IMPACTS OF LTV REGULATIONS ON MACROECONOMY IN KOREA

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Punchline

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- This paper shows that easing the LTV ceiling regulation is a factor that increases household debt and expands macroeconomic sensitivity in house prices.
  - The Korea's LTV regulation is indeed more conservative than that of other major advanced economies, but its actual average LTV ratio with Jeonsei deposit considered cannot be deemed very low.
  - Not only that, in the current debt structure with a high proportion of flexible interest rates, easing liquidity constraints could increase household debt and increase macroeconomic volatility.
    - When the LTV ratio increases from 60% to 70% at the steady state, it is estimated that house price rises only 0.8%, whereas the ratio of household debt to GDP increases by 2.5% (37 trillion won as of 2014)
    - A 1 percent increase in house prices caused a 0.05 percent rise in consumption as a wealth effect

Ⅰ. Introduction

An Issue about Current LTV

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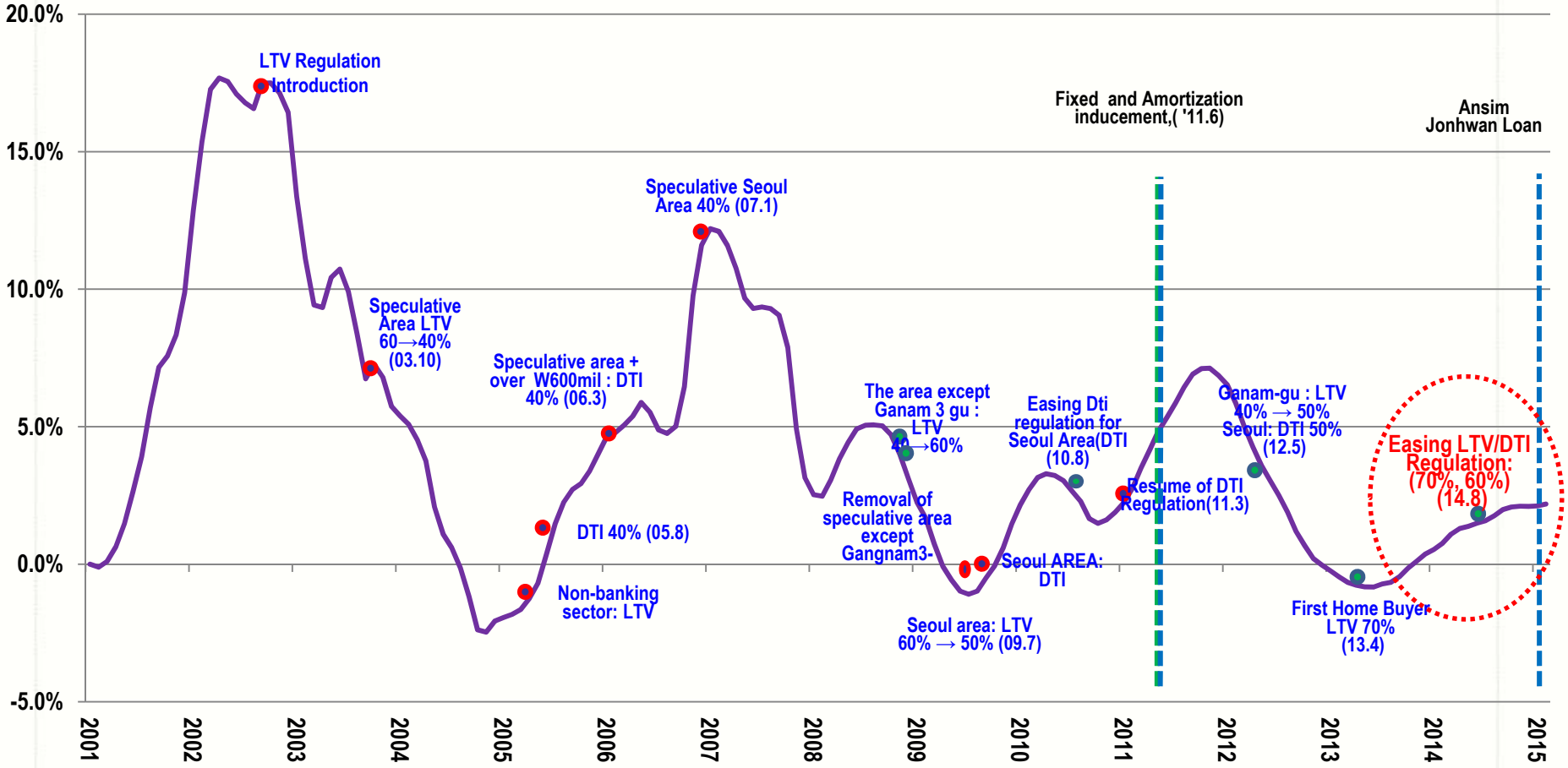
- In recent discussions of LTV regulations, two contradictory views have been presented:
  - the pros of deregulation who argue easing regulations would help stimulate the real estate market
  - the cons who argue it could result in an increase in household debt and even undermine macroeconomic stability.
  - this paper conducted a quantitative analysis on impacts of LTV deregulation on household debts and macro-economy through a simulation from the Dynamic Stochastic General Equilibrium (DSGE) model, and based on its result, this report suggested policy implications.

