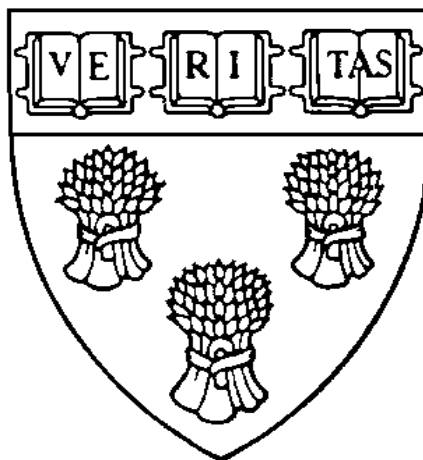


Embedding Call Options in Mortgages

by

Professor Howell E. Jackson & Nicholas Kypriotakis

Harvard Law School

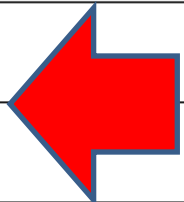
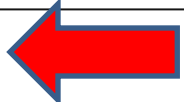
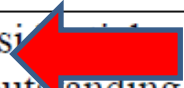
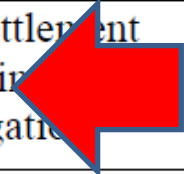


Mortgage Contract Design:

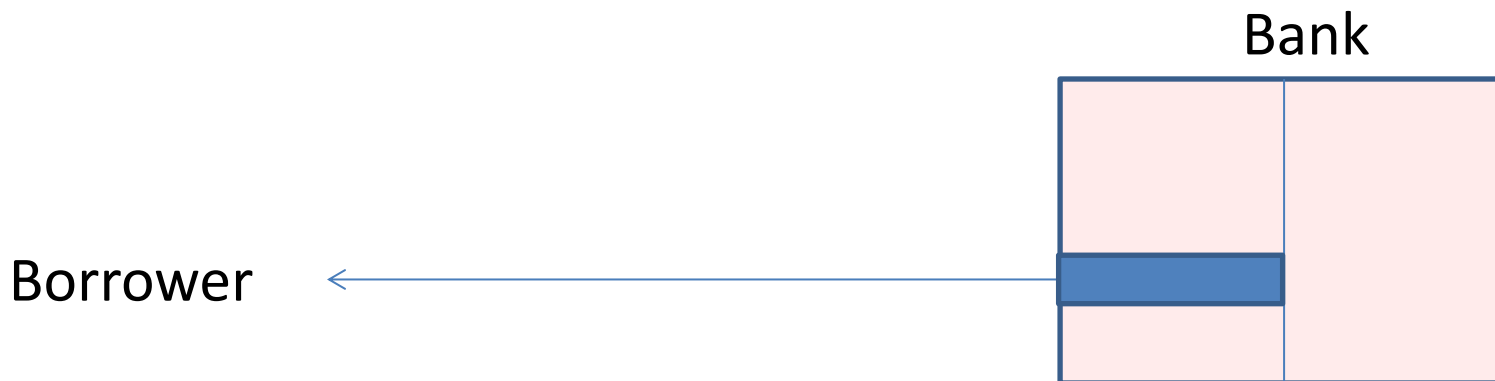
Implications for Households, Monetary Policy, and Financial Stability

The Federal Reserve Bank of New York

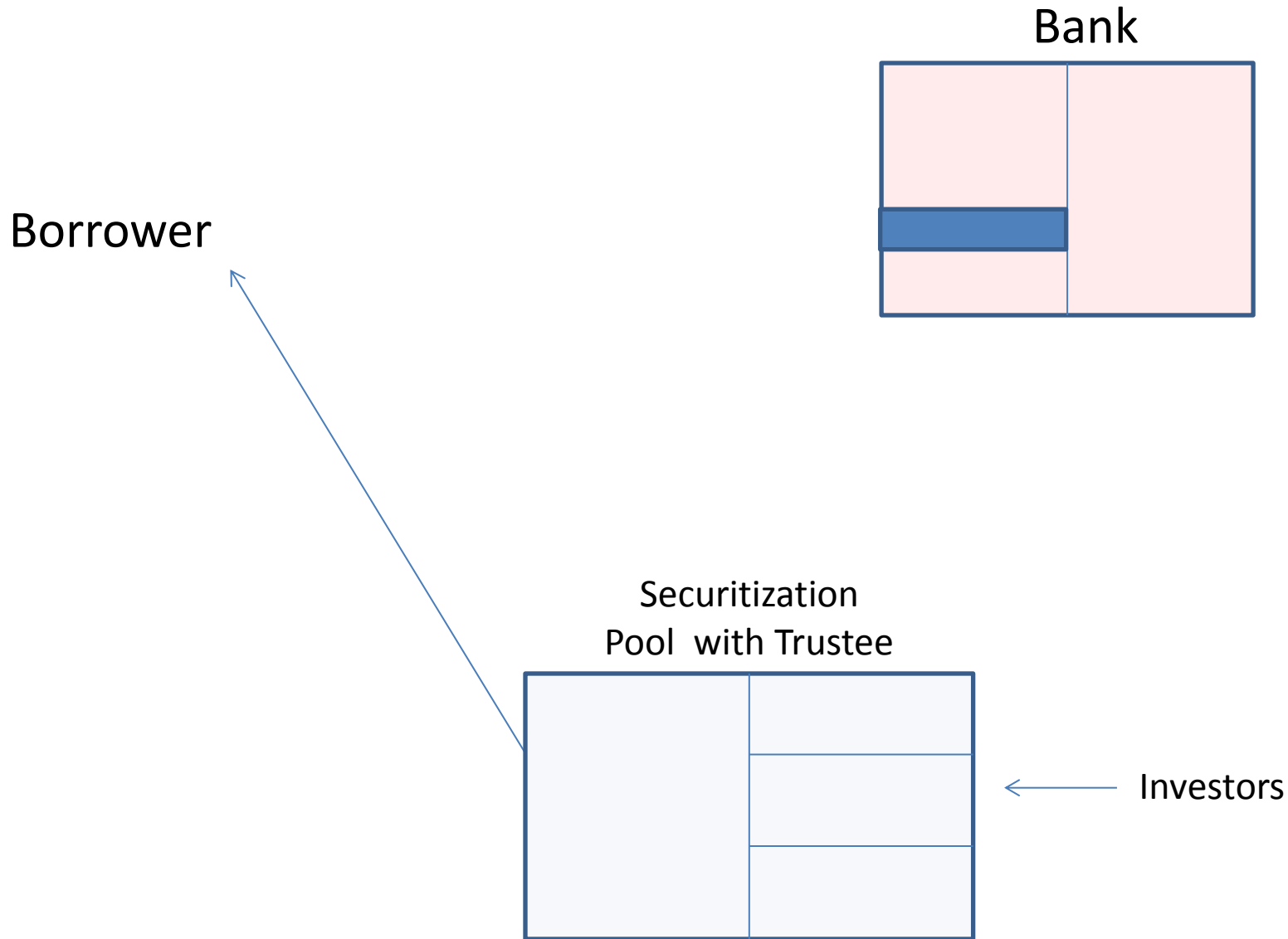
May 21, 2015

Comparison ¹	HOLC ²	TARP (via HAMP) ³	Add'l Interventions
Size of Problem			
Aggregate Size of Mtg. Mkt.	35.5B ⁴ (595B inflation adj.)	13.4T ⁵	
Home Ownership Rate	47.8% 1930 43.6% 1940	67.3% 2009 64.0% 2014 ⁶	
Unemployment Rate	25%	10%	
Avg. Housing Value Loss	30-40% b/w 1929-1933	33% b/w 2006-2011	
Foreclosure Rate	1.3%	2-3%, constantly shifting	
Peak Daily Foreclosures	1k per day	2.9k per day	
Scope of Intervention			
# Homes Assisted	1M h/o's	1.7M h/o's	3M h/o's via HARP
Duration	3 years (1933-1936)	>5 years (2009-Present)	2012-2013
Size of Program	3.1B (52B inflation adj.)	30B – 75B	
% Mtgs. Assisted	10% total residential 20% mtgs. outstanding	1.5% total residential 3% mtgs. outstanding	2.7% total residential 5.8% mtgs. outstanding 
Resulting Influence			
Foreclosure Rate of Modified Mtgs.	17-20%	20-50%, depending on vintage	25B fraud settlement assessed against banks in litigation 
Total Cost	14M profit or 100M loss ⁷	Unknown	

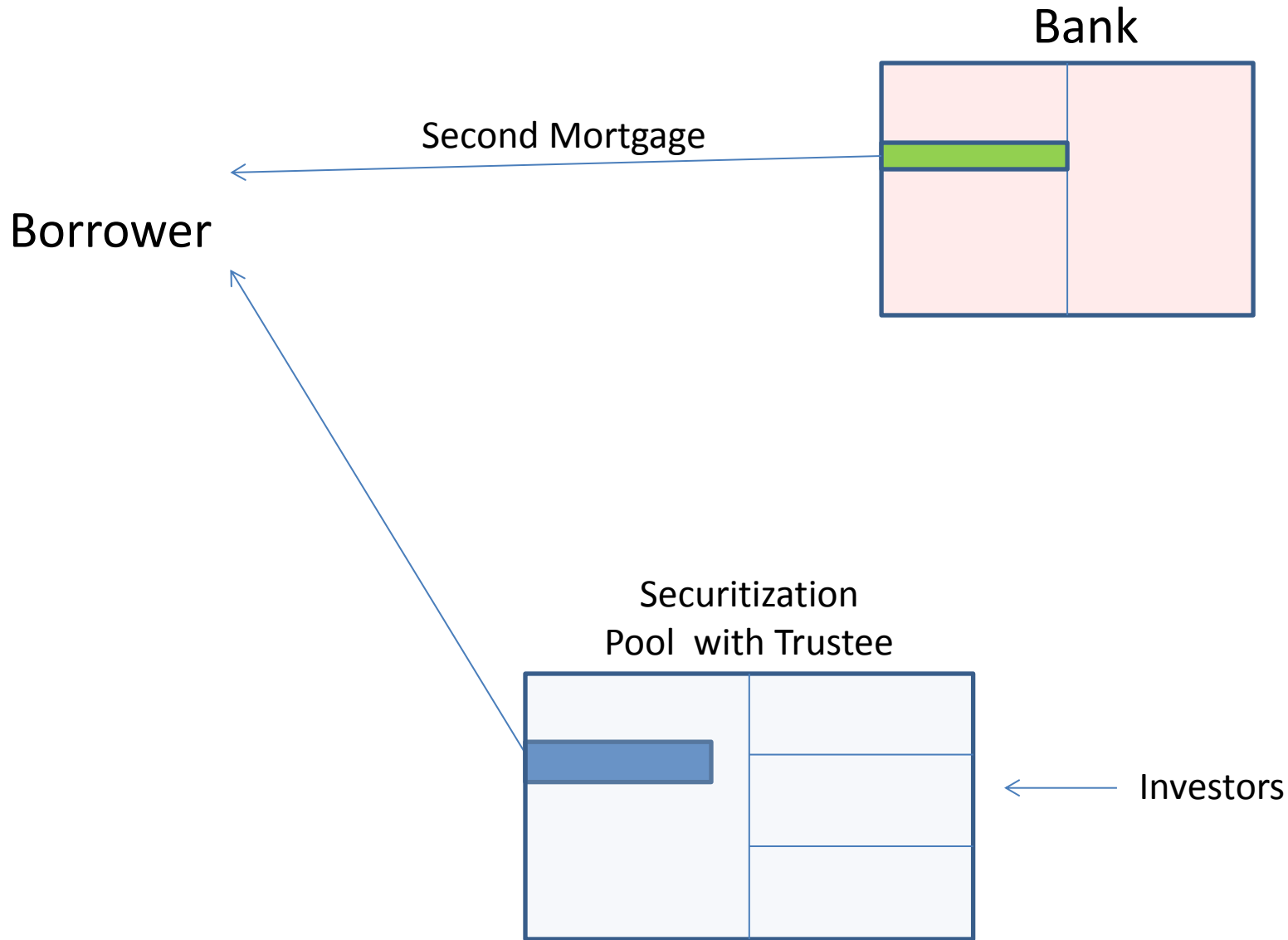
Traditional Structure of Housing Finance



The Fragmentation of Modern Housing Finance



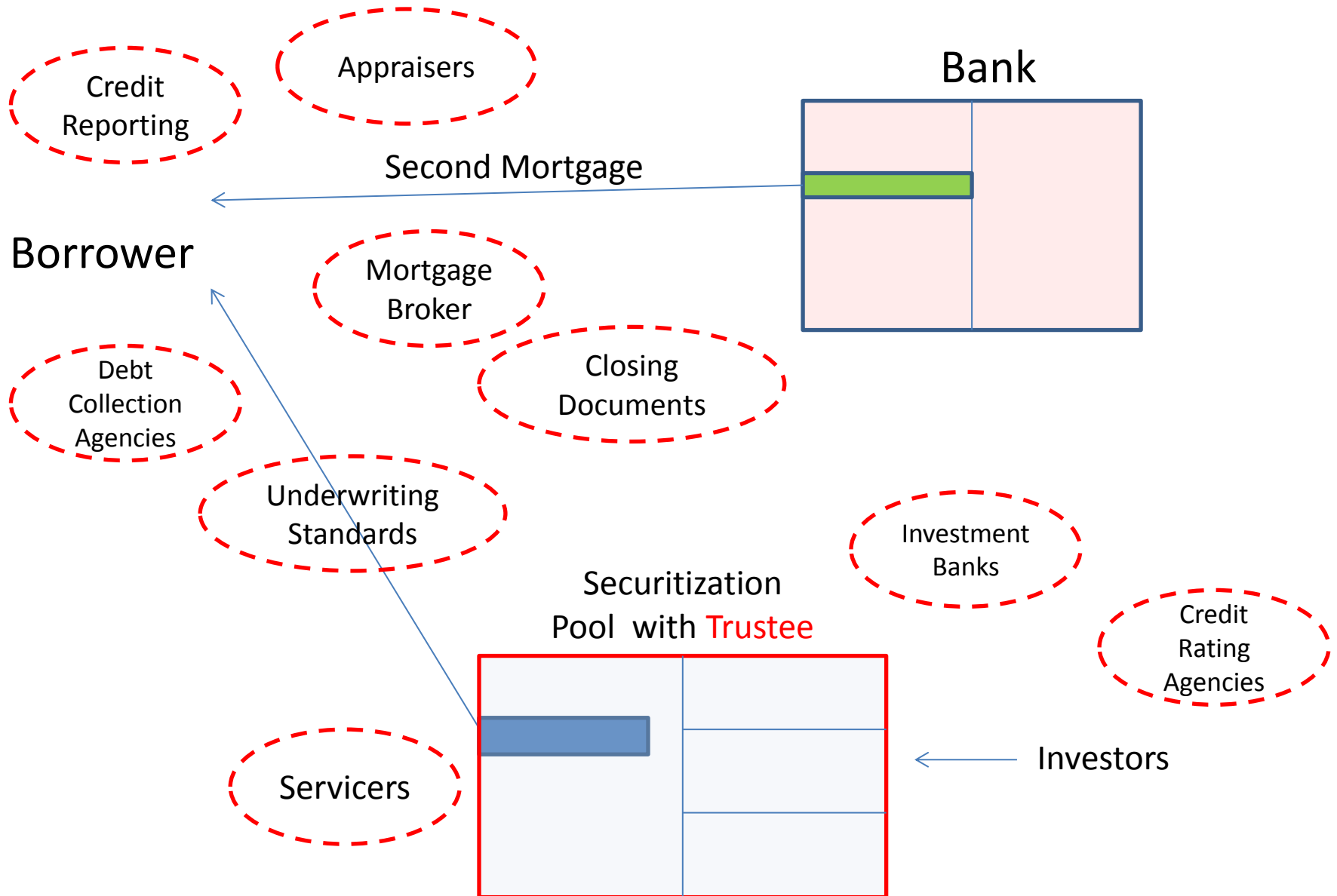
The Fragmentation of Modern Housing Finance



Reform Efforts in Financial Crisis and Beyond

- **Various TARP Programs** (incentives & standards)
- **Dodd-Frank Act Reforms of Originate to Distribute Model**
 - Skin-in-the-Game Requirements
 - Reform of Credit Rating Agencies
 - SEC Pool Disclosure Requirements
 - CFPB Regulations:
 - ATR/QM Rule; Mortgage Originator Compensation; Servicer Regulations; Appraisal Regulations;
 - Debt Collection & Consumer Credit Reporting

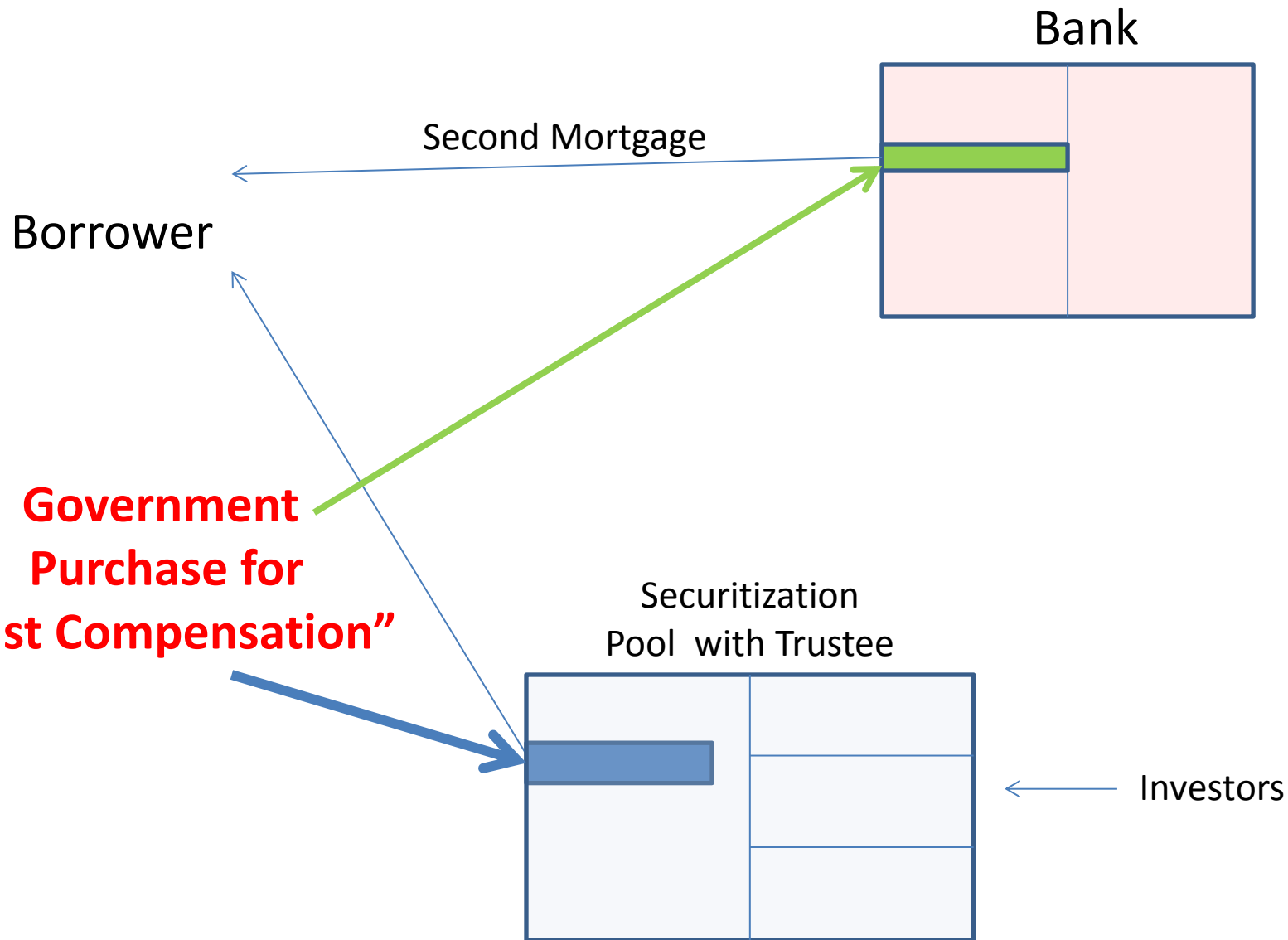
Combined Reforms Unlikely to Preclude Future Housing Bubbles & Market Adjustments (Bubb & Krishnamurthy 2015)



Reform Efforts in Financial Crisis and Beyond

- **Various TARP Programs** (incentives & standards)
- **Dodd-Frank Act Reforms of Originate to Distribute Model**
 - Skin-in-the-Game Requirements
 - Reform of Credit Rating Agencies
 - SEC Pool Disclosure Requirements
 - CFPB Regulations:
 - ATR/QM Rule; Mortgage Originator Compensation; Servicer Regulations; Appraisal Regulations;
 - Debt Collection & Consumer Credit Reporting
- **Eminent Domain Proposals**
 - Federal Level Proposals in Fall of 2008 (Jackson 2008)
 - Municipal/Private Sector Partnerships (Hockett/NYFRB 2013)

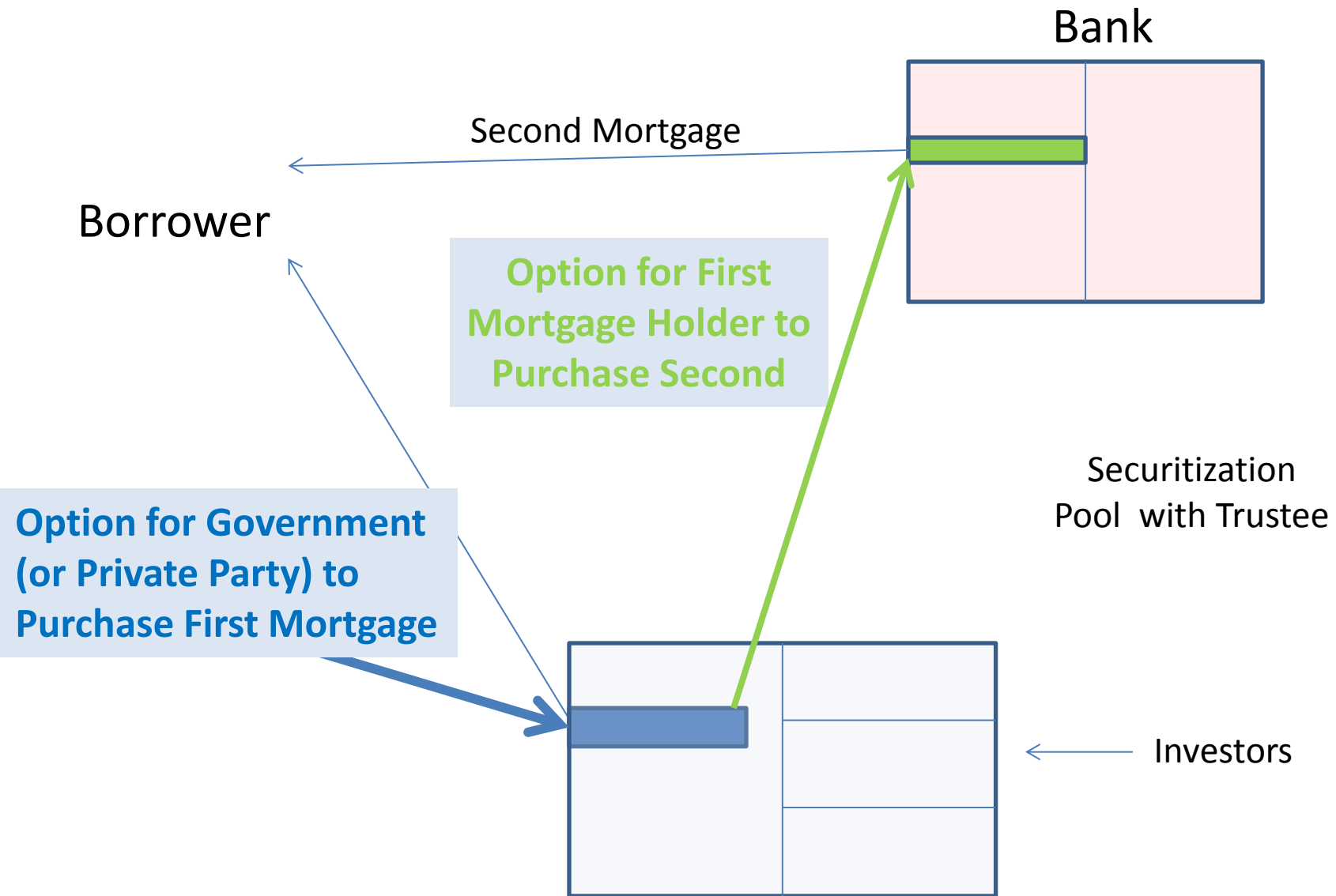
Proposed Use of Eminent Domain Powers



Basics of an Embedded Call Option

- **Create an *Ex Ante* Contractual Capacity to Consolidate Home Financing**
 - In a Party With A Good Incentives to Make Adjustments in Loan Terms,
 - During Defined Periods of Financial Stress,
 - At a Predetermined Price,
 - That Will Be Reflected in the Interest Rate Charged on the Affected Loan at the Time of Origination
- **Two Mechanisms for Propagation**
 - Voluntary Contractual Terms
 - Imposed as a Regulatory Requirement for Certain Classes of Loans Likely to Require Modification in a Significant Downturn in Housing Prices

Two Potential Applications



Further Design Points

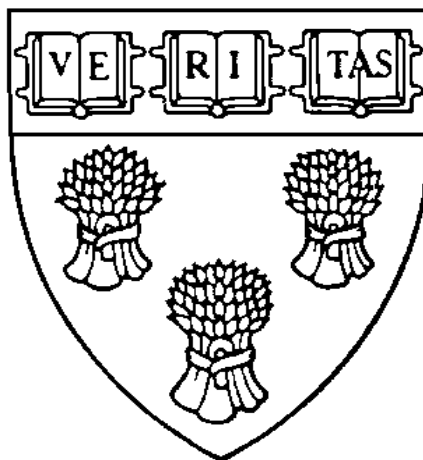
- Options will be designed to be deeply out of the money when created.
- Impact on mortgage pricing should be minimal, especially in periods of irrational exuberance.
- Existence of options can encourage loan modification in falling housing markets even if not exercised.
- This is a macro-prudential proposal, not an effort to protect consumers in ordinary times

Embedding Call Options in Mortgages

by

Professor Howell E. Jackson & Nicholas Kypriotakis

Harvard Law School



Mortgage Contract Design:

Implications for Households, Monetary Policy, and Financial Stability

The Federal Reserve Bank of New York

May 21, 2015