The Creation and Economic Regulation of Housing Markets: Singapore's experience and implications for Korea

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1. Introduction

Privatization, creation of markets and economic regulation are terms that few would immediately associate with the housing sector. Mainstream housing markets in most of the free market economies of the developed world are regarded as competitive markets, with little need for *economic* regulation of the market. A number of categories of regulations that affect housing markets in these economies would include policies relating to lower income housing such as rent control and the provision of rental housing for lower income groups (equity), land use regulations and building controls (externalities), homeownership incentives (to promote homeownership), as well as property taxation (to finance local public goods).

From the early 1980s, as part of the Thatcher government's privatization program, privatization of social housing has contributed to the transformation of housing tenure structure in the UK (Whitehead, 1993). In the1990s, privatization of previously state owned housing on a massive scale has also made major contributions to economic recovery and restructuring in Eastern Europe, the former Soviet Union as well as China (Lea and Renaud, 1995). In many of these instances, the government withdrew from these newly created housing markets, allowing market forces to subsequently determine prices, housing demand and supply.

An area of policy concern as evident by the growing literature has been that of the appropriate response of monetary policy to asset price bubbles, including bubbles in real estate markets (Filardo, 2004; Herring and Wachter, 2002). While there is generally a lack of confidence that central banks can both identify circumstances in which asset prices have deviated from fundamentals and then act in a welfare improving manner, policy makers in Singapore and Korea have intervened extensively in their respective housing markets often directly impacting housing prices.

The housing sectors of Singapore and Korea are highly unusual in the extent of government involvement and intervention. A large segment of the housing market comprises housing built by the government and sold to households who do not have complete ownership rights, as these markets are heavily regulated to prevent speculation and profiteering. Section 2 of this paper describes the phases of housing policy in Singapore from the post war period of chronic housing shortage to the present period of excess housing stock. In Section 3, the numerous instruments used by the government to regulate supply, demand and prices in the various housing segments are described. Section 4 briefly describes the phases of Korea's housing policies and Section 5 concludes by drawing relevant lessons from Singapore's experience in creating and regulating housing markets for Korea.

2. Phases in Singapore's housing policy

Singapore is a densely populated high-income city-state with 4.2 million people and a land area of only 697 square kilometers. Of the 4.2 million people in 2004, 3.5 million were residents (citizens and permanent residents) and 0.7 million were foreigners.[1] Its Gross Domestic Product in 2004 was S$181 billion or US$109 billion.[2] The World Development Report 2004 estimated Singapore's 2002 GNI per capita at US$29,610 (using purchasing power parity GNI and exchange rates), ranking it 19th highest in its PPP GNI per capita list.

A British colony from 1819, Singapore attained self-government in 1959, joined the Federation of Malaysia in 1963 and became an independent city-state in 1965. The People's Action Party that was elected in 1959 has been returned to power at every election since. During the politically traumatic 1960s, the government concentrated on issues of employment creation and housing provision, adopting a strategy of export oriented growth through attracting foreign investment.

[1] In the 1990s, the growth rate for foreigners was 9.3% compared to 1.8% for local residents. Department of Statistics, *Census of Population 2000.*

[2] Ministry of Trade and Industry, *Economic Survey of Singapore 2004.* The nominal exchange rate in May 2005 approximates S$1.64 to US$1.

Table 1 shows the Gross Domestic Product for 1970, 1980, 1990 and 2000 -- real GDP more than doubled in each decade. For much of its history since independence, Singapore enjoyed high economic growth rates accompanied by full employment, with a tight labour market necessitating the importation of foreign workers (see Figure 1). In the period after independence and prior to the 1997 Asian Financial Crisis, 1985 stood out as the only year when the city-state experienced negative GDP growth; pre-Asian financial crisis unemployment rates were generally frictional in nature and below four percent. Economic growth rates since 1997 has however been more volatile with growing concern over structural unemployment (above five percent for 2002 to 2004).

Singapore's economic growth record and ability to attract foreign investments stem from effective public sector planning and management of its economy and society. A network of competent and reliable institutions and government linked companies provides rich public sector capacity. The Singapore government plays an extensive and multi-dimensional developmental role in the economy. The state owns four-fifths of the land and determines the deployment of substantial domestic savings. The scope of public enterprises in Singapore encompasses manufacturing, trading, financial, transport and other services. This reliance on the public sector as the catalyst for change, with private initiative to fill the gaps, is most visible in the areas of urban housing and infrastructure development. Housing policy in Singapore has gone through a number of distinct phases as summarized in Table 2.

Table 1 Key indicators of Singapore's housing sector

	1970	1980	1990	2000
Total Population (millions)	2.075	2.414	3.047	4.017
Resident population (millions)	2.014	2.282	2.736	3.263
Non-resident population (000s)	61	132	311	755
Resident homeownership rate	29%	59%	88%	92%
Resident population in HDB dwellings	36%	73%	87%	86%
Macroeconomic data				
GDP (S$m, 1995 market prices)	$16,207	$37,959	$77,299	$162,162
GNP per capita (S$ current)	$2,825	$9,941	$22,645	$42,212
Unemployment rate	6%	3.5%	1.4%	3.5%
Exchange rate (S$/ US$)	S$3.09	S$2.14	S$1.81	S$1.73
Gross National Saving/GNP	19.3%	34.2%	43.9%	51.5%
Gross Capital Formation/GNP	32.2%	42.2%	31.6%	27.6%
Residential Construction/GNP	6.2%	5.9%	5.2%	6.18%
Housing Loans				
Total Housing Loans (S$m)	$215	$2,421	$19,151	$101,384
Housing Loans/GDP	4%	10%	29%	64%

HDB Mortgage Loans/Housing Loans	58%	60%	54%	59%
Banks' housing loans*/Housing Loans	42%	40%	46%	41%
Central Provident Fund				
Balance Due Members (S$m current)	$777	$9,551	$40,646	$90,298
Employee Contribution Rate	8.0%	18.0%	23.0%	20.0%
Employer Contribution Rate	8.0%	20.5%	16.5%	12.0%
Prices				
CPI (Nov 97–Oct 98=100)	36.5	68.2	85.2	101.1
Private House Price Index (1998=100)	-	27.3	57.7	130.3
HDB Resale Price Index (1998=100)	-	-	34.1	104.9
Price of new 4-room HDB flat in new town location (≈ 100 sq m in S$)	$12,500	$24,200	$76,100	$98,000
Housing Price Affordability (4-rm HDB flat price to GNP per capita)	4.42	2.43	3.36	2.32
Housing Stock (HS)	305,833	467,142	690,561	1,039,677
Public sector built	120,138	337,198	574,443	846,649
Private sector built	185,695	129,944	116,118	193,028
4-room and larger HDB flats/HS (%)	1%	13%	40%	51%
Dwelling units per 1000 persons	147	194	227	259
Dwelling units per 1000 residents	152	205	252	319
Resident households (000)	380.5	509.5	661.7	923.3
Housing stock/resident households	80.4	91.7	104.4	112.6

Note: * includes Finance Houses & Credit POSB
Sources: Various Singapore government publications and websites.

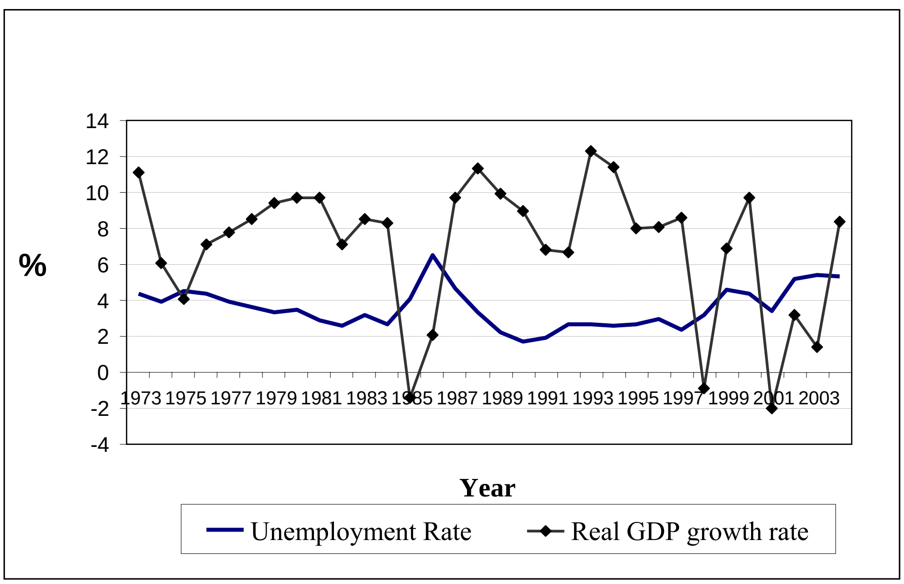


Figure 1 Real GDP growth and unemployment rate, 1973-2004

Table 2 Phases of housing policy in the post-war period

Year	Housing developments: What happened?	Housing developments: Why?	Phase
1947	Rent control at 1939 rents	To protect tenants at a time of severe housing shortages	I. Developing housing policies and institutions to cope with building shortages
1955	Central Provident Fund (CPF)	To provide social security for the working population	
1959	Self governing colony		
1960	Housing & Development Board (HDB)	To provide housing for all those who needed them	
1963	Merger with Malaysia		
1964	HDB's Home Ownership Scheme (HOS)	To enable the lower income group to own their own homes	
1965	Independence: Separation from Malaysia		
1966	Land Acquisition Act	To facilitate land acquisition by the state	
1968	CPF Approved Housing Scheme	To allow CPF savings to be used to support the HDB's HOS	
1971	Resale market for HOS	To allow owners of HOS flats to exit the sector	
1979	Easing of restrictions on resale of HOS flats	To facilitate upgrading to a second new HDB flat as well as residential mobility within the sector	II. Deregulation as shortages eased
1981	CPF Approved Residential Properties Scheme	To allow CPF savings to be used for private housing mortgage payments	
1985	First economic recession since independence		
1988	Phasing out of rent control	To facilitate private sector participation in the conservation of historical areas.	
1989	Citizenship requirement and income ceilings for resale flats lifted	To allow permanent residents access to resale HOS flats. To facilitate residential mobility	
1993	More housing loans for HDB resale flats	To bring HDB housing loans policy for resale flats closer to market practices	III. Financial liberalization and housing price inflation
1994	CPF housing grants	To facilitate demand side housing subsidies for resale HOS flats	
1995	Executive Condominiums	To provide private housing at affordable prices to the upper-middle income group	
1996	Anti-speculation measures	To curb speculative activities and rapid rise in housing prices	
1997	Asian financial crisis		IV. Surplus housing stock
2002	Caps on CPF withdrawals for housing	To reduce risk of over concentration of household assets in housing	
2003	HDB downsizes	In view of fall in demand for new flats and 17500 unsold HDB flats in 2002	

