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# **New Trends in U.S. Mortgage Origination and Possible Concerns**

National Association of Realtors Conference

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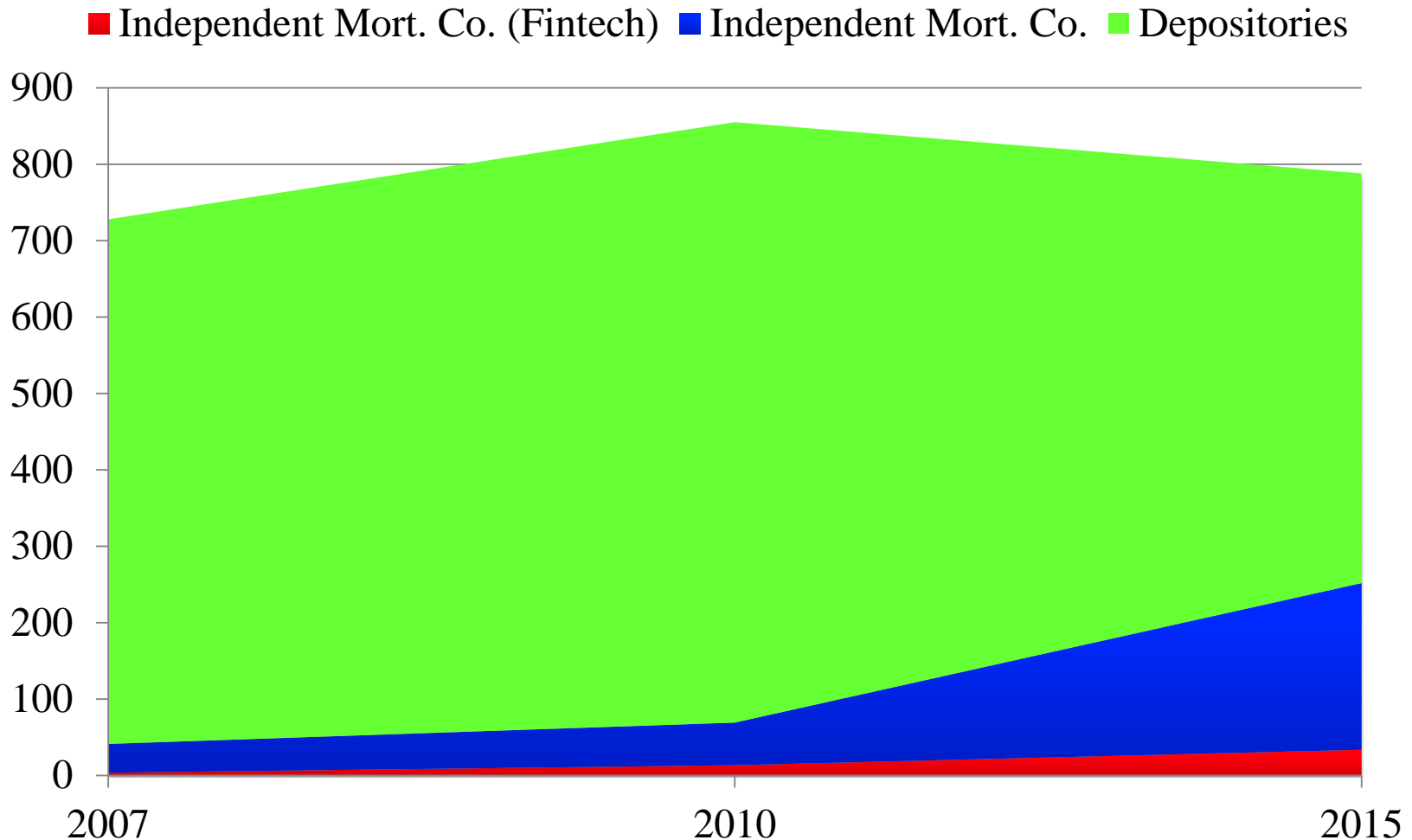
Haas School of Business

## Startling Fact

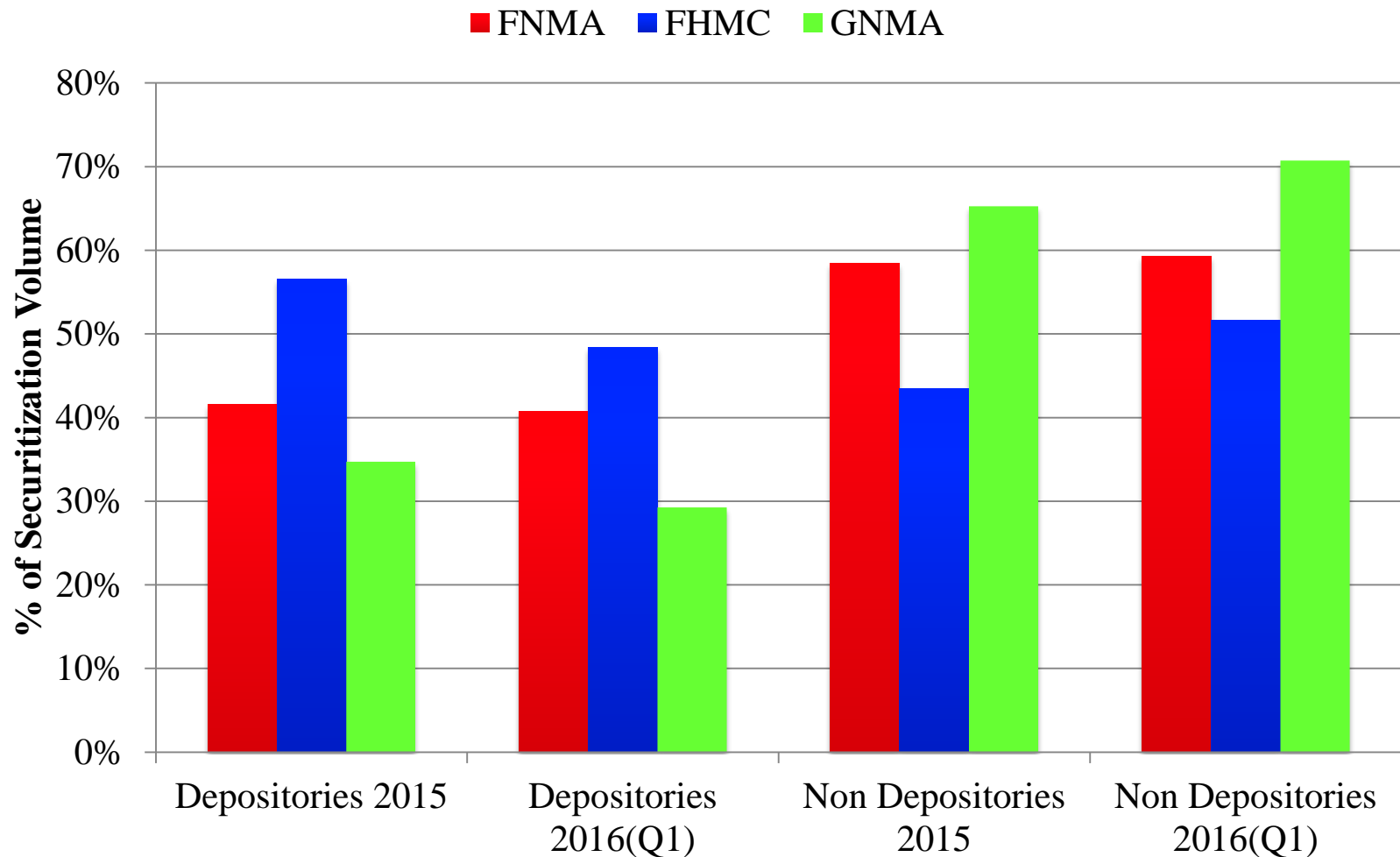
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- ◆ Majority of U.S. mortgages are now originated by non-depositories (not banks or credit unions).
- ◆ Independent mortgage companies market share has risen:
  - **14% → 38% ('07-15).**
- ◆ Independent mortgage companies relying on algorithmic underwriting (fintech) market share has risen:
  - **4% → 13% ('07-15).**

