Kiyohiko G Nishimura: Property bubbles and economic policy

Keynote speech by Mr Kiyohiko G Nishimura, Deputy Governor of the Bank of Japan, at the Special Panel on "Property markets, financial stability, and macroprudential policies", at the Allied Social Science Associations – American Real Estate & Urban Economic Association Annual Meeting, San Diego, 4 January 2013.

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Property market bubbles have long been recognized as an important risk to economic stability. Although not all property bubbles lead to financial crises, there are malign bubbles that do indeed trigger significant financial stresses and cause economic crises, such as the US housing bubble of the 2000s.

In this presentation, I argue that demographic trends are one of the key drivers of the property price movements we have observed over the past few decades. In particular, I argue that a growing young population increases the likelihood of a property bubble. The increased demand for property from a growing young population is likely to induce the institutional change of a loosening of financial laws and regulations that pushes up prices further, thereby fueling a malign price bubble. (These institutional factors will be discussed in greater detail by my fellow panelists Frank Warnock and Tim Riddiough.) In contrast, the negative effects of the bursting of a price bubble are all the more pronounced where there is an ageing population.

Macroprudential or institutional policies therefore become important in responding to a malign property bubble. (This will be the subject of the presentation by Ken Kuttner.) However, I believe that the issue is not limited to questions of the technical effectiveness of various macroprudential policies, but highlights the very fact of the "procyclicality" of institutional changes in laws and regulations induced by demographic change. From this discussion I will draw three policy implications: firstly, the need, to recognize the significant effects of demographic trends, secondly, to avoid too loose a policy in the demographic bonus phase, and thirdly, to avoid too strict a policy in the demographic onus phase.

In the final part of this presentation, I will discuss property price indexes, and outline an attempt to obtain relevant price information in a timely manner. Timely and accurate data on property prices is of utmost importance in responding to a property bubble, especially in emerging markets. (Yongheng Deng will discuss this issue in the context of China.)

1. Demographic trends and property markets

Demographic trends and malign property bubbles; cross-country evidence

Let me first explain why demographic trends are important using a series of charts depicting the recent bubble episode in the advanced countries. In these charts, I juxtapose, first, the ratio of working-age population to the rest (the inverse dependency ratio), second, the real property price index, and third, total loans in real terms.[1]

In the United States (Chart 1.1), we have two peaks in the working-age population ratio. And the real property price index, which is the real house price index, seems to have two peaks, roughly coinciding with the demographic change. It is the second peak which triggered the financial crisis of 2008. The first peak coincided with the S&L problem, which had a far less

[1] The figures for the United States, Japan and China are taken from Nishimura, K. G., "How to Detect and Respond to Property Bubbles: Challenges for Policymakers," in Heath, A., F. Packer, C. Windsor, eds., *Property Markets and Financial Stability*, Sydney: Reserve Bank of Australia, 2012, pp.292–301. The figures for the other countries are constructed in a similar way to those for these three countries.

severe effect on the economy. The difference between the two lies in the difference in the total loans. The level of the real total loans in the first peak was high, but far lower than in the second peak that triggered the financial crisis. A remarkably similar picture is found in Japan, where the second peak around 1990 is a malign bubble that triggered a long period of stagnation (Chart 1.2).

In Europe, we have two groups. The first group, including the United Kingdom (Chart 2.1), Spain (Chart 2.2), and Ireland (Chart 2.3), had a similar experience to that of the United States and Japan. The second group, including Germany (Chart 3.1) and France (Chart 3.2), tells a different story: their working population ratio, property prices, and real loans peaked at different times. And it is the first group, in Chart 2, which suffered property bubbles triggering financial distress, most severely in Ireland and Spain, and to a lesser extent in the United Kingdom.

What lessons can we learn from this rather cursory examination of recent history? It shows that, if a demographic change, a property price bubble, and a steep increase in loans coincide, then a financial crisis seems more likely.

Malign property bubbles: interplay of demographic trends and institutional factors

Demographic trends have a significant effect on property prices, especially their land component.[2] In the population dividend phase, young baby boomers want to buy more land and save more real money for their retirement. Since the supply of land is physically limited, the real price of land will go up. Similarly, if nominal money supply is held constant, the "price" of real money holdings, which is the inverse of the price level, should also go up, implying deflation. Being mandated to maintain price stability, the central bank is then likely to increase nominal money to keep prices stable. The result is an increase in property prices while general price levels remain stable.[3]

The story, however, does not end there. Property markets are also influenced heavily by institutional factors. The supply of land is regulated by the government in many countries, typically in the form of zoning. Housing finance systems are heavily dependent on financial laws and regulations.[4] Property markets are subject to high transaction costs, which may change as a result of financial innovation.[5] Any change or even prospect of change in these institutional factors may drastically change the dynamics of property prices, leading to a considerable deviation from the underlying fundamentals, that is, to a property bubble.

