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Korea's Housing Supply: Issues and Resolutions

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* Based on Song Inho, *The Effects of the Volatility in the Housing Supply on the Construction Industry*, Policy Study 2018-08, Korea Development Institute, 2018 (in Korean).

Summary

- Korea's housing supply ratio, based on the number of households, and housing stock, based on population size, are rising rapidly on the back of large-scale provisions of apartments.
- The supply market, however, has become highly volatile, with sharp recurring ascents and descents, and the recent spike, in particular, has become a burden on the construction industry and housing market, among others.
 - Following an unprecedented increase in the housing supply in 2015-2017—even by basic housing-demand standards—the number of unsold new housing has continued to rise as the supply of housing completions and move-ins continue to enter the housing market.
 - The increase in unsold new housing after completion could negatively impact the financial soundness of construction firms as well as housing finance-related institutions.
 - In addition, a reverse-jeonse phenomenon is expected this year, in which tenants may possibly encounter cash flow problems while landlords face growing pressure as they deal with increasing difficulties in finding new tenants and returning jeonse deposits on time.
- Therefore, efforts are needed from the government in seeking measures to curb the volatility in the housing supply.
 - Construction firms should be bound by a higher equity burden and housing finance-related institutions should be more specialized and have more responsibility.
 - A demand-centric housing supply system, which can meet the needs arising from social change, including low birth rates, population aging and increasing single-person households, is required.

1

Issues

- The periodic surges and dives in Korea's housing supply are weighing heavily on the construction industry and housing finance market.
 - Previous sharp increases in the housing supply have entailed a spike in unsold new housing, exacerbating the financial soundness of construction firms as they struggle to offload their inventory during the following two to three years. This, in turn, has negatively affected housing finance-related institutions.
 - The housing supply (building permits) in 2015-2017 exceeded the basic housing demand by a particularly steep margin, and the continued supply, in the form of housing completions and move-ins, since then has escalated the number of unsold new units.
- Korea is faced with the urgent challenge of preventing another surge or decline. But, whether the existing system is up to the task is questionable.
- Accordingly, the following sections aim to discuss the necessary policy directions.

2

Korea's Housing Supply

- The increase in Korea's housing supply ratio is mainly driven by the large-scale provision of apartments.
 - The housing supply ratio exceeded 100% in 2009 and is expected to reach 106% by late 2019 (Table 1).
 - This increase is largely attributed to the large-scale provision of apartments.
 - Of the housing stock, apartments accounted for 37.7% in 1995 and 60.6% in 2017; proving their critical role in raising the housing supply ratio.

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Characteristics of Korea's Housing Supply and Causes of the Sharp Increase

<Table 1> Total Housing and Housing Supply Ratio

	2010	2015	2016	2017	2018*	2019*
Total (1,000 units)	17,656	19,559	19,877	20,313	20,822	21,130
Supply ratio (%)	100.5	102.3	102.6	103.3	104.6	106.0

Note: 1) 2018* and 2019* calculated by author.

2) Housing supply ratio is defined as the total housing units/no. of households x 100. Generally, the ratio excludes officetels (75,000 in 2018 and 89,000 (scheduled) in 2019) and one-room units from the housing category, and hence, the actual housing stock may be underestimated.

3) The indicator for the housing supply ratio shows the quantitative level of housing stock but cannot show the state of distribution by region.

Source: Ministry of Land, Infrastructure and Transport; e-National Indicators, *Housing Supply Ratio*.

- Housing stock per 1,000 persons marked 357 units in 2010 and is expected to record 412 units in 2019 (Table 2).

- 419 units in the US, 401 units in Australia, and 398 units in New Zealand (OECD, 2015).

<Table 2> Total Housing per 1,000 Persons

2010	2015	2018*	2019*
357	383	403	412

Note: 1) 2018* and 2019* calculated by author.

2) 2018: estimated 20,822,000 units and 51,623,000 persons.

