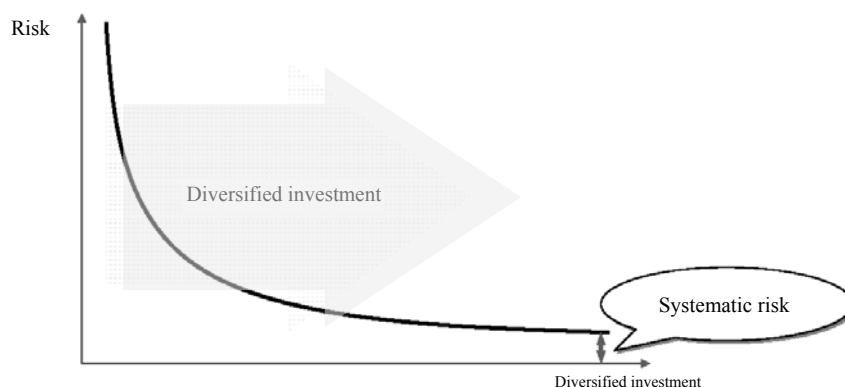


In this context, with the appearance of property derivatives, debt providers have another means of hedging risks and stable capital inflow into the debt side of the property market will be expected, which enables both the property market and the property securitization market to develop sustainably and stably.

c) Stabilization of property portfolios through provision of insurance-like functions

Risks in property portfolios are, in general, categorized into unsystematic risks that can be eliminated by diversified investment and systematic risks which is the influence of the overall economy.

Figure: Limit of diversified investment and systematic risk



Properties are assets that occupy the most significant position in society and therefore involve a high degree of risk susceptible to the influence of the overall economy. That is to say, in order to manage the property portfolio stably, it is possible for property derivatives to function properly as a means to hedge systematic risks.

Since derivatives have insurance-like functions, by hedging systematic risks with them, it will become possible to share risks, which are currently unevenly distributed, throughout the overall economy, and therefore to contribute to stabilization of the property portfolio.

2) Creation of new opportunities for asset operation

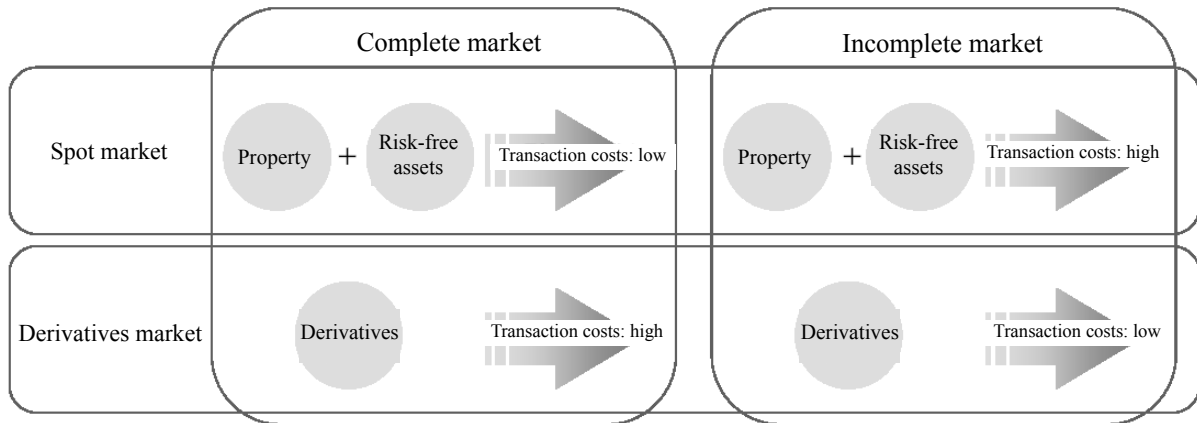
Property derivatives, due to their generally lower transaction costs comparing to real estates, have the possibility of serving as an attractive asset management object for investors. In addition, if a new investment opportunity for asset management is provided, it is expected to have the effect of enhancing market liquidity as well. Furthermore, property derivatives can be an attractive tool for property funds and are considered to be able to contribute to stable growth and expansion of the property securitization market.

a) Provision of new opportunities for asset management through reduction of transaction costs

If the spot market is complete,³⁴ the necessary transactions can conclude within the spot market. If it is possible for the asset market to set any risk positions only with underlying assets and risk-free assets, the risk allocation among investors can be achieved efficiently enough. If it is a complete market, the option payoff can also be reproduced with underlying assets and risk-free assets. However, since the actual underlying asset market is not complete, the utilization of derivatives would further reduce transaction costs. Reductions in transaction costs can not only increase transaction opportunities and enhance market liquidity but also increase asset operation opportunities.

