Housing and Government Policy in the Global Economy: The Cases of Korea and the US

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I. Introduction

For the past two decades, housing prices have surged through much of the developed world, and these increases accelerated from 2000 through 2004. Sustained price increases of this sort across many economies in housing markets, which are local markets, are unusual. While there are specific factors contributing to the run-up in individual countries, it is clear from the ubiquity of the price acceleration over the past decade that global factors are at work. The steady decline in the interest rate world over and the greater integration of international capital markets are the major drivers of the latest global house price hike. However, the global forces alone cannot account for the substantial variations in house price increases across countries and those among cities in any given country. National and local factors are sources of such variations. As for public policy, government responses to house price hike differ from country to country.

With this background, this paper presents a comparative study of U.S. and Korea. Although the two countries differ greatly in terms of per capita income, and the systems of mortgage financing, taxation, and land use regulation, they both have experienced major house price run-ups in recent years. For the US, in particular, the recent gains represent a major paradigm shift. There has not been a previous period when housing price increases exceeded CPI gains for six years in a row in US history. Korea experienced a major housing price hike in the late 1980s followed by a small decline in real housing price since 1991. Housing prices collapsed in the wake of the Asian financial crisis in 1998, bounced back in 1999 and then soared in 2002 and 2003. We analyze the sources of this run up in housing prices in both countries exploring global, national and local factors. We also evaluate government policy responses.

The paper is organized into four sections. Following the introduction, section II describes the trends and key features of housing prices in the developed economies and their major cities. Section III presents an economic model explaining housing price trends in the long-run and short-run and conceptually linking these to fundamental economic forces behind the recent global house price hike. Section IV describes government policy, highlighting the contrasts in market intervention in the two countries.

II. Global house price trends and their driving forces

The period of the early 2000s has been witness to a global housing boom. (**See Exhibit 1)** Using our calculations, the average global growth rate in housing prices from 2000-2004 was 10%, adjusted for inflation, as evidenced by housing price changes in 13 industrialized nations[1] surveyed by the *Economist*[2]. This doubled the 1995-2000 average annual rate of increase of 5% and more than doubled the 3 % 1980-1995 average. Housing price appreciation in the period from 1995 to 2004 far exceeded appreciation in earlier periods from 1980 to 1995.

The major factor in the global house price run-up is the historic decline in worldwide interest rates over the last 15 years. From 1980 on, average interest rates, [3] for these same developed economies, tracked using prime borrowing rates, declined somewhat from an average high of 15% in 1980 to 13%. In 1990, the decline accelerated with rates falling to an average of 4.4% in 2004. **(See Exhibit 2)** Decreases in interest rates lower borrowing costs and drive funding from lower interest bearing bonds to real estate investment vehicles, including housing. A major source of this global interest rate decline has been the decline in inflation risk worldwide. In addition, with the globalization of capital flows, bond buyers are acting as "vigilantes" in disciplining countries where there is a risk of inflation accelerating and exchange rates decline by

[1] The countries covered are Spain (ES), Ireland (IE), the United Kingdom (UK), the Netherlands (NL), Belgium (BE), the United States (US), Japan (JP), France (FR), Canada (CA), Italy (IT), Australia (AU), Sweden (SE), and Germany (DE). These indices were given as a percentage change from one year to another, and the given periods were 1980-2001, 1995-2002, 1997-2004, 2000-2001, 2001-2002, and 2003-2004. Using the principle of forward rates and the formula $1+f_{m,n} = 1+r_n / 1+r_m$ (where $f_{m,n}$ is the forward rate starting m years from now and ending n years from now), we were able to isolate the growth rates for the periods presented. An example of our methodology for doing so is when we were trying to isolate the 1980-1995 period. We had the data for 1980-2001, 1995-2002, and 2001-2002; therefore, we first found the rate of growth from 1980-2002 by multiplying one plus the rate from 1980-2001 by one plus the rate from 2001-2002. We then divided one plus this rate by one plus the rate from 1995-2002 to obtain the growth rate from 1980-1995. For each country, we deflated the housing price index to arrive at the inflation-adjusted real price index. The source of the inflation data was the "International Financial Statistics" website at http://ifs.apdi.net/imf/ifsbrowser.aspx?branch=ROOT. The data on Korea is based on housing price index compiled by Kookmin Bank.

[2] Survey source: "Finance And Economics: Betting the house; Property prices**,"** March 6, 2003, "Leaders: Homing in on the risks; House prices and the world economy," June 3, 2004 and "Finance And Economics: Hair-raising; Global house prices," June 3, 2004, from *The Economist.*

[3] Interest rates are noted as "Interest rate, banks prime lending, percent per annum, period average" from the following source: "United Nations Statistics Division Common Database" at http://unstats.un.org/unsd/cdb/cdb_help/cdb_quick_start.asp.

curtailing foreign investment. Other explanations for the decline in interest rates include economic growth and a world-wide increase in available savings.

Interest rate declines have continued, across many economies, even with rising GDP growth rates in recent years. While declines in interest rates are to be expected with declining GDP growth rates of 2001, it is notable that the decline in rates continued even as world GDP growth resumed at high levels.

A new factor however is the translation of global interest rate declines into country mortgage rate declines. In the 1990's many countries saw the integration of previously segmented mortgage markets into global capital markets. Interest rate declines generated mortgage rate declines which both increased housing affordability and decreased the relative cost of homeownership, both effects driving the demand for housing, along with GDP increases. Real estate and housing has been "blessed" by the double beneficence of expanding economies and a low cost of funds.

Nonetheless despite the fact that interest rate decreases tend to be uniform within an economy not all housing markets, even within the same country, have equally participated in price gains.

Country and city specific supply side factors are important in explaining the differentials in house price run-ups. **(See Exhibit 3.)** This is dramatically evident in the systematically higher rates of house price appreciation rates in cities (where supply of developable land is limited) relative to national rates of increase. The outcome of city price rises that in almost every country exceed nation-wide price rises is an unnoticed but important global trend. This trend holds for the past two decades as well as for the most recent period.

The explanation is found in greater supply constraints in these cities and in the greater demand for centrality, which by its nature is supply, constrained. Demand is increasing for cities participating in the expanding global economy.[4] And in these prime urban areas, housing prices

[4] Global cities are characterized by cosmopolitan populous gatherings of people which play an instrumental role in the functioning of the world economy. These cities, with an elite membership, are interconnected and serve as global centers for a variety of industries including finance. These cities form partnerships to facilitate the trans-border flow

are likely to have been initially higher than in the surrounding countryside or secondary cities, due to high density and scarcity of developable land. Thus demand is increasing precisely where supply is limited and where prices are already high, which makes price trends in markets with supply limitations more salient for national pricing outcomes and as a policy concern. The rise in demand for housing and developable land in increasingly important centers of economic activity, that are part of global networks, and the fact that these centers are supply constrained explain the systematic nation/city differentials in observed price outcomes and, in part, global house price run-ups.

This result is evident for the US as well. There is wide variation in house price increases across regions. In particular, there is a major difference, demonstrated in **Exhibits 4 and 5,** between rates of increase in major coastal cities (Boston and Los Angeles) and inland cities (Phoenix and Indianapolis). Differences are due to demand evoking different supply responses in these two sets of cities. There is both an increasing demand for housing in areas with restricted supply and supply restrictions which characterize the former markets. For many inland markets, even those such as Phoenix that are growing rapidly, OFHEO repeat-sale price data demonstrate that there has been little to no price increase over the past several decades.

Housing Prices, adjusted for quality, have kept pace with inflation nationally in the US. The growth rates of these indices have been similar, as shown in **Exhibit 6** over this roughly 20-year period. Nonetheless, in six of seven years after 1997, appreciation in the housing component of CPI exceeded the growth in the overall CPI index, a major departure from historical patterns. Only in recent years have housing price increases exceeded the inflation rate, and almost all of this increase is due to price increases in the regions of the country that are supply constrained.[5]

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of capital and knowledge. The reciprocity and synergies achieved by these tight liaisons are conducive to collaborative development.