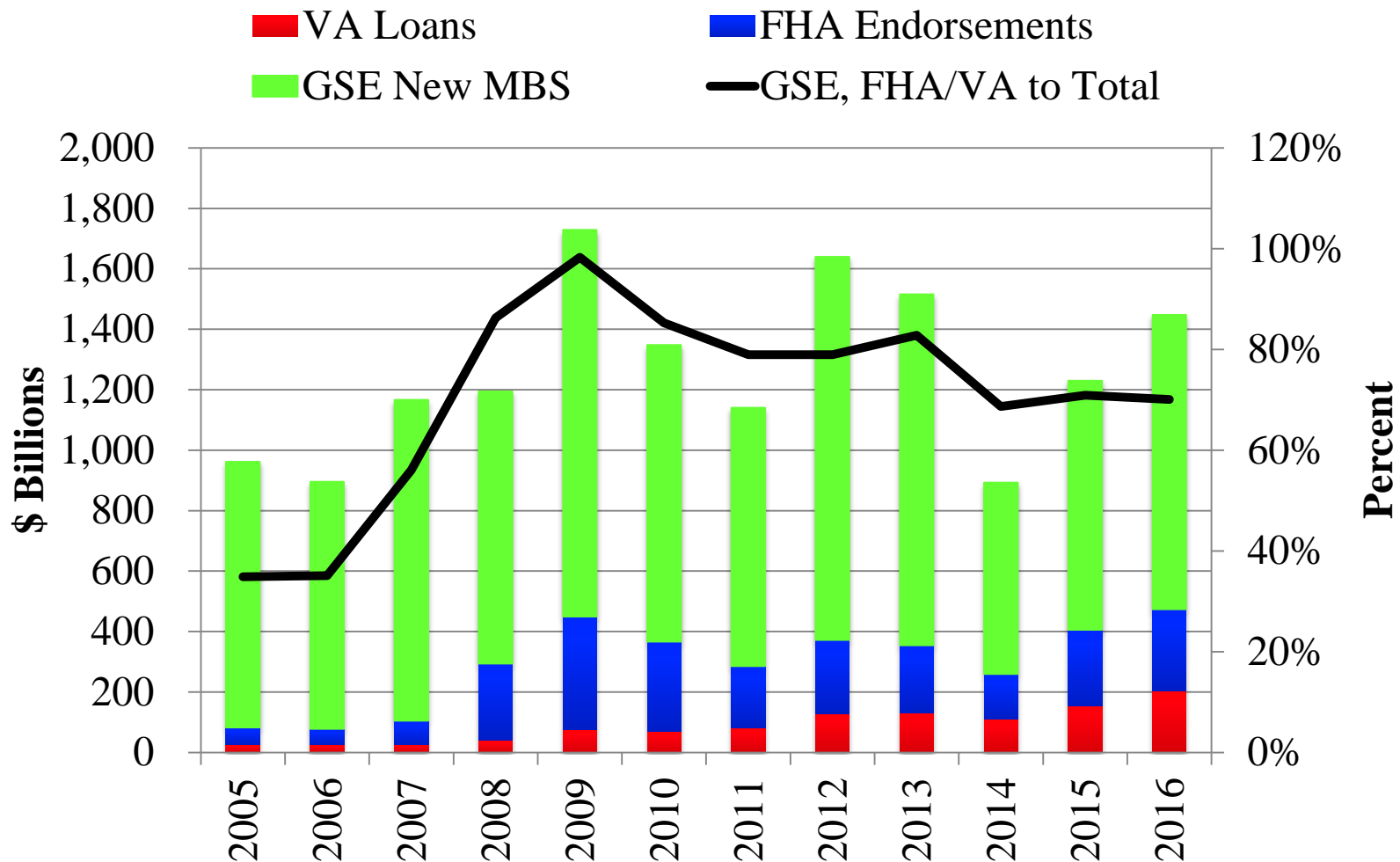
# Mortgage Origination Loan Amounts by Originator Type



# Importance of Non-Depository Origination for GSE and GNMA Securitization



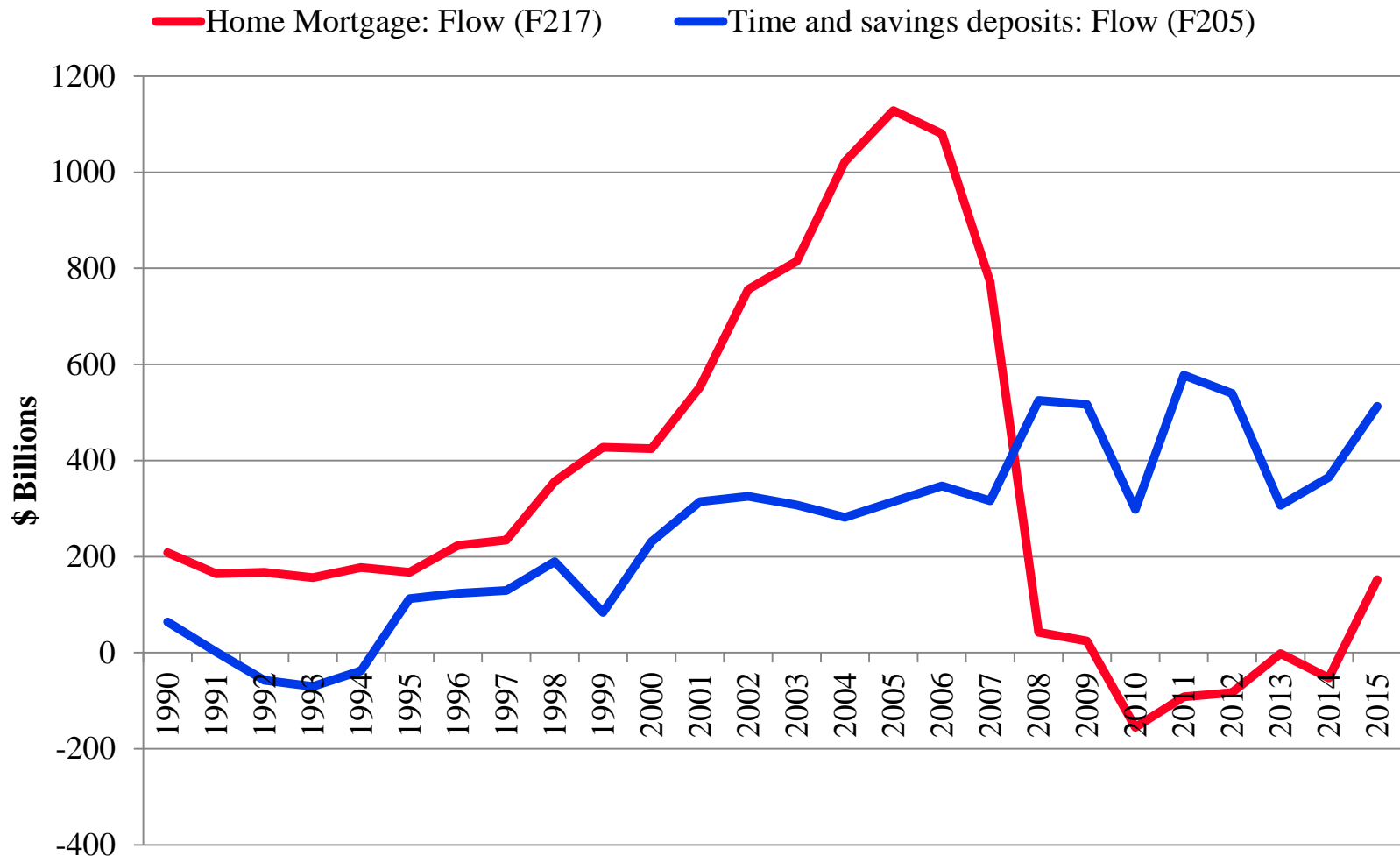
# GSE, FHA/VA Originations as Percent of Total U.S. Origination