Phase I: Building shortages

The immediate postwar period in Singapore was characterized by chronic housing shortages. In 1947, the British colonial government implemented rent control to protect tenants – premises built on or after 7 September 1947 had rents pegged to rates which existed on 1 August 1939. The Singapore Improvement Trust (SIT), the then town planning authority, stepped up public housing construction, building an estimated 20,907 units between 1947 and 1959. At the time of self-government in 1959, deplorable housing conditions and housing shortages exacerbated by rapid post-war population growth prevailed. The then newly elected People's Action Party government made housing a priority area of policy concern. Housing institutions and policies were developed systematically and comprehensively to advance social development and economic growth. There exists a vast literature on various aspects of the housing sector in Singapore (see for example books by Castells et al. (1990) for comparison with Hong Kong; Chua (1997); Low and Aw (1997); Phang (1992); Wong and Yeh (1985); and the sample of articles referenced here). Here we provide a brief overview of the institutions and policies that have shaped the housing sector: the Housing and Development Board and the Central Provident Fund.

The Housing and Development Board The Housing and Development Board (HDB) was set up as a statutory board in 1960, replacing the SIT, to provide `decent homes equipped with modern amenities for all those who needed them'. A target of 110,000 dwelling units was set for 1960 to 1970. From 1964, the HDB began offering housing units for sale at below market prices, on 99-year leasehold basis, under its Home Ownership Scheme (HOS). The HDB was able to price its units below market prices mainly because HDB flats are built on state owned land, much of which had been compulsorily acquired from private landowners at below market prices (Phang, 1996). This was made possible by the Land Acquisition Act, enacted in 1966, which abolished *eminent domain* provisions.

The political and economic motivations for the HOS are perhaps best understood in the words of the then Prime Minister, Mr Lee Kuan Yew:

> My primary preoccupation was to give every citizen a stake in the country and its future. I wanted a home-owning society. I had seen the contrast between the blocks of low-cost rental flats, badly misused and poorly maintained, and those of house-proud owners, and was convinced that if every family owned its home, the country would be more stable (page 116)…I had seen how voters in capital

> cities always tended to vote against the government of the day and was determined that our householders should become homeowners, otherwise we would not have political stability. My other important motive was to give all parents whose sons would have to do national service a stake in the Singapore their sons had to defend. If the soldier's family did not own their home, he would soon conclude he would be fighting to protect the properties of the wealthy. I believed this sense of ownership was vital for our new society which had no deep roots in a common historical experience (Lee, 2000, p. 117).

Policies were introduced to achieve the goal of a home-owning society. Table 1 shows the rapid increase in the HDB housing stock: from 120,138 units in 1970 to 846,649 units in 2000. The homeownership rate for the resident population increased from 29 percent in 1970 to 92 percent by 2000. Singapore's large public housing sector is therefore in ownership terms, a largely privatized sector. However, ownership tenure of a HDB dwelling differs in many aspects from ownership of a private dwelling. Ownership rights are limited by numerous regulations concerning eligibility conditions for purchase, resale, subletting and housing loans.

The Central Provident Fund While HDB and related construction finance and land policy brought about a transformation of the housing supply side, demand for homeownership was `created' by directing savings in the Central Provident Fund (CPF) towards housing. The CPF had been in existence before the HDB, having been established as a pension plan in 1955 by the colonial government to provide social security for the working population in Singapore. The scheme required contributions by both employers and employees, respectively, of a certain percentage of the individual employee's monthly salary toward the employee's personal and portable account in the fund. All employers are required to contribute monthly to the fund. The bulk of contributions can only be withdrawn for specific purposes (of which housing dominates), on retirement at age 55, or on permanent incapacitation of the contributor concerned. The interest rate on CPF Ordinary Account savings is based on a weighted average of 1-year fixed deposit and month-end savings rates of the local banks, subject to a minimum of 2.5 percent. Savings in the Special and Medisave accounts earn additional interest of 1.5 percentage points above the normal CPF interest rate.

The CPF became an important institution for financing housing purchases from September 1968 when legislation was enacted to allow withdrawals from the fund to finance the purchase of housing sold by the HDB and subsequently sold by other public sector agencies as well. The contribution rates at the inception of the CPF in 1955 were five percent of the monthly salary for employees and five percent for employers. From 1968, the rates were adjusted upward and peaked at 25 percent of wages for both employers and employees from 1984 to 1986. Contribution rates are currently 20 percent of wages for employees and 13 percent of wages for employers, up to a salary ceiling of $5,000. Contribution rates are lower for workers above 55 years of age, and proportion of contributions allocated for investments, retirement, and healthcare (in the Ordinary, Special and Medisave accounts) also varies with age (Asher, 2004). Rates have varied depending on economic conditions and changes to contribution rates have been used as a macroeconomic stabilization instrument to limit inflation or to reduce wage cost.

The HDB provides mortgage loans and mortgage insurance to purchasers of its leasehold flats (both new and used). The typical loan quantum is 80 percent of the price of the new flat and the maximum repayment period is 30 years. The mortgage interest rate charged by the HDB is pegged at 0.1 percentage points above the CPF ordinary account savings interest rate, which in term is based on savings rates offered by the commercial banks, subject to a minimum of 2.5 percent. The HDB is a recipient of government loans to finance its mortgage lending, interest of which is pegged to the prevailing CPF savings rate. The mortgage lending rate charged by the HDB to homeowners is 0.1 percentage point higher than the rate that it borrows from the government, thus ensuring the sustainability of the financing arrangement. Housing loans for private housing are provided by commercial banks and finance houses. A schematic view of how housing is financed in Singapore is shown in Figure 2. Phang (2001) provides an analysis of how the process has contributed to housing wealth formation.

Phase II (1979 - early 1990s): Deregulation and creation of resale market

The desirability of any asset is determined to a large extent by its liquidity. Ease of trade determines the efficiency of a market. The promotion of ownership of subsidized new HDB dwellings therefore had to be accompanied by policies concerning the secondary market for that housing. However, from the perspective of public policy, there was early concern that given the then general housing shortage, HDB dwellings should not become a vehicle for speculation by allowing the price subsidies to be capitalized on a secondary market. Resale regulations were therefore extremely onerous in the early days of the housing program. These regulations were eased as the housing stock increased over time and the housing market became more mature (Phang, 1992, pages 92-4).

Prior to 1971, there was no resale market for owner-occupied HDB dwellings. HDB required owners who wished to sell their flats to return them to the HDB at the original purchase price plus the depreciated cost of improvements. In 1971, a resale market was created when the HDB allowed owners who had resided in their flats for a minimum of three years to sell their flats at market prices to buyers of their choice who satisfied the HDB eligibility requirements for homeownership. However, these households were debarred from applying for public housing for a year. The debarment period was increased to two and a half years in 1975. The minimum occupancy period before resale was increased to five years in 1973 and has remained in place since.

The debarment period, a great deterrent for any household considering sale of its dwelling, was abolished in 1979 thereby greatly facilitating exchanges within the public housing sector. This was replaced by a five percent levy on the transacted price of the dwelling to `reduce windfall profits'. A system of graded resale levy based on flat type was introduced in 1982, and rules regarding circumstances under which levies could be waived were fine-tuned in the 1980s (Phang, 1992, page 93). The resale levy system ensures that the subsidy on the second new flat purchased by the household from the HDB is smaller than that for the first flat.

Between 1968 and 1981, CPF savings could only be withdrawn for purposes of down payment, stamp duties, mortgage, and interest payments incurred for the purchase of public-sector-built housing.[3] In 1981, the scheme was extended to allow for withdrawals for mortgage payments for the purchase of private housing. From 1984, rules governing the use of CPF savings have been gradually liberalized to allow for withdrawals for medical and education expenses, insurance, and investments in various financial assets (Asher, 2004).

Only citizens, non-owners of any other residential property, households with a minimum size of two persons with household incomes below the income ceiling set by the HDB were eligible to purchase new or resale HDB flats prior to 1989. In 1989, residential mobility was enhanced when the income ceiling restriction was removed for HDB resale flats; the resale market was opened to permanent residents as well as private

[3] A relatively minor scheme introduced in 1978 allowed withdrawals to be made for the purchase of shares in Singapore Bus Services, the then monopoly provider of public bus services.

