

Is macroprudential policy less blunt than monetary policy?*

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* Views expressed in this paper are those of the authors and do not necessarily reflect the official view of the Bank of Japan.

Outline of the talk

1. Why we do this study
 - Details about QR and WG
 - Macro economic development of those days
 2. How we do this study
 - Data
 - Model
 3. What we found out from this study
 4. Results
- Appendix. Details of administrative guidance from MoF

1. Why we do this study

- Is macroprudential policy well-targeted policy or blunt policy?
 - ✓ “efforts to promote financial stability through adjustments in interests would increase the volatility of inflation and employment. As a result, I believe a macroprudential approach to supervision and regulation needs to play the primary role,” ...
 - ✓ “macroprudential tools can, in some cases, be targeted at areas of concern”

Yellen, 2014

1. Why we do this study

- We test this argument using Japanese experience from the early 1970s to the late 1990s.
 - ✓ **1970s:** The rise in general prices and capital prices from 1972 coincide with the time when “Nippon Retto Kaizo-Ron” (Building a New Japan) was proposed by Prime Minister Kakuei TANAKA.
 - ✓ **1990s:** The rise in land price and grow at high rate of loan for land acquisition from the latter half of 1980s.

1. Why we do this study

- Three types of policy instruments coexist.
 - ① Short-term interest rate (SI)
set by BoJ
 - ② Windows guidance (WG)
set by BoJ that makes adjustment to banks' lending plan.
 - ③ Quantity restriction (QR)
set by MoF that asks banks to contain banks' lending to real-estate industry.
 - QR is a subset of administrative guidance made by MoF. While most of administrative guidance are qualitative, QR has a numerical goal and targeted.

1. Why we do this study

- The last two (②,③) instruments have similarities to what we call macroprudential instruments, such as LTV or DTI that quantitatively regulate banks' lending.

Macroprudential policy instrument	
Category	Policy instruments
Capital-based instruments	Countercyclical capital buffers, Dynamic provisions, Sectoral capital requirements
Liquidity-based instruments	Countercyclical liquidity requirements
Asset-side instruments	Loan to Value(LTV), Debt to Income(DTI)

CGFS

1. Why we do this study

	QR	WG
Regulatory authority	<ul style="list-style-type: none"> The MoF (Ministry of Finance)* *currently, Financial Service Agency 	<ul style="list-style-type: none"> The BoJ (Bank of Japan)
Instrument	<ul style="list-style-type: none"> <u>Administrative guidance</u> 	<ul style="list-style-type: none"> <u>Guidance</u>
Purpose	<ul style="list-style-type: none"> <u>To correct excessive lending for real estate transaction</u> (guidance No. 247) <u>To tackle upsurge of land price</u> by financial term (guidance No. 555) 	<ul style="list-style-type: none"> <u>To supplement monetary policy</u> through other policy instruments such as changes in official discount rate, market operation by buying and selling of bills and bonds, and deposit reserve requirement ratios
Valid term	<ul style="list-style-type: none"> Implemented <u>twice</u> in the history; ✓ January 1973~ December 1973 ✓ March 1990~ December 1991 	<ul style="list-style-type: none"> Implemented <u>every quarter</u> in the years beyond <u>until Q2 1992</u> when abolished Existent since the prewar days but attracted public attention in particular after 1957 Implemented every month until 1964

1. Why we do this study

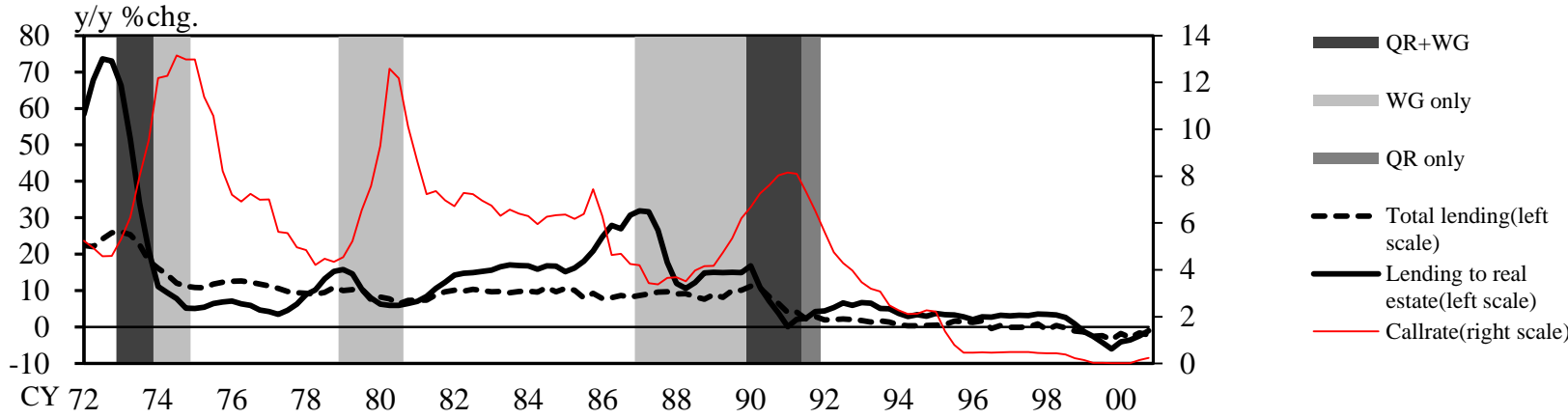
	QR	WG
Targeted financial institutions	<ul style="list-style-type: none"> • Institutions under MoF's supervisory power (All financial institutions) • For institutions below, QR was conducted by corresponding supervisors <ul style="list-style-type: none"> ✓ Financial institutions for agriculture, forestry, and fishers (direct supervisor is Ministry of Agriculture, Forestry and Fisheries) ✓ Labour banks (direct supervisor is Ministry of Labour) ✓ Credit cooperative, Agricultural Cooperatives, and Fisheries Cooperatives (supervisors are prefectural governments and Ministry of Agriculture, Forestry and Fisheries) 	<ul style="list-style-type: none"> • Coverage was expanded in a stepwise manner; <ul style="list-style-type: none"> 1957~ City bank, long term credit bank 1964~ City bank, long term credit bank, trust bank (banking account), Regional bank 1973~ City bank, long term credit bank, Regional bank, mutual bank, top rank of <i>Shinkin</i> bank, top rank of foreign banks in Japan

1. Why we do this study

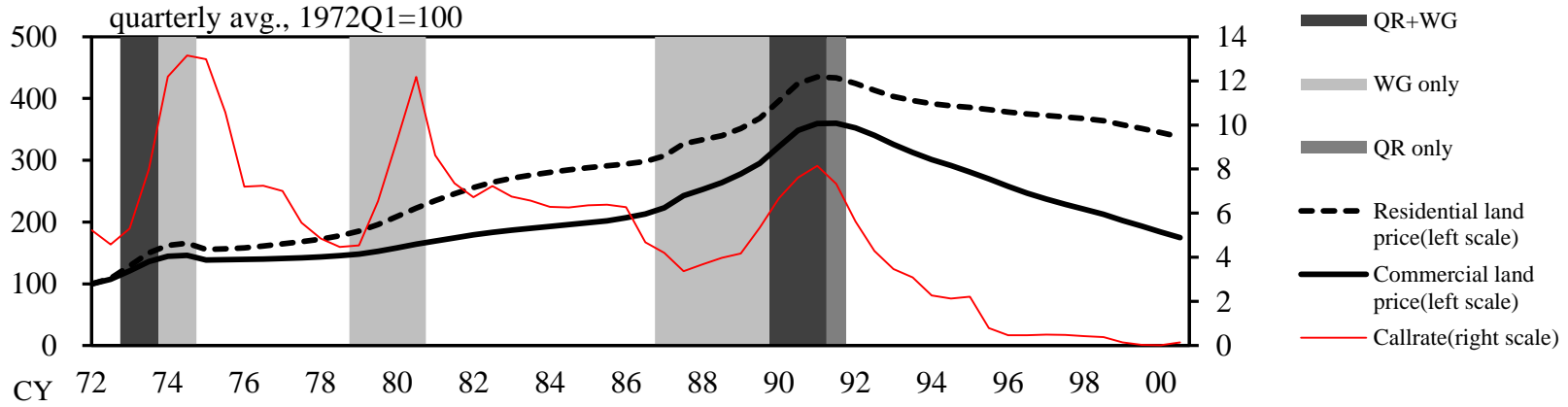
	QR	WG
Targeted loan type	<ul style="list-style-type: none">• The 1970s: <u>Regardless of borrower's industry, lending for real estate purchase</u> except for lending to public institution committed to residential development and housing loan to household• The 1990s: <u>Lending to real estate industry</u> except for lending to public institution committed to residential development	<ul style="list-style-type: none">• <u>Total lending volume</u>
Requirement made to banks	<ul style="list-style-type: none">• To contain <u>growth rate of lending to the specific sector to less than that of total lending</u>	<ul style="list-style-type: none">• To contain <u>lending volume below the level of what BoJ sees as appropriate</u>

