Reengineering the Appraisal Process

April 8, 2015

An economist is an expert who will know tomorrow why the things he predicted yesterday, didn't happen.

-- Earl Wilson

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Agenda

- What's collateral risk and why is it difficult to determine?

- The current appraisal process:
  - Some things are done well.
  - Others need to be reengineered.

- Appraisals – A Deeper Dive.

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What is Collateral Risk?

What is the value today?

What will value be tomorrow?

Is the valuation acceptable to investors?

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Why is Collateral Risk Difficult to Determine?

- Properties are illiquid, unique assets and both buyers and sellers often make emotional decisions.

- Property values may depend on assumptions – "as is" vs. "as repaired"; "quick sale" vs. "standard sale."

- Property values exist in a range, not as a spot value. Many factors impact the breadth of the value range:
  - Uniqueness of Property
  - Condition of Property
  - Homogeneity of Neighborhood Properties
  - Price Range

- Property values also change over time, with some properties more sensitive to regional price changes than others

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Four Critical Functions

The current appraisal process performs four important functions. An appraisal:

➢ Produces an estimate of value, and it is this function that receives most of the attention.

➢ Speaks to the marketability and condition of the subject property, in particular, how does the property being appraised compare to other properties in the immediate area.

➢ Helps to protect against fraud, via the introduction of another independent agent.

➢ Helps protect the lender against repurchase risk provided the appraisal was performed by a license or certified appraiser and that it conformed to existing rules.

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Appraisals: A Deeper Look

An Experiment

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Anchoring

Group 1: "Chesterfield MO is a nice suburb
of St. Louis."

Group 2: "Chesterfield MO is a nice suburb
of St. Louis. Do you think the median
sale price in Chesterfield is more or
less than $900,000?"

Group's 2 estimate will be ~ 40% higher!

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Anchoring (continued)

-- Behavioral Economics

-- Experiment with Realtors

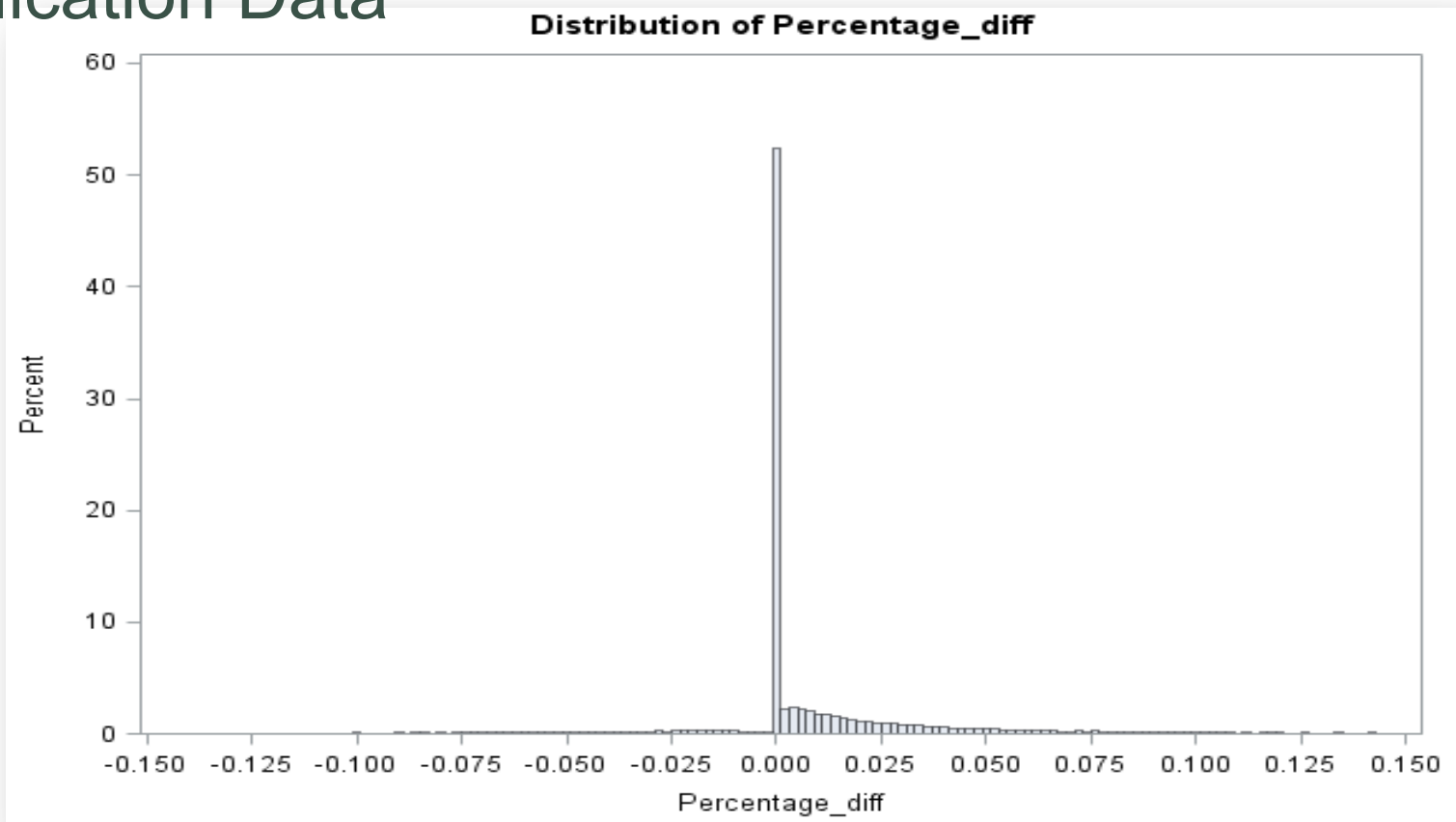CoreLogic®

Regulatory Guidance

- OCC Guidance – (OCC-2010-0012)

  - Intended to "provide for the independence of the persons ordering, performing, and reviewing appraisals or evaluations."

  - "An institution's policies and procedures should ensure that it avoids inappropriate actions that would compromise the independence of the collateral valuation function…"

  - "An institution may exchange information with appraisers and persons who perform evaluations, which may include providing a copy of the sales contract."