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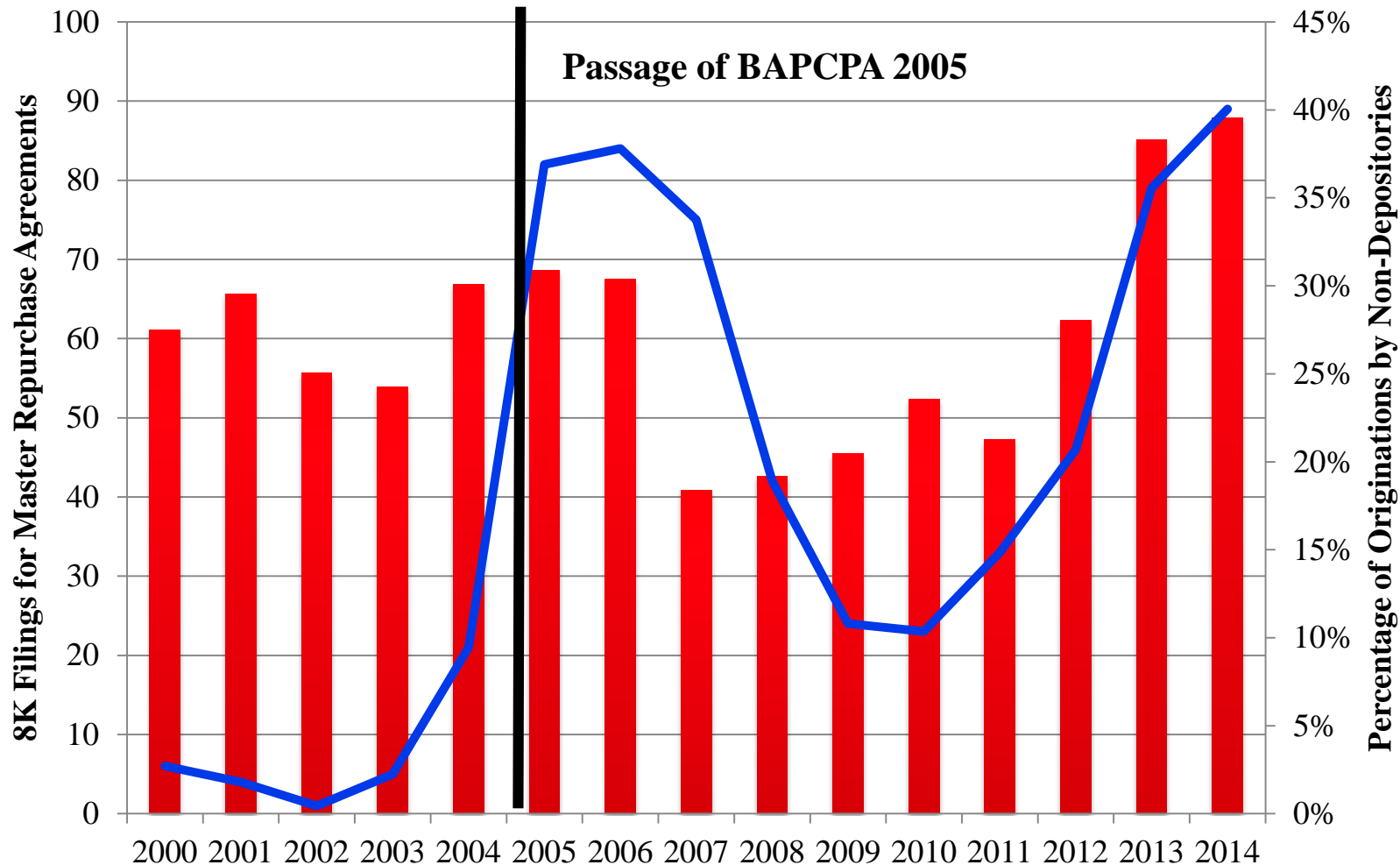
# **U.S. MORTGAGE ORIGINATION FUNDING STRUCTURES**

# Flow of Mortgage Origination is Not Highly Correlated with Deposit Flow



Source: Federal Reserve Flow of Funds

# 8-K Recorded MRA filings and Non-Depository Origination Share





# Pre-Crisis Outcomes for Top Forty U.S. Mortgage Originators in 2006

<b>Firm Type</b>	<b>Originations as % of Total</b>	<b>% of Firm Originations with MRAs</b>	<b>% of Firm Failures<sup>1</sup></b>
Commercial banks	38.0%	0.0%	0.0%
Federal Savings Banks	1.9%	60.6%	66.7%
Savings and Loans	29.0%	64.8%	100.0%
Affiliated Mortgage Companies	12.7%	100.0%	89.0%
Independent Mortgage Companies	3.5%	84.0%	66.7%
Real Estate Investment Trusts	10.7%	100.0%	100.0%

1. Supervisory closure, Chapter 11 closure, distressed closure.

# Systemic Risks

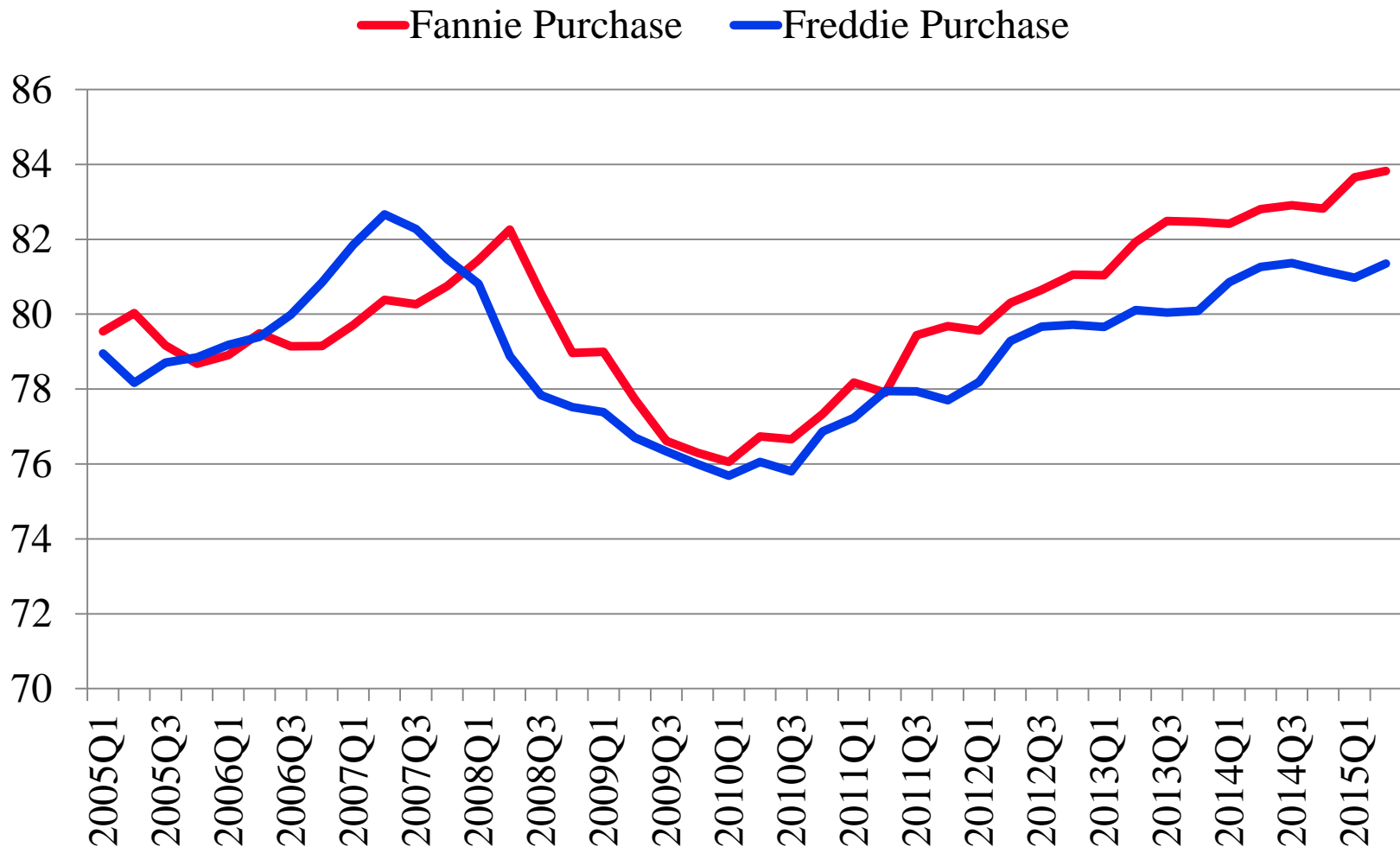
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- **Repo buyer runs** – rapid loss of mortgage origination capacity, mortgage fire sales.
- **Unfunded rep and warranty guarantees** – risks to GNMA/GSEs.
- **Un-priced liquidity provided by GNMA/GSEs** – repo is a bet on securitization speeds.