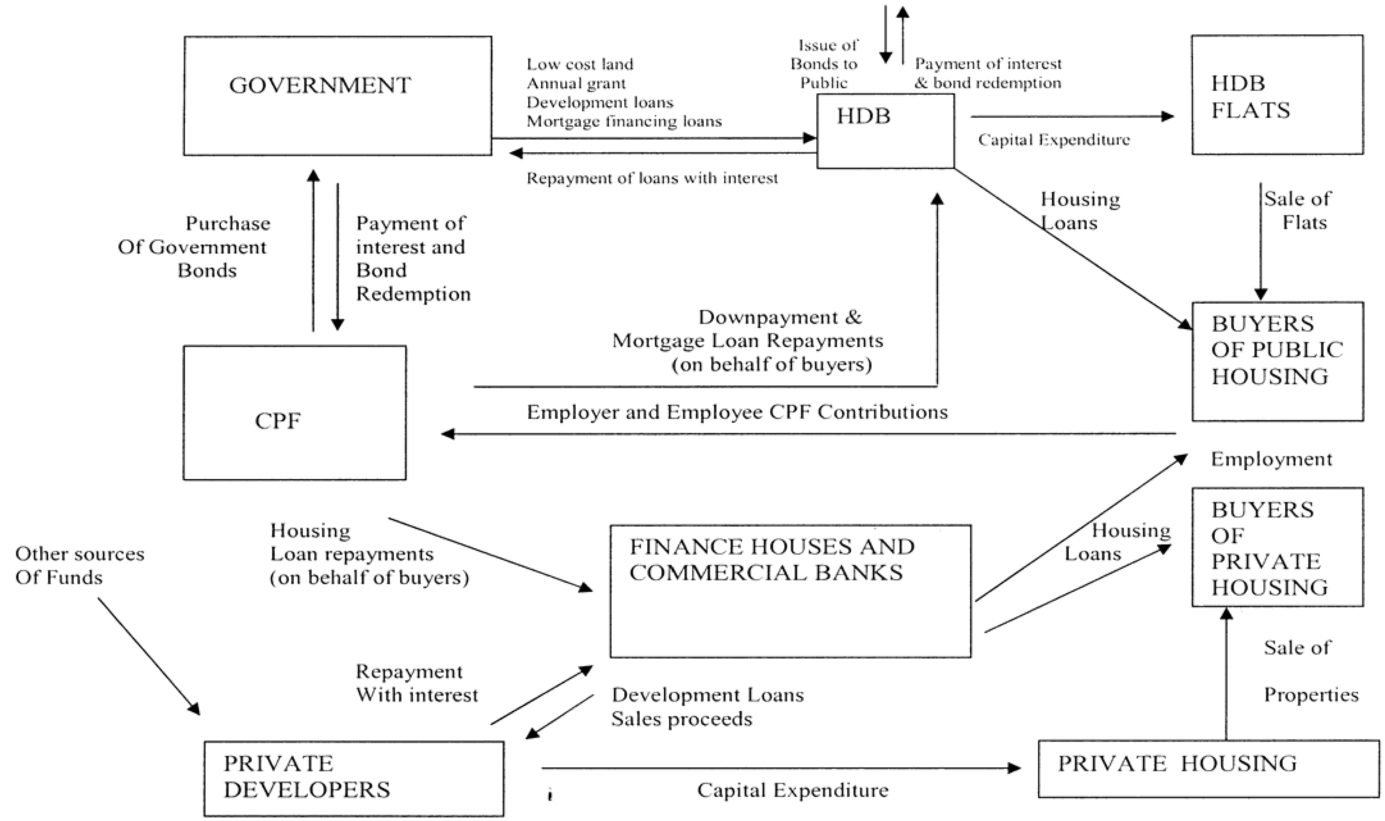


Figure 2 A schematic view of the housing finance process in Singapore

property owners who had to owner-occupy their HDB flat. HDB flat-owners who could not own any other residential property before, could also invest in private sector built dwellings. From 1991, single citizens above the age of 35 have been allowed to purchase HDB resale flats for owner-occupancy.

Phase III (early 1990s – 1997): Financial liberalization and housing price inflation

The HDB also provides loans to buyers of resale HDB flats. Loan financing prior to 1993 was based on 80 percent of 1984 HDB new flat (posted) prices. As both new and resale prices rose (see Figure 3), households purchasing resale flats had to pay an increasing larger proportion of the price in cash. In 1993 HDB moved its mortgage financing terms closer to market practice by granting loan financing of up to 80 percent of current valuation or the declared resale price of the flat, whichever is lower. In 1993, the CPF Board also began to allow withdrawals of CPF savings to be used to meet interest payments on mortgage loans for resale HDB and private housing purchases. Before this, CPF members were allowed to withdraw only up to 100 percent of the value of these properties at the time of purchase.

Deregulation of the HDB resale market has been accompanied by an increase in the number of transactions. The transaction volume of resale HDB flats increased from fewer than 800 units in 1979, to 13000 units in 1987, 60000 units in 1999, and 31000 in 2004 (HDB Annual Reports). Resale transactions as a proportion of total (new and resale) owner-occupied public housing transactions, were three percent, 37 percent, 64 percent and 68 percent in 1979, 1987, 1999, and 2004 respectively. The increase in the demand for resale flats in the latter half of the 1990s is in part due to the introduction of demand side housing grants.

In 1994, demand-side subsidies in the form of CPF housing grants for the purchase of resale HDB flats were introduced. This represents a shift from total reliance on subsidies tied to new flats to a system of partial reliance on subsidies tied to resale flats. The subsidy is deposited into the CPF account of the eligible household when it applies to purchase a resale HDB flat. Under the scheme, the government provides the first time applicant household with a grant of $30000 to purchase a HDB resale flat close to either parents' or married child's residence. In 1995, the grant was increased to $50000. The government also introduced a more general grant of $40 000 for eligible households that purchase a resale flat which does not need to satisfy the criterion of being close to parents/married child's residence.

The shift towards constrained housing grants for the purchase of housing on the secondary market was necessary for the following reasons. In the first three decades of the HDB's existence, annual supply of new public housing added substantially to the housing stock particularly in the early 1980s. It was a rapid rate that was consistent with high income and population growth combined with a situation of grave housing shortage. The supply policies of the HDB that were suitable under the above circumstances had to be reviewed as population growth stabilized and as basic housing needs were generally met.

In cities of developed countries, new construction of housing is a small percentage of existing stock and comprises mostly high quality housing. Even as the construction of the basic 1 to 3-room HDB flats have been phased out, the construction of 4-room HDB flats may eventually meet with the same fate. The housing board's ongoing modernization of older estates and its selective en-bloc redevelopment scheme (under which old apartment blocks are repurchased, demolished, and new estates built) will be even more important then. Owner-occupier subsidies (which almost all new households and a large proportion of existing households have come to expect as a right of citizenship[4]) will, as a matter of economic efficiency if not political efficacy, has to be increasingly in the form housing grants for the purchase of existing housing rather than subsidized prices for the purchase of a new unit.

Financial liberalization as well as the positive macroeconomic factors resulted in rapidly rising housing prices in the early 1990s. Figure 3 shows the trends for private and resale public housing price indices as well as the Consumer Price Index.[5] In response to the growing concern over the affordability of private housing, the government introduced the Executive Condominium (EC) scheme, a hybrid public-private house type in 1995. The EC scheme also facilitated the HDB's withdrawal from the upper-middle-income housing market, allowing it to close the queue for its Executive Flats. Its similarity with 99-year leasehold private condominiums provides the government with another instrument on the supply side to impact private housing prices. The government auctions land for the development of EC units to housing developers (private as well as government-linked companies) who are responsible for design, construction, pricing,

[4] The HDB has been described as `a ticket to an easier life for the average Singaporean' and `a cash cow for the milking of housing subsidies' (*The Straits Times*, 19 April 1997).

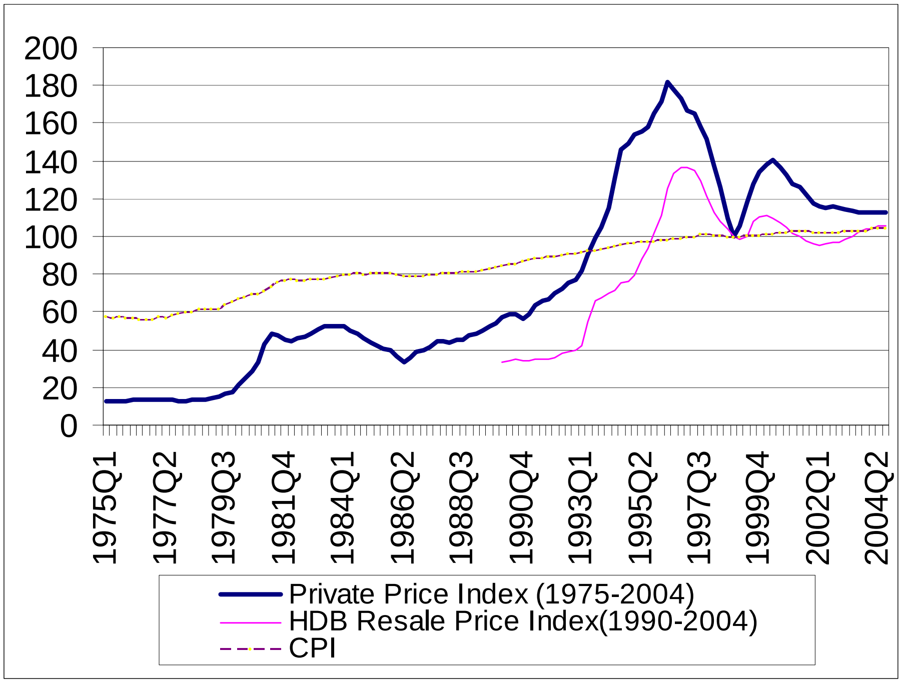
[5] The price indices are compiled by the Urban Redevelopment Authority and the Housing and Development Board and are not quality-controlled. While it would be more appropriate to use hedonic price indices for housing, these are not available. It is likely that the quality of housing transacted (both in the public and private sectors) has been improving over time.

arrangements for financing and estate management. Applicant households have to satisfy eligibility conditions and abide by resale and other regulations governing these units.