In global cities the partnerships are complemented by the close-knit agglomeration of educated, entrepreneurial, and a research intensive population within each of these areas. Each of these cities, functions as a 'primate city', with the ability to amass a large population and a centralization of knowledge and research. These cities house main institutions, ministries, corporate headquarters, and universities. The impact of fusing the people from a variety of industries, backgrounds, and perspectives is the emergence of innovation. Therefore, each of these cities functions as an innovative unit and when partnered with the other global cities they are able to achieve a cohesive and paramount level of development.

[5] For more discussion, see Case and Wachter (2005)

Systematic data on housing price in Korea are available only from 1986. The house price index is compiled by Kookmin Bank, the largest commercial bank in Korea, and published on a monthly basis. The raw data are collected from a network of real estate brokers who report their best estimates of the prices they monitor, not necessarily actual transacted prices. Moreover, the price index is not adjusted for the changes in housing quality.

Korea has experienced a major house price hike in the late 1980s. Housing price peaked in 1990 and declined in nominal terms since 1991 before it took a deep downturn impacted by the Asian financial crisis in 1997 **(See Exhibit 7).** As a result, the rate of house price appreciation Korea was smaller than that in the 13 developing countries tracked by the E*conomist* survey. But the spatial patterns are similar. As elsewhere, price gains are strongest in the major city, Seoul. However, the pace of increase in housing prices in Korea and in Seoul stabilized in 2004 except in a few submarkets in Seoul. **(See Exhibit 8.)**

III. Basic Economic Models

Basic economic theory can provide insights into the factors behind rising prices and differentially rising prices within markets that are subject to similar demand conditions. In particular, theory and empirical evidence suggest that while housing price change occurs naturally over time in response to demand increases, it is supply conditions that are all important in explaining the magnitude and volatility of recent trends. In fact, as noted by Malpezzi and Mayo (1997), housing demand parameters are remarkably stable and predictable across countries and places; supply parameters vary much more.

We first explain the primary link between the global factor of interest rate decreases and housing price outcomes, and, the secondary factors of economic activity increases and the rise of global cities, using the DiPasquale-Wheaton model (DW model hereafter). We then take a closer look at the impact of supply elasticity on housing price. Finally, we will briefly touch upon the debate on housing price bubble.

DiPasquale and Wheaton (1996) provides a framework for analyzing the long-run equilibrium housing price resulting from interactions between the property market and the asset market. The logic of the model states that if interest rates decline, prices will increase, because investors are now willing to pay more for an opportunity that continues to offer the same return. Each additional decrease in the interest rate will increase the price of an asset in the short run because the revenue stream remains the same in the short run. Conversely, an increase in interest rates will cause a decrease in prices because investors will require a greater amount of money per dollar invested as the alternative treasury market yields higher returns and thus has become more attractive.

When an interest decline occurs in the market, investors in real estate are immediately willing to accept a lower return on an investment, i.e. a lower cap rate. According to the algorithm of Price (P) = Revenue (R) / Cap Rate (i), the decline in the interest rate translates into an immediate increase in prices because rents cannot adjust immediately (leases are long term). This is illustrated in **Exhibit 9** as a counter-clockwise rotation of the asset market valuation line in the upper left quadrant. A higher asset price for housing will be an inviting factor for developers, and this will result in an increase of the supply of stock as long as they are above construction costs.

The rotation of the asset market valuation line impacts the remainder of model. When interest rates decrease the implied square of intersection lowers and widens (because a lower amount of rent yields a higher price than before). The intuition states that increased asset prices will motivate more suppliers into the market thus creating an increased demand for construction services and somewhat higher input prices depending on the elasticity of supply. The increased construction will result in an increased amount of stock. This relates directly back to the graph in the upper right hand corner that states with an increased level of stock rents will decrease because demand hasn't increased, therefore a rent adjustment occurs. The discussion so far demonstrates not only the interconnectivity of the entire model but the impact of interest rates on all aspects ranging price to construction costs to stock level to rents.

The D-W model focuses on the long run effects, but the differences in short run and long run effects are important. Thus the immediate impact of an interest rate shift may mislead those who take the initial price rise to be the long run effect. Markets will adjust both to the decline in interest rates and to higher prices by increasing the supply of real estate which will dampen price rises. The result is the initial demand-led positive impact on real estate prices is moderated. Thus, the prime conclusion from this economic model is that the short run impact of lower interest rates on asset prices is destined not to last. Housing prices will moderate, with local factors influencing the depth and timing of this moderation.[6] If supply is fully elastic, then asset prices return to their initial levels in the long run. If supply is inelastic, then asset price levels decline but do not return to their original level.

There are two additional demand factors contributing to current global house price appreciation beyond the major factor of low cost capital: These are first, the worldwide GDP increases (see **Exhibit 10**),and, second, the rise of global cities due to the continuing growth in international trade. As a percentage of the overall global economy, international trade has continued to increase. This globalization has led to increasing demand for a new class of global cities.

Global cities are centers that play major roles in the world economy, as centers for the cross-border flow of capital and goods. Sassen(1991, 2003) demonstrates that these cities have become global centers, especially, for finance, servicing, and management, and that they are interconnected in an international network. As has been explained in the new urban economics literature, the greater the quantity and rapidity of information flows, the greater the need for personal, trustworthy, face-to-face interaction, that is, for places where knowledge workers can create together in person new products and services. [7] As the new urban economic models

[6] The model can also be used to demonstrate the impact of an increase in the cost of capital on real estate prices. Reversing the model shows that the initial impact is to decrease housing prices or slow their increase. But this doesn't last. As supply responds to the higher cost, rents or for homeowners, user costs, are driven up. The important result of an increase in capital cost is to increase the cost of housing for the user. The analysis of this effect is highly relevant to the consideration of the impact of a tax on real estate as is being proposed in Korea., as discussed below.

[7] Global cities are characterized by cosmopolitan populous gatherings of people which play an instrumental role in the functioning of the world economy. These cities, with an elite membership, are interconnected and serve as global centers for a variety of industries including finance. These cities form partnerships to facilitate the trans-border flow of capital and knowledge. The reciprocity and synergies achieved by these tight liaisons are conducive to collaborative development.

predict, global cities demonstrate increasing returns to scale and contribute to the productivity of their economies. The force behind the demand for these centers is that they are centers of commerce, and they are the places of significant agglomeration economies that also allow for crucial person-to-person interaction that is necessary for knowledge, creation, and innovation. As economies develop, knowledge creation, as a service industry, becomes more dominant – which further is an additional driver of demand for centrality.

Seoul as a global city is part of this international network and thus subject to these demand forces. The primary reason for increased demand in Seoul, as other global cities, is that the density of activity yields increasing returns to scale, which further provides a positive feedback loop that fuels increasing demand for housing. An effect of this increasingly significant agglomeration is increased productivity which drives the country's overall GDP, as it fuels local housing price growth.

Thus, while we have focused on the impact of interest rate decreases, given its importance in recent macro-economic trends, increasing GDP and globalization are long term secular forces that are likely to persist as factors fueling the demand for housing in the long run. These drive increases in economic activity and the demand for real estate and, in particular, urban real estate. The result as demand increases is higher rents, higher asset prices and eventually new supply which will moderate housing prices, leaving them higher than where they started but not at their highest levels. Thus again the short run and long run price outcomes of an increase in demand differ.