LTV Regulations and House Prices

Figure 1. LTV Regulations and House Prices



Source: KCI(Kim,Jongin), KB

Korean LTV

- On August 2014, a LTV ceiling of around 50% became 70% according to compliance with supervisory regulations of the Financial Services Commission (FSC)

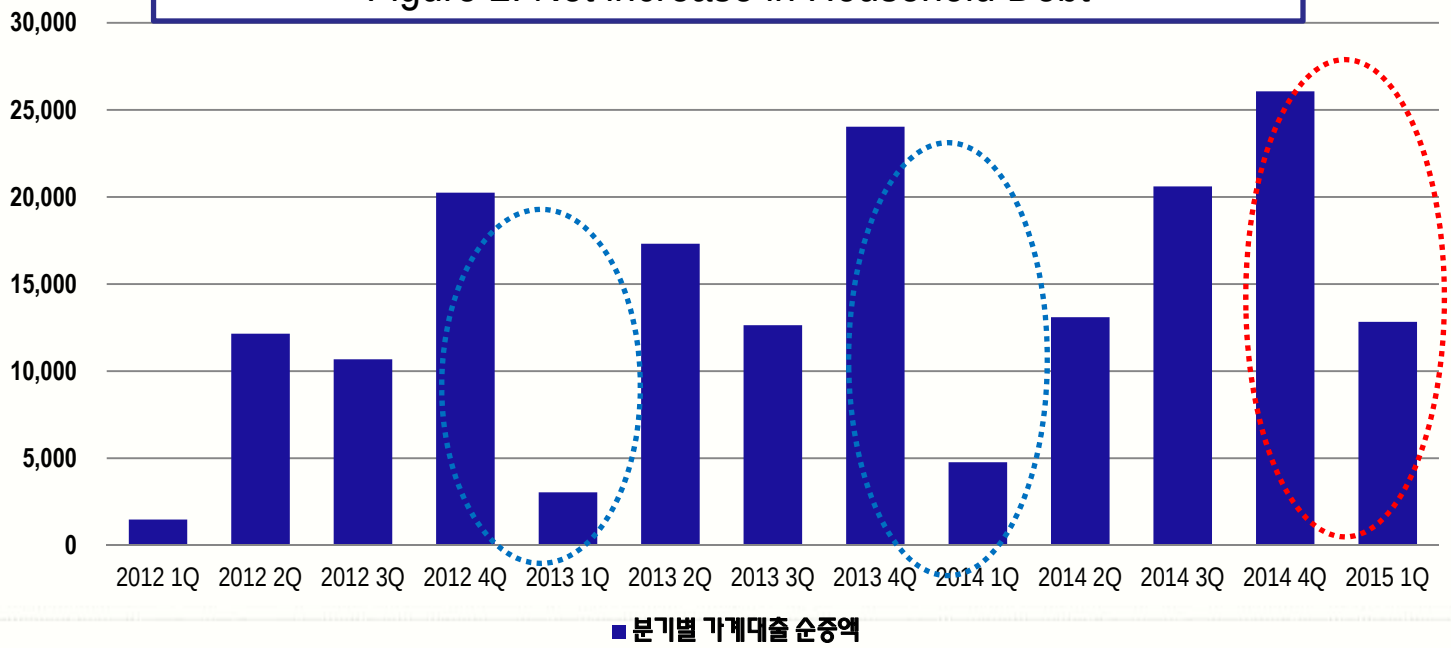
Table 1. LTV Regulation

		Before 2014. 8		After 2014. 8
LTV	sectors / area	bank	Non-bank	
	Seoul Area	50~70	60~85*	70%
	Others	60~70	70~85*	
DTI (Seoul Area)	Seoul Area	50	50~55**	60%
	Others	60	60~65**	