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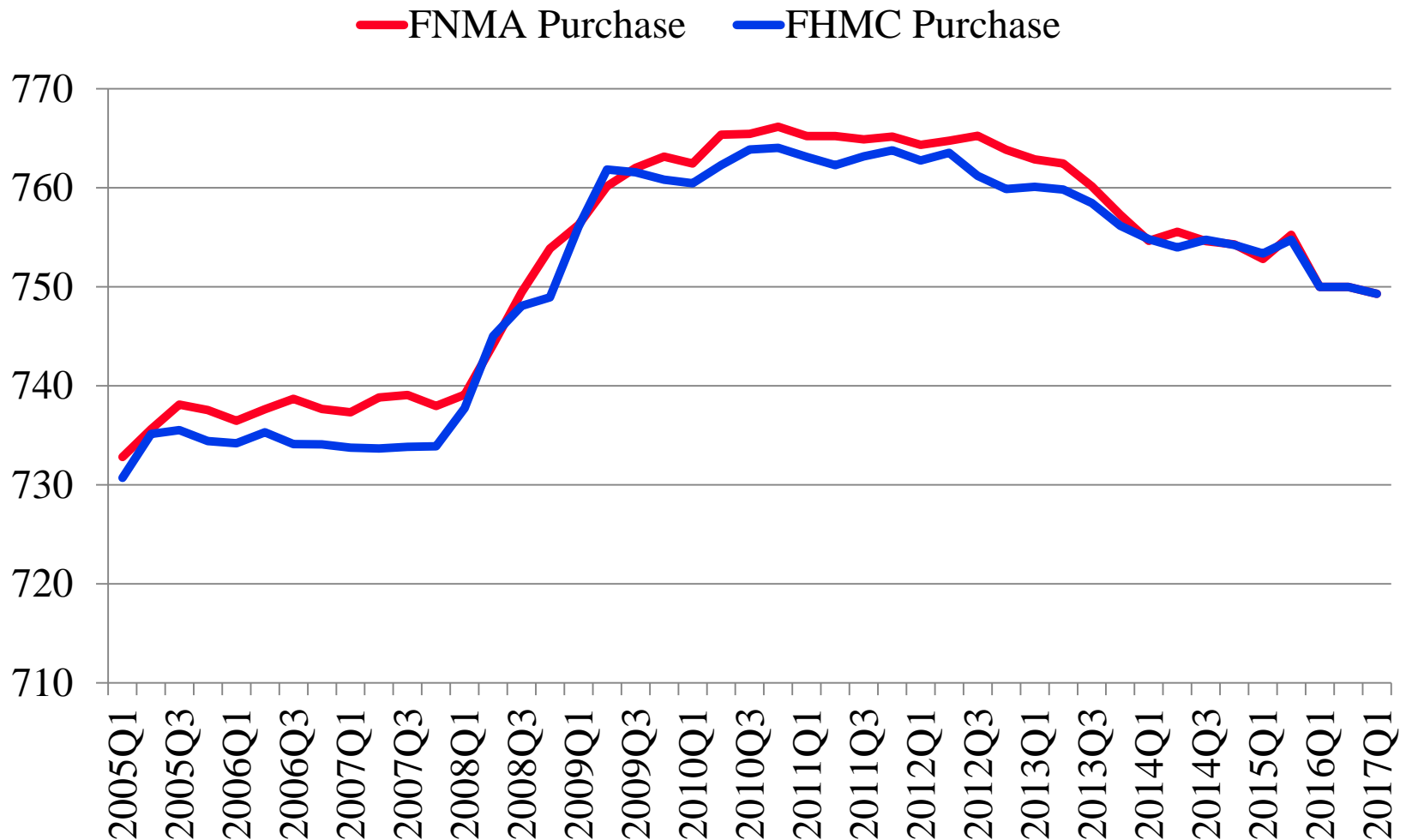
# **POST CRISIS TRENDS IN MORTGAGE UNDERWRITING: EXTREMELY TIGHT CREDIT BOX**

