11-2013

Singapore's Housing Policies: 1960-2013

Sock Yong PHANG
Singapore Management University, syphang@smu.edu.sg

Kyunghwan KIM
Korea Institute for Human Settlements

Singapore's Housing Policies: 1960 - 2013

By Kyunghwan Kim and Phang Sock Yong

KDI SCHOOL
KDI School of Public Policy and Management
World Bank Institute

Singapore's Housing Policies: 1960 - 2013

By Kyunghwan Kim, President, Korea Research Institute for Human Settlements
and Phang Sock Yong, Professor, Singapore Management University

1. Introduction: "From Third World to First"

Singapore is a densely populated island city-state with an area of 716 square kilometers. In 2013, the total population of Singapore is 5.4 million, of which 61% are citizens, 10% are permanent residents and 29% are foreigners. [1] The World Bank estimated Singapore's 2012 GNI per capita at US$61,100 (using purchasing power parity), [2] ranking it amongst countries such as Norway and Switzerland.

Modern Singapore was established as a British trading post in 1819. In 1867, the Straits Settlements of Singapore, Penang and Malacca became British colonies. Singapore was occupied by Japanese military forces from 1942 to 1945 and returned to the British colonial rule in 1945. Singapore gained its internal self-government status in 1959 with Lee Kuan Yew as the first prime minister. During a brief period between 1963 and 1965, Singapore joined Malaya as one of the constituent states of the federation of Malaysia. However, the merger with Malaysia ended shortly, and Singapore separated from Malaysia by a mutual agreement to become an independent republic in 1965.

Despite its relatively small land and unpromising outlook as a nation, Singapore progressed from a third world status in the 1960s to one of the highest income countries in the world today. Its successful development has been thanks to far-sighted and careful management of the economy by the government

1 Singapore Department of Statistics: http://www.singstat.gov.sg/statistics/latest_data.html#14.

2 World bank data at http://data.worldbank.org/data-catalog/GNI-per-capita-Atlas-and-PPP-table.

as well as well established policies. The focus of this case study is on the important role of real estate and housing policies in Singapore's economic development. In the sphere of housing policy, Singapore is known for its high homeownership rates, the very significant role played by the government in housing supply and housing finance, and the wealth that has been created and distributed in the process.

During the post-colonial period beginning from 1959, the People's Action Party that was elected in 1959 has been returned to power at every election since. Lee Kuan Yew was the first Prime Minister from 1959 to 1990. He was succeeded by Goh Chok Tong, who was the Prime Minister from 1990 to 2004. The present Prime Minister, Lee Hsien Loong (the elder son of Lee Kuan Yew), succeeded Goh in 2004. Each of the Prime Ministers and its respective government has faced a set of different complex housing issues and this case study will examine the challenges and the housing policies that have been adopted at different stages of development.

2. The Lee Kuan Yew Government, 1959 to 1990: "Laying the Foundations"

Mr Lee Kuan Yew's government can get a credit for laying the foundations for the successful economic development of Singapore in the 1960s. The political turbulence of self-government, merger with Malaysia, and unexpected independence was not conducive to long term investment decisions. On the housing front, the government was faced with a chronic housing shortage as well as insufficient private sector resources and capacity to provide adequate solutions due to a large number of immigrants and its growing population.

The Singapore Improvement Trust (SIT), a statutory board created by the colonial government in 1927, was established as a town planning authority which undertook road construction and general improvement of the city. In 1932, the growing housing shortage forced the government to expand the SIT's responsibilities to include the provision of houses and flats for the lower income groups. By 1941, SIT completed the construction of only 2000 dwellings.[3]

---

3 See Phang 1992, Chapter 3 for a description of the SIT and other public sector agencies involved in housing development in the 1960s and 1970s.

In the post-war period between 1947 and 1959, the SIT built an estimate of 21,000 housing units. SIT dwellings housed 8.8% of the population by 1959; many resided in overcrowded pre-war shophouses, slums or tenements without piped water and modern sanitation. Because of the appalling overcrowding, the newly elected government took the task of providing homes on a large scale. In the 1960s, the foundations of Singapore's real estate and housing policies were put in place. Three important components of these were the establishment of the Housing and Development Board (HDB) in 1960, the enactment of the Land Acquisition Act (LAA) in 1966 and the expansion of the role of the Central Provident Fund (CPF) to become a housing finance institution in 1968.

1960: The Housing and Development Board

The HDB began its operations on February 1, 1960. It replaced the SIT and was set up as a statutory board to provide "decent homes equipped with modern amenities for all who needed them". A target of 110,000 dwelling units to be built was set between 1960 and 1970. From 1964, the HDB began offering housing units for sale at below market prices, on a 99-year leasehold basis, under its "Home Ownership for the People" scheme. [4] HDB priced housing units affordably for households with incomes not exceeding S$800 a month and offered loans to owners paid less in monthly mortgage payments than they would have done in rents.

The political and economic motivations for homeownership policies can be 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).

---

4 Ibid., and HDB website at http://www.hdb.gov.sg.

1966: Government Land Acquisition

The most striking feature of the land system in Singapore is the prevalence of government landholding and the leasehold as a method of landholding. [5] More than 90% of the land in Singapore belongs to the state and much of real estate in Singapore is therefore built on the land leased from the state. Land scarcity in Singapore has been used to justify the extensive state land ownership and the need for judicious allocation of scarce land resource by the land use planner among various competing uses. In 1966, the government enacted the Land Acquisition Act (LAA) which permitted the state and its agencies to acquire land for any public purpose or for any work which is of public benefit, of public utility or of the public interest; or for any residential, commercial, or industrial purposes. Thus, the Government was and is still empowered to acquire sufficient land from private land owners to develop new public housing flats.

A 1973 amendment set payments independent of market conditions and the landowner's purchase price. Between 1973 and 1987, the compensation for the acquired land was assessed at the market value as of Nov 30, 1973, or the date of gazette notification whichever was lower. The existence of rent control further depressed land values for affected properties. Government land acquisition at below market values in the 1970s greatly facilitated the industrialization and housing programs. State ownership of the land grew from 44% in 1960 to 76% by 1985. This dramatic increase was achieved through land acquisition, land reclamation [6] and the transfer of the British military land.

Subsidiary legislation in the form of State Land Rules 1968 stated that titles for state-owned land should be for terms not exceeding 99 years. Through the LAA, the government cleared low density housing, slums, villages and squatter areas, and assembled land parcels. State land was leased to government agencies for the development of 'public' housing which were sold on a 99 year leasehold basis to eligible households as well as the development of industrial estates. Subsequent amendments to the Act from 1987 changed the statutory date used for pegging compensation which is currently at market rates.

---

5 See Phang 1992, Chapter 2 and Phang 1996.

6 Land reclamation works have increased the land of Singapore since 1965 by more than one fifth (see Table 1). The government amended the legislation (Foreshores Act) to allow foreshore reclamation works to be undertaken without being subject to claims for loss of shoreline.