³⁴ Complete market means a market where the voluntary asset value (cash flow) can be completely reproduced by a combination of other financial assets (portfolio) traded in the market. In contrast, the market where that cannot be completely reproduced is called an incomplete market.

Figure: Costs for risk hedge



b) Provision of new tools for property funds

In the market where excess liquidity exists, everything is determined by power of capital. That is to say, just like the current J-REIT market, in the market where property assets are operated, with greater liquidity than that in the normal property market, the operation assets are always exposed to the threat of takeover by other funds with power of capital when there is any difference between the total amount of operation asset and its total market value.

For this reason, in order for the real estate investment trust (REIT) to compete with a tremendous level of liquidity in oversea markets, we can also consider it necessary to have a tool like property derivatives. And if such tool functions effectively, stable growth and expansion of the property securitization market is expected, and stable growth of the spot property market will also be achieved, with the stability of securitization market as an exit for the spot property market.

3) Transparent price system and transmission of new market information

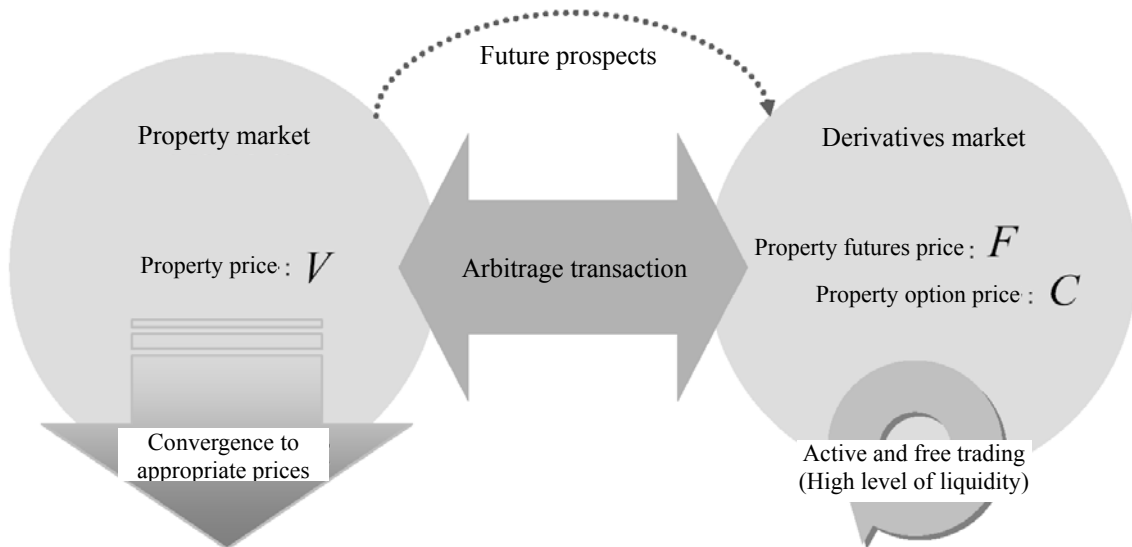
Property derivatives are traded in expectation of the future prices of the underlying assets and have a high level of liquidity due to active and free trading. The expansion of arbitrage transactions between the market for property derivatives and the market for property as underlying assets has the effect of preserving the transparent price system in the property market. Furthermore, information on the property derivatives market serves as new reference indicators of properties, and there is a possibility that it functions as a new field of information so that not only the investors who have been investing in traditional real estates but also general investors and corporations in the capital market, as well as the policymakers, may better understand the property market.

a) Preservation of the transparent price system through the price adjustment function among markets

Derivatives are traded in expectation of the future prices of underlying assets. For this reason, it is possible to identify appropriate prices of the spot assets through free trading of derivatives where the prices of the underlying

assets are somewhat distorted. As a result, arbitrage transactions between the underlying asset market and the derivatives market increase, which preserves the transparent and appropriate price system.