Korean LTV

- The level of Korea's household debt has continuously increased until recently, and the ratio of household debt to disposable income has been higher than that in major advanced economies.
  - After easing the LTV ceiling regulation, the net increase of household debt on 4Q 2014 and 1Q 2015 reached KRW 26 trillion and 13 trillion
  - The ratio of household debt to disposable income (%): Korea (163.8), Germany (93.2), France (104.5), US (114.9), UK (150.1)

Figure 2. Net increase in Household Debt



Korean LTV Ceiling

- Korea's LTV ceiling is seemingly far conservative compared to other major advanced economies.
  - The UK, US and France have a LTV ceiling above 90 percent, and Canada and Germany apply a 80~85 percent LTV ceiling, far higher than that of Korea.

Table 2. LTV Ceiling Regulations by Country

	UK	France	US	Canada	Germany	Korea
LTV ceiling	110%	100%	96%	85%	80%	50~70%

Korean LTV

- It should be noted that taking into account the Jeonsei deposit, unique to Korea, the average difference of LTV ratios between Korea and advanced economies is not as large as that of LTV ceilings.
  - In Korea, the average LTV ratio of actual mortgage loans (signed by home buyers) is near the ceiling, whereas in advanced economies, the ratio is well below the ceiling.

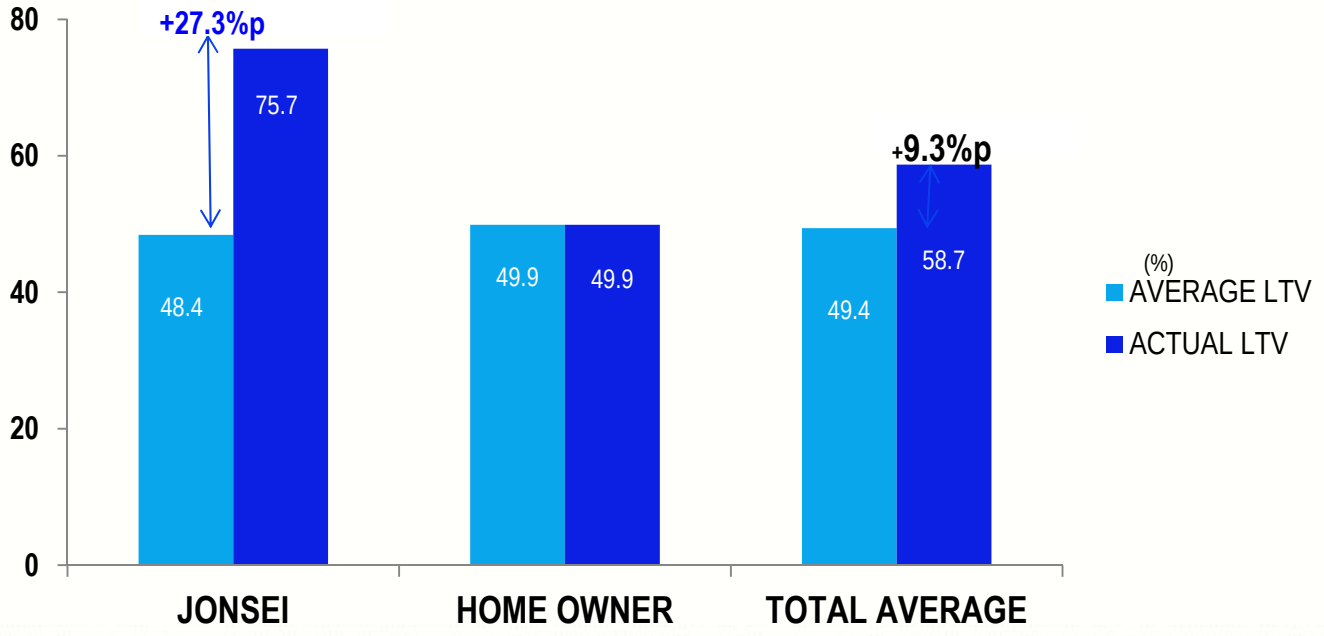
Table 3. Actual Average LTV by Country

	France	US	Germany	Hong Kong	UK	Korea
Avg. LTV	80% IMF(2011)	75% IMF(2011)	74% IMF(2011)	64% IMF(2011)	61% IMF(2011)	49.4% (58.7%) As of 2013