Public land leasing generally goes under the term Government Land Sales (GLS) in Singapore. Much urban redevelopment in Singapore has been achieved through the GLS program administered mainly by the Urban Redevelopment Authority with the HDB at a smaller extent. Under the program, the government amalgamates land, inserts infrastructure, provides planning and urban design guidelines, and releases the land for sale to private (including foreign) developers. Sites are usually sold on 99-year leases for commercial, hotel and private residential development whereas leases for industrial sites are usually for 60 years or less. The lease tenure for other types of sites varies depending on the uses. The usual sale method is through public tender.

1968: Mobilization of Provident Fund Savings for Housing Finance

While HDB and its related construction finance and land policies brought about a transformation on the housing supply side, demand for homeownership was ”created” by directing savings in the Central Provident Fund (CPF) towards housing. [7] The CPF existed 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 of a certain percentage of the individual employee’s monthly salary toward the employee’s personal and portable account in the fund by both employers and employees, respectively. All employers were required to contribute to the fund monthly. The bulk of contributions could only be withdrawn for specific purposes: on retirement at age 55 or on permanent incapacitation of the contributor concerned.

The CPF became an important institution for financing homeownership 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. Five percent of the monthly salary for both employees and employers were contributed to the CPF at the inception in 1955. From 1968, the rates were adjusted upward and peaked at 25 percent of wages for both employers and employees from 1984 to 1986 (see Figure 1). Contribution rates are currently 20 percent of wages for Singapore citizen employees and 16 percent of wages for employers, up to a salary ceiling of $5,000. Contribution rates are lower for workers above 50 years of age, and the proportion of contributions allocated for investments, retirement, and healthcare also varies with age. Rates have varied depending on economic conditions and changes to contribution rates have been previously used as a macroeconomic stabilization instrument to limit inflation or to reduce wage cost.

---

7 Detailed information can be found at the CPF website: http://www.cpf.gov.sg .

Figure 1

CPF Contribution Rates

Source: Data from Central Provident Fund website at http://www.cpf.gov.sg.

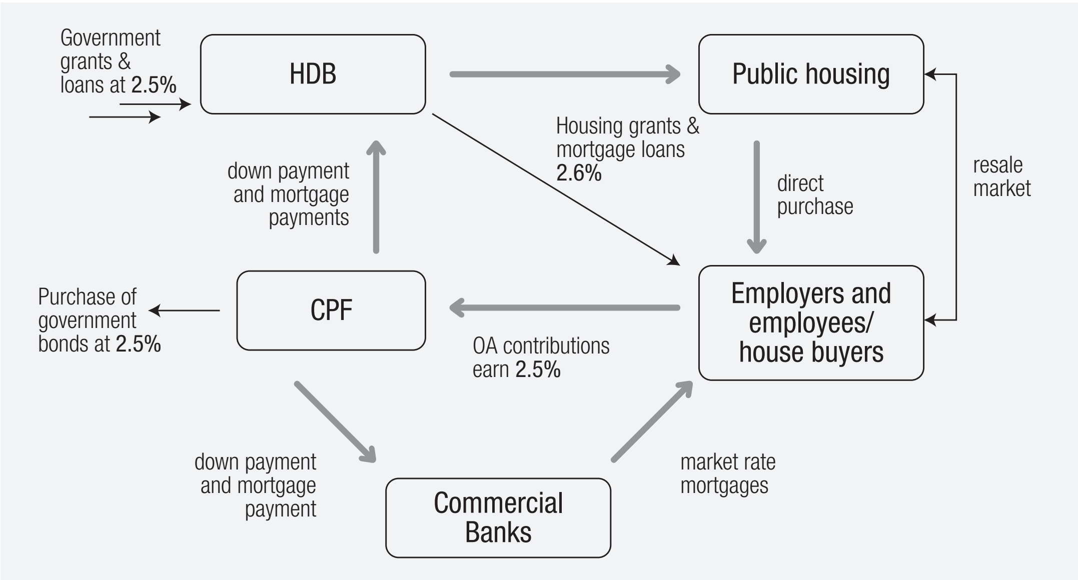
The interest rate on CPF Ordinary Account savings is based on a weighted average of a 1-year fixed deposit and month-end savings rates of the local banks, subject to a minimum of 2.5 percent (the current rate). Savings in the Special, Medisave and Retirement accounts earn an additional interest of 1.5 percentage points above the normal CPF interest rate (currently 4%).

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. In 1981, the scheme was extended to allow withdrawals for mortgage payments to purchase 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.

The HDB provides mortgage loans and mortgage insurance for 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 25 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 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.

Figure 2

Singapore's CPF Mobilization of Savings for Housing



Source: Phang 2013, p. 91.

CPF collects member contributions and invests these in special non-tradable government securities that earn the same interest that it pays out to its members: 2.5% and 4%. The HDB is a recipient of government grants and 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, to ensure the sustainability of the financing arrangement. Each household is eligible to apply twice for new HDB flats (the second application after 10 years of occupying the first, and subject to eligibility conditions) and two loans from the HDB. Housing loans for public housing have also been provided by commercial banks since 2003. With the decline in mortgage interest rates in recent years, commercial banks have been able to offer loans at rates below the HDB loans' 2.6 percent interest rate floor and have been increasing their share of mortgage lending.

2.1. Outcomes of Housing Policy

Improvements in the urban environment and the standards of housing in Singapore during the three decades under Lee's government showed the success of the economic development and housing strategy adopted by the Singapore government. This overwhelming success has been well documented. Land and properties in the cities and rural areas were acquired by the government. Also, squatter settlements were cleared and entire neighborhoods and villages were resettled in HDB new towns. HDB's housing stock increased rapidly from 120,138 units in 1970 to 574,443 units in 1990, which was 87% of the resident population (see Table 1). The homeownership rate for the resident population increased from 29 percent in 1970 to 88 percent in 1990. Singapore's large public housing sector is therefore in ownership terms, a largely privatized sector. However, the ownership tenure of a HDB dwelling differs from that of the private dwelling in many aspects. Ownership rights are limited by numerous regulations concerning eligibility conditions for purchase, resale, subletting and housing loans.

The housing market is highly segmented according to regulations on eligibility of households. Only citizen households are eligible for HDB rental and direct purchase (one unit per household) with current monthly gross household income caps at S$1,500 for rental and S$10,000 for direct purchase, respectively. The resale HDB sector is open to citizens and permanent residents with housing grants for purchaser households carefully calibrated according to citizenship, marital status and household income. The private housing sector caters largely to higher income Singapore citizens, permanent residents, expatriates, and foreign investors. Foreign ownership of housing is confined to private flats and the condominium sector.

That a large public housing program could deliver satisfactory housing for the majority in a relatively affluent city testifies Singapore government's production efficiency and responsiveness to changes. This public provision of private goods on a large scale was accompanied by numerous regulations on eligibility, resale, and financing, which resulted in some consumption inefficiencies in the earlier decades. The public-private hybrid has, however, allowed the government to regulate, deregulate and re-regulate the sector with changes in socio-economic as well as market conditions.

