



*Turning mortgage data
into investment insight*

Capital Flows and Economic Risks in the Mortgage Market

Andrew Davidson



FRS/FDIC

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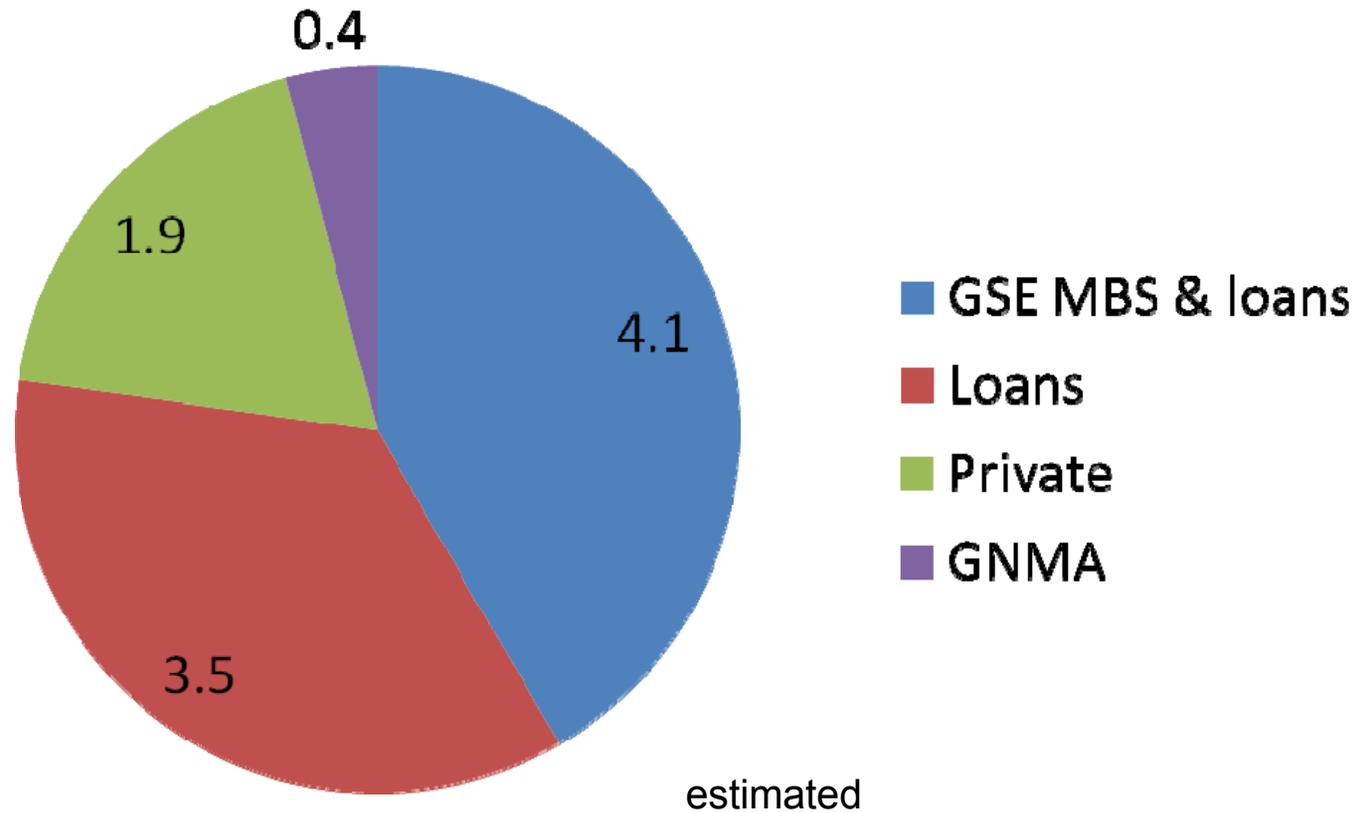
Discussion Topics

- ◆ Structure of the mortgage market
- ◆ Risks of mortgage investing
- ◆ Risk retention and mortgage fraud

The \$10 trillion dollar question

2006 Mortgage Market

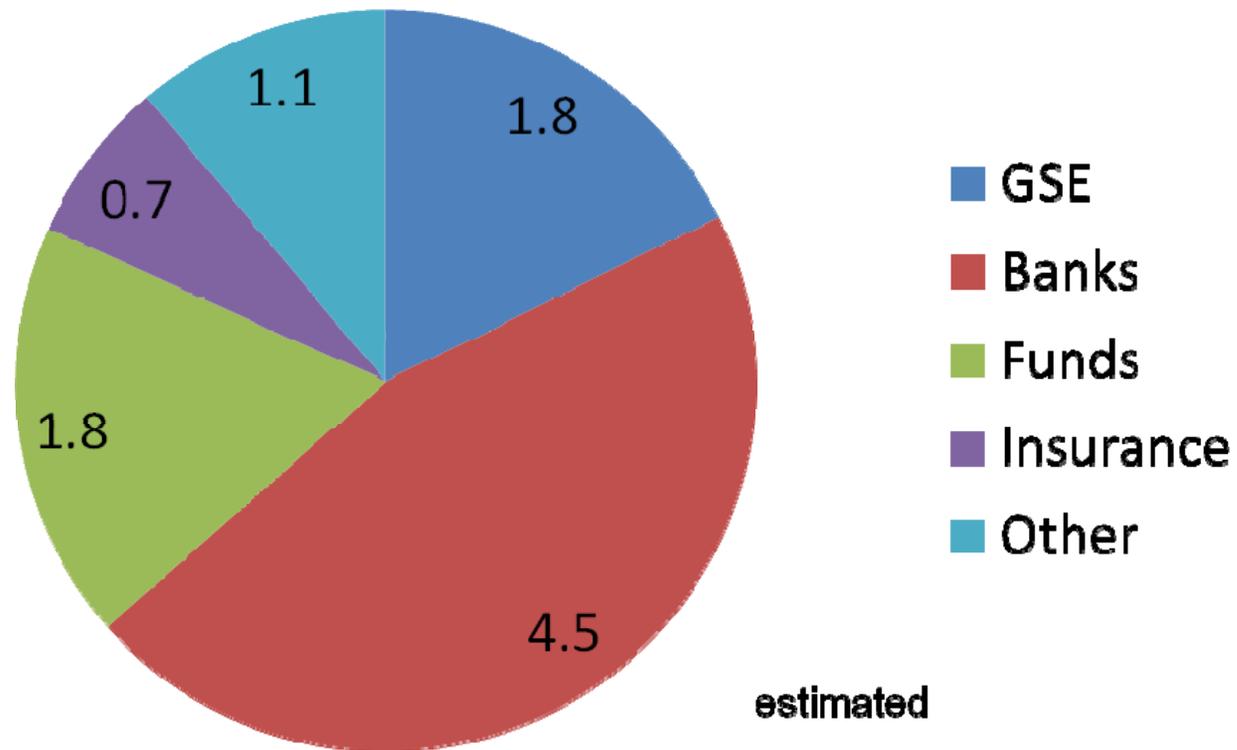
\$ trillions



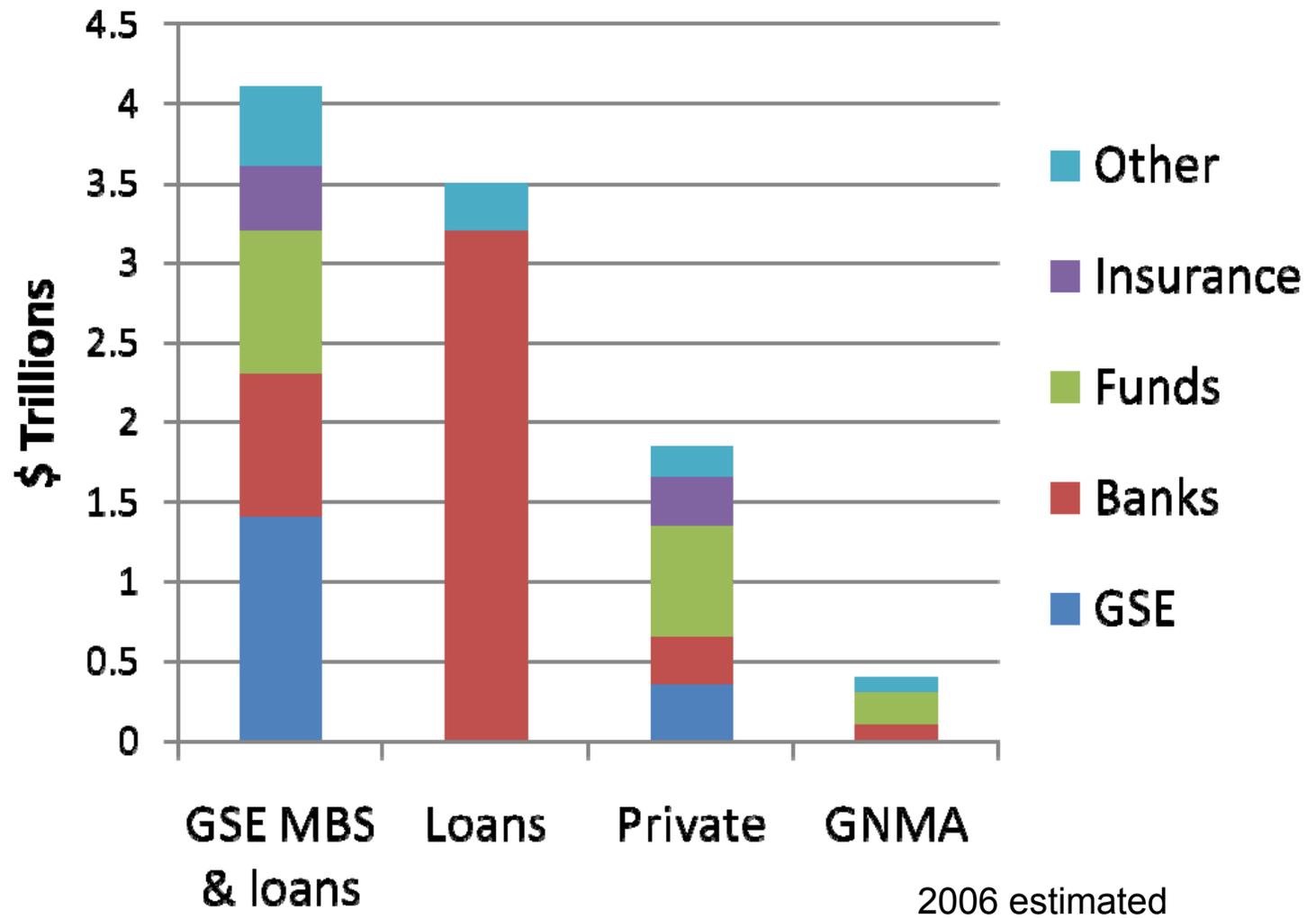
Who are the investors?

2006 Mortgage Investors

\$ trillions



A closer look at the channels



Risks of Mortgage Investing

- ◆ Funding/Liquidity
 - short term vs. long term
- ◆ Interest
 - duration & convexity
- ◆ Prepay
 - prepayment uncertainty (model risk)
- ◆ Credit
 - home price/employment
 - loan origination

Risks of Mortgage Investing

	Loans	Private MBS	GSE&Govt MBS	GSE debt
Funding	●	●	●	●
Interest	●	●	●	●
Prepay	●	●	●	
Credit				
Systematic	●	●		
Origination	●	R&W		
Liquidity	●	□		

Risks of Mortgage Investing

	Loans	Private MBS	GSE&Govt MBS	GSE debt
Funding	●	●	●	●
Interest	●	●	●	●
Prepay	●	●	●	
Credit				
Systematic	●	●		
Origination	●	R&W		
Liquidity	●	□		
Investors	Banks	Funds	Funds	Banks
		Insurance	Insurance	Foreign
Primary Product	Hybrid	Hybrid	Fixed	Fixed

Observations

- ◆ Securitization has been an important component of housing finance
 - Bank only solution is not sufficient
 - Securitization extends investor base to funds, insurance companies and others
- ◆ Flow of funds addresses funding; also need to consider risk and equity
 - Reducing federal government role means attracting equity as well as mortgage investors to the market
- ◆ GSEs have supported fixed rate mortgages
 - Implied guarantee was likely a crucial element
 - Some form of government guarantee probably needed to facilitate fixed rate mortgages

Risks of Mortgage Investing

	Loans	Private MBS	GSE&Govt MBS	GSE debt
Funding	●	●	●	●
Interest	●	●	●	●
Prepay	●	●	●	
Credit				
Systematic	●	●		
Origination	●	R&W		
Liquidity	●	□		

Rep & Warrant Simulation

- ◆ Firm produces varying amounts of “bad” loans.
- ◆ “Bad” loans are more profitable at origination
- ◆ Two economic scenarios
 - Positive scenario, no losses on bad loans
 - Negative scenario, greater losses on bad loans
- ◆ Analyze methods to address “asymmetric information” problem
 - Enforcement of Reps & Warrants
 - Risk retention through “Skin in the game”

Reps/Warrants vs. Skin in the Game

- ◆ Reps/Warrants provide cost effective protection against fraud if losses are likely

*losses in down
scenario*

		\$ amount of fraudulent loans				
	none	5	10	25	50	100
Rep/Warrant	0.00	-0.71	-1.36	-3.00	-5.00	-5.00
First Loss	-2.00	-2.86	-3.64	-5.00	-5.00	-5.00
Pro rata	-0.10	-0.14	-0.18	-0.28	-0.40	-0.55

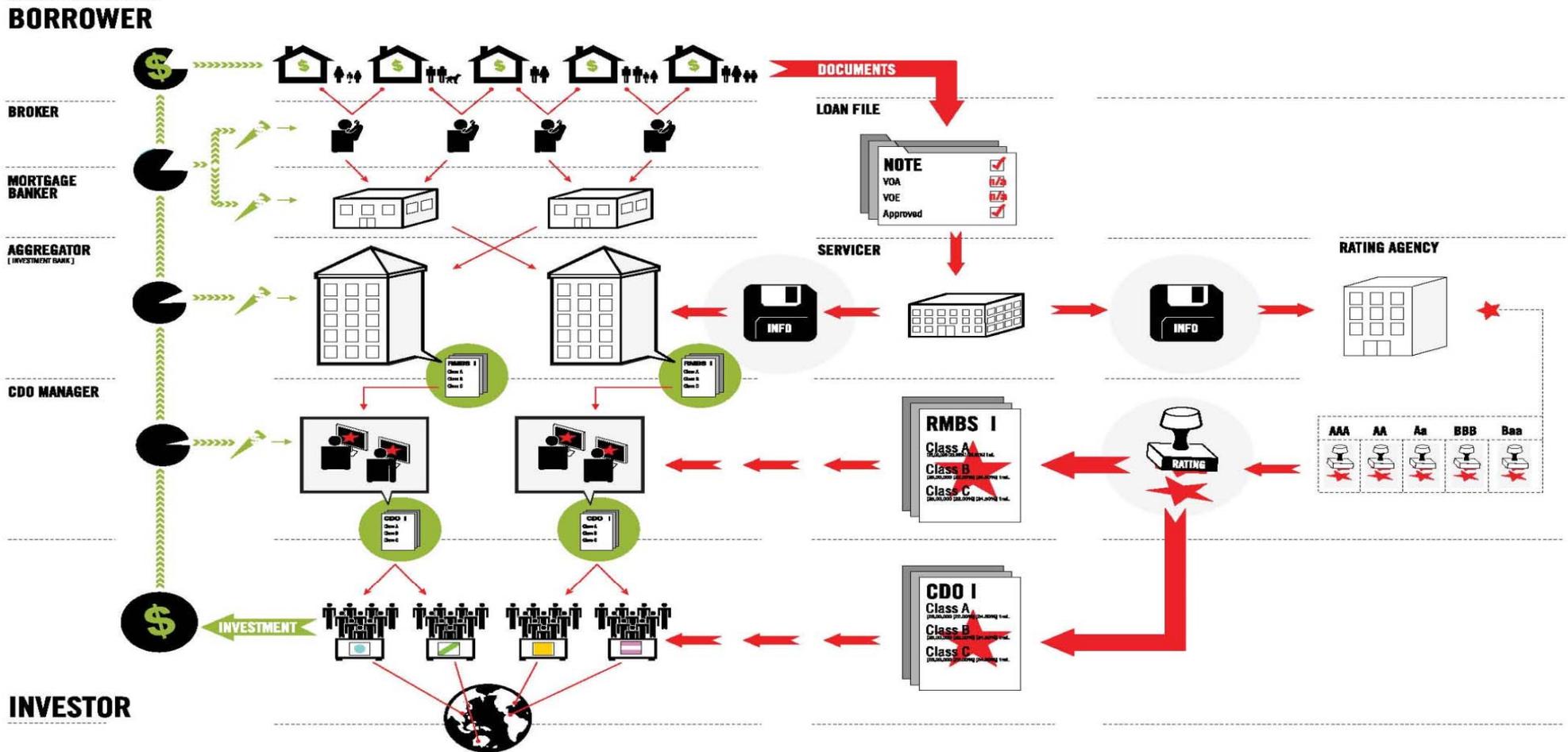
Reps & Warrants with penalty for violations

- ◆ Adding a penalty for violations of Reps and Warrants makes them more effective than repurchase obligation

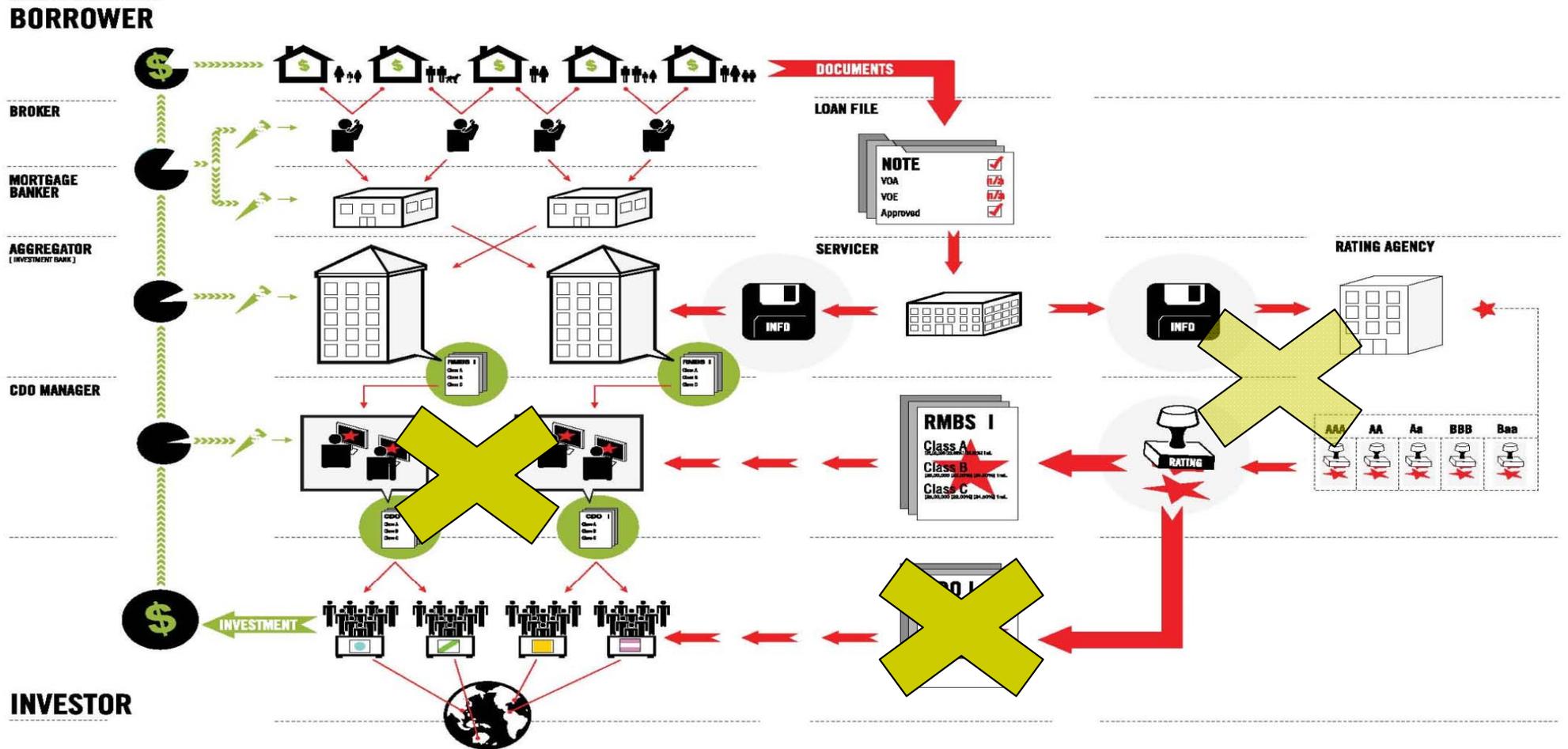
	\$ amount of fraudulent loans				
	0	5	10	50	100
No fine, 5% capital					
Seller profit	0.75	0.76	0.77	0.83	1.40
With fraud fine, 1% capital					
Seller profit	0.75	0.71	0.46	0.75	1.75

Assumes expected loss on fraudulent loans is lower than profit on origination of fraudulent loans. Penalty makes fraudulent loans unaffordable.

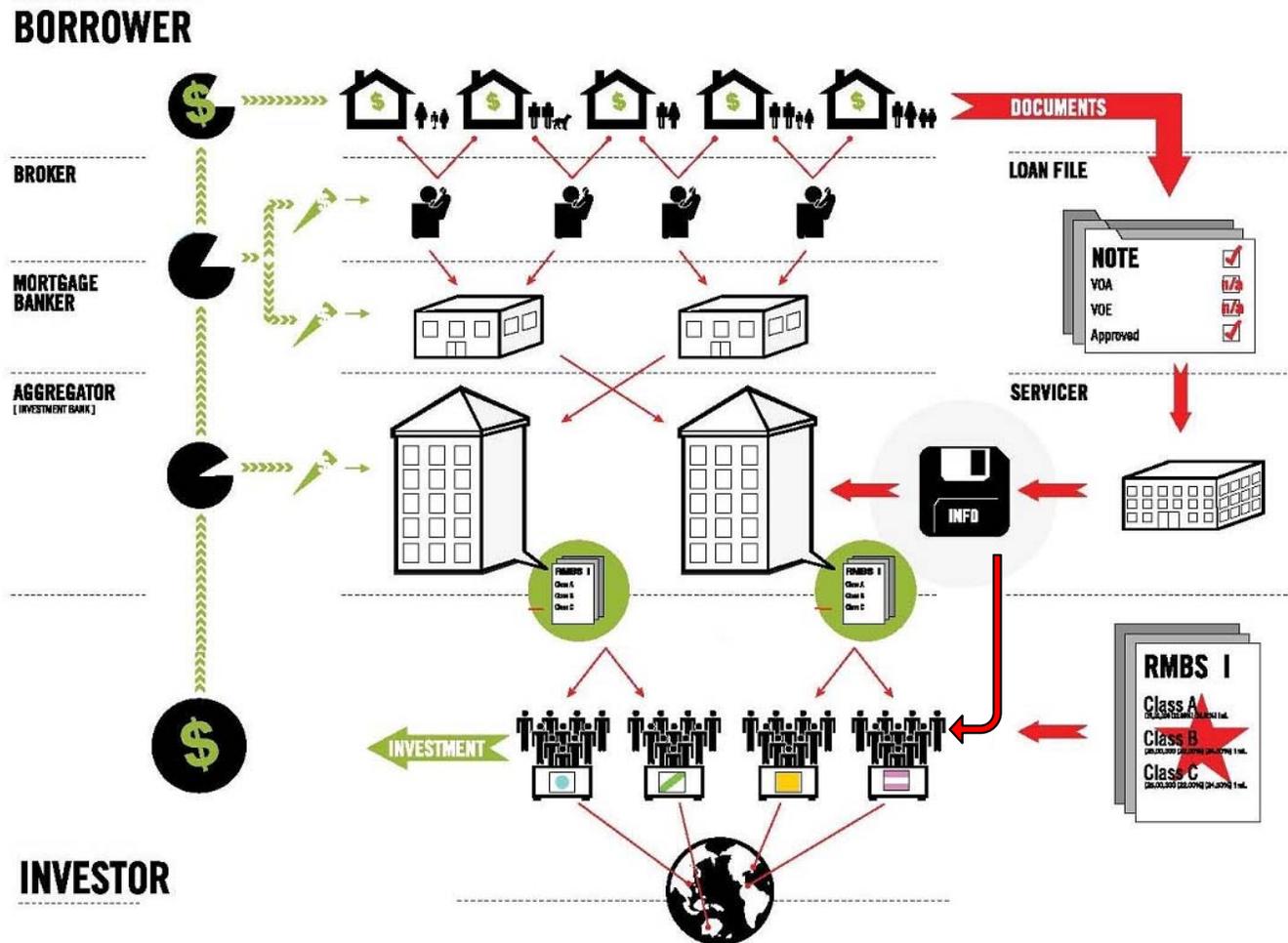
Six Degrees of Separation



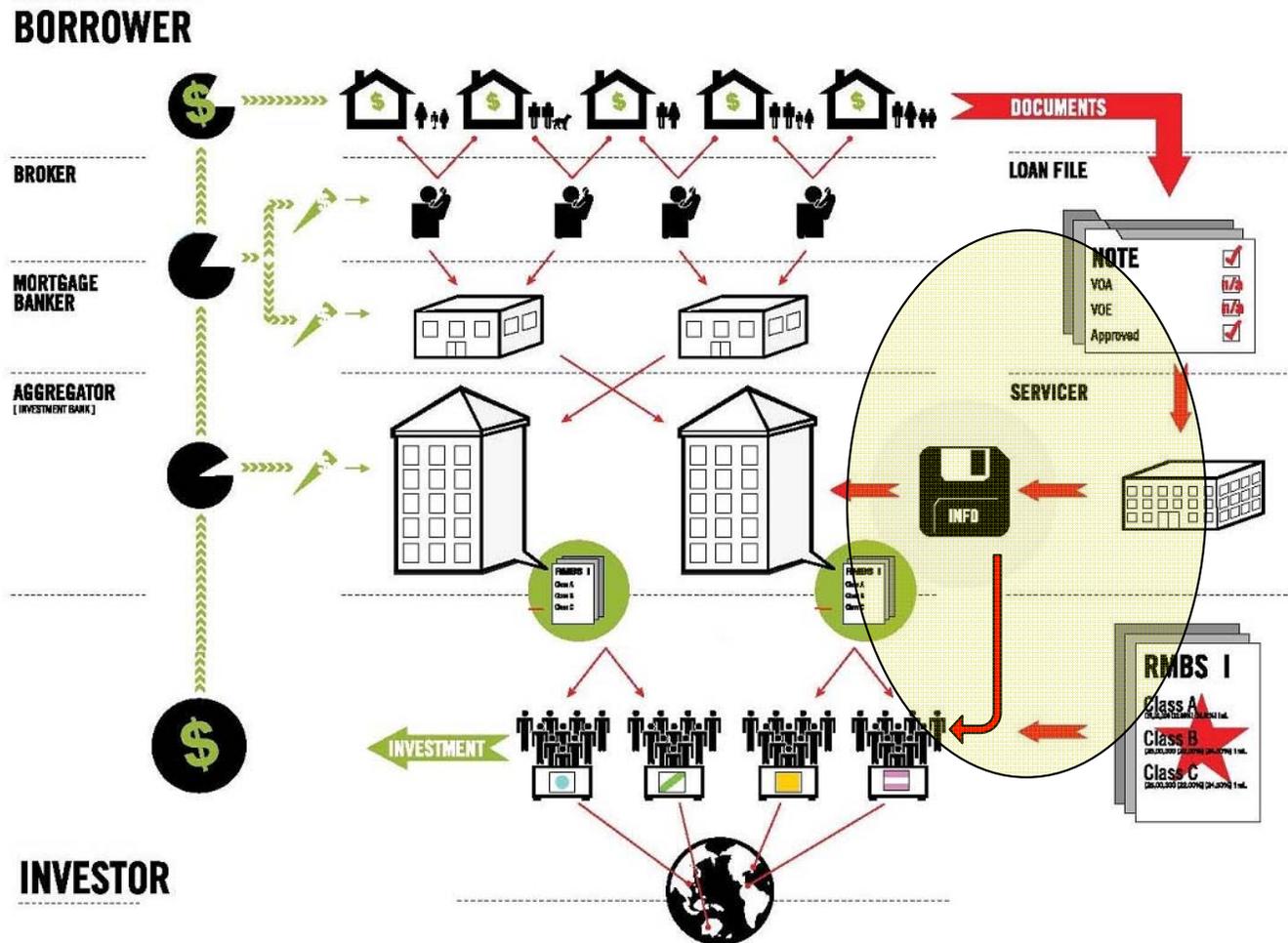
Six Degrees of Separation



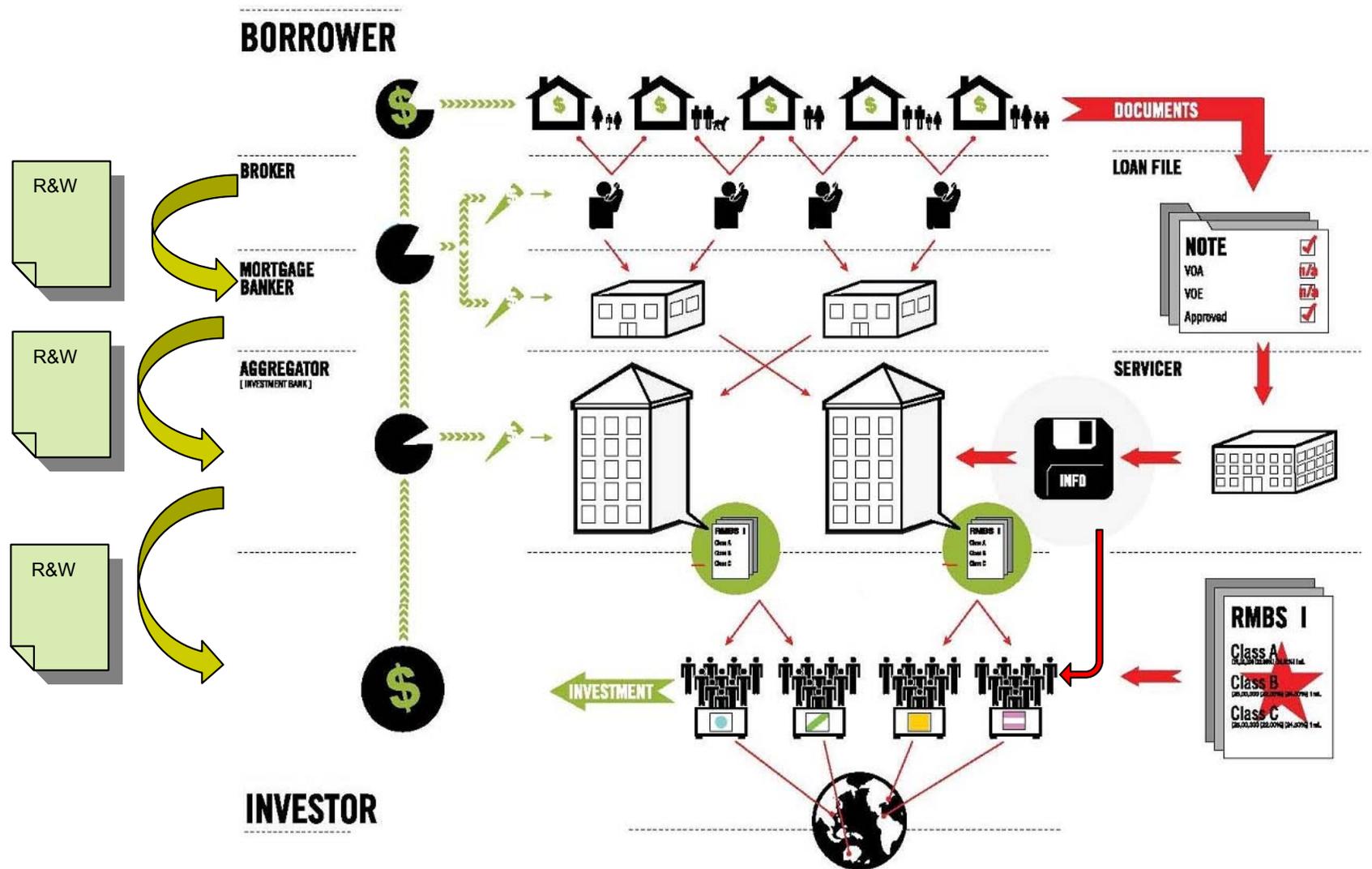
Four Degrees of Separation



Four Degrees of Separation



Reps and Warrants



Origination Certificate

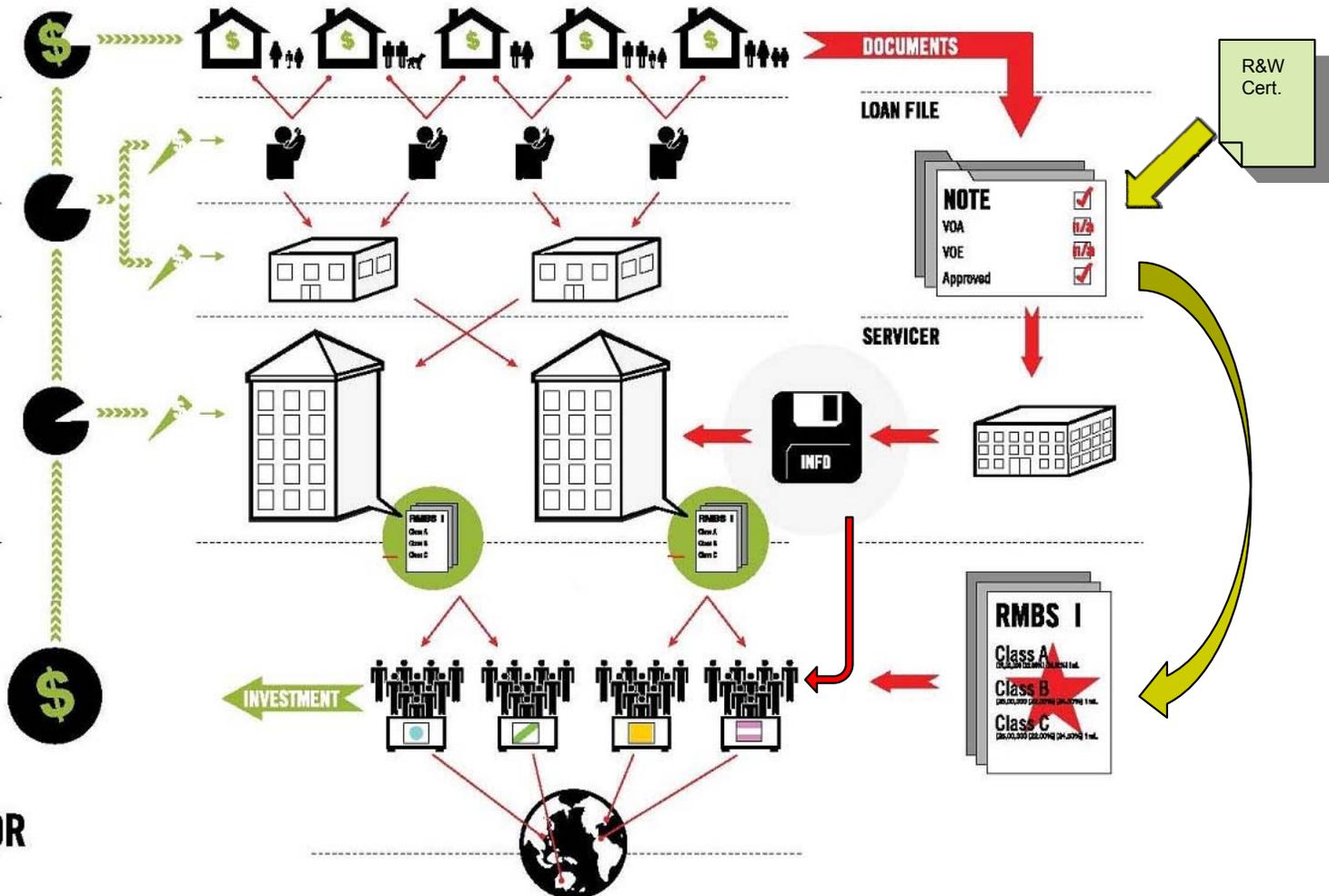
BORROWER

BROKER

MORTGAGE BANKER

**AGGREGATOR
(INVESTMENT BANK)**

INVESTOR



Origination Certificate

- ◆ **Obligation for Reps/Warrants by the loan originator**
- ◆ **Travels with Loan**
- ◆ **Penalty for violations during first year**
- ◆ **Tracking of violations in national database**
- ◆ **Responsibility and equity is where it can make the most difference in reducing fraud and increasing loan quality.**

Housing Finance Approach

- ◆ Revitalize Private Securitization
 - Establish disclosure requirements
 - Facilitate increased enforcement of Reps/Warrants
 - Reduce other costs/obstacles
- ◆ Create 1-4 regulated securitization cooperatives to facilitate fixed rate mortgages
 - explicit government guarantee on senior MBS for select products/limited loan size
 - Encourage cooperative to utilize re-insurance mechanisms
 - No retained portfolio
- ◆ Utilize FHA/GNMA for affordable housing initiatives.