We now turn to the role of supply response to positive demand shocks in determining how much prices will rise. As **Exhibit 11** illustrates, with inelastic supply, little supply response is observed and prices increase. In the elastic case, shown, in **Exhibit 12**, the supply of housing expands to match the increase in demand; hence, prices do not increase much or at all. On the

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In global cities the partnerships are complemented by the close-knit agglomeration of educated, entrepreneurial, and a research intensive population within each of these areas. Each of these cities, functions as a 'primate city', with the ability to amass a large population and a centralization of knowledge and research. These cities house main institutions, ministries, corporate headquarters, and universities. The impact of fusing the people from a variety of industries, backgrounds, and perspectives is the emergence of innovation. Therefore, each of these cities functions as an innovative unit and when partnered with the other global cities they are able to achieve a cohesive and paramount level of development.

other hand, in the inelastic case, prices may rise a great deal. By the same logic, the events that suppress demand such as an increase in the property tax rate will lead to a more precipitous drop in the asset price of housing when the supply is less elastic.

Moreover, markets that are characterized by inelastic supply in the short and long run are likely to be volatile. For example, when markets are restrained by regulation, in the face of increasing prices, governments may initiate supply increases. As illustrated by **Exhibit 13**, the sudden supply surge results in a housing price crash. Inelastic supply also can induce "speculation," which in turn adds to volatility. With sharp initial price increases, speculation defined as investment driven by optimism about future prices, based on extrapolation of past appreciation, takes off. Without price rises, in the case of elastic supply, there are no dramatic price spikes to set off investment demand based on speculation that the future will recap the past.

Malpezzi and Wachter[8] show that a lagged supply response to price change is sufficient to generate real estate cycles, when price expectations are formed adaptively, based on past changes. As a result, the volatility of prices is strongly related to supply conditions. Markets with more responsive regulatory systems or fewer natural constraints (from physical geography), will experience less volatility

Many studies show the impact of the regulatory environment on housing prices,[9] and there are also a number of studies that measure the resulting supply elasticity[10] For the US, the evidence is that long run supply elasticities are high.[11] In fact, Muth and Follain cannot reject the hypothesis that long-run U.S. supply curves are perfectly flat. Malpezzi and Maclennan argue (and present estimates consistent with) high long run supply responsiveness, but they also point out that full adjustment can take a decade or more.[12] In Korea, a strict regulatory environment

[8] Malpezzi and Wachter (2005)
[9] Pollakowski and Wachter (1990), Segal and Srinavisan (1985), Black and Hoben (1985), Rose (1989), Shilling, Sirmans and Guidry (1991), Malpezzi (1996), Malpezzi, Chun, and Green (1998), Malpezzi (1999), Riddiough (1997), and Quigley and Raphael (2004). International studies include Angel (2000), Evans (1999) and Monk and Whitehead (1995) as well as Bramley (1999), Angel and Mayo (1996), and Malpezzi (1990).

[11] See *Follain (1979), Muth (1960), Stover (1986), Smith (1976), and Malpezzi and Maclennan (2001)*
[12] Of course, it bears repeating, since the thrust of some of this research is often misinterpreted, that regulation *per se* is neither good nor bad. What matters is the cost and benefits of particular regulations under specific market conditions. Regulations need to be put to the cost-benefit test, as any other private or public economic activity.

has inelasticized supply. Many studies[13] have documented the especially convoluted Korean regulatory system and Malpezzi and Mayo (1997) have shown that this leads to a very inelastic housing supply. At some point, as prices skyrocket and shortages become more apparent, the Korean government responds as it did with the Two Million Houses Program in 1990. This has the effect of shifting an inelastic supply curve to the right in a series of discrete jumps as **Exhibit 13** illustrates.

Thus a world, in which government responds to rising housing prices by one-time programs to as in Korea's or Sri Lanka's Two Million Houses Program, can be characterized as occasionally shifting an inelastic supply curve to the right. This leads to a boom and bust cycle. Reform measures that tackle the root causes of inelastic supply have the effect of flattening the supply curve and moderating the boom and bust cycle, reducing risk for investors and homeowners.

Besides the fundamental factors that are global in nature – interest rate decline, the increase of trade in global cities, and the increase in gross national product – is there any sign of a global or national housing price bubble? As Malpezzi and Wachter show, a bubble can arise if price expectations are formed adaptively, extrapolating past increases to the future without the support of fundamentals and are thus unsustainable and vulnerable to a dramatic readjustment in price.

Any test of whether there is a bubble is a joint test for the presence of a bubble and the accuracy of the model used. Models that test for bubbles include the fundamentals that we identify, interest rates and income, as well as supply factors. Without detailed data, it is difficult to answer this question globally[14], but let us take a look at the US and Korea. In the case of the United States, there is evidence raising the possibility of the role of speculation and a bubble in coastal cities, identified above as supply constrained (Dekaser, 2005). But other studies such as McCarthy and Peach (2004) conclude otherwise. For Korea, prices have already moderated except in selected areas within Seoul, thereby lessening concerns about an economy wide bubble.

[13] such as Kim (1993), Hannah, Kim and Mills (1990), and Green, Malpezzi, and Vandell (1992)
[14] See Helbling (2005) for a study of housing price in 14 industrialized countries for the 1970-2001 period.

In any case, speculation and the presence of a bubble are highly unlikely in markets where supply is elastic. The expectation for house price appreciation which fuels speculation is driven by the current and/or expected future shortages due to inelastic supply. Moreover, how high prices go due either to an increase in economic activity or an interest rate decline is determined by the responsiveness of supply. The less responsive or elastic supply, the greater is the spike in prices. A key factor in supply elasticity is determined by government policy and that is the extent to which regulatory barriers limit supply responsiveness, to which we now turn.

IV. Government Policy

In the face of the global factors generating recent increases in house prices, what policy options are available to national governments? How do these options relate to policies that are being called for by citizens, advocacy groups, and the media, and what steps are governments actually taking? We can draw on the US experience as well as that of Korea to explore these issues. It is of interest to examine why differences exist in policy response across countries, based on the very different responses, at least by the media and advocacy groups in these countries.

In the United States, federal housing policy is focused on home ownership. Stabilizing the price of housing is not a policy goal. It is assumed that housing prices are the outcome of market forces, which cannot be controlled by governments. Thus, despite the unprecedented increases in housing prices, there is today no federal housing policy goal of stabilizing housing prices. Nor has there been such a goal in the past. And despite political change, it is very unlikely that this policy of no policy is likely to change. Rather, federal housing programs in the US are focused on homeownership support, and, to a far lesser extent, on demand side support for housing for low-income households through vouchers. In particular, there is a current and historical mandate to increase homeownership and to create an "ownership society," a mandate that spans the political spectrum.

Pro-homeownership policies that the federal government has put into place include tax advantages and housing finance support. Tax advantages include the deductibility of mortgage interest payments from federal tax obligations and exemption from federal taxes on capital gains. Tax benefits accrue mostly to middle and upper income homeowners, since others are likely to take the standard deduction.

While the effect of housing finance support is to increase homeownership at all income levels, there are policies in place that are targeted specifically to increase homeownership among lower income households through the provision of increased access to mortgages for homeownership to this demographic group, identified, in the US, as the underserved.

Stabilizing local housing prices is not a goal of local housing policies either. While it is not the policy of local communities to decrease housing prices, implicitly many local communities do try to increase housing prices. What local governments do is control the supply of developable land. They do so through planning and land use regulation; which in the US occurs mostly on the local level, thereby providing local governments control over developable land supply. The goal of local government, in brief, is to maximize the welfare of their citizen voters, who especially in suburban areas, tend to be, by a wide margin, homeowners. Local governments benefit homeowners by maximizing their localities' aggregate property value. Since local services are to a significant extent paid for by local property tax revenues, by maximizing aggregate property values, local governments can provide more services while maintaining or decreasing local tax rates[15]. For many communities the way to maximize aggregate property values and maximize the welfare of their citizens is to increase the supply of developable land. Therefore, in the US, local governments often compete to provide developable land. This makes the supply of developable land elastic and also makes the supply of housing, which relies on the supply of developable land, elastic.

Some communities (often by combining together in regional entities which may be state enabled), however, can effectively raise prices by restrict supply. Some do so because they have monopoly-like power, since their locality has some amenity like proximity to the coast (such as

[15] See Brueckner (1983) for empirical evidence.

communities in the State of California) which cannot easily be reproduced. Others value "quality of life," amenities such as open space and low density development[16].