Favorable socio-economic effects of Singapore's housing welfare approach include the following (see Phang 2007 for details):

1) Increase in Savings Rate

At the inception of the CPF home ownership scheme in 1968, the Gross National Saving to GNP ratio was less than 20 percent, which was insufficient to fund the country's investment needs (32 percent of GNP). The CPF contributed to a significant leap in the savings rate, 44 percent of GNP by 1990 (see Table 1) – certainly one of the highest savings rates in the world, more than sufficient to meet the country's investment needs.

2) Increase in Quantity and Quality of Housing Stock

The housing welfare approach enabled Singapore to mobilize long term resources on the demand side. This was to finance the rapid supply of housing by the public sector with minimal involvement of government expenditure. Although Krugman (1994) critically described Singapore's economic development as "a mobilization of resources that would have done Stalin proud," in the housing sector, it was a mobilization of resources that visibly raised living standards of the entire population, transformed the housing environment of Singapore, and resulted in the creation of significant housing and real estate wealth.

3) Increase in Homeownership Rate

The development of well functioning mortgage markets is often viewed as a means to achieving a higher homeownership rate. Homeownership is promoted in many countries and various policies and institutional arrangements provide incentives for homeownership by reducing its costs relative to renting (Phang 2013). In addition to government provision of affordable subsidized HDB housing and HDB mortgage loans, the policy of allowing high mandatory savings for home purchasing made homeownership the dominant option for most Singaporean households. It is not surprising that homeownership rate for the resident population increased from 29 percent in 1970 to 88 percent in 1990 due to sustained income increases and low unemployment rates (See Table 1).

4) Development of Mortgage Market

Housing policies have contributed to the development of the mortgage sector in Singapore. In 1970, shortly after the implementation of the CPF Approved Housing Scheme, outstanding housing loans were a mere S$215 million. This constituted only 4% of the GNP. In 1990, housing loans to the GNP ratio increased to 29% with the HDB share at 54% (see Table 1).

Table 1

Key Indicators of Singapore's Housing Sector

	1970	1980	1990	2000	2010
Population and Land Area	2.075	2.414	3.047	4.017	5.076
Resident Population (millions)	2.014	2.282	2.736	3.263	3.772
Non-resident Population (000s)	61	132	311	755	1304
Resident Homeownership Rate	29%	59%	88%	92%	87%
Resident Population in HDB Dwellings	36%	73%	87%	86%	82%
Land Area (sq km)	586	618	633	683	712
Macroeconomic Data					
GDP (S$m, 2005 market prices)	$16,556	$39,356	$82,928	$165,358	$286,447
GNP per Capita (S$ current)	$2,860	$10,135	$22,868	$40,090	$61,928
Unemployment Rate	6%	3.5%	1.4%	3.5%	3.1%
Exchange Rate (S$/ US$)	S$3.09	S$2.14	S$1.81	S$1.73	$1.36
Gross National Saving/GNP	19.3%	34.2%	43.9%	51.5%	48.4%
Gross Capital Formation/GNP	32.2%	42.2%	31.6%	27.6%	23.6%
Residential Construction/GNP	6.2%	5.9%	5.2%	6.2%	6.6%
Housing Loans					
Total Housing Loans (S$m)	$215	$2,421	$19,151	$101,384	$141,215
Housing Loans/GDP	4%	10%	29%	64%	45%
HDB Mortgage Loans/Housing Loans	58%	60%	54%	59%	32%
Banks' Housing Loans*/Housing Loans	42%	40%	46%	41%	67%
Central Provident Fund					
Balance Due Members (S$m, current at 31 Dec)	$777	$9,551	$40,646	$90,298	$185,888
Employee Contribution Rate	8.0%	18.0%	23.0%	20.0%	20.0%
Employer Contribution Rate	8.0%	20.5%	16.5%	12.0%	15.0%

	1970	1980	1990	2000	2010
Prices					
CPI (Nov 97–Oct 98=100)	36.5	68.2	85.2	101.1	118.6
Private House Price Index (1998=100)	-	27.3	57.7	130.3	194.8
HDB Resale Price Index (1998=100)	-	-	34.1	104.9	172
Price of New 4-room HDB Flat in New Town Location (≈ 100 sq m in S$)	$12,500	$24,200	$76,100	$98,000	$260,000
Housing Price & Mortgage Affordability					
(4-rm HDB Flat Price to GNP per Capita)	4.42	2.43	3.36	2.32	4.20
15 Year Housing Loan Interest Rate	n.a.	10.83%#	7.36%	6.15%	4.41%
HDB Mortgage Interest Rate	6.25%	6.25%	3.98%	2.60%	2.60%
Housing Stock (HS)	305,833	467,142	690,561	1,039,677	1,156,700
Public Sector Built	120,138	337,198	574,443	846,649	898,532
Private Sector Built	185,695	129,944	116,118	193,028	258,200
4-room and Larger HDB Flats/HS (%)	1%	13%	40%	51%	54%
Persons per Dwelling Unit	6.7	5.1	4.4	4.2	4.3

Note: * includes Finance Houses & Credit POSB.

1984 rate, interest rates refer to average rates compiled from those quoted by 10 leading banks and finance companies; variable rate mortgage loans are available at lower rates.

Source: Various Singapore Government Publications and Websites.

5) Racial Integration

The large HDB housing sector has played an extremely important role in shaping the Singapore society. Singapore is a multi-racial, multi-religious country; in 2012, the Chinese consisted of 74.2% of the resident population, the Malays 13.3%, Indians 9.2%, with other races comprising 3.3%. The physical plans of HDB new towns have been designed to integrate the various income and racial groups within the public housing program, and this has prevented the development of low-income and ethnic ghettos. The colonial administration had a policy of racial segregation in its early days of town planning. Along with the communist threat, controlling racial tensions (there were racial riots on a number of occasions) was major political challenges in the 1960s. Beginning in the 1970s, the HDB allocated new flats in a manner that would give a ”good distribution of races” to different new towns. However, by 1988, a trend of ethnic regrouping through the resale market was highlighted as a housing problem which would lead to the re-emergence of ethnic enclaves. In 1989, the HDB implemented an Ethnic Integration Policy under which racial limits were set for HDB neighborhoods. When the set racial limits for a neighborhood was reached, those wishing to sell their HDB flats in the particular neighborhood had to sell it to another household of the same ethnic group. The government emphasized that ”our multiracial policies must continue if we are to develop a more cohesive, better integrated society. Singapore’s racial harmony, long term stability, and even viability as a nation depend on it” (Ooi, et.al., 1993, p.14).

6) Impact on Economic Distribution

The vast majority of households including low income households in Singapore have benefited from the government’s policy which gives access to ownership of affordable public housing. The active resale market allows mobility within and out of the market and the benefits of price discounts to be capitalized after a minimum occupancy period. Each household is allowed to apply for a “housing subsidy” that has been described as ”a ticket to an easier life for the HDB heartlander” twice (*The Straits Times*, 19 April 1997).