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Regulatory Guidance

- USPAP Rules*:

  - When the value opinion to be developed is market value, an appraiser must, if such information is available to the appraiser in the normal course of business:

    (a) analyze all agreements of sale, options, and listings of the subject property current as of the effective date of the appraisal; and

    (b) analyze all sales of the subject property that occurred within three (3) years prior to the effective date of the appraisal.

  Source: Uniform Standards of Professional Appraisal Practices , 2010-2011 Edition.

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Weird Density of Estimates of Value – Loan Application Data

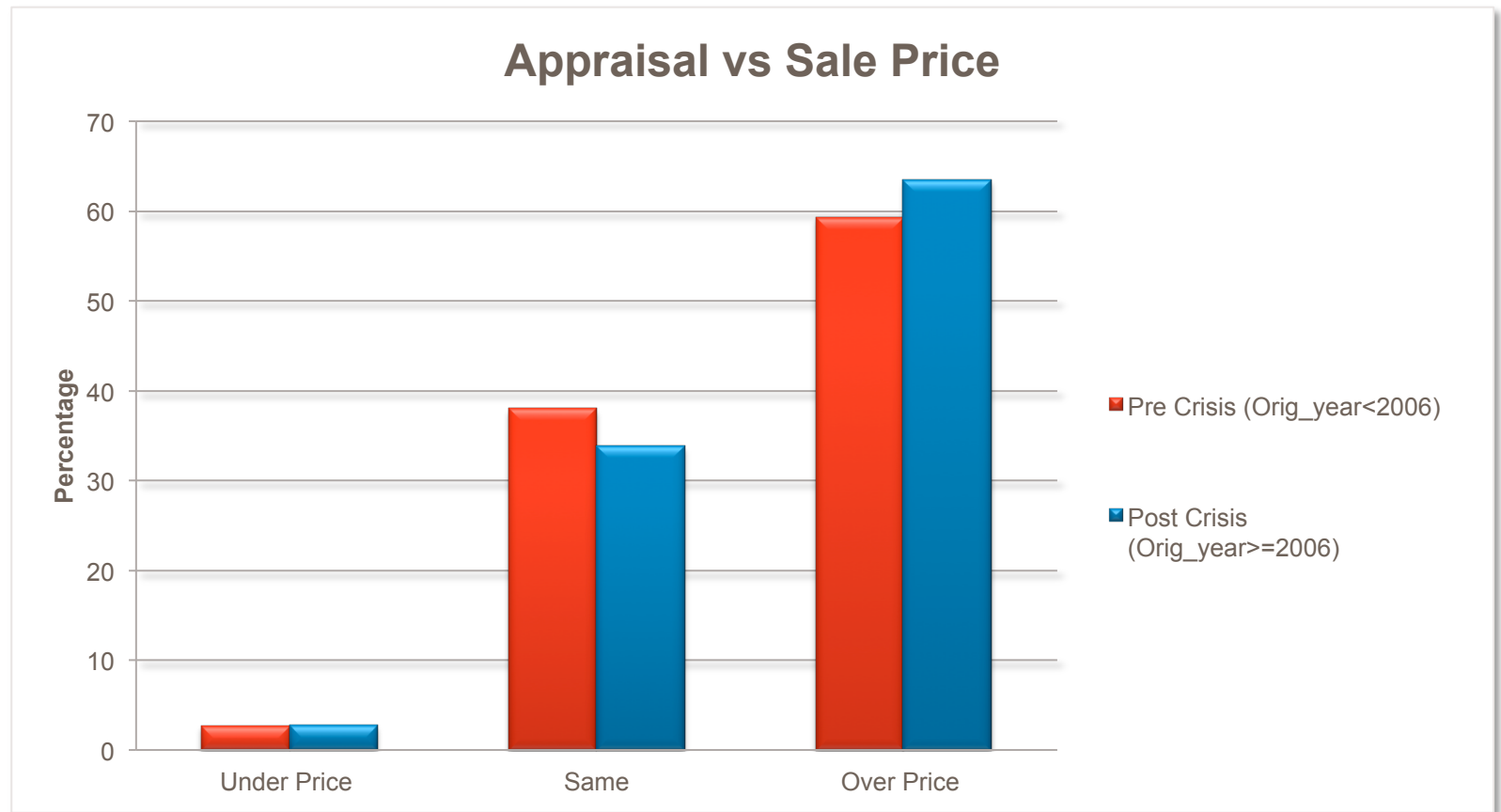Distribution of Percentage_diff

Source: CoreLogic LoanApp data, purchase only, originated in or after 2008, origination LTV between 10 and 100, and origination credit score between 620 and 850.
Notes:
1. Percentage_diff=0 if abs(appraised value-contract price)<= $100. Only -0.15<=percentage_diff<=0.15 are shown.
2. Other filters are applied to ensure data robustness

Finding is Robust to Financial Crisis

Appraisal vs Sale Price

Legend:
- Pre Crisis (Orig_year<2006)
- Post Crisis (Orig_year>=2006)

Y-axis: Percentage (0 to 70)
X-axis categories: Under Price, Same, Over Price

Source: CoreLogic Loan Level Market Analytics data, Prime loans, 1st lien, purchase only, originated in or after 2000, origination CLTV between 10 and 100, and origination credit score between 620 and 850.

Notes:
1. If abs(appraised value-sale price) <= $100 then consider they are same.
2. Modified loans are excluded.
3. Other filters are applied to ensure data robustness.