The attempt to restrict supply in the local community often works but at the same time causes population spillovers to the communities which can and do expand to accommodate increased demand. Prominent examples include Phoenix Arizona, Boise, Idaho and Las Vegas, Nevada which are growing rapidly because they are accommodating the demand that California communities do not supply.

Thus, to the question of whether local policy attempts to control housing prices, the answer is paradoxically, if anything, that localities attempt to raise housing prices, when they can through restrictive policies, and that decreasing prices is not on the political landscape. Increasingly, localities may act together to impose region-wide and state-wide growth controls, which may raise local housing prices. They are driven to do so in part because locally elected politicians respond to the interests of their electorate, who are primarily homeowners. In any case, decreasing housing prices is the goal of neither local nor federal housing policy. The acceleration in US housing prices of the 1990s may be in part explained by the increasing number of communities that are acting to constrain supply.

In light of the major run-up in housing prices in many US cities, it is interesting to ask whether there have been changes in the stance of federal housing policy. In fact, the federal housing policy environment is quite stable and, with the exceptions budget discipline, funding cutbacks and calls for increased oversight for the government sponsored agencies, Fannie Mae and Freddie Mac, there are no major changes to note. In particular, there is no change in the firm belief that federal policy has no role in controlling housing prices. Nonetheless, recently the Federal Reserve has expressed concerns about the lending criteria and the degree to which these have led to an over expansion of mortgage debt to the housing sector as opposed to the social impact of high and volatile housing prices. In particular, the Federal Reserve Board is concerned about the increasing share of adjustable rate mortgages (ARMs) relative to fixed rate mortgages (FRMs), although the latter still predominate. With ARMs, an interest rate rise may result in a

[16] Pendall et al (2002) describes such trend.

mortgage payment shock that leads to mortgage delinquency and, with lower housing prices, increases defaults and foreclosures as well. With FRMs, homeowners are protected against interest rate increases so that a risk in the spike of delinquencies is less.

Given the lack of new federal policy initiatives, it is of interest to consider the response of the national media and the general public to the run-up in housing prices in the US. Are there calls from the general public or the media for policy action? Have house price increases drawn media attention? In short, the answer to the former is no. The answer to the latter is that media attention is widespread in local markets where high and rising prices are a factor. In these markets, the major issue that the media address is whether home buyers should buy now or wait. Neither the national nor local media seek to pressure governments into taking policy action to limit house prices. Why? First, house prices are viewed as market outcomes and not effectively subject to government manipulation and this is a factor. Second, high homeownership is a factor and, for many, increased homeownership affordability is an additional factor. Thus for many households, ownership is more affordable in the US today than ever.

This is in part due to mortgage rate declines which have accompanied interest rate decreases. And to some extent it is because house price increases are regional phenomena, and there are markets where housing is eminently affordable. Moreover because most households are homeowners they are participating in these price run-ups and are protected against increases in rents. In short, access to homeownership has increased with increasing prices and is driving the increasing prices[17]. There is no political outcry to address rising prices, and there is no demand for governments to counter the price rises. There is widespread acceptance that prices are the outcome of markets and that they cannot be decreased, only suppressed, and the very suppression will limit supply response.

Korea has experienced ups and downs in house prices over the past several decades, and government has intervened in the housing sector to stabilize housing price and reduce the magnitude of fluctuations of the national economy. Unlike in the U.S., stabilization of housing

[17] US homeownership rate reached a record-high level at 68.6% in the last quarter of 2003, and the same thing happened in Korea. The current home ownership rate is 63% in Korean cities and 52% in Seoul, a substantial gain since 2000.

price has been a major goal of housing policy in Korea. The Korean government has traditionally relied on a package of regulation, taxation and finance. In fact, government has a monopoly status in the supply of developable land and also a great control over subsidized housing loans.

The keyword of housing policy in Korea is fighting speculation. Both the policy makers and the general public share the view that speculators are behind major housing price hike[18]. Such consensus makes counter-speculation measures very popular. They include restrictions on transactions, punitive taxation on capital gains for those owning more than one dwelling, and most recent measure of substantial raise in the tax on property holding. Government also intervenes in the allocation and pricing of new apartments (condominiums in the U.S.). Supply side policies focus on increasing the volume of new production based on a political decision rather than making supply more responsive to changing demand for housing.

Korea has responded to its latest housing price boom in three ways: by increasing the cost of capital for real estate through taxation[19], by placing controls on housing transactions, and by episodic increases in construction activity. Conceptually, these either do not work or work in the short run, but only in the short run. We have already discussed the negative impact of "stop and go" supply policies. We turn now to considering the impacts of the first two policy approaches.

A wealth tax on property may result in housing price decline in the short run but it is also likely to result in less building. As the D-W model shows, an increase in the cost of capital under general conditions lowers the asset price of housing, at the same time as it raises user and rental costs. Moreover, the short run negative impact of wealth taxes on housing prices is greater than the long term negative impact. A decline in asset prices has an effect of dampening construction because buildings aren't replaced as developers have less incentive to continue to build, and housing prices will recover in the medium term. Over this time period, demand increases but supply doesn't, so prices increase. However, housing prices may not recover completely, if

[18] This can be verified by media coverage over the most recent housing price run-up and its possible causes. See Kim(2004).

[19] Incidentally, the case for raising property tax is made with reference to the US where the effective rate of local property tax is over 1 %. However, US local property tax has nothing to do with reducing speculation or stabilize housing price and that some US cities have experienced more dramatic house price spike in recent years than Korea despite the high property tax rate.

demand remains constrained beneath what it was originally. This is an unlikely event in a dynamic economy like Korea; thus in Korea's strong economy, this housing price decline and moderation is unlikely to last because economic growth will continue, although housing prices will be lower, to the extent housing demand is lower, than it otherwise would have been. What will persist, however, is a higher annual cost of homeownership.

Price controls as a solution are sure to backfire. Not only is supply constrained, thus decreasing the availability of housing, in addition, transactions decline. As a result of both, there will be a decrease in general economic activity associated with housing demand. In fact, overall economic growth is likely to be dampened as housing activity is constrained.

Policies that suppress demand work in the short run only and boomerang in the long run. Policies that decrease the affordability of housing and homeownership are counter to the intended goals and policies that increase the cost of the supply of housing, while decreasing investor demand in the short run ultimately will increase the cost of housing as well. Thus there is no way to remand the laws of supply and demand. Rather policies need to work to increase the responsiveness of supply[20] and to protect households by encouraging homeownership and, in particular, to protect homeowners against interest spikes through access to long-term fixed rate mortgages, which currently comprise a very small segment of the market..

[20] Of course what is necessary is an evaluation of both the costs and benefits of regulation.