Due to the massive program, trade-offs were inevitable. The housing approach adopted in Singapore undoubtedly increased the savings and homeownership rates, mobilized resources for the housing sector and contributed to the increase in housing loans and the development of the primary mortgage market. However, the approach was not without its detractors. Singapore’s housing strategy was inherently policy-driven and centrally-controlled with major decisions on savings rates, savings allocation, land use, housing production, and housing prices being largely determined by the government. It was, in other words, a neo-classical economist’s nightmare. Pugh (1985), advocating Singapore’s strategy as a good model in the context of providing a set of guidelines for a good housing system, writes:

> … do not be too perturbed if some orthodox (neo-classical) economists argue that housing is over-allocated by subsidy. Show them that `subsidy’ is a concept which cannot be fitted easily to housing, and produce counter arguments, which are respectable in economics, and which are readily available.

3. The Goh Chok Tong Government, 1990 – 2004: "Asset Enhancement"

When Mr Goh Chok Tong succeeded Mr Lee Kuan Yew as the Prime Minister in 1990, the housing shortage problem was solved. The homeownership rate increased steadily over the years and was 88% in 1990. 87% percent of the resident population was already housed by the HDB and the property-owning democracy became a reality. In the 1990s, the HDB shifted its focus on providing larger and better quality flats for existing HDB and upper-middle income households, redevelopment of old estates, and retrofitting existing flats. Upgrading households to larger flats within the HDB sector was facilitated by the development of an active secondary market and a system that allowed an eligible household to apply for a second (usually larger) subsidized flat after a minimum occupation period.

The land planning in the early 1990s shifted its focus to the one that was more visionary and that provided a larger market space for private sector developers to meet the aspirations of a growing segment of the population for more exclusive housing. This was the period when the government land sales program to private developers resulted in a marked increase in the supply of private housing. Revenue from the sale of state land leases constituted a significant proportion of government revenue, particularly during the `boom' years of the property cycle.

Housing policies under Goh Chok Tong's term as the Prime Minister were marked as market deregulation, "asset enhancement" and "upgrading" policies. The Goh government viewed Singaporean homes as an asset and potential source of security for their old age (CLC 2013, p.15). Implemented policies included the deregulation of the HDB resale market including housing loans for HDB resale flats which facilitated mobility, physical upgrading of HDB flats and neighborhoods as well as the introduction of demand side subsidies in the form of CPF housing grants. These policies partly contributed to the rapid escalation of housing prices in the early half of the 1990s.

3.1. Resale Market Deregulation

The desirability of any asset is determined to a large extent by its liquidity. The easiness of trade determines the efficiency of a market. The promotion of ownership of subsidized new HDB dwellings was therefore accompanied by policies concerning the secondary market for that housing. From the perspective of public policy, there was earlier concerns that under the then general housing shortage, HDB dwellings should not become a vehicle for speculation by allowing the price subsidies to be capitalized the a secondary market. Resale regulations were therefore extremely onerous in the early days of the housing program. With the easing of housing shortage, the HDB housing sector was ready for deregulation.

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

Only citizens who did not own any other residential property 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, the mobility of residence was enhanced when the income ceiling restriction was removed from HDB resale flats; the resale market was open to permanent residents as well as private property owners. HDB flat-owners who could not own any other residential property before could also invest in private sector built dwellings. Single citizens above the age of 35 have been allowed to purchase HDB resale flats for owner-occupancy since 1991.

The HDB also provides loans for buyers of resale HDB flats. Loan financing prior to 1993 was 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 a large amount of money in cash. In 1993, the HDB moved its mortgage financing terms closer to market practice by granting loan financing of up to 80 percent of current value or the declared resale price of the flat, whichever was lower. In 1993, the CPF Board also began to allow withdrawals from 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 was accompanied by an increase in the number of resale HDB 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). The proportion of resale transactions to the (new and resale) owner-occupied public housing transactions were 3 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 was partly due to the introduction of demand side housing grants.

3.2. CPF Housing Grants

In 1994, demand-side subsidies for the purchase of resale HDB flats in the form of CPF housing grants were introduced. This represented a shift from total reliance on subsidies for new flats to a system of partial reliance on subsidies for resale flats. The subsidy was deposited into the CPF account of the eligible household when it applied it in order to purchase a resale HDB flat. Under the scheme, the government provided the first time applicant household with a grant of $30,000 to purchase a HDB resale flat close to either parents' or married child's residence. In 1995, the grant was increased to $50,000. The government also introduced a general grant of $40,000 for eligible households that would purchase a resale flat which did not need to meet 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, the annual supply of new public housing increased substantially, particularly in the early 1980s. It was a rapid rate that was consistent with high income and population growth combined with a serious housing shortage. The supply policies of the HDB that were suitable under the above circumstances had to be reviewed as the population growth stabilized and as basic housing needs were generally met.

3.3. HDB Upgrading and Selective En-bloc Redevelopment Schemes

By the late 1980s, the age gradient for HDB estates became evident. Older estates had been built closer to the CBD and new towns were built at distances further away from the CBD. was Also, the trend was that younger families moved out of older HDB towns as they were allocated new flats in outlying new towns. In 1989, the government announced an ambitious long term HDB Upgrading Programme to upgrade existing HDB estates. The upgrading programs varied in their nature and scale (see Table 2) and were subsidized by roughly between 53 to 93 percent by the government depending on the type of flat (CLC 2013, p.20). The Goh government also launched the Selective En bloc Redevelopment Scheme (SERS) in 1995 under which older low density blocks of HDB flats had to be demolished and occupants had to be moved to brand new and high density developments within the same estate.

Table 2

HDB Upgrading Programmes

Selective En bloc Redevelopment Scheme • Launched in August 1995 • Old estates with high redevelopment potential identified • Government acquires flats by compensating flat owners the prevailing market price plus removal expenses • Flat owners guaranteed new replacement flat priced below the market value • Old blocks demolished and new higher density developments built
Main Upgrading Programme (MUP) • Launched in 1989 to enhance the overall living environment of estate • Residents offered a 'standard package' comprising improvements in the precinct, in the block, and within the flat • Option of space adding item i.e. extra bathroom, balcony or kitchen extension • Proceed only if 75% of Singapore Citizen eligible households vote in favor of upgrading works
Lift Upgrading Programme (LUP) • Launched in 2001 to provide direct lift access, where feasible, to existing HDB blocks without 100 percent direct lift access • Proceed only if 75% of Singapore Citizen eligible households in a block vote in favor of it
Home Improvement Programme • Replaced the MUP since August 2007 • Essential improvements include replacement of waste pipes, repair of structural cracks, spalling concrete and ceiling leaks as well as upgrading of electrical supply which are fully funded by the government • Residents may opt for improvements works such as replacement of entrance door, grille gate and refuse hopper, as well as upgrading of toilets/bathrooms at highly subsidized costs (Singapore citizen residents in 3-room flats pay 5% of the cost while those in 5-room flats contribute 10% of the costs)

Interim Upgrading Programme (IUP) and IUP Plus • Launched in 1993 • Provided pedestrian covered linkways, repainting of blocks, and new letter boxes • Fully funded by the government • Combined with LUP as 'IUP Plus' in May 2002
Neighborhood Renewal Programme • Replaced the IUP Plus in August 2007 • Focus on block and neighborhood improvements and can be implemented on a larger area of two or more contiguous precincts • All costs borne by the government and implemented by town councils • Examples of improvements include residents' corners and lift lobby tiling, drip-off porch, linkways, soccer pitch, fitness corners, and jogging track at the neighborhood level • Proceed if at least 75% of eligible flat owners in the neighborhood indicate their support

Source: Summarized from Centre for Liveable Cities and HDB, 2013, Appendix B.