In fact, in the population dividend or bonus phase, when baby boomers' demand for property is strong, the demand for institutional change is also strong, favoring easier acquisition of property. The government is likely to come under political pressure to loosen financial laws and regulations, which in turn fuels expectation of further loosening. These changes, and the prospect of change, induce credit expansion to finance property acquisition and push up property prices further and far beyond their fundamental value given the initial institutional framework. The price hike caused by such institutional changes may even induce overly optimistic expectations of the "this-time-is-different" type about property markets and prices.

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[2] See, for example, Takáts, Előd (2012): "Aging and house prices," *Journal of Housing Economics*, vol 21, no 2, June, pp 131–41, and Nishimura, Kiyohiko G. (2011): "Population ageing, macroeconomic crisis, and policy challenges," Panel discussion at the 75th Anniversary Conference of Keynes' General Theory, University of Cambridge, 19–21 June 2011.

[3] See Nishimura, K. G., and E. Takáts, "Ageing, Property Prices, and Money Demand," Working Paper no. 385, Bank of International Settlements, September 2012.

[4] See Warnock, F. E., and V. C. Warnock, "Developing Housing Finance Systems," in Heath et al. ibid., 49–67.

[5] Packer, F., and T. Riddiough, "Securitization and the Commercial Property Cycle," in Heath et al. ibid., 143–190.

Thus, the demographic condition of population dividend or bonus is fertile ground for malign property bubbles.

Population ageing and declining long-term per capita growth

So far, I have discussed the formative stage of malign bubbles. Then, what happens when a malign bubble bursts? Here again, demographic trends are important and likely to influence the adjustment process significantly.

As is often argued, the economy has to endure a period of lower growth after a malign bubble bursts. Chart 4 shows the rolling ten-year average of the per capita GDP growth rate of advanced countries. After the collapse of the bubble, the Japanese per capita rate plunged from above 3 to around 1. It is remarkable to note that the per capita GDP growth of the United States and major European countries also fell almost uniformly to around 1 after the collapse of the their bubbles (except for Italy, where the rate has fallen even further to become negative).

Debt overhang and resulting deleveraging are often cited as the major culprits of this substantially lower growth. The next two charts suggest more than that and point to the possible importance of demographic trends. They juxtapose the working-age population ratio (inverse dependency ratio) and the long-run per capita growth rate, which is the average per capita growth rate of the past ten years, for the United States (Chart 5.1), Japan (Chart 5.2), the United Kingdom (Chart 6.1), Spain (Chart 6.2) and France (Chart 6.3). These figures suggest a possible link between demographic trends and long-term per capita growth, which is determined by efficiency in production.

Population ageing, which we observed first in Japan and now in the United States and European countries, may affect factor productivity and long-term efficiency in the economy as a whole. For example, population ageing reduces the mobility of workers and entrepreneurs between regions and industries. Population ageing also changes the composition of consumer demand, and the vast difference among senior citizens in terms of wealth and experience reduces the effectiveness of mass-marketing to create demand.[6] This means many advanced economies experiencing a malign bubble and population ageing at the same time face doubly downward pressure from debt overhang and population onus.

2. Policy implications

Awareness of the significant effects of demographic trends

Let me now turn to the policy implications of what I have examined. The first lesson from the experience of the advanced economies is to be aware of demographic trends. In particular, we should take into account that the likelihood of malign property bubble formation is much greater in the population dividend or demographic bonus phase, while the negative impact of the collapsing bubble is far severer in the phase of the burden of an ageing population, or demographic onus.

This is particularly important in some emerging economies. Chart 7 shows the situation in Brazil (7.1), China (7.2) and Korea (7.3). In Brazil, the peak of the working age population ratio is a decade away, but house prices and credit expansion are skyrocketing toward it, indicating the possible risk of a future malign bubble. The possible risk could be seen in China and Korea, where the working-age population ratio is likely to peak in a few years and credit expansion continues. Moreover, the size of population dividends is much greater and the future decline of the working-age population ratio is much more pronounced in these two

[6] See Nishimura, K. G., "Demographic Transition, Impact of ICT, and Globalization: A Long View of the Post-Crisis World," Speech at the Central Bank of the Republic of Turkey, August 28, 2012.

countries than in Brazil and the advanced countries in Charts 1 to 3, suggesting demographic change will have an even greater impact. Of course, the correlation between demographic factors and property bubbles remains loose, as exemplified by the German experience. However, considering the imminent grave consequences of a malign property bubble under the burden of an ageing population, it is advisable for policy makers to take precautions against the possible danger.

Avoiding excessive loosening of a policy in the demographic bonus phase

The recent bubble episodes have shown us that, in the population dividend or bonus phase, when demand for property increases substantially, financial laws and regulations tend to become loose, thereby fueling property price bubbles.[7] In other words, financial laws and regulations and government policies are markedly "procyclical", though here the cycle is much longer than business cycles. The financial innovation of subprime RMBS is surely one example. So the second lesson is that we should avoid an excessive loosening of financial regulations and government policies in the demographic bonus phase.