EXHIBIT 1 The Global House Price Boom:

Real Annualized House Price Growth

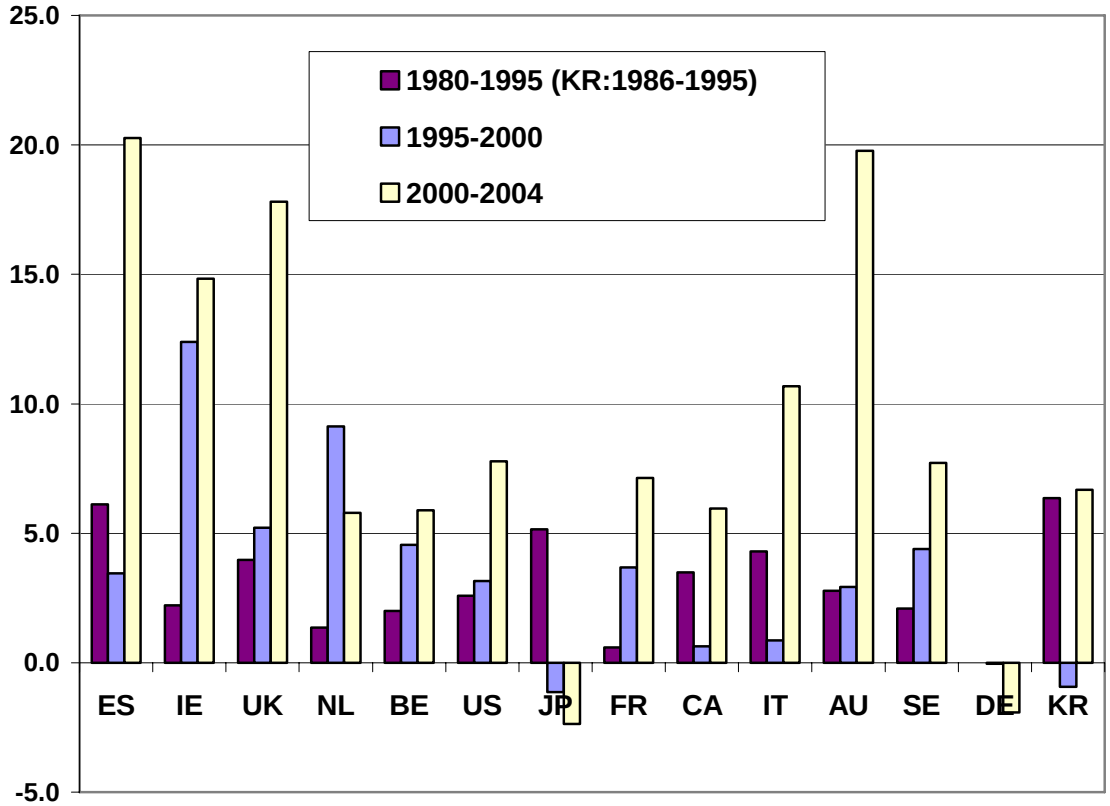


EXHIBIT 2 Global Interest Rates: 1990-2004

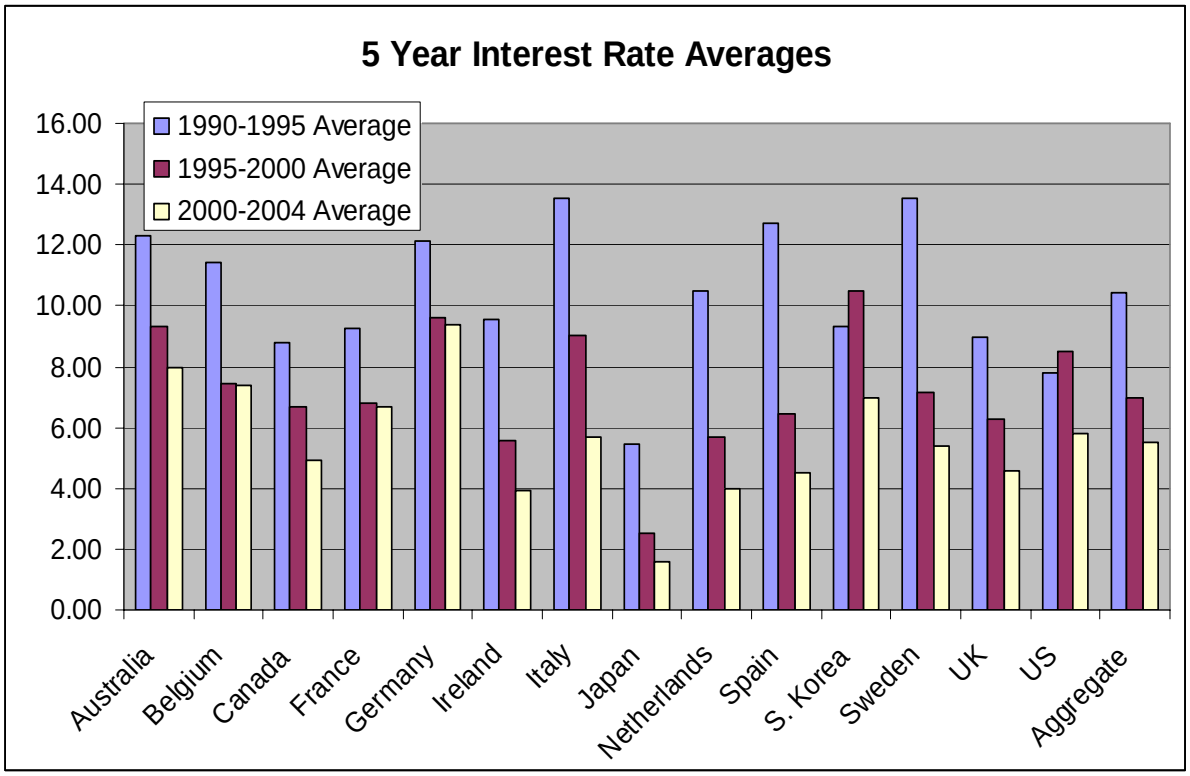
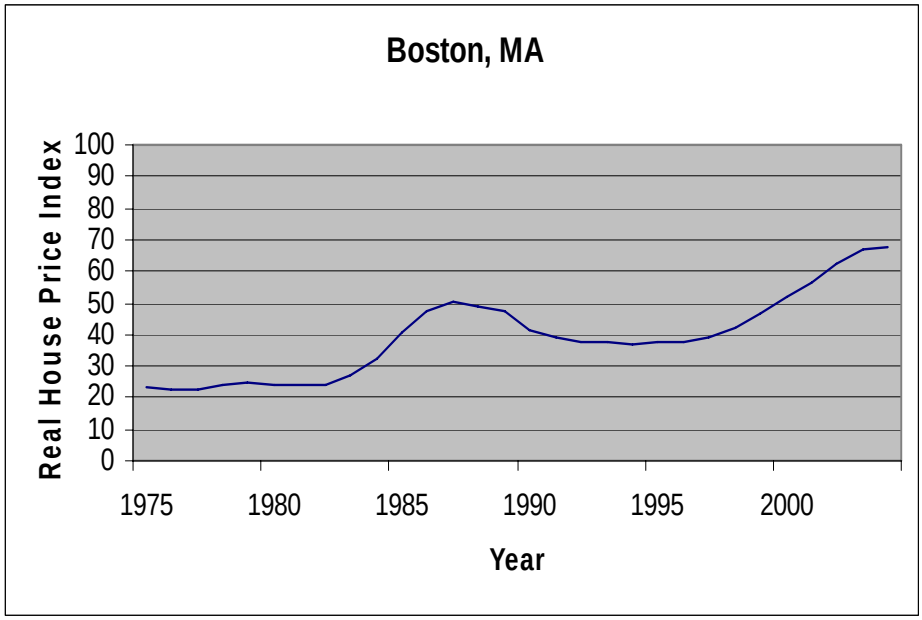


EXHIBIT 3 National and City Level Real House Price Increases:

	1980-2001		2000-2001	
Country (City)	National Rate	City Rate	National Rate	City Rate
Australia (Sydney)	10	83	6.6	13.1
Belgium (Brussels)	23	58	3	4.1
Canada (Toronto)	13	-9	0.2	-0.1
France (Paris)	15	58	5.1	8.6
Germany (Frankfurt)	-21	0	-0.9	-1
Ireland (Dublin)	95	207	8.6	9.2
Italy (Milan)	13	N/A	5	6.8
Japan (Tokyo)	15	30	-3.6	-5.3
Netherlands (Amsterdam)	66	20	4	1.5
Spain (Madrid)	124	149	11.4	15.2
Sweden (Stockholm)	6	54	5.3	7.5
UK (London)	89	103	8.5	9.3
US (New York)	20	112	5.6	8.4