3.4. Housing Bubble, the EC Scheme and the Asian Financial Crisis

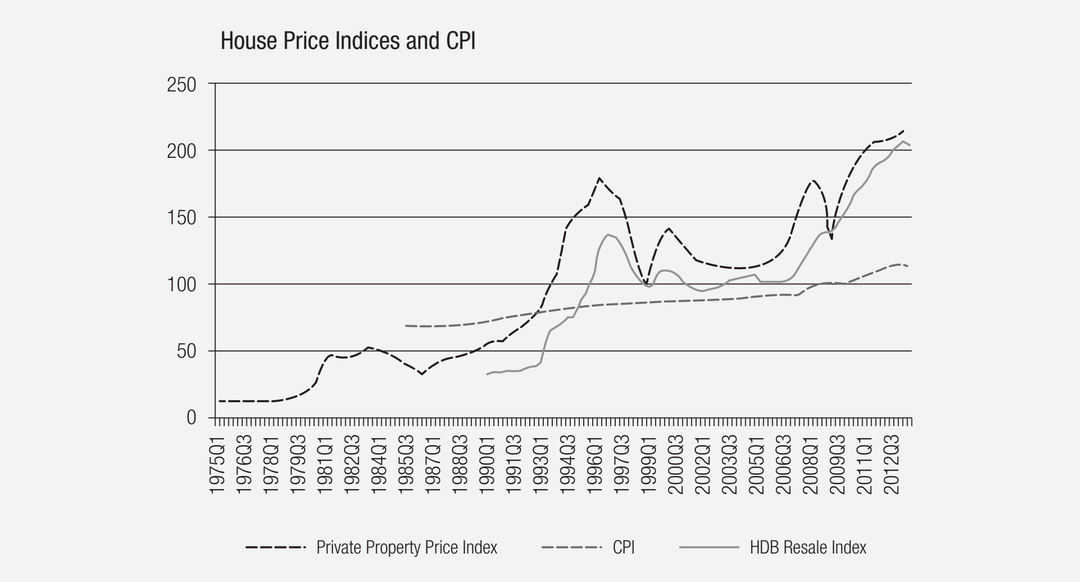
Financial liberalization as well as positive macroeconomic factors resulted in rapidly rising housing prices in the early 1990s (see Figure 3). With the growing concern over the affordability of private housing, the government introduced the Executive Condominium (EC) scheme, a hybrid public-private house type in 1995. The EC scheme also facilitated the HDB's withdrawal from the upper-middle-income housing market, allowing it to discontinue to build Executive Flats. Its similarity with 99-year leasehold private condominium house type enabled the government to affect private housing prices with another instrument on the supply side. The government auctioned the land off 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. Applicant households had to satisfy eligibility conditions and abided by regulations on these units.

Despite an increase not only in HDB supply of new housing but also in government land sales for private housing development and the introduction of the EC scheme, housing prices continued to soar (with the private housing price index more than tripling between 1990 and 1996). On May 15, 1996, the government introduced a package of anti-speculation measures to curb real estate speculation. These included 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, and limiting foreigners to non S$ denominated housing loans. The HDB also tightened various regulations: in April 1997, HDB flat buyers were limited to two loans from the HDB where there had been no limit before. In May 1997, the HDB implemented various measures to curb housing demand of upgraders (households applying for a second new subsidized flat from the HDB). These measures included lengthening the time period from five to ten years before flat lessees are eligible to purchase a second new flat from the HDB and revising the graded resale levy system.

The immediate purpose of these measures was to cool the property market. However, it entered a slump with the onset of the Asian economic crisis in 1997 (see Figure 3). In response to the fall in demand that was particularly noticeable 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 CPF housing grants was reduced in stages over ten months from January to October 1999 -- S$500 reduction per month for the Single Citizen housing grant, and S$1,000 reduction per month for other housing grants.

Figure 3

Nominal House Price Indices and CPI



Note: CPI, 1985 – 2009 (2009 = 100); Private House Price Index, 1975 – 2004 (1998 Q4=100); HDB Resale Price Index, 1990 – 2004 (1998 Q4 = 100).

Source: Singapore Government Agencies: Department of Statistics, Singstat Database; Urban Redevelopment Authority, Real Estate Information System REALIS; Housing and Development Board Website.

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 the queuing system, diverting new and remaining applicants to its Built-To-Order program under which flats were built only when there was sufficient demand for them. In July 2003, the HDB's 3000 strong Building and Development Division [8] was re-organized and the HDB Corporation Private Limited (HDB Corp) was 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 was rebranded as Surbana Corporation Private Limited and is now partly owned by CapitaLand, a public listed company which is also partly owned by Temasek Holdings, the government's investment holding company.

In his memoirs, Mr Lee Kuan Yew (who remained in the Cabinet as Minister Mentor to Goh's government) recalled this as an event in which the government yielded to popular pressure:

> I should have known that it does not pay to yield to popular pressure beyond our capacity to deliver. Yet I was party to a similar mistake in the early 1990s. As property prices rose, everybody wanted to make a profit on the sale of their old flat and then upgrade to a new one, the biggest they could afford. Instead of choking off demand by charging a levy to reduce their windfall profits, I agreed that we accommodate the voters by increasing the number of flats built. That aggravated the real estate bubble and made it more painful when the currency crisis struck in 1997. Had we choked off the demand earlier, in 1995, we would have been immensely better off (Lee, 2000, p. 121).

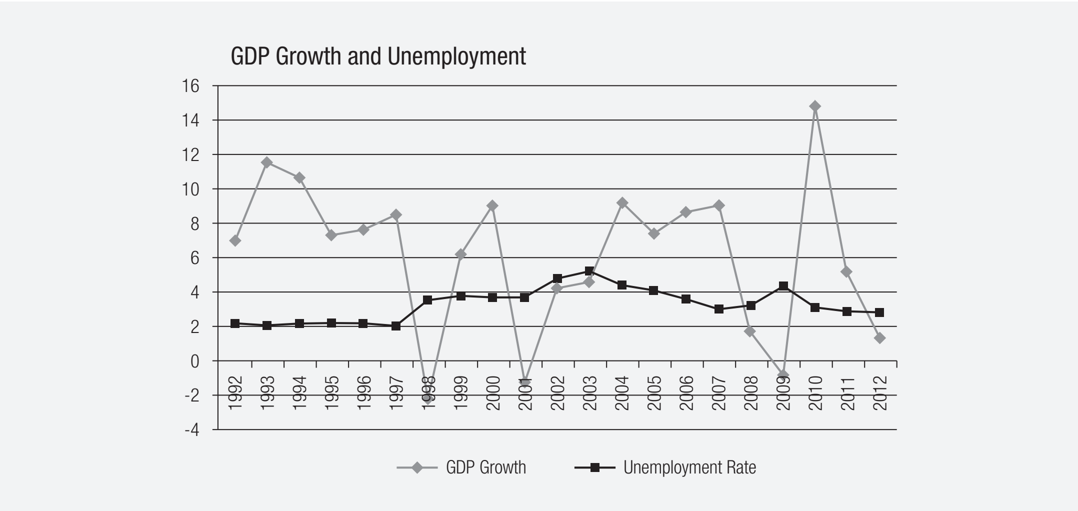
8 At the time of restructuring, HDB's staff strength was 8,000 including 3,000 in the Building and Development Division. The new HDB Corp took in about 800 to 1,000 staff. Ministry of National Development, Housing and Development Board Press Release, 26 February, 2003.