Here macroprudential policies become important, which rely on measures such as LTV and DTI requirements.[8] Unfortunately however, I find most discussions about macroprudential policies are concerned only with taming overly optimistic expansion of credit and fund flows, while they fail to give sufficient attention to the often "procyclical" regulatory changes that trigger such expansion. Thus, I still have strong reservations over the effectiveness of some macroprudential measures in a truly malign bubble, since such measures may simply mean temporary halting of the expansion and thus amount to "kicking the can down the road".[9]

Avoiding excessive tightening of a policy in the demographic onus phase

Next, what is the lesson for the collapsing stage of a bubble? Adjustment is still under way, even in Japan after more than two decades since the 1990 bubble burst. However, one thing is clear: adjustment is long and severe when the economy is under the burden of an ageing population, or in the demographic onus phase. It is also becoming evident that there is no quick fix for the problem and no quick return to the "old normal" of the population bonus phase.

Policy makers now face dual problems: they have to minimize the likelihood of another malign bubble in the future, and at the same time they have to minimize the current distress caused by the past bubble. Future bubble prevention usually leads to significant tightening of once-loose regulations and government policies toward banking and housing finance systems. The thrust of strict regulations is fueled by popular anger against the beneficiaries of the past malign bubble.

At the same time, however, we should be aware that we are in a phase of demographic onus, with lower demand for property than in the demographic bonus phase of decades ago. This means regulatory measures appropriate in the population bonus phase may be too strict in the population onus phase. So we must avoid too strict a policy in the population onus

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[7] In fact, the regulatory changes of 2004 (the so-called Bear Sterns exemption and the regulatory change with respect to Fannie Mae and Freddie Mac) caused unprecedented rapid expansion of credit, becoming a precursor of the financial crisis. See Nishimura, K. G., "What Should we Learn from the Eurozone Crisis – A Regulatory-Reform Perspective," Speech at the Institute of International Bankers 2012 Annual Washington Conference, March 5, 2012.

[8] See Kuttner, K., and I. Shim, "Taming the Real Estate Beast: The Effects of Monetary and Macroprudential Policies on Housing Prices and Credit," in Heath, et al. ibid., 231–259.

[9] For more detailed discussion on macro-prudential policies in the case of the Japanese property bubble, see Nishimura, Kiyohiko G. (2011) "Macroprudential Lessons from the Financial Crisis: A Practitioner's View," in: Kawai, Masahiro. and Eswar Prsard (eds.) *Asian Perspectives on Financial Sector Reforms and Regulation*: Washington, D.C., Brookings Institution Press, 180–195.

phase, and avoid regulatory and policy "procyclicality" in the downward direction. Moreover, we should also recognize that a severe balance-sheet adjustment under population ageing hampers the effectiveness of conventional policy tools.[10] In addition, seemingly overly pessimistic expectations aggravate the problem of policy effectiveness.

Thus, policy makers have to perform a subtle balancing act between long-run crisis prevention and immediate crisis response.

3. Property price indexes as the foundation of policy

Let me now turn to the issue of data and statistics as the foundation of policy. Unfortunately, the current state of our knowledge about property markets is still limited, especially in constructing property price indexes that are reliable (R), accurate (A), timely (T), and easy (E) to understand – what I call the "RATE" requirement. Thus, property prices were identified at the November 2009 G20 Meeting as one of the crucial data gap issues. To rectify the problem, Eurostat is taking the lead in drafting a Handbook on Residential Property Price Indices under the aegis of the Inter-Secretariat Working Group on Price Statistics.[11]

With respect to accuracy, the RRPI Handbook (4th draft) recommends hedonic price indexes, especially in countries where transactions are limited and repeated sales may involve sampling biases. Most emerging economies, including China, are in this category, as well as many advanced countries like Japan.[12]

With respect to timeliness, there has been promising progress. Note that for a policy maker, timely information is as important as, or in some cases more important than, reliable and accurate information. According to this criterion, existing transaction-based property price indexes, though accurate, are not helpful in immediate policy making, since they inevitably lag far behind market movements. For example in Japan (Chart 8), it typically takes 10 weeks from posting in the market to negotiation, 5.5 weeks from negotiation to actual transaction, and 15.5 weeks from transaction to being recorded in the government data base. In addition, extra weeks are needed for data collection and compilation, so that the lag is likely to amount to almost a year.

First asking price data are timely but not accurate (because they are biased), while transaction price data are accurate but not timely, posing a dilemma. However, there is an important way around this dilemma. Using previously-owned condominium prices in Tokyo, my collaborators and I are able to show that if a hedonic quantile-regression procedure of quality adjustment is applied to both first asking price data and transaction price data, the resulting price distribution is almost identical (Chart 9).[13] This implies that if hedonic quantile-regression quality adjustment is appropriate, which is likely, we can use first asking

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[10] Not only does the conventional policy of controlling the overnight interbank rate turn out to be ineffective because of the zero lower bound, but the unconventional policy of asset purchases is also becoming less effective in altering firms' and households' financial conditions as the long rates themselves move down to a very low level. The Bank of Japan's funding facilities for financing economic growth and the Bank of England's funding for lending scheme are new types of unconventional policy aimed at coping with this problem. See Nishimura, K. G., "Funding for Financing Economic Growth – A Schumpeterian Perspective," Remarks at the Global Interdependence Center Conference on The Global Financial Crisis: Lessons from Japan, Tokyo December 3, 2012.

