PROCEEDINGS

The 2nd INTERNATIONAL FORUM ON HOUSING FINANCE

제 2회 국제주택금융포럼

3 November 2014
The hotel *Shilla* Seoul, Korea

Hosted by 국토교통부 Ministry of Land, Infrastructure and Transport

Organized by KRIHS Korea Research Institute for Human Settlements

서민주택금융재단 Housing Finance Foundation

The 2nd INTERNATIONAL FORUM ON HOUSING FINANCE

제 2회 국제주택금융포럼

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인사말 | WELCOME MESSAGE

국토교통부가 주최하고 국토연구원과 서민주택금융재단이 주관하는 '제 2회 국제주택금융포럼'에 참석해주신 여러분들께 진심으로 감사의 말씀 전합니다.

이번 포럼은 '지속가능한 주택금융 발전전략(Sustainable Housing Finance Strategies)'이라는 주제를 가지고, 한국 · 미국 · 싱가폴 등 국내외 주택금융 석학들이 모여 주택금융의 건전성 유지와 접근성 확대 간의 균형모색을 비롯하여 고령화 시대에 대비한 주택금융의 발전방향에 대해 논의하고자 합니다.

특히 이번 포럼은 11월 3일부터 5일까지 '지속 가능한 발전을 위한 공정한 기회(Equal Opportunity for Sustainable Development)'라는 주제로 개최되는 '제5차 아 · 태 주택도시 장관회의'와 연계하여 진행되기에, 각국의 주택금융전문가들과 주택도시 정책실무자들이 모여 더욱 다양하고 내실 있는 의견을 서로 공유할 수 있을 것으로 기대합니다.

이러한 귀중한 자리에서 글로벌 금융위기 이후 금융 안정성을 위한 정부의 역할과 금융소비자관점의 금융규제에 대해 논의하고자 합니다. 또한 사회소외 계층을 포용할 수 있는 따뜻한 주택금융과 고령화 시대에서 고민해야 할 주택금융기법에 대한 선진사례를 공유함으로써 우리나라 서민 주택금융의 발전전략을 모색해 보고자 합니다.

제 2회 국제주택금융포럼에 여러분의 많은 참여와 의견 공유를 기대합니다.

감사합니다.

I would like to extend my sincere appreciation to the distinguished guests taking part in the 2nd International Forum on Housing Finance hosted by the Ministry of Land, Infrastructure and Transport and organized by the Korea Research Institute for Human Settlements and Housing Finance Foundation.

In particular, this year's theme is "Sustainable Housing Finance Strategies." Under this theme, with 150 housing and financial experts and scholars from Korea, US and Singapore we will have an in-depth discussion.

Notably, this International Forum on Housing Finance will be held in tandem with the 5th Asia Pacific Ministerial Conference on Housing and Urban Development (3-5 November 2014) with the theme "Equal Opportunity for Sustainable Development." As prominent experts in housing finance and high officials of housing and urban development from various countries participate together, I expect very lively discussion in this year's forum with housing finance.

In this uncertain market in the post-crisis era, the role of government is all the more important. Moreover, we also need to consider about financial consumer-oriented regulation, inclusive housing finance for the socially-marginalized class, and housing finance in the aging era. In this regard, taking this valuable opportunity, we would like to seek out development strategy of housing finance by sharing best practices with experts from home and abroad.

I look forward to your active participation and insightful discussion at the 2nd International Forum on Housing Finance.

Thank you.

국토교통부 장관
Minister of Land, Infrastructure and Transport
Republic of Korea

SUH Seoung-hwan

행사개요

행 사 명	제 2회 국제주택금융포럼
일 자	2014년 11월 3일(월)
장 소	신라호텔 영빈관 루비홀 (1층)
주 최	국토교통부
주 관	국토연구원, 서민주택금융재단
주 제	지속가능한 주택금융 발전 전략

프로그램

시 간	내 용
	개회식 (14:30 – 15:00)
14:30 – 15:00	환 영 사 **김경식**, 국토교통부 제1차관 축 사 1 **존 클로즈**, UN-Habitat 사무총장 축 사 2 **띠어도르 토저**, 미국 Ginnie Mae (전미 저당 금융 금고) 사장
	발 표 (15:00 – 16:30)
15:00 – 15:15	기조연설 **세계금융위기 이후의 지속가능한 주택금융 발전방향** **수잔 왁터**, 미국 펜실베니아대학교 교수
15:15 – 15:40	발 표 1 **주택 모기지 시장에서의 부동산규제정책의 효과 분석** **등용행**, 싱가포르국립대학교 교수
15:40 – 16:05	주 제 2 **주택금융서비스 소외계층을 위한 모기지 접근성 제고 방안** **조 만**, KDI 국제정책대학원 교수
16:05 – 16:30	주 제 3 **고령화 시대의 주택금융: 역모기 시장의 성장가능성과 위험요소** **토마스 다비도프**, 캐나다 브리티쉬콜럼비아대학교 교수
16:30 – 16:50	커피브레이크
	종합토론 (16:50 – 17:50)
16:50 – 17:50	좌 장 **김경환**, 국토연구원 원장 연 사 **수잔 왁터**, 펜실베니아대학교 교수 패 널 **박양수**, 한국은행 거시건전성연구부장 **박연우**, 중앙대학교 교수 **강종만**, 한국금융연구원 선임연구위원 **김홍목**, 국토교통부 주택기금과장 **존 게치스**, 미국 Ginnie Mae (전미 저당 금융 금고) 선임 부사장
	마무리 (17:50 – 18:00)

OVERVIEW

TITLE	The 2nd International Forum on Housing Finance
DATE	3 November 2014
VENUE	Ruby Hall(1F), Yeongbingwan, Hotel *Shilla* Seoul, Republic of Korea
HOSTED BY	Ministry of Land, Infrastructure and Transport
ORGANIZED BY	Korea Research Institute for Human Settlements, Housing Finance Foundation
THEME	Sustainable Housing Finance Strategies

PROGRAM

TIME	DESCRIPTION
	OPENING CEREMONY (14:30 – 15:00)
14:30 – 15:00	OPENING REMARKS **Kyung-sik KIM**, Vice-minister for Land and Infrastructure, MOLIT of Korea CONGRATULATORY REMARKS **Joan CLOS**, Executive Director of UN-Habitat **Theodore W. TOZER**, President of Ginnie Mae, USA
	PRESENTATION (15:00 – 16:30)
15:00 – 15:15	KEYNOTE SPEECH **Sustainable Housing Finance after the Global Financial Crisis** **Susan WACHTER**, Professor of Wharton School and Co-Director of Penn Institute for Urban Research, University of Pennsylvania
15:15 – 15:40	**The Effectiveness of Cooling Measures in the Mortgage and Housing Markets** **Yongheng DENG**, Professor and Director of Institute of Real Estate Studies, National University of Singapore
15:40 – 16:05	**Enhancing Access to Mortgage Credit: Reaching out to the Underserved** **Man CHO**, Professor, KDI School of Public Policy and Management
16:05 – 16:30	**Housing Finance in an Aging World: Reverse Mortgage Market Potential and Pitfalls** **Thomas DAVIDOFF**, Assistant Professor of University of British Columbia
16:30 – 16:50	Coffee Break
	PANEL DISCUSSION (16:50 – 17:50)
16:50 – 17:50	MODERATOR **Kyung-Hwan KIM**, President of Korea Research Institute for Human Settlements SPEAKER **Susan WACHTER**, Professor of Wharton School and Co-Director of Penn Institute for Urban Research, University of Pennsylvania PANEL **Yang Su PARK**, Director of Macroprudential Research Division, The Bank of Korea **Yun Woo PARK**, Professor of Chung-Ang University **Jong-man KANG**, Senior Researcher of Korea Institute of Finance **Hongmok KIM**, Director of Housing Fund Division of MOLIT **John F. GETCHIS**, Senior Vice President of the Office of Capital Markets, Ginnie Mae, USA
	CLOSING (17:50 – 18:00)

연사소개 | SPEAKERS

PRESENTATION

KEYNOTE SPEAKER

Susan WACHTER
수잔 왁터

Professor of Wharton School and Co-Director of Penn Institute for Urban Research, University of Pennsylvania, USA
펜실베니아대학 교수

SPEAKER 1

Yongheng DENG
등용행

Professor and Director of Institute of Real Estate Studies, National University of Singapore
싱가포르 국립대학 교수

SPEAKER 2

Man CHO
조 만

Professor of KDI School of Public Policy and Management
KDI 국제정책대학원 교수

SPEAKER 3

Thomas DAVIDOFF
토마스 다비도프

Assistant Professor of University of British Columbia
캐나다 브리티시콜롬비아대학 교수

PANEL DISCUSSION

MODERATOR

Kyung-Hwan KIM
김경환

President of Korea Research Institute for Human Settlements
국토연구원 원장

KEYNOTE SPEAKER

Susan WACHTER
수잔 왁터

Professor of Wharton School and Co-Director of Penn Institute for Urban Research, University of Pennsylvania, USA
펜실베니아대학 교수

PANEL

Yang Su PARK
박양수

Director of Macroprudential Research Division, The Bank of Korea
한국은행 거시건전성연구부장

PANEL

Yun Woo PARK
박연우

Professor of Chung-Ang University
중앙대학교 교수

PANEL

Jong-man KANG
강종만

Senior Researcher of Korea Institute of Finance
한국금융연구원 선임연구위원

PANEL

Hongmok KIM
김홍목

Director of Housing Fund Division of MOLIT
국토교통부 주택기금과장

PANEL

John F. GETCHIS
존 게치스

Senior Vice President of the Office of Capital Markets, Ginnie Mae, USA
미국 지니매(전미 저당 금융 금고) 선임 부사장

Susan WACHTER

Professor of Wharton School and Co-Director of Penn Institute for Urban Research, University of Pennsylvania, USA

Sustainable Housing Finance after the Global Financial Crisis
세계금융위기 이후의 지속가능한 주택금융 발전방향

BIOGRAPHY

Susan M. Wachter 교수는 미국 펜실베니아 주립대의 부동산학과 Albert E. Sussman 교수이자 재정학과 교수를 겸임하고 있다. 또한 그녀는 도시 연구 기관인 Penn Institute의 공동 이사를 맡고 있고 지리 정보 시스템 연구기관인 Wharton Geographic Information Systems Lab의 이사를 겸하고 있다. Wachter교수는 1998년부터 2001년까지 미국 대통령의 임명과 상원의 동의로 미국주택도시개발부의 정책개발연구 차관보를 역임했다. 그녀는 또한 Wharton 부동산학과의 학과장, 전미 부동산 도시경제학회(American Real Estate and Urban Economics Association) 회장, Real Estate Economics의 공동편집장 등을 역임했다. 한편, Wachter 교수는 부동산시장 동향에 대한 의회진술 및 방송논평을 통해 공공에 봉사하고 있기도 하다.

Susan M. Wachter is the Albert E. Sussman Professor of Real Estate and Professor of Real Estate and Finance at The Wharton School of the University of Pennsylvania. She is co-director of the Penn Institute for Urban Research and director of the Wharton Geographic Information Systems Lab. From 1998 to 2001, Wachter served as assistant secretary for Policy Development and Research at the US Department of Housing and Urban Development, a President-appointed and Senate-confirmed position. A former chairperson of the Wharton Real Estate Department, she served as president of the American Real Estate and Urban Economics Association and as co-editor of Real Estate Economics. Wachter frequently testifies before Congress and provides commentary to national media outlets on real estate trends.

ABSTRACT

이 발표는 지속가능한 주택금융 발전에 영향을 주고 있는 2008년 세계금융위기의 여파에 대해서 논한다. 과거 수 차례 세계경제위기와 마찬가지로 이번 세계금융위기 역시 주택가격거품과 관련이 깊다. 최근의 경제 안정화 경향에도 불구하고 세계 경제는 아직 이전 수준으로 회복되지 못한 상태이다. IMF 총재 Christine Lagarde 가 "신 저성장 시대(new mediocre)"로의 진입가능성을 경고한 바 있듯이, 세계경제는 현재 장기 저성장 국면으로 빠져들 위험에 놓여있다. 이러한 맥락에서 이번 발표는 미국과 유럽의 몇몇 거품경제에서 동시에 발생한 주택가격폭등에 일조했던 주택채권시장에서의 금융혁신의 역할과 금융증권화 시장의 구조변화를 살펴본다. 이후 최근 부동산가격 거품과 은행파산에서 얻을 수 있는 교훈을 도출한다. 특히 미국과 몇몇 나라에서의 주택금융 규제완화의 변화양상을 살펴보고, 그것이 금융 및 그림자금융 위기심화와 연계된 GDP 대비 모기지부채 비율에 어떤 영향을 미치는지 검토한다.

마지막으로 이번 세계금융위기에 대응하여 거시경제 안정성 유지를 위해 취했던 여러 거시 및 미시적 정책들에 대해서 논할 것이다. 또한 이러한 경제적 건전성 확보정책이 자가소유 및 자산축적에 있어 중요한 주택금융 서비스로의 접근성 확보정책과 적절한 균형을 이루어야 한다는 것을 지적하면서 발표를 마치고자 한다.

This presentation reviews the lasting consequences of the Great Financial Crisis (GFC) on the development of sustainable housing finance systems. The GFC originated with a credit fueled housing bubble, as did a number of previous international economic crises. Despite some stabilization in recent years, the global economic recovery is still incomplete. The risks of entering a lasting period of slow global economic growth, what IMF director Christine Lagarde calls "the new mediocre", are real. In this context, this talks examines the role of financial innovation in housing debt markets and the changing market structure of securitization in contributing to the house price booms that occurred simultaneously in the United States and in a number of European bubble economies. It then considers what lessons have been learned from this recent history of real estate booms and banking busts. It reviews in particular, the evolution towards deregulated housing finance in the US and a number of countries, and its effects on increased mortgage debt-to-GDP ratio, which contributed to the magnitude of the banking and shadow banking crises. The presentation concludes with a discussion of the macro- and micro-prudential policies that are being put into place in response to the crisis to ensure macro stability, while pointing to the need to balance these with ensuring access to sustainable credit, which is critical for homeownership and wealth building.

Asia Pacific Ministerial Conference on Housing and Urban Development
Special Session I : The 2nd International Forum on Housing Finance
November 3, 2014

Sustainable Housing Finance after the Global Financial Crisis

Susan M. Wachter
Albert E. Sussman Professor of Real Estate
Professor of Real Estate and Finance

Wharton
UNIVERSITY of PENNSYLVANIA

Sustainable housing finance after the Global Financial Crisis: Outline

- Lasting consequences for the global economy
- Real estate booms and banking busts: Recent history
- Role of mortgage lending in banking and shadow banking crises
- Sustainable housing finance: Lessons learned

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KNOWLEDGE FOR ACTION | Susan M. Wachter | 2

Global economy still at risk

The global economy is entering a "new mediocre" (Christine Lagarde Managing Director, International Monetary Fund, October 2, 2014) of slower growth as the consequences of the GFC persist.

Source: European Commission

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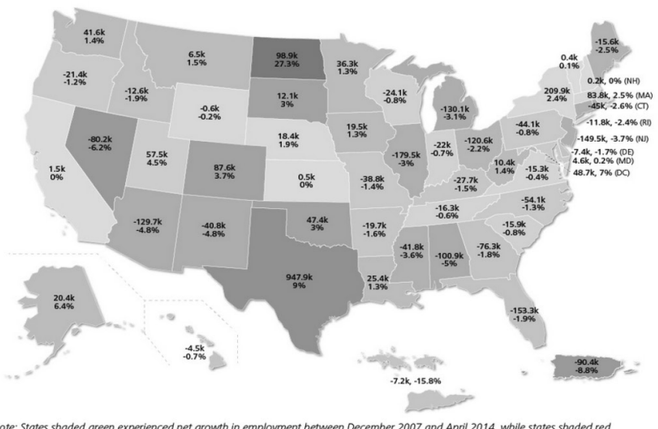
US bubble regions still in recession

Figure 2. State-by-state map of changes in nonfarm employment, December 2007–April 2014



Note: States shaded green experienced net growth in employment between December 2007 and April 2014, while states shaded red experienced net losses in employment over the same period. The first number represents change in employment (in thousands of employees), and the second represents the percent change in employment.

Source: US Department of Labor, Bureau of Labor Statistics, Current Employment Statistics.

Graphic: Deloitte University Press | DUPress.com

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Real estate booms and banking busts: Recent history

- Japan's financial crisis – 1990
- Asian Financial Crisis – 1997
- Subprime crisis of the US – 2007
- European crises – 2007
- China – 2013

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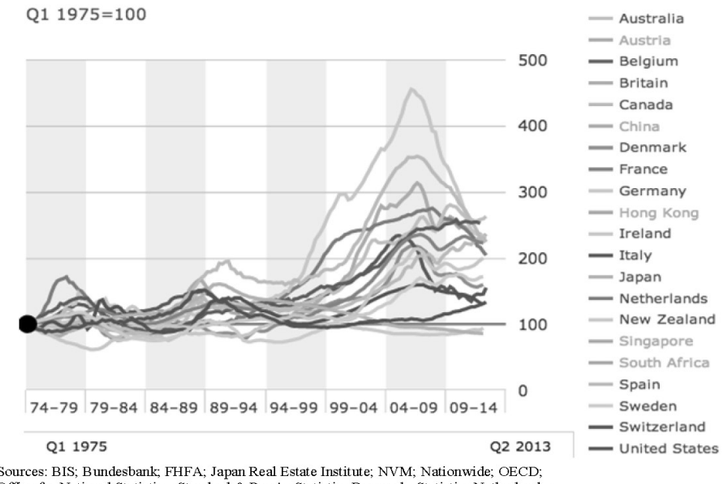
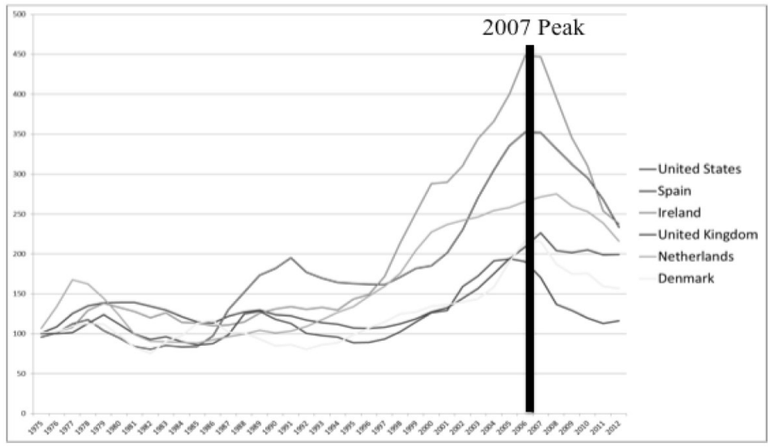
GFC originated with house price bubble in many economies



Sources: BIS; Bundesbank; FHFA; Japan Real Estate Institute; NVM; Nationwide; OECD; Office for National Statistics; Standard & Poor's; Statistics Denmark; Statistics Netherlands; Statistics Sweden; Thomson Reuters; vdpResearch

Prices peaked in 2007 in US and Europe bubble economies



Source: OECD, FHFA

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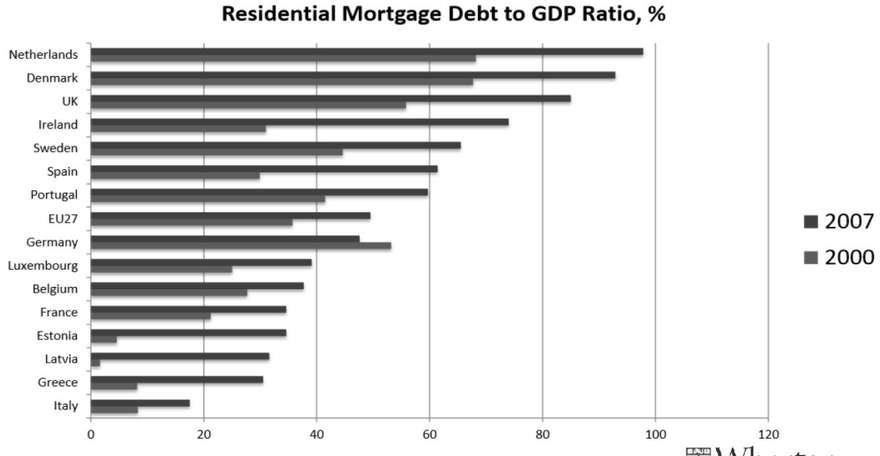
Mortgage debt to GDP ratio grows at 4.8% per year from 2000-7 and at 4.6% from 2004-7 for the EU27



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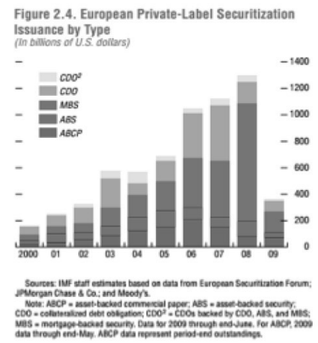
Securitization takes off 2003-2008



World Economic and Financial Surveys October 2009
"Global Financial Stability Report: Navigating the Financial Challenges Ahead"
©2009 International Monetary Fund

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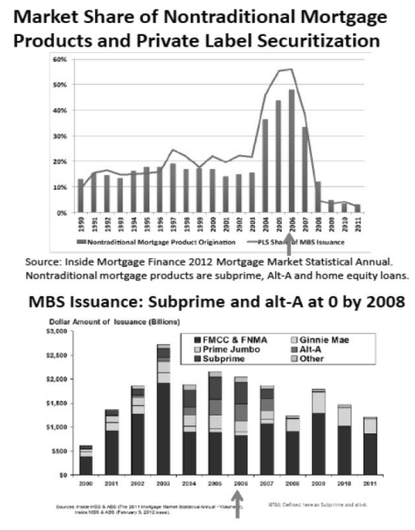
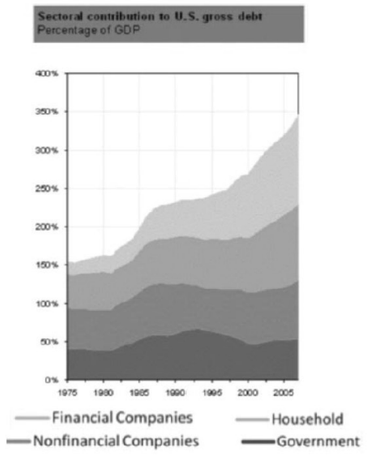
Mortgage debt to GDP rise results in systemic risk





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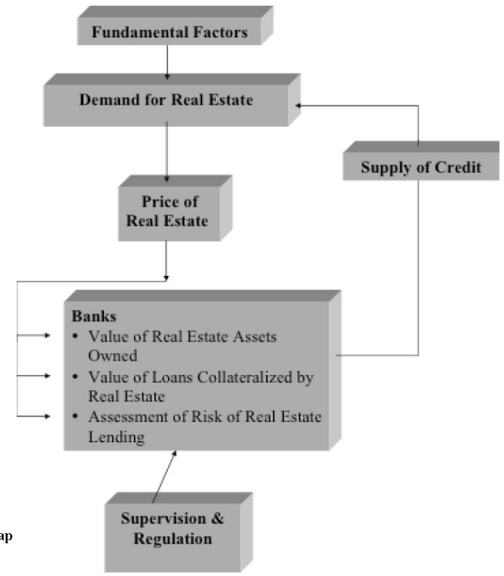
Financial accelerators in banking and shadow banking systems



Richard Herring and Susan Wachter. Real estate booms and banking busts: an international perspective. http://fic.wharton.upenn.edu/fic/papers/99/9927.pdf

Wharton UNIVERSITY of PENNSYLVANIA

A new macro understanding

- Finance: incomplete markets and efficiency
- Debt and systemic risk
- Macroprudential policies
- Microprudential policies

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The enduring trade-offs

- New normal in US: 6M new households, 0 new homeowners
- Macroprudential policies and consequences
- Trade-offs for homeownership

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Sustainable housing finance: Lessons learned

- Access to sustainable credit critical for homeownership, housing quality, and access to public goods
- In fast growing and urbanizing countries access to ownership has important welfare implications by enabling asset building
- Work in progress: technical advances/learning from experience
- Homeownership preferential policies
- Sustainable finance necessary for sustainable homeownership

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Thank you

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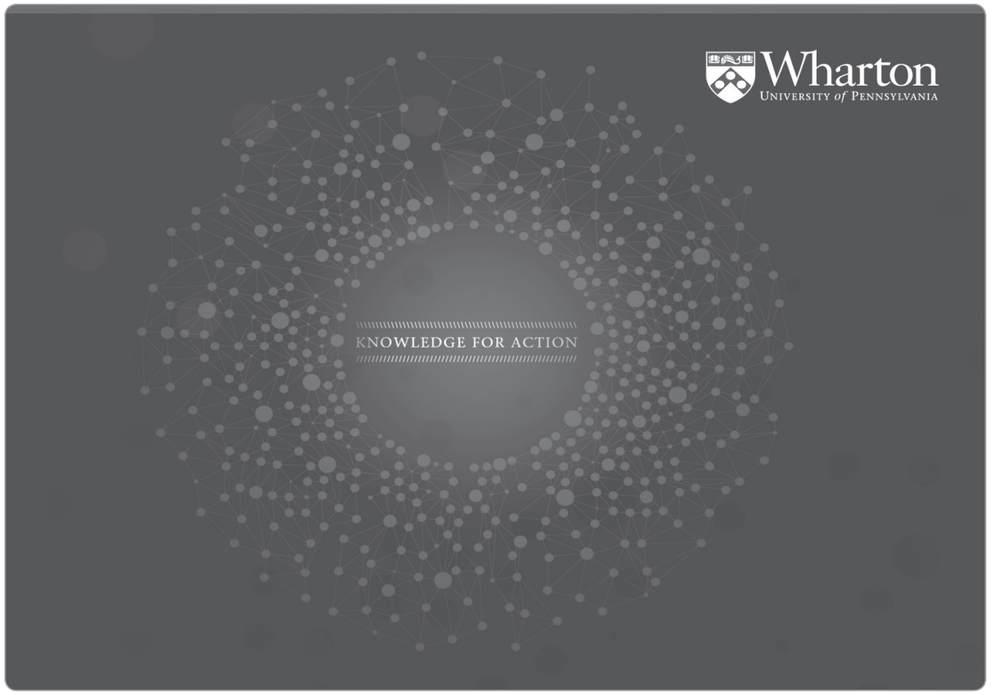
KNOWLEDGE FOR ACTION | Susan M. Wachter | 15



Yongheng DENG

Professor and Director of Institute of Real Estate Studies, National University of Singapore

The Effectiveness of Cooling Measures in the Mortgage and Housing Markets

주택 모기지 시장에서의 부동산규제정책의 효과 분석

BIOGRAPHY

등 교수는 싱가포르국립대학 부동산금융학과 석좌교수이자 학내 부동산연구원 (Institute of Real Estate Studies) 원장으로 재직 중이고, 세계경제포럼의 부동산관련 글로벌 의제 협의회(Global Agenda Council) 의장을 맡고 있으며 금융 및 자본에 관한 글로벌 의제 협의회의 부의장을 역임 바 있다.
등 교수는 또한 국제결제은행(BIS) 아시아 태평양 대표 사무소 특별고문이며 싱가포르 정부의 경제전략위원회 분과위원회 위원을 역임하고 있다. 아시아인 최초로 전미부동산 · 도시경제학회(American Real Estate and Urban Economics Association, AREUEA)의 회장으로 선출 되어 제50대 회장이 되었다.
등 교수는 *Econometrica, Journal of Financial Economics, Review of Finance* 등 세계 최고 수준의 경제, 금융분야 학술지에 논문을 게재했다. 싱가포르국립대학 재직 전에는 남가주대학교(University of Southern California)에서 종신교수로 근무하였다. 한편 미국의 양대 주택금융공사인 Fannie Mae와 Freddie Mac의 재무상황을 감독하는 기관인 워싱턴 소재 연방주택감독기업청(Office of Federal Housing Enterprise Oversight, OFHEO)에서 경제전문가로 일한 바 있다.

Professor Yongheng Deng is a Provost's Chair Professor of Real Estate and Finance, and Director of the Institute of Real Estate Studies at the National University of Singapore. He has chaired the World Economic Forum's Global Agenda Council for Real Estate, and was the Vice Chair of the Global Agenda Council for Financing and Capital. Professor Deng also serves as a special advisor to the Bank for International Settlements (BIS) Representative Office for Asia and the Pacific. He has served as a subcommittee member of Economic Strategy Committee of the Singapore Government. Professor Deng has been elected as the 50th President of the American Real Estate and Urban Economics Association (AREUEA), the first Asian ever to helm this establishment. He has published in leading economics and finance journals such as Econometrica; Journal of Financial Economics; Review of Finance. Prior to joining NUS, he was a full professor with tenure at the University of Southern California. He has also served as economist and expert in the Office of Federal Housing Enterprise Oversight (OFHEO) -- a financial regulator overseeing Fannie Mae and Freddie Mac -- in Washington DC, U.S.A.

ABSTRACT

미국 서브프라임 모기지 부실로 촉발된 세계금융위기 이후 많은 국가에서 통화 및 재정정책, 여신, 대출규제 등의 방법을 동원하여 경제를 안정화시키기 위해 노력하고 있다. 이들 정책의 효과, 특히 금융건전성을 위한 주택시장 규제의 효과에 대한 논의가 진행 중이다. 하지만 이러한 효과검증에 대한 구체적인 실증분석연구의 부족으로 인해 최근 일련의 주택시장관련 규제정책에 대한 평가가 어려워지고 있다. 이번 발표에서는 중국 베이징의 주택전매 및 임대가격 미시자료를 바탕으로 중국의 모기지대출 계약금(down payment) 비율조정이 주택가격에 미치는 효과를 살펴본다. 특히 이 발표에서는 90m^2 이상 주택에 대한 모기지대출 계약금 비율이 20%에서 30%로 상향조정되었던 2006년 6월, 30%에서 20%로 하향조정되었던 2008년 10월, 다시 20%에서 30%로 상향조정되었던 2010년 4월을 기점으로 수행한 분석결과를 소개한다.

After the recent global financial crisis which was triggered by the U.S. subprime mortgage lending crisis, many countries have implemented stimulus and/or cooling policies via monetary, fiscal channels and credit supply and lending regulations. The effectiveness of these policies, especially the effectiveness of the housing market regulations towards the financial stability, has long been debated. However, the lack of solid empirical evidence of this research topic makes the evaluation of a series of the recent housing market regulation policies to be difficult. Using a detailed micro-level housing resale and rental data set of Beijing, we investigate the effects of adjustments of down payment ratio on housing prices in China. In particular, we focus on three major adjustments: one in June 2006 that increases the down payment ratio of first property larger than 90 square meters from 20% to 30%; another in October 2008 that reduces the ratio of first property larger than 90 square meters from 30% to 20%; and the last one in April 2010 that increase this ratio from 20% to 30% again, along with other strict mortgage restrictions.

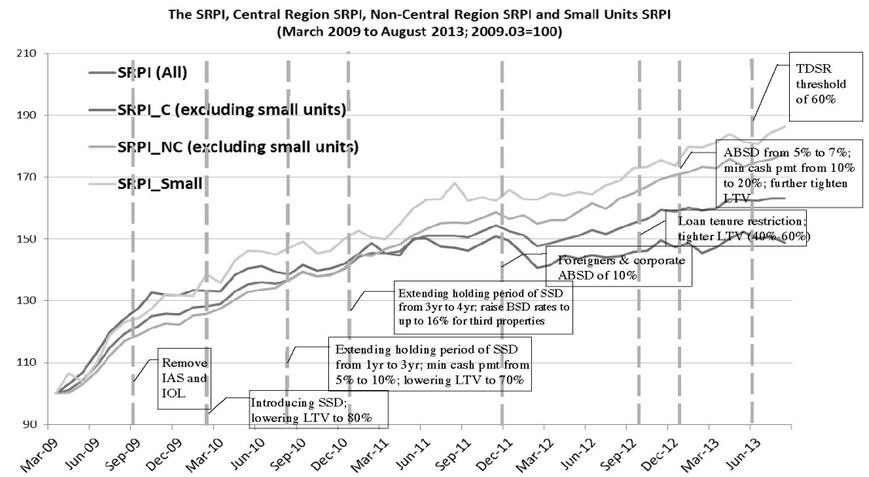
Effectiveness of Cooling Measures in the Mortgage and Housing Markets
Cases of China, Hong Kong and Singapore

Yongheng Deng
Provost Chair Professor and Director
Institute of Real Estate Studies
National University of Singapore

Asia Pacific Ministerial Conference on Housing and Urban Development
Special Session I: The 2nd International Forum on Housing Finance
Seoul, Korea, November 3, 2014

NUS National University of Singapore | RES Institute of Real Estate Studies

Major cooling measures in Singapore and their impact to housing prices
(SRPI March 2009 to August 2013; 2009.03=100)



11/3/2014 Deng @ 2nd IFHF, APMCHUD 2

Impact of government interventions on local housing market in Beijing, China

- **Based on 18 Stimulus and 49 Cooling Measures since 2005**

	18 Stimulus Measures			49 Cooling Measures		
	Effective			Effective		
	For at least 1 month during next 6 months	For more than 3 months during next 6 months	House prices rebound in one year	For at least 1 month during next 6 months	For more than 3 months during next 6 months	House prices rebound in one year
Measured by NBSC Index	17	5	5	33	25	14
Measured by NUS IRES Index	16	16	0	39	1	15

Source: Yongheng Deng, Chaoqun Ren and Jing Wu (2013) "Government Interventions on Land and Housing Markets in China," in *Frontiers in Development Policy*, by WBIGC and KDIS, Oxford University Press.

A roadmap of this presentation

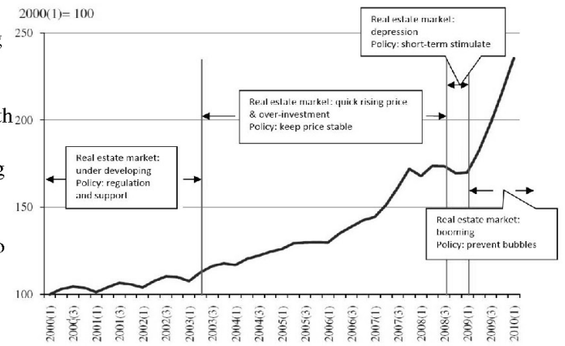
Housing market in Mainland China
- A brief history of China's housing market: four development stages
- The associated housing regulation policy in every housing market development stage
- Evaluating the effects of adjustment of down payment policy in recent years: using Beijing as an example
- A summary of our main empirical findings

Housing market in Hong Kong
- An introduction of LTV regulations in Hong Kong
- Hong Kong housing price index and the timing of LTV policy changes
- Discussions

Housing market in Singapore
- An introduction of its recent development
- Housing price index in Singapore and LTV policy changes timings

An overview of China's housing market in the 2000s

1. July 1998 to June 2003
   - Encourage the development of real estate market
   - Issued a series of supporting and regulation policies
2. June 2003 to October 2008
   - Rapid rising price along with over-investment
   - Policies aimed to stabilizing property market
3. October 2008 to January 2009
   - Stimulate housing market to cope with the impacts of Global Financial Crisis
4. January 2009 to present
   - Housing prices are skyrocketing
   - Policies to prevent bubbles



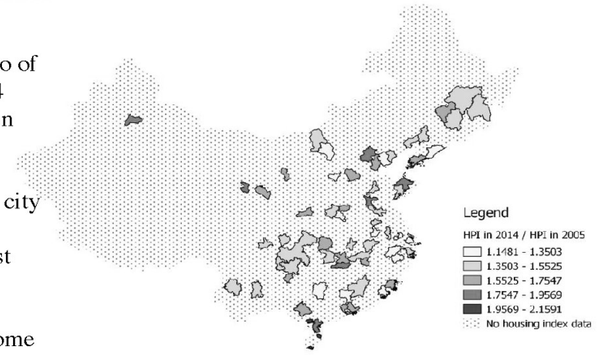
Index data source: Deng, Gyourko and Wu (2012)

Spatial heterogeneity of housing market booms in China

The values measure the ratio of housing price index in 2014 over the house price index in 2005 of different cities.

Darker area indicates that a city have experienced higher housing price rise in the past one decade.

It can be seen that except some megacities such as Beijing, some inland cities also have experienced significant housing market booming.



Housing index data is from the "70 cities housing index" published by the National Bureau of Statistics of China

A summary of market cooling measures in China

- Adjustment of down payment ratio (which we will focus on in this presentation)
- Taxation
  - Tax for sellers: business tax, individual income tax, land value increment tax, and stamp duty
  - Tax for buyers: deed tax, and stamp duty
  - Property tax for property owners: a recent experiment in Shanghai and Chongqing since 2011
- Interest rates
- Purchase limit policy
- Credit constraint regulation on real estate developers

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A history of down payment changes in China

time	Minimum Down payment for the first house		Minimum Down payment for the second house ("—" risk-based LTV set by the banks)	Minimum Down payment for the third house ("—" risk-based LTV set by the banks)
	below 90 square meters	above 90 square meters		
5 Jun 2003	20%	20%	—	—
1 Jun 2006	20%	30%	—	—
27 Sep 2007	20%	30%	40%	—
27 Oct 2008	20%	20%	—	—
17 Apr 2010	20%	30%	50%	—
29 Sep 2010	30%	30%	50%	100%
26 Jan 2011	30%	30%	60%	100%

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The effects of down payment adjustment on housing prices in China

- Theoretically, increasing the down payment ratio will restrict the quantity of credit extended, and hence limits the risk of mortgage defaults.
- Increment of down payment ratio enhance the borrowing constraints of the home buyers, and consequently reduce the mortgage demand.
- However, there are lack of empirical evaluations of the effects of down payment ratio adjustments on housing markets in China. Making the true effectiveness of this policy to be unknown.
- Results from rigorous empirical analysis play a crucial role in the evaluation of these housing policies, more importantly, it will influence the future housing policy designs.

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Evaluating the effects of down payment changes on housing prices in China

- We select two recent increments of down payment ratio: one in June 2006, while another in April 2010.
- For comparison, we also investigate the effects of reducing down payment ratio on housing price in October 2008, to see if there is any asymmetric effect of adjusting the ratio reversely.
- A salient feature of down payment adjustments in China is that they are implemented according to the unit size: above 90 sq meters or below 90 sq meters. Our empirical design is based on this policy feature.
- We use a comprehensive micro-level transaction dataset of housing resale and rental in Beijing from 2005 to 2010 for the empirical research.

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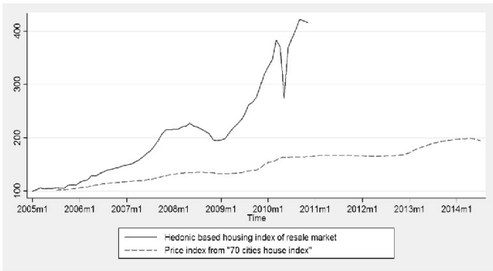
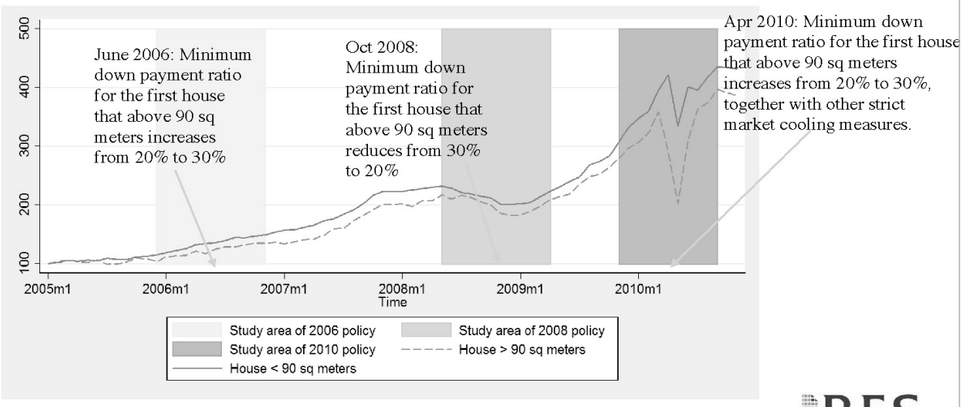
Some fundamental facts of housing prices in Beijing

This graph shows the housing price index from different sources.

- All of them suggested significant rising in housing prices in the past decade.
- However, it appears that the official released index, "70 cities housing index", substantially underestimates the rising trend of housing prices.
- The hedonic based index suggests that housing prices in Beijing increased by about three times within 5 years. The average annual increment rate is about 30%.



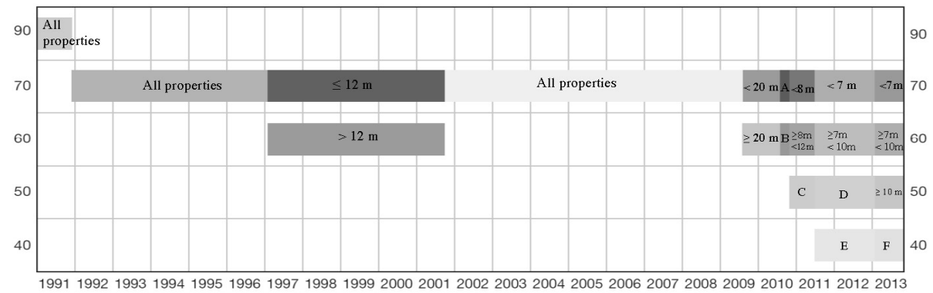
Timeline of the down payment adjustments



A summary of the analytical results

	June 2006	October 2008	April 2010
Policy	Down payment for first house above 90 sq meters increases from 20% to 30%	Down payment for first house above 90 sq meters reduces from 30% to 20%	Down payment for first house above 90 sq meters increases from 20% to 30%, together with other strict regulations.
Estimated effects on resale prices	There is no significant effects on house price, neither in the short term nor long term	There is no significant effect detected.	There is significant effect in the short-term, house price decreased 28% one month after, and 10% two months after. No significant effect after two months.
Estimated effects on rental prices	No significant effect	No significant effect	Rental price averagely decreased by about 2%, effects appeared two months after the policy.
Conclusions	Empirical evidence suggests that the down payment adjustment alone does not have significant effects on the housing price and rental price. The significant effects in April 2010 is likely to be attributed to the other market cooling tools.		

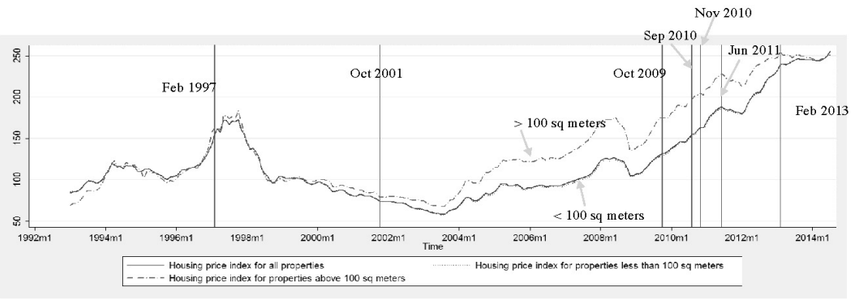
A summary of LTV policies in Hong Kong



Source: Dong He (2014), Hong Kong Monetary Authority. Note: All are measure by the property value in $HKD; "m" indicates million

Legend: A: <12m
B: ≥12m
C: ≥12m, non-owner occupied residential properties, commercial and industrial properties, net worth-based residential mortgages
D: ≥10m, non-owner occupied residential properties, commercial and industrial properties
E: net worth-based readential mortgages
F: commercial and industrial properties, net worth-based residential mortgages, standalone car park place

The housing price index of Hong Kong and timings of LTV policy changes



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Discussions on Hong Kong's LTV policies

- Since the introduction of LTV policy, the limits on LTV has become more and more differentiated over time. Initially, the same LTV limit applies to all properties, but it turns to vary with the property value.
- To help banks manage the credit risks, the Hong Kong Monetary Authority tightened LTV limits more frequently in the past 5 years.
- Simple comparisons of housing index before the policy changes and after the policy changes suggest that in Hong Kong, the LTV cap has weak impacts on the housing prices. This conclusion is also supported by a detailed econometrics study (He, 2014).

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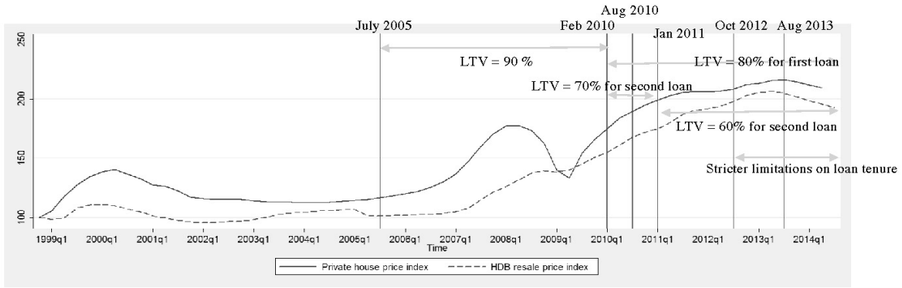
The case of Singapore: regulations on LTV and other cooling measures in recent years

Period	HDB Concessionary Loan	Commercial Bank Loan
19 July 2005 – 19 Feb 2010	**LTV = 90% Downpayment = 10% (5% cash and 5% CPF)**	**LTV = 90% Downpayment = 10%**
20 Feb 2010 – 29 Aug 2010		**LTV = 80% Downpayment = 20% (5% cash and 15% CPF)**
30 Aug 2010 onward		**LTV = 80% (first loan) LTV = 70% (additional /second loan)**
14 Jan 2011		**LTV =60% (additional/second loan)**
8 Dec 2011	Additional Buyers' Stamp Duty (ABSD) (Foreigners 10%; PR own more than 1 property or citizens own more than 2 properties, 3%)	Additional Buyers' Stamp Duty (ABSD) (Foreigners 10%; PR own more than 1 property or citizens own more than 2 properties, 3%)
6 Oct 2012	**Maximum Tenure 35 years for purchase; Limitation on the LTV for the ago and loan tenure**	**Maximum Tenure 35 years for purchase; Limitation on the LTV for the ago and loan tenure**
21 Jan 2013	Increased ABSD (Foreigners 15%; PR 5% for the first property and 10% for any additional property; 7% for citizens own more than 1 property and 10% for those own more than 2 properties)	Increased ABSD (Foreigners 15%; PR 5% for the first property and 10% for any additional property; 7% for citizens own more than 1 property and 10% for those own more than 2 properties)
29 Jun 2013	**Capped Total Debt Service Ratio (TDSR)**	**Capped Total Debt Service Ratio (TDSR)**
28 Aug 2013		**Banks' max HDB tenure reduced from 35 to 30 years; Banks' HDB LTV reduced from 80% to 60% if loan tenure >25 years or loan period extends beyond borrower's age of 65.**

*The downpayment requirement for the purchase of DBSS flat and EC after 30 Aug 2010: 5% cash and 15% CPF

The case of Singapore: regulations on LTV in recent years



As we can observe on the trends of housing index in the above graph that reducing the LTV is not likely to have significant effects on cooling the housing markets in Singapore.

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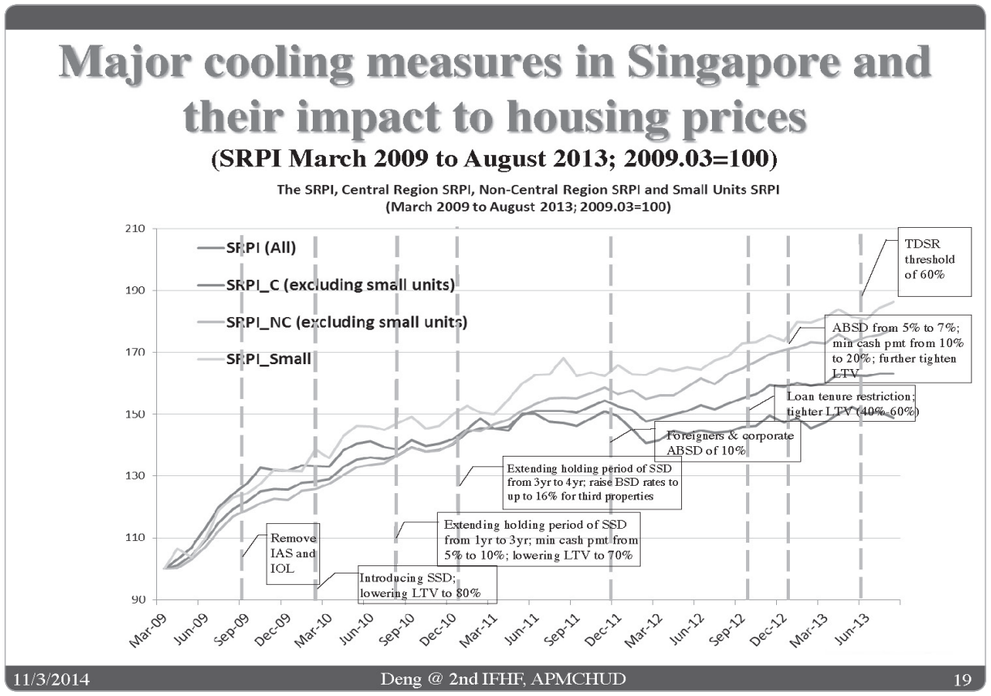

Singapore government: cooling measures not likely to be relaxed soon

- If we do not get a meaningful reversal after each upswing, property prices will run ahead of the growth of household incomes over the long term, which we should avoid.
- We can never get rid of cycles in the property market, with the upswings in some years being followed by corrections. Our cooling measures cannot eliminate the cycle, but they aim to temper it.
- What this means is avoiding a bubble during the upswing and allowing for a correction in prices subsequently.

Tharman Shanmugaratnam
Deputy Prime Minister and Finance Minister
Spoken at the Credit Counselling Singapore's 10th Anniversary Lunch

IRES Institute of Real Estate Studies National University Of Singapore

11/3/2014 Deng @ 2nd IFHF, APMCHUD 20

Man CHO
Professor of KDI School of Public Policy and Management

Enhancing Access to Mortgage Credit: Reaching out to the Underserved
주택금융서비스 소외계층을 위한 모기지 접근성 제고 방안

BIOGRAPHY

조만은 2007년 5월부터 현재까지 KDI 국제정책대학원의 교수로 재직 중이며, 2011년 4월부터는 KDI의 실물자산연구팀장을 겸직하고 있다. 2007년 이전에는 미국 모기지유동화 기관인 페니메 (1992-2007), 존스 홉킨스대학 (2004-2007), 그리고 세계은행 (1991-1992)에서 근무하였다. 주요 연구 분야는 부동산 금융, 자산유동화, 주택가격 및 주택시장, 그리고 리스크관리이고, 이 분야에 다수의 논문을 발간하였다. 최근에는 미국 · 유럽 금융위기의 원인과 교훈, 그리고 부동산 · 거시경제의 연계성에 대한 연구를 진행하고 있다. 1991년 미국 펜실베시아 대학의 경영대학원에서 경영학박사를 받았고, 현재까지 국 · 내외 저명 학술지에 다수의 논문을 발간하였다.

Man Cho is a professor at KDI School of Public Policy and Management, teaching and conducting research in the areas of real estate finance, credit risk assessment, and asset securitization, and is also jointly appointed as Director of Real Asset Research Team at KDI. Before joining the School in May 2007, he worked for Fannie Mae, one of the major MBS (Mortgage Backed Security) issuers in the U.S., between 1992 through 2007. In the company, he served both economist position and various management positions, and his experience is mainly in mortgage and MBS (Mortgage Backed Security) pricing, mortgage underwriting, capital allocation, and mortgage default and prepayment modeling. Prior to Fannie Mae, he worked for the World Bank in 1991 through 1992, and also served as an adjunct professor at the Johns Hopkins University (JHU) between 2004 through 2007. He received a Ph.D degree in Applied Economics and Managerial Science from the Wharton School of the University of Pennsylvania in 1991. He published various international peer-review journals, and also served as a referee reviewer for accredited academic journals.

ABSTRACT

다수의 국가들에서 모든 계층에게 양질의 저렴주택을 공급하고, 건전하면서도 모두가 이용가능한 주택금융서비스를 제공하는 것을 주요한 정책적 목표로 삼고 있다. 이 발표에서는 미국과 한국의 사례를 중심으로 이와 관련한 국제적 경험을 공유하고자 한다. 특히 각국에서 어떻게 다양한 계층의 수요자를 위한 주택금융서비스의 접근성 제고 정책을 중점적으로 살펴본다. 이 발표는 다음의 네 장으로 구성된다. (1) 미국과 한국 주택금융체계발전의 주요 전기 (2) 한국주택금융시장의 주요 제도적 쟁점 (3) 주택금융서비스 소외계층을 위해 모기지 접근성 제고 시 지도원칙 (중개 효율성, 시장 완전성, 시장 안정성) (4) 접근성 제고를 위한 특별 수단 (저렴한 모기지 상품, 저렴한 모기지 인수, 저렴한 대출 채널, 이자율 리

스크 관리, 대출 리스크 관리). 이 발표에서는 다양한 소외계층을 위한 주택금융서비스 접근성 제고 정책과 모기지 상품에 내재되어 있는 채무불이행 및 기간 내 선납 등의 리스크를 적절히 관리하는 정책간의 중요한 연계를 강조하고자 한다. 관련 시장 참여자들이 규제환경 뿐 아니라 효율적인 시장 기반을 동시에 조성하기 위한 협력해야한다는 것으로 발표를 마치고자 한다.

Providing decent and affordable housing for all, and offering sound and accessible mortgage finance service to that end, represent a critical public policy goal for most countries. This presentation shares international experiences, particularly those of the U.S. and Korea, as to how different countries enhance access to home mortgage credit to target consumer cohorts as well as what other policy issues they have to consider in so doing. In particular, the talk consists of four main sections: (1) milestone events in evolution of the mortgage finance systems in the U.S. and Korea; (2) several outstanding market and institutional issues in Korea; (3) guiding principles in expanding the service to underserved borrower cohorts (that is, intermediation efficiency, market completeness, and market stability); and, (4) specific vehicles to enhance the access (e.g., affordable mortgage products, affordable mortgage underwriting, affordable lending channels, managing funding – or interest rate – risk, and managing credit risk). The presentation will emphasize the important linkages between enhancing the access to mortgage credit for various marginal borrower groups and properly managing the competing risks (for default and prepayment) embedded in mortgage contracts, toward which market participants in a country should work together to establish both an efficient market infrastructure as well as an enabling regulatory environment.

APMCHUD Seminar
2014. 11. 3.

Enhancing Access to Mortgage Credit: Reaching out to the underserved

Man Cho
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KDI School of Public Policy & Mgt.

Korea's Leading Think Tank KDI

Outline

KDI

I. Introduction

II. Current issues in Korea

III. Enhancing the Access: Principles

IV. Enhancing the Access: Details

V. Policy issues to ponder

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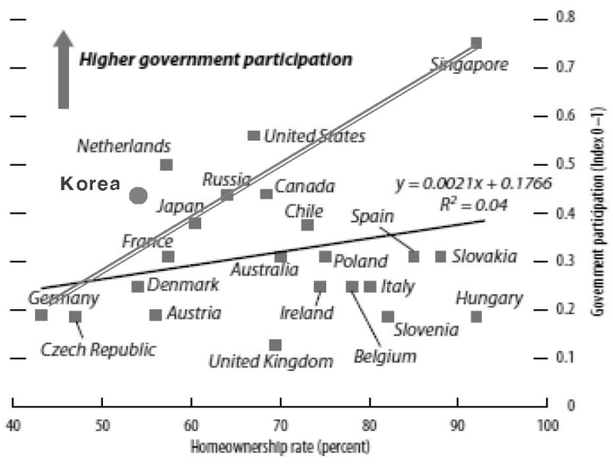
Access to (home) mortgage credit: Why do we care?

- Promoting home ownership?
- Enhancing financial inclusion?
  - Providing physical access & transaction convenience for "the underserved"
- Ensuring fair financing cost?
- By using what policy means?
  - Tax deduction, funding, guarantee, subsidies, ……
- Balancing w/ other policy goals?

Figure 3.4. Homeownership Rate and Government Participation in Housing Finance



Sources: European Mortgage Federation; Australian Bureau of Statistics; Japan, Ministry of Internal Affairs and Communications, Statistics Bureau; Singapore, Department of Statistics; U.S. Census Bureau; and IMF staff estimates.

Source: Re-quoted from IMF (2011)

Supplemental Material

Figure 3.2. Government Participation in Housing Finance
(Percentage of countries covered: 14 advanced economies, & 19 emerging economies)

	Emerging economies	Advanced economies
A) subsidies to first time or other buyer upfront;	42	14
B) subsidies to buyers through saving account contributions or through preferential fees;	47	36
C) subsidies to selected groups, low income;	58	21
D) provident funds early withdrawal for house purchase;	26	7
E) housing finance funds or government agency that provides guarantees/loans;	63	29
F) tax deductibility of mortgage interest;	58	64
G) capital gains tax deductibility	11	86
H) state-owned institution majority market player >50%.	26	0

Source: IMF (2011)

Milestone Events: The U.S.

- Localized & relation-based mortgage banking
  - TBS(Terminating Building Society) → PBS → B&L → S&L (from the early 1800s)
- The failed MBB experiment ("the 49ers")
- Great Depression (HOLC, FHA, Fannie Mae)
- Unified underwriting & PMIs (1950~60s)
- CMO and the MBS-based funding (1980~90s)
- IT innovations (AUS, credit scoring model …)
  - Surge of the cost-saving rule-based underwriting
- The subprime (& Alt-A) mortgage debacle
  - Consumer protection & other policy shifts pursued

Milestone Events: Korea

- **Chronic housing shortage** (1960s~1980s)
  - The two million housing construction drive (1989~92)
- **A small & subsidized** housing financing **sector**
  - Yet, building housing institutions early on (form 60s)
- **Financial deregulations** after AFC (1997~99)
  - Deregulating deposit and lending rates
  - Lifting restrictions on real estate lending
- **LTV·DTI caps**, along with "speculative zones" (early to mid 2000s)
- Establishing **KHFC**, the sole **MBS issuer** (2003)
- **Risk weights** for ARM ↑ ; **the FRM target** (2011)

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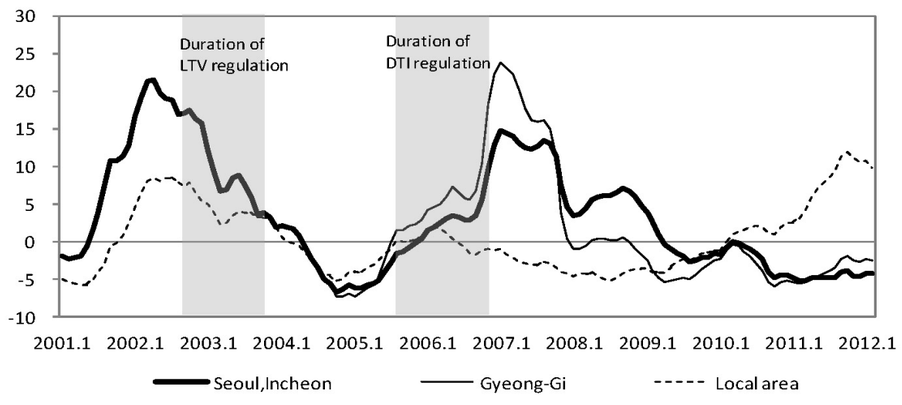
Imposing DTI·LTV limits along with speculative zones in Korea



Source: Cho (2012)

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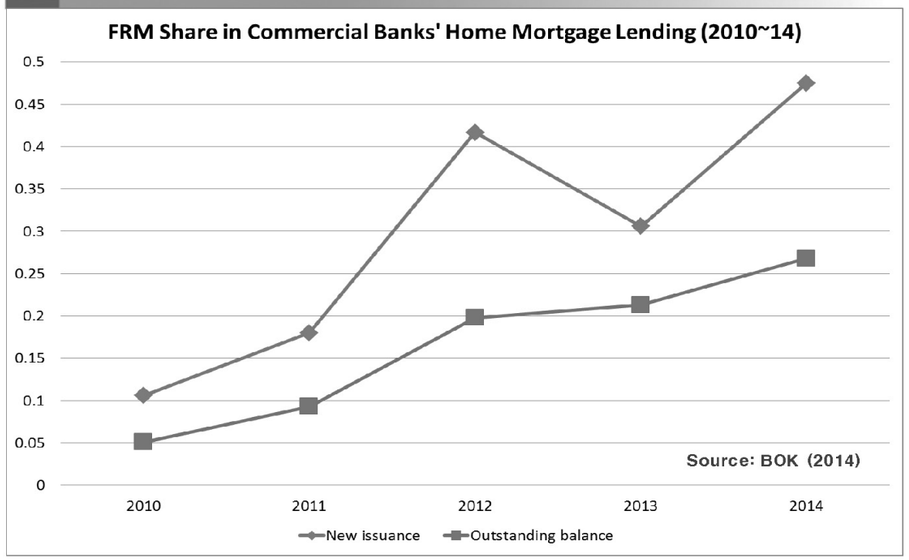
FRM Share in Commercial Banks' Home Mortgage Lending



Source: BOK (2014)

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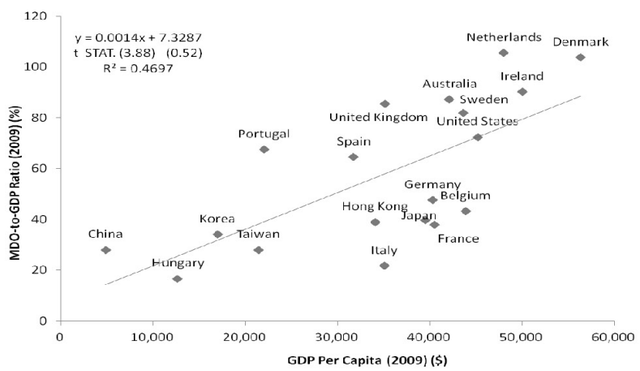
1. Growing, but roughly appropriate, MDO-to-GDP ratio

❖ 35.5% MDO-to-GDP ratio (as of July 2013), which has been growing rapidly since the Asian Financial Crisis (AFC) in the late 1990s

❖ Positive correlation between the ratio & PPI: GDP-PP $1,000 ↑ →MDO/GDP 1.4%p ↑



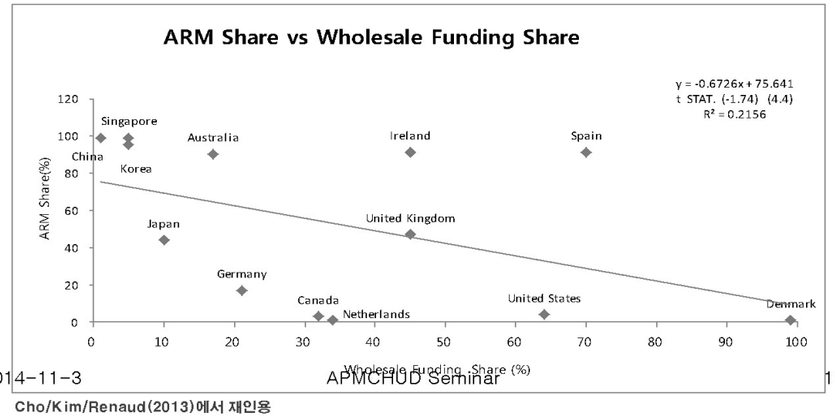
Data source: European Mortgage Federation, Lea (2010); Re-quoted from Cho/Kim/Renaud (2013)

2. ARMs as the predominant contract type

❖ ARMs exceeding over 90% of MDO, currently being declining

❖ Negative correlation between ARM share and that of whole-sale funding (Funding via MBS/CB ↑ → FRM share ↑ & ARM share ↓)

❖ Notable policy response : Announced the forced FRM quota for comm. banks (June 2011)



Cho/Kim/Renaud(2013)에서 재인용

3. Steering from the 1st-tier to 2nd-tier lending institutions

❖ Both housing and non-housing consumer lending on the rise since Q4 2007

❖ Much higher lending volume growth by non-bank depositories:

➔ Exclusion from the 1st-tier FIs↑ → Lending by 2nd –tier FIs 2↑

❖ <u>Cost differentials</u> (avg. consumer lending rates): 3.7% by CB, 11.7% by MSB, & 34.6% by 'dae-bu-edp-che' (BOK, 2014)

Trends of consumer lending

(tr KRW, %)

	Total	Commercial Banks		Non-bank Depositories	
		Housing	Credit & non-housing	Housing	Credit & non-housing
Q4 2007	630.11	221.64 (60.9%)	142.04 (39.1%)	46.63 (42.2%)	63.78 (57.8%)
Q3 2012	882.45	311.55 (67.8%)	147.78 (32.2%)	85.52 (45.2%)	103.66 (54.8%)
Total growth rates (2007.4Q~2012.3Q)	40.0%	40.6%	4.0%	83.4%	62.5%
Annual growth rates	7.0%	7.0%	0.8%	12.9%	10.2%

Data source: Bank of Korea (BOK)

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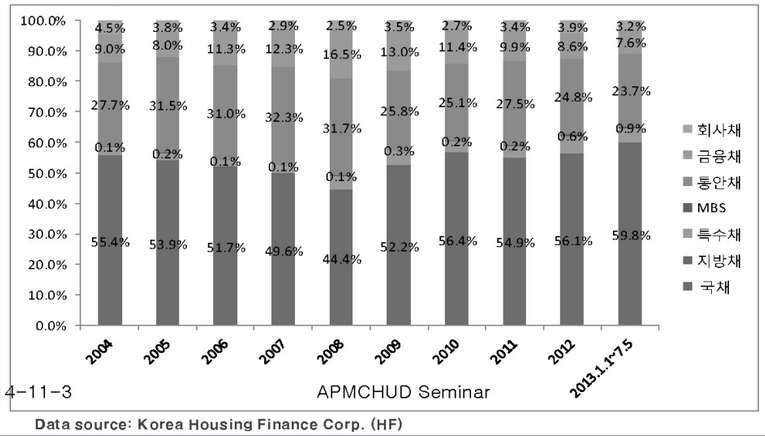
4. A small and illiquid MBS market

❖ The bond market dominated by government bonds (82% of trading volume as of 2012)

❖ MBS trading volume on the rise: 2.9 tr KRW (0.1%) in 2006 → 38.4 tr KRW (0.9%) in 2012

Bond trading volume



Data source: Korea Housing Finance Corp. (HF)

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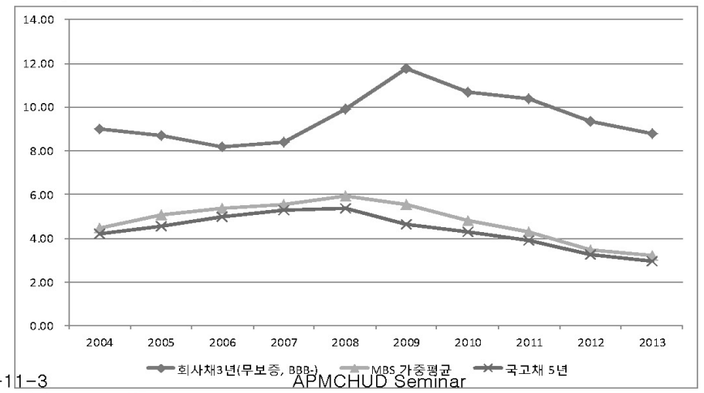
5. How to expand the MBS market?: Yield↑ vs. liquidity↑

- ❖ Expansion of the MBS market: Through which way?
- ❖ An active secondary market for MBS being the key; Vehicles for efficient risk measurement and management being needed to get there

Comparison of bond yields in Korea



Data source: HF

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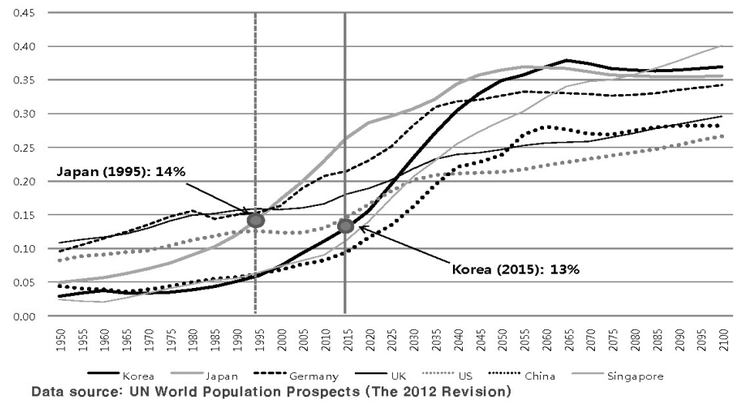
5. Population aging, with a record-setting speed

- ❖ A high-speed population aging expected (w/ birth rate ↓ , and life expectancy ↑)
- ❖ The hypothesis of asset price meltdown (Sell? Sell to whom?
- ❖ Utilizing real estate assets to mitigate the shock? (RAM, and REITs, in particular)

The Aged Dependency Ratio (%People Aged 65 and Older)



Data source: UN World Population Prospects (The 2012 Revision)

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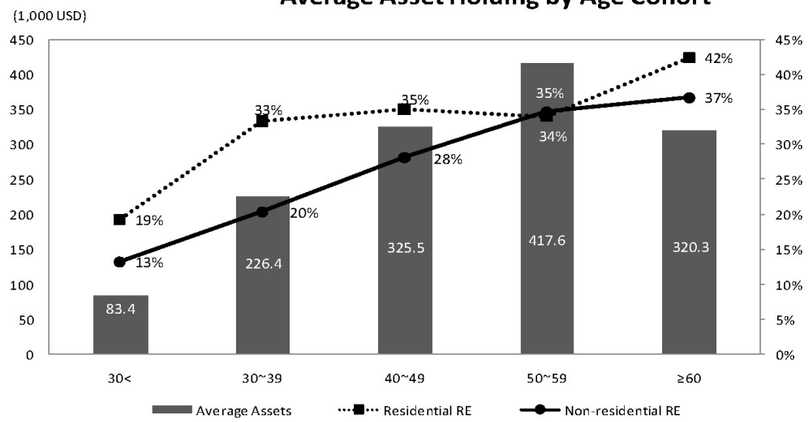
Household Asset Composition

Average Asset Holding by Age Cohort



Data source: 2013 Survey of Household Finance and Welfare (in Korea)

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Defining the best HFS: Via what indicators?

❖ Three general directions for the advancement:

① Intermediation efficiency ➔ Minimize excess yield ($EY = r_m - r_f - RP$; Diamond and Lea[1992])

② Market completeness ➔ Maximize financial inclusion (credit accessibility) by marginal borrowers (MOW[2003], Lea[2010], Dubel[2012] 등)

③ Market stability ➔ Maintain real estate market stability via macro-prudential regulations (Crowe et al[2011], Muellabuer[2012])

(1) Enhance intermediation efficency

❖ Assess HFS w/r/t intermediation e (Diamond and Lea[1992])
- HFS that minimizes EY in trading a particular mortgage product being the best (Excess Yield, EY)
- EY = lending rate – risk-free rate – risk premia
- KR: EY = 4.85% - 3.54% - 0.5% ≒ 80bp (May 2012)
- U.S.: EY = 3.26% - 1.86% - RP (30-yr FRM; 께 being variant)

❖ Default risk & prepayment risk: How to measure?
- Prepayment: Via structuring (PAC-CMO), via prepay-OAS
- Default: CE (guarantee, MI), via structuring (ABS, CDO)
- Further research on indicators (OAS, PD, LGD, EC …)

Risk-Based Credit Spread (for FICO/LTV & Purpose)	CS (bp)	Multiple
No Risk: 740/70 Refi	4	0.4x
Low Risk: 680/95 Purchase	38	3.5
High Risk(1): 645/100 Purchase	61	5.6
High Risk(2): 700/75 NINA	90	8.2
Very High Risk: 630/80 Cashout	199	18.3

But all before 2007!!

(2) Market completeness

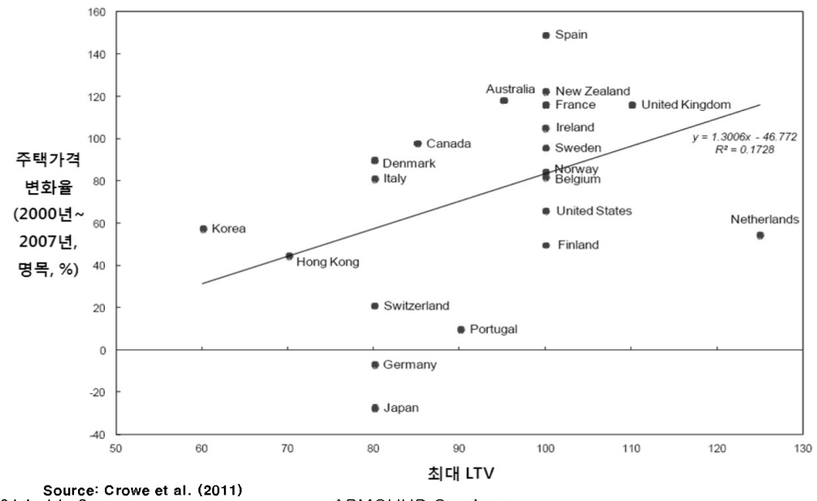
❖ Assess HFS w/r/t financial inclusion and credit accessibility
- Studies on market completeness: Mercer Oliver Wyman[2003], Lea[2010], Dubel[2012]
- MOW의 EU Mortgage Market Completeness Index(MCI):
- Determinants of MCI: (1) Diversity in mortgage products, (2) penetration to marginal borrowers, (3) diversity in lending channels, (4) counseling & other consumer educaftion

❖ Marginal borrowers – Who are they? (First-time buyers, credit-constrained …)

Country	Product[9]	Borrower Type and Purpose	Distribution	Information and Advice	Completeness Index
Denmark	85%	62%	71%	80%	75%
France	81%	67%	42%	70%	72%
Germany	62%	48%	54%	100%	58%
Italy	65%	51%	42%	50%	57%
Netherlands	81%	73%	88%	80%	79%
Portugal	35%	58%	71%	40%	47%
Spain	58%	67%	88%	90%	66%
UK	77%	92%	100%	100%	86%
Weighting[10]	50%	35%	10%	5%	100%

Source: Mercer Oliver Wyman (2003)

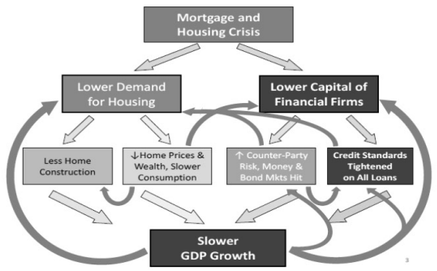
Housing price volatility vs. maximum LTV



Source: Crowe et al. (2011)

(3) Market stability

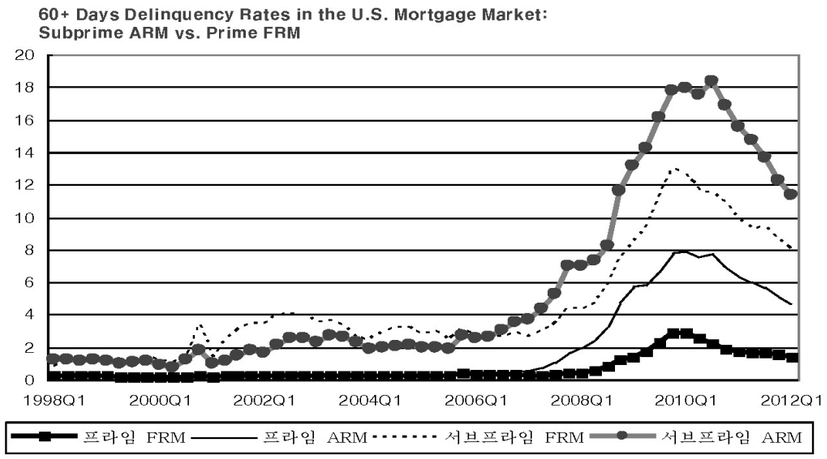
- Stabilize real estate market stability via lending restrictions
  - Heightened debate after GFC (e.g., QM, QRM, EU-CRD 등)
  - Crowe et al.(2011): Empirical analyses on alternative policy instruments (DTI·LTV restrictions, dynamic provisioning, and so on)
- Break the contagion of RE prices↑→lending ↑→RE prices↓→lending↓→real economy↓→NPL↑→RE prices↓
- Policy choices: DTI·LTV restrictions; FRM↑; anything else?



Source: Muellbauer (2012)

Figure 3: The financial accelerator operating in the US sub-prime crisis

Managing mortgage credit risk: Normal economy vs. stress economy



Source: Cho and Kim (2012)

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V. Policy issues to ponder

(1) Affordable mortgage products

- **ARM vs. FRM vs. "Hybrids"**
  - Hybrids → affordability↑; But affordability in payment initially → payment shock (2/28 Option ARM)
- **Shared Appreciation Mortgage** (SAM) & ESM:
  - The British experience since the 1980s (the privatization of public rental housing w/ ESM)
  - The Korean experience so far: Popular, and affordability enhancing for the wealth-constrained
- **Reverse Annuity Mortgage** (RAM):
  - High potential given the aging population; But how to expand the market?
- Charging **prepayment penalty**:
  - Not necessary for ARM; Risk & consumer prot. issues

Features of Mortgage Products in Korea – By Lender/Investor

	Commercial Banks (The interest rates for "Conforming Loan")	The Korea Housing Finance Corporation(KHFC) (Bo-Geum-Ja-Ri loan)	National Housing Fund (NHF) (for First-Time Home Buyers, FTBs)	
			Basic loan type	Profit-sharing (SAM)
• Interest rate variability; • Maturity; • Typical rates	• ARM; 6~35 years; 3.07 ~ 4.27 APR • FRM; 6~35 years; 3.53 ~ 4.14 APR	• FRM; 5~30 years; 3.45~3.7 APR	• FRM; 10~30 years; 3.0 APR	• FRM; 20 years; 1.5%
• Principal amortization	• Non-amortizing (bullets), & fully-/partially-amortizing	• Fully-/partially-amortizing	• Fully-/partially-amortizing	• Fully-/partially-amortizing
• LTV/DTI limits	• LTV ≤ 70 • DTI ≤ 60 (the capital region only)	• LTV ≤ 70 (80 LTV for KHFC-NHF loans) • DTI ≤ 60 (the capital & non-capital regions)	• LTV ≤ 70 (80 LTV for KHFC-NHF loans) • DTI ≤ 60 (the capital & non-capital regions)	
• Other require-ments	• NA	• Loan limit: $475k • Income limit: $66k (combined income if married) • Housing price: $855k	• Loan limit: $190k • Income limit: $66k (combined income) • Housing price: $570k • Housing size: 85 ㎡	

(2) Affordable mortgage underwriting

- **Which "dial(s)" to turn?**
  - Relaxing LTV (for wealth-constrained), DTI (for income-constrained), consumer ratings (for those with defect credit history), …
  - Requiring thorough empirical investigation
- Utilizing **mortgage insurant (MI)** contracts:
  - Public MI vs. private MI
  - What do we know about its effectiveness?
- **Rule-based underwriting** vs. **relationship-based underwriting**:
  - Is the former a winner (given the progress in ICT)?
  - Any role for the latter in affordable mortgage lending?

(3) Affordable lending channels

- Lending channel: Mortgage banks and other specialized FIs; Credit unions and credit coops as alternative lending arms
- Explicit delineation of "marginal borrowers" & products to serve them

Table 7.4 A Taxonomy of Mortgage Finance Systems

	High	Medium	Low
A. Accessibility to mortgage credit	• MDO-to-GDP ratio > 70 percent: Australia Denmark , Ireland, the Netherlands, Sweden, the United Kingdom, and the United States • Highly-diversified lending channel: Australia, Ireland, Netherland, the United Kingdom, and the United States (3~4 types major FIs) • Well-developed targeted subsidy programs: Australia, Singapore, Taiwan, and the United States	• MDO-to-GDP ratio 40~70 percent: Finland, France , Germany, Portugal, Spain, Norway • Moderately-diversified lending channel: Canada, Denmark, France, Germany, Japan, Spain, Sweden (banks and mortgage banks) • Moderately-developed targeted subsidy programs: Canada, China, Korea, Malaysia, and the Netherlands	• MDO-to-GDP ratio < 40 percent: China, Hong Kong, Hungary, Greece, Italy, Korea, Poland, and Russia • Minimally-diversified lending channel: China, Korea, Malaysia, Singapore, and Taiwan (predominantly by commercial banks) • Less-developed targeted subsidy programs: Denmark, Germany, Ireland, Italy, and the United Kingdom

Source: Kim and Cho(2013)

(4) Funding & managing the interest rate risk

- ARM vs. FRM: How large FRM share is good enough?
- Expanding the whole-sale funding to raise FRM share: How?
- Prepayment penalty: Needed for ARM? What is right risk-sharing arrangement?

Table 7.4 A Taxonomy of Mortgage Finance Systems (Cont' d)

B. Risk appetite (1): Upside and downside interest rate risk	• Long-term FRM share > 80 percent: Denmark, the Netherland, and the United States (strongly correlated with the share of whole-sale funding) • Whole-sale funding via MBS/CB > 60 percent: Denmark, Spain, and the United States • Predominantly no prepayment penalty: Denmark and the United States	• Long-term FRM share 20~80 percent: Japan, Germany, and the United Kingdom • Whole-sale funding via MBS/CB 30~60 percent: Canada, Ireland, the Netherland, and the United Kingdom • Prepayment penalty being flexibly enforced: The United Kingdom and most European countries (e.g., wavering on relocation, medical emergency)	• Long-term FRM share < 20 percent: Australia, China, Ireland, Korea, Singapore, and Spain • Whole-sale funding via MBS/CB < 30 percent: Australia, China, Germany, Japan, Korea, and Singapore • Prepayment penalty being strictly enforced: Korea and most Asian countries

Source: Kim and Cho(2013)

(5) More on managing the credit risk

- ❖ Heightened attention to QRM(Qualified Residential Mortgage) after GFC
- ❖ Defining "conforming (or prime)" mortgage products (underwriting criteria, MI and other risk-sharing arrangements, product characteristics, and so on), and expanding their market share
- ❖ Standardizing stress testing method; Conservative risk management on new products ~ How much should it be?

Table 7.4 A Taxonomy of Mortgage Finance Systems (Cont'd)

C. Risk appetite (2): Borrower default risk	• Max LTV non-regulated or above 90 percent: Australia, the Netherland, Portugal, Spain, France, Sweden, the United Kingdom, and the United States • Highly active MI programs: Australia, Canada, France, the Netherland, and the United States	• Max LTV non-regulated or set at 80~90 percent: Canada, Denmark, Germany, Italy, Japan, and Switzerland • Moderately active MI programs: Hong Kong, Israel, Italy, Spain, Sweden, and the United Kingdom	• Max LTV regulated and set below 80 percent: China, Korea, Singapore, and Taiwan (the QRM debate in the United States after the GFC); DTI, CB, and other lending criteria being relevant as well • Minimal or inactive MI programs: China, Korea, India, and Thailand

Re-quoted from Kim and Cho (2013)

Outline

I. Introduction

II. Current issues in Korea

III. Guiding principles

IV. International comparison

V. **Policy issues to ponder**

Policy issue (1): Enhancing financial inclusion

- ❖ Financial steering (from 1st-tier to 2nd-tier FIs) vs. sound risk management: How to balance (on the part of FIs)?
- ❖ Targeting whom?: First-time buyers in their 30s & 40s? Differentiated LTV restrictions for different borrower cohorts? Raising max LTV (e.g., to 80% in Korea) & risk-sharing via MI?
- ❖ Product & institutional issues to consider
  - Expanding the sharing appreciation mortgage (SAM)?
  - Division of labor: FIs vs. government (national and local), and NGOs; How to define proper supervision mechanism?
  - Role of prime vs. subprime lending sectors

Policy issue (2): Developing an active MBS market

- ❖ Upgrading data and transaction infra, in terms of:
  - MBS yield and risk indicators; Pre-pay OAS and other information to facilitate fair valuation (e.g., monthly investor reporting)
  - Primary MBS dealers
  - Periodic issuance
  - Diversified investor pool (e.g., international investors?)
- ❖ Product diversity: Credit-trenched MBS (e.g., mortgage ABS), PAC-CMO, Multi-family MBS

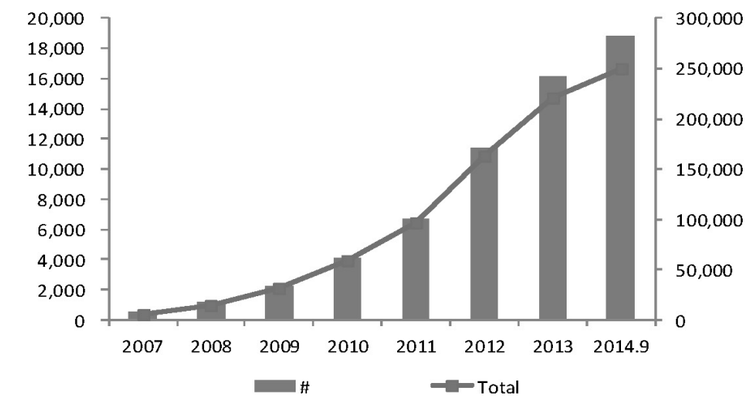
Policy issue (3): Market stabilization via lending restriction

- ❖ Differentiating policy regimes: For example, lending restrictions and capital regulations as short-term policy instruments, and supply of affordable housing (for owner-occupied and renter-occupied) as long-term policy means
- ❖ In search of "a right policy mix," out of:
  - Demand-side regulations: LTV·DTI restrictions
  - Supply-side regulations: Exposure limits, risk weights, loss reserve
  - Real estate taxes (for purchase, holding, and re-selling)
- ❖ Effective and transparent loan modification program (e.g., Housing Affordable Modification Program, HAMP)

Thank you!

Supplemental Materials: RAM in Korea (Guarantee amount outstanding)

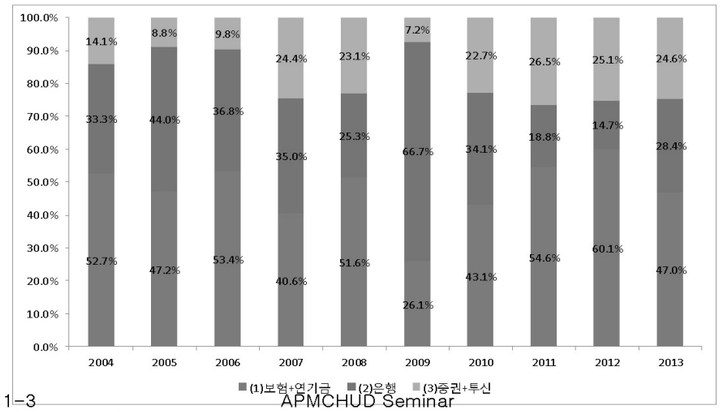
JooTaekYeonKeum(Reverse Mortgage) Guarantee Outstanding
(Unit: Hundred million won)



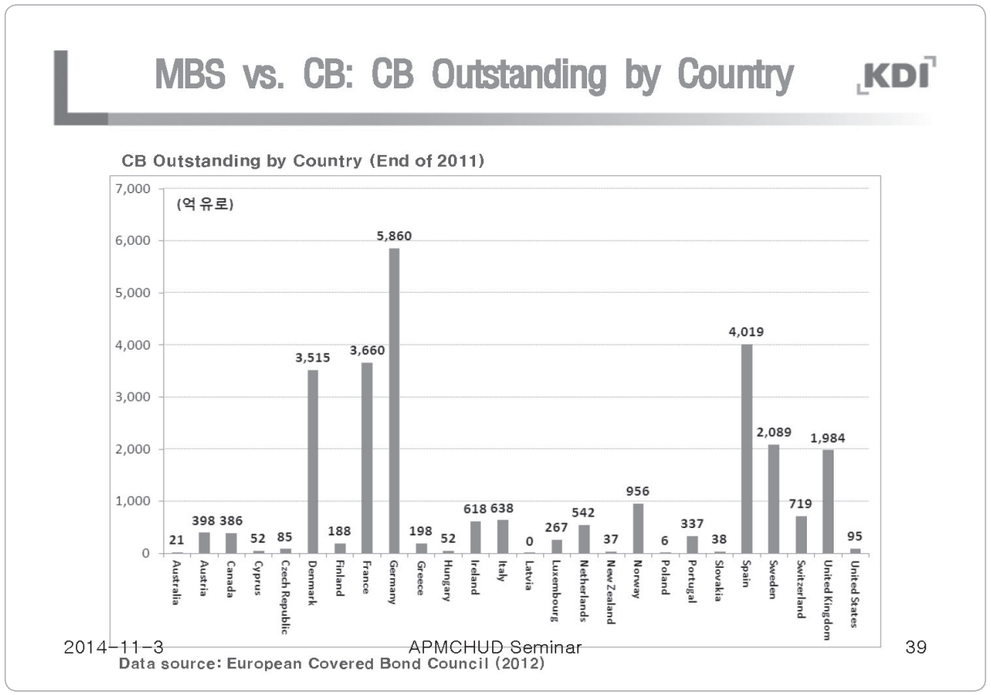
Composition of MBS investors: Right mix in Korea?

- ❖ Pension funds, insurance companies now taking 50~60%
- ❖ Commercial banks' share on the rise (14% in 2012 → 28% in 2013)

MBS(Swap) Purchase by Investor Type



Data source : HF



Thomas DAVIDOFF

Assistant Professor, University of British Columbia

Housing Finance in an Aging World: Reverse Mortgage Market Potential and Pitfalls

고령화 시대의 주택금융: 역모기 시장의 성장가능성과 위험요소

BIOGRAPHY

Davioff 교수는 Sauder 경영대학원(Sauder School of Business) 전략 및 비즈니스 경제학과 조교수로 재직 중이며 이전에는 MIT공대에서 박사 학위를 받고 Hass 경영대학원(Hass School of Business)에서 조교수를 지냈다. 종신연금, 장기요양보험, 역모기지, 주택시장에 대한 그의 연구는 *American Economic Review, The Journal of Public Economics, The Journal of Urban Economics, Real Estate Economics* 등 다수의 저명 학술지에 게재되었다. 현재 *Journal of Housing Economics*의 공동편집장을 맡고 있는 그는 부동산개발업에도 몸담아 왔으며 2011년에는 백악관 경제자문위원회 수석 경제전문가로 활동한 바 있다.

Tom Davidoff is an assistant professor in the Strategy and Business Economics group at the Sauder School of Business. Davidoff was previously an Assistant Professor at the Haas School of Business and earned his PhD from MIT. His work on life annuities, long-term care insurance, reverse mortgages, and housing markets has been published in the American Economic Review, The Journal of Public Economics, The Journal of Urban Economics, Real Estate Economics, and elsewhere. Davidoff is Co-Editor of the Journal of Housing Economics. Davidoff has worked in the real estate development industry and served as a senior economist at the US White House Council of Economic Advisers in 2011.

ABSTRACT

이 발표에서는 은퇴금융설계에서 주택자산의 역할을 논의한다. 특히 이번 발표는 역모기지의 성장가능성과 위험요소에 주안을 두었다. 전세계 많은 주택소유자들의 자산에서 주택이 차지하는 비중이 높으며, 이들은 주택 처분을 꺼려하는 경향을 보인다. 역모기지는 저소득 주택소유주들이 주택을 처분하지 않고서도 소비수준을 유지하도록 도울 수 있으며, 이와 연계되어 연금 및 요양보험에 대한 수요를 증대시키는 효과를 낼 수도 있다. 미국 역모기지 시장의 경험은 다른 나라의 역모기지 시장 발전에 도움이 될 수 있다. 미국의 대표적 역모기지 상품인 공적주택연금(Home Equity Conversion Mortgage)은 현재 가입 가능한 고령 주택소유주의 약 3%가 이용하고 있으며, 자금 유동성을 원하는 계층을 중심으로 대체로 성공적으로 자리잡아 확대되고 있다. 하지만 여러가지 위험요소를 안고 있기도 하다. 우선 2000년 초중반 주택가격 정점 시기에 역모기지 대출을 받기 시작한 가입자들 주택의 가격이 2000년대 말 폭락하면서 공적주택연금의 손실부담이 커졌다. 또한 역모기지 대출상품의 채무불이행 옵션을 고의적으로 악용하는 가입자들도 있는 등 가입자들의 행태가 일치하지 않는 문제가 있지만 많은 가입자들이 부동산 보유세와 보험금을 내는데 어려움을 겪고 있는 것이 현실이다. 마이너스 상각을 막기위한 대출금 일부의 의무적 연금지급도 이론적으로 바람직한 방향의 역모기지 설계이다.

This presentation discusses the role of home equity in retirement finance, with an emphasis on the potential and pitfalls associated with reverse mortgages. Many homeowners globally hold a large fraction of their wealth in home equity and are reluctant to sell their homes. Reverse mortgages can help low income homeowners remain in their homes while meeting expenditure needs and may augment demand for life annuities and long-term care insurance. Some features of the US market experience are instructive for the development of reverse mortgage products elsewhere. Home Equity Conversion Mortgages ("HECMs") the dominant US product, are used by roughly 3% of eligible older homeowners. HECM has enjoyed some success, with originations growing over time, and the product apparently serving those who most demand liquidity. However, the selection of borrowers into HECM has fed insurance losses, with a large share of originations taking place near the 2000s home price cycle peak in markets that saw relatively large price crashes. Borrower behavior appears inconsistent with intentional exploitation of embedded default options, but many borrowers have faced difficulty paying required property taxes and insurance. Mandatory annuitization of a fraction of loan proceeds sufficient to avoid negative amortization is a theoretically desirable product feature.

Housing Finance in an Aging World: Reverse Mortgage Market Potential and Pitfalls

Thomas Davidoff
Sauder School of Business
University of British Columbia

Overview

- Housing is an important asset for many retirees
  - This is true in most countries
- Most retiree housing wealth is home equity
- Retirees are generally reluctant to sell their homes
- Reverse mortgages seem attractive, but:
  - Have not proven highly popular
  - Their use has proven costly to US lenders
  - Retirees who use RMs may not save adequately
- A particular design improvement can help
  - Mandate annuitization of a fraction of proceeds

Home Equity Dominates Retiree Portfolios

HRS/AHEAD US homeowners 62+, not working (from Davidoff, 2010)

- 79% homeownership in 2004
- Median home equity among owners $110,000
- Median ratio home equity / total wealth 55%
- Only 12% owe any mortgage debt
- Among those with debt, median LTV 33%
- 1998 – 2004
  - Huge increase in home values
  - <10% increase mortgage debt
- Mean Ratio of home equity to home value in 2004
  - .84 in 60s
  - .96 in 90s

AARP Survey (Bayer and Harper): reluctance to move
Similar patterns globally
Caveat: scenario in which mortgage debt is high into retirement in urban areas

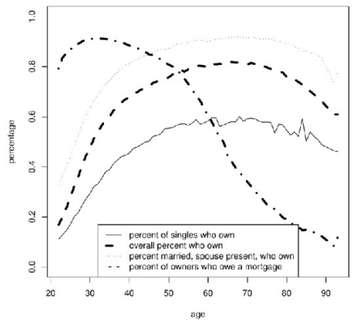
2002 OECD % of Housing owner occupied

The US is not an outlier

Australia 70	Austria 56	Belgium71
Canada 66	Denmark 51	Finland 58
France 55	Germany 42	Greece 83
Ireland 77	Italy 80	
Japan 60		
Luxembourg 70	Netherlands 53	New Zealand 65
Norway 77	Portugal 64	Spain 85
Sweden 61	United Kingdom 69	United States 68

Source: OECD 2004: HOUSING MARKETS, WEALTH AND THE BUSINESS CYCLE
ECONOMICS DEPARTMENT WORKING PAPERS NO. 394
By Pietro Catte, Nathalie Girouard, Robert Price and Christophe André

Ownership and mortgage debt by age
US Census (IPUMS) 2000



Age/ownership profile for Canada

Age Category	Renters	Owners	Owners without mortgage
44-		58.1%	14.2%
		41.3%	
45-54		75.5%	34.3%
		24.2%	
55-64		77.7%	56.3%
		22.0%	
65-74		76.1%	75.8%
		23.6%	
75+		67.9%	86.3%
		32.0%	

Source: CMHC: HOUSING FOR OLDER CANADIANS:

What reverse mortgages offer

- Let homeowner "smooth consumption"
  - To cash-poor period while in home
  - From after sale or death
  - These features can ease the burden on public retirement systems
    - Life annuities and long-term care insurance complement RMs
- Typically negatively amortizing
  - No payments until move or die
- Typically non-recourse
  - Borrower owes at termination the lesser of:
    - Principal and interest due
    - Resale value of home net of selling costs at termination

The trinity of retirement products

1. Life annuity
2. Long-term care insurance
3. Reverse mortgage

Jointly address

- Uncertain longevity
- Potentially catastrophic medical expense
- Lumpy home equity proceeds

These risks are not separable

- Long-term care insurance makes illiquid annuities more tolerable
- Home equity is an imperfect buffer against long-term care expense
  - and hence longevity

Specific product design:
Home Equity Conversion Mortgages

- Adjustable rate line of credit dominates 1989-2007
  - Credit line grows at loan interest rate
- Fixed rate lump sum growing in popularity 2008+
  - Easier to securitize
  - Securitization likely key to industry growth globally
    - e.g. CHIP funding model requires 5-year renewals
- Private lenders, with federal guarantee
  - FHA guarantees lenders repaid principal and interest
  - Unpleasant for lenders: foreclose for default on
    - property tax
    - insurance

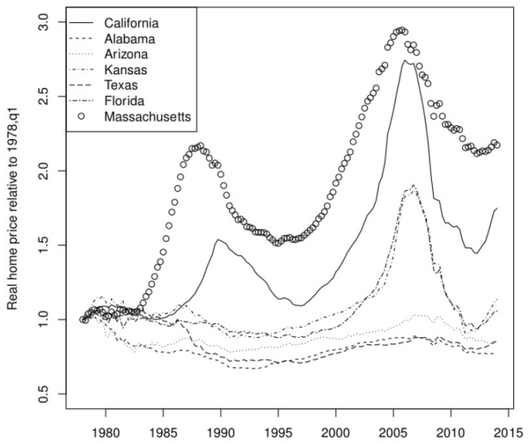
Reverse mortgage limited liability

- Insures borrowers against multiple risks
  - Longevity and time in home
    - Akin to life annuities
  - Market price risk
  - Individual home risk
- Lender (or insurer) effectively sells a put option
  - Borrower has the right to "sell" the home for
    - Loan balance due at termination "T"
    - Or net resale value at T if greater

Contracting frictions in HECM: Termination

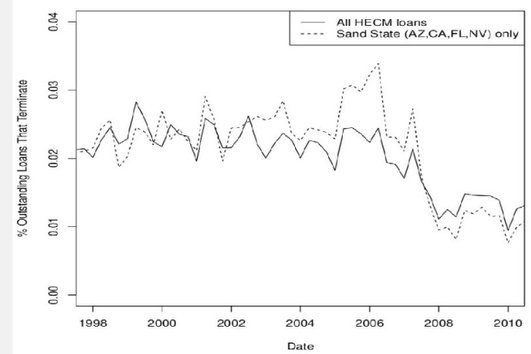
- Loan balance likely to grow faster than home value
  - So limited liability put value grows with duration
    - Jeanne Calment: selection on longevity
    - Incentive problem with terminations evident in HECM
  - Typically, insurer want terminations
    - Slow when prices are high and rising
    - Rapid when prices are low and falling

There are sharp differences across US regions in home price average growth and volatility



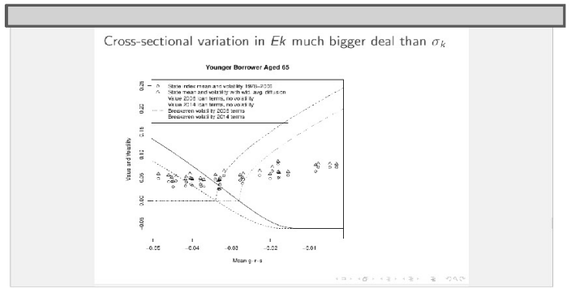
Empirical HECM terminations

Rapid in high/rising price, slow in low/falling price

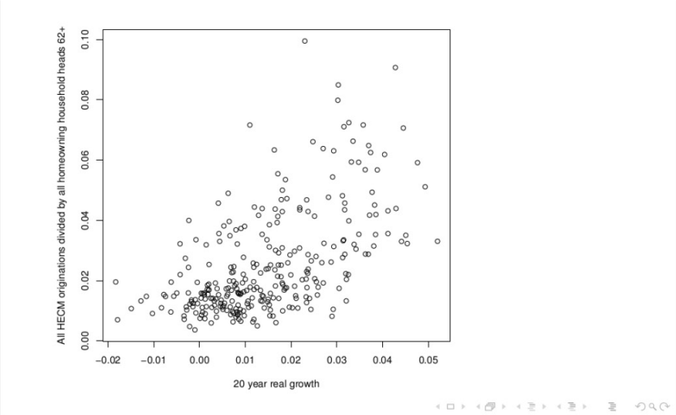


Put option value and geography

- The picture below plots put value
  - x-axis: Expected growth less loan interest rate
  - y-axis: put value and volatility to get to zero NPV

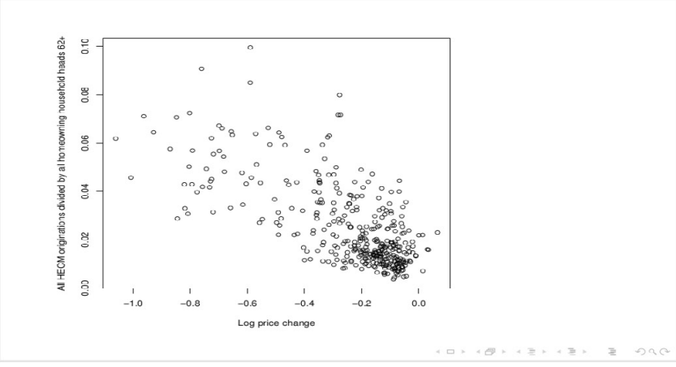


Favorable Selection on Historical Price Growth into US HECM
Market penetration (vertical axis) is greater in markets with greater historical price appreciation (horizontal axis)



Adverse selection on 2000s price bust

Greater HECM use (vertical axis) in markets where prices fell most between 2006 and 2012 (horizontal)



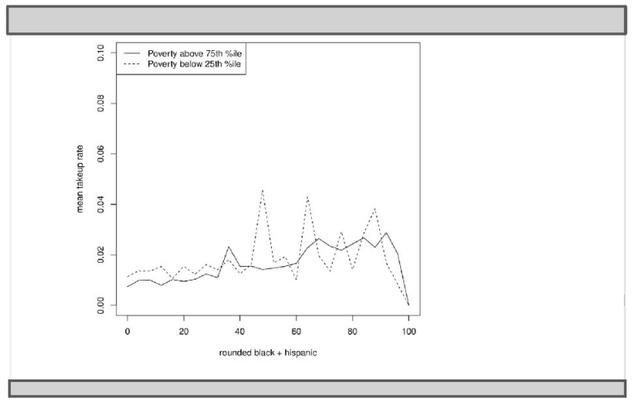
Good news regarding selection

- Borrowers do not appear to use credit to maximize put
  - “In the money” borrowers no likelier to exhaust
- So origination peak during boom likely
  - Capital gains chasing
  - Not “ruthless” calculation

Work in progress: selection within markets

- Severe selection within markets
  - Zip codes with worst price busts within metros
    - See more HECM demand
  - Also true minority/poverty shares cor. w demand
    - More innocuous story
      - Aggressive lending and receptivity to subprime
        - Feed price boom/bust
        - Feed HECM demand
      - Does not seem as big of a risk in Asia?
      - Consistent with non-strategic credit use generally

Ethnicity, income, and HECM use



HECM relative to other countries

- HECM penetration (appx. 3%) appears greater
  - UK about .1% of eligible (SHIP)
  - Canada CHIP similar magnitude
- This may be US poor minorities' high liquidity demand
  - UK survey cited by SHIP number 1 use
    - ⅔ opt for "drawdown" -- regular payments
    - 43% cite regular expenditure support
  - US HECM
    - AARP: top 2 uses are:
      - pay off existing debt, Major repairs to home
    - Credit overwhelmingly used near origination
    - Haurin et al (2014) 10% default rate

Addressing pitfalls

- Reverse mortgages are commonly deemed expensive
  - But they are expensive to lenders
    - Because of default value
      - Due in part to negative amortization
      - Also due to incentive problems with sale of home while alive
- Borrowers are at risk of running out of resources
  - So government expansion may be unattractive
- Solution to both problems rooted in economic theory
  - Mandatory annuitization

The appeal of an annuity mandate to cover interest

- Regular interest payments reduce default option value
  - Which consumers appear to undervalue
  - Also repairs incentive to move while alive
- Add escrow to prevent tax and insurance defaults
- But this reduces available proceeds!
  - No: much larger loan available in present value
- Annuities and RM should be complements
  - Annuity income reverts to borrower after move

HECM lessons for other countries:

- Reverse mortgage demand
  - Generally low
  - Concentrated among poor and credit constrained
    - As we'd expect
- Adverse selection and moral hazard
  - Surely operate on terminations
    - Product design can help (life annuity)
  - Seems to operate on price movements
    - But borrowers appear not to be "ruthless"
    - So design to reduce put option value seems sensible
- Mandatory life annuitization to cover interest and escrow
  - Helps greatly with incentives and reducing put value
  - May have only modest adverse effects on demand, if any
    - Probably most adverse among impatient US target borrowers

The 2nd INTERNATIONAL FORUM ON HOUSING FINANCE

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