Korean LTV

- Korea’ s average LTV ratio recorded 49.4% in June, 2013, but actual LTV ratio with the Jeonsei deposit considered is reported to be around 58.7 percent (BOK, 2013).
- Current LTV of 70% may cause actual LTV to be above 60%

Figure 3. Actual LTV with Jeonsei deposit

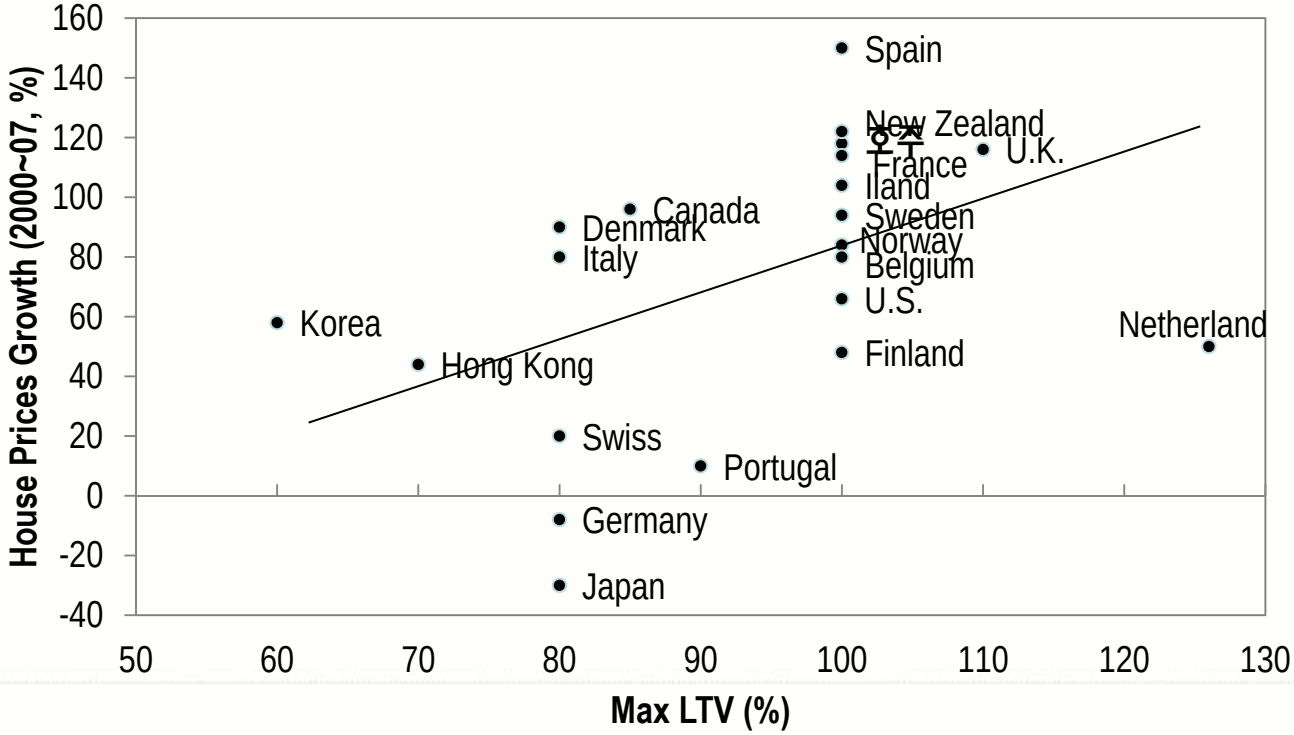


Source: BOK

Korean LTV

- During the GFC, other major countries witnessed their housing market tumble significantly, but instability in the Korean housing market was not very high, which can be said to be partially contributed by its conservative LTV regulation(Crowe et al. 2011)