Despite an increase in HDB supply of new housing, the introduction of the EC scheme as well as increase in government land sales for private housing development, housing prices continued to soar (with the private housing price index more than tripling between 1990 and 1996). On 15 May 1996, the government introduced a package of anti-speculation measures to curb real estate speculation. These include capital gains taxes on the sale of any property within three years of purchase, stamp duty on every sale and sub-sale of property, limitation of housing loans to 80 percent of property value, as well as limiting foreigners to non S$ denominated housing loans. The immediate effect of these measures was to cool the property market which however entered a slump with the onset of the Asian economic crisis in 1997 (see Figure 3).

Phase IV (1998 - present): Surplus housing stock

In response to the fall in demand for housing during the Asian crisis, that was particularly pronounced in 1998, the government halted land sales and also ended its long standing policy of not providing housing subsidies for singles by introducing a $15000 CPF housing grant for eligible single persons to purchase resale 3-room or smaller flats. As housing prices declined further, the wait list to purchase new HDB flats disappeared and CPF housing grants were reduced in stages over ten months from January to October 1999 -- $500 per month for the Single Citizen housing grant, and $1,000 per month for the other housing grants. (In FY 2003/2004, 7,260 households purchased a resale flat under the CPF housing grant scheme.)



Notes: CPI, 1975 - 2004 (Nov 1997 – Oct 98 = 100); Private house price index, 1975 – 2004 (1998 Q4=100); HDB resale price index, 1990 – 2004 (1998 Q4 = 100).

Sources: Singapore Ministry of Trade and Industry, Economic Survey of Singapore; Singapore Urban Redevelopment Authority, Real Estate Information System; Singapore Housing and Development Board website.

Figure 3 Singapore's CPI and nominal house price indices

Both the private and public housing sectors were faced with a situation of declining prices and unsold units. A study in 2001 estimated unsold housing stock of about 19,800 units for the private sector (Monetary Authority of Singapore, 2001). With more than 17,500 unsold new flats in early 2002, the HDB suspended its Registration for Flat or queuing system, diverting remaining and new applicants to its Built-To-Order programme under which flats are built only when there is sufficient demand for them. In July 2003, in a major restructuring exercise, the HDB's 3000 strong Building and Development Division[6] was re-organized and the HDB Corporation Private Limited (HDB Corp) set up as a fully-owned subsidiary of HDB. In November 2004, HDB divested its 100 percent shareholding in HDB Corp to the government's investment holding company, Temasek Holdings. HDB Corp has been assigned responsibility for

[6] At the time of restructuring HDB's staff strength was 8,000, including 3,000 in the Building and Development Division. The new HDB Corp took in about 800 to 1,000 staff. Ministry of National Development, Housing and Development Board Press Release, 26 February 2003.

the design and development of all HDB projects until June 2006. The subsidiaries of HDB Corp now include the Surbana group of companies which have also ventured into housing development projects overseas.

The HDB provides loans to purchasers of both new and resale flats, with the CPF having first claim on a property if a borrower defaults on his loan, thus protecting the CPF savings of the purchaser. Interest rate is at the CPF savings rate plus 0.1 percentage point. The recent low interest rate environment has however given rise to the anomaly where interest rates for commercial bank housing loans have been lower than HDB's `subsidised' loans (as there is a 2.5 percent floor on the CPF ordinary account savings rate). From September 2002, commercial banks have been given the go-ahead to compete for a slice of the $63 billion HDB loans market pie. However, as is the case for private housing, banks instead of the CPF would be given first claim for such housing loans.

3. Instruments for regulation of housing markets

Housing tenure forms in Singapore are incredibly complex, with public-private hybrids defined by ownership or rental as well as HDB or private. A different set of regulations govern each segment of the housing market. Land ownership is also further defined by freehold, state-owned leasehold (and number of years of remaining leasehold), fully owned or part owned (strata-title) status. Given the large number of foreigners living, working or studying in Singapore, population and housing statistics in Singapore make a distinction between resident and non-resident population (see Table 1). Resident population comprises Singapore citizens and permanent residents. Non-resident population comprised 19 percent of the total population in 2000. The housing options available to permanent residents and non-residents are also limited by regulations governing the different segments of the markets. Official government statistics, including census data on housing and household often refers only to characteristics of the resident population. The housing market however caters to both groups and there is often confusion when statistics on the resident population are misinterpreted as referring to the total population or housing stock (see Table 3).

We infer from census data (see Table 3) that 40,813 or 4.2 percent of households in 2000 were non-resident households. While 88 percent of 923,325 resident households reside in HDB flats, 79 percent of the 964,138 occupied dwellings were HDB flats, with 21 percent of occupied dwellings being private sector housing. The total housing stock in

2000 was 1,039,677 units, of which 81percent were HDB housing (see Table 1). The housing vacancy rate in 2000 (occupied dwellings to housing stock) was about 7 percent. Within the private housing sector, 15,367 of the 40,813 foreign households were owner-occupiers in 2000 (data from URA REALIS) – a homeownership rate of 38 percent. As such, the homeownership rate based on occupied dwellings rather than resident households would have been 90 percent. With regard to the housing stock, 83 percent were owner-occupied, 10 percent were tenanted, and 7 percent were vacant units. The private housing and rental sectors are therefore larger than reference to statistics on the resident population alone would suggest.

Table 3 Occupied houses and resident households, 2000

	Occupied houses by type of dwelling	Resident household distribution by type of dwelling	Resident Home Ownership rate by dwelling type
Total	964,138	923,325	
Total %	100.0%	100.0%	**92.3%**
HDB flats	79.1%	88.0%	93.2%
1- & 2-room	4.8%	5.0%	19.2%
3-room	22.9%	25.7%	96.4%
4-room	29.5%	33.2%	98.3%
5-room & Executive	21.4%	23.7%	98.7%
Others	0.5%	0.4%	60.4%
Condominiums & Private Flats	7.9%	6.0%	82.8%
Private houses	6.3%	5.1%	90.3%
Others	6.7%	0.9%	83.8%

Source: Singapore Department of Statistics (2001), *Singapore Population*.

The housing market can be subdivided according to the different regulations governing each distinct market. Here we discuss in greater detail the instruments used for regulating five submarkets: owner-occupied HDB housing, rental HDB, owner-occupied private housing, hybrid regulated private housing, and rental private housing.

(i) Owner-occupied public housing sector

As can be seen from the data, the dominant housing sector is the HDB owner-occupied sector. The owners of a new HDB flat purchase a 99-year leasehold title on the flat. The government retains ownership of the land and common areas within the estate. Management and maintenance of the estate is the responsibility of the town council which is chaired by the Member of Parliament for the constituency. As such, the state remains very involved even after the HDB flats are sold; the HDB regulates the sector in numerous ways:

- *Price*: The HDB determines the prices at which new flats are sold. Housing prices differ by flat size, design and location. HDB prices for its new flats are not market prices – they were considered subsidized prices in the past when there were long waiting lists of up to 140,000 households in the mid 1990s. In the recent period of surplus HDB housing, the HDB did not adjust its prices downwards to clear its housing stock, fearing the impact on the rest of the housing market.

  Prices for 3- and 4-room flats are pegged to average household income levels to ensure that at least 90 percent of all households can afford a 3-room repurchased flat[7] and 70 percent a new 4-room flat (HDB Annual Report 1996/97, p.17). The ratio of the average price of a 5-room flat to per capita GNP has been below 6.5. This is comparable to the range of housing price affordability ratios for the OECD countries.[8] In the first quarter of 2005, the price range for 4-room flats purchased directly from the HDB was between $85,000 and $297,000, while the range for 5-room flats was between $161,000 and $450,000, with prices varying with location and design.

  In June 2005, the HDB launched a Design, Build and Sell Scheme (DBSS) under which the government tenders out land for public housing development to private developers. The developer who is awarded the tender will undertake the entire development from planning, design and construction to sale of flats at **market prices**. However, the flats remain as HDB flats with 99-year leaseholds and are subject to all

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[7] The HDB purchases 3-room flats in the resale market and sells them to eligible households at a price discount.

[8] Miles (1994, p.98) presents estimates of the average price of a new house as proportion of per capita GDP in 1990: UK (6.6), US (5.4), France (5.3), Germany (10.6), Netherlands (4.8), Sweden (4.1), Japan (9.2), Italy (5.7) and Canada (5.9).

HDB eligibility criteria, rules and conditions. First time home owners will be eligible to receive a demand side subsidy in the form of the \$30000 (or \$40000) CPF housing grant.

- *Supply*: The supply of new HDB flats available each year is dependent on the HDB's building programme. In its first decade 1960-1970, the HDB built 117,000 dwelling units; 241,000 units were completed between 1971 and 1980; for 1981-1990, 309,000 units were built; and in 2000, the HDB welcomed its 800,000th home owner in a symbolic key hand-over ceremony celebrating the organisation's 40th anniversary.