EXHIBIT 4 Real Housing Price Increases in Coastal Cities



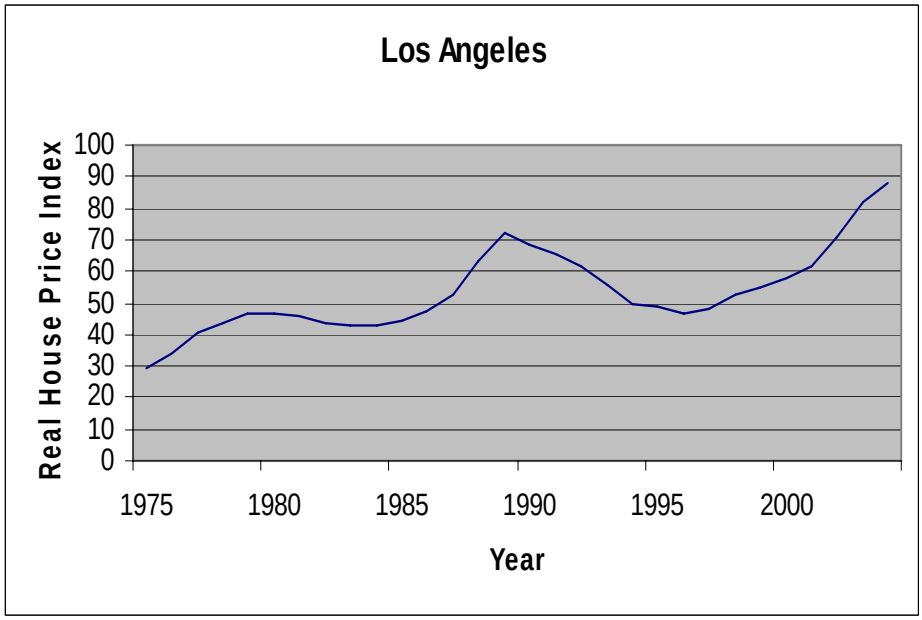
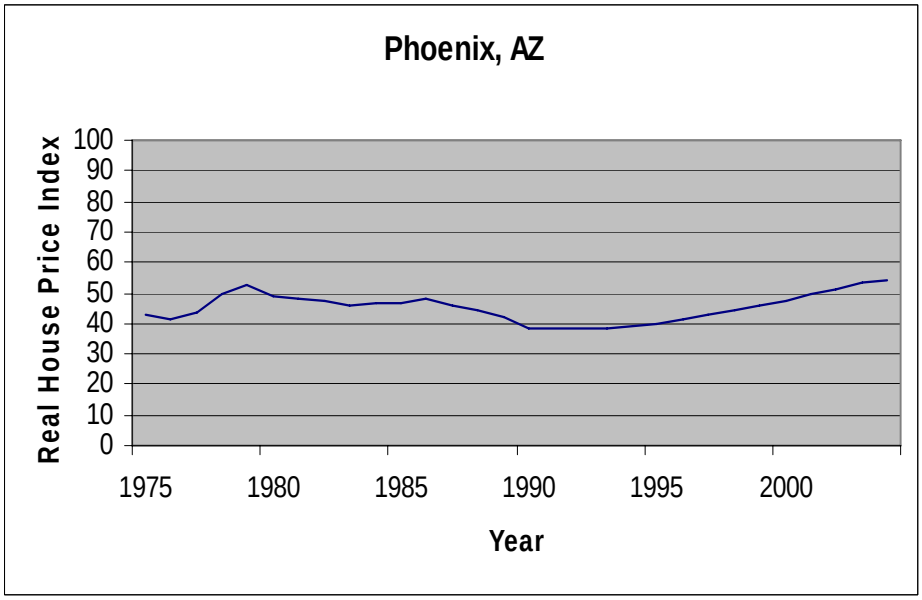
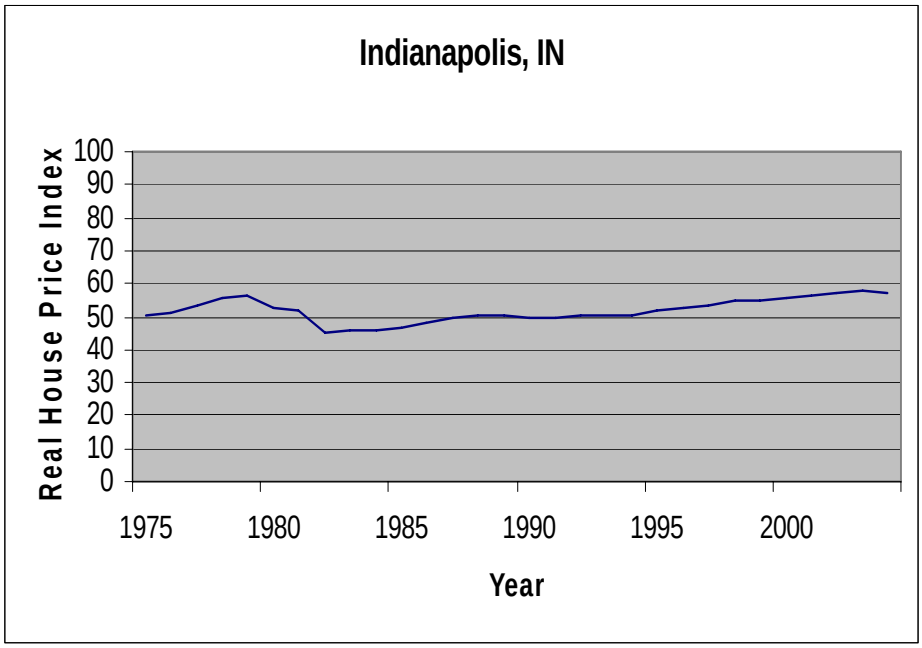