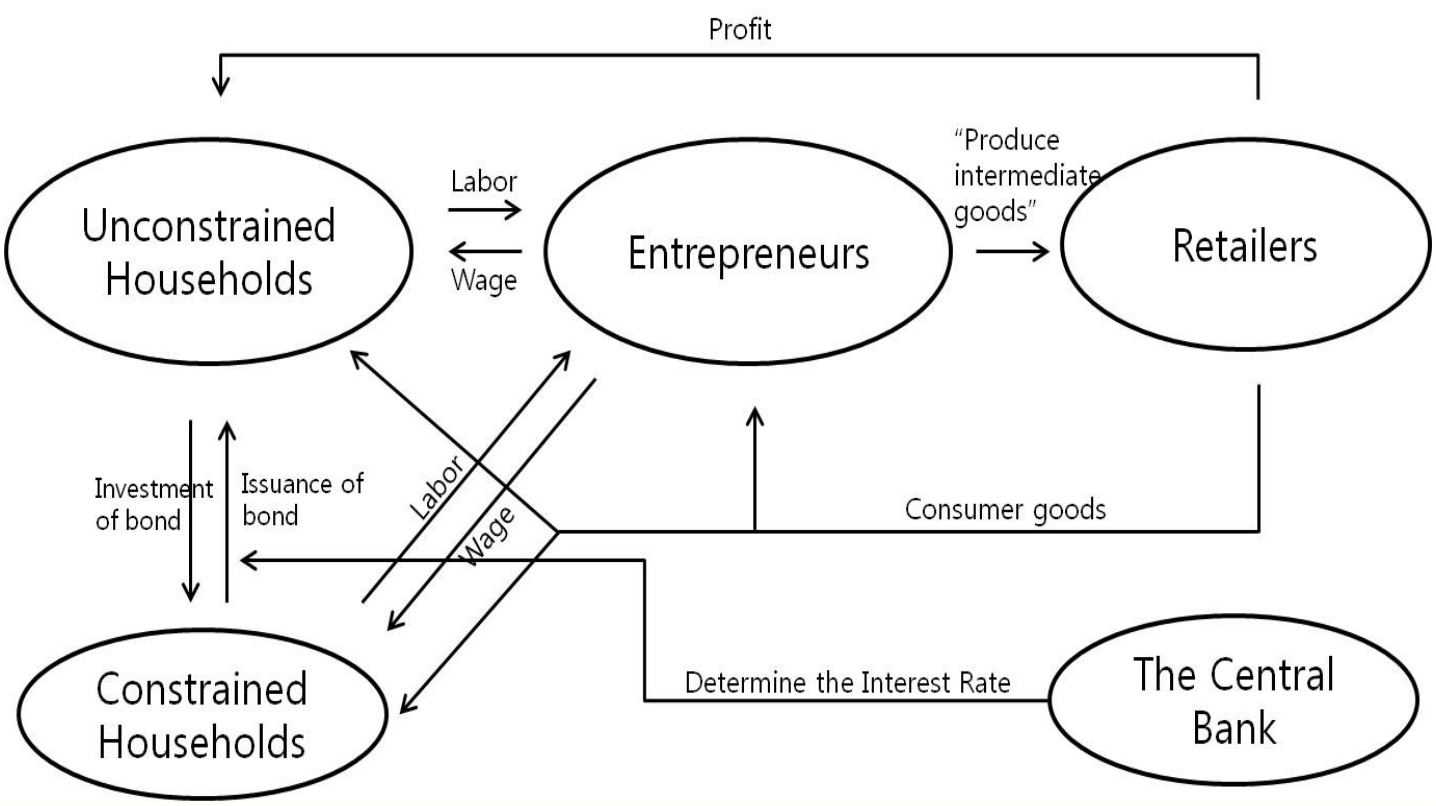
Figure 4. Relation between LTV and House price growth



