Residential Property and Household Stock Holdings: Evidence from Japanese Micro Data

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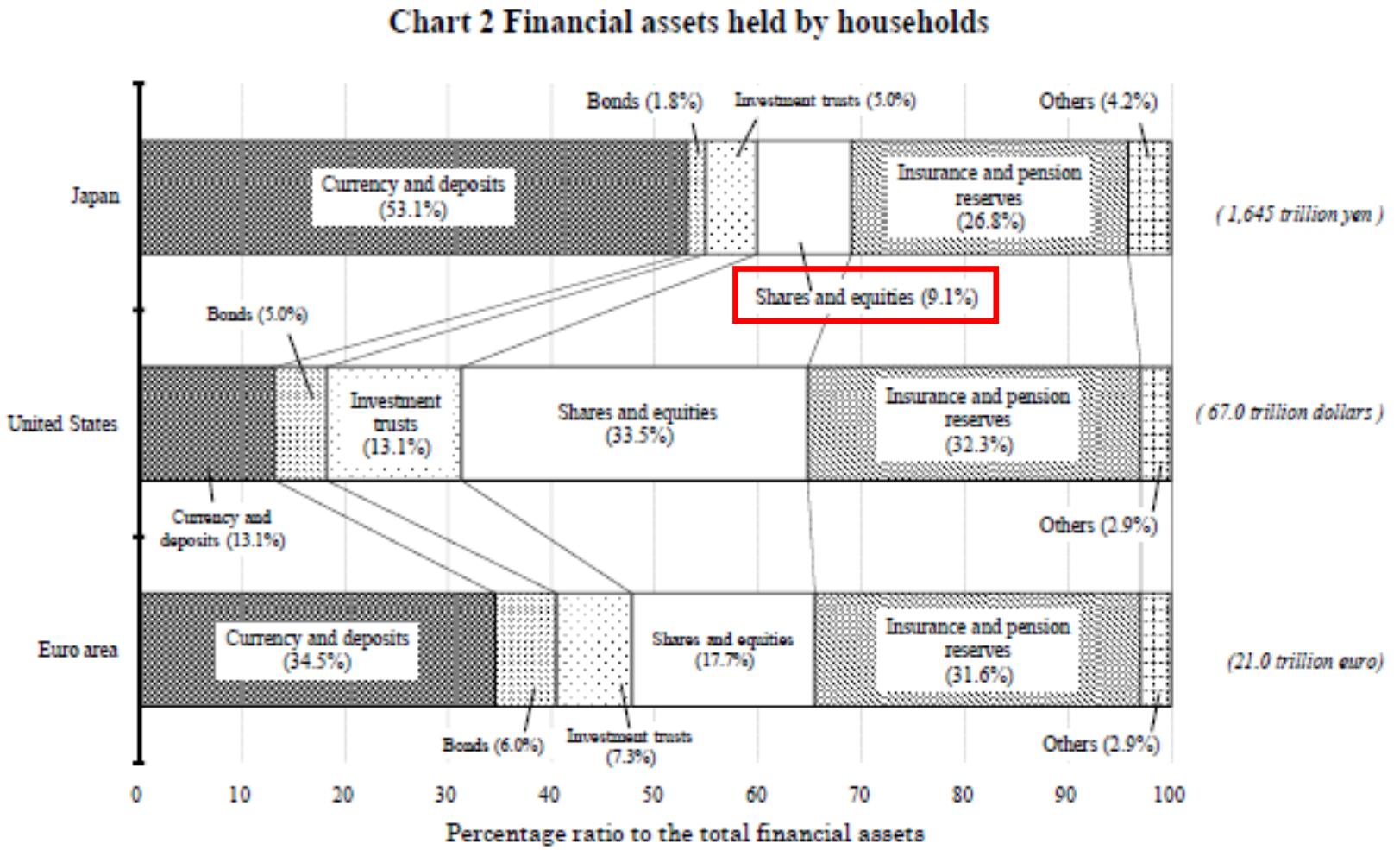
Motivation

- Linkage between housing and financial markets is important for understanding macroeconomic fluctuations, including asset price booms/busts
- **Our focus: Why is the share of stocks in household financial assets so low in Japan?**
  - One possible factor: Investment in housing assets "crowds out" risky financial assets (i.e., stocks)

Motivation



Note: 2nd Quarter 2014

Source: Bank of Japan, “Flow of Funds: Overview of Japan, US, and the Euro area “

Motivation

- We use a unique survey dataset (Nikkei RADAR) on Japanese households from 2000 to 2010 to examine:
  - the evolution of household portfolios in Japan in the 2000s
  - whether residential property inhibits household from owning stocks (extensive margin)
  - whether residential property crowds out stocks in financial assets of stockholders (intensive margin)

Motivation

- We use a unique survey dataset (Nikkei RADAR) on Japanese households from 2000 to 2010 to examine:
  - the evolution of household portfolios in Japan in the 2000s
  - whether residential property inhibits household from owning stocks (extensive margin) ← **Short answer: *Yes!***
  - whether residential property crowds out stocks in financial assets of stockholders (intensive margin) ← **Short answer: *No!***

Motivation

- Why are housing assets important for household portfolio choice among financial assets?
  - The observed hump-shaped age profile of the share of stocks in a household portfolio is difficult to reconcile with standard models of portfolio allocation
    - US: Ameriks and Zeldes (2004), Canner et al. (1997), Europe: Guisso et al. (2002), Japan: Iwaisako (2009)
    - Standard models predict that age is irrelevant for or negatively correlated with the share of risky assets (e.g., Bodie et al. 1992)

Motivation

- Why are housing assets important for household portfolio choice among financial assets? (cont'd)
  - Many theoretical and empirical studies incorporate housing in a model of portfolio allocation to examine:
    - whether observed pattern of age profile of stock holding share can be accounted for
    - how the presence of housing affect stock market participation and the share of stocks in financial assets
    - Cocco (2004), Faig and Shum (2002), Flavin and Yamashita (2002), Iwaisako (2012), Yamashita (2003), Yao and Zhang (2005)

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Some literature

- Many existing studies construct theoretical models and conduct numerical simulations and/or empirical analyses
- Cocco (2005): Investment in housing reduces equity market participation, especially for younger and poorer households
  - Equity market participation is measured by stock relative to liquid assets, stock relative to financial assets, stock relative to total assets, and absolute value
- Yamashita (2003): Households with higher house-to-net-worth ratio hold a lower proportion in stocks relative to financial assets
  - In the simulation model, however, the share of stockholdings is hump-shaped
  - Sample is limited to stock-owners

Some literature

- Yao and Zhang (2005): Households owning a house / with higher house-to-net-worth ratio
  - are less likely to hold stocks; hold less liquid asset to participate in stock market
  - hold a lower equity proportion in their total net worth (bonds, stocks, and home equity); substitution effect
  - hold a higher equity proportion in their liquid financial portfolio (bonds and stocks); diversification effect
    - Diversification effect is **not** found in the empirical analysis
- Iwaisako (2012): Homeownership
  - reduces the probability of owning stocks (extensive margin)
  - increases the share of stocks relative to financial assets, conditional on owning stocks (intensive margin)

Major findings

- (1) Ratio of households owning stocks increased in the mid-2000s and remained the same thereafter
  - Throughout the 2000s, the ratio of household owning residential property were generally stable, while that with positive residential mortgages outstanding decreased substantially
- (2) Households with higher residential property relative to gross total asset are less likely to **own** stocks
  - Consistent with the **"crowding out" effect** hypothesis
- (3) Conditional on owning stocks, households with higher residential property relative to gross total asset hold a larger **share in stocks relative to financial assets**
  - Consistent with the **"diversification" effect** hypothesis