Figure: Price adjustment function among markets

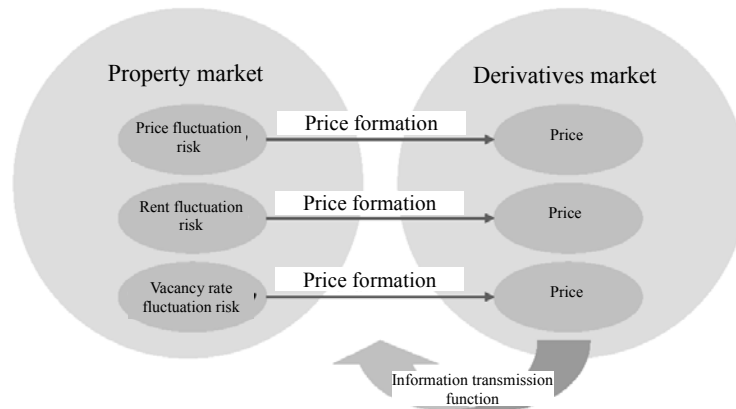


b) Provision of new market information through elicitation of prices of risks

The derivatives market, by eliciting the prices of various risks, provides useful information to help estimate future price fluctuations of the underlying assets, and for this very reason, it is expected to be possible to obtain new, useful market information on the property market.

That is to say, a variety of risks not individually priced in the past is elicited in derivative transactions, promoting price formation. Therefore, new information will be provided more effectively via their price information transmission function.

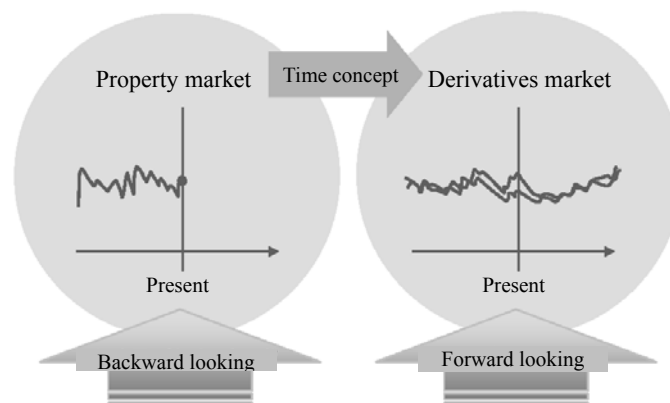
Figure: Provision of new market information through elicitation of prices of risks



c) Possibility of policymaking through a forward-looking dialogue with the market

With the realization of the property derivatives market, policymakers will have possibilities of forward-looking policymaking through a dialogue with the market. Since the prices of derivatives products are priced incorporating futures information and forecasts in the derivatives market, they have more information than the backward-looking approach using only past statistics. Therefore, policymakers may also make forward-looking judgments more appropriately, using information from the property derivatives market properly.

Figure: Proactive forward-looking approach



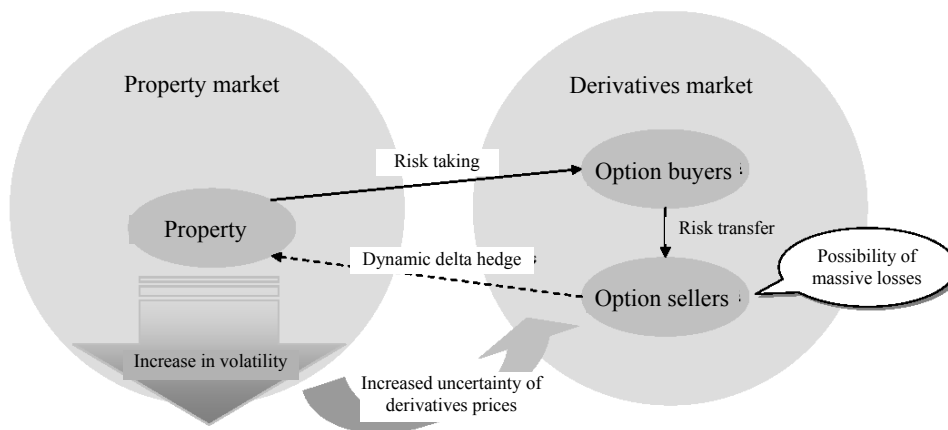
4.2.4 Negative aspect of property derivatives

Property derivatives have not only positive aspects but, at the same time, negative aspects. Taking into account the notices for considering the past argument about derivatives in general, as well as the national economic argument on the property derivatives, the negative aspects of property derivatives can be summarized in the following three points:

1) Possibility for magnifying volatility

Since the option sellers exercise dynamic delta hedge of options positively at an abrupt market change, they may function to magnify property price fluctuations (although no consideration has been given here to the liquidity of the property market). Dynamic delta hedge means operations of selling or purchasing additional underlying assets depending on the option price fluctuations, after retaining reverse positions in the underlying assets in order to hedge the option price fluctuation risk.³⁵

Figure: Magnification mechanism of volatility at an abrupt market change



When volatility increases in the property market, the burden of margin deposits and additional collateral increase accordingly and there is the possibility that the number of investors who are forced to cancel their positions increases. As a result, investors unable to deposit the margin call may increase, causing market confusion. Moreover, if the volatility in the property market increases, the continuity of property market prices will not be maintained, in which case, uncertainty will increase in terms of the price evaluation of derivatives, and liquidity may decrease accordingly.

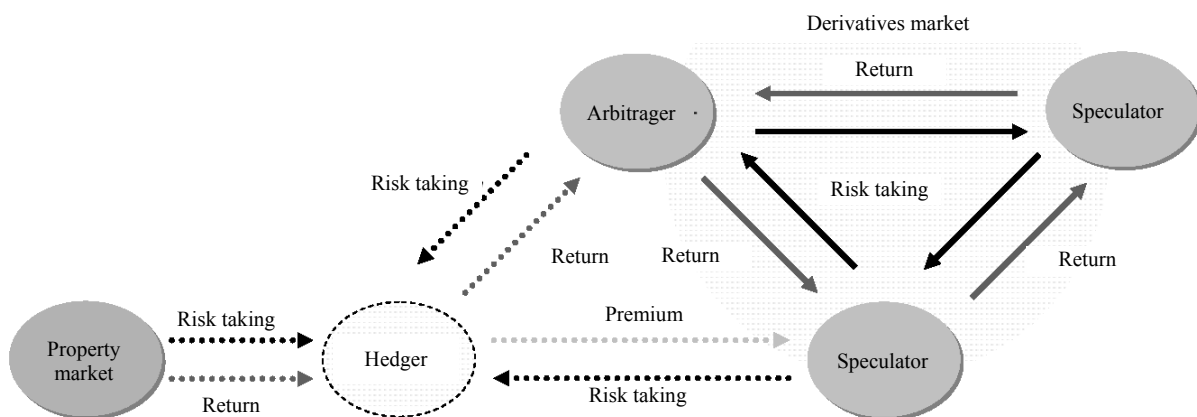
³⁵ In reality, there may not be sufficient liquidity for trading underlying assets freely in a property market, and transaction costs are also needed. Under the circumstances, it is also necessary to note the fact that a dynamic hedge is difficult to exercise. Furthermore, for this reason, we also face a new problem that we cannot hedge the risks of property derivatives.

2) Possibility of a speculative derivatives market

Property derivatives are financial products that meet the needs for hedging risks related to properties; however, if property derivatives are unable to sufficiently meet the needs for hedging risks, or other existing financial assets or derivatives can hedge such risks sufficiently, investors will not enter the property derivatives market.

As a result, the market structure will consist solely of speculators and arbitrageurs, and therefore, the liquidity of the property derivatives market may decrease, making the property derivatives market a speculative one.