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Likelihood of Undervaluation – Loan Application Data
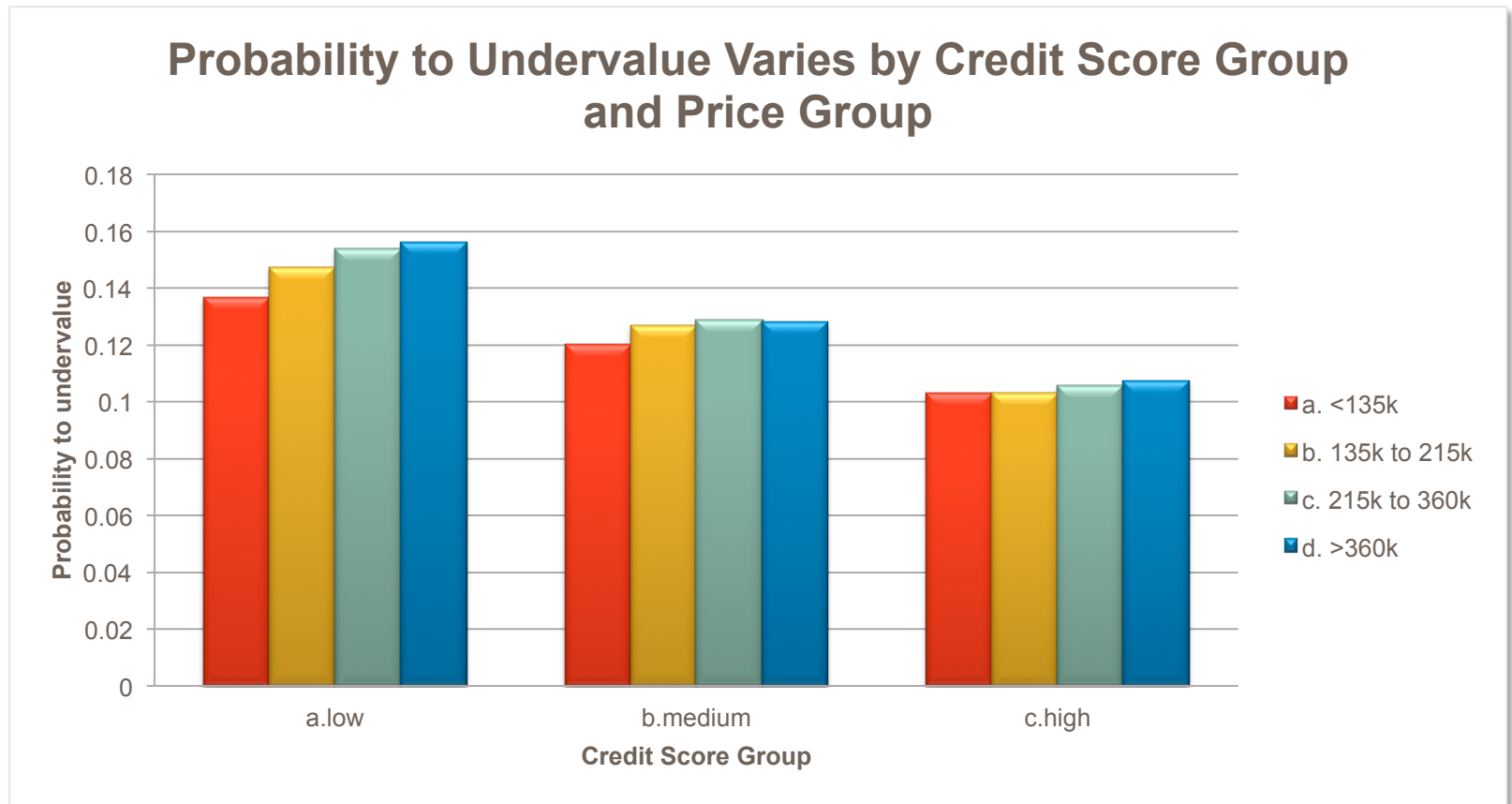
Probability to undervalue varies by LTV
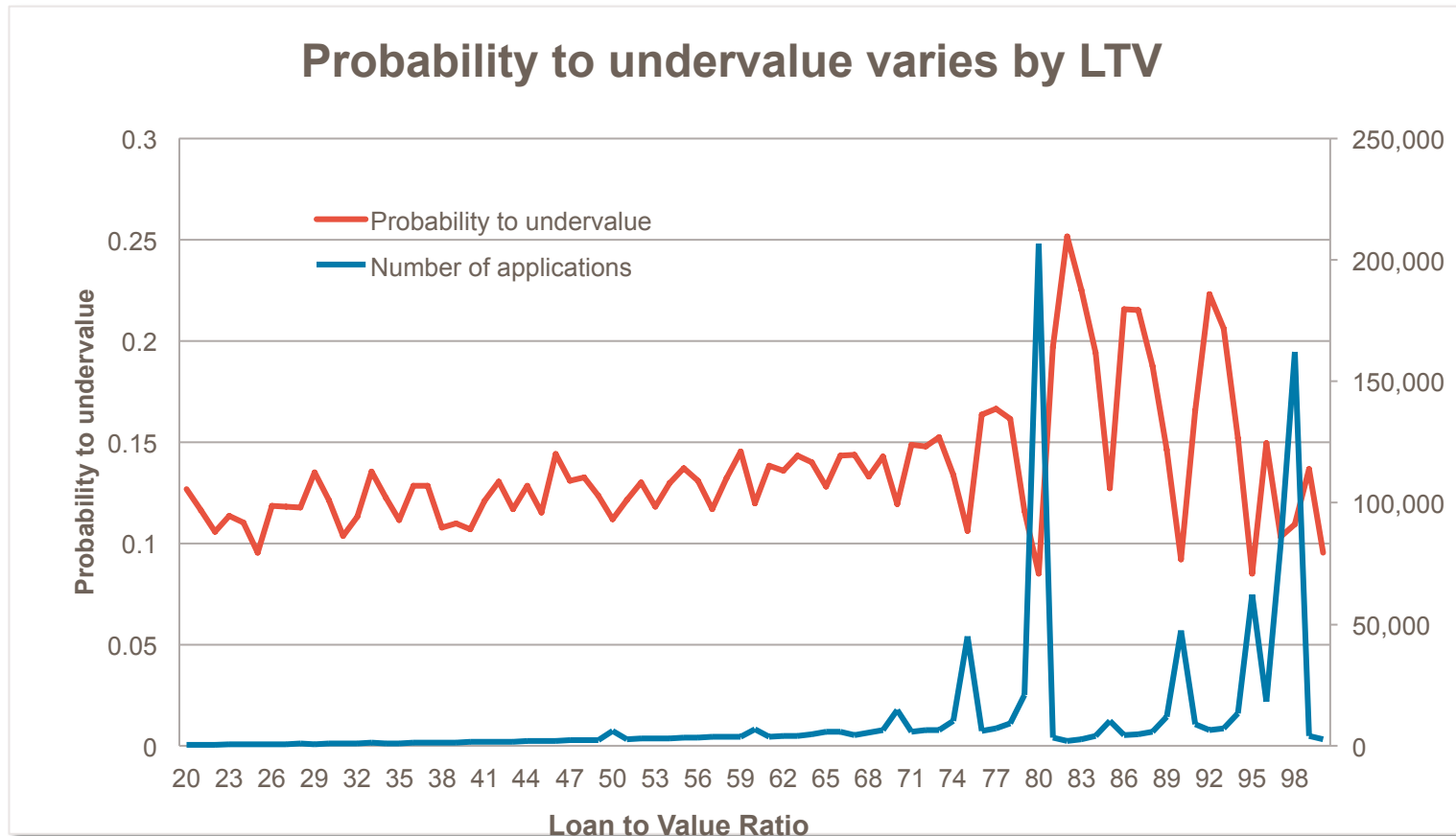
Source: CoreLogic LoanApp data, purchase only, originated in or after 2008, origination LTV between 10 and 100, and origination credit score between 620 and 850.
Notes:
1. Percentage_diff=0 if abs(appraised value-contract price)<= $100.
2. Only LTV>20 are shown.
3. Other filters are applied to ensure data robustness.