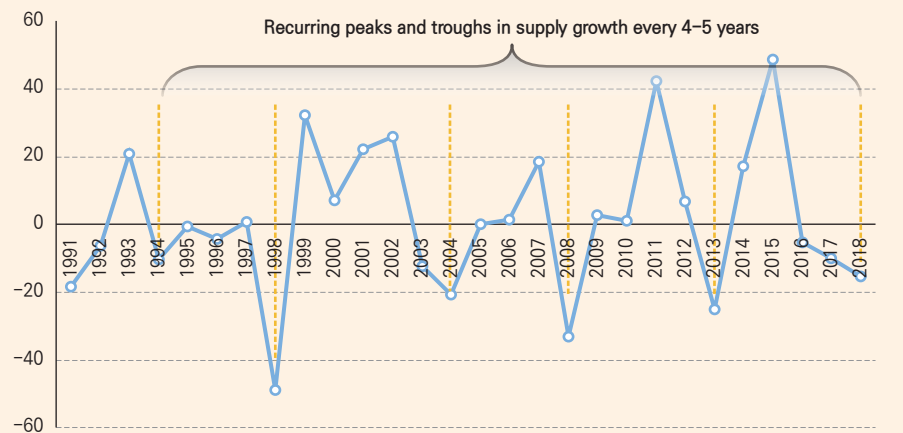
3) 2019: estimated 21,331,000 units and 51,623,000 persons.

Source: Statistics Korea, *Population Projections for Korea*.

- Korea's housing supply (building permits) is characterized by recurring peaks and troughs and high volatility.

- The housing supply exhibits sharp up- and downturns every four to five years (Figure 1).
- The annual standard deviation for the growth in the housing supply (based on the number of building permits in 1990-2018) is 23.1%, far above that for the growth in apartment sales prices during the same period (6.4%).

[Figure 1] Growth Rate for the Housing Supply (%)



Source: Statistics Korea; Real Estate 114; Ministry of Land, Infrastructure and Transport, *Statistics on Housing Construction (construction consent)*.

- The number of building permits in 2015-2017 far surpassed the basic housing demand (increase in households + number of housing losses) and the government's mid- to long-term plan for housing provisions.

- The housing supply exceeded the basic housing demand by 358,000 units in 2015, 325,000 units in 2016, and 296,000 units in 2017 (Table 3).

<Table 3> Recent Imbalance in the Housing Supply and Demand¹⁾

(units)

	2015	2016	2017	2018
Building permits (A)	765,328	726,048	653,441	554,136
(govt's housing supply plan) ²⁾	374,000	374,000	374,000	374,000
Basic demand (B)	407,241	403,884	356,646	348,220
No. of households	307,920	271,776	238,916	228,220
No. of housing losses	99,321	132,108	117,730	120,000*
Excess supply (A-B)	358,087	322,164	296,795	205,916

Note: 1) Housing supply is based on building permits and apartment is based on pre-sold units. The increase in households is based on Statistics Korea's *Household Projection*.

2) Annual average in 2013-2022 is 390,000 units according to the Ministry of Land, Infrastructure and Transport's mid- to long-term housing supply plan.

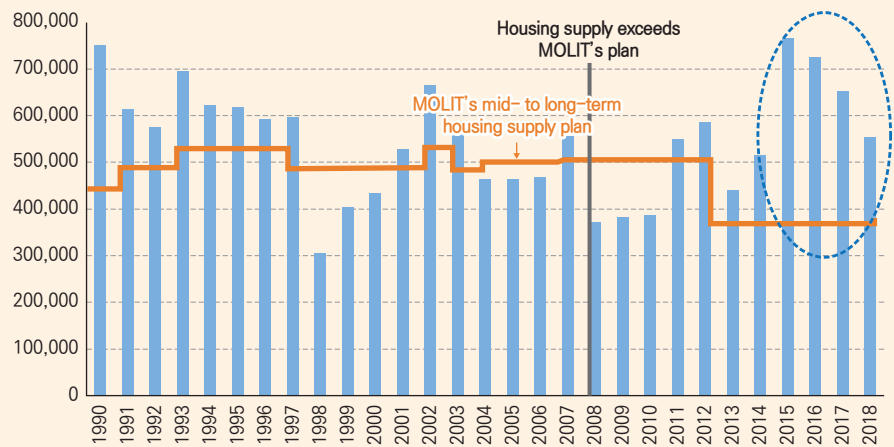
3) Housing losses in 2018 calculated by author.