4. The Lee Hsien Loong Government, from 2004: "Management of Housing Affordability in a Global City"

Mr Lee Hsien Loong became Singapore's third Prime Minister in August 2004, having served as a Member of Parliament since 1984 and a member of the cabinet since 1987. The housing market at the start of his term appeared to be stabilizing at the trough of the property cycle (see Figure 3). The HDB had been restructured and downsized. The economy was recovering from the shock of the SARS crisis of 2003 (see Figure 4). The Asian economic crisis of 1997 and the subsequent fall in property prices, however, had resulted in the risks of housing bubbles, unemployment, and reliance on housing as an asset to finance retirement. A rapidly aging population and the decline in total fertility rate over the years posed a major demographic challenge. Policy attention shifted to elderly households that could monetize their housing asset, better targeting of housing grants to benefit lower income households, and regulation of the housing market and housing loans.

Figure 4

GDP Growth and Unemployment Rates

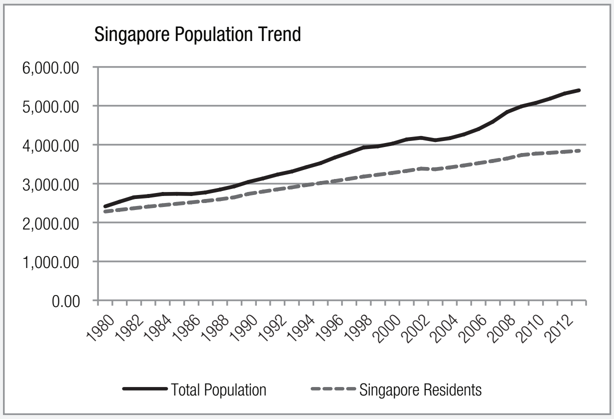


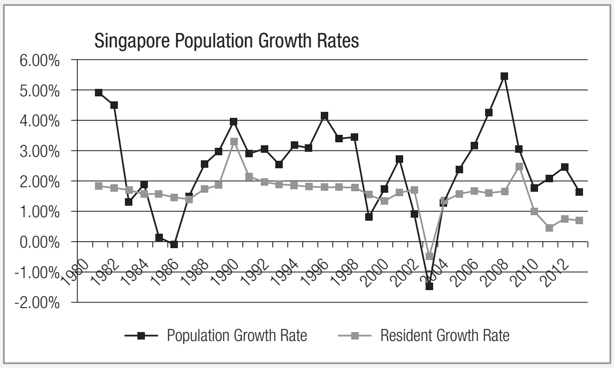
Source: Singapore Government Agencies: GDP Data from Singstat Database; Resident Unemployment Rate from the Ministry of Manpower Website.

In 2005, the government made a decision to proceed with the development of two casino based integrated resorts –until then, casinos were not allowed in Singapore. This decision could be said to mark another phase in the economic development of Singapore as a global city. On the population front, immigration and foreign worker policies led to a rapid growth in the number of foreigners in Singapore (see Figure 5). However, the global financial crisis of 2008-2009 and the uncertainties it brought about (see impact on GDP growth and unemployment in Figure 4) made the government hold off increasing housing supply which subsequently led to a housing shortage in 2010 – the year when the two integrated resorts opened and the economy rebounded sharply (with real GDP growth of 14.8%).

Figure 5

Population Trends and Growth Rates





Source: Singstat Database.

Housing price increases in excess of median income growth, younger generation's inability to afford housing, rising income inequality, and over-crowded public transportation and other facilities contributed to a decline in support for the People's Action Party (PAP). The share of the PAP's vote declined from 66.6% at the 2006 election to 60.1% at the 2011 election, with the opposition Workers' Party winning 6 of the 87 seats for elected Members of Parliament (only 2 seats were won by opposition parties in the 2006 election).

In this section, we consider the policies implemented by Lee Hsien Loong's government to address the housing problems of elderly and lower income households as well as to curb the investment demand for housing, aimed at controlling housing price increases.

4.1. Elderly Households: Monetizing Housing Assets

A typical household in Singapore has invested a large portion of its wealth in housing. McCarthy et.al. (2002) showed through simulations that the average worker in Singapore is likely to be "asset-rich and cash-poor" with 75 percent of his retirement wealth in housing asset upon retirement, under the condition that housing values continue to rise in real terms. In contrast, an American elderly household would have only 20 percent of their retirement wealth in housing asset. This raises the problematic issue of over concentration of household assets in housing which results in a risky under-diversified portfolio at retirement.

Economic Review Committee appointed by the government in 2002 arrived at a similar conclusion that CPF members were "asset rich and cash-poor" and made recommendations to limit CPF withdrawals for housing in a report. It also suggested that the government should explore ways to monetize their property for homeowners.[9] Agreeing with the committee's recommendations, the government moved to cap CPF withdrawals for housing at 150 percent of the value of the property with the cap moving down gradually to 120 percent over five years for new private housing loans.

---

9 Economic Review Committee: Sub-committee on policies related to taxation, the CPF system, wages and land (2002). 'Refocusing the CPF system for enhanced security in retirement and economic flexibility.' Reverse mortgages in Singapore are available only for owners of fully-paid private properties aged 55 and above. Between 1997 and 2004, only 215 homeowners have taken up loans worth S$100 million (channelnewsasia.com). Asher (2004) referred to the reverse mortgage as suffering from severe technical problems and high transactions costs.

To address the problem of “asset rich and cash poor” faced by the old, the HDB introduced the Lease Buyback Scheme (LBS) in 2009 to allow the low income elderly (age 63 or older) living in 3-room or smaller flats to unlock the equity in their homes. The proceeds of the part sale will be used to top up their CPF Retirement Accounts and to purchase an annuity plan that will provide a monthly income for life. The amount of monthly income would be determined by the market value of the flat, the length of the remaining lease, the amount of outstanding loan on the flat, and the age and the gender of the elderly owner(s). Under this scheme, the HDB will buy back the tail lease of the flat with the elderly flat owner retaining a 30 year lease, and provide a bonus (up to S$20,000) with the unlocked housing equity. The LBS thus allows the elderly to continue to stay in their flat.

Other monetization options for eligible elderly households include

- a Silver Housing Bonus incentive (of up to S$20,000) to sell their current flat and buy a smaller flat (right-sizing);
- buy a studio apartment (sold at elderly friendly prices for a 30 year lease);
- sublet a room or put their flat up for rental for a steady flow of income.