1. Why we do this study

(1) Lending



(2) Land price

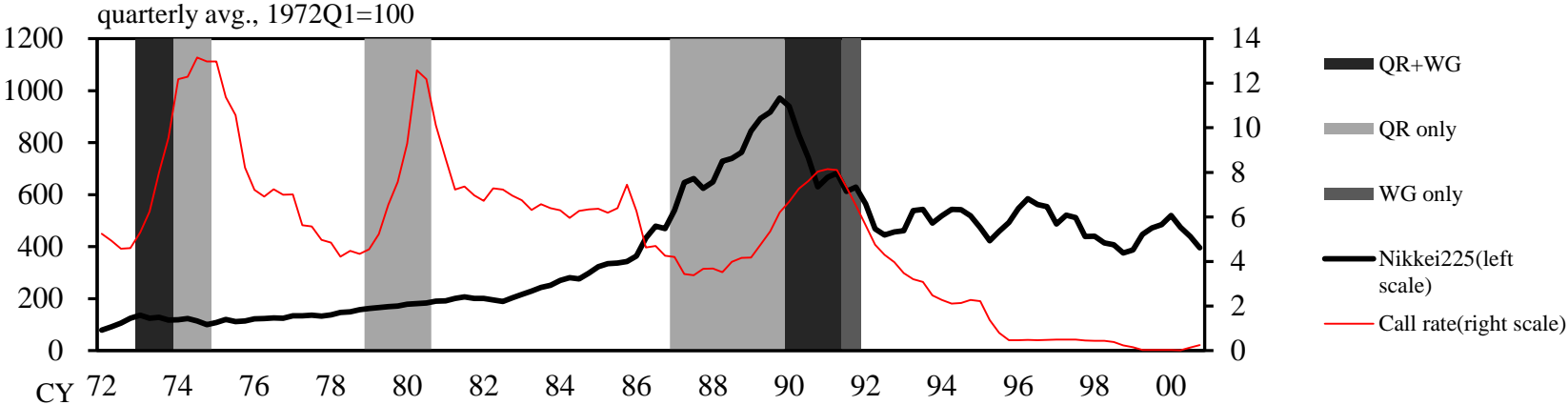


Note: Shadows indicate the adaptation period of window guidance, quantity restriction, or both. Shadows are shown in quarterly base for the panels of lending and in semiannual base for the panel of land price.

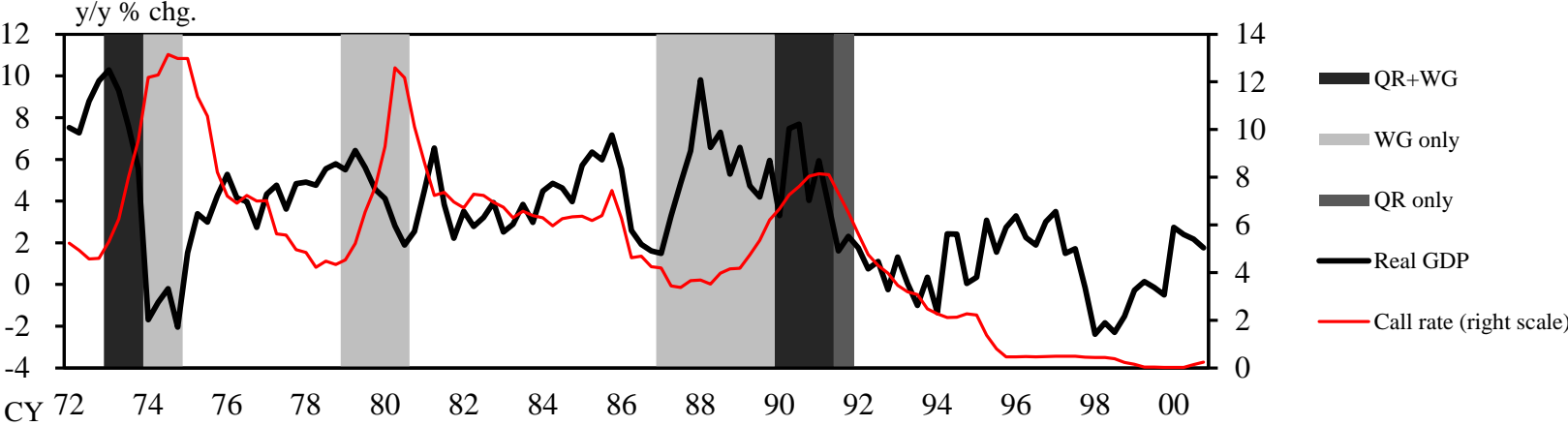
Source: Bank of Japan, Japan Real Estate Institute.

1. Why we do this study

(3) Stock price



(4) Real GDP



2. What we found out from this study

1) Contractionary shocks to QR act as adverse aggregate shocks.

- They reduce all of GDP components, and economic activities beyond real-estate sector.
- They reduce not only land prices but stock prices as well.
- They commonly affect all region, and financial intermediation other than banks' lending.

2) In particular, shocks to QR has a quantitatively large effect on GDP as well as on real estate price.

... Possibility that QR was not targeted policy tool

3) Possible explanations? Demand shock?

3. How we do this study

Step 1: Construct time series of dummy variables for QR and WG narratively from official documents of MoF and BoJ. Each variable takes 1 if implemented and 0 otherwise.

【QR】

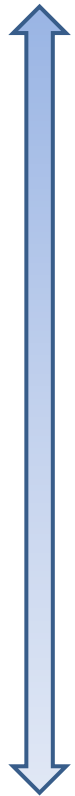
- ✓ We read all of administrative guidance released from MoF from the 1970s to late 1990s, and picked up the guidance of which purpose is to change loan aggregate (= total 51 guidances).
 - ✓ Then, exclude the guidance which was introduced regularly (ex. finance facilitation for small and medium sized enterprises, housing loan facilitation for household...).
 - ✓ Consequently, total 15 guidances are remaining. They all target to real-estate sector, and 2 guidances of them has a numerical goal.
- We treated these 2 guidances as QR (base line, and others are for sensitivity analysis).

3. How we do this study

【WG】

- ✓ There are four types of WG (sorted in the tightening degree).

Tighten



(WG1) Guidance on lending volume and position:

From a macroeconomic perspective, total lending amount and allocation to each banks are set taking into account the balance with the same type of banks and banks' lending position at the time.

(WG2) Guidance on adjustments to lending volume:

From a macroeconomic perspective, adjustments to banks' self lending plans are called if BoJ see it is necessary.

(WG3) Guidance on adjustments to lending position:

From a microeconomic perspective, adjustments to banks' self lending plan are called if BoJ see that the banks' lending position is too excessive.

(WG4) Self planning principle: Banks' self lending plans are respected.

Loosen → We treat WG1 and WG2” as WG (base line, and others are for sensitivity analysis).

3. How we do this study

Step 2: We estimate time series of factors from about 125 macroeconomic series...

- ✓ GDP, IIP, Price, and Land price etc.
- ✓ Disaggregate data of banks' lending volume
 - By banks' type: City banks, Regional banks, *Shinkin* banks (3 groups).
 - By borrowing sectors: Manufacture, Construction, Real estate, Household, and Local government.
- ✓ Sales and bond issuance by sectors: Manufacture, Construction, Real estate, Service...
- ✓ Non financial sectors' (Life insurance company, Securities company, and Public financial institutions) bond asset and securities asset by sectors: Manufacture, Construction, Real estate, Service...

3. How we do this study

- Sample period: 1972Q1 to 2000Q4.
 - ✓ The starting period is chosen by the starting date of the lending statistics (“Loan and bills Discounted by Sector”),
 - ✓ The end period is chosen by the timing of BoJ’s policy instrument change from short-term interest rate to monetary aggregate.

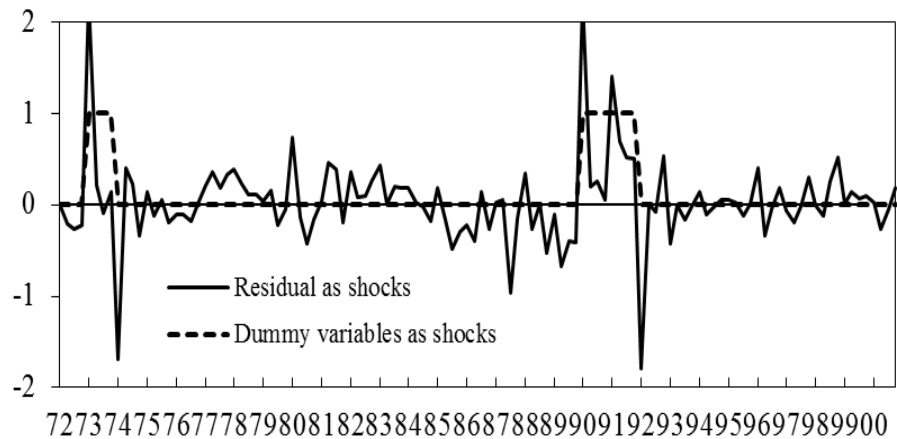
3. How we do this study

Step 3: We estimate response of macroeconomic variables to shocks to QR, WG, and short-term interest rate, by FAVAR.