Figure: Deviation from the spot property market due to non-existence of hedgers



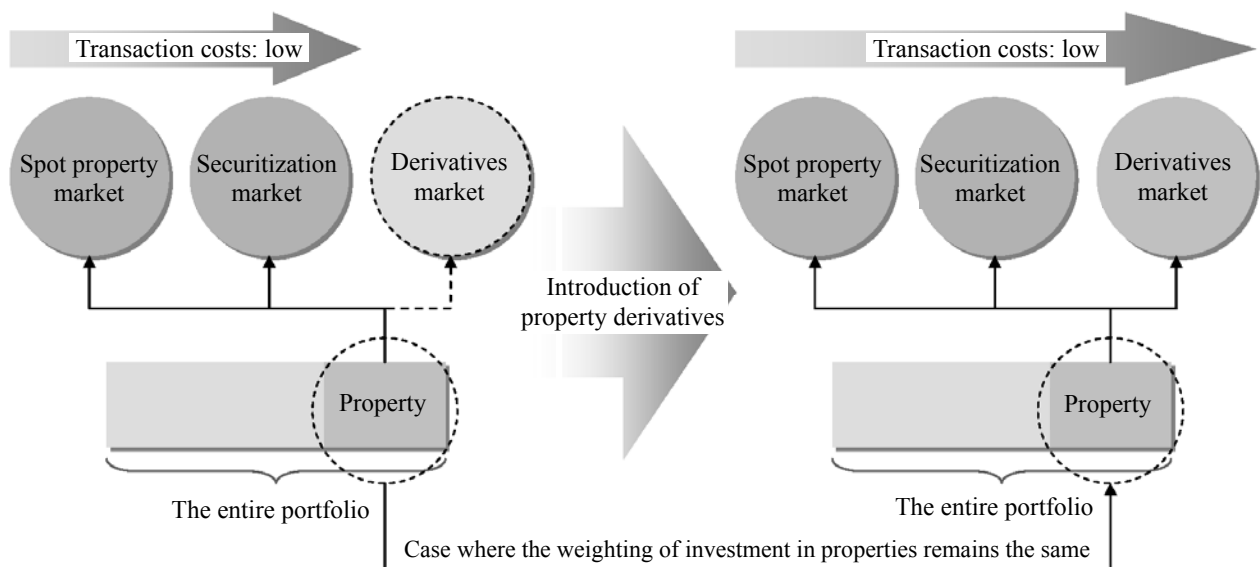
In the property derivatives market where hedgers do not exist, risk transfer cycles are established in the derivatives market without reflecting the risks from the property market. Thus, price formation is developed without reflecting the spot property risks, which means that an efficient market may not form.

In general, it is deemed unimaginable to originate or list derivatives without the need for hedging, but, as frequently stated earlier, since it is extremely important to establish a market that meets the need for hedging, in order to establish the new market, it is necessary to study in detail the refinement of risks related to properties, the materialization of property derivative products for those risks, and the verification of their hedge effects.

3) Possibility of decrease in capital inflow into the spot property market and the securitization property market

In general, to invest in assets, it brings with costs. When we think of an investment in properties, for example, in the case of an investment in a spot property, there are search costs for the property, transaction costs such as brokerage costs, and management costs to manage the acquired properties. However, the investment in property derivatives, unlike the investment in spot properties and securitization properties, has a low-cost feature. Since it is a derivative transaction, it does not require any cost for managing the properties, and the transaction costs are less expensive than for spot assets and/or securitization properties in general.

Figure: Decrease in capital inflow into the spot market and the securitization market due to the introduction of the derivatives market



Therefore, the capital inflow that should have been invested in the property as an asset class may be invested in the property derivatives market due to the realization of an asset operation opportunity with lower transaction costs. Institutional investors, such as pension funds, have recently been setting the investment weight on the property as an asset class in order to diversify risks in their own portfolio; however, with the introduction of property derivatives, there is now the possibility that investment choices may change among the property as an asset class.

As a result, unless the weight on the property increases in the portfolios in the overall economy, there is a possibility that investment in the property derivatives market with higher liquidity and less expensive transaction costs will increase though capital inflow into the spot property market and the property securitization market may decrease.

5. Future problems

As already summarized above, there are many problems to address in terms of necessary conditions and sufficient conditions in order to realize a favorable property derivatives market in Japan.

However, considering the background where properties change into risk assets and where property related risks are elicited, we believe that the needs for property derivatives will continue to increase moving forward.

Under the circumstances, it is considered to be a realistic approach to address such problems in terms of property derivatives by further fostering the positive aspects while suppressing the negative aspects and to develop them as meaningful products from the standpoint of the national economy.

Hereinafter, we are going to consider the future problems for this aim.

5. 1 Problems relating to necessary conditions

As requirements for property derivatives to be realized in Japan, we have set out the necessary conditions that consist of legislation aspect requirements, such as legal and accounting requirements; market aspect requirements, such as indices; market infrastructure requirements (agreements, etc.); and market environmental requirements such as ensuring liquidity and the understanding of market players.

The problems for fulfilling these requirements of necessary conditions are to address the development of the legal system, indices and the market infrastructure, the enhancement of liquidity, and a better understanding by market players.

5.1.1 Examination of the legal system

Property derivatives need to be recognized as a justifiable act in regard to the Crimes of Gambling, and for this purpose, it is necessary to clearly define their positioning within the legal system. On the other hand, however, it is also likely that excessive regulations will cause the effective aspects to fail to function sufficiently. In addition, in enforcing restrictions, it seems necessary to take the special nature of property assets into full consideration.

Therefore, in order to make sound development of property derivatives, it is necessary to fully examine how property derivatives should be positioned in the Financial Instruments and Exchange Law, as well as what kind of regulations and supervision are required.