EXHIBIT 5 Real Housing Price Increases in Inland Cities





EHHIBIT 6 US Housing Price and Inflation

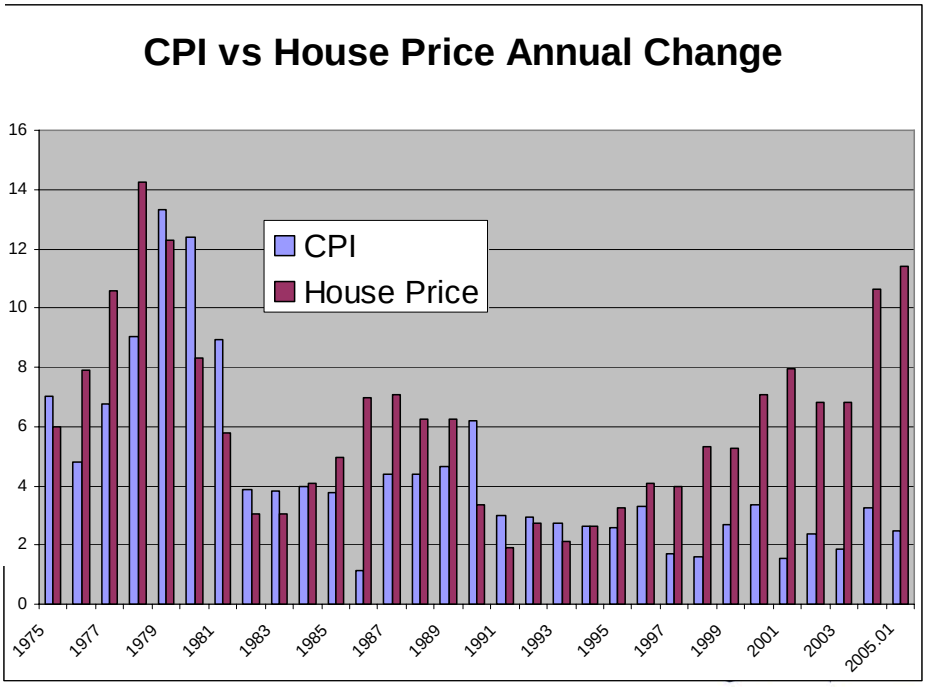


EXHIBIT 7 Nominal and Real Housing Price Index in Korean Cities

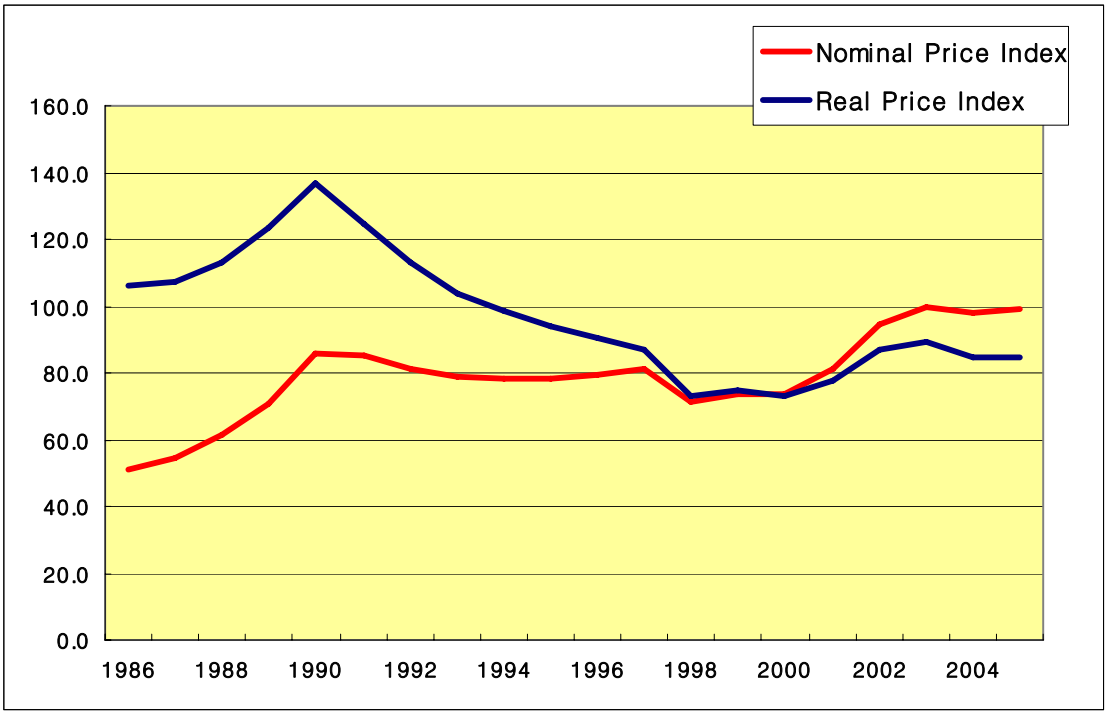


EXHIBIT 8 Nominal and Real Housing Price Index in Seoul

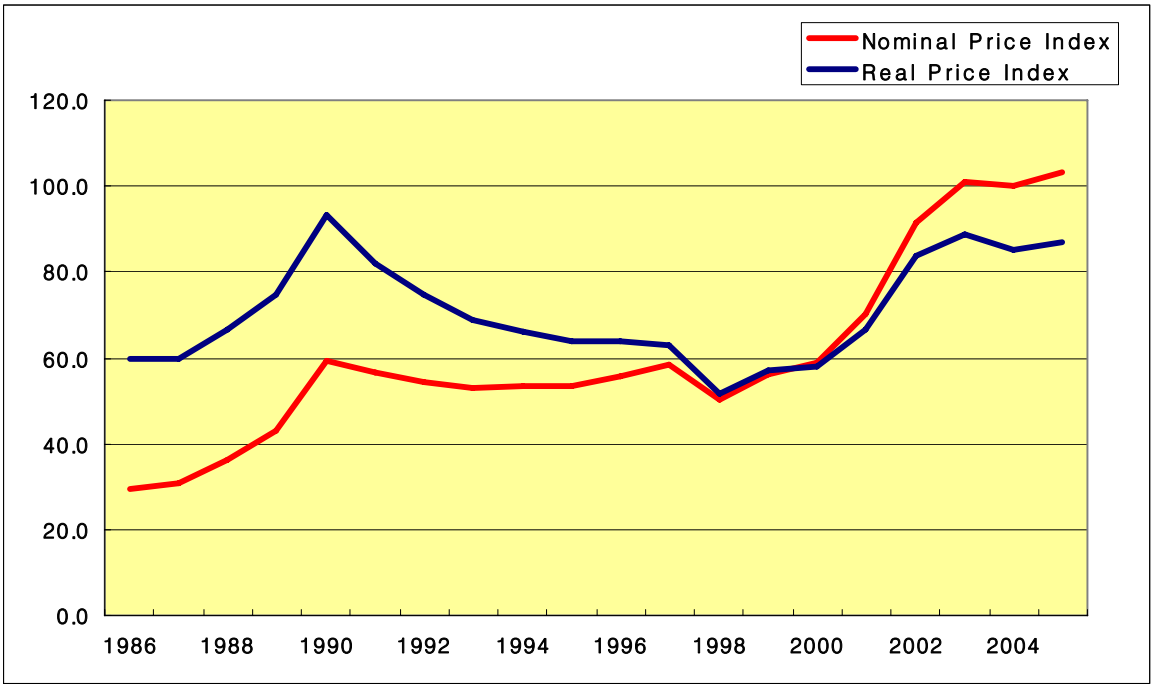


EXHIBIT 9 Impact of Interest Rate Decline in the DiPasquale-Wheaton Model

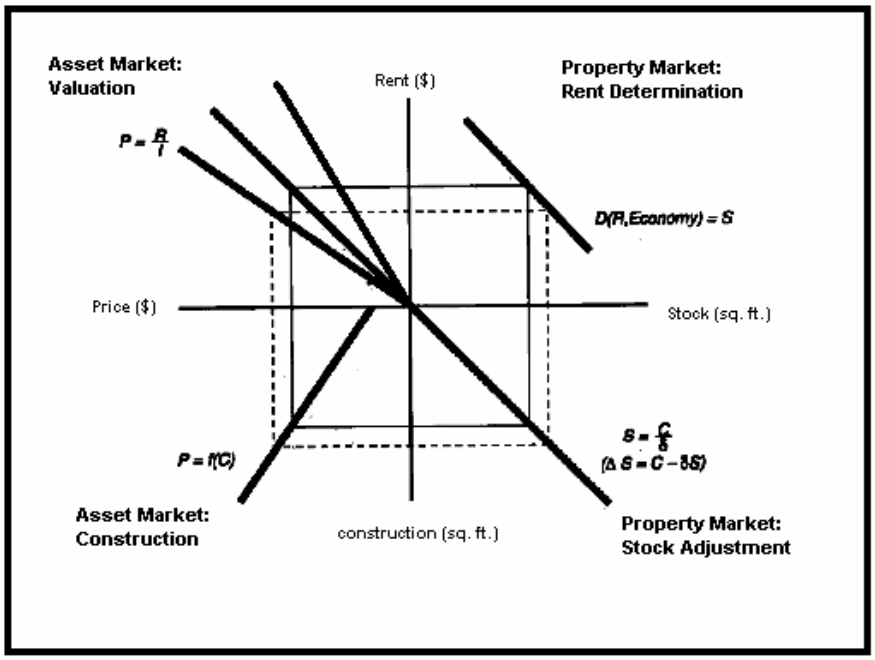
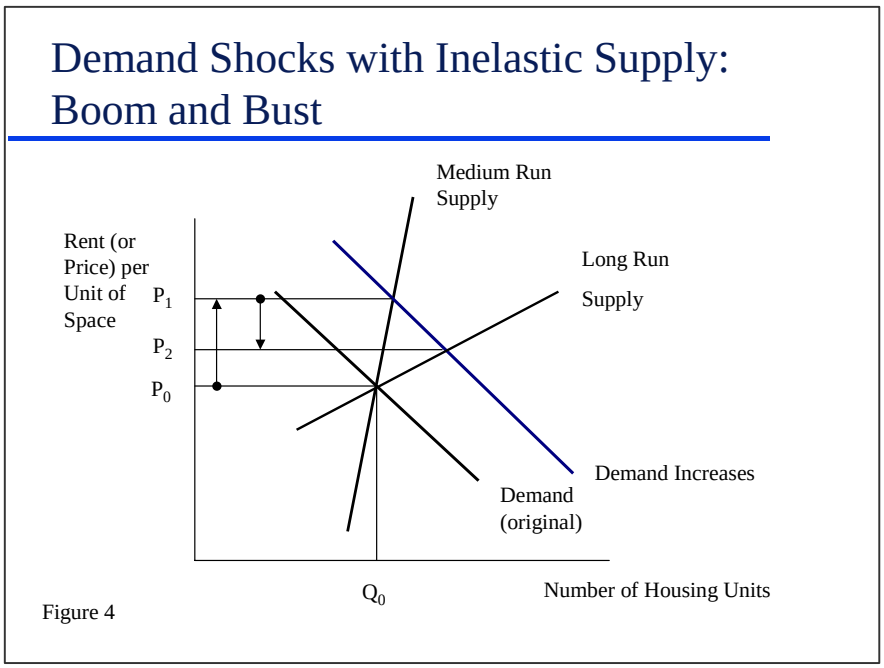