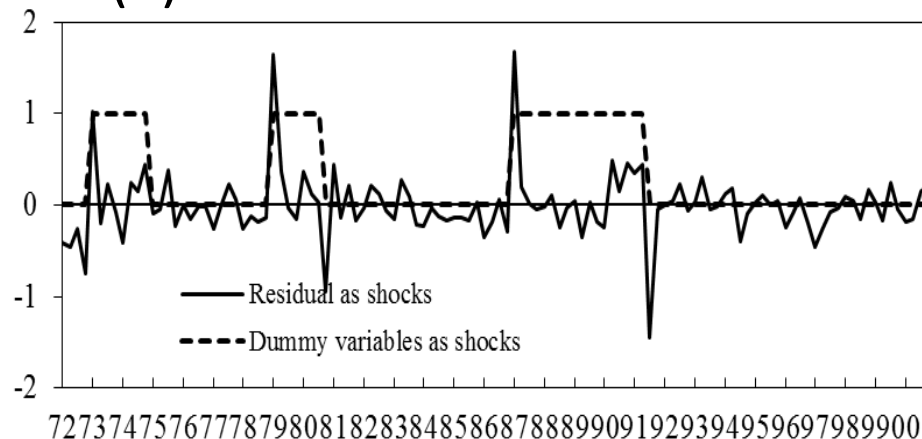
- ✓ Shocks to QR and WG are identified as
 - 1) residual of regression of dummies on factors (baseline).
 - 2) dummy itself (as sensitivity analysis).

3. How we do this study

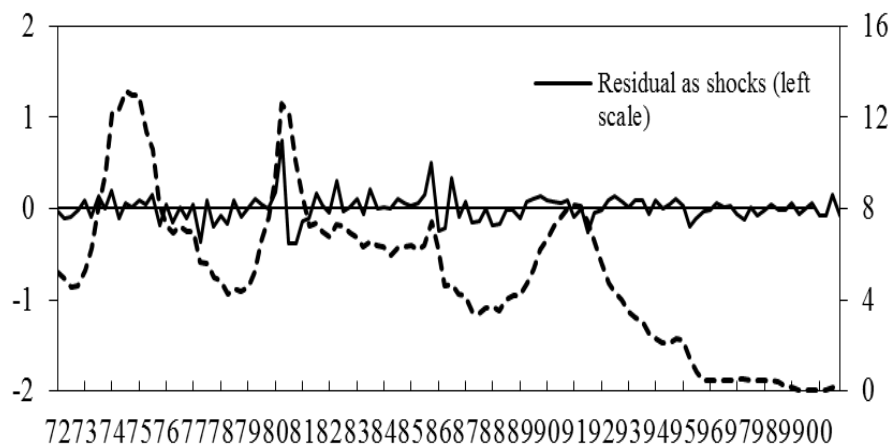
(1) QR



(2) WG



(3) SI



3. How we do this study

- Baseline model

$$\begin{bmatrix} F(t) \\ Y(t) \end{bmatrix} = \varphi(L) \begin{bmatrix} F(t-1) \\ Y(t-1) \end{bmatrix} + \nu(t), \quad X(t) = \Lambda^f F(t) + \Lambda^y Y(t) + \varepsilon(t).$$

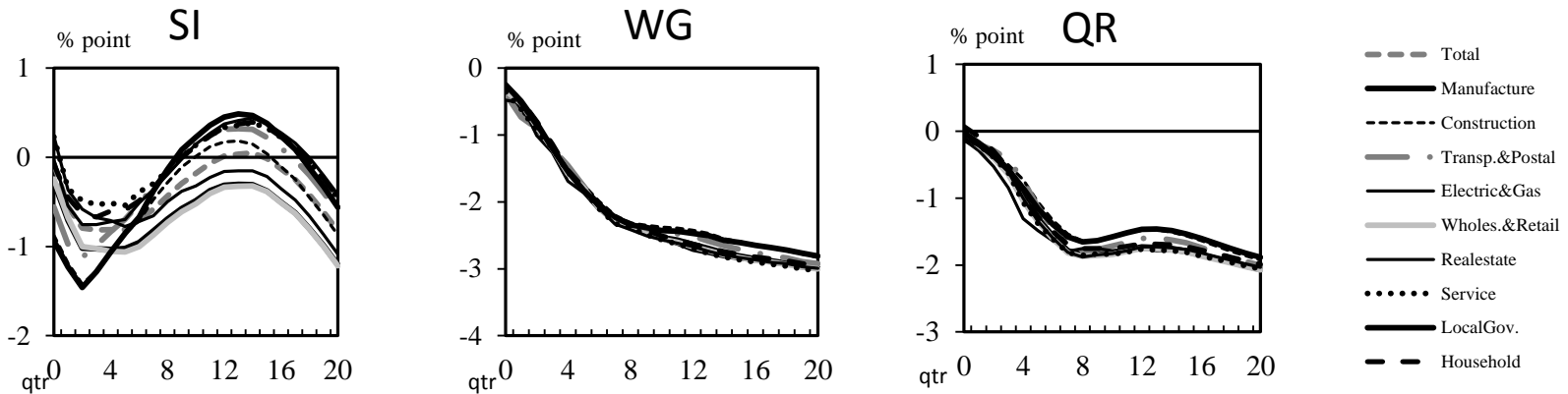
- ✓ $F(t)$ is a vector of unobservable common factors estimated from 125 macroeconomic time series. Number of common factors is 3 (base line).
 - ✓ $Y(t)$ is a vector that contains call rate and dummy variables for WG, and QR.
 - ✓ $X(t)$ a vector that contains 125 macroeconomic variables.
 - ✓ $\varphi(L)$ and Λ s are parameter matrices, $\nu(t)$, $\varepsilon(t)$ are shocks.
- Model for sensitivity analysis

$$\begin{bmatrix} F(t) \\ Y(t) \end{bmatrix} = \varphi(L) \begin{bmatrix} F(t-1) \\ Y(t-1) \\ \tau(t-1) \end{bmatrix} + \nu(t), \quad X(t) = \Lambda^f F(t) + \Lambda^y Y(t) + \Lambda^\tau \tau(t) + \varepsilon(t).$$

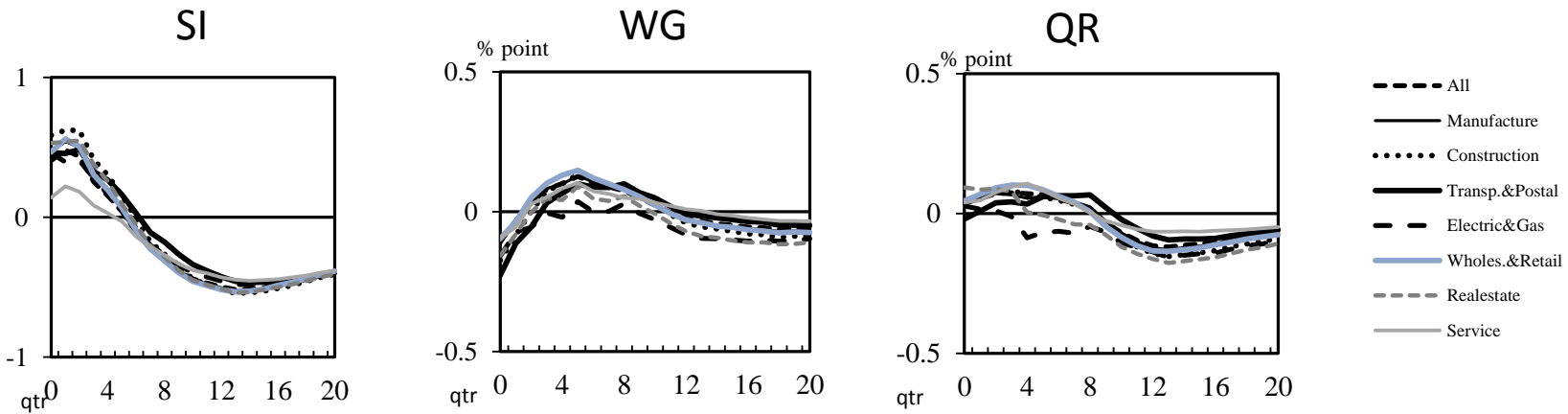
- ✓ $Y(t)$ is a time series of call rate, and $\tau(t)$ is a vector that contains dummy variables for WG, and QR