In addition, it is necessary to examine the legal system for property derivatives as well, paying close attention to the future situation concerning the Financial Instruments and Exchange Law.

5.1.2 Development of the indices

In order to effectively realize property derivatives, it is necessary to promote information disclosure relating to properties and develop the database that makes it possible to easily construct the indices as the underlying assets of property derivatives.

Especially in Japan, since the collection of the information on real estate transaction prices and rents indispensable for calculating the rate of return has not advanced sufficiently so far, it is necessary to examine such activities more when considering property derivatives.

With regard to transaction prices, since April 2006, questionnaire surveys of transaction entities on transaction prices have been conducted based on the information of registration changes, and the results have been made available to the public via the Internet. However, the collection rate of the questionnaire survey remains at about 30%, not at a sufficient level yet. In addition, the disclosed information is not sufficient; therefore, it is necessary to further improve and develop the information disclosure from now on.

Figure: Provision of information on property transaction prices



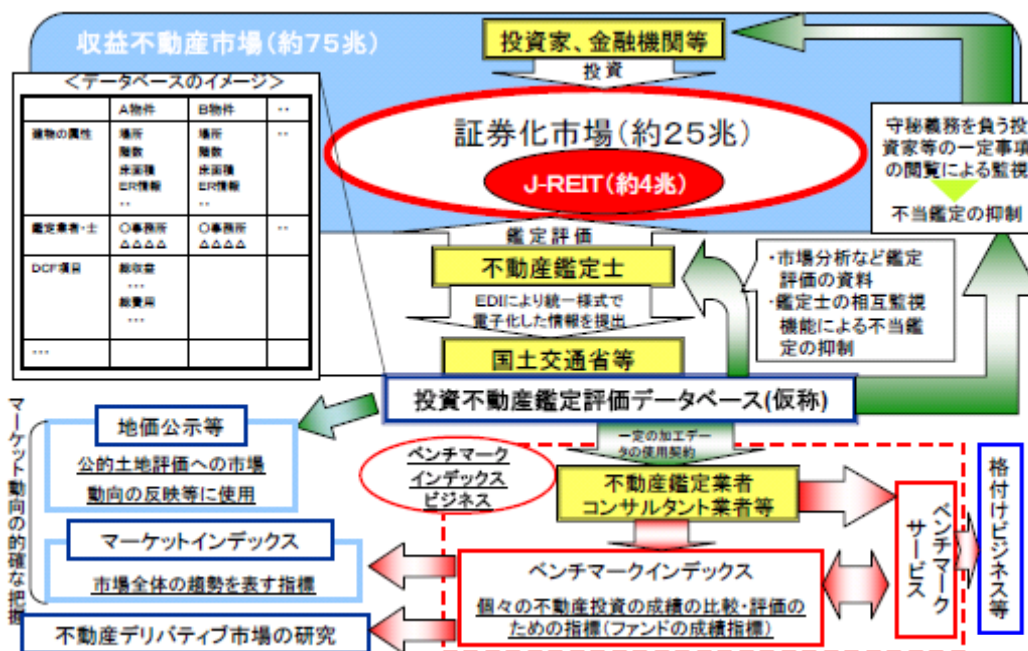
Source: The Ministry of Land, Infrastructure and Transport

In addition, as for the data on rent, recently, various data have already been released by private organizations and, with the expansion of the J-REIT market, actual contracted rents of each building have also been made available to the public, although the details of individual contracts are not disclosed. Although information disclosure has been fostered further compared to the past and the market size of J-REIT has been expanding in excess of as much

as about 5 trillion yen, it is still only a limited amount of information from the standpoint of the market size of commercial properties for rent, i.e. about 70 trillion yen,.

In this connection, a method for collecting information on appraisal of the securitized properties is now being studied by the government. It aims to collect market data relating to cost and revenue items for calculation of appraisal value based on the DCF method under the initiative of the government, obtaining the understanding and cooperation of clients for appraisals in order to share information on appraisal of securitized properties among real estate appraisers and to realize an appraisal that properly identifies the market trend as well as a neutral and fair appraisal. It is now under consideration to disclose this database to investors and others with a certain level of confidentiality obligation after its development by the government.