[11] http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/methodology/owner_occupied_housing_hpi/rppi_handbook.

[12] Deng, Y., J. Gyourko, and J. Wu, "Land and Housing Price Measurement in China," in Heath, et. al. ibid., 13–43.

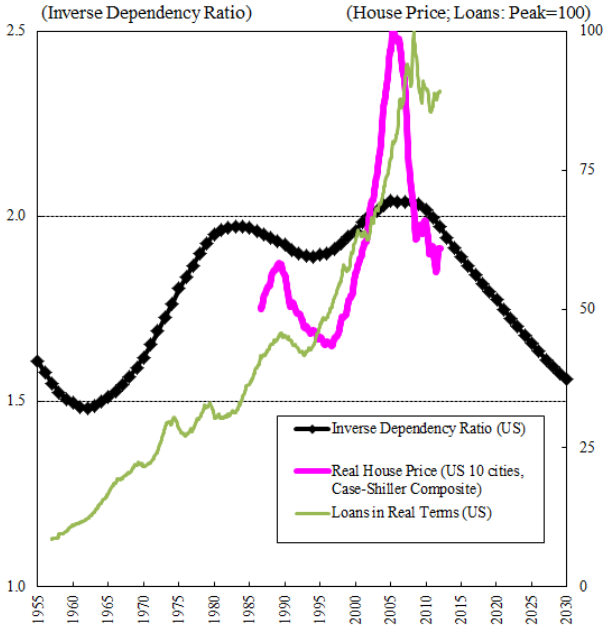
[13] Shimizu, C., K. G. Nishimura, and T. Watanabe (2011) "House Prices at Different Stages of the Buying/Selling Process," Working Paper no. 69, Research Center for Price Dynamics, Institute of Economic Research, Hitotsubashi University.

price data to construct a reliable proxy of quality-adjusted transaction price distribution. Thus, we get timely and reliable quality-adjusted price data through this procedure.

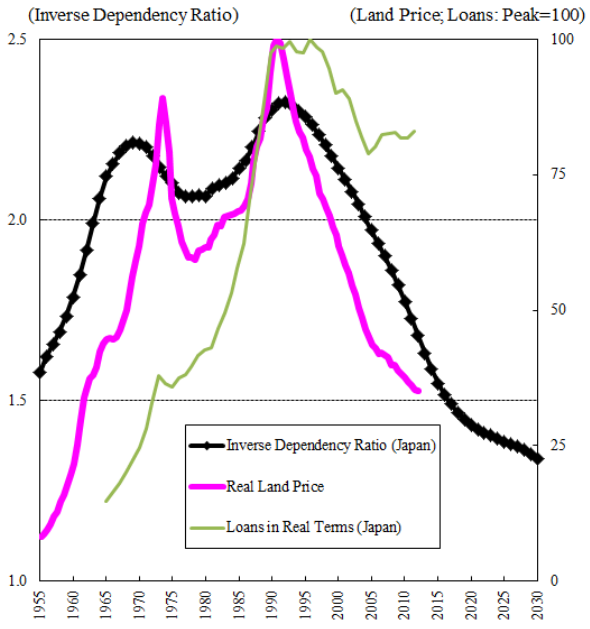
I will stop here for the discussions of other panelists.