Source: Statistics Korea, *Population Projections for Korea*; Ministry of Land, Infrastructure and Transport, *Statistics on Housing Construction (construction consent)*.

- In particular, as the housing supply ratio hovered above 100% in 2015-2017, the housing supply was unprecedentedly large and reached well beyond the government's mid- to long-term plan for housing supply (Table 2).

[Figure 2] Amount of Housing Supplied and the Ministry of Land, Infrastructure and Transport (MOLIT)'s Supply Plan

(units)



Source: Statistics Korea; Real Estate 114; Ministry of Land, Infrastructure and Transport, *Statistics on Housing Construction (construction consent)*.

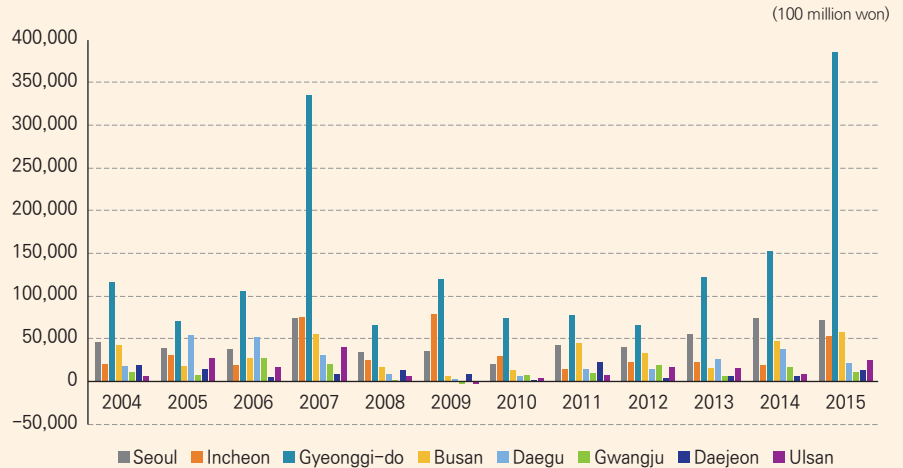
- Meanwhile, the number of housing supplied (via building permits) in 2015-2017 was particularly steep in Gyeonggi-do.
 - In 2015, 794,000 pre-sales were guaranteed by the Korea Housing & Urban Guarantee Corporation (HUG)—based on the number of households—mostly in Gyeonggi-do, at a cost of approximately 81.1 trillion won (Figure 3).¹⁾

1 As of May 2019, unsold new housings in Gyeonggi-do marked 7,620 units, accounting for 13% of the nation's total. As such, if the region's supply increases again, it is possible that the number of unsold new housing will also increase.

2 Oh, Jiyoung and Kyu-Chul Jung, "Analysis on the Recent Housing Construction Boom: Focusing on Public Housing Sites," *KDI Economic Outlook*, 2017-2nd Half, 2017 (in Korean).

- The recent spike in the housing supply is the outcome of a complex combination of factors including the government's large-scale construction and supply of housing sites; long time gap between the designation of residential sites and the pre-sale phase; dependence on construction firms' low cost of capital and high pre-sale prices and; the impact of demand-side factors on the housing economy.
- The recent surge is owed to the mass supply of residential sites that were designated in the early to mid-2000s to the private sector in 2014-2015.²⁾

[Figure 3] Rapid Increase in HUG's Pre-sale Guarantees, Centering on Gyeonggi-do



Source: Korea Housing & Guarantee Corporation (HUG) data.