Ⅱ. Model

Economic Agencies

Figure 5. The Model Economy



Estimation, Calibration, Parameterization

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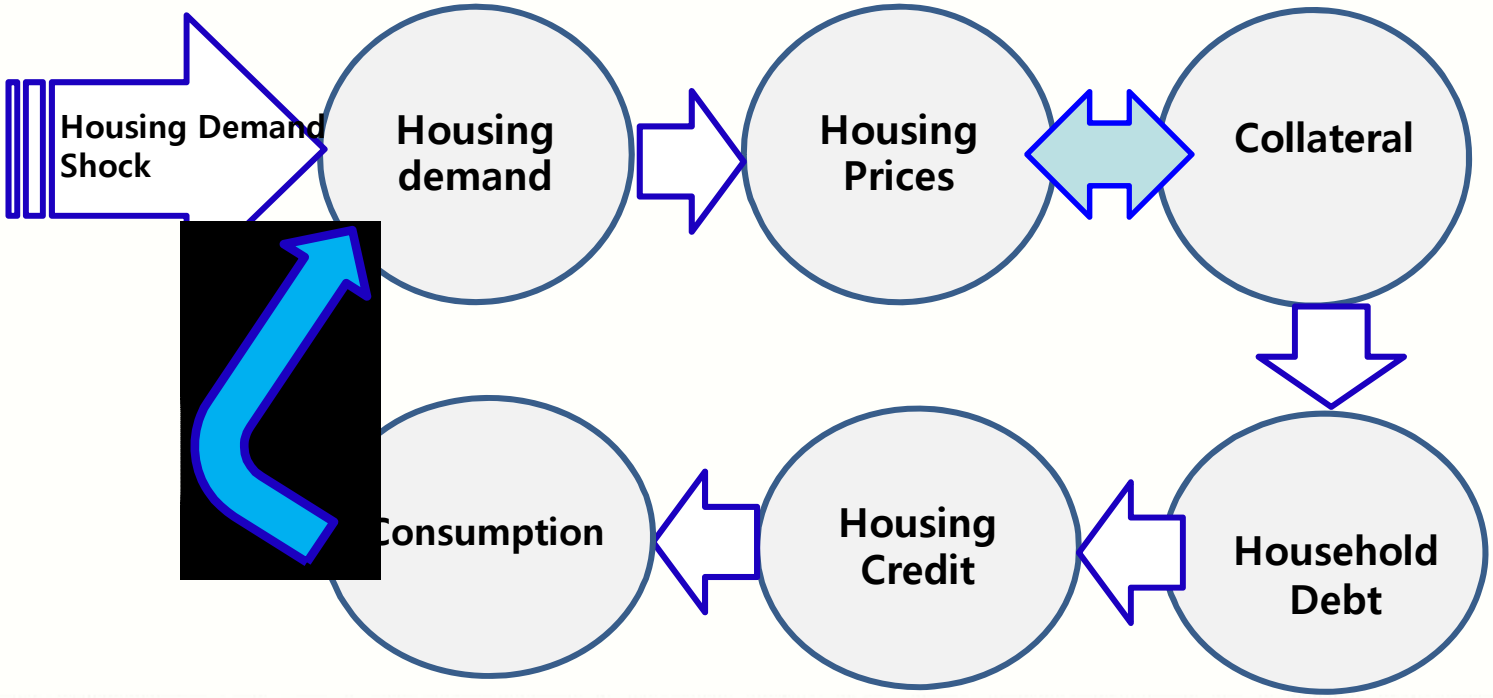
- Using the minimum distance method, parameters were estimated on each economic agent's parameters
- Calibration
- Parameterization

House Price Mechanism

- The house price mechanism

Figure 6. House Price Mechanism



LTV and Housing Demand

Net worth ↑ ⇒ Housing demand ↑

Lon to Value(LTV) ↑ ⇒ Housing demand ↑

Housing Prices ↑ ⇒ Housing demand ↑

$$H_t = \frac{1}{E_t\left(q_t - \frac{ltv \cdot E_t(q_{t+1}\pi_{t+1})}{R_t}\right)}\left(q_t H_{t-1} - \frac{R_t b_{t-1}}{\pi_t}\right)$$