4. Results: Impulse response function

(1) Lending

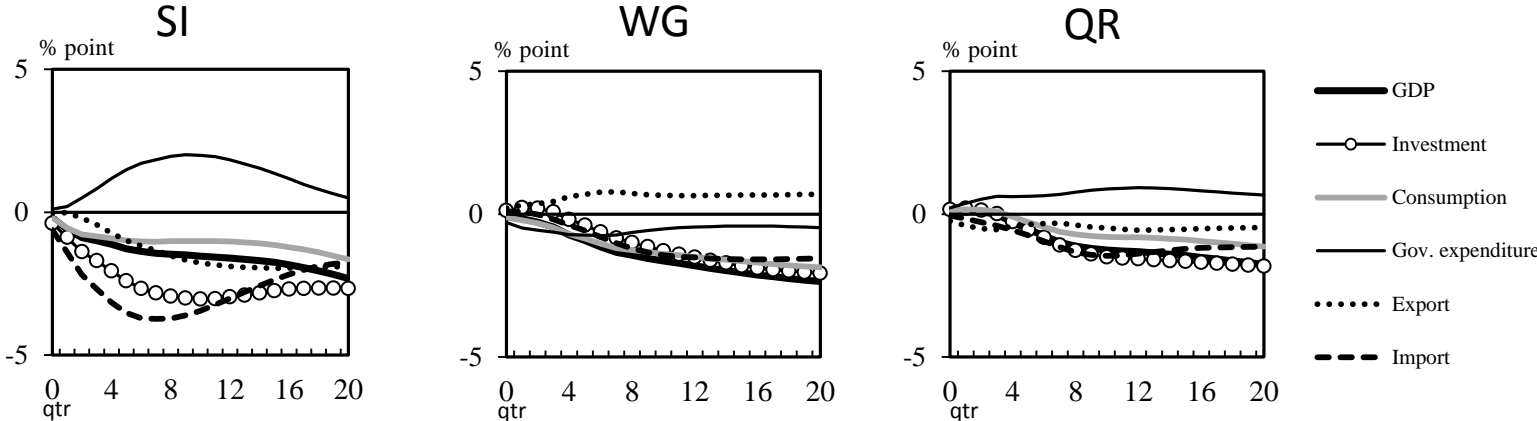


(2) Contract Interest rates on loan by borrowing sectors

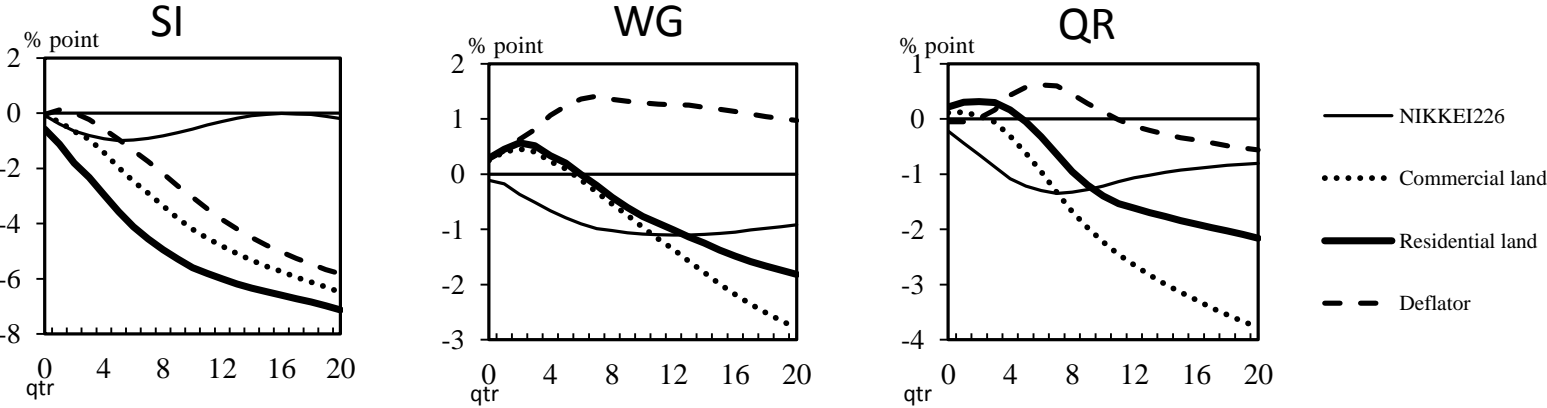


4. Results: Impulse response function

(3) GDP



(4) Deflator, Land price, and Stock price



4. Results: Contribution of each shock

(1) Case of Credit boom during the 1970s

The first difference of logarithm of

	Average difference between growth rates during 1972Q4-1973Q4 and 1974Q1-1975Q2	Contribution of MP shock	Contribution of WG shock	Contribution of QR shock	Total of contribution of three shocks
Lending	-1.19	-0.19	-0.71	-0.05	-0.95
GDP	-1.56	-0.17	-0.40	-0.43	-1.00
Stock price	0.10	-0.12	-0.34	0.25	-0.21
Lending to real estate	-1.41	-0.25	-0.79	0.02	-1.02
Commercial price	-2.61	-0.17	-0.06	-0.59	-0.82
Residential price	-3.62	-0.31	-0.13	-0.75	-1.19

(2) Case of Credit boom during the 1980s-1990s

The first difference of logarithm of

	Average difference between growth rates during 1986Q4-1991Q1 and 1991Q2-1993Q4	Contribution of MP shock	Contribution of WG shock	Contribution of QR shock	Total of contribution of three shocks
Lending	-1.06	-0.07	0.20	-0.44	-0.31
GDP	-1.01	-0.12	0.08	-0.50	-0.54
Stock price	-0.55	-0.03	0.12	-0.15	-0.06
Lending to real estate	-0.56	-0.07	0.23	-0.44	-0.28
Commercial price	-1.95	-0.21	-0.07	-0.84	-1.12
Residential price	-1.44	-0.23	-0.05	-0.69	-0.97

4. Results: cross-section regression

- To see the determinants of impacts of QR on loans, we conduct the following regression using disaggregated firms' responses.

(Estimation Equation)

Impulse response of loan volume to group j firms at s -th period after shock to QR

$$= \alpha_s \times \text{impulse response of loan rate applied to group } j \text{ firms at } s\text{-th period after shock to QR} \quad (1)$$

$$+ \beta_s \times \text{share of land asset over total asset in group } j \text{ firms} \quad (2)$$

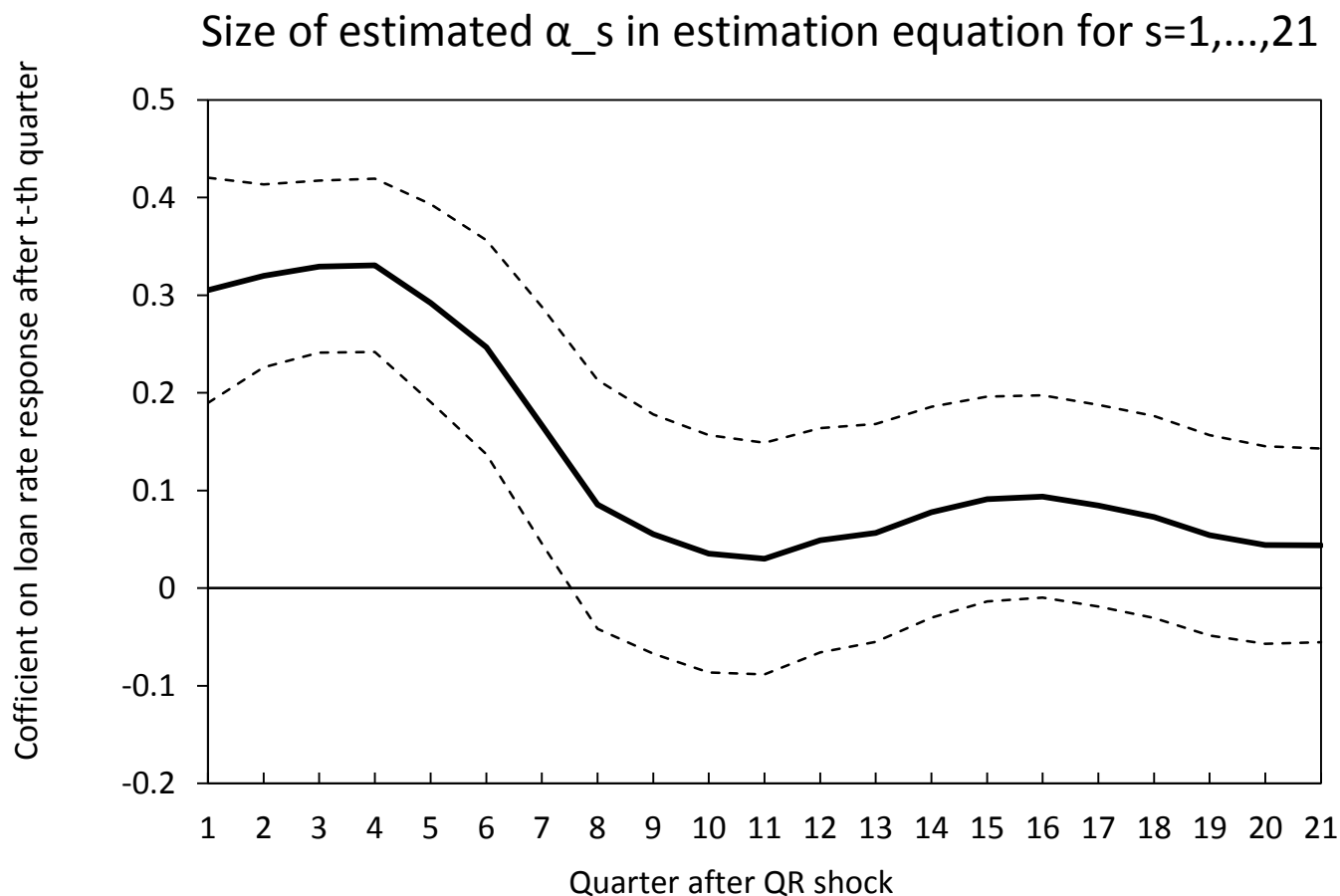
$$+ \gamma_s \times \text{share of stock holding over total asset in group } j \text{ firms} \quad (3)$$

$$+ \delta_s \times \text{dummy variable that captures effect of firms' size} \quad (4)$$

- ✓ Number of total groups is 102, and they are categorized by industry (24 to 25) and by size (3 to 4).