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Likelihood of Undervaluation – Loan Application Data

Probability to Undervalue Varies by Credit Score Group and Price Group

Legend:
- a. <135k (red)
- b. 135k to 215k (yellow)
- c. 215k to 360k (green)
- d. >360k (blue)

X-axis (Credit Score Group): a.low, b.medium, c.high
Y-axis: Probability to undervalue (0 to 0.18)

Source: CoreLogic LoanApp data, purchase only, originated in or after 2008, origination LTV between 10 and 100, and origination credit score between 620 and 850.
Notes:
1. Percentage_diff=0 if abs(appraised value-contract price)<= $100.
2. Origination Credit Score Group: LOW – (Score<=660), MEDIUM – (660<Score<=720), HIGH – (Score>720).
3. Other filters are applied to ensure data robustness.

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Deep Blue versus Garry Kasparov

-- How do appraisers make adjustments?

-- Multivariate problem

Thinking Like a Freak

-- Relocation Appraisals--the perfect evidence

-- Two or more appraisals ordered at same time; and the appraisers often choose the same comp!

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Relo Appraisals – Example #1

Appraiser	Appraiser A	Appraiser B
Comp	510 Union St.	510 Union St.
Sale Price	$ 915,000	$ 915,000
	Adjustments (=/-)$	
Concessions		
Market Change adjustments		
Neighborhood appeal		
Site area	-18,700	-33,020
Site appeal		
Arch Style/Exterior Appeal		
Quality of construction		-15,000
Actual Age (years)		2,000
Condition		
Interior appeal/décor	-1,000	
Bedrooms		
Baths		
GLA	-19,050	-24,970
Basement Area		
Basement finish		
Functional utility		
Heating/cooling		
Car Storage		2,000
Fireplace		
Significant features:		
Whirlpool/Security		
1 Fireplace		
Fence		
Pool	-25,000	-25,000
Forecasting adjustment	-20,000	-25,000
Net adjustment	-83,750	-118,990
Adjusted sale price	$ 831,250	$ 796,010

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Relo Appraisals – Example #2

Appraiser	Appraiser A		Appraiser B	
Comp	800 Shallcross Ave.		800 Shallcross Ave.	
Sale Price	$	313,100	$	313,100	
	Adjustments (=/-)$			
Concessions				
Market Change adjustments				
Neighborhood appeal				
Site area				
Site appeal				
Arch Style/Exterior Appeal				
Quality of construction				
Actual Age (years)	11,000			
Condition			20,000	
Interior appeal/décor			-5,000	
Bedrooms				
Baths	1,000		3,000	
GLA	6,125		5,600	
Basement Area	3,150			
Basement finish	-6,750		-10,000	
Functional utility			10,000	
Heating/cooling				
Car Storage				
Fireplace				
Significant features:				
Patio	1,500		7,000	Patio/Deck
Deck	-1,500			
Fence	1,000			
Professional Landscaping	2,000			
Forecasting adjustment			-17,000	
Net adjustment	17,525		13,600	
Adjusted sale price	$	330,625	$	326,700	