III. Simulation Results

Steady State Result

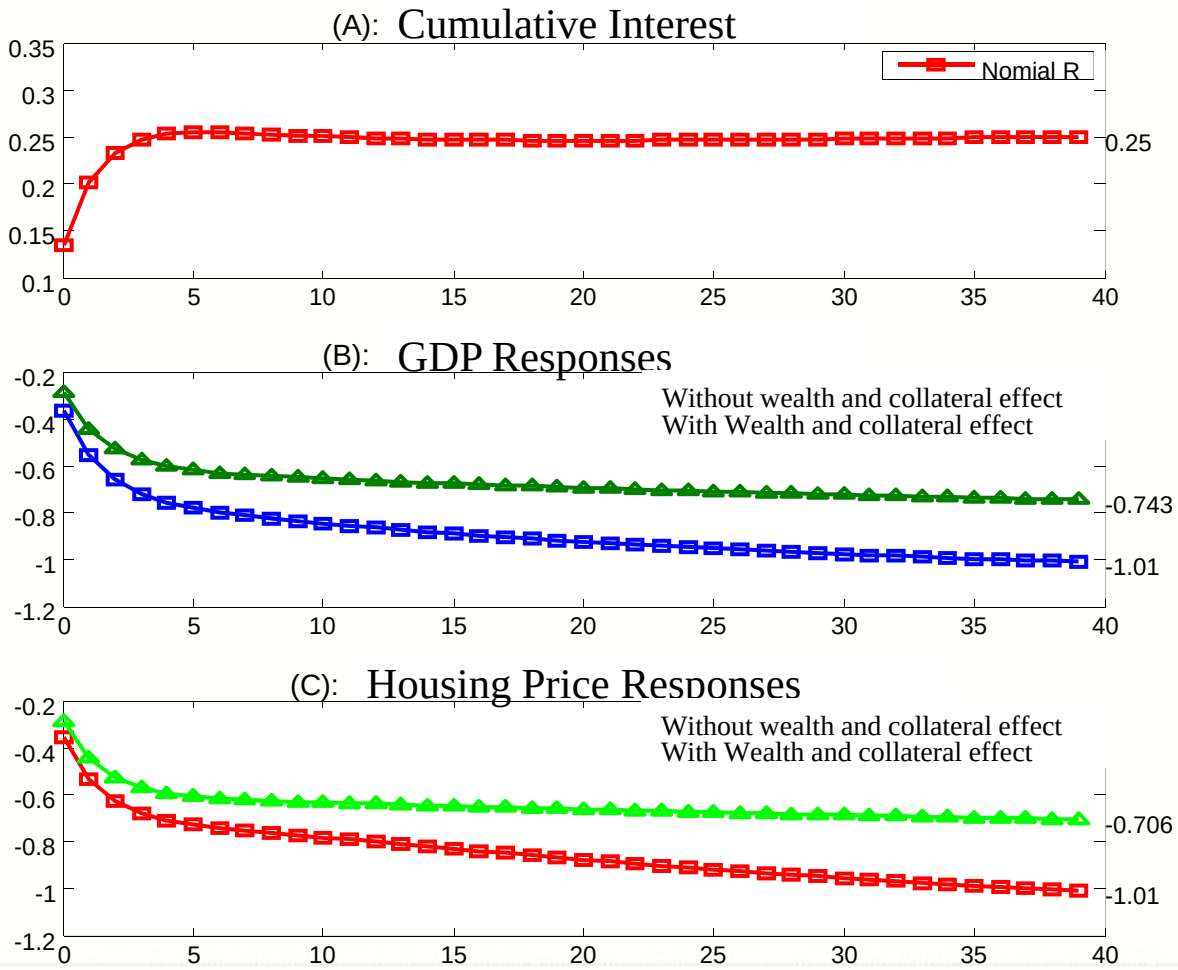
- For instance, when the LTV ratio expands from 60% to 70% at the steady state, it is estimated that house price rises only 0.8%, whereas the ratio of household debt to GDP increases by 2.5% (37 trillion won as of 2014).

Table 6. LTV and Household Debt

LTV change	Growth of household debt against GDP	Growth of house prices
40% → 50%	1.7%	0.58%
50% → 60%	2.0%	0.70%
60% → 70%	2.5%	0.84%
70% → 80%	3.1%	1.05%
80% → 90%	4.0%	1.34%

Simulation Result

Figure 7. Results



Simulation Result

- Panel C displays that interest rate effects on house prices turn out differently depending upon the presence or absence of collateral effect.

- The decrease in house prices driven by the rise in interest rates is further aggravated by collateral effect.