- *Demand*: Demand is regulated by eligibility rules which include household income (income ceiling of S\$3,000 for those purchasing 3-room flats and S\$8,000 for those purchasing 4-room or larger HDB flats), non-ownership of private properties at the time of application, Singapore citizenship status, and minimum household size of two. Demand for a second subsidized flat is regulated by a time-bar: households can apply to purchase another flat from the HDB 5 years after taking possession of their first flat. The time bar was 5 years prior to 1997 and was increased to 10 years in 1997 when the demand for new flats from second-time applicants was very high. In 2005, the time bar was reduced to 5 years.

- *Resale* rules for HDB flats have included:
  - No resale is allowed; the flat is returned to the HDB (prior to 1971).
  - Resale is allowed, the owner is debarred from applying to purchase a HDB flat for x years (1971-1979).
  - The owners has to satisfy a minimum occupancy period of five years before resale if they have enjoyed a subsidy; and 2.5 year if they had purchased a resale flat with no housing subsidy (since 1973).
  - Households who purchase a second subsidized HDB flat or a Executive Condominium unit are required to pay a resale levy (ranging from 10 percent to 25 percent depending on flat type) on the resale price of the first flat sold.
  - Eligibility criteria to purchase resale flats were similar to HDB new flats, i.e., limited to citizens, non-owners of other residential properties, and households with minimum size of two persons and with household income below the ceilings set by the HDB (prior to 1989).

- Since 1989, the resale market has been opened to permanent residents as well as owners of private residential properties; there is no more income ceiling restriction.
- Singles (above the age of 35) were allowed to purchase 3-room or smaller resale flats as a sole occupier outside the central urban estates from 1991. In 1998, the government announced that singles would also be eligible for the CPF housing grant when purchasing resale flats. The restriction on flat location was lifted in August 2001. In August 2004, rules were further relaxed to allow singles to buy any resale HDB flat.
- HDB approval for resale is also subject to the Ethnic Integration Policy which promotes ethnic harmony in public housing estates by maintaining prescribed block and neighbourhood proportions in each ethnic group. Under this policy, no further resale of flats to a particular ethnic group is allowed if it increases the proportion of the affected ethnic group beyond the prescribed limit in the block or neighbourhood. There is no restriction on sellers and buyers from the same ethnic group as it will not further increase the ethnic group's proportion in the block or neighbourhood.

There is significant mobility within the housing sector, with 58 percent of households in 2000 having changed residences during 1991-2000 (Singapore Census of Population, 2000).

- *Subletting* rules:

During the earlier period of housing shortage, owners of HDB flats were not allowed to sublet their flats or even rooms within their flats without the HDB's permission. In 1990, they were allowed to sublet rooms in their flats but not the entire flat without having to obtain permission from the HDB. These rules have been relaxed recently `give flat owners greater flexibility to monetize their flat' and to provide more rental housing options. From January 2003, HDB flat owners who owned a non-subsidized resale flat and who did not have any outstanding HDB loan, and who have occupied the flat for at least 10 years were allowed to sublet their whole flat, with the permission of the HDB. Later the same year (in October 2003), the rules were further relaxed to allow owners of all HDB flats who have occupied their flats for 15 years or more to sublet their whole flat. The objective was to allow flat owners in financial difficulty to generate some income to tide over their problems. In March 2005, the minimum occupation period for subletting of the whole flat was reduced from 15 years to 10 years for all HDB flat owners even if they have an outstanding HDB loan; and from 10 years to 5 years for owners without an outstanding HDB loan. (There is another set of HDB rules governing persons eligible to be subtenants of HDB flats.)

- *Financing*:

The CPF-HDB framework that was established for the financing of housing and that is responsible for the existence and size of the HDB sector has been described in the previous section. The HDB allows a maximum loan repayment period of 65 years minus the applicant's age, or 30 years, whichever is shorter. The mortgage lending rate charged by the HDB to homeowners is 0.1 percentage point higher than the CPF ordinary account savings rate. While financing for new HDB flats is relatively straightforward (80 percent of sale price), the financing of resale HDB flats purchased at market prices is subject to the HDB's valuation policy for these flats. In April 1993, subsidized mortgage loans provided by the HDB for purchase of resale flats were increased to 80 percent of the market value or resale price, whichever is lower. Previously, the mortgage loan provided by the HDB to a buyer of a resale flat was based on up to 80 percent of the HDB 1984 sale price for a comparable new flat.

Since 1994, CPF Housing Grants have been introduced for the purchase of resale flats provided the household meets eligibility conditions. First-timer married couples can buy a resale HDB flat and apply for a CPF Housing (Family) Grant to assist them in the purchase. The grant is $30,000 to buy a resale flat from the open market or $40,000 if they buy a flat within the same town or within 2km of their parents' home. The grant for singles (monthly income below $3000) is $11,000.

(ii) Private owner-occupied sector

The high-end private housing sector caters largely to the upper echelons of Singapore society, expatriates, and foreign investors.

- *Price:* Prices for private housing are market determined. The government however affects prices through its policies and activities that impact the market directly and indirectly through the HDB market. Figure 3 shows the price indices for HDB resale flats and private housing. A study by Phang and Wong (1997) shows private housing prices are highly correlated with prices for new HDB flats. Moreover, the timing of government policies relating to the use of CPF savings for housing finance, and the liberalization of rules on public homeownership criteria as well as housing finance had significant impacts on private housing prices. Ong and Sing (2002) studied the inter-market price discovery process between the private and public resale markets and found significant evidence that the two markets were integrated. They hypothesize that a rise in HDB resale prices increases the affordability of private housing to HDB sellers wishing to upgrade from public to private housing.

- *Supply:* Over time, dwindling private land supply (freehold and 999 year leaseholds) has increased the importance of government land sales (99 year leaseholds) for residential development in determining the level of new supply. In the past decade, the number of private dwelling units expected to be built from the government land sales program each year has varied from zero to 9000. Land sales were effectively suspended between November 1997 and end 1999 due to poor market sentiments. In 2001, the government announced a reduction in supply of land for housing from the expected 6,000 to 7,000 units each year to about 4,000 units, and the setting up of a Reserve List. Under the Reserve List system, the Government will only release a site for sale if an interested party submits an application to have the site put up for tender with an offer of a minimum purchase price acceptable to the Government. The successful applicant must undertake to submit a bid for the site in the ensuing tender at or above the minimum price offered in the application (see Phang, 2000 and Phang et.al., 2002 for details).

  On the supply side, strata title legislation as well as planning regulations on density, land use and redevelopment of private properties can affect the responsiveness of private supply to market conditions. In 1999, the Land Titles (Strata) Amendment Act was passed. An *en bloc* sale can go through provided at least 90 percent or 80 percent of share values (depending on whether the project is less than or greater than 10 years old) agree to the sale. Previous to this amendment, 100 percent of the owners had to agree to the sale.

  Government-linked companies such as Capitaland and Keppel Land (and more recently HDB Corp) also compete in the housing developers market thus reducing the oligopolistic power of a few large private developers in the small private housing market.

- *Demand:* Government regulations affect the sector in other important ways. Foreigners are prohibited from owning private landed properties and private flats in buildings of less than six storeys without government approval. Foreign demand for housing assets in Singapore is thus effectively confined to the private flats and condominiums.

- *Anti-speculation measures*: In May 1996**,** to cool the property market, the government announced a package of measures to curb real estate speculation:
  - capital gains arising from the sale of any property within 3 years of purchase would be taxed as income.
  - stamp duty would be levied on every sale and sub-sale of property.
  - housing loans would be limited to 80% of the property value.
  - foreigners purchasing property in Singapore would be limited to non S$ denominated housing loans.
  - In Oct 2001, the income tax on gains from sale of properties was removed. Restrictions on S$ housing loans to foreigners were also lifted.

- *CPF rules on withdrawal for housing*: Liberalization of the rules governing the use of Central Provident Fund savings have been used by the government to enhance housing affordability, as well as to provide stimulus to the property market during a recession.
  - In 1981, the use of CPF savings for housing was extended to private housing. Members were allowed to use 90 percent of their CPF Ordinary account balances and monthly contributions to redeem *one* housing loan or to buy *one* residential property. Withdrawals were not to exceed 80 percent of the value of the property at the time of purchase, which either had to be on freehold land or had a remaining lease of at least 75 years. In the event of a sale, the amount withdrawn had to be returned and a three year lapse was necessary before savings could be withdrawn again.
  - In 1984, the single property and three year lapse rules were removed.
  - In 1985, the 90 percent of balances withdrawal limit was removed.
  - In 1988, the 80 percent valuation withdrawal limit was replaced with a 100 percent limit (which did not include interest payments on loans).
  - In 1992, the remaining lease of at least 75 years was reduced to 60 years.
  - In 1993, the CPF allowed withdrawals of CPF savings to be used to meet interest payments on mortgage loans for resale HDB and private housing purchases. This liberalization in housing finance regulations helped fuel the asset bubble in the next few years.

- In 2002, concerns over the risk of over allocation of retirement savings for housing resulted in the reintroduction of withdrawal limits. The government announced that there would be a cap on CPF withdrawals for private and HDB resale housing. The CPF withdrawal limit for housing purchase would be first set at 150% (from 1st January 2003) of the value of the property and be reduced to 120% over 5 years. The market impact of this was mitigated by allowing buyers to use their CPF savings to pay half of the 20% down payment. Down payment rules for the purchase of non-subsidized HDB resale flats would be aligned with those for private housing over a period of five years.