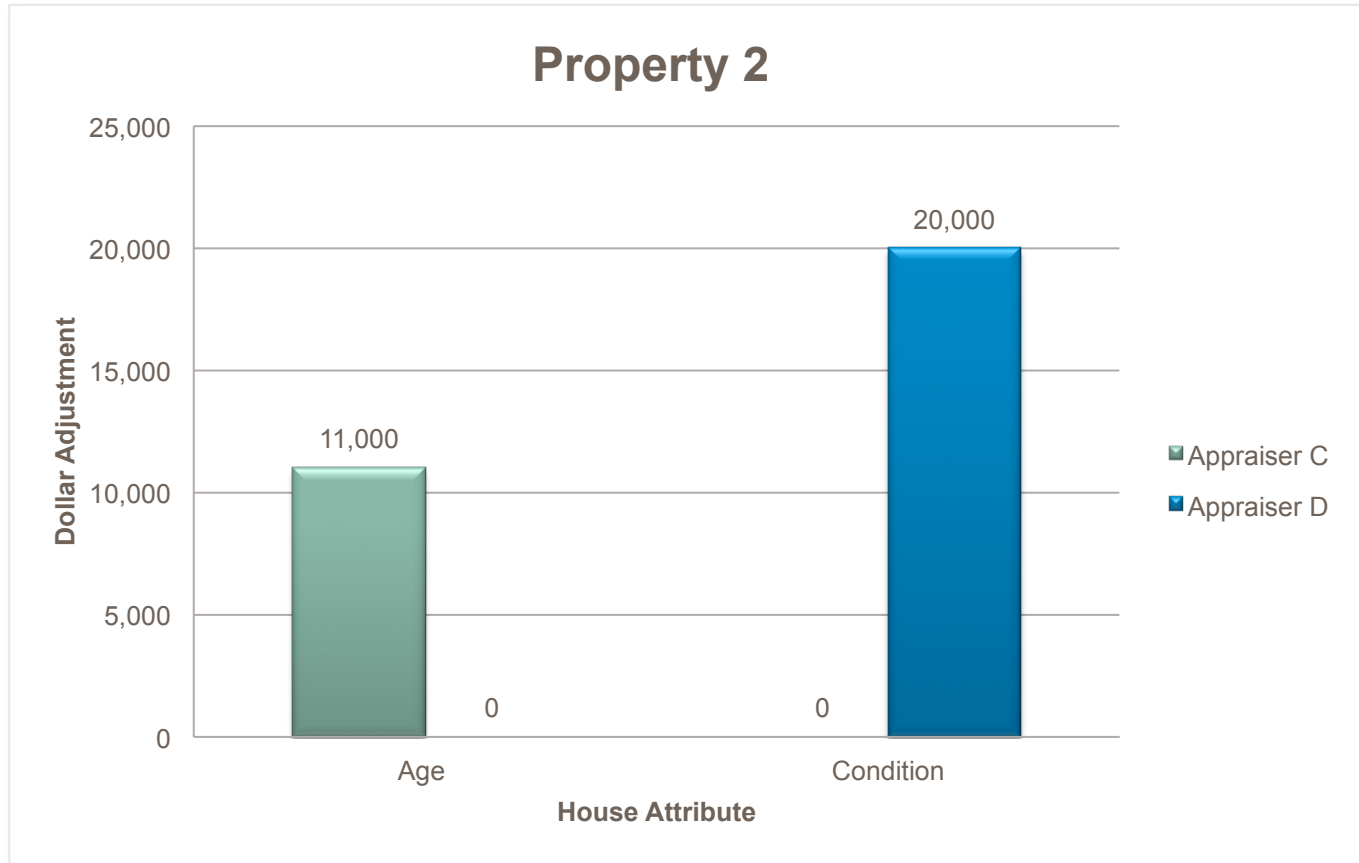CoreLogic®

Appraisal Adjustments Vary Greatly

Adjustments made by two different appraisers who selected the identical comparable while performing an assignment on the same subject property.

Sources: Analysis performed by CoreLogic using relocation appraisals from a third party. The two appraisal reports were completed within days of each other.
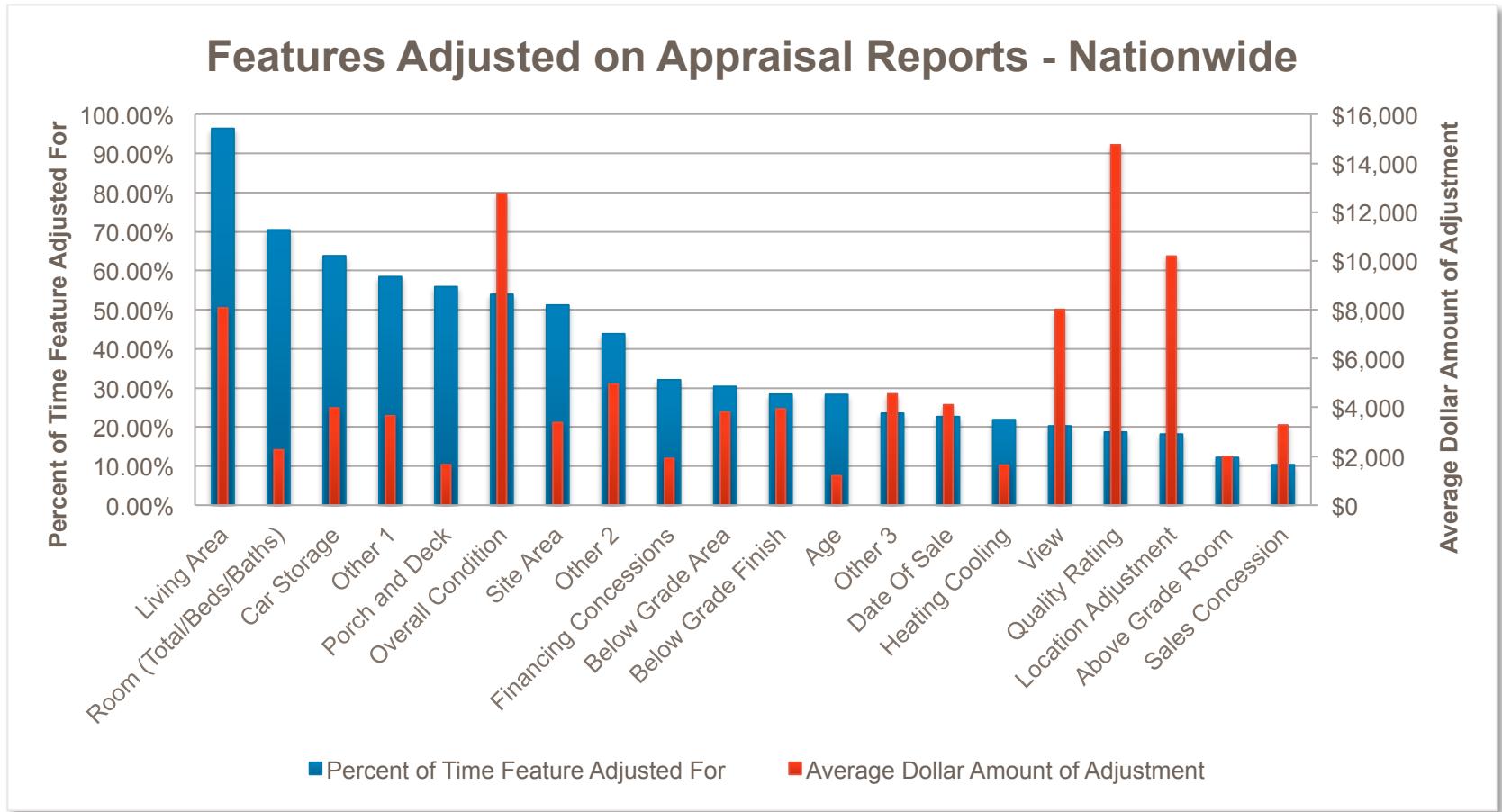
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Appraisal Adjustments Vary Greatly (continued)

Adjustments made by two different appraisers who selected the identical comparable while performing an assignment on the same subject property.