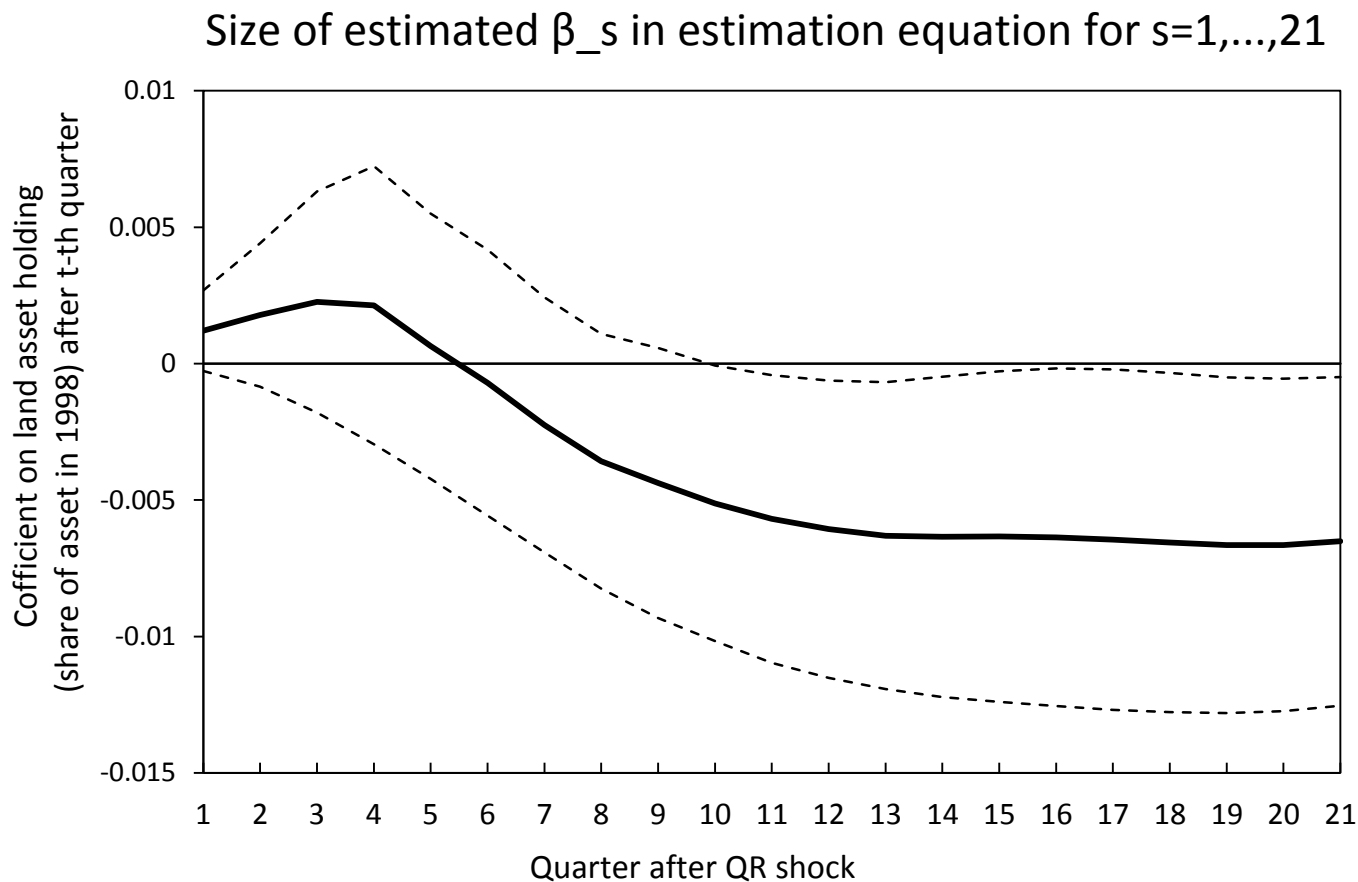
4. Results: cross-section regression

- The relationship between loan volume and loan rate is positive, indicating that loan volume decline after contractionary shocks to QR may be demand-driven.



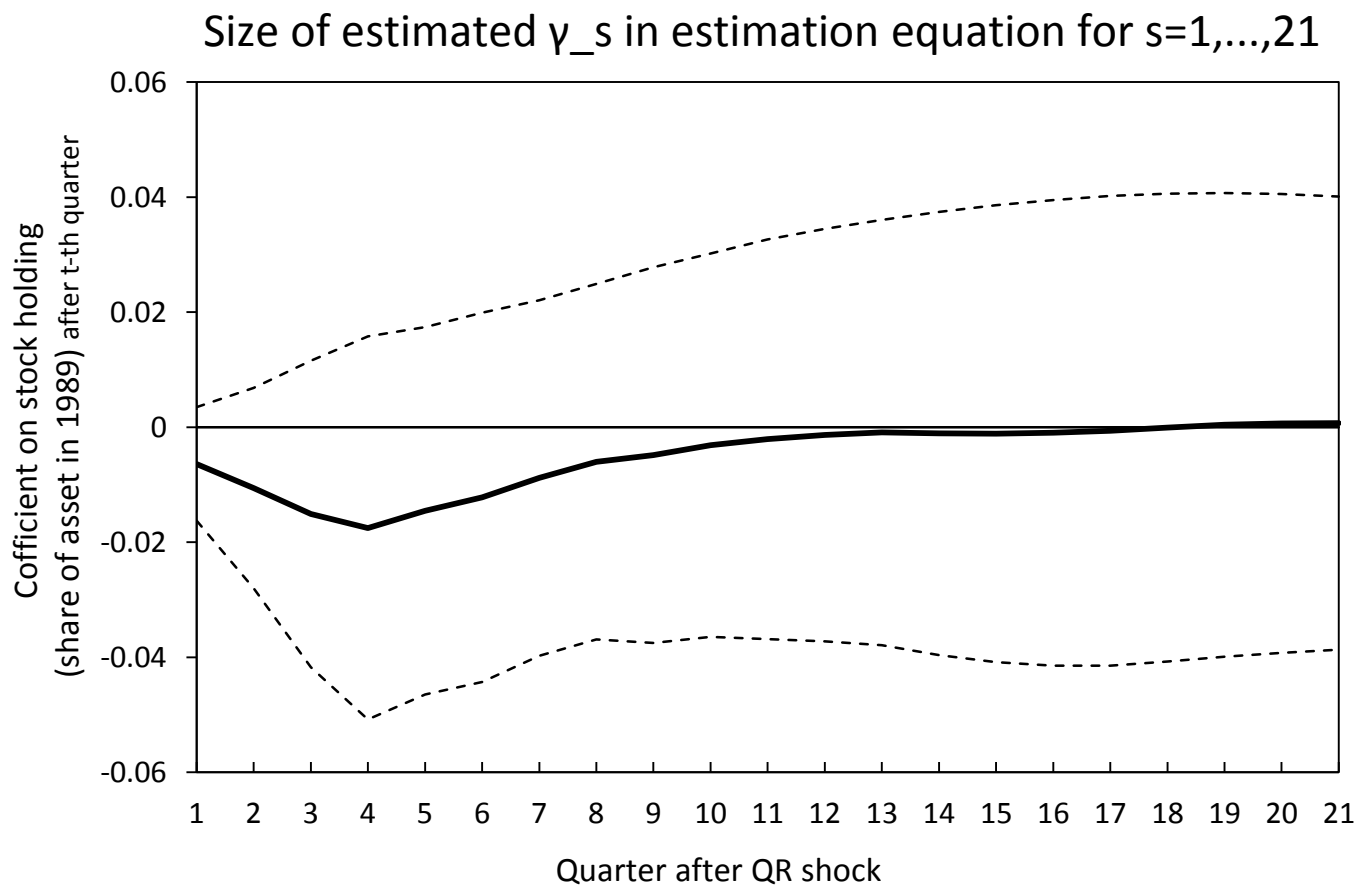
4. Results: cross-section regression

- The relationship between loan volume and land asset holding in 1989 is negative, indicating that land price decline following contractionary shocks to QR may have hampered borrowers' economic activities.