- The period from the designation of residential sites to the commencement of pre-sales was extended from 6.8 years (average for 2000-2012) to 9.8 years (average for 2013-1H 2017). This means that a rapid supply of residential sites is possible at any point during the long time gap, depending on the condition of the housing economy.
- Once construction firms secure land ownership and receive a guarantee from HUG, it becomes easy to construct large-scale apartments at a low cost of capital through pre-sales.
 - The percentage of equity capital burden in total project costs is approximately 30-35% in major advanced countries but 4.5-9% in Korea (Table 4).
- In addition to the supply-side factors, those on the demand side, such as low interest rates and eased macroprudential regulations e.g. LTV and DTI, may also be behind the rapid increase in the housing supply.

<Table 4> Construction Firms' Percentage of Equity Capital Burden in Total Project Costs

	Korea	US	Japan	Netherlands
% of equity capital burden to total project costs	4.5-9	30	30	35

Source: Park, Joon and Hee Nam Jung, "Introduction and Operation of the Real Estate Development Evaluation System," Real Estate Focus, KAB Real Estate Research Institute, 2013 (in Korean); Kim, Jin and Kyuhyun Ji, "A Study on the Credit Risk of Project Finance Loans Backed by Non-Investment Grade Construction Companies' Guarantees," *Journal of the Korea Real Estate Analysts Association*, 17(1), 2011, pp.119-134 (in Korean).

3 After the housing supply soared in 2007, the number of unsold new housing after completion peaked in 2008 and 2009 as constructions firms tried to resolve the issue of unsold new housing after completion through pre-sale and price discounts over a three-year period. In their efforts to unload the stock, construction firms suffered profit losses and adopted self-help measures such as leaseback and post-sale.

4 In May 2011, a suspension of business activity was imposed on Solomon, Korea and Future Savings Banks. In some cases, project financing loans from these financial institutions surpassed 1 trillion won in balance.

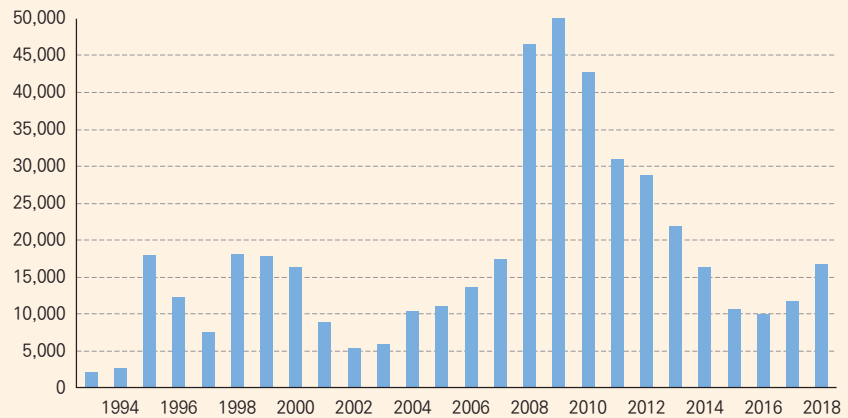
■ Construction firms were dealt huge financial blows during past housing-supply surges as they struggled to deal with the growing number of unsold new units during a two- to three-year period; which had a significant negative impact on housing finance-related institutions.

- For instance, about 25% of the top 100 construction firms filed for bankruptcy (including court protection and workouts) and 145 construction firms went out of business.³⁾
 - The rapid rise in bankruptcies significantly undermined the financial soundness of the financial industry, particularly that of savings banks. Numerous branches had to suspend operations as a result, which contributed in part to the considerable decline of real estate project financing (PF).⁴⁾

4

Empirical Analysis

[Figure 4] Trends in Unsold New Housing



Source: Ministry of Land, Infrastructure and Transport's Statistics System, Nuri, *Unsold New Housings*.