Sources: Analysis performed by CoreLogic using relocation appraisals from a third party. The two appraisal reports were completed within days of each other.

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Feature Usage – By Appraisal

Features Adjusted on Appraisal Reports - Nationwide

Legend: ■ Percent of Time Feature Adjusted For ■ Average Dollar Amount of Adjustment

Source: CoreLogic data: Sample of more than 1.3 million appraisal reports from 2012 through 2015.
Notes:
1. Features for which the adjustments appeared on less than 10% of the appraisal reports are not shown on the chart.
2. The fields Other 1, Other 2, and Other 3 are free-form fields that the appraiser can use for any adjustment.

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Feature Usage – By Comparable

Feature Adjustments on Comparable Properties - Nationwide
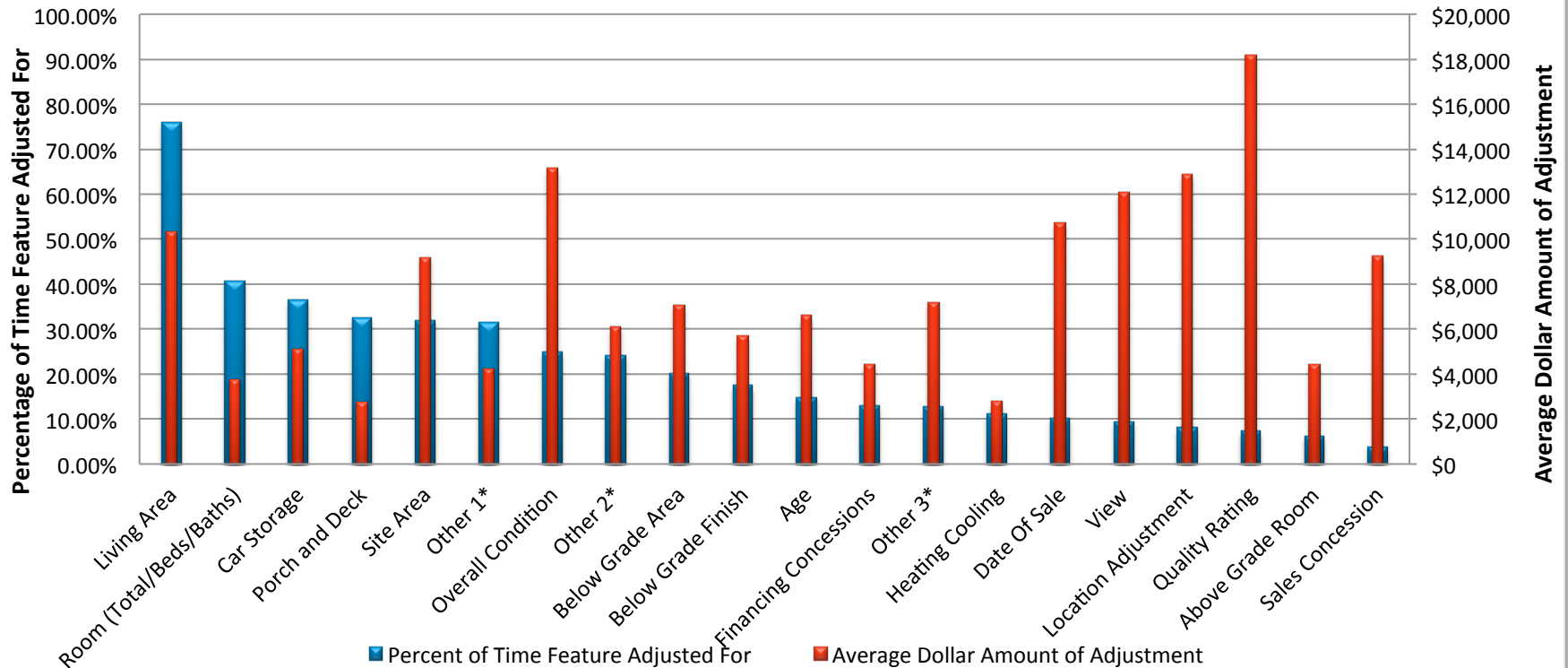
Source: CoreLogic data: Sample of roughly 6.4 million comparable properties from roughly 1.4 million appraisal reports from 2012 through 2015.
Notes:
1. Features for which the adjustments appeared on less than 10% of the appraisal reports are not shown on the chart.
2. The fields Other 1, Other 2, and Other 3 are free-form fields that the appraiser can use for any adjustment.

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Overall Observations - Findings

- Inconsistent feature value adjustments observed in both:
    - Subjective features – Forecasting, Condition, Quality
    - Tangible features – GLA, Baths, Age, etc.

- Tangible features should be derived and attained from consistent data source

- Value baseline factors for tangible features should be standardized and consistent across appraisals

- The culmination of using consistent data and standardizing adjustment factors should lead to more consistent final valuations

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Here's What We've Learned:

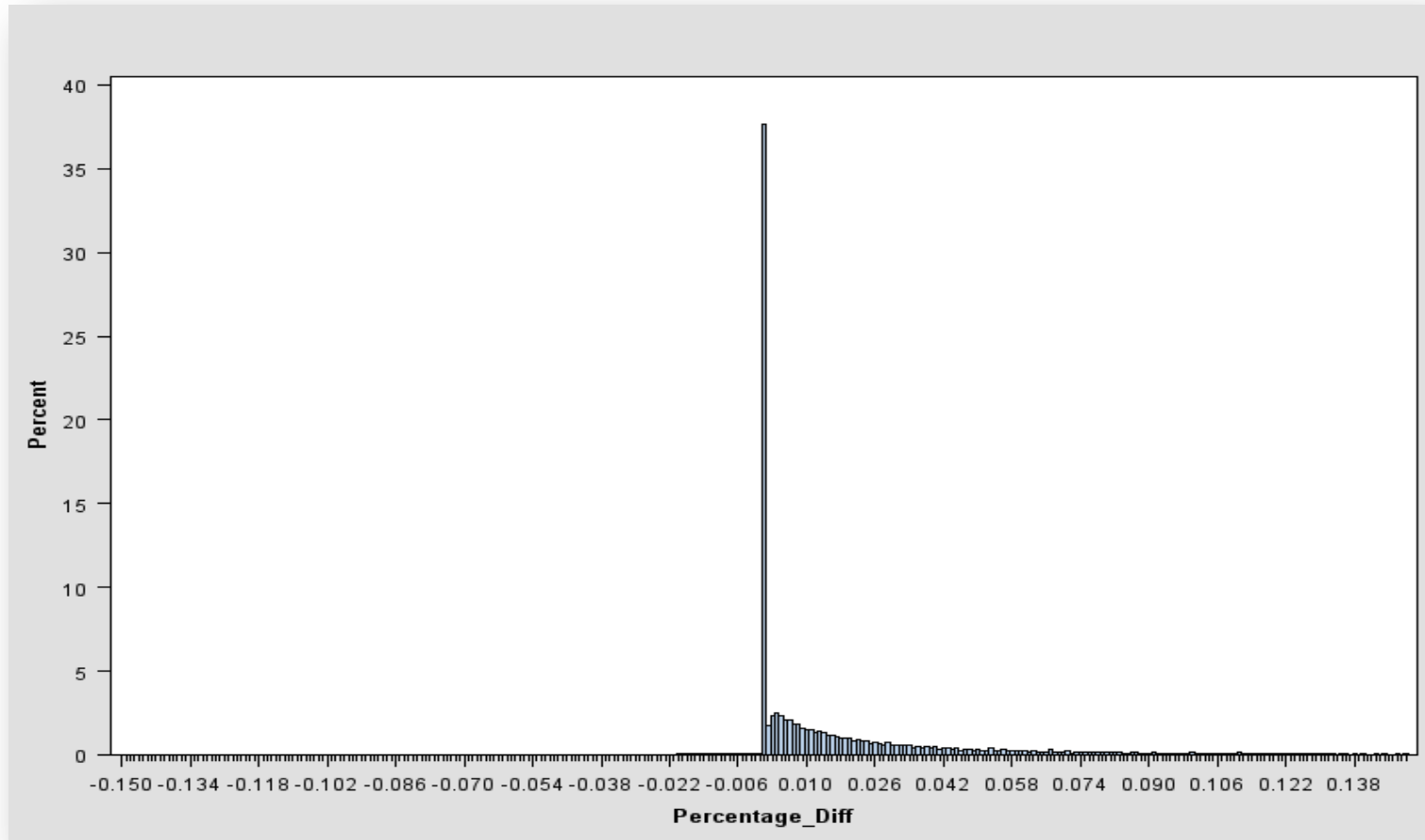- Collateral risk is difficult to determine.

- The current appraisal process:
  - Does some things well.
  - Other things need to be reengineered.

- Appraisers:
  - Are subject to anchoring bias.
  - Need help making adjustments to comparables.

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Appendix

-- Results comparing appraised values and purchase prices using **closed** transactions

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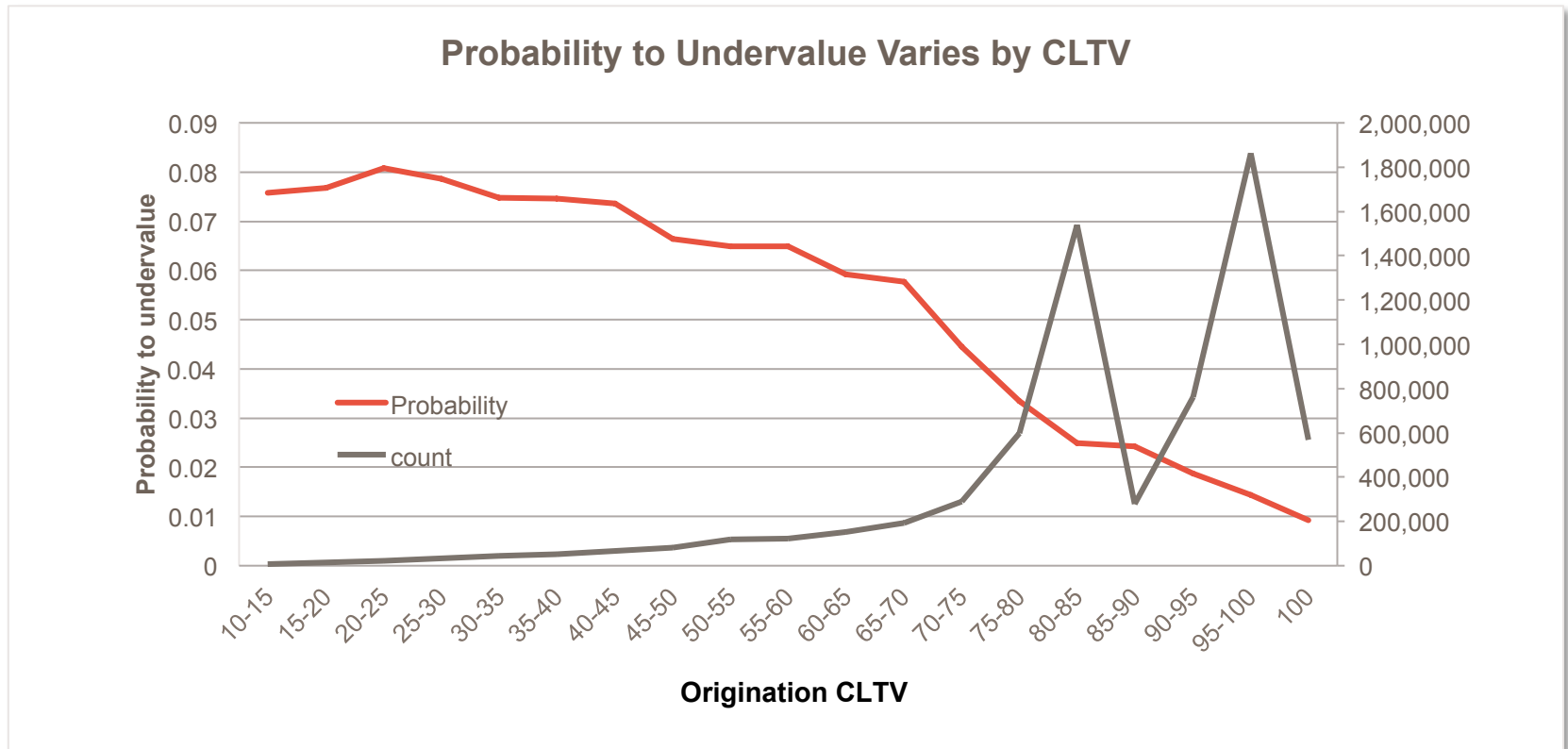# Weird Density of Estimates of Value