4. Results: cross-section regression

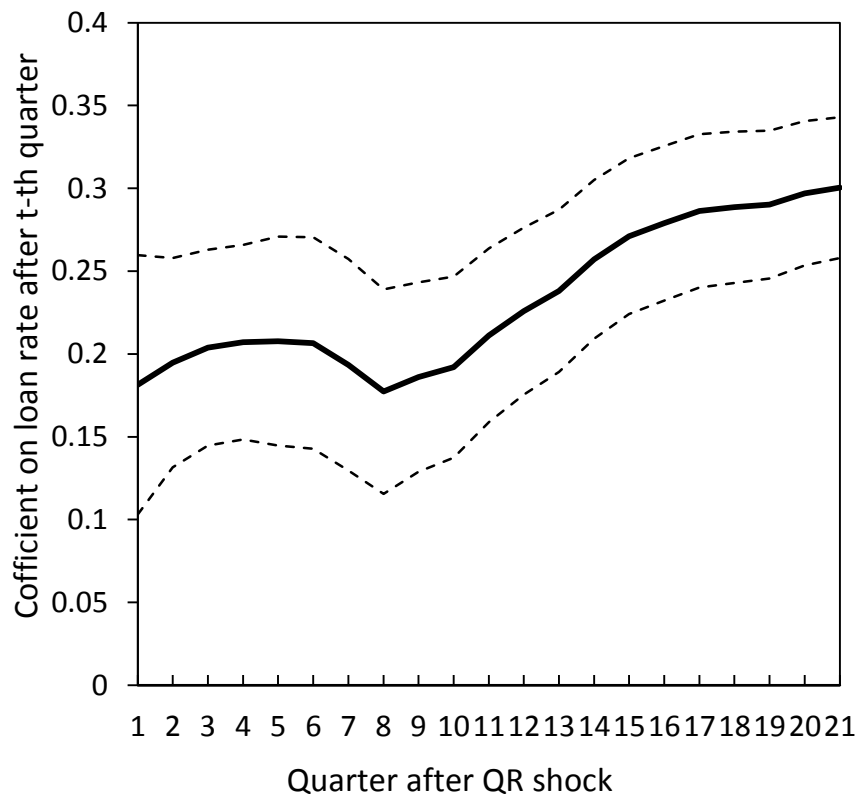
- The relationship between loan volume and stock holding in 1989 is insignificant indicating that stock price decline following contractionary shocks to QR may not be the key determinant of loan response.



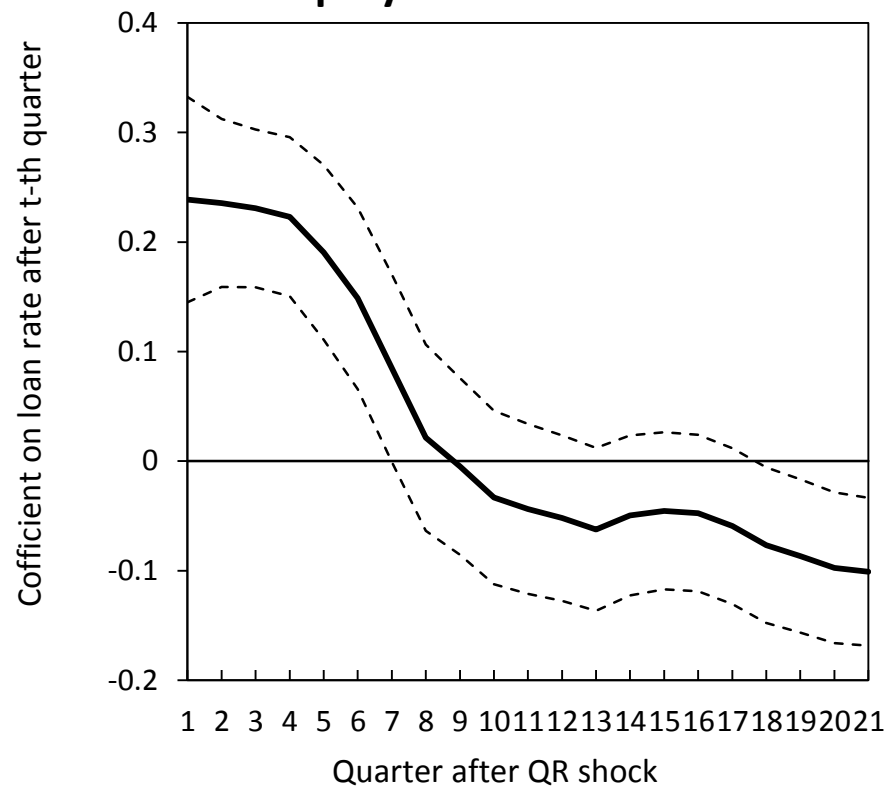
4. Results: cross-section regression

- We repeat the same exercises by replacing the independent variable, impulse response of loan volume, to that of sales, and that of employment, to obtain the similar results.