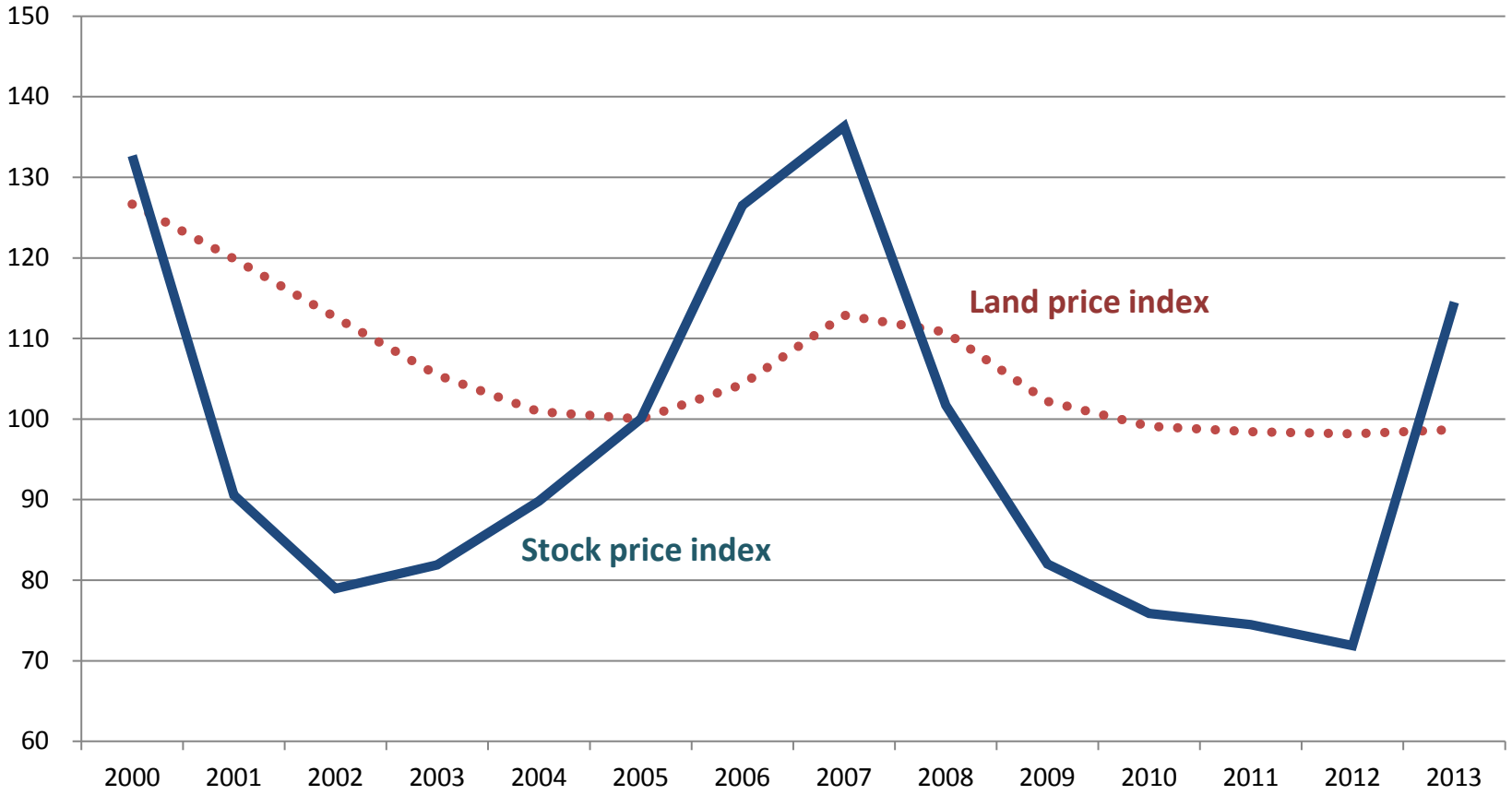
Dataset

Dataset

- Nikkei RADAR, 2000-2010
  - Repeated cross-section data
  - Household survey to those residing in the metropolitan area (within 40km-raduis from Tokyo Station)
    - average household is richer (in terms of income and wealth) than the national average
  - The coverage of old householders are relatively limited
- No. Obs.
  - Total 29, 238; 2500-3000 households per year
  - Regressions: 17,111 at a maximum

Evolution of Household Portfolio

Asset price



Note: Year 2005=100. Stock price index is the weekly average of Nikkei Stock Average from July to September. Land price index is the Urban land price index for 6 large city areas

Source: Nikkei Financial Quest, Japan Real Estate Institute

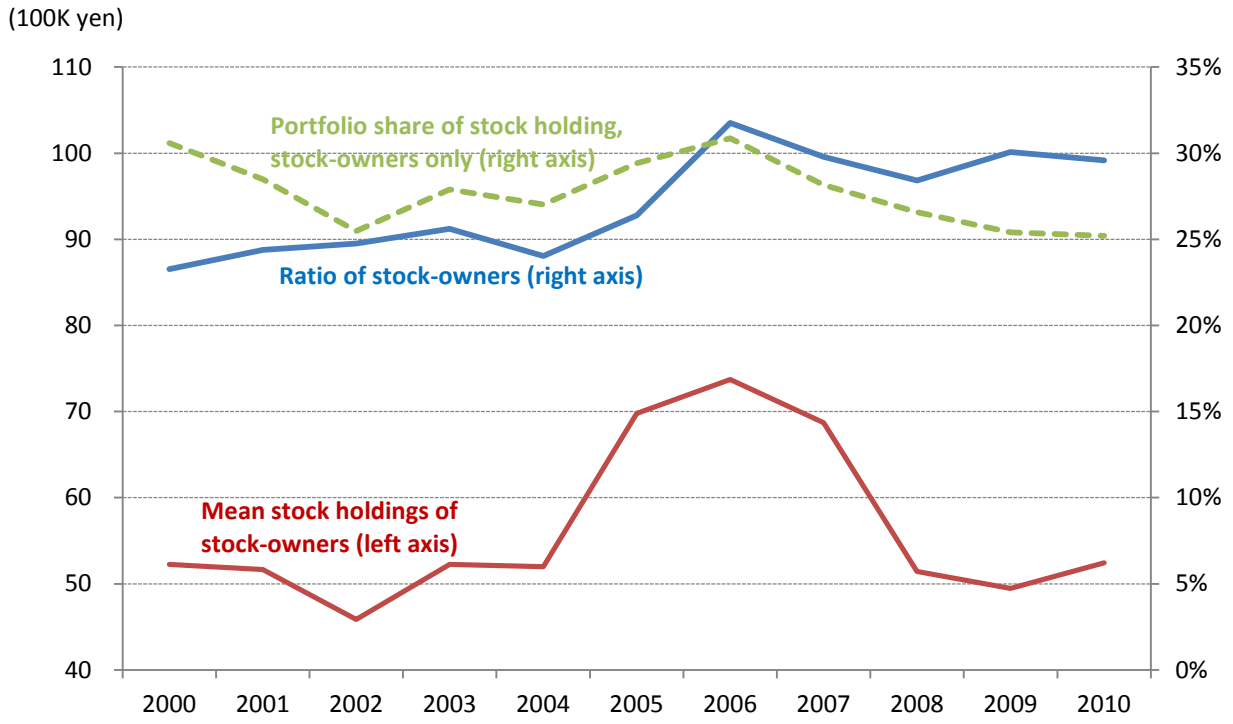
Household portfolio: financial assets

- Mean of gross financial asset increased throughout 2000s
- Portfolio share of stocks increased in the mid-2000s and then slightly decreased after 2007
  - Portfolio shares of demand deposit, FX denominated assets, bonds, mutual funds also increased, while those of time deposit and MMF decreased