(Chart 1) Demographic Trend, Credit Expansion and Asset Price: US and Japan

1.1. US

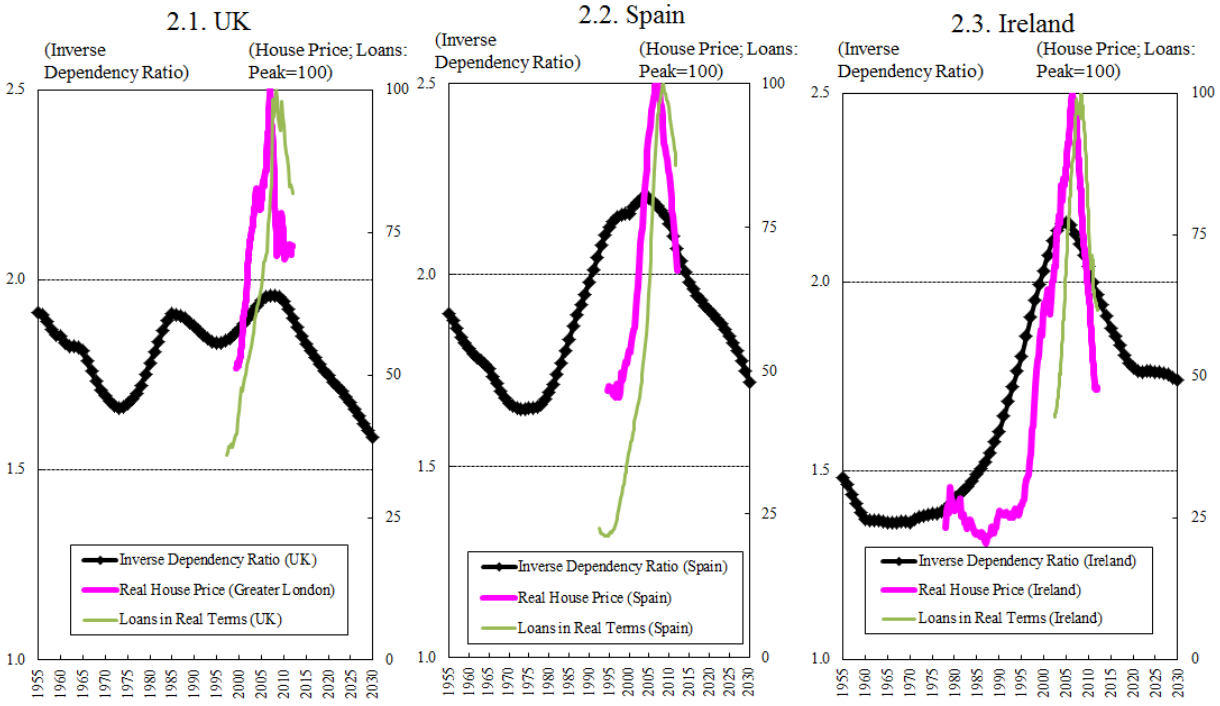


1.2. Japan



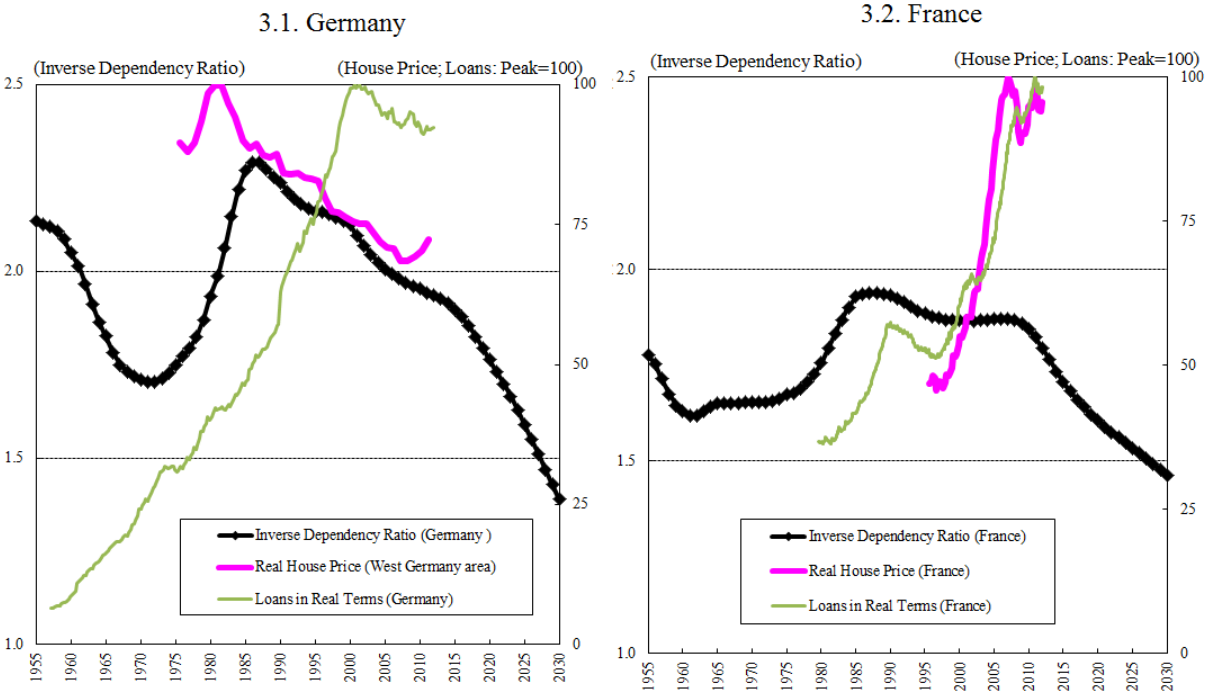
Source: United Nations; Standard and Poor's; U.S. Bureau of Labor Statistics; Federal Reserve
Japan Real Estate Institute; Japan Ministry of Internal Affairs and Communications; Bank of Japan

(Chart 2) Demographic Trend, Credit Expansion and Asset Price: 1st European Group - UK, Spain and Ireland