Figure: Development of the database utilizing the information on property appraisal



Source: The Ministry of Land, Infrastructure and Transport

5.1.3 Development of market infrastructure

With regard to the market infrastructure development to realize property derivatives, we have already organized the problems to be solved in terms of the development of legislation infrastructure (the legal system, etc.) and information infrastructure (indices, etc.). In addition, it is also necessary to develop market infrastructure such as agreements and research activities.

As for the development of standard agreements, it is also required not only property derivatives agreements in English such as the ISDA Master Agreements, but also the standard property derivative agreements in both Japanese and English.

In order to secure a wide range of investors in Japan, we should develop the standard property derivatives agreement in consideration of the target investors including regional financial institutions and individual investors.

Furthermore, in order to deepen the understanding of property derivatives, it is necessary to promote research activities on property derivatives. The current research activities for property derivatives cannot be deemed sufficient, although there are some papers on the method to construct property investment indices as well as the pricing method of property derivatives. Therefore, it is hoped to further develop the theory on property derivatives and it is also necessary to give support to such research activities.

5.1.4 Enhancement of liquidity

As requirements for property derivatives to be realized, the liquidity is an important element, as well as the development of infrastructures as stated above. One of the important significances of property derivatives is to promote the efficiency of the spot property market. However, to enable this, there should have due liquidity in the property derivatives market. The market without sufficient liquidity would simply be a speculative market and may be a property derivatives market that lacks stability.

Therefore, in order to enhance the liquidity in the property derivatives market, as mentioned earlier, it is necessary that, in addition to hedgers such as developers, speculators, and arbitragers should come to the market to secure a sufficient number of investors.

It is considered necessary to ensure transparency of property prices as the underlying assets, transparency of derivative prices themselves, and low market entry costs. That is to say, it is necessary to develop indices, cultivate information vendors relating to property finance, and improve standard agreements for property derivative transactions.

In addition, a certain level of appropriate supervision is considered necessary to avoid unfair transactions and massive losses. However, considering appropriate supervision, it is impossible to make proper judgments under the current situation; therefore, we need to consider a suitable system to the actual situation by considering what kind of system is required along with the development of the property derivatives market, with the Financial

Instruments and Exchange Law in mind.

Furthermore, to enhance liquidity, it is important to increase the diversification of market participants such as individual investors, pension funds, and foreign investors. Property derivatives market should be realized as the market where a number of these market participants can enter.

5.1.5 Better understanding by market players

As market environmental requirements for property derivatives to be realized, it is necessary to ensure the understanding by market players to secure sufficient number of investors. That is to say, it is important for concerned persons in the property and finance industries to have a proper understanding of the functions and nature of property derivatives. Therefore, it is also considered important to enhance their awareness and promote their proper understanding.

In addition, to deepen the understanding by market players, it is necessary to develop a specialized organization to provide support for property derivatives. However, such an organization required for property derivatives has not been sufficiently developed in Japan yet.

That is because of the shortage of people who can discuss properties and finance cross-sectionally in each field in Japan; therefore, we believe it is also important to develop people who have a potential for a specialist with the expertise of both properties and finance.

For this reason, it is necessary to promote symposiums and seminars to improve market players' understanding of property derivatives and develop people who have the expertise in both properties and finance.

5.2 Problems of the sufficient condition aspect

As requirements for property derivatives to be realized in Japan, we have organized the positive and negative aspects of property derivatives as to sufficient conditions. It is important to further foster the positive aspects while suppressing the negative aspects.

For this purpose, it is necessary to address the problems such as the transparency of prices, the development of a fair market system, the identification of concrete needs, the development of an appropriate market monitoring system, and the achievement of low market entry costs through development of data and indices.

5.2.1 Transparency of prices / development of a fair market system

We have already stated that, as a feature of property derivatives, there is a possibility that an abrupt change in market conditions in the spot property market or the property derivatives market may further magnify the volatility of property derivatives.

The sufficient conditions to suppress the negative aspects of property derivatives are to ensure the transparency of property prices and property derivative prices and a fair market system.

The property derivatives prices can be transparent as far as the prices of property as their underlying assets are transparent, which serves to form a stable price system. In addition, if the market is developed with a well-organized fair market system, we believe it possible to reduce the possibility of an abrupt change in market conditions, which suddenly magnify volatility in the property market and the property derivatives market.

To enable this, it is necessary to develop the data and an appropriate legal system to ensure the transparency of property prices. And it is necessary to examine the further details from now on.