4.2. Lower Income Households: Additional and Special Housing Grants

With eligibility for HDB new subsidized flats and CPF Housing Grants (of S$40,000) extending to over 80 percent of Singapore citizen households, subsidies needed to be better calibrated to household incomes. Housing grants which allowed the HDB to better price discriminate based on household incomes became a feature of the HDB pricing policy.

Additional Housing Grants were introduced in 2006 (and enhanced in 2007 and 2009) to allow families with lower incomes to receive a higher amount of grant which could be used for either a new flat or a resale flat. The amount of the Additional Housing Grant depended on the average gross monthly household income (see Table 3A).

The Special Housing Grant was introduced in 2011, enhanced in 2012 and significantly expanded in 2013 to help households buy 4-room or smaller new flats in non-mature estates directly from the HDB. The amount of SHG depended on the average gross monthly household (see Table 3B).

Table 3A

Additional CPF Housing Grants (from Feb 2009)

Average Monthly Household Income S$	Additional CPF Housing Grant S$
$1,500 or less	$40,000
$1,501 - $2,000	$35,000
$2,001 - $2,500	$30,000
$2,501 - $3,000	$25,000
$3,001 - $3,500	$20,000
$3,501 - $4,000	$15,000
$4,001 - $4,500	$10,000
$4,501 - $5,000	$ 5,000

Source: HDB Website.

Table 3B

Special Housing Grant (from July 2013)

Average Monthly Household Income S$	Special Housing Grant Amount S$
Up to $5,000	$20,000
$5,001 - $5,500	$15,000
$5,501 - $6,000	$10,000
$6,001 - $6,500	$5,000

Source: HDB Website.

4.3. Property Investors: Curbing Housing Investment Demand

In the post global financial crisis period, rapid population increase (see Figure 5), low interest rate, and high global liquidity resulting from the accommodative monetary policy of Central Banks in developed economies led to the accelerated price increase of Singapore property (see Figure 3). Increasingly, in the current complex environment, this housing price trend in Singapore has been consistent with the latest phenomena observed in the property market around the world after the 2008 debt crisis, especially in cities which have attracted the funds of international investors. The continuous upward trend in prices has posed difficulties and exerted tremendous pressure on policy makers to react with counter cyclical and cooling measures. Since 2006, the Singapore government has announced several consecutive measures to curb demand for housing (see Table 4). These measures can be viewed as macro prudential policies to stabilize the housing prices, reduce the returns for housing investors, and pre-empt developing a housing bubble.

Table 4

List of Government Measures Affecting the Property Sector (2006 to 2013)

DEC06	In December 2006, buyer stamp duty concession was withdrawn and all property buyers had to pay their stamp duties within 14 days of the date of excising their purchase options. During the transition period, buyers who execute their purchase transactions during the month had a three month's grace period to pay their stamp duty.
OCT07	In October 2007, a Deferred Payment Scheme introduced by developers, which allowed buyers to defer payments for properties under construction to the date of issue of Temporary Occupation Permit, was disallowed by the government.
SEP09	In September 2009, an Interest Absorption Scheme introduced by developers, which allowed buyers to transfer their interest-servicing burden on a housing loan to the developers for properties under construction until the completion date, and Interest-only housing loan scheme, which allowed buyers to make only interest payments on their housing loans, were disallowed by the government.
FEB10	In February 2010, seller stamp duty was re-introduced for the sale of properties within one year of purchase and LTV ratio was lowered back to 80%.
AUG10	In August 2010, the holding period for seller stamp duty was increased to three years. For borrowers with existing housing loan(s), their LTV ratio was lowered to 70% and the minimum cash-component down-payment was raised to 10% from 5%.
JAN11	In January 2011, the holding period for seller stamp duty was increased to four years and seller stamp duty rate was increased to 16%, 12%, 8% and 4% for properties sold in the first, second, third, and fourth year, respectively. For borrowers with existing housing loan(s), their LTV ratio was lowered to 60%.
DEC11	In December 2011, additional buyer stamp duty was imposed; Singapore citizens buying their third and subsequent residential property pay 3%, Singapore permanent residents buying their second and subsequent residential property pay 3%, and foreigners buying their first and subsequent residential property pay 10%.
OCT12	In October 2012, the Monetary Authority of Singapore (MAS) imposed a 35-year tenor restriction for housing loans on new residential properties. LTV ratio was lowered to 60% for borrowers without any existing housing loan(s) but loan tenors exceed 30-year or extend beyond borrowers' retirement age of 65 years. LTV ratio was lowered to 40% for borrowers with existing housing loan(s) where the loan tenors exceed 30-year or extend beyond borrowers' retirement age of 65 years.

JAN13	In January 2013, additional buyer stamp duty was raised; Singapore citizens buying their second residential property pay 7% and those buying their third and subsequent residential property pay 10%, Singapore permanent residents buying their first residential property pay 5% and those buying their second and subsequent residential property pay 10%, and foreigners buying their first and subsequent residential property pay 15%. LTV ratio was lowered to 50% and 40% for borrowers applying for their second and third or subsequent housing loan, respectively where loan tenors do not exceed 30-year or do not extend beyond borrowers' retirement age of 65 years. In cases where loan tenors exceed 30-year or extend beyond borrowers' retirement age of 65 years, LTV ratios of 30% and 20% apply for borrowers applying for their second and third or subsequent housing loan, respectively. The minimum cash-component down-payment was also raised to 25% from 10% for buyers taking their second or subsequent housing loan.
JUN 13	The MAS introduced the Total Debt Servicing Ratio (TDSR) for homebuyers with the intention that the measure "…will help strengthen credit underwriting practices by [financial institutions, FIs] and encourage financial prudence among borrowers." The TDSR is the total monthly debt service as a percentage of the borrower's income and is capped at 60%. In computation of TDSR, FIs will need to take into account the monthly repayment for the property loan that the borrower is applying for plus the monthly repayments on all other outstanding property and non-property debt obligations of the borrower; apply a specified medium-term interest rate or the prevailing market interest rate, whichever is higher, to the property loan that the borrower is applying for when calculating the TDSR; apply a haircut of at least 30% to all variable income (e.g. bonuses) and rental income; and apply haircuts to and amortize the value of any eligible financial assets taken into consideration in assessing the borrower's debt servicing ability in order to convert them into "income streams". MAS also required borrowers on a property loan to be the mortgagors of the residential property for which the loan is taken; "guarantors" who are standing guarantee for borrowers otherwise assessed by the FI at the point of application for the housing loan not to meet the TDSR threshold for a property loan to be brought in as co-borrowers; and in the case of joint borrowers, that FIs use the income-weighted average age of borrowers when applying the rules on loan tenure.
AUG 13	Effective August 27, 2013, new Singapore permanent residents have to wait for 3 years before they are eligible to purchase resale HDB flats.

Source: Lee, et.al (2013); Monetary Authority of Singapore Website at http://www.mas.gov.sg/news-and-publications/press-releases/2013/mas-introduces-debt-servicing-framework-for-property-loans.aspx; and The Straits Times.

