

# Credit Earnings Volatility and Share Price Performance: Implications of IFRS 9 and CECL

## PRESENTERS



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Dr. Amnon Levy heads the group responsible for research development and quantitative services related to Moody's Analytics portfolio and balance sheet solutions.



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Pierre Xu is a director of research at Moody's Analytics where he heads portfolio risk analytics in the Portfolio and Balance Sheet Research group.

## MODERATOR



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Anna Krayn heads the Risk, Accounting and Insurance Solutions in the Americas. Her team is responsible for solution structuring across Moody's Analytics products and services.

# Does Risk Management Add Value?



In order for risk management to matter,

**stable performance  
must be valued at a premium,**

compared to more volatile.

# Enter CECL and IFRS 9

## Today's Agenda

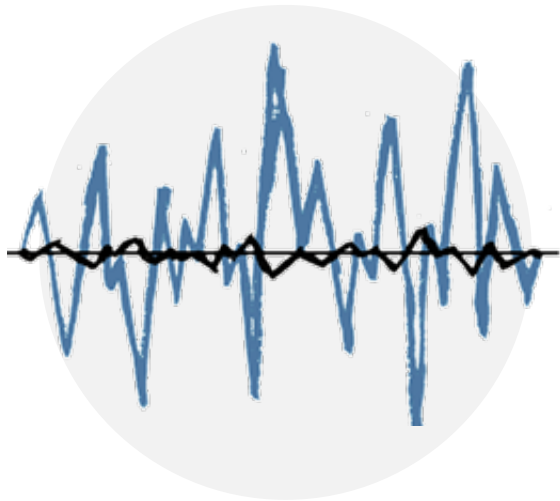


- 1 The relationship between accounting rules, credit earnings volatility and share price performance
  - How does the market interpret the volatility in financials?



- 2 Implications of credit portfolio management on share price performance
  - To what extent can credit portfolio management help address volatility under CECL and IFRS 9?

# Why Earnings Volatility Matters



- » Impacts capital surplus and solvency
- » High volatility is associated with:
  - Concerns of opacity and questionable business practices
  - Concerns of questionable portfolio composition
- » Ultimately, volatility:
  - Impacts cost of capital
  - Limits business opportunities
  - Feeds into valuation and share price

# Do Accounting Rules Add Value?



The Accounting Review  
Forthcoming

## Do the FASB's Standards Add Shareholder Value?

**Khan, Li, Rajgopal, and Venkatachalam**

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Market reactions are higher for firms  
where estimation risk is reduced.

# How Much Does Earnings Volatility Matter?

Journal of Financial Economics  
Volume 90, Issue 3 | March 2008

## Do Investors Value Smooth Performance? Rountree, Weston, and Allayannis

“ The magnitude of the effect is substantial with a 1% increase in **cash-flow volatility**, resulting in approximately a 0.15% decrease in firm value. ”



# Observations From the Market



## WE EXPLORE

the relationship between dynamics in financial statements and equity value of public US bank holding companies from 2002 to 2017; roughly, 6000 observations.

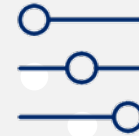
... where **Equity Value = ratio of market value and book value**



## WE WILL FOCUS ON

the impact of **credit earnings risk**, measured as:

- Volatility of Allowance
- Volatility of Net Charge Off



## WE CONTROL FOR

- **Capital Structure**
  - › Debt-to-Assets Ratio
- **Systematic Risk**
- **Financial Performance**
  - › Earnings
  - › Allowance
  - › Charge Off
  - › Interest Income
  - › Interest Expense
  - › Return on Assets
  - › Book Value Growth
  - › Volatility of Interest Income
  - › Volatility of Interest Expense



# Valuation and Components of Earnings Vol

Dependent Variable: Ln(Equity Value)	Beta	t value*
Ln(Volatility of interest income )	-0.028	-1.64
Ln(Volatility of interest expense)	-0.062	-4.22
Ln(Volatility of change in loss allowance)	<b>-0.080</b>	-4.69
Ln(Volatility of net charge off)	<b>-0.120</b>	-7.13
Ln(Total assets)	-0.220	-10.08
Assets growth	1.748	2.65
Debt-to-Asset ratio	0.752	3.80
Return on assets	9.519	8.90
Ln(Systematic risk)	0.404	12.55
Ln(Idiosyncratic risk)	0.031	0.95
Ln(Non-performing Assets)	-0.015	-3.28

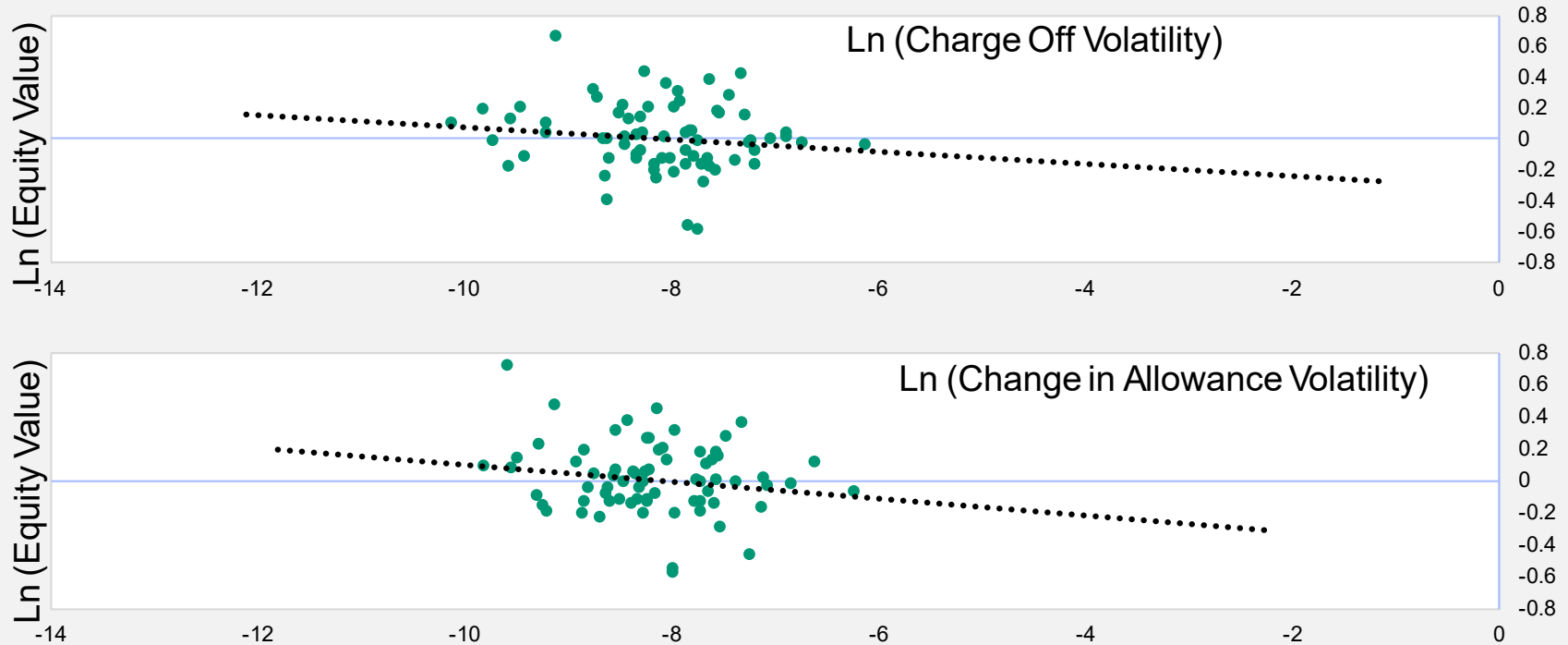
» A 1% increase in volatility of charge off will lead to a 12 bps decrease in stock price

» A 1% increase in volatility of change in loss allowance will lead to a 8 bps decrease in stock price

\* Newey-West standard errors and accounting for time fixed effects

# Equity Valuation and Volatility

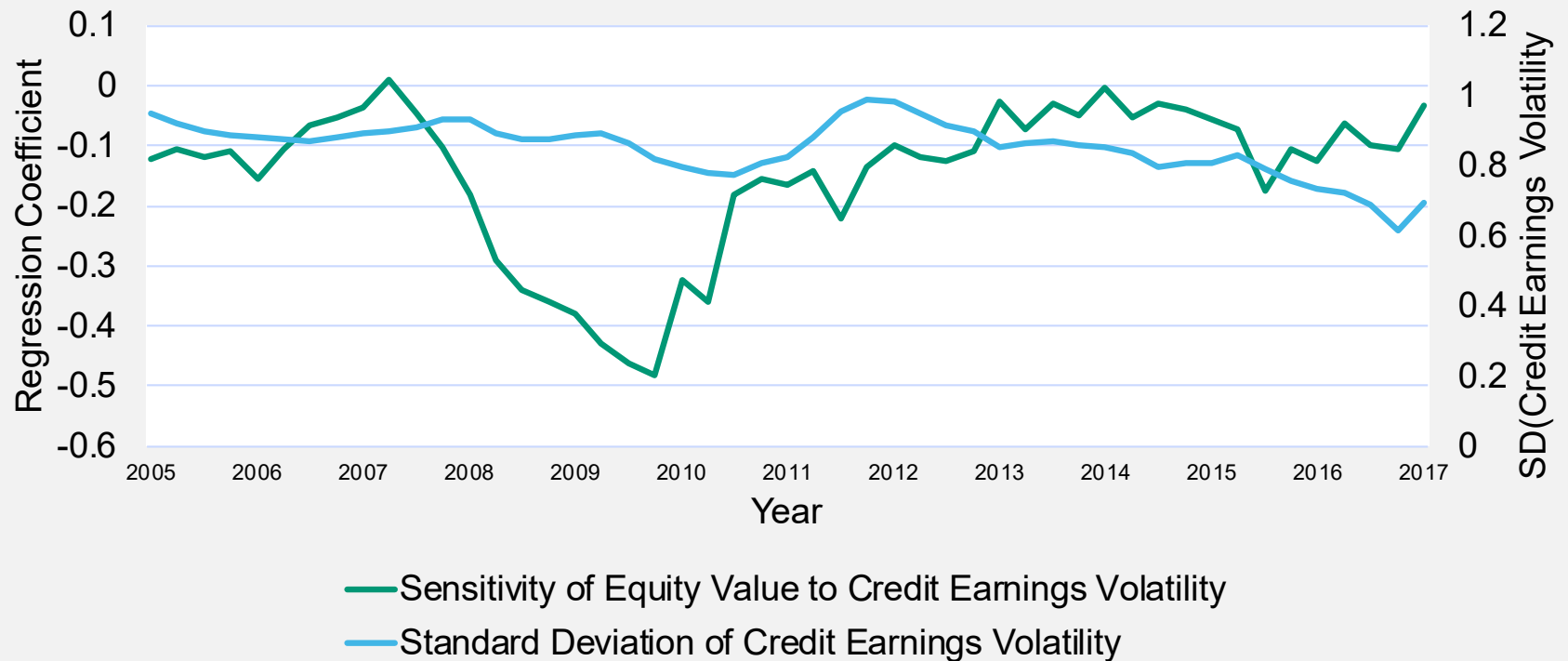
**Cross Sectional** contribution of credit earnings volatility in 2015 Q2



Values are controlled for: Financial Performance,  
Capital Structure Systematic Risk, and Financial Risk

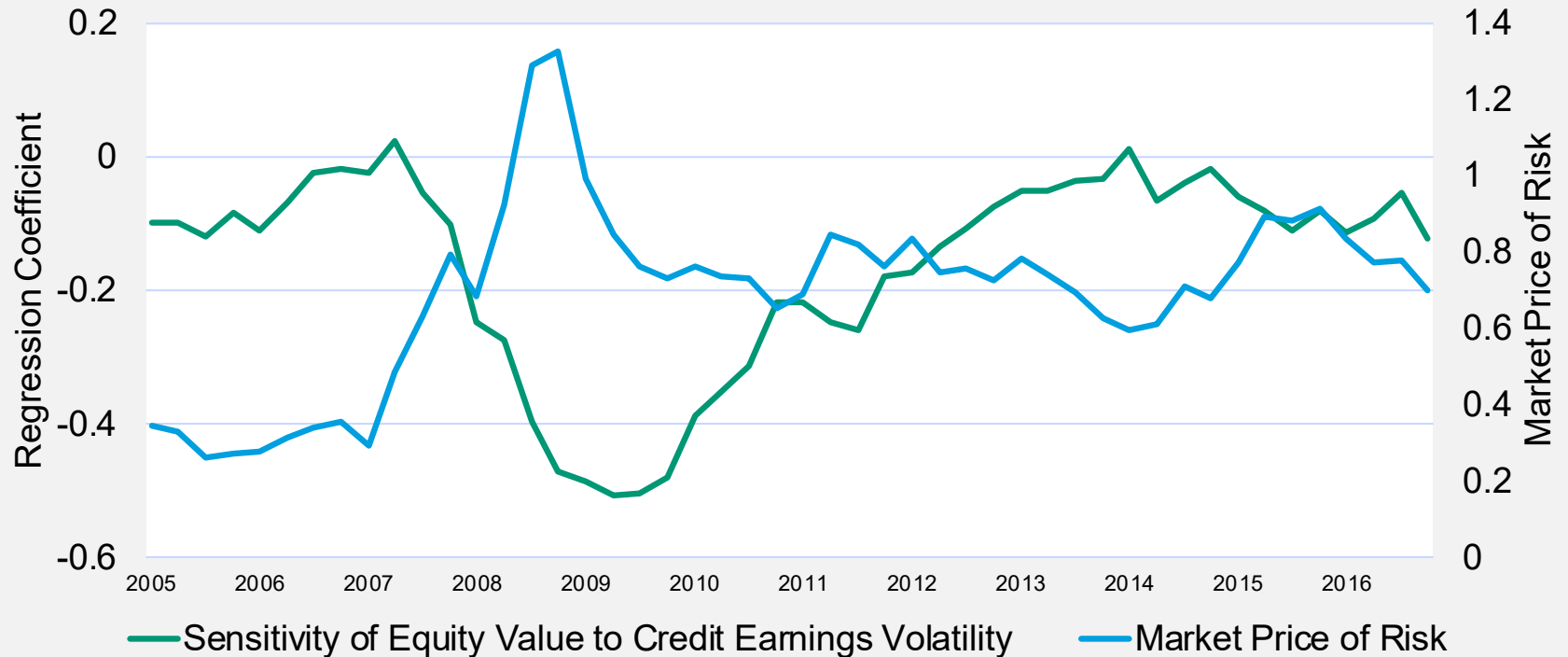
# Sensitivity of Equity Value to Volatility

Variation across the credit environment



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# Enter CECL and IFRS 9

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- 1 The relationship between accounting rules, credit earnings volatility and share price performance
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- 2 Implications of credit portfolio management on share price performance
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# The Value of Credit Risk Management

The negative relationship between earnings volatility and valuation motivates exploring how much value a prudent credit risk management practice can add to a financial institution.

We evaluate a credit risk management strategy:

- Start with the same initial portfolio as benchmark in the first period
- Starting in the second period, our CRM strategy updates the portfolio by optimally allocating free cash to minimize portfolio ex-ante earnings volatility while maintaining the profitability level as benchmark.

## 1 **CECL Benchmark**

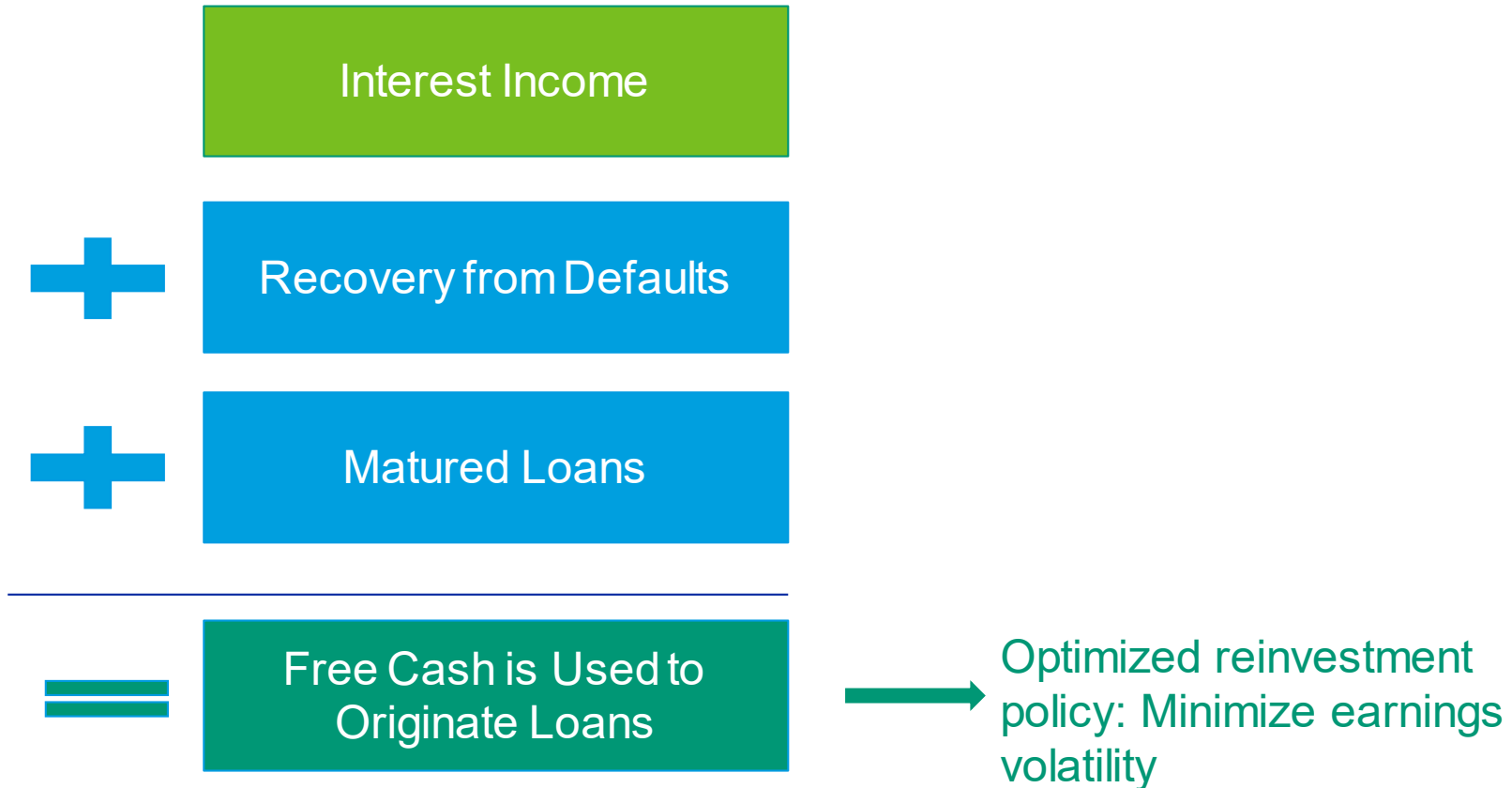
Actual US banks' portfolio time series in the CRD/LAS dataset.

## 2 **IFRS 9 Benchmark**

Synthetic European loan portfolio time series consisting of all European public-firm borrowers.

# Reinvestment Policies

Allocation of free cash-flow generated by a credit portfolio



# Data for CECL Benchmark Portfolios

Seven US banks' portfolios from Moody's CRD/LAS database

- » There are seven US banks with data from 2005 to 2016, covering both pre and post crisis periods.
- » The benchmark bank portfolios include non-real estate term loans and revolvers that have bank-provided net balance, coupon rates and maturity as well as Moody's Analytics RiskCalc PDs.
- » Loss given default is set to be 25% for secured loans and 45% for non-secured loans.
- » Portfolio performance over time is evaluated under CECL rules.



# Data for the IFRS 9 Benchmark Portfolio

A synthetic loan portfolio consisting of loans to public European firms

## Instrument Characteristics

### NEW ORIGINATION

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**LOAN MARKET** determined by outstanding liabilities of publicly traded firms  
– some adjustments for financial firms

**MATURITY** determined by current and long-term liabilities validated against Pillar III data

**CREDIT RISK** Moody's Analytics EDF

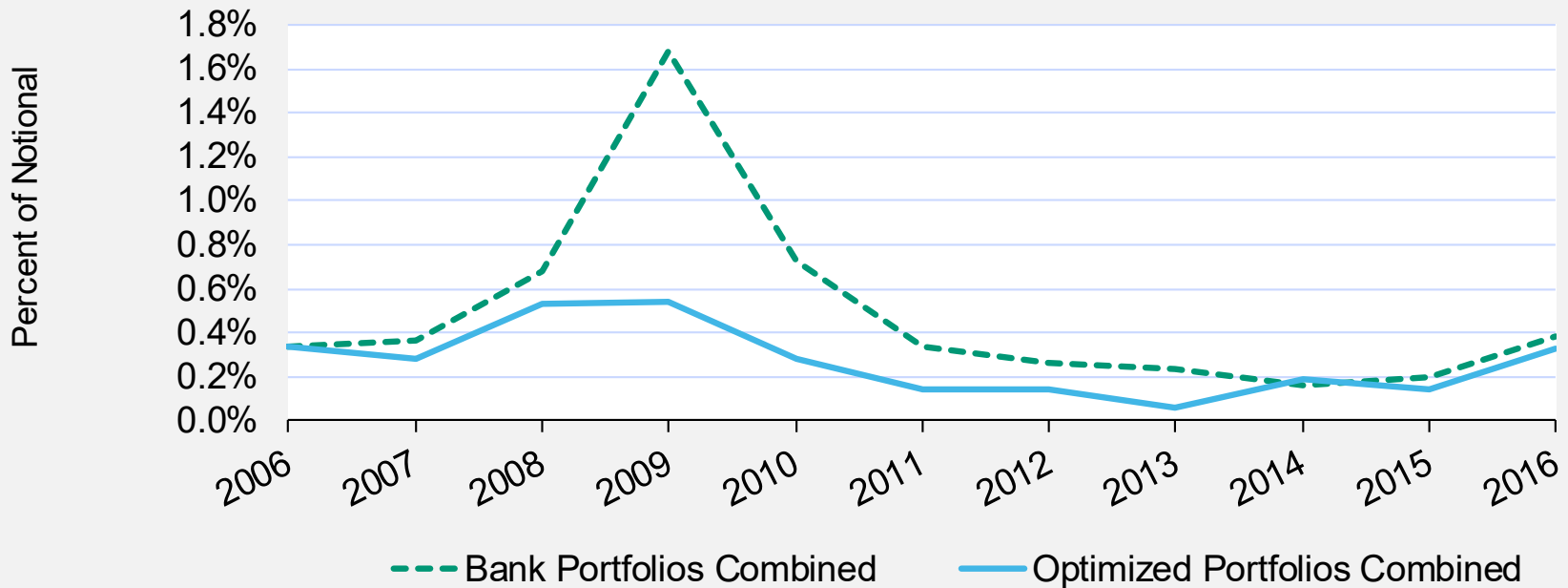
**SPREAD** Implied Par Spread

**REFERENCE RATE** three-month LIBOR rate



# Realized Default Loss of Seven US Banks

The CRM strategy reduces default risk during the crisis period

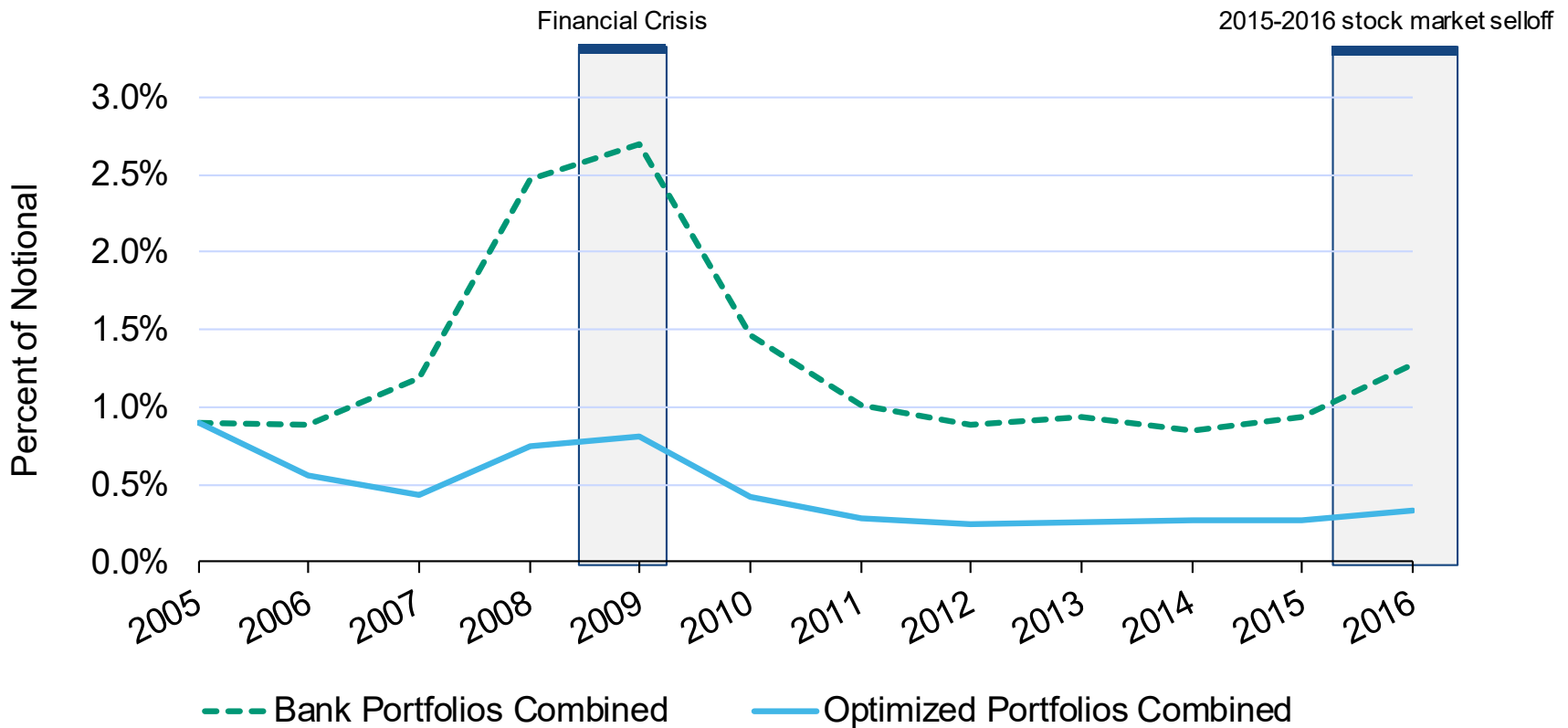


Variable	Average		Volatility	
	Benchmark	Optimized	Benchmark	Optimized
Default Loss	0.49%	0.27%	0.43%	0.16%

The CRM strategy reduces default loss volatility by 63%, which is associated with a 7.6% increase in each bank's equity value.

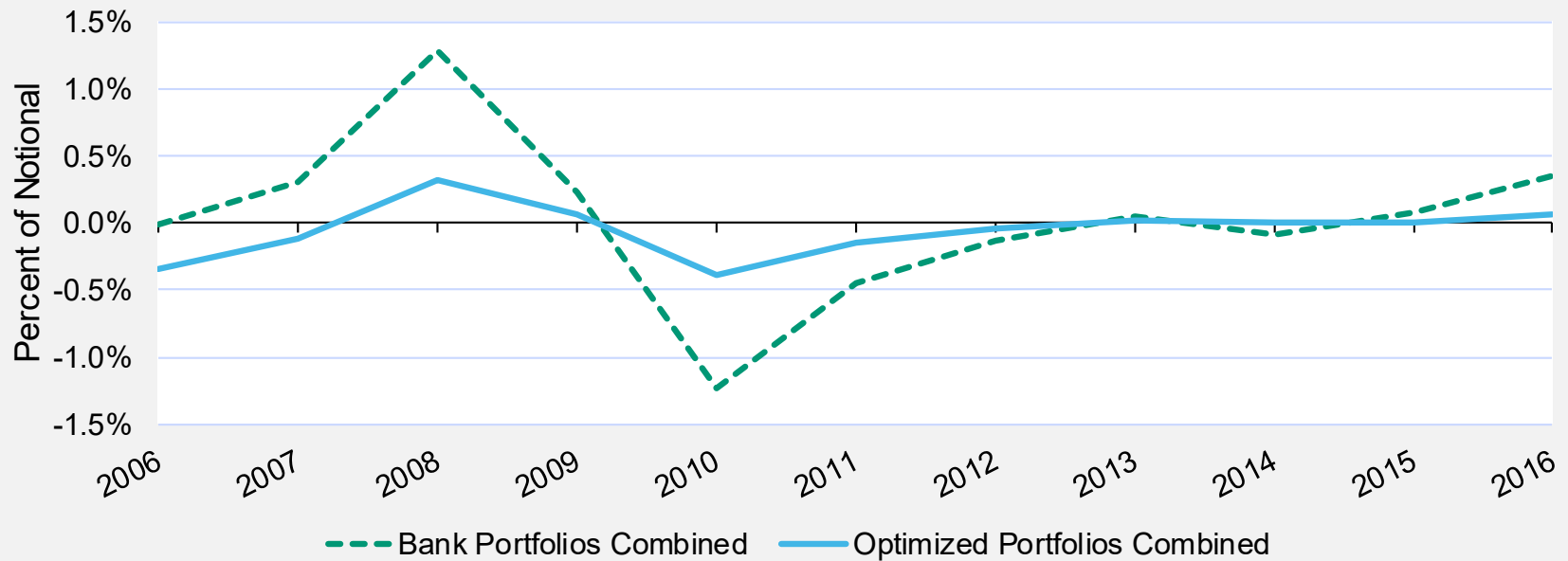
# CECL Loss Allowance of Seven US Banks

The CRM strategy results in less CECL loss allowance



# Change in CECL Loss Allowance of US Banks

The CRM strategy lowers CECL loss allowance volatility