# GSE Underwriting Characteristics: LTV



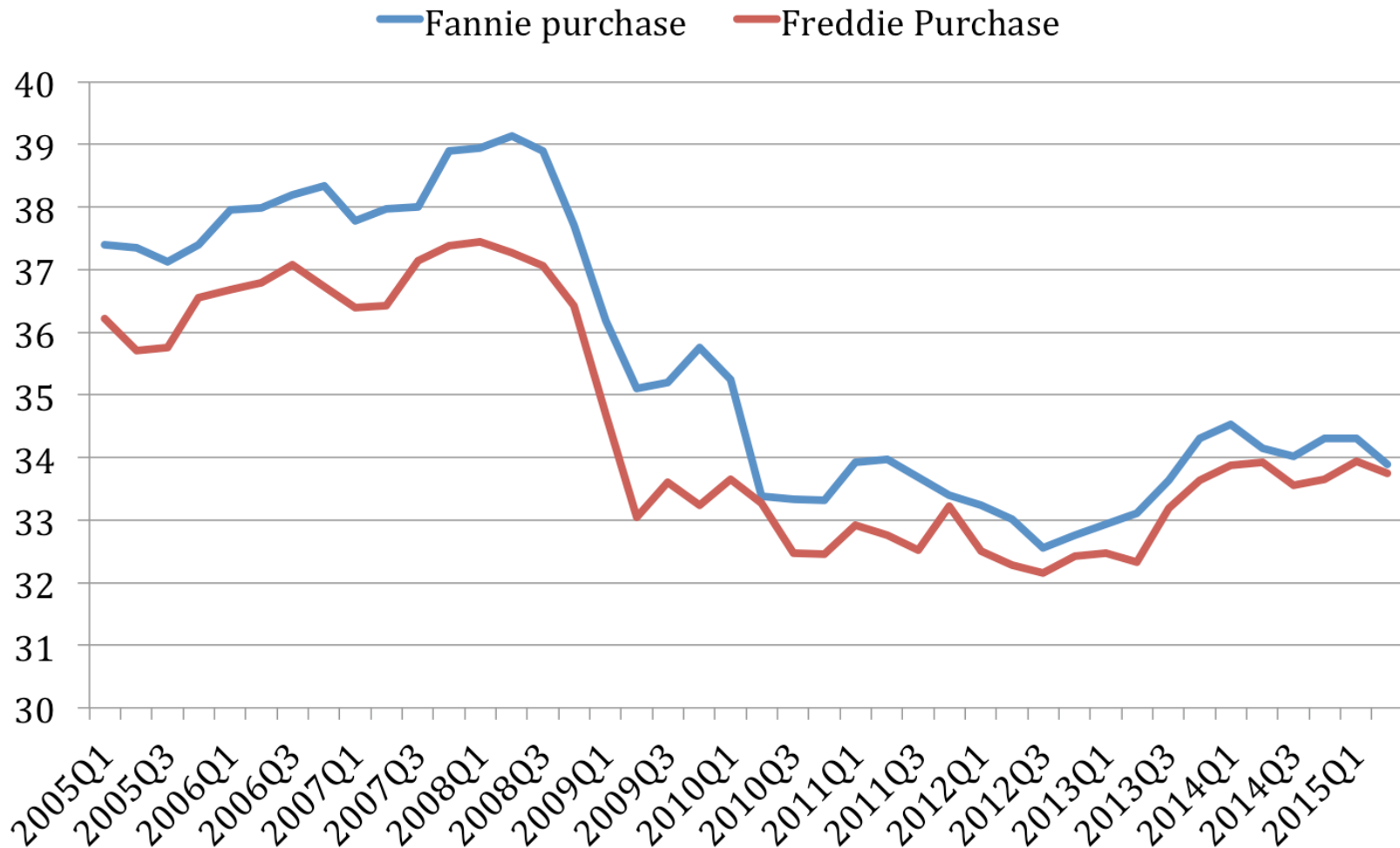
Source: Inside Mortgage Finance

# GSE Underwriting Characteristics: FICO

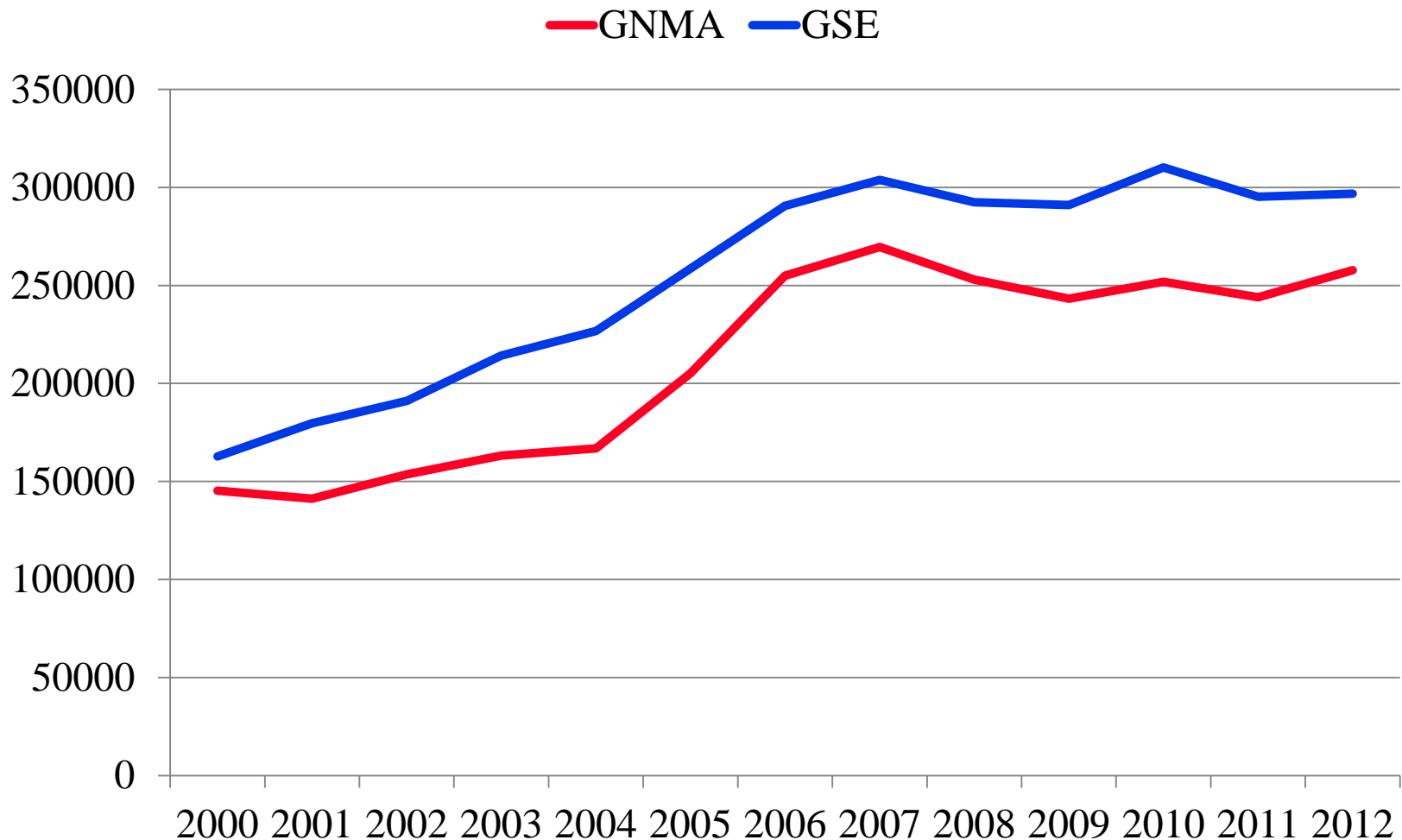


Source: Inside Mortgage Finance

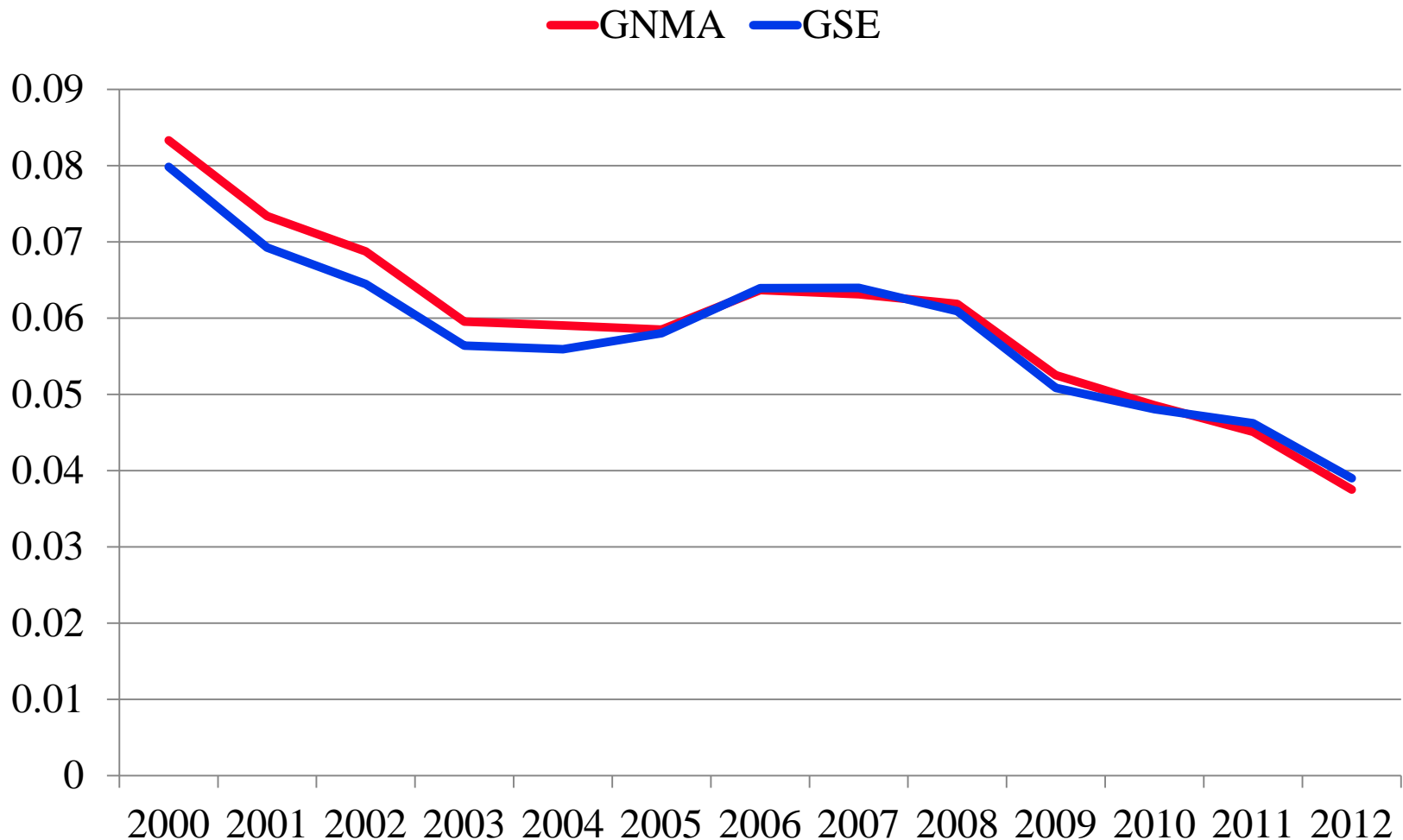
# GSE Underwriting Characteristics: DTI



# GNMA and GSE Average Loan Amount

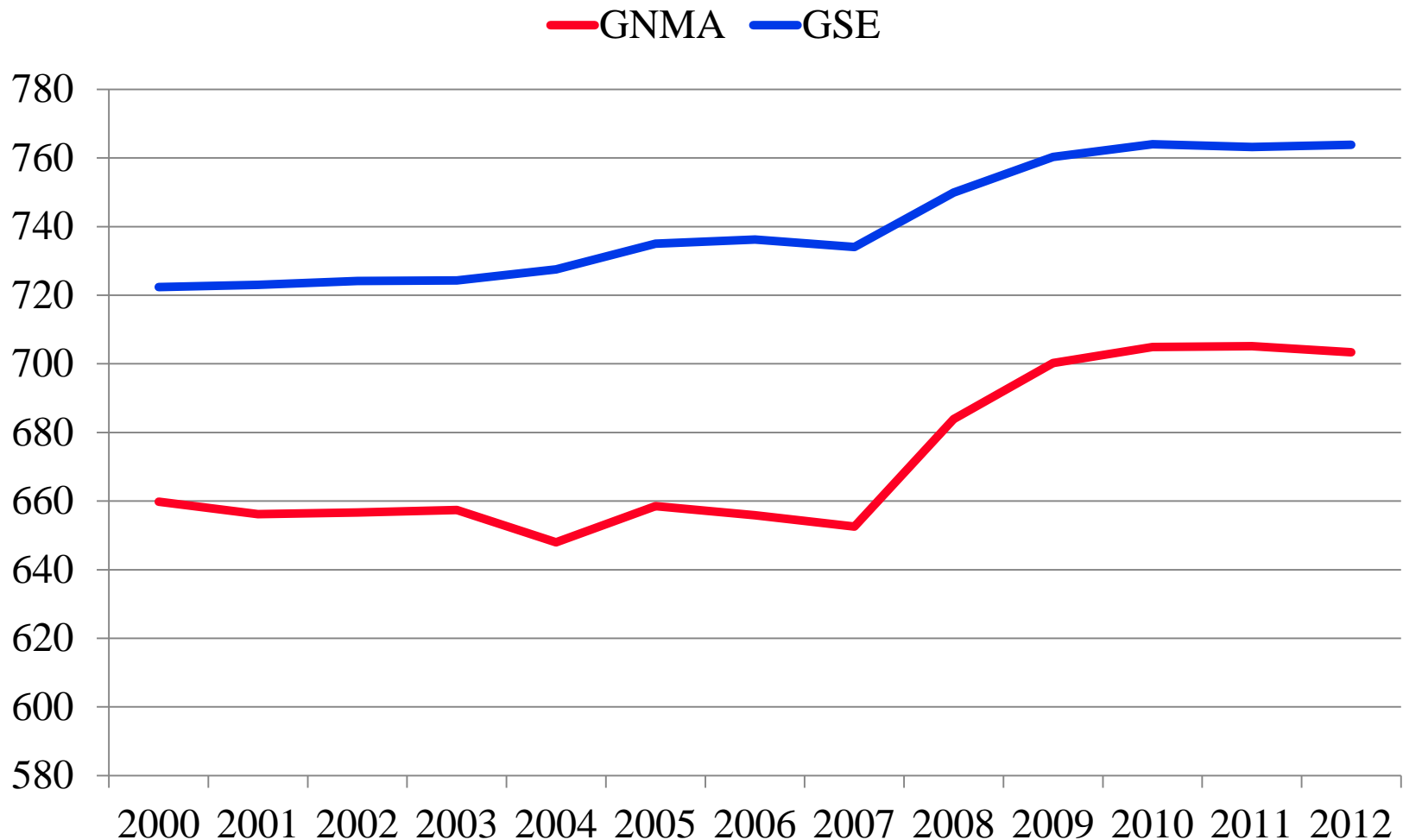


# GSE and GNMA Origination Coupons





# GNMA and GSE Credit Scores



Source: Dataquick, McDash

# Summary on Underwriting Standards

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- ◆ Mortgage lending standards are tight by historical standards.
- ◆ FICO scores of 750 (based on 2009 census) correspond to an income of greater than \$120,000.
  - » Median annual income of U.S. homeowners is about \$60,000.
  - » Recent study (Elwell, 2014) finds in 2012 that a reasonable definition of the middle class is as annual income greater than \$39,736 and less than \$104,087.
  - » Credit overlays (Loan Level Price Adjustments – LLPAs) of the GSEs are too stringent.