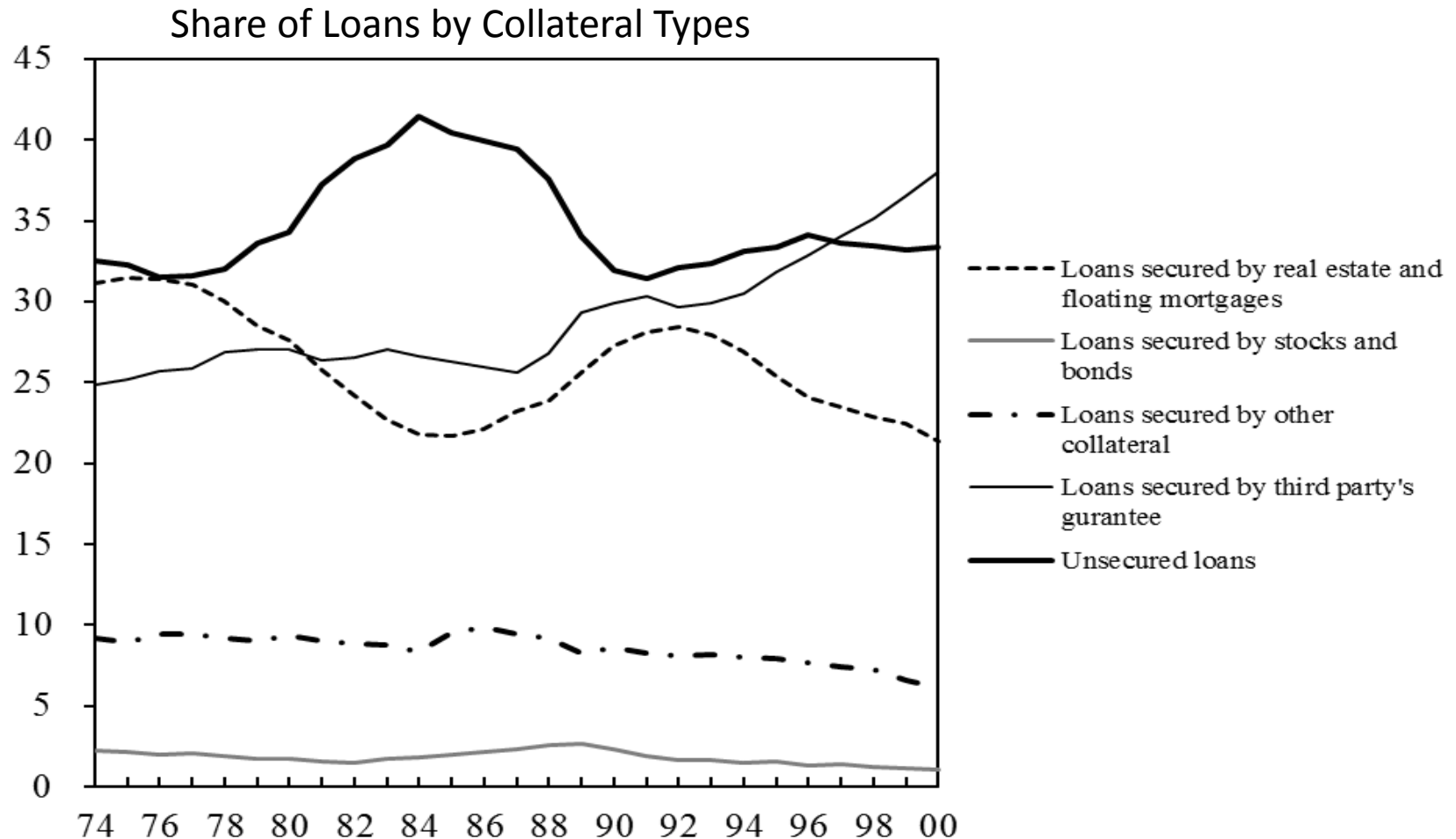
Sales and loan rates



Employment and loan rates



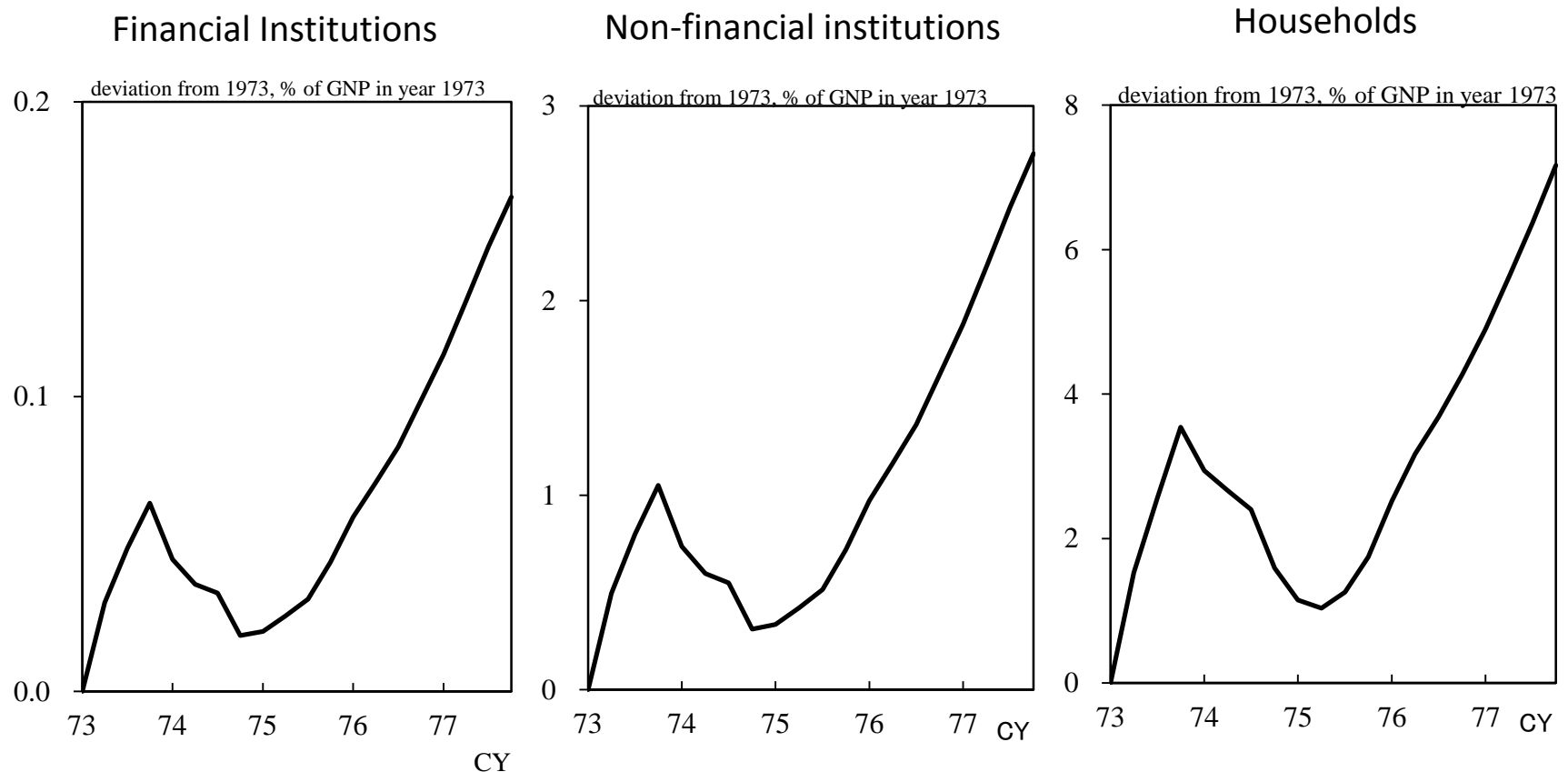
4. Results: transmission channels: land as collateral



- ✓ Another related channel; Watanabe (2007) points out a bank with large exposure to real-estate sector in 1989 tends to have a damaged balance sheet in the later years.

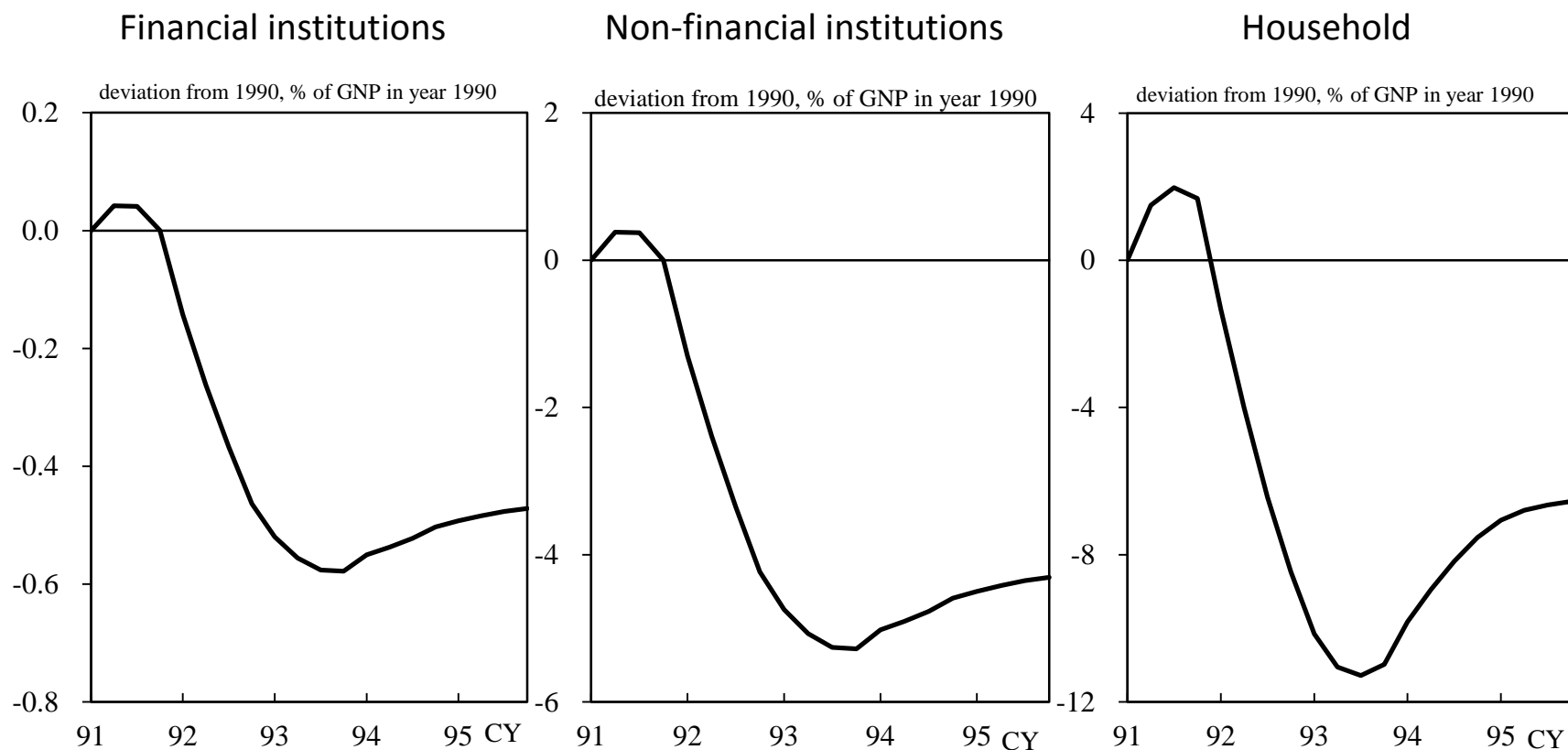
4. Results: transmission channels: land as wealth

- Loss of asset value due to land price decline in response to shocks to QR (1970s)
 - ✓ QR shock depress up trend.
 - ✓ The effect is larger for Non-financial institutions and Household than that for Financial institutions.



4. Results: transmission channels: land as wealth

- Loss of asset value due to land price decline in response to shocks to QR (1990s)
 - ✓ QR shock depress it to negative.
 - ✓ The effect is larger for Non-financial institutions and Household than that for Financial institutions.



Thank you.