- It has been found that surges in the housing supply (apartment pre-sales) increase the number of unsold new housing after completion, and there is a time gap of three years.
 - According to an empirical analysis, a 10% increase in the homes for pre-sale—controlling the changes in demand conditions—raises the number of unsold new housing after completion by 3.8% (three-year time gap, Table 5).
 - Data also revealed that, as of May 2019, Korea had 18,558 unsold new housing units, up by 76.4% from 10,518 in late 2015.
 - This increase appears to have been driven by the surge in the housing supply in 2015 based on the three-year time gap.
 - According to a scenario based on the empirical analysis results, there will be approximately 20,000-30,000 unsold new units in 2019 and 2020 (Table 6).

<Table 5> Effects of Pre-sale Housing on Unsold New Housing¹⁾

Dependent variable log (<i>UnsoldNewHousings_{it}</i>)		Coefficient
Explanatory variable	LOG(<i>UnsoldNewHousings_{it-1}</i>): Unsold new housing a year ago	0.799***
	LOG(<i>UnsoldNewHousings_{it-3}</i>): Pre-sale housing three years ago	0.388**
	<i>UserCost_{it}</i> : User cost in pertinent year ²⁾	0.052***
	LOG(<i>GDP_{it}</i>): Regional GDP of pertinent year	-0.338*
	Constant term	3.696

Note: 1) This panel regression analysis is a heterogeneity-controlled random effect analysis. The analysis period is 2000-2017.
 2) User cost was calculated by author by subtracting the increase in housing price growth from the mortgage rate, and refers to the actual expenses that occur when a person buys a house with a mortgage and then resells it.
 3) ***, ** and * denote statistical significance at the 1%, 5% and 10% levels. *i* and *t* denote region and year, respectively.

Source: Statistics Korea, *Regional Income*; Ministry of Land, Infrastructure and Transport, *Unsold New Housing*; Real Estate 114, *Pre-sale Housing*; Bank of Korea, *Base Interest Rate*; Kookmin Bank, *Apartment Prices*.

- The increase in unsold new housing after completion can negatively affect the financial soundness of construction firms (Figure 5).
 - Unsold new housing after completion hikes up sales promotion expenses and management fees which increases the cost-to-retail ratio and thus, decreases the net profit interest coverage ratio.⁵⁾
- Moreover, the inflow of apartment completions and move-ins was found to pull down jeonse prices, particularly in non-capital regions. The continued decline in jeonse prices is an indication that a reverse-jeonse crisis is spreading, centering around non-capital regions.

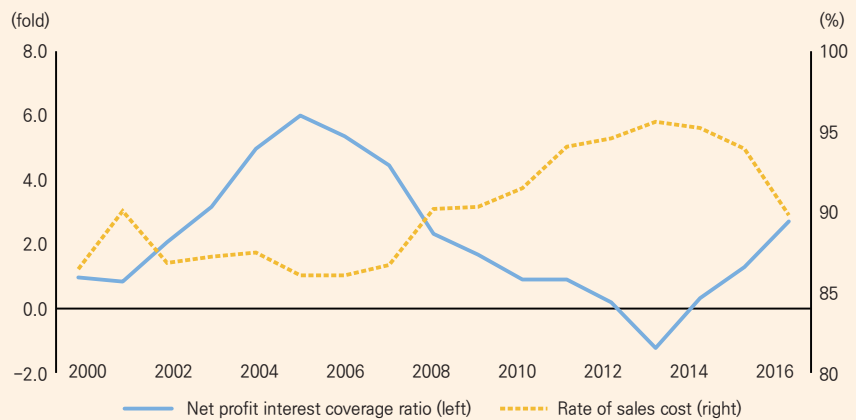
5 Operating income divided by interest expense; 1 means that the entire operating income is being spent for interest payments.