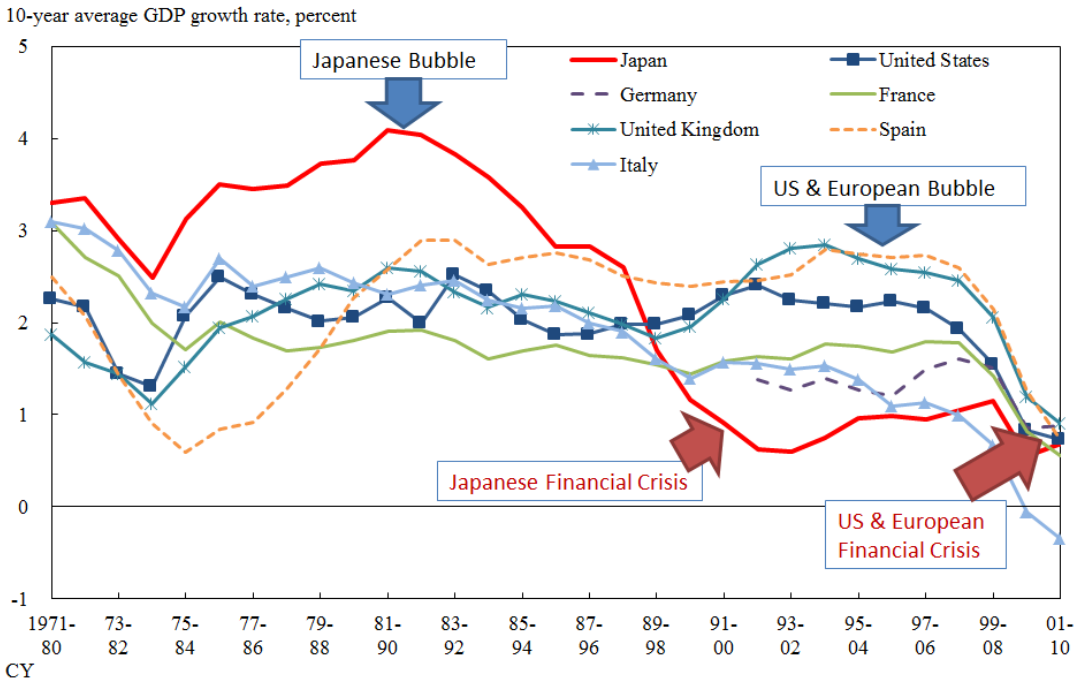
Source: United Nations; Halifax; Bank of England; Office for National Statistics; Banco de Espana; IMF

(Chart 3) Demographic Trend, Credit Expansion and Asset Price: 2nd European Group: Germany and France



Source: United Nations; Bundesbank; National Statistical Office; IMF

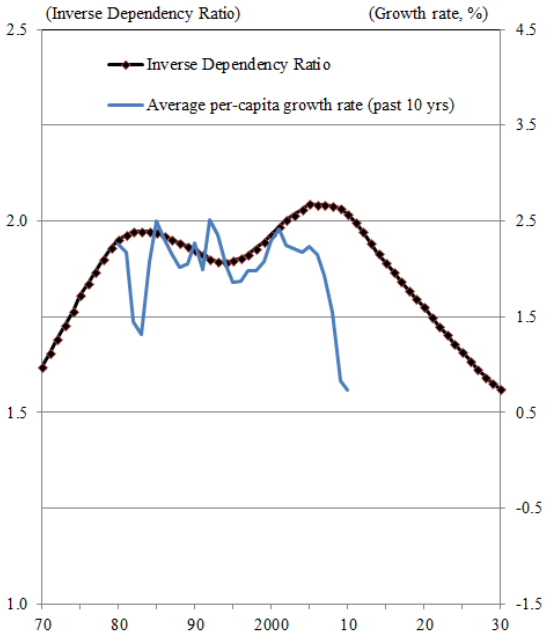
(Chart 4) Bubble, Crisis and Long-run Per-capita Growth in Advanced Countries



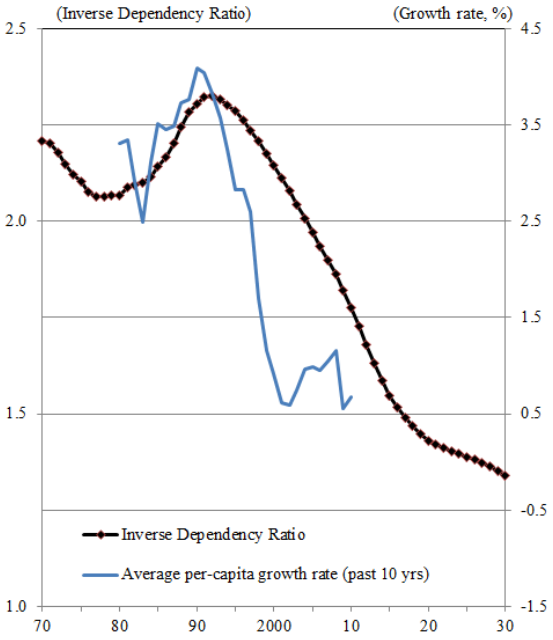
Source: United Nations; statistics by individual countries.