EXHIBIT 10 Housing Prices and Macroeconomic Variables in US and Korea

(World GDP growth 1992-1996 excludes Brazil)

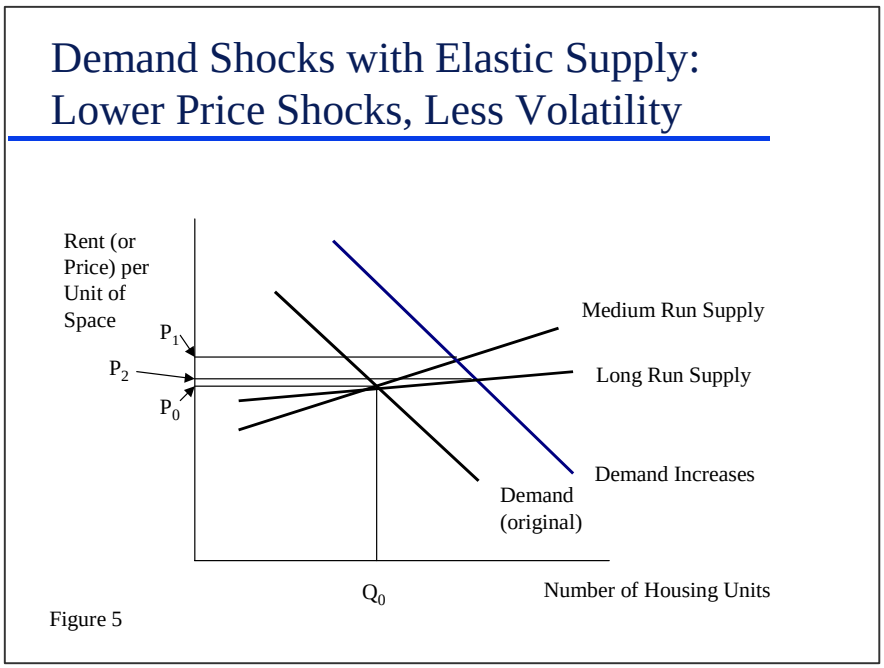
	World	US					Korea				
Year(s)	GDP growth	GDP growth	Inflation	Interest rate	Housing price increase	Real housing price increase	GDP growth	Inflation	Interest rate	Housing price increase	Real housing price increase
1990		1.9	5.4	10.0	2.6	-2.8	9.2	8.6	10.0	21.0	12.4
1991		-0.2	4.3	8.5	1.2	-3.1	9.4	9.3	10.0	-0.5	-9.8
1992	3.1	3.3	3.0	6.3	2.2	-0.8	5.9	6.2	10.0	-5.0	-11.2
1993	1.0	2.7	3.0	6.0	1.7	-1.3	6.1	4.8	8.6	-2.9	-7.7
1994	2.8	4.0	2.6	7.1	1.9	-0.7	8.5	6.3	8.5	-0.1	-6.4
1995	3.1	2.5	2.8	8.8	2.7	-0.1	9.2	4.5	9.0	-0.2	-4.7
1996	2.5	3.7	2.9	8.3	3.5	0.6	7.0	4.9	8.8	1.5	-3.4
1997	4.2	4.5	2.3	8.4	3.5	1.2	4.7	4.4	11.9	2.0	-2.4
1998	2.8	4.2	1.6	8.4	5.1	3.5	-6.9	7.5	15.3	-12.4	-19.9
1999	3.6	4.5	2.2	8.0	5.0	2.8	9.5	0.8	9.4	3.4	2.6
2000	4.7	3.7	3.4	9.2	6.9	3.5	8.5	2.3	8.5	0.4	-1.9
2001	2.3	0.8	2.8	6.9	7.9	5.1	3.8	4.1	7.7	9.9	5.8
2002	3.0	1.9	1.6	4.7	7.0	5.4	7.0	2.7	6.8	16.4	13.7
2003	3.2	3.0	2.3	4.1	6.9	4.6	3.1	3.6	6.2	5.7	2.1
2004	4.1	4.4	2.7	4.2	11.0	8.3	4.6	3.6	5.7	-2.1	-5.7
1990-1994	2.3	2.3	3.7	7.6	1.9	-1.7	7.8	7.0	9.4	2.5	-4.5
1995-1999	3.2	3.9	2.4	8.4	4.0	1.6	4.7	4.4	10.9	-1.1	-5.6
2000-2004	3.5	2.8	2.6	5.8	7.9	5.4	5.4	3.3	7.0	6.1	2.8

EXHIBIT 11



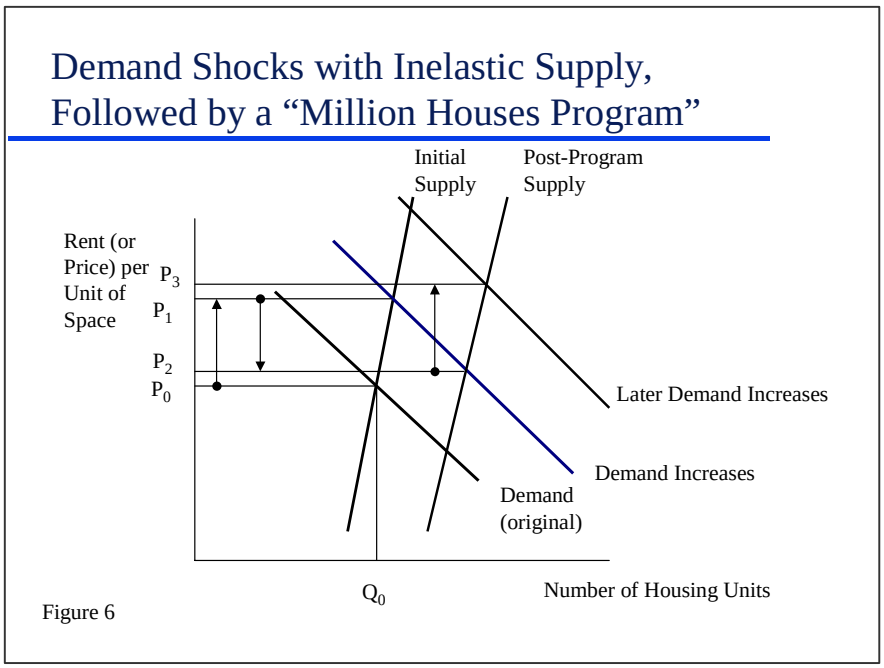
Source: Malpezzi and Wachter (2005)

EXHIBIT 12



Source: Malpezzi and Wachter (2005)

EXHIBIT 13



Source: Malpezzi and Wachter (2005)

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