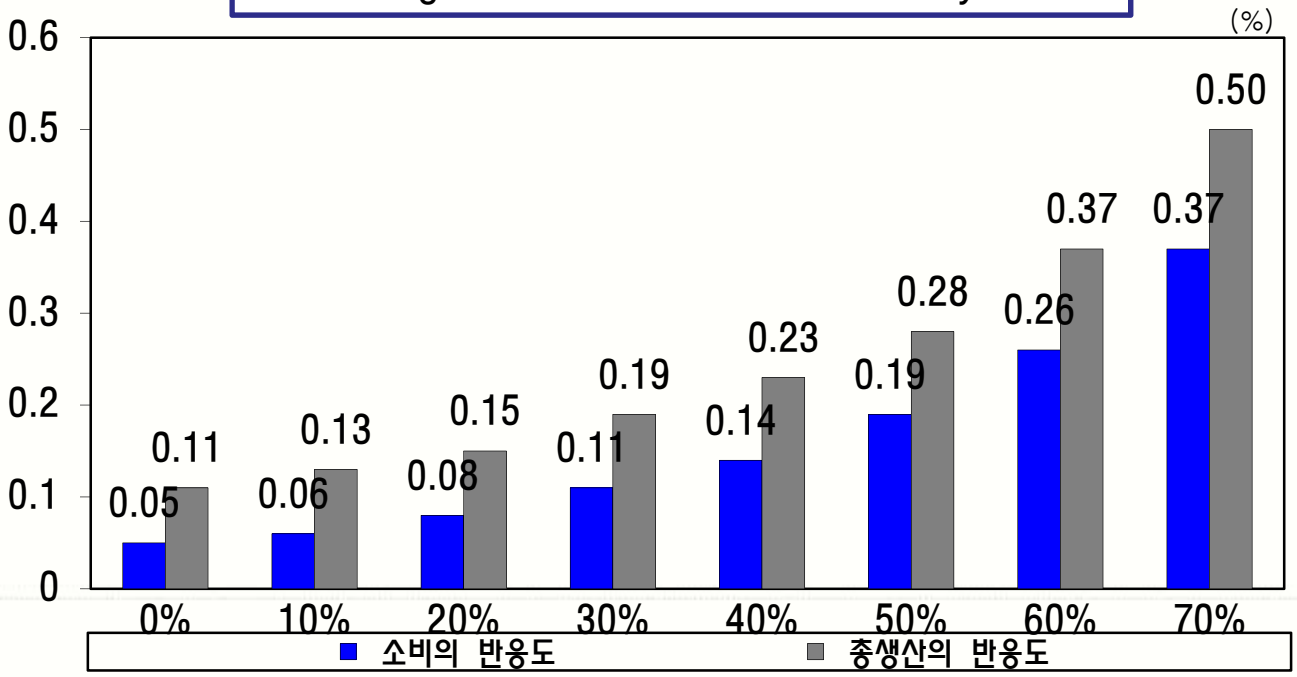
  - ✓ In the case of a 25 basis point rise in interest rates, house prices show a response of a 0.287 percent decrease at early times and then a 0.70 percent cumulative decrease in the condition with the absence of collateral effect, but shows an aggravated response of 0.35 percent decrease at early times and then a 1.0 percent cumulative decrease in the condition with the presence of collateral effect.

Simulation: LTV and Macroeconomy

- In the case of a 50 percent LTV, a 1 percent change in house prices (housing demand shocks) caused gross production to change by 0.28 percent, and in the case of a 60 percent LTV, the same change caused a 0.37 percent change in gross production.

- Responses of consumption and gross production show rapid increases, as the LTV ratio becomes closer to 1

Figure 8. LTV and Macroeconomy



Ⅶ. Concluding Remarks

Conclusion

- This study aims to shed light on the endogenous linkages between LTV regulations and macro-economy
  - This paper shares a common recognition that financial market instability and real estate market recession that are linked to the subprime mortgage crisis have caused far worse effects on the real economy than any other economic slumps could have done

- The results of simulation show that easing the LTV ceiling is a factor that increases household debt and expands macroeconomic sensitivity to changes in house prices.

Conclusion

- Under the condition where mounting household debts pose a threat to the Korean economy, a cautious approach is demanded when considering a full-scale LTV deregulation which could only produce a larger debt.
  - A LTV deregulation and low interest may cause a larger household debt.
  - DTI regulation, a macro-prudential policy, needs to be tightening

- Meanwhile, given that macroeconomic uncertainties or higher interest rates would likely increase the volatility of the Korean economy, preemptive actions are needed using macro-prudential supervision, such as DTI regulation.

- It is necessary to identify the size of Jeonsei deposits--which cannot be found in the official statistics--and to monitor the effective LTV taking into account Jeonse deposit.