<Table 6> Scenario for the Estimated Number of Unsold New Housing

	Baseline	Scenario 1	Scenario 2
Estimated no. of pre-sale housing	2019-2020: 297,000 units		
User cost	0.23%	-1.0%	1.0%
GDP	KDI's projection for real GDP growth rate: 2.7% (2018), 2.4% (2019), 2.5% (2020)		
Estimated no. of unsold new housing (units)			
2019*	24,550	23,026	25,561
2020*	27,946	24,901	30,051

Note: 1) Estimates in this table are based on the empirical analysis from Song (2018).
2) 2019* and 2020* estimated by author.

[Figure 5] Listed Construction Firms' Rate of Sales Cost and Net Profit Interest Coverage Ratio



Source: KIS Data (26 listed firms, 2016).

- According to an analysis of urban panels, a 10% increase in apartment move-ins from the long-term average could decrease jeonse prices by 0.6-1.21% (Table 7).
 - Considering that jeonse prices in Seoul and Gyeonggi-do peaked in Feb. 2018 and Dec. 2017, respectively, a reverse-jeonse phenomenon could emerge in the capital region from Dec. 2019.
 - Gyeonggi-do is expecting a move-in of 187,000 units for this year, up by approximately 12% from last year, and its median jeonse price is estimated to be 230 million won, down by 0.75-1.48% from last year, which is 20 million won down from late 2017 (250 million won).

<Table 7> Effects of the Growth in Move-ins against the Long-term Average on the Jeonse Market

Fixed effects	Dependent variable Growth in jeonse prices	
Gap in apartment move-ins by region	-0.121***	-0.061***
Growth in sales prices by region	-	0.807***
Constant term	10.471***	6.330***

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels. Regions in the time-series data for 2005-2018 are Gangwon-do, Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Gwangju, Daegu, Daejeon, Busan, Seoul, Ulsan, Incheon, Jeollanam-do, Jeollabuk-do, Chungcheongnam-do and Chungcheongbuk-do.

- If the reverse-jeonse crisis spreads, tenants may face more liquidity constraints and landlords may become further burdened by the pressure to refund jeonse deposits on time. This could also have negative repercussions for the financial soundness of institutions providing jeonse loans and guarantees for jeonse-deposit refunds.

5

Summary and Policy Implications

- The unprecedented rise in the housing supply in 2015-2017 is driving the recent increase in unsold new housing and decrease in jeonse prices. As such, preparations need to get underway for the potential risks to the construction industry and housing market.
 - Regarding the projected 20,000-30,000 unsold new housing (approx.) for this year and next, construction firms and related financial institutions need to be prepared for the short-term potential risks.
 - Meanwhile, both lessors and lessees alike will face cash flow problems as the inflow of housing completions for this year decreases jeonse prices and the reverse-jeonse phenomenon spreads later this year. Thus, the government should develop measures to protect tenants from the phenomenon and monitor the risk factors in institutions providing jeonse-related loans and guarantees.

- With the housing shortage resolved and housing finance market developed, the government needs to seek out a way to prevent a recurrence of the housing supply surge.
 - Complementary measures should be injected into the current housing supply market system to further raise the capital burden and responsibility of construction firms.
 - Above all, the capital burden for construction firms should be raised to the level of the leverage yield expected from pre-sale projects.
 - At the same time, financial institutions should have stronger autonomous expertise and responsibility so that construction firms are able to use project financing without relying on the pre-sale payments of consumers.
 - Meanwhile, given that the time gap between the designation of the housing site and actual supply time increases, the government's housing supply may escalate supply volatility. As such, the government should take a more cautious approach when planning to supply housing through the creation of residential sites.
 - The future direction of housing policies should focus on revitalizing urban areas.
 - Furthermore, a small-sized housing supply is primarily needed to meet the new demand for various types of housing arising from evolving social trends such as the rapidly declining number of households; lowest birth rate in the world and; increasing single-person households.

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