Appendix: Details of administrative guidance from MoF (70s)

Implementation Period	Guidance Number	Outline
1972.11-1991*	4075	I would like to ask you to make your affiliated financial institutions be aware of following request: Financial institutions should boost awareness of public nature of bank business and provide appropriate loan for housing land development and house construction in response to social demand. At the time, financial institutions should pay adequate attention not to invite criticism that bank contribute real estate's speculative hoarding and selling.
1973,1-1973.12	247	Regardless of borrower's industry, loan of financial institution for land acquisition is advisable to be balanced in the each financial institution's total lending position. For that purpose, it is expected that each financial institutions, on a voluntary basis, to contain the growth rate of lending to real estate transaction below that of total lending except for lending to public institution committed to residential development and housing loan to household. Also, it is expected that each financial institutions submit loan plan every quarter.
1973.9-1974*	2992	I would like to ask you to make your affiliated financial institutions be aware of following request which is in line with governmental decision of "Immediate Measure for Price Stabilization" and "Act to suppress investment for construction": Financial institutions is expected to suppress loan providing (including debt guarantee) for construction of which owner was advised to postpone the construction or to reduce the scale of the construction by the coordinating council of investment for construction. Financial institution is also expected to surpress consumer credit except for housing loan for household.
1973.12-1974.12	4279	<p>In line with government's emergency action to deal with reduction of oil supply, it is necessary to allocate loan to sector with imminent needs as well as to strengthen aggregate demand. It is expected that each financial institutions, on a voluntary basis, allocate loan to sectors with a reference to a guidance below.</p> <p><Loan to be given priority></p> <ul style="list-style-type: none"> -- Lending for productive purpose which is certified to be given priority based on "Act on Emergency Measures for Stabilization of National Life". -- Lending for medical service, education, housing, and other indispensable bases of people's lives. -- Lending for small business who had significant impact of oil or energy conservation. <p><Loan to be contained></p> <ul style="list-style-type: none"> -- Loan for construction of which owner was advised or given administrative guidance to postpone the construction or to reduce the scale of the construction by the coordinating council of investment for construction or competent authority. -- Loan which could be used for speculation such as buildup of inventory and speculative stocking. -- Loan for land acquisition. -- Loan for entertainment and amusement and other service industries which are not indispensable. -- As for lending for wholesale and retail (excludes small business), hotel business, and real estate industry, the growth rate of lending should be kept below than that of total lending of each financial institutions. -- As for growth rate of personal loan such as consumer credit (excludes for medical service, education, and other indispensable bases of people's lives) and growth rate of loan for installment sales need to be contained as possible. -- As for housing loan for expensive or luxurious house need to be contained. -- Also, loan to local government need to be implement appropriately according to above guidance. <p>Loans to the following sectors or purpose need to be contained; investment, local governments, (regardless of borrower's industry) for land acquisition, real estate industry, hotel business, consumer credit loan, mortgage loan to buy exclusive residential. Especially, the growth rate of lending to real estate industry and hotel business is expected to be kept below that of total lending.</p> <p><Other></p> <ul style="list-style-type: none"> -- Guidance No. 247 (Jan.30 1973) is abolished because this guidance is introduced in behalf of it.

Appendix: Details of administrative guidance from MoF (70s)

Implementation Period	Guidance Number	Outline
1974.2-1974.12	589	Regardless of borrower's industry, financial institutions should work to keep track of loan customer's inventory. If the customer accumulate inventory excessively, financial institutions should suspend new loan and conduct planned collection of existing loan. As for loan for land acquisition, financial institutions should conduct examination about the land use and status of development even though the loan is already made. As a result of the examination, if there are loans which comes to be recognize that it is inappropriate, financial institutions should take a measure; refuse renewal of bill, refuse renew of agreement, conduct planned collection of these loans.
1975.3-1991*	Administrative circular	I would like to ask you to make your affiliated financial institutions be aware of following request considering the situation that we already issued a number of this kind of guidance and the contents of the existing guidance: Loan for land acquisition need to be contained considering the effect to land price. Specifically, loan for land acquisition for the purpose of resale should be restrict stringently and loan for land acquisition of which land use and status of development are undecided is adequate to be contained.
1974.12-1981*	4481	Guidance No. 4279 (Dec.25 1973) and No. 589(Feb. 28 1974) are abolished at the end of December of this year. However, loan for land acquisition for the purpose of resale or nonessential and non-urgent lending should be restrict stringently continuously.

- Notes: 1. Administrative guidances that have "*" in the ending dates of implementation are those for which the ending dates are not explicitly reported in "Collection of Ministry of Finance Banking Bureau Administrative guidance (the collection of guidance)," but the collection of guidance no longer list the guidance in the specified year and beyond.
2. "Administrative circular" is administrative guidance which was given by manager of Banks Division of Banking Bureau. Status of "Administrative circular" is lower than "Administrative guidance" which was given by Director of Banking Bureau.
3. MSE stands for Medium-sized enterprises and Small Enterprises.
4. If the guidance has a numerical target, it is stated Y in the column of Numerical Target, and N otherwise.

Source: "Collection of Ministry of Finance Banking Bureau Administrative guidance"

Appendix: Details of administrative guidance from MoF (80s-90s)

Implementation Period	Guidance Number	Outline
1985.7-1991*	Administrative circular	National Land Agency work to restrict real estate's speculative hoarding and selling and to stabilize land price for a long period through appropriate implement of National Land Use Planning Act. To achieve this policy, National Land Agency is going to supervise a prefecture and real estate industry actively. In line with this policy, I think financial consideration is needed that is not to contribute real estate's transaction with significantly inappropriate price or real estate's speculative hoarding and selling. Consequently, I would like to ask you to make your affiliated financial institutions notify the above purport.
1986.4-1991.12	800	I would like to ask you to make your affiliated financial institutions notify the aim of National Land Agency's request and provide appropriate loan that is not invite social criticism that financial institutions contribute real estate's speculative hoarding and selling. Consequently, I would like to ask you to make your affiliated financial institutions report lending which relates to land transaction of the real estate industry and construction industry by semiannual period over the next year.
1986.12-1992.12	3065	I would like to ask you to make your affiliated financial institutions notify the aim of National Land Agency's request and following our request; As for loan for land acquisition, financial institutions should conduct examination about the land use and status of development. Loan for real estate's speculative hoarding and selling are should be restrict strictly. In consideration with current land price movement, the loan report which was mentioned in guidance No.800 is needed for another year (until March 1998).
1990.3-1991.12	555	Considering both request: On the one hand, I should act for finance facilitation for domestic demand expanding, but on the other hand, I should act for land price problem actively, I think that it is desirable that loan of financial institution for land acquisition to be balanced in the each financial institution's total lending position. Consequently, I would like to ask you to make your affiliated financial institutions be aware of following request; Financial institutions should cooperate with our "Special interview" continuously. Financial institutions should keep the growth rate of lending to the real estate industry below that of total lending except for lending to public institution committed to residential development. Financial institutions are also needed to report lending to real estate industry, construction industry and related nonbank sector.
1991.12-1994.2	2425	Financial institution's lending to land transaction comes to be curbed. Land price in large city strengthen down trend and local area of which land price is falling are expanded. Consequently, guidance No. 555 is abolished at end of the fiscal year. Government decided "The guidance on promotion of land policy package" (Jan.,25,1991) based on "Basic Act for Land". In line with this governmental decision, I plan to continue restrict real estate's speculative hoarding and selling through financial inspections and swift interview. Also, I plan to maintain constant surveillance and give necessary guidance based on certain numerical base. To be more precise, we introduce new policy framework that when real estate lending growth exceed more than 3%, for more than two months, we will give guidance to restrain loan volume, and when real estate lending growth exceed more than 5%, for more than two months, we will give guidance to restrict loan volume taking financial and economic activity into account. Also, I plan to supervise nonbanking which carry on money lending business to restrict real estate's speculative hoarding and selling. I would like to ask you to make your affiliated financial institutions be aware of following request; Financial institutions should boost awareness of public nature of bank business and take all possible measure to strict loan for land acquisition including to make real-estate mortgage evaluation strict. Guidance No. 800 (Apr., 16, 1986), No. 3065 (Dec. 19, 1986), No. 2741 (Oct., 19, 1987), No. 2442 (Oct., 27, 1989) and No. 555 (Mar., 27, 1990) are abolished at the end of December of this year.

Appendix: Details of administrative guidance from MoF (80s-90s)

Implementation Period	Guidance Number	Outline
1992.8-1996*	Administrative circular	Recently, there are some examples that financial institution's attitudes to lending is overly negative reflecting excessive finance at bubble age. It is necessary that financial institutions alter eased borrower screening criteria at bubble age to proper but financial institutions also should be aware of that it is also necessary not to prevent necessary funds to real economy by overly negative attitude to lending.
1993.4-1996*	Administrative circular	I would like to ask you to make your affiliated financial institutions including nonbank sector be aware of following request; To confirm that more than six weeks have passed without receiving notice of non-recommendation for land acquisition by National Land Agency, financial institutions should confirm originality of an issued document which certificate that the land acquisition did not receive notice of non-recommendation.
1994.2-1996*	213	"Trigger principle" (Guidance No. 2425 <Dec., 20, 1991>) shall suspend for the present.

- Notes: 1. Administrative guidances that have "*" in the ending dates of implementation are those for which the ending dates are not explicitly reported in "Collection of Ministry of Finance Banking Bureau Administrative guidance (the collection of guidance)," but the collection of guidance no longer list the guidance in the specified year and beyond.
2. "Administrative circular" is administrative guidance which was given by manager of Banks Division of Banking Bureau. Status of "Administrative circular" is lower than "Administrative guidance" which was given by Director of Banking Bureau.
3. MSE stands for Medium-sized enterprises and Small Enterprises.
4. If the guidance has a numerical target, it is stated Y in the column of Numerical Target, and N otherwise.

Source: "Collection of Ministry of Finance Banking Bureau Administrative guidance"