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
(a) Gross Financial Asset, 100 thousands yen											
Mean	90.0	95.3	94.0	94.3	97.4	110.4	127.7	122.7	117.6	122.2	125.7
Median	40.0	42.0	41.0	40.0	40.0	46.0	54.0	48.0	43.0	43.0	46.0
(b) Average portfolio share, percent											
Deposit	88.9%	88.4%	90.2%	88.7%	88.7%	86.1%	82.7%	84.0%	83.7%	83.9%	84.5%
Demand deposit	43.1%	43.2%	46.9%	48.9%	52.1%	49.2%	49.9%	52.3%	53.8%	53.8%	54.2%
Time deposit	33.5%	33.8%	32.5%	30.3%	27.1%	24.1%	21.7%	20.0%	18.4%	19.1%	18.7%
Saving deposit	3.9%	4.6%	4.1%	3.6%	3.5%	5.9%	4.8%	5.5%	6.3%	5.7%	5.9%
Workers' tax-exempt saving	8.4%	6.8%	6.7%	5.9%	6.0%	6.9%	6.3%	6.2%	5.3%	5.3%	5.7%
Foreign currency denominated assset	0.6%	0.6%	0.5%	0.9%	1.7%	1.9%	1.6%	1.7%	2.7%	2.3%	2.5%
Bonds	1.1%	1.3%	1.2%	1.3%	1.1%	1.7%	2.3%	2.3%	2.4%	2.2%	2.0%
Stocks	6.9%	6.9%	6.1%	7.1%	6.5%	7.7%	9.8%	8.2%	7.7%	7.7%	7.6%
Mutual Fund	0.9%	1.3%	1.0%	1.2%	1.2%	1.8%	2.9%	3.0%	2.9%	3.1%	2.9%
MMF, MRF, Med-term gov't bond fund	1.7%	1.5%	1.0%	0.9%	0.9%	0.8%	0.8%	0.8%	0.7%	0.8%	0.5%
No. Obs.	2,407	2,616	2,510	2,499	2,291	2,164	1,972	2,078	2,036	2,047	2,033

Household portfolio: stocks

- Why did the share of stocks not decrease after 2008?
  - Ratio of stock owners (extensive margin) remained high despite the adverse shocks to the stock market (i.e., global financial crisis)



Household portfolio: residential property and mortgages

- Mean of residential property (land) decreased in 2000s
  - Due to decrease in the value of residential property of owners (intensive margin)
- Mean of residential mortgages also decreased
  - Due to decrease in the ratio of borrowing households (extensive margin)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
(a) Residential property (land only)											
Mean (100 thousands yen)	184.3	197.3	186.4	170.7	169.1	169.3	177.0	176.6	160.7	158.0	148.9
Median (100 thousands yen)	0	0	0	0	0	0	0	0	0	0	0
Ratio of owners	48.7%	52.3%	55.7%	52.8%	53.4%	53.0%	55.1%	49.3%	49.2%	45.4%	45.7%
Conditional on owning:											
Mean (100 thousands yen)	410.9	414.7	387.5	365.8	361.1	357.3	358.0	409.2	358.3	392.4	366.8
Median (100 thousands yen)	300	300	300	300	300	280	300	300	300	250	300
(b) Residential mortgages											
Mean (100 thousands yen)	82.3	73.6	61.6	64.8	63.5	64.7	58.2	61.6	58.3	50.7	53.8
Median (100 thousands yen)	0	0	0	0	0	0	0	0	0	0	0
Ratio of owners	45.3%	39.0%	31.8%	32.7%	31.7%	34.1%	31.3%	31.6%	31.5%	28.7%	28.7%
Conditional on owning:											
Mean (100 thousands yen)	193.9	207.1	206.8	214.1	214.7	205.3	202.1	214.6	209.2	206.0	209.7
Median (100 thousands yen)	180	180	190	200	190	200	200	200	200	200	200

Residential Property and Stockholdings: Univariate Analysis

Residential property and stockholdings

Residential Property / Gross Total Asset	RP/GTA		Gross Financial Asset (100 thousand yen)		Gross Total Asset (100 thousand yen)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	12,088	0.0%	12,088	70.4	12,088	70.4
1st quartile	2,494	41.1%	2,494	382.2	2,494	645.6
2nd quartile	2,509	69.7%	2,509	161.0	2,509	526.7
3rd quartile	2,479	85.4%	2,479	70.3	2,479	475.9
4th quartile	2,494	95.9%	2,494	19.2	2,494	471.4
Total	22,064	33.0%	22,064	110.2	22,064	278.2

Residential Property / Gross Total Asset	Residential mortgages (100 thousand yen)		Ratio of borrowers		Residential mortgages (borrowers only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	10,529	34.8	10,752	19.6%	1,882	194.9
1st quartile	2,448	26.2	2,482	19.1%	439	145.9
2nd quartile	2,462	70.7	2,505	40.0%	960	181.3
3rd quartile	2,384	132.2	2,474	58.6%	1,360	231.7
4th quartile	2,379	157.5	2,488	65.6%	1,523	246.0
Total	20,202	64.1	20,701	32.2%	6,164	210.0

Residential Property / Gross Total Asset	Stock / GFA		Ratio of stock-owners		Stock / GFA (stock-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	12,088	5.2%	12,088	18.8%	2,272	27.5%
1st quartile	2,494	14.2%	2,494	58.7%	1,464	24.1%
2nd quartile	2,509	13.0%	2,509	47.3%	1,188	27.4%
3rd quartile	2,479	10.1%	2,479	31.9%	792	31.7%
4th quartile	2,470	5.8%	2,494	14.4%	358	39.7%
Total	22,040	7.7%	22,064	27.5%	6,074	27.9%

Residential property and stockholdings

- Relationship between RP/GTA quartile (including non-owners) and asset, mortgages, and stockholdings
- Higher RP/GTA households:
  - have smaller assets, especially for GFA
  - have larger amount of mortgages outstanding

  ➔ The are supposed to be more liquidity-constrained
- In terms of stockholdings, higher RP/GTA households:
  - are less likely to own stocks (extensive margin)
    - Consistent with the "crowding out" effect hypothesis
  - but have a larger share of stocks relative to GFA, conditional on owning stocks (intensive margin)
    - Consistent with the "diversification" effect hypothesis

Residential property and stockholdings (US; 2010 SCF)

Residential Property / Gross Total Asset	RP/GTA		Gross Financial Asset (thousand dollar)		Gross Total Asset (thousand dollar)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	1,814	0.0%	1,814	35.3	1,814	35.3
1st quartile	1,083	30.4%	1,083	1,236.7	1,083	1,619.1
2nd quartile	1,083	62.1%	1,083	229.3	1,083	577.6
3rd quartile	1,083	86.3%	1,083	43.7	1,083	304.7
4th quartile	1,083	98.2%	1,083	4.3	1,083	210.3
Total	6,145	54.5%	6,145	178.5	6,145	377.0

Residential Property / Gross Total Asset	Residential mortgages (thousand dollar)		Ratio of borrowers		Residential mortgages (borrowers only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	1,814	0.0	1,814	0.0%	0	–
1st quartile	1,083	73.1	1,083	41.7%	419	175.2
2nd quartile	1,083	107.4	1,083	63.7%	708	168.5
3rd quartile	1,083	116.1	1,083	73.6%	812	157.7
4th quartile	1,083	98.2	1,083	72.5%	794	135.5
Total	6,145	72.5	6,145	47.2%	2,733	153.6

Borrowing constraint?

Residential Property / Gross Total Asset	Stock / GFA		Ratio of stock-owners		Stock / GFA (stock-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
Non-owners	1,814	2.0%	1,814	7.1%	135	28.5%
1st quartile	1,083	13.0%	1,083	47.4%	673	27.4%
2nd quartile	1,083	6.5%	1,083	29.6%	392	21.9%
3rd quartile	1,083	4.0%	1,083	15.1%	183	26.1%
4th quartile	1,003	1.8%	1,083	4.6%	52	36.5%
Total	6,065	4.2%	6,145	15.9%	1,436	26.2%

Non-monotonic

Residential Property and Stockholdings: Estimations

Methodology

- Determinants of owning stocks: Probit regression

$$\Pr(\text{STOCK\_EX}_i = 1|X_i) = \Phi(\beta_0 + \beta_1 \text{RESLAND\_RATIO}_i + \beta_2 \text{ATTRIBUTES}_i + \beta_3 \text{YEARDUMMY})$$

- Determinants of stock share: OLS regression

$$\text{STOCK\_SHARE}_i = \gamma_0 + \gamma_1 \text{RESLAND\_RATIO}_i + \gamma_2 \text{ATTRIBUTES}_i + \gamma_3 \text{YEARDUMMY} + \varepsilon_i$$

  - We focus on RESLAND_RATIO$_i$, residential property relative to gross total assets
    - Includes observations with zero ; the results below are qualitatively the same when (i) using dummy variables, and (ii) dropping observations with zero
  - Subsample analysis: with or w/o residential mortgages

Summary statistics

	All Households						Households with positive stock holdings					
	No. Obs.	Mean	Std. Dev.	Min	Median	Max	No. Obs.	Mean	Std. Dev.	Min	Median	Max
Dependent variables												
STOCK_EX	17,111	0.283	0.450	0.000	0.000	1.000	4,840	1.000	0.000	1.000	1.000	1.000
STOCK_SHARE	17,111	0.078	0.175	0.000	0.000	1.000	4,840	0.277	0.230	0.002	0.211	1.000
Independent variables												
RESLAND_RATIO	17,111	0.360	0.395	0.000	0.000	0.999	4,840	0.435	0.348	0.000	0.490	0.994
INCOME	17,111	63.684	43.369	5	55	500	4,840	79.894	50.538	5	65	500
GTA	17,111	300.016	429.866	1	169	10,966	4,840	527.261	546.937	2	398	10,966
AGE_30	17,111	0.139	0.346	0	0	1	4,840	0.042	0.200	0	0	1
AGE_31_40	17,111	0.241	0.428	0	0	1	4,840	0.148	0.355	0	0	1
AGE_41_50	17,111	0.203	0.402	0	0	1	4,840	0.197	0.398	0	0	1
AGE_51_60	17,111	0.193	0.395	0	0	1	4,840	0.253	0.435	0	0	1
AGE_61_70	17,111	0.169	0.375	0	0	1	4,840	0.269	0.444	0	0	1
AGE_71	17,111	0.055	0.229	0	0	1	4,840	0.090	0.287	0	0	1
FAMILYSIZE	17,111	2.545	1.285	1	2	8	4,840	2.607	1.152	1	2	7
JUNIOR HIGH	17,111	0.065	0.246	0	0	1	4,840	0.026	0.160	0	0	1
UNIVERSITY	17,111	0.482	0.500	0	0	1	4,840	0.644	0.479	0	1	1
YEAR2001	17,111	0.113	0.317	0	0	1	4,840	0.101	0.302	0	0	1
YEAR2002	17,111	0.101	0.302	0	0	1	4,840	0.091	0.287	0	0	1
YEAR2003	17,111	0.099	0.298	0	0	1	4,840	0.091	0.288	0	0	1
YEAR2004	17,111	0.095	0.293	0	0	1	4,840	0.085	0.278	0	0	1
YEAR2005	17,111	0.083	0.276	0	0	1	4,840	0.085	0.279	0	0	1
YEAR2006	17,111	0.076	0.265	0	0	1	4,840	0.093	0.291	0	0	1
YEAR2007	17,111	0.081	0.272	0	0	1	4,840	0.093	0.290	0	0	1
YEAR2008	17,111	0.084	0.278	0	0	1	4,840	0.093	0.290	0	0	1
YEAR2009	17,111	0.086	0.280	0	0	1	4,840	0.096	0.295	0	0	1
YEAR2010	17,111	0.083	0.275	0	0	1	4,840	0.090	0.287	0	0	1
RESMORTGAGE	15,690	50.711	128.166	0	0	4,000	4,627	53.555	143.550	0	0	3,000

Effect of residential property on owning stocks

Estimation Method: Probit Dependent variable: STOCK_EX	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z
RESLAND_RATIO	-0.278 ***	0.011	-24.19	-0.248 ***	0.015	-16.07	-0.662 ***	0.049	-13.41
lnINCOME	0.049 ***	0.006	8.05	0.045 ***	0.007	6.34	0.048 ***	0.019	2.57
lnGTA	0.134 ***	0.003	37.01	0.131 ***	0.004	31.75	0.167 ***	0.014	12.21
AGE_30	-0.137 ***	0.010	-10.76	-0.132 ***	0.012	-8.99	-0.172 ***	0.039	-3.13
AGE_31_40	-0.122 ***	0.009	-11.98	-0.124 ***	0.011	-9.86	-0.111 ***	0.029	-3.54
AGE_41_50	-0.091 ***	0.010	-8.75	-0.108 ***	0.011	-8.67	-0.056 *	0.031	-1.77
AGE_51_60	-0.049 ***	0.009	-4.94	-0.044 ***	0.011	-3.82	-0.066 **	0.028	-2.28
FAMILYSIZE	-0.005	0.003	-1.59	-0.004	0.004	-1	-0.008	0.008	-1.08
JUNIOR HIGH	-0.111 ***	0.012	-7.68	-0.113 ***	0.013	-6.79	-0.151 ***	0.033	-3.58
UNIVERSITY	0.095 ***	0.007	13.03	0.101 ***	0.009	11.49	0.081 ***	0.017	4.78
YEAR2001	0.005	0.015	0.35	-0.006	0.021	-0.31	-0.013	0.034	-0.37
YEAR2002	0.015	0.016	0.98	0.003	0.020	0.15	0.014	0.035	0.4
YEAR2003	0.013	0.016	0.81	-0.007	0.020	-0.34	0.033	0.037	0.91
YEAR2004	0.003	0.016	0.21	-0.012	0.020	-0.61	0.011	0.036	0.3
YEAR2005	0.021	0.017	1.28	0.009	0.021	0.4	-0.002	0.036	-0.07
YEAR2006	0.055 ***	0.018	3.27	0.053 **	0.023	2.39	0.024	0.038	0.64
YEAR2007	0.043 ***	0.017	2.56	0.031	0.022	1.44	0.034	0.039	0.89
YEAR2008	0.045 ***	0.017	2.71	0.050 **	0.023	2.29	0.004	0.037	0.11
YEAR2009	0.060 ***	0.018	3.6	0.057 ***	0.023	2.62	0.018	0.039	0.47
YEAR2010	0.040 **	0.017	2.4	0.036 *	0.022	1.67	0.015	0.039	0.38
lnRESMORTGAGE							0.005	0.010	0.5
No. Obs.	17,111			12,049			3,641		
LR chi2	4741.86			3707.32			671.71		
Prob > chi2	0.000			0.000			0.000		
Pseudo R2	0.233			0.255			0.151		
Log likelihood	-7820.950			-5429.928			-1895.623		

Effect of residential property on owning stocks

Estimation Method: Probit Dependent variable: STOCK_EX	(1) All households				(2) Households with no residential mortgages				(3) Households with positive residential mortgages			
	dy/dx		Std. Err.	z	dy/dx		Std. Err.	z	dy/dx		Std. Err.	z
RESLAND_RATIO	-0.278	***	0.011	-24.19	-0.248	***	0.015	-16.07	-0.662	***	0.049	-13.41
lnINCOME	0.049	***	0.006	8.05	0.045	***	0.007	6.34	0.048	***	0.019	2.57
lnGTA	0.134	***	0.003	[illegible]	[illegible]	***	0.004	[illegible]	[illegible]	***	0.014	12.21
AGE_[illegible]	[illegible]	***	[illegible]	[illegible]	[illegible]	***	[illegible]	[illegible]	[illegible]	***	0.039	-3.13
AGE_31_40	-0.122	***	0.009	-11.98	-0.124	***	0.011	-9.86	-0.111	***	0.029	-3.54
AGE_[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	-1.77
AGE_51_60	-0.049	***	0.009	-4.94	-0.044		0.011	-3.82	-0.066	**	0.028	-2.28
FAM[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	-1.08
JUNIOR HIGH	-0.111	***	0.012	-7.68	-0.113	***	0.013	-6.79	-0.151	***	0.033	-3.58
UNIVERSITY	0.095	***	0.007	13.03	0.101	***	0.009	11.49	0.081	***	0.017	4.78
YEAR2001	0.005		0.015	0.35	-0.006		0.021	-0.31	-0.013		0.034	-0.37
YEAR2002	0.015		0.016	0.98	0.003		0.020	0.15	0.014		0.035	0.4
YEAR2003	0.013		0.016	0.81	-0.007		0.020	-0.34	0.033		0.037	0.91
YEAR2004	0.003		0.016	0.21	-0.012		0.020	-0.61	0.011		0.036	0.3
YEAR2005	0.021		0.017	1.28	0.009		0.021	0.4	-0.002		0.036	-0.07
YEAR2006	0.055	***	0.018	3.27	0.053	**	0.023	2.39	0.024		0.038	0.64
YEAR2007	0.043	***	0.017	2.56	0.031		0.022	1.44	0.034		0.039	0.89
YEAR2008	0.045	***	0.017	2.71	0.050	**	0.023	2.29	0.004		0.037	0.11
YEAR2009	0.060	***	0.018	3.6	0.057	***	0.023	2.62	0.018		0.039	0.47
YEAR2010	0.040	**	0.017	2.4	0.036	*	0.022	1.67	0.015		0.039	0.38
lnRESMORTGAGE									0.005		0.010	0.5
No. Obs.	17,111				12,049				3,641			
LR chi2	4741.86				3707.32				671.71			
Prob > chi2	0.000				0.000				0.000			
Pseudo R2	0.233				0.255				0.151			
Log likelihood	-7820.950				-5429.928				-1895.623			

- Negative marginal effect of RESLAND_RATIO:
  - Consistent with the "crowding out" effect hypothesis
  - Negative effect is larger for households with mortgages

Effect of residential property on owning stocks

Estimation Method: Probit Dependent variable: STOCK_EX	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z
RESLAND_RATIO	-0.278 ***	0.011	-24.19	-0.248 ***	0.015	-16.07	-0.662 ***	0.049	-13.41
lnINCOME	0.049 ***	0.006	8.05	0.045 ***	0.007	6.34	0.048 ***	0.019	2.57
lnGTA	0.134 ***	0.003	37.01	0.131 ***	0.004	31.75	0.167 ***	0.014	12.21
AGE_30	-0.137 ***	0.010	-10.76	-0.132 ***	0.012	-8.99	-0.172 ***	0.039	-3.13
AGE_31_40	-0.122 ***	0.009	-11.98	-0.124 ***	0.011	-9.86	-0.111 ***	0.029	-3.54
AGE_41_50	-0.091 ***	0.010	-8.75	-0.108 ***	0.011	-8.67	-0.056 *	0.031	-1.77
AGE_51_60	-0.049 ***	0.009	-4.94	-0.044 ***	0.011	-3.82	-0.066 **	0.028	-2.28
FAMILYSIZE	-0.005	0.003	-1.59	-0.004	0.004	-1	-0.008	0.008	-1.08
JUNIOR HIGH	-0.111 ***	0.012	-7.68	-0.113 ***	0.013	-6.79	-0.151 ***	0.033	-3.58
UNIVERSITY	0.095 ***	0.007	13.03	0.101 ***	0.009	11.49	0.081 ***	0.017	4.78
No. Obs.	17,111			12,049			3,641		
LR chi2	4741.86			3707.32			671.71		
Prob > chi2	0.000			0.000			0.000		
Pseudo R2	0.233			0.255			0.151		
Log likelihood	-7820.950			-5429.928			-1895.623		

- Richer households are more likely to own stocks
- Older households are more likely to own stocks (default: over 60)
- More (less) educated households are more (less) likely to own stocks

Effect of residential property on owning stocks

Estimation Method: Probit Dependent variable: STOCK_EX	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z	dy/dx	Std. Err.	z
RESLAND_RATIO	-0.278 ***	0.011	-24.19	-0.248 ***	0.015	-16.07	-0.662 ***	0.049	-13.41
lnINCOME	0.049 ***	0.006	8.05	0.045 ***	0.007	6.34	0.048 ***	0.019	2.57
lnGTA	0.134 ***	0.003	37.01	0.131 ***	0.004	31.75	0.167 ***	0.014	12.21
AGE_31_40	-0.122 ***	0.009	-11.98	-0.124 ***	0.011	-9.86	-0.111 ***	0.029	-3.54
AGE_41_50	-0.091 ***	0.010	-8.75	-0.108 ***	0.011	-8.67	-0.056 *	0.031	-1.77
AGE_51_60	-0.049 ***	0.009	-4.94	-0.044 ***	0.011	-3.82	-0.066 **	0.028	-2.28
FAMILYSIZE	-0.005	0.003	-1.59	-0.004	0.004	-1	-0.008	0.008	-1.08
JUNIOR HIGH	-0.111 ***	0.012	-7.68	-0.113 ***	0.013	-6.79	-0.151 ***	0.033	-3.58
UNIVERSITY	0.095 ***	0.007	13.03	0.101 ***	0.009	11.49	0.081 ***	0.017	4.78
YEAR2001	0.005	0.015	0.35	-0.006	0.021	-0.31	-0.013	0.034	-0.37
YEAR2002	0.015	0.016	0.98	0.003	0.020	0.15	0.014	0.035	0.4
YEAR2003	0.013	0.016	0.81	-0.007	0.020	-0.34	0.033	0.037	0.91
YEAR2004	0.003	0.016	0.21	-0.012	0.020	-0.61	0.011	0.036	0.3
YEAR2005	0.021	0.017	1.28	0.009	0.021	0.4	-0.002	0.036	-0.07
YEAR2006	0.055 ***	0.018	3.27	0.053 **	0.023	2.39	0.024	0.038	0.64
YEAR2007	0.043 ***	0.017	2.56	0.031	0.022	1.44	0.034	0.039	0.89
YEAR2008	0.045 ***	0.017	2.71	0.050 **	0.023	2.29	0.004	0.037	0.11
YEAR2009	0.060 ***	0.018	3.6	0.057 ***	0.023	2.62	0.018	0.039	0.47
YEAR2010	0.040 **	0.017	2.4	0.036 *	0.022	1.67	0.015	0.039	0.38
lnRESMORTGAGE							0.005	0.010	0.5
No. Obs.	17,111			12,049			3,641		
LR chi2	4741.86			3707.32			671.71		
Prob > chi2	0.000			0.000			0.000		
Pseudo R2	0.233			0.255			0.151		
Log likelihood	-7820.950			-5429.928			-1895.623		

- Stock market participation is higher during 2006-2010 (default: year 2000)

Effect of residential property on the share of stocks to GFA

Estimation method: OLS

Dependent variable: STOCK_SHARE(>0)	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t
RESLAND_RATIO	0.147 ***	0.012	12.69	0.141 ***	0.015	9.67	0.128 ***	0.043	2.99
lnINCOME	-0.004	0.006	-0.74	-0.004	0.006	-0.69	-0.031 *	0.016	-1.89
lnGTA	-0.042 ***	0.004	-10.49	-0.049 ***	0.004	-11.12	0.010	0.013	0.76
AGE_30	-0.044 **	0.019	-2.36	-0.054 ***	0.020	-2.7	-0.106	0.078	-1.36
AGE_31_40	-0.025 **	0.012	-2.13	-0.034 **	0.015	-2.36	-0.061 **	0.030	-2.06
AGE_41_50	-0.014	0.011	-1.3	-0.031 **	0.013	-2.35	-0.022	0.027	-0.79
AGE_51_60	-0.014	0.009	-1.48	-0.012	0.010	-1.15	-0.036	0.025	-1.45
FAMILYSIZE	-0.011 ***	0.003	-3.22	-0.011 ***	0.004	-2.75	-0.009	0.007	-1.31
JUNIOR HIGH	-0.032	0.021	-1.53	-0.044 *	0.023	-1.92	-0.001	0.059	-0.02
UNIVERSITY	0.026 ***	0.007	3.61	0.030 ***	0.008	3.64	0.006	0.016	0.36
YEAR2001	-0.022	0.015	-1.42	-0.008	0.019	-0.4	-0.067 **	0.032	-2.1
YEAR2002	-0.051 ***	0.016	-3.23	-0.048 **	0.019	-2.5	-0.063 **	0.032	-2
YEAR2003	-0.028 *	0.016	-1.8	-0.013	0.019	-0.69	-0.073 **	0.032	-2.26
YEAR2004	-0.036 **	0.016	-2.26	-0.024	0.019	-1.25	-0.076 **	0.033	-2.28
YEAR2005	-0.017	0.016	-1.04	-0.005	0.019	-0.27	-0.040	0.033	-1.2
YEAR2006	0.009	0.016	0.58	0.012	0.019	0.61	0.006	0.033	0.19
YEAR2007	-0.006	0.016	-0.41	-0.002	0.019	-0.09	-0.026	0.033	-0.79
YEAR2008	-0.040 ***	0.016	-2.57	-0.039 **	0.019	-2.07	-0.053	0.033	-1.59
YEAR2009	-0.050 ***	0.016	-3.22	-0.039 **	0.019	-2.07	-0.098 ***	0.035	-2.81
YEAR2010	-0.041 ***	0.016	-2.58	-0.033 *	0.019	-1.72	-0.066 *	0.035	-1.88
lnRESMORTGAGE							0.020 **	0.009	2.29
constant	0.522 ***	0.030	17.38	0.558 ***	0.034	16.27	0.304 ***	0.097	3.14
No. Obs.	4,840			3,526			1,101		
F-value	11.62			10.21			2.36		
Prob > F	0.0000			0.0000			0.0005		
Adjusted R-squared	0.0421			0.0497			0.0253		
Root MSE	0.2253			0.2209			0.2337		

Effect of residential property on the share of stocks to GFA

- Positive effect of RESLAND_RATIO, conditional on owning stocks (intensive margin):
  - Consistent with the "diversification effect" hypothesis
  - Positive effect is slightly smaller for households with mortgages

Estimation method: OLS									
Dependent variable: STOCK_SHARE(>0)	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t
RESLAND_RATIO	0.147 ***	0.012	12.69	0.141 ***	0.015	9.67	0.128 ***	0.043	2.99
lnINCOME	-0.004	0.006	-0.74	-0.004	0.006	-0.69	-0.031 *	0.016	-1.89
lnGTA	[illegible] ***	[illegible]	[illegible]	[illegible] ***	0.004	-11.12	[illegible]	[illegible]	0.76
AGE_[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-1.36
AGE_31_40	-0.025 **	0.012	-2.13	-0.034	0.015	-2.36	-0.061 **	0.030	-2.06
AGE_[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.35	-0.022	0.027	-0.79
AGE_51_60	-0.014	0.009	-1.48	-0.012	0.010	-1.15	-0.036	0.025	-1.45
FAMILYSIZE	[illegible] ***	[illegible]	[illegible]	[illegible] ***	[illegible]	[illegible]	[illegible]	[illegible]	-1.31
JUNIOR HIGH	-0.032	0.021	-1.53	-0.044	0.023	-1.92	[illegible]	0.059	-0.02
UNIVERSITY	[illegible] ***	[illegible]	[illegible]	[illegible]	[illegible]	3.64	[illegible]	[illegible]	0.36
YEAR2001	-0.022	0.015	-1.42	-0.008	0.019	-0.4	-0.067	0.032	-2.1
YEAR2002	-0.051 ***	0.016	-3.23	-0.048 **	0.019	-2.5	-0.063 **	0.032	-2
YEAR2003	[illegible] *	0.016	-1.8	-0.013	0.019	-0.69	-0.073 **	0.032	-2.26
YEAR2004	-0.036 **	0.016	-2.26	-0.024	0.019	-1.25	-0.076 **	0.033	-2.28
YEAR2005	-0.017	0.016	-1.04	-0.005	0.019	-0.27	-0.040	0.033	-1.2
YEAR2006	0.009	0.016	0.58	0.012	0.019	0.61	0.006	0.033	0.19
YEAR2007	-0.006	0.016	-0.41	-0.002	0.019	-0.09	-0.026	0.033	-0.79
YEAR2008	-0.040 ***	0.016	-2.57	-0.039 **	0.019	-2.07	-0.053	0.033	-1.59
YEAR2009	-0.050 ***	0.016	-3.22	-0.039 **	0.019	-2.07	-0.098 ***	0.035	-2.81
YEAR2010	-0.041 ***	0.016	-2.58	-0.033 *	0.019	-1.72	-0.066 *	0.035	-1.88
lnRESMORTGAGE							0.020 **	0.009	2.29
constant	0.522 ***	0.030	17.38	0.558 ***	0.034	16.27	0.304 ***	0.097	3.14
No. Obs.	4,840			3,526			1,101		
F-value	11.62			10.21			2.36		
Prob > F	0.0000			0.0000			0.0005		
Adjusted R-squared	0.0421			0.0497			0.0253		
Root MSE	0.2253			0.2209			0.2337		

Effect of residential property on the share of stocks to GFA

Estimation method: OLS									
Dependent variable: STOCK_SHARE(>0)	(1) All households			(2) Households with no residential mortgages			(3) Households with positive residential mortgages		
	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t	Coeff.	Std. Err.	t
RESLAND_RATIO	0.147 ***	0.012	12.69	0.141 ***	0.015	9.67	0.128 ***	0.043	2.99
lnINCOME	-0.004	0.006	-0.74	-0.004	0.006	-0.69	-0.031 *	0.016	-1.89
lnGTA	-0.042 ***	0.004	-10.49	-0.049 ***	0.004	-11.12	0.010	0.013	0.76
AGE_30	-0.044 **	0.019	-2.36	-0.054 ***	0.020	-2.7	-0.106	0.078	-1.36
AGE[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AGE_41_50	-0.014	0.011	-1.3	-0.031	0.013	-2.35	-0.022	0.027	-0.79
AGE[illegible]60	[illegible]	[illegible]	[illegible]	[illegible]	0.010	-1.15	-0.036	0.025	-1.45
FAMILY SIZE	-0.011	0.003	-3.22	-0.011	0.004	-2.75	-0.009	0.007	-1.31
JUNIOR_HI[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
UNIVERSITY	0.026	0.007	3.61	0.030	0.008	3.64	0.006	0.016	0.36
YEAR2001	[illegible]	0.015	[illegible]	[illegible]	0.019	[illegible]	[illegible]	0.032	[illegible]
YEAR2002	[illegible]	[illegible]	[illegible]	-0.048	[illegible]	[illegible]	[illegible]	0.032	[illegible]
YEAR2003	-0.028	0.016	-1.8	-0.013	[illegible]	-0.69	-0.073 **	0.032	-2.26
YEAR2004	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.28
YEAR2005	-0.017	0.016	-1.04	-0.005	0.019	-0.27	-0.040	0.033	-1.2
YEA[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
YEAR2007	-0.006	0.016	-0.41	-0.002	0.019	-0.09	-0.026	0.033	-0.79
YEA[illegible]	[illegible]	0.016	-2.57	-0.039 **	0.019	-2.07	-0.053	0.033	-1.59
YEA[illegible]2009	[illegible]	0.016	-3.22	-0.039 **	0.019	-2.07	-0.098 ***	0.035	-2.81
YEAR2010	-0.041 ***	0.016	-2.58	-0.033 *	0.019	-1.72	-0.066 *	0.035	-1.88
lnRESMORTGAGE							0.020 **	0.009	2.29
constant	0.522 ***	0.030	17.38	0.558 ***	0.034	16.27	0.304 ***	0.097	3.14
No. Obs.	4,840			3,526			1,101		
F-value	11.62			10.21			2.36		
Prob > F	0.0000			0.0000			0.0005		
Adjusted R-squared	0.0421			0.0497			0.0253		
Root MSE	0.2253			0.2209			0.2337		

- lnGTA (log of gross total asset) has negative impact on the share of stocks, which is counter-intuitive
  - Possible interpretation: Richer households invest in other risky assets (e.g., other real estate, other businesses), which crowd out investment to stocks ➔ **Robustness check**
- lnRESMORTGAGE has positive impact: proxy for human capital (Cocco 2005)?

Summary of baseline estimations

- Suggested interpretation of baseline estimations:
  - Residential property inhibits households from owning stocks, presumably due to **liquidity constraint**
  - As households become less liquidity-constrained and participate in the stock market, residential property promote investment in stocks, presumably due to the **"diversification" effect**

Robustness

Alternative interpretations

- Alternative interpretations of baseline estimations:
  - (i) Households with larger human capital invest in both residential property and stocks more
  - (ii) Positive relationship between RESLAND_RATIO and STOCK_SHARE reflect co-movement in land prices and stock prices
- Cross-term analyses (results not reported):
  - (i) Cross-terms with RESLAND_RATIO and education dummy, RESLAND_RATIO and high income dummy
  - (ii) Cross-terms with RESLAND_RATIO and years 2003-2005 dummy, during which land prices and stock prices diverge
  - The results do not support alternative views

Analysis on other real estate

- Diversification effect might work for non-residential real estate:
  - Data on other real estate: apartment, building, villa, parking lot, farm land, other land
  - We can also check whether richer households (with larger gross total asset) invest less in stocks because of investment in other real estate

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
(c) Other real estate											
Mean (100 thousands yen)	N.A.	69.0	57.8	53.5	49.7	51.6	54.5	58.3	50.1	49.4	48.9
Median (100 thousands yen)	N.A.	0	0	0	0	0	0	0	0	0	0
Ratio of owners	20.7%	17.6%	16.6%	17.5%	15.5%	15.8%	17.9%	17.6%	16.8%	17.8%	18.6%
Conditional on owning:											
Mean (100 thousands yen)	N.A.	472	434	376	399	400	377	419	345	359	322
Median (100 thousands yen)	N.A.	250	200	200	200	200	200	200	200	200	200

Analysis on other real estate

	(1) Dependent var.: STOCK_EX Estimation Method: Probit			(2) Dependent variable: STOCK_SHARE(>0) Estimation method: OLS		
	dy/dx	Std. Err.	z	Coeff.	Std. Err.	t
RESLAND_RATIO	-0.314 ***	0.024	-12.75	0.145 ***	0.023	6.25
OTHREALEST_RATIO	-0.283 ***	0.013	-22.1	0.153 ***	0.013	11.86
lnINCOME	0.044 ***	0.007	6.68	-0.002	0.006	-0.38
lnGTA_BROAD	0.136 ***	0.004	34.86	-0.041 ***	0.004	-9.76
AGE_30	-0.136 ***	0.011	-9.86	-0.035 *	0.020	-1.8
AGE_31_40	-0.119 ***	0.010	-10.76	-0.019	0.013	-1.49
AGE_41_50	-0.086 ***	0.010	-7.64	-0.002	0.012	-0.19
AGE_51_60	-0.047 ***	0.010	-4.47	-0.009	0.010	-0.92
FAMILYSIZE	-0.006 *	0.003	-1.74	-0.015 ***	0.004	-4.14
JUNIOR HIGH	-0.104 ***	0.013	-6.5	-0.030	0.022	-1.38
UNIVERSITY	0.098 ***	0.008	12.64	0.023 ***	0.008	2.92
YEAR2001	-0.032 **	0.015	-2.09	-0.001	0.015	-0.07
YEAR2002	-0.025	0.015	-1.63	-0.030 *	0.016	-1.94
YEAR2003	-0.032 **	0.015	-2.04	-0.010	0.016	-0.65
YEAR2004	-0.039 **	0.015	-2.49	-0.018	0.016	-1.12
YEAR2005	-0.022	0.016	-1.37	(omitted)		
YEAR2006	0.009	0.017	0.53	0.030 *	0.016	1.92
YEAR2007	0.002	0.016	0.11	0.013	0.016	0.84
YEAR2008	0.016	0.017	0.96	-0.020	0.016	-1.25
YEAR2009	-0.001	0.017	-0.04	-0.030 *	0.016	-1.93
YEAR2010	0.000 ***	0.000	0	-0.023	0.016	-1.43
No. Obs.	15,101			4,306		
LR chi2 / F-value	4118.63			10.29		
Prob > chi2 / Prob > F	0.000			0.000		
Pseudo R2 / Adjusted R-squared	0.228			0.041		
Log likelihood / Root MSE	-6967.289			0.225		

Analysis on other real estate

	(1) Dependent var.: STOCK_EX Estimation Method: Probit			(2) Dependent variable: STOCK_SHARE(>0) Estimation method: OLS		
	dy/dx	Std. Err.	z	Coeff.	Std. Err.	t
RESLAND_RATIO	-0.314 ***	0.024	-12.75	0.145 ***	0.023	6.25
OTHREALEST_RATIO	-0.283 ***	0.013	-22.1	0.153 ***	0.013	11.86
lnINCOME	0.044 ***	0.007	6.68	-0.002	0.006	-0.38
lnGTA_BROAD	0.136 ***	0.004	34.86	-0.041 ***	0.004	-9.76
AGE_30	-0.136 ***	0.011	-9.86	-0.035 *	0.020	-1.8
YEAR2007	0.002	0.016	0.11	0.013	0.016	0.84
YEAR2008	0.016	0.017	0.96	-0.020	0.016	-1.25
YEAR2009	-0.001	0.017	-0.04	-0.030 *	0.016	-1.93
YEAR2010	0.000 ***	0.000	0	-0.023	0.016	-1.43
No. Obs.	15,101			4,306		
LR chi2 / F-value	4118.63			10.29		
Prob > chi2 / Prob > F	0.000			0.000		
Pseudo R2 / Adjusted R-squared	0.228			0.041		
Log likelihood / Root MSE	-6967.289			0.225		

- Positive effect of RESLAND_RATIO and OTHERREALEST_RATIO, conditional on owning stocks :
  - Again, consistent with the "diversification effect" hypothesis
- lnGTA_BROAD (log of gross total asset including other real estate) has negative impact on the share of stocks

Future Works

Future works

- The endogeneity and the sample selection problem need to be addressed
  - We assumed households' decisions on residential property as given (as a state variable)
    - However, they might be affected by the prospect of future income
  - We did not control for the sample selection of owning stocks when examining the determinants of the share of stocks
- The effect of human capital on households' portfolio choice
  - Need more elaborate proxies

Appendix

Age, stockholdings, and residential property (JPN)

Stable

Age	Gross Financial Asset (100 thousand yen)		Gross Total Asset (100 thousand yen)		Stock / GFA		Ratio of stock-owners		Stock / GFA (stock-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	2,854	26.5	2,719	49.9	2,811	2.4%	3,063	8.7%	241	27.9%
31-40	5,939	51.1	5,461	125.0	5,879	4.8%	6,521	17.0%	1,009	27.8%
41-50	5,597	81.9	4,966	233.7	5,555	7.4%	6,390	25.9%	1,432	28.7%
51-60	5,052	139.4	4,430	377.5	5,017	9.3%	6,070	33.4%	1,706	27.2%
61-70	4,042	202.8	3,496	522.1	4,024	11.2%	5,166	39.4%	1,629	27.6%
71 and over	1,374	227.1	1,150	575.9	1,367	10.9%	1,907	40.4%	561	26.6%
Total	24,858	107.6	22,222	276.2	24,653	7.4%	29,117	27.0%	6,578	27.7%

Age	Residential Property (100 thousand yen)		RP/GTA		Ratio of RP-owners		RP/GTA (RP-owners only)		Ratio of RP-owners (RP-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	2,900	22.8	2,681	6.2%	2,991	9.7%	199	331.9	187	88.6%
31-40	5,938	72.0	5,408	21.8%	6,411	30.7%	1,496	285.9	1,391	84.7%
41-50	5,564	149.0	4,935	35.4%	6,237	50.0%	2,446	338.9	2,199	79.4%
51-60	5,211	236.2	4,409	45.2%	5,897	66.2%	3,218	382.5	2,784	71.6%
61-70	4,318	312.0	3,485	47.6%	4,999	76.3%	3,133	430.0	2,566	64.6%
71 and over	1,522	330.7	1,146	47.5%	1,833	76.2%	1,086	463.5	849	64.1%
Total	25,453	173.0	22,064	33.0%	28,368	51.1%	11,578	380.4	9,976	73.0%

Age	Residential mortgages (100 thousand yen)		Ratio of borrowers		Residential mortgages (borrowers only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	2,638	18.3	2,692	9.6%	204	236.9
31-40	5,635	88.9	5,934	40.3%	2,094	239.1
41-50	5,697	108.1	6,098	52.6%	2,805	219.6
51-60	5,640	60.0	5,882	38.7%	2,037	166.2
61-70	4,926	24.5	5,030	15.6%	681	177.0
71 and over	1,835	12.3	1,866	7.7%	112	202.1
Total	26,371	62.5	27,502	33.0%	7,933	207.6

Non-monotonic

Age, stockholdings, and residential property (US; 2010 SCF)

Stable

Age	Gross Financial Asset (thousand dollar)		Gross Total Asset (thousand dollar)		Stock / GFA		Ratio of stock-owners		Stock / GFA (stock-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	748	15.3	748	62.8	648	3.0%	748	9.4%	67	28.0%
31-40	1,097	54.5	1,097	186.6	1,002	2.7%	1,097	11.0%	139	23.1%
41-50	1,402	131.7	1,402	342.2	1,305	3.9%	1,402	15.1%	295	24.3%
51-60	1,484	249.1	1,484	493.5	1,417	5.0%	1,484	18.4%	414	25.7%
61-70	995	335.5	995	604.5	963	4.6%	995	18.2%	302	24.1%
71 and over	756	240.0	753	445.7	733	6.1%	756	18.0%	220	32.5%
Total	6,482	169.3	6,479	357.7	6,068	4.2%	6,482	15.1%	1,438	26.2%

Age	Residential Property (thousand dollar)		RP/GTA		Ratio of RP-owners		RP/GTA (RP-owners only)		Ratio of RP-owners (RP-owners only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	748	47.5	656	30.4%	748	30.0%	184	158.5	184	90.1%
31-40	1,097	132.1	1,016	52.4%	1,097	57.8%	557	228.8	557	85.2%
41-50	1,402	210.4	1,329	59.3%	1,402	70.6%	948	298.1	948	79.8%
51-60	1,484	244.4	1,432	58.1%	1,484	76.0%	1,152	321.4	1,152	73.4%
61-70	995	269.0	975	61.6%	995	83.6%	861	321.6	861	71.7%
71 and over	753	205.6	737	59.6%	756	81.9%	629	251.3	629	71.1%
Total	6,479	188.4	6,145	54.5%	6,482	67.3%	4,331	280.1	4,331	76.9%

Age	Residential mortgages (thousand dollar)		Ratio of borrowers		Residential mortgages (borrowers only)	
	No. Obs.	Mean	No. Obs.	Mean	No. Obs.	Mean
30 and below	748	33.0	748	25.4%	154	129.8
31-40	1,097	89.1	1,097	53.2%	506	167.4
41-50	1,402	102.8	1,402	57.7%	747	178.2
51-60	1,484	79.0	1,484	52.6%	745	150.1
61-70	995	64.1	995	45.3%	422	141.5
71 and over	756	20.1	756	23.1%	159	87.2
Total	6,482	68.7	6,482	44.7%	2,733	153.6

Opposite to JPN

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END OF PRESENTATION
THANK YOU