Table 4 Phasing in reductions in CPF withdrawal limits

CPF Withdrawal Limit	Implementation Date
150%	1st Jan 2003
144%	1st Jan 2004
138%	1st Jan 2005
132%	1st Jan 2006
126%	1st Jan 2007
120%	1st Jan 2008

Source: www.cpf.gov.sg

(iii) Hybrid regulated private housing

Executive Condominiums (EC) are classified as private housing, but purchasers face many of the restrictions that apply to HDB homeowners. As mentioned earlier, the government auctions state land on 99 year leasehold basis for the development of EC units to housing developers (private as well as government-linked companies) who are responsible for design, construction, pricing, arrangements for financing and estate management. The scheme was announced in 1995. In 1996 and 1997, the government sold land for 2000 and EC 4000 units, respectively. Land sales were halted in 1998 and 1999, and land for the development of another 3000 units was sold in the year 2000.

The HDB regulates this housing sector in the following ways:

- *Price*: The price is set by the developer.
- *Supply*: Supply is determined by the government land sales programme.
- *Demand*: Applicant households have to satisfy eligibility conditions and abide by resale and other regulations governing these units. (household income below

S$10,000 per month) and have to abide by the resale and other regulations governing these units. Buyers of EC cannot buy a HDB flat directly from the government again.

- *Financing of new flats*: First time home-owners are eligible for the CPF housing grant which can be used toward the down payment.
- *Resale conditions*: The units can be sold only after five years to Singaporeans and permanent residents, and can be sold after ten years to foreigners.

(iv)Rental private housing

Rent control has been completely phased out and rents in the non-controlled private housing sector are market determined, with the sector catering primarily to foreigners in Singapore.

(v) Rental public housing

Rental housing provided by the HDB is the social housing sector for Singaporeans, especially since rent control in the private housing sector has been phased out. It is completely regulated by the HDB which provides primarily 1 or 2-room flats for families. The tenant's household income must not exceed S$1,500 per month at the time of application. Households in the income ceiling range of between S$801 to S$1,500 pay monthly rentals pegged at 30 percent of the market rent. For households with incomes not exceeding S$800, the monthly rentals are around ten percent of the market rate. A proportion of HDB's rental units also cater to `transitional' families waiting for their Home Ownership flat as well as to foreign workers in Singapore.

The HDB rental sector in which the housing unit is privately owned (i.e. sold on 99 year leasehold basis) has been enlarged significantly since 2003 with changes to HDB's subletting rules (see above). In this sector, rents are market determined.

4. Korea's housing policy[9]

Government's role in housing supply and housing price ceilings

In the 1960s and 1970s, the Korean government viewed housing as producing a lower return compared with manufacturing and export industries, and hence discouraged resources from flowing into housing. As the government controlled the process of large scale land development, it consequently also determined the volume of new housing supply. Permits for land development were monopolized by the public sector to prevent private developers from enjoying large windfall profits (Kim, 1997). The Korea National Housing Corporation (KNHC) was established in 1962 and the Korea Housing Bank established in 1967 as a supplier of housing finance to assist home purchases of moderate-income families.

The public sector (which includes central and local governments and the KNHC) supplied some 863,000 new dwellings comprising about 13% of new housing for the period 1962-1971. Between 1972 and 1976, housing produced by the public sector increased to 761,000 or 30% of new housing supply, most of which were small housing units for low income housing. To cope with house price increases and rampant speculation, the government introduced a price ceiling in 1977 to ensure new housing was affordable. In 1978, the government also implemented size distribution regulations by making it compulsory to allocate at least 40% of the residential land developed by public agencies to the production of dwellings of less than 85 sq m of floor area. This ratio was raised to 50% in 1981, 70% in 1991, and 75% in 1992. This requirement was subsequently extended to private developers as well (Lee, 2000).

Anti-speculation measures in the form of punitive taxes on capital gains from real estate transactions were imposed. These measures of the late 1970s caused housing prices to decline and the industry suffered a severe recession in 1980. To help revive the industry, the government relaxed anti-speculation measures by lowering the capital gains tax rate. Strong anti-speculation measures were reinstated soon again after prices increased, with `the Catch-22 situation repeated almost every three years' (Koh, 2004). In 1981, price controls were suspended for housing with 85 sq m or more in floor space which resulted in a 38% increase from the previous 1,000,000 won/pyong ceiling in a few months in Seoul. In response to public criticism, the Seoul city government reestablished the price ceiling, albeit at 1,340,000 won/pyong.

[9] This section draws from the articles by Kim (2004), Kim (1997), Koh (2004), Chung and Kim (2004), Park (2005), and Lee (2000).

Eligibility criteria and rules for allocation were also established for these new and below market price housing. Priority is given to those who have saved with the Housing Subscription Savings in the order of the amount and the period of savings. Eligible homebuyers are selected on the basis of `bond-bidding'[10] and then by a random draw. Dwellings that are smaller than 60 sq m in net floor space and 50% of those with a net floor space from 60 to 65 sq m are reserved for households who do not own any other dwelling. Transfer of ownership of deposit providing eligibility is prohibited and renting and resale of house purchased is banned for a certain period of time (currently two years). After purchasing the first apartment, the buyer is allowed to bid for a second newly built apartment unit only after five years (this was increased from three years to reduce demand) (Koh, 2004).

The government's role in the supply of housing increased to 44% of the total in the 1977-1981 period, and 48% of the total in 1982-1986 when 1,155,071 units were built by the public sector. This was however insufficient to meet the increase in demand and the housing supply ratio declined to 71 percent in 1980 and was 72% in 1990 (see Table 5). Using Mills (1987) method of comparing social rate of return between housing and non-housing capital, Kim and Suh (1991) tested the hypothesis that Korea under-invested in housing until the late 1980s. Their results showed that too little capital had been allocated to housing in the period 1970 to 1986.[11]

Table 5 Population, Household and Housing Stock in Korea: 1960-2000

	1960	1970	1980	1990	2000
Population (000)	24,989	31,435	37,407	43,390	46,125
Households (000) (H)	4,378	5,576	7,969	11,355	14,391
Home ownership rate	na	72%	59%	50%	54%
Ordinary Households (000)(A)	4,135	5,197	7,470	10,223	11,928
Ordinary to Total Households (A/H)	94.4	93.2	93.7	90.0	79.7
Housing Stock (000) (B)	3,464	4,359	5,318	7,374	11,472
Housing Supply Ratio (B/A)	83.8	83.9	71.2	72.4	96.2
Housing Supply Ratio (B/H)	79.1	78.2	66.7	64.9	79.7

Source: Park (2005).

[10] The `bond-bidding' system was introduced in 1983 to discourage speculative motives in housing purchase and to `tax away' a portion of the windfall gains from home purchasers. A home purchaser had to participate in the competitive bidding process when purchasing a newly built condominium unit. The successful purchaser was obliged to purchase government bonds in an amount as pledged in the bid before the housing sale was officially executed (Koh, 2004).

[11] As cited in Kim (2004).

It was not until 1988 that the government moved decisively to address the housing shortage problem by announcing a massive increase in housing supply. This change in housing policy materialized in an ambitious drive to build two million new dwellings between 1989 and 1992. As a result, annual housing production increased by more than 100% from 227,000 for 1977-1986 period to 550,000 during the next 10 years. The government designed different packages of subsidies and finance for different income groups, with provisions for the bottom 50% of households in the income distribution.

The uniform price ceiling on new houses was modified in 1989 to take into account production (land and standard construction)[12] cost and also a profit margin for developers. Conversion of agriculture land made available a large increase in land for development and the supply of housing loans was also increased substantially. The total number of dwellings was 6.1 million in 1985 and increased to 9.6 million by 1995 and 11.5 million by 2000, raising the housing supply ratio in the process. This commitment to increasing housing supply contributed to a house price decline in 1991; house prices remained stable as housing stock increased. As the housing shortage eased, the government lifted price controls on new housing in phases starting in 1995. The requirement of compulsory allocation for small-sized dwellings was removed in 1996 for regions where the housing supply ratio was more than 90%. Housing prices took a downturn in 1998 during the period of the Asian economic crisis, when housing values decreased by 12.4%. To support the housing market, sale price regulations as well as compulsory allocation for small sized dwellings for new developments were removed after the 1997 economic crisis.

The national owner-occupancy rate which was 59 percent in 1980, dipped to an time low of 50% in 1990, and increased to 54% in 2000 (Park, 2005). However, the urban owner-occupancy rate fell from 47% in 1980 to 43% in 1990, and increased to 50% in 2000, while the rural owner-occupancy rate declined from 87% to 80% percent from 1985-2000. The majority of the tenants live in the private rental sector, as only 3.4% of the total housing stock in 2002 comprised permanent or long term public rental housing (Koh, 2004). There is very little government intervention in the private rental sector. While a Tenancy Protection Law provides for a 5% cap on annual rent increase, the cap is not binding (Kim, 1997). Rents for permanent and long term public rental housing are set by the government and are about 25% of market rents (Koh, 2004), but these comprise only a small fraction of the rental housing stock. In 2002, the Korean

[12] Land costs were to be assessed by the government for each project and standard construction cost are to be announced by the government publicly every year (Koh, 2004).

government announced a One Million National Rental Housing Units construction plan from 2003 to 2012 to solve the problem of shortage of affordable rental housing for low income families (Park, 2005).