5.2.2 Identification of concrete needs / development of an appropriate market monitoring system

A derivatives market cannot be realized without the participation of hedgers, speculators, and arbitrageurs. However, as we have already seen in the negative aspects, the derivatives market without the participation of hedgers may become a speculative market, with the result that it may deviate from the spot property market.

Under the circumstances, by identifying the risks relating to properties concretely and clarifying the needs for hedging those risks qualitatively or quantitatively, it becomes possible to originate the property derivatives that can meet their hedge needs.

That is to say, it is necessary to identify the concrete needs of households, which take the risks relating to their properties, to say nothing of general business corporations and the corporations engaged in properties such as property funds.

To verify them, it can be considered as a method, for example, to examine the agreements between actual general business corporations and financial institutions, and verify the applicability of property investment indices and the effects of risk hedges. As a result, it can be possible to originate the property derivatives that meet concrete needs, which will contribute to securing sufficient number of investors and enhancing liquidity in property derivatives market.

Furthermore, in order to prevent the speculative market, proper monitoring of the market is also necessary. The regular and proper monitoring system of the property derivatives market is necessary for the property derivatives market to function smoothly without an adverse impact on the spot property market.

5.2.3 Achievement of low market entry costs through development of data and indices

With the introduction of property derivatives, as one of its negative aspects, capital inflow into the spot property market or the securitization property market may decrease. However, we believe that such a possibility can be avoided by establishing the property derivatives market with fully performed hedging functions, as well as by enhancing the transparency of the entire property market.

That is to say, as mentioned earlier in the positive aspect of property derivatives, if a market with fully performed hedging functions can be established, it will have the effect of bringing stable capital inflow into the property market, for example, through the increase of risk hedge means for debt providers.

In addition, if the data is properly developed in the property market, not only the indices as an underlying assets of property derivatives will be properly developed but also the transparency of the property market itself will be enhanced, and as a result, it is assumed that more funds than before will be directed toward the property market.

As a result of the foregoing, even if property derivatives are newly introduced, a capital inflow into the asset class of property itself will increase, which is considered to help stably develop both the spot property market and the securitization property market.

To enable this, it is necessary to reduce the costs of market entry not only to the property derivatives market but also to the property market or securitization property market by formation of a market that meets the needs for hedging risks, as well as development of the database on prices and rents in the property market and development of indices based on such a database.

5.3 Summary

Taking into account the problems described so far, we can summarize the policies to be implemented or examined for the future as follows:

5.3.1 Collection of a broad range of information including property derivatives

1) Collection of information on property derivatives market

We should endeavor to grasp the current situation of property derivatives transactions, including overseas information, through the utilization of existing surveys, and the interviews with market players. Furthermore, to establish a sound property derivatives market, risk hedgers' participation in the market is indispensable; therefore, we should strive to identify the current risk hedge needs in the market.

2) Development of the property investment indices

We should collect information on actual transaction prices and rent, and promote the development of the property investment indices. On that occasion, we should study how to construct the property investment indices utilizing the database, and study whether it can be utilized as the underlying assets of property derivatives and, when we implement such a study, we should also verify the usefulness of the indices.

5.3.2 Preparation of conditions for realizing a favorable property derivatives market

1) Promotion of studies on a legal system and a market system suitable for the characteristics of property derivatives

We should conduct further studies on the legal and market systems suitable for the characteristics of property derivatives. Among others, we should collect information along with the development of concepts of properties, paying close attention to the situation concerning the Financial Instruments and Exchange Law, and promote establishing an appropriate system and preparing conditions for the market.

2) Development of specialists across both properties and finance fields

In order to support the diffusion and development of property derivatives, we should help develop specialists capable of providing highly expert knowledge in the fields of both properties and finance cross-sectionally. For that purpose, we should promote the development of such a skill-training system and a human resources development program that enable people to obtain knowledge of both properties and finance concurrently.

5.3.3 Promotion of diffusion, enlightenment and studies of property derivatives

1) Promotion of diffusion and enlightenment of property derivatives

In order to deepen market players' understanding of property derivatives, we should promote diffusion and enlightenment activities on the current situation and structures of property derivatives, for example, through symposiums on property derivatives or seminars for market players.

2) Promotion of studies on property derivatives

In order to promote the studies on property derivatives, we should support studies covering a cross-sectional field of both properties and finance. Above all, we should promote studies more actively on the construction method of property investment indices, the method of property derivatives pricing and the transaction system of property derivatives. In addition, at the same time, we should implement the research study on the overseas trend of property derivatives as well as the advanced examples.