In addition to the numerous demand curbing measures, the government has been ramping up the supply of HDB flats since 2011. While HDB dwelling units under management increased by a mere 23,000 units from 2006 to 2011, [10] about 25,000 HDB flats were launched for sale in 2011, followed by 27,000 units in 2012 and 25,000 new flats in 2013. As an estimated 200,000 units of new supply will be added to the housing stock in the next few years, we can expect the shortage to ease and prices to stabilize. Housing, though, remains as an attractive investment considering the underlying housing framework in place, careful regulation of the sector, and long term plans and prospects for Singapore.

10 HDB, "Annual Report 2005-2006."
http://www.hdb.gov.sg/fi10/fi10221p.nsf/Attachment/AR0506/$file/index.html; HDB, " Annual Report 2010/11, "Annual Report 2010/11." http://www10.hdb.gov.sg/ebook/ar2011/main.html.

5. Lessons Learned

The success of the Singapore's housing welfare model demonstrates what can be achieved with strategic planning to mobilize resources and guide key investments. Complemented by close attention to the supply part of the equation as well as policies which created markets over time and accommodated private initiatives to fill the gaps, this process has helped Singapore to avoid the worst outcomes of the extremes of central planning and unplanned growth. Numerous city governments in former socialist countries and in Asia are also major landowners, yet the absence of markets often makes these cities inefficient. Those cities can learn much from Singapore's planning processes, its policies to remove real estate gridlocks, and its active role in creating markets.

It can also be seen that the Singapore government has deployed multiple mitigations in parallel to reduce the risk of housing that may become a source of financial sector instability.

- Housing markets are carefully segmented and carefully regulated.
- The main source of capital for housing finance comes from domestic savings.
- Price subsidies and housing grants are given to the eligible when purchasing.
- The HDB relies on government loans to fund mortgage loans.
- HDB mortgage financing is not subsidized and market share has been shifting to commercial banks over time.
- The use of compulsory savings lowers default risks.
- Government housing institutions do not have conflicting missions
- The government has control over land and housing supply

However, the deregulation of housing finance and HDB markets in the 1990s and the supply lagging behind population increases recently did contribute to recent episodes of rapid housing price increases. Since then, the government has carefully monitored housing credit growth by caps on LTVs and cap on use of CPF savings for mortgages. The government has actively intervened in the housing market to curb foreign demand and speculative demand by using HDB regulations and fiscal and macro-prudential tools when price increases threaten to develop into a bubble.

The transferability of Singapore's experience needs to be juxtaposed with the local, political, and social context. A housing provident fund is relatively simple to set up if designed as a savings and payments institution. The more complex institution to replicate is the HDB, in particular, its ability to comprehensively and effectively intervene to affect many aspects of the housing demand, supply, and prices. Moreover, the tactics complemented with an extensive public sector on which Singapore relies – compulsory savings, state land ownership, and state provision of housing – could easily have spawned widespread inefficiency and corruption.

Singapore's effective implementation of such planning and regulation is attributable to a network of competent and reliable organizations that provide a rich public sector capacity. The quality of public administration in Singapore is a result of recruitment based on merit, competitive pay benchmarked against private-sector salaries, extensive computerization, and a civil service culture of zero tolerance for corruption. Where the government and public sector leadership are weak and/or corrupt, such extensive intervention and government control over resource allocation can be potentially abused and may carry a higher cost.

Despite its rather unique context, there are several elements in Singapore's housing system that can provide helpful pointers for housing policy makers.

First, despite the government's visible hand, markets are very important and creating markets to work more efficiently is a very important aspect of the housing policy.

Second, government involvement can be very helpful for providing timely real estate market information, establishing sustainable housing supply regimes and mortgage institutions, and improving the liquidity of housing assets. The short and long term implications of housing subsidies, explicit or implicit, on the supply or demand-side within the entire system, need to be fully understood.

Third, retirement savings may be mobilized for housing mortgage payments. However, note that the CPF itself does not make loans to its own members. It is not a good idea for a Housing Provident Fund to become a direct lender for housing due to potentially conflicting objectives.

Fourth, the government regulates the housing markets and has a set of instruments to reduce speculative demand and prevent asset bubbles in place which it uses when necessary.

Finally, the need for strong legislation and a proper fund governance structure to ensure that the interests of provident fund members are adequately protected cannot be overemphasized.

References

Asher, M. (2004). `Retirement Financing in Singapore'. Mimeo.

Centre for Liveable Cities and Housing and Development Board (2013). *Housing: Turning Squatters into Stakeholders*. Cenage Learning, Singapore.

Department of Statistics, Singapore, *Census of Population Reports, Singapore*, various years.

Department of Statistics, Singapore, Singstats database.

Economic Review Committee: Sub-Committee on Policies Related to Taxation, the CPF System, Wages and Land (2002), *Refocusing the CPF System for Enhanced Security in Retirement and Economic Flexibility*.

Housing and Development Board, Singapore, *Annual Report*, various years.

Housing and Development Board, Singapore. Info web site at www.hdb.gov.sg.

Krugman, P. (1994), `The Myth of Asia's Miracle', *Foreign Affairs*, vol. 73, pp. 62-78.

Lee, D., S.Y. Phang, K.F. Phoon and K. Wee (2013). 'Evaluating the Effectiveness of Cooling Measures on Property Prices: An Exploration of Alternative Econometric Techniques'. Paper presented at the 2013 Asian Meeting of the Econometric Society, Singapore, 2-4 August 2013.

Lee, K.Y. (2000), *From Third World to First: The Singapore Story 1965-2000*, Singapore Press Holdings.

McCarthy, D., Mitchell, O.S. and Piggott, J. (2002), 'Asset Rich and Cash Poor: Retirement Provision and Housing Policy in Singapore', *Journal of Pension Economics and. Finance*, vol. 1, pp. 197-222.

Monetary Authority of Singapore (2001), Quarterly Bulletin, vol. III, Issue 1, March.

Ooi, G.L., Siddique, S. and Soh, K.C. (1993), *The Management of Ethnic Relations in Public Housing Estates*, Singapore: Times Academic Press.

Phang, S.Y. (1992), *Housing Markets and Urban Transportation: Economic Theory, Econometrics and Policy Analysis for Singapore*. McGraw Hill, Singapore.

Phang, S.Y. (1996), 'Economic Development and the Distribution of Land Rents in Singapore: a Georgist implementation', *American Journal of Economics and Sociology*, vol. 55, pp. 489-501.

Phang, S.Y. (2007). 'The Singapore Model of Housing and the Welfare State'. In Chapter 2 of *Housing and the New Welfare State*, edited by R. Groves, A. Murie and C. Watson, Ashgate, UK, 15-44.

Phang, S.Y. (2013). *Housing Finance Systems: Market Failures and Government Failures*. Palgrave Macmillan, UK.

Pugh, C. (1985), 'Housing and Development in Singapore', *Contemporary Southeast Asia*, vol. 6, pp. 275-307.

The Straits Times. Singapore. Various dates.

Urban Redevelopment Authority, Singapore. Real Estate Information System, REALIS. https://spring.ura.gov.sg/lad/ore/login/index.cfm

World bank GNI income data at http://data.worldbank.org/data-catalog/GNI-per-capita-Atlas-and-PPP-table