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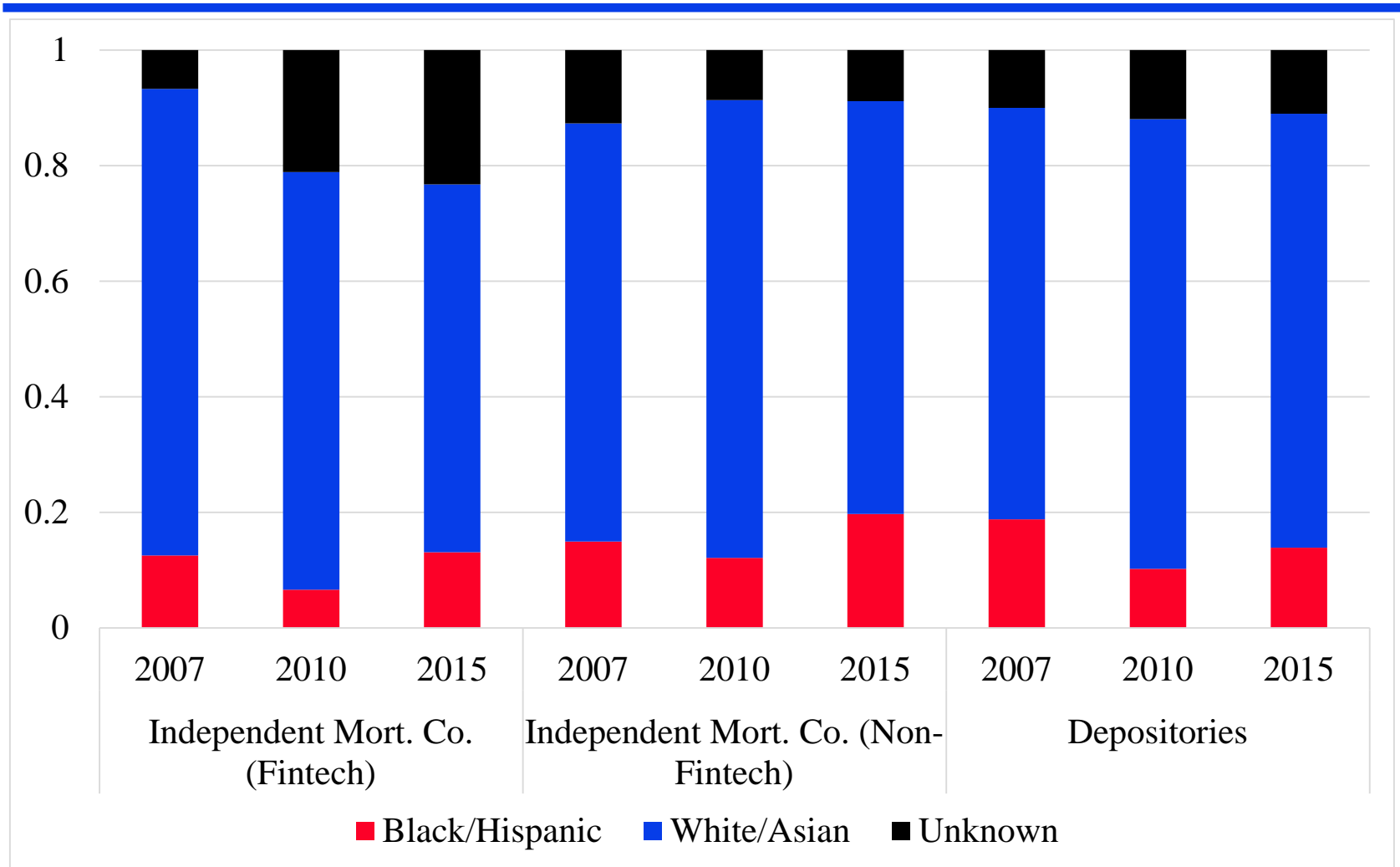
# **EFFECT OF ALGORITHMIC UNDERWRITING ON THE AVAILABILITY OF MORTGAGE CREDIT**

## Lending Club Disclosed Risk

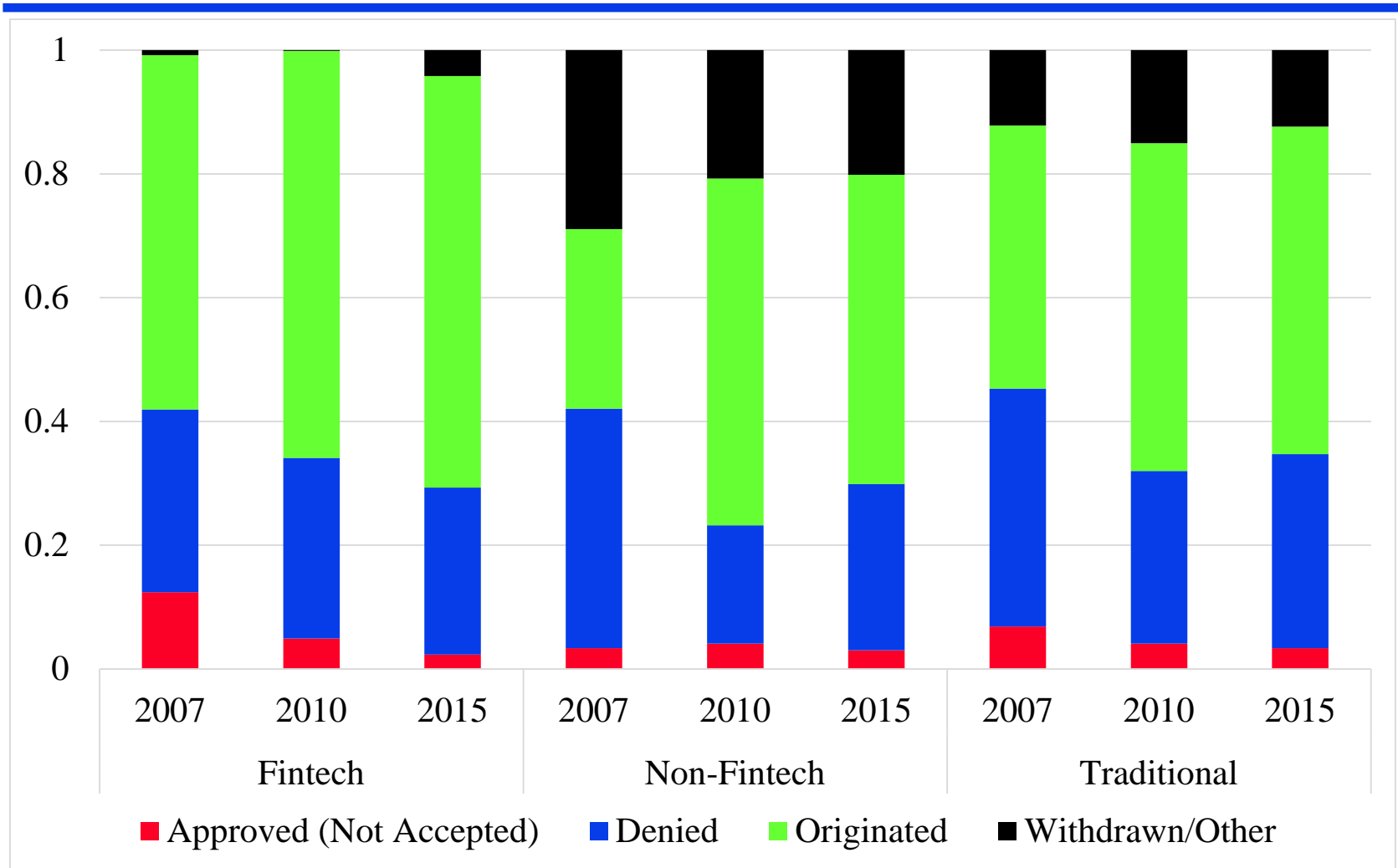
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- ◆ “The Lending Club platform is a novel approach to borrowing that **may fail to comply with borrower protection laws** such as state usury laws, other interest rate limitation or federal and state consumer protection laws such as the Truth in Lending Act, the Equal Credit Opportunity Act, the Fair Credit Reporting Act and the Fair Debt Collection Practices Act and their state counterparts...”