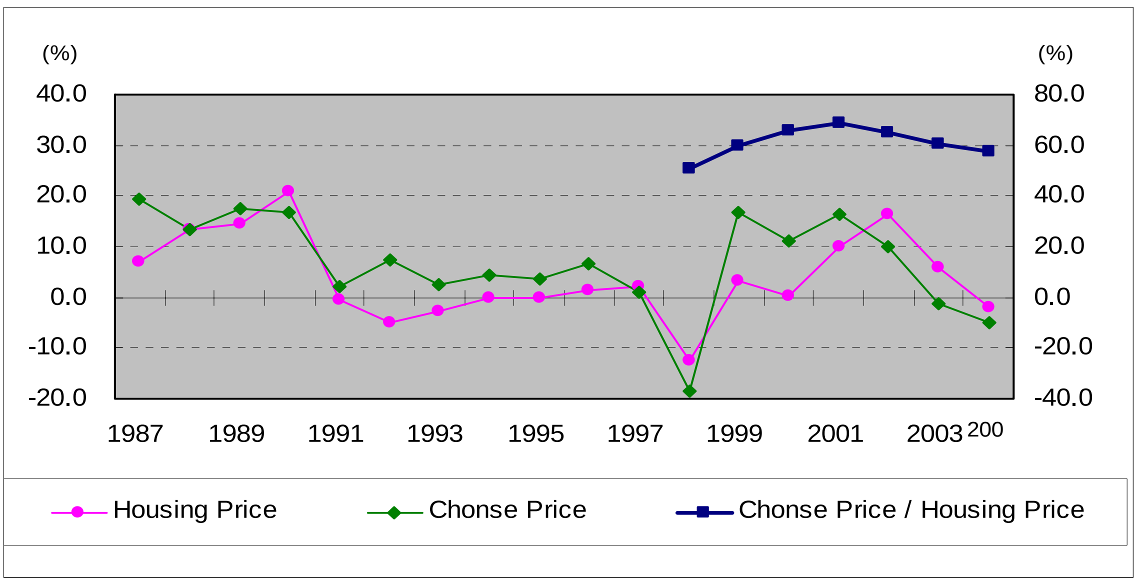
Housing finance

According to Kim (2004), market based housing finance is a recent phenomenon in Korea. The primary mortgage market used to be dominated by the National Housing Fund (NHF) providing below market rate loans to low to moderate income households who purchase public housing. The NHF receives funding through the government budget, national housing bonds, housing lottery, NHF bonds, contractual savings, foreign loans, amortized funds and other related funds. NHF loans are for 20 years at 3-5% interest rate per year (Lee, 2000). (Prior to 1981, the NHF was the public housing fund managed by the Korea Housing Bank.) The Korea Housing Bank serves a somewhat higher income clientele with amortizing mortgages of 10-15 years in maturity. However, there was a substantial amount of credit rationing in their operation. A ceiling on loan amount per household was enforced so that the loan-to-value ration was typically below 30%. Only new houses were eligible for loans, and households with particular income or job profile were given priority. However, the market has changed significantly with financial deregulation in the early 1990s and the privatization of KHB in 1997. The size of the primary market has increased substantially while more diverse products have been marketed and loan-to-value ratio has increased as competition among financial institutions intensified (Kim, 2004).

The MBS Company Act came into effect in 1999 and the Korea Mortgage Corporation (KoMoCo) was established in December 1999 to create the secondary mortgage market to raise low cost funds for housing on a long-term basis. KoMoCo was merged with the Housing Loans Guaranty Fund to form Korea Housing Finance Corporation (KHFC) as a state-owned financial institution in March 2004. The objective of the KHFC is to promote homeownership for low and middle income families through making long term mortgage available. KHFC purchases long term fixed rate mortgages from commercial banks following underwriting guidelines (maturity up to 20 years and maximum loan to value ratio of 70%) and packages mortgage-backed securities.

In addition to the formal housing finance system, Korea has the chonse housing finance mechanism, which emerged `naturally' from the environment of high inflation, financial repression, and housing shortages. Under this arrangement, the tenant gives the landlord a lump sum deposit in lieu of monthly rental payments. The deposit is fully refunded at the end of the lease. Chonse has become less important in recent years as interest rates have fallen, and monthly rental contracts and mortgage financing have become more popular.

The housing mortgage market in Korea is relatively small by developed country standards (Kim, 2004). The outstanding balance of mortgage loans amount to 13.4% of GPD in 2001, although this does not include loans originated and held by insurance and mortgage companies. The vast majority of loans are short term bullet mortgages with 3 year maturity. In 2002, three quarters of new originations have had maturities of less than 3 years. In contrast to loan to value ratios of 67 percent and above in other developed countries, the loan to value ratio in Korea is low at about 40%. According to Kim (2004), the average LTV on consumer loans originated by Kookmin Bank between 1999 and 2003 was slightly over 30% and only about 10%of the loans had a LTV exceeding 50%.



Note: Right vertical scale is for ratio of chonse price to housing price.
Source: Park (2005).

Figure 4 Growth rates in housing and chonsei prices in Korea, 1987-2004

House price bubbles and anti-speculation measures

Housing prices recovered in 1999 and `boomed' between 2000 and 2003, exceeding GDP growth by a wide margin (see Figure 4). The ratio of housing price to household annual income ratio increased to about 6 for the country and 10 for Seoul. Fearing the development of a bubble, in late 2003, the government tightened anti-speculation measures with prohibition of sale of housing pre-sales contracts, upward adjustment of property tax, and a drastic increase in capital gains tax (up to 82.5% of gains where a seller holds more than three apartments at the time of transfer). In a study of the causes for the housing price spiral, Chung and Kim (2004) concluded that the `contribution of speculative demand to the determination of housing price is much more important than that of normal housing demand'. They attributed the surge in speculative housing demand since 2000 to low interest rates, rapid increase in money supply, and `above all the government policy of economic recovery based on very liberal housing policy including the allowance of selling the pre-sale contract'.

Chung and Kim (2004) also concluded that the bubble is much less serious than the earlier Japanese bubble because of low loan-to-value ratio and greater housing shortage in Korea. The authors recommended that housing pre-sales contracts should continue to be prohibited from being traded. Capital gains taxation however has limitations as an anti-speculation device as `low price elasticity of housing demand means forward shifting of the tax burden leading to housing price hike'. It might also affect the supply of housing. The authors recommended that the best way of fighting speculation and stabilizing housing price is through a sustained increase in housing production, and reducing land cost through more aggressive land banking and well pre-planned land supply through better regional development planning.

5. Conclusion: Singapore's experience and implications for Korea?

Despite the obvious differences in the size of the two countries, there are many similarities in the underlying approach toward the housing sector for Korea and Singapore. In both countries, while there is general adherence to largely market oriented policies in other sectors of the economy, both governments have intervened extensively in the housing sector to regulate all the key components of: supply of development land, quantity, size distribution and quality of housing supply, housing prices, speculative activities, as well as demand for housing through detailed rules on eligibility for housing and housing finance.

Many of these policies, targeted at more than half the population or housing stock, impact the entire housing market directly as well as indirectly. Within the public housing sector, the bulk of resources have been channeled to the provision of housing for sale for the mainstream population, with a relative neglect of rental public housing provision for the lowest income group.

Singapore has had a longer history of extensive government intervention of the housing market, as well as a larger public sector share of the housing stock. It has also moved from a situation of chronic housing shortage in the 1960s and 1970s to the present situation of surplus with housing vacancy rates above 5 percent. Singapore's recent housing experience clearly indicates that the path of government intervention is far from being a linear one. The housing sector has gone through a period of being tightly regulated up to late 1970s, followed by phased deregulation in the 1980s and 1990s, and then re-regulation especially in the housing finance area from 2000. In this concluding section, some possible implications of Singapore's experience with housing market regulation and deregulation in five areas are discussed:

(i) *Supply of residential land and housing*

Supply on land: Government land banking and meticulous land use planning remain important instruments governing land use and land supply in Singapore. During the period of housing price increases in the early 1990s, the government announced a program of annual land sales to allay fears of future housing shortages. The program was suspended from late 1997 to 1999 due to poor market sentiments during the Asian crisis. When prices recovered partially in 2000, the government resumed its land sales program to the dismay of property developers. A compromise was reached in 2001 when a Reserve List was set up to better gauge market demand for residential land for development. Under the Reserve List system, the Government will only release a site for sale if an interested party submits an application to have the site put up for tender with an offer of a minimum purchase price acceptable to the Government. The successful applicant must undertake to submit a bid for the site in the ensuing tender at or above the minimum price offered in the application. The Reserve List instrument has allowed the Singapore government a better gauge of demand for residential land, and has also provided a stabilizing effect on housing prices. An adequate supply of residential land for private sector development remains the most effective measure to ensure affordable housing supply.

Privatization of housing supply: With respect to the privatization of housing supply to targeted households, Singapore certainly has more to learn from Korea than the reverse. Singapore launched its Executive Condominium scheme (for eligible households with incomes below $10,000 per month) in 1996 and the HDB only recently announced its Design, Build and Sell scheme.

Size distribution of housing supply: During the earlier period of housing shortage, the bulk of HDB flats constructed were 3-room or smaller flats (69 sq m or less). 3-room flats (54 to 65 sq m) comprised 88 percent, 60 percent, 31, and 0 percent of HDB flats sold in the 1960s, 1970s, 1980s, and 1990s, respectively. As incomes and housing expectations rise, the HDB has moved to meet the rising aspirations of the population through the construction of larger flats (83 to 145 sq m) for sale, thus apparently favoring the middle and upwardly mobile income groups. While this has attracted criticism from some quarters, such a strategy is efficient as there a large stock of dwellings of small sizes is already in existence. New construction activity should therefore target sectors where the supply is still lacking. The government has instead met the housing needs of the lower income group through providing housing grants to purchase resale flats and the HDB has also purchased 3-room resale flats at market prices for resale to low income households at below market prices, as well as for rental to foreign workers. The 3-room HDB sector was also opened to singles above the age of 35 from 1991.

For Korea, size distribution requirements prior to 1997 would have resulted in a housing stock where 75 percent of the dwellings built in the 1990s are 85 sq m or smaller. The relaxation of size distribution requirements would have brought about an increase in the number of larger dwelling units, which because of their relative scarcity will command a premium. It is likely that as housing prices rise, the government will come under increasing pressure to resume size distribution requirements for smaller dwelling units to meet the needs of those who wish to purchase subsidized new housing. In the future, there may arise a need for the Korean government to consider demand side subsidies for both rental and sale sectors.

Redevelopment of high rise estates: In the past, the government exercised its powers of *eminent domain* to acquire agriculture land, as well as low density or low income housing and squatter settlements for redevelopment. Since the early 1990s, government acquisition of housing for redevelopment has been more often the case of the HDB acquiring old HDB neighborhood and estates for *en bloc* redevelopment. For private sector housing redevelopment, in order for private redevelopments to be more responsiveness to market conditions, the Land Titles (Strata) Amendment Act was passed in 1999. An *en bloc* sale can go through provided at least 90 percent or 80 percent of share values (depending on whether the project is less than or greater than 10 years old) agree to the sale. Previous to this amendment, 100 percent of the owners of an apartment or condominium development had to agree to the sale which had been an obstacle to the redevelopment of some private housing estates. As the urban housing stock ages, the Korean government may similarly need to provide for the retirement of older condominiums.

Retrofitting and upgrading of old estates: As the stock of public sector built dwellings ages, the HDB has been involved in estate upgrading projects which have involved another round of housing related subsidies for households involved. The upgrading works include improvements of local public areas, elevator replacement, renovations for elevators to stop on every floor, and even additional living space for each dwelling unit. Further government involvement even though the dwellings have been already sold will need to be planned and budgeted for.

(ii) *Housing price regulation and anti-speculation measures*

Price setting: Price setting for new flats by the HDB in Singapore and price ceilings in Korea have been used to ensure that new housing built are affordable to the targeted beneficiaries. However as these were much lower than the market prices (in the past), the schemes attracted long waiting list and necessitated complex rules for allocation of the rights to purchase as well as a ban on resale of the housing for a period of time after purchase. These highly distortive price regulations also had numerous efficiency and equity implications. In Singapore, the HDB tried to set its price differentials to reflect market demand in the 1990s, while Korea began phasing in price decontrol from 1995 after housing prices had stabilize. One of the effects of the Asian economic crisis was a sharp decline in housing prices in both countries, causing the gap between the controlled price and market price of housing to disappear in Singapore and to narrow in Korea. The policy response in Korea was the removal of price regulations while HDB continued to maintain its prices (instead of lowering them to clear its surplus stock) in an effort to support housing prices. Singapore's `Executive Condominium Scheme' and recent `Design, Built and Sell Scheme (DBSS)' involves tendering land to private developers, setting eligibility criteria, and *not* specifying prices at which the dwellings should be sold. However, the EC and DBSS are project specified schemes and the HDB continues to retain the option of selling housing at prices it determines. These prices however have become more reflective of market conditions. In the case of Korea, the `Cost Linking System' instead of a uniform price ceiling for pricing public housing for sale is certainly more efficient.

Anti-speculation measures for public housing: Anti-speculation measures in the public housing sector in Singapore take the form of minimum period of occupation before rental or resale is allowed (the period for non-subsidized resale flats is shorter) as well as minimum period between purchase of first flat and application for a second subsidized flat. Sale of the first subsidized HDB flat either attracts a levy (calculated as a percent of the resale price) or a premium on the price paid for the second subsidized flat when the second flat is purchased. While blunt, these rules do serve a useful purpose of minimizing speculation in the public housing sector. Singapore's rules in this regard are more stringent than Korea's, partly because it does not have anti-speculation measures in its private housing sector.

Anti-speculation measures in private housing sector: As an international financial centre, the Singapore government has avoided implementing anti-speculation measures and capital gains taxes generally. The anti-speculation measures implemented in 1996 were the first instance when such measures were implemented. With the exception of the 80 percent limit on housing loan-to-value, the measures were phased out in 2001. In contrast, Korea has a history of utilizing anti-speculative measures to influence housing price changes. According to Koh (2004), there is little evidence that these measures have been effective in controlling speculative behavior. This is not surprising given the persistent situation of housing shortage based on the ratio of housing stock to total households (see Table 5). As pointed out by various authors, depending on the specifics of the situation, capital gains taxation might either `lock-in' supply, freezing the market, or become shifted to the buyer resulting in further price increases (Koh, 2004; Chung and Kim, 2004). Moreover, raising property taxation can lower housing asset prices only at the cost of smaller housing stock and higher rents in the long run (Kim, 2004).

Real estate information system: Speculation thrives on rumors and market inefficiencies and the availability of a well functioning, up-to-date and transparent real estate information system can do much to reduce the inefficiency of the market. The internet has played a major role in leveling the playing field where real estate information is concerned. In recent years, Singapore's Urban Redevelopment Authority has done much to make private sector real estate transaction and relevant market information easily accessible on its website. The HDB has only more recently followed its example by making information on HDB resale flat transactions available on its website.

(iii) *Regulating demand for public housing*

Eligibility criteria for new flats: As the housing shortage eased, the Singapore government relaxed the eligibility criteria for the purchase of new HDB flats over time through phased increases in the income ceiling for eligibility (from $1000 income per month in 1964 to the present $8000). The time period between first purchase and second application has also been used to regulate demand. In Singapore's case it has been changed from five to ten years to reduce demand and reduced from ten to five years again recently.

Eligibility criteria for resale flats: For resale HDB flats, eligibility to purchase was extended to permanent residents (to attract potential emigrants), owners of private dwellings, and soon after to singles as well. Again, the rules stipulating eligibility for singles (above age 35) were limiting when first introduced with regard to location and flat type and were relaxed over time. Singles constitute a growing proportion of the population in Singapore and their housing needs were catered to as the housing shortage eases. The proportion of one person households in Singapore increased from 5.2% to 8.2% from 1990 to 2000. The proportion of 1 person households living alone in a dwelling unit increased from 72% to 91% over the same period, partly as a result of HDB liberalization of its rules in 1991. A similar trend of an increase in the number of non-ordinary households in Korea is evident from Table 5. Their proportion increased very significantly from 10% in 1990 to 20% in 2000. If one were to consider the total number of households in Korea rather than the number of ordinary households (see last row of Table 5), the housing shortage situation in 2000 is much worst at 20% rather than 4%! Housing policy cannot continue to ignore the housing needs of `non-ordinary' households as their numbers increase in the future.

Demand side subsidies: In the earlier period of housing shortage, government involvement on the supply side to build new housing especially for low and middle income housing was both necessary and more efficient. However, together with administered prices, planned locations, and prohibitions on resale for a period of time, these policies generated much inefficiency. In the context where there is no longer a housing shortage, demand-side subsidies operating through the HDB resale market are more efficient (as well as more equitable) and have been implemented in Singapore since the early 1990s. They have proven to be more popular than subsidized new HDB flats in outlying areas. Eligibility for these housing grants has also been extended to singles. Another aspect of the program involves the HDB purchasing 3-room flats in the resale market, retrofitting them, and making them available for sale are a price below the market price to eligible low income households. A move towards demand side subsidies is a direction the Korean government might wish to consider in the future.

(iv) *Housing finance deregulation and re-regulation*

Singapore's experience with liberalization of CPF savings for use for housing, as well as HDB rules on housing loans for its resale flats serves to demonstrate the powerful impact that the availability of housing credit can have on housing prices. It is highly likely that liberalization in the housing finance market has contributed to the recent Korean housing boom. Changes to the allowable loan-to-value ratio can have potentially great impact to increase or suppress housing prices and its use to manage housing price is certainly controversial and has to be weighed carefully.

(v) *Rental market*

Housing policy bias towards homeownership resulted in a relative neglect of the rental sector. However, Singapore has since abandoned an earlier target to achieve a full homeownership society. Recent declines in housing asset prices as well as increases in unemployment rates have been a painful lesson for households as well as policymakers on the risk of overinvestment in housing (Phang, 2005). Instead, there is now a much greater appreciation of the importance of a well functioning rental market that serves a number of purposes: an option for low income households, the permanently or temporarily unemployed, young families and singles, foreign workers and students, as well as elderly persons needing to monetize their housing assets. Given the surplus housing situation, the HDB however has not constructed new rental housing but has instead liberalized its rules on subletting of apartments by HDB owners, while the Korean government has announced a One Million National Rental Housing Units construction plan from 2003 to 2012. These measures will hopefully bring about a more optimal housing tenure mix in both countries in the longer run.

The housing market is certainly one of the trickiest markets to regulate well. While a burgeoning literature on the efficacy of government/central bank intervention to dampen housing asset prices has developed in recent years, the governments of Korea and Singapore have apparently ventured deep into territory where others have hesitated to tread. In both economies, the governments exercise relatively large control over land and capital resource allocations, and are likely to continue doing so. A complex framework of interlocking policies and regulations exists for the housing sector. Both citizenry's and business sector responses to housing shortages and housing price increases and falls have been to assume that it is the government's responsibility to alleviate them and to exert pressure on the government to intervene. While some may view this state of affairs as totally undesirable, given the prevailing ethos, large scale intervention by the government was expected and acceptable and remains the case. Given the extensive government involvement, a key challenge is that of how the risks of government failure, in terms of adverse impacts on housing prices, efficiency and equity, can be minimized. In this aspect, there is much that the two countries can learn from each other.

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