Source: CoreLogic LLMA data, Prime loans, 1st lien, purchase only, originated in or after 2000, origination CLTV between 10 and 100, and origination FICO between 620 and 850.

Notes:

1. Percentage_diff=0 if abs(appraised value-sale price)<= $100. Only -0.15<=percentage_diff<=0.15 are shown.
2. Modified loans are excluded
3. Other filters are applied to ensure data robustness

Likelihood of Undervaluation: Inversely related to LTV at Origination

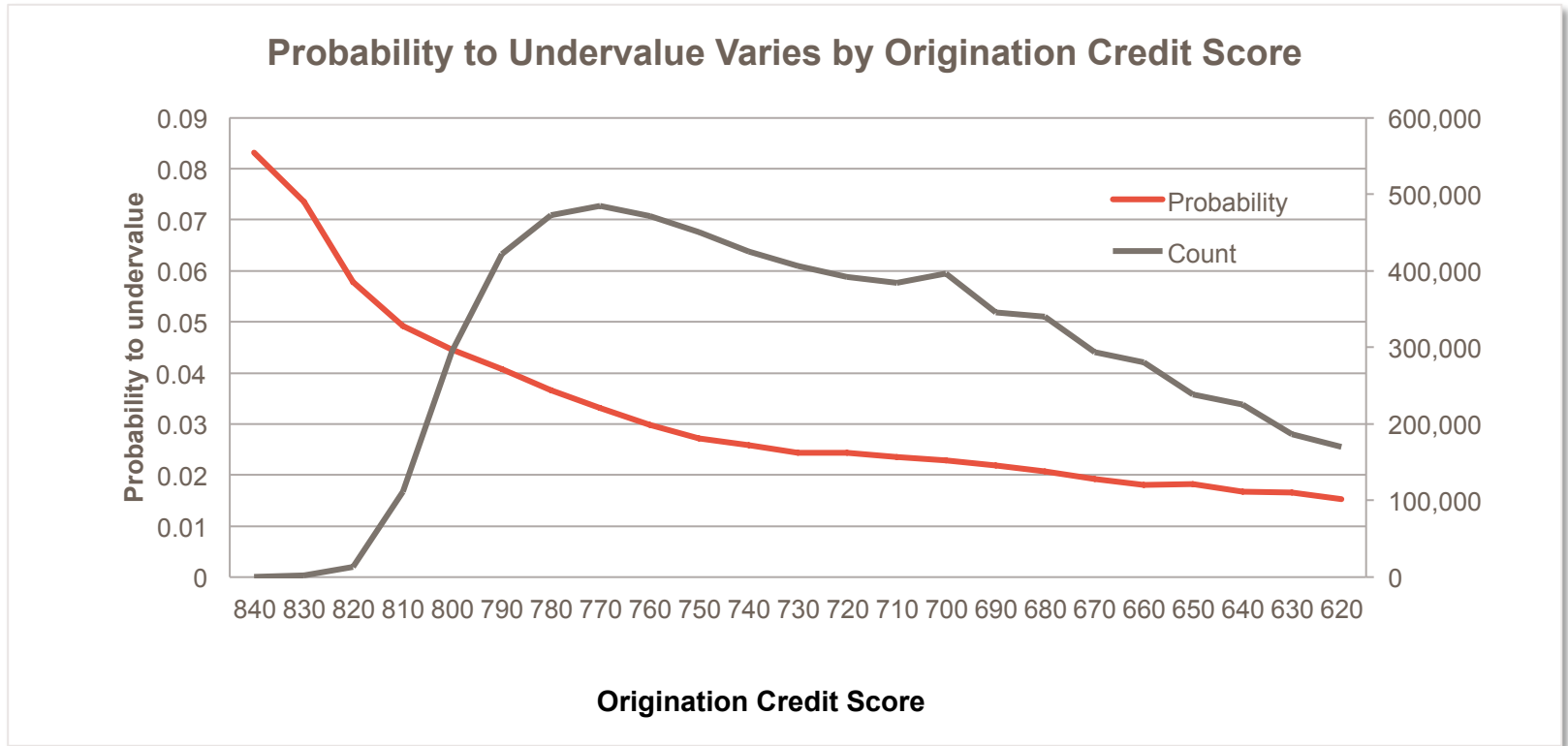**Probability to Undervalue Varies by CLTV**

Source: CoreLogic LLMA data, Prime loans, 1st lien, purchase only, originated in or after 2000, origination CLTV between 10 and 100, and origination credit score between 620 and 850.
Notes:
1. Modified loans are excluded.
2. Other filters are applied to ensure data robustness.

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Likelihood of Undervaluation: Directly related to Credit Score at Origination

Probability to Undervalue Varies by Origination Credit Score

Source: CoreLogic LLMA data, Prime loans, 1st lien, purchase only, originated in or after 2000, origination CLTV between 10 and 100, and origination credit score between 620 and 850.
Notes:
1. Modified loans are excluded.
2. Other filters are applied to ensure data robustness.

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