(Chart 5) Demographic Trend and Long-Term Per Capita Growth: US and Japan

5.1 US

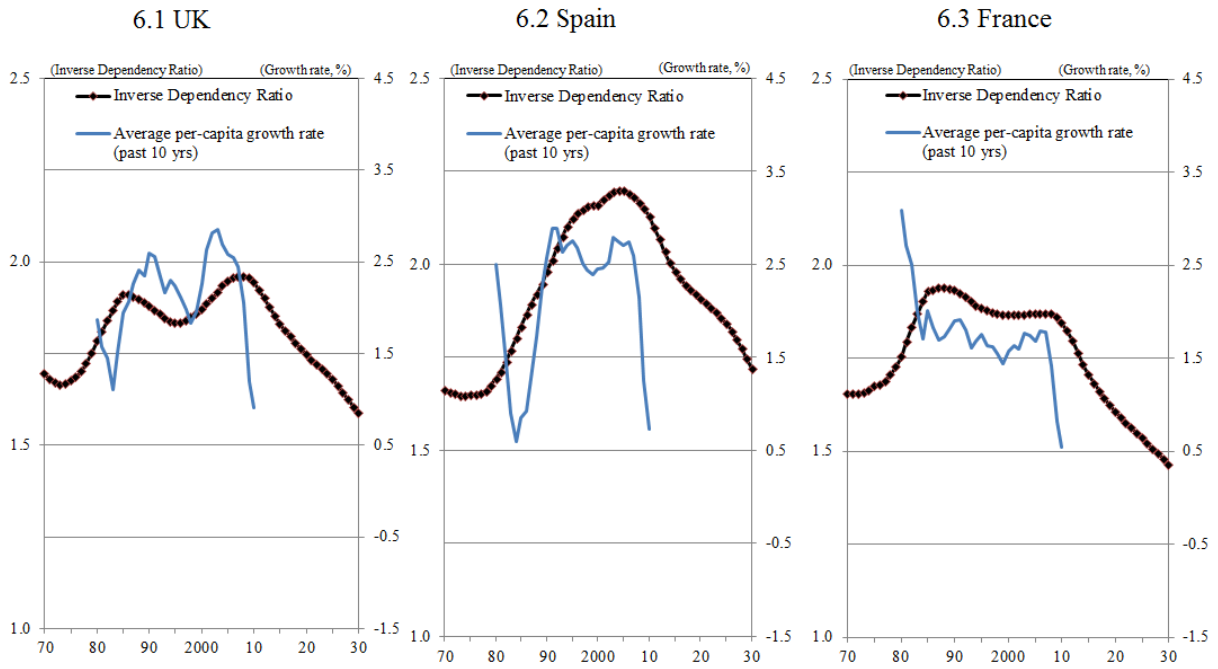


5.2 Japan



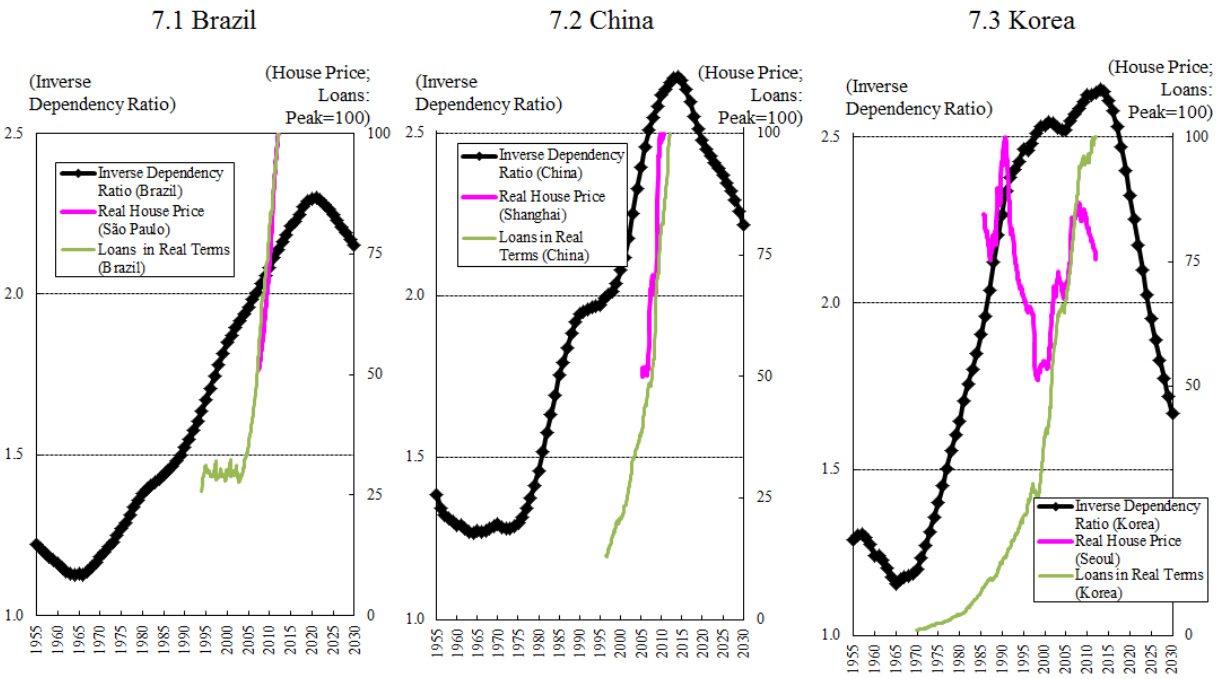
Source: United Nations; statistics by individual countries.

(Chart 6) Demographic Trend and Long-Term Per Capita Growth: UK, Spain, and France



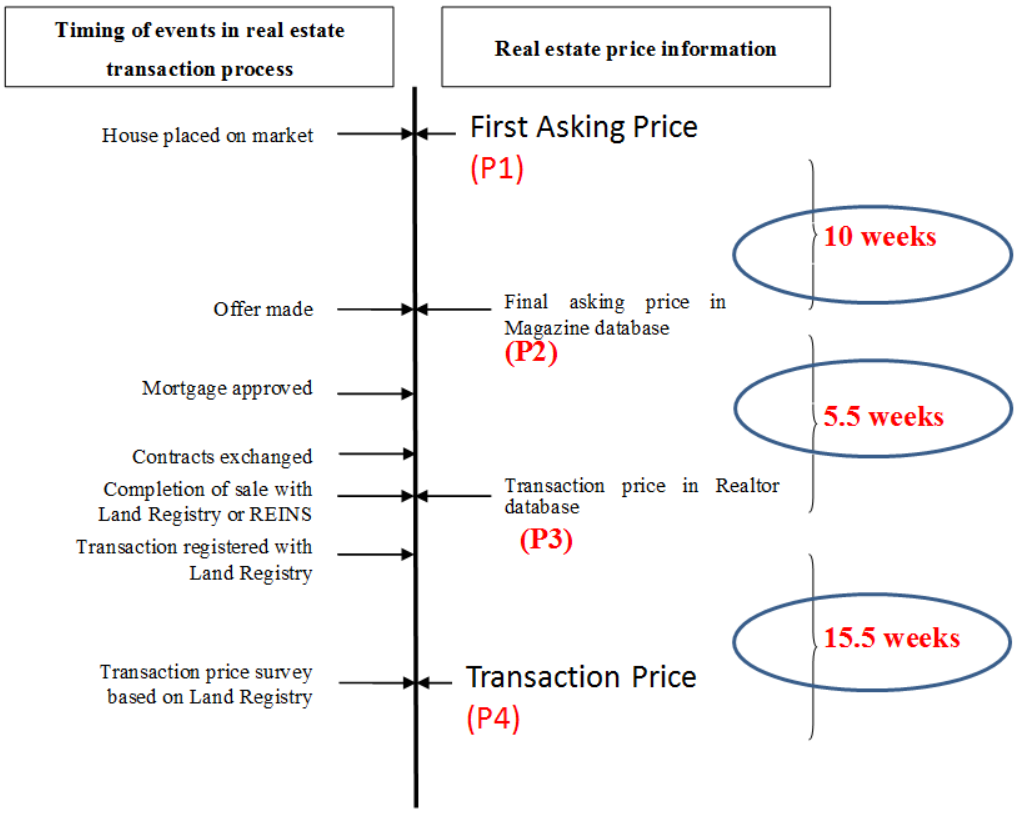
Source: United Nations; statistics by individual countries.

(Chart 7) Demographic Trend, Credit Expansion and Asset Price: Emerging Economies: Brazil, China and Korea



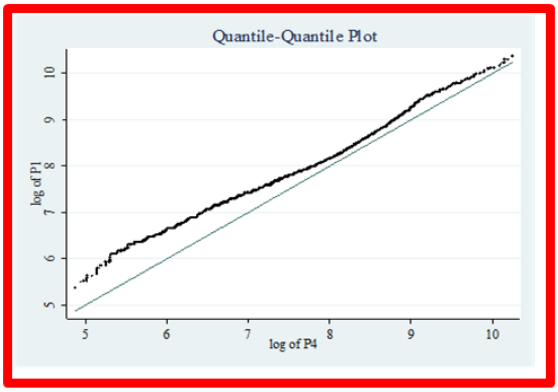
Source: United Nations; Zhongfang Shanghai Real Estate Index Office; National Bureau of Statistics, China; People's Bank of China; Kookmin Bank; Korea National Statistical Office; Bank of Korea; Zap Imóveis; IBGE; IMF

(Chart 8) Timeline of Property Transactions and Corresponding Price Information in Japan



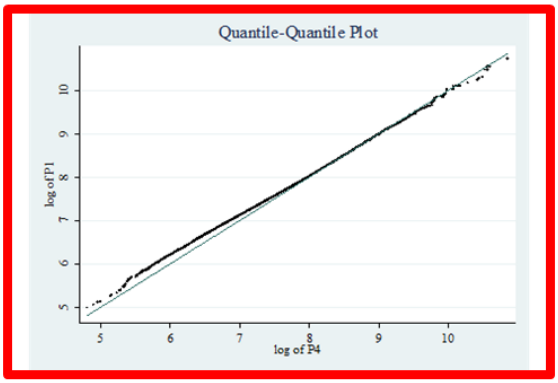
(Chart 9) First Asking Prices and Transaction Prices: Quantile-Quantile Plot of Price Distribution

Raw Data



Asking price distribution (P1) and transaction price distribution (P4) are clearly different.

Quality-Adjusted Prices generated from hedonic quantile regression results



Quality-adjusted price distribution based on P1 is almost indistinguishable from that based on P4.