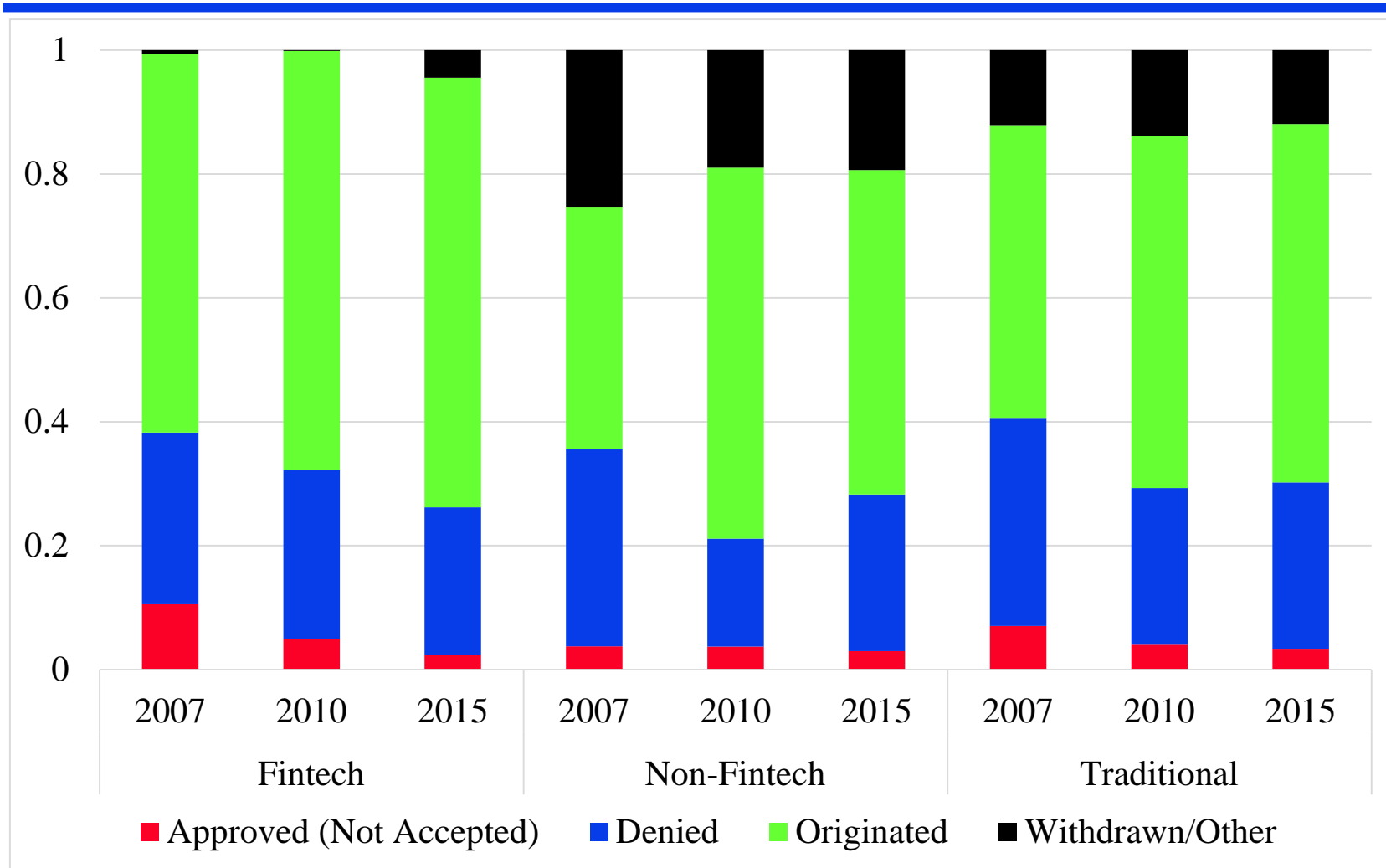
# Racial Distribution of Originated Loans by Lender Type and Year



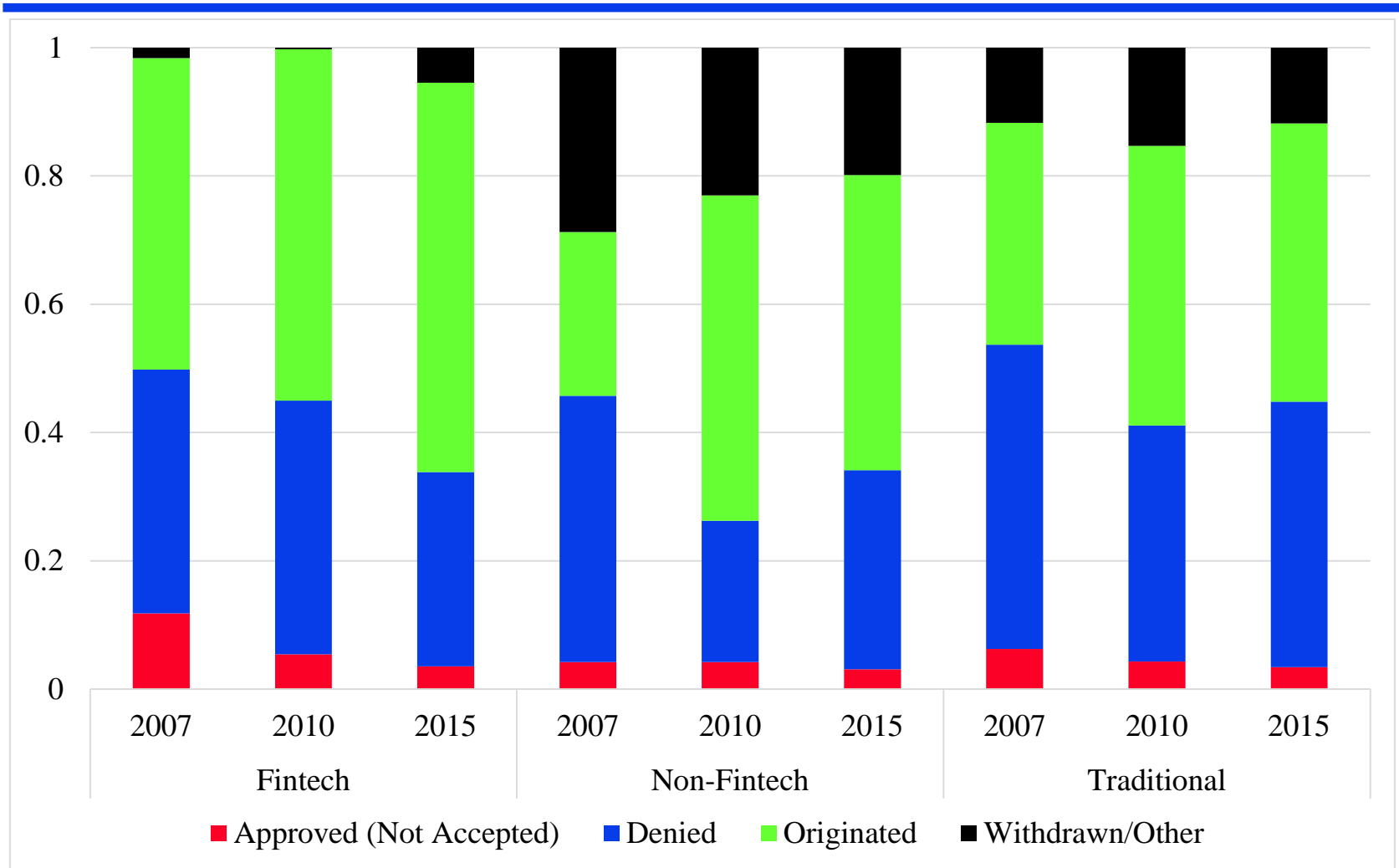
# Mortgage Application Decision for Below Median Income (Within County) Applicants



# Mortgage Application Decision for Below Median Income White/Asian (Within County) Applicants



# Application Decision for **Below Median Income Black/Hispanic (Within County)** Applicants





# Innovations in Algorithmic Underwriting

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- ◆ Consumer protection must be at the forefront of innovations in underwriting technology.
- ◆ Streamlining consumer facing underwriting technology using algorithms, novel credit scrapping technologies, and “big data” analytics:
  - » Promise of **significant benefits for consumers**,
  - » Potential for **significant risks** – opaque nature of big data, nature of algorithmic objective functions, potential for “cyber redlining.”

# Conclusion

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- ◆ Pervasive reliance on repo funding for mortgage origination poses potentially significant risks.
  - » Loss of access to credit markets in rising interest rate environment -- runs.
  - » Counter party risk to GSEs and GNMA from poorly capitalized originators.
  - » Vulnerability of servicing positions.
- ◆ Credit box remains tight despite growth in 97% programs at GSEs.
  - » Improvements due to GSE 2013 sunset restrictions on putback liability.
  - » Remains risk of False Claims Act (treble damages) liabilities.
  - » Especially a problem for the middle class, minorities, ...
- ◆ Need for careful evaluation of algorithmic underwriting and the rise of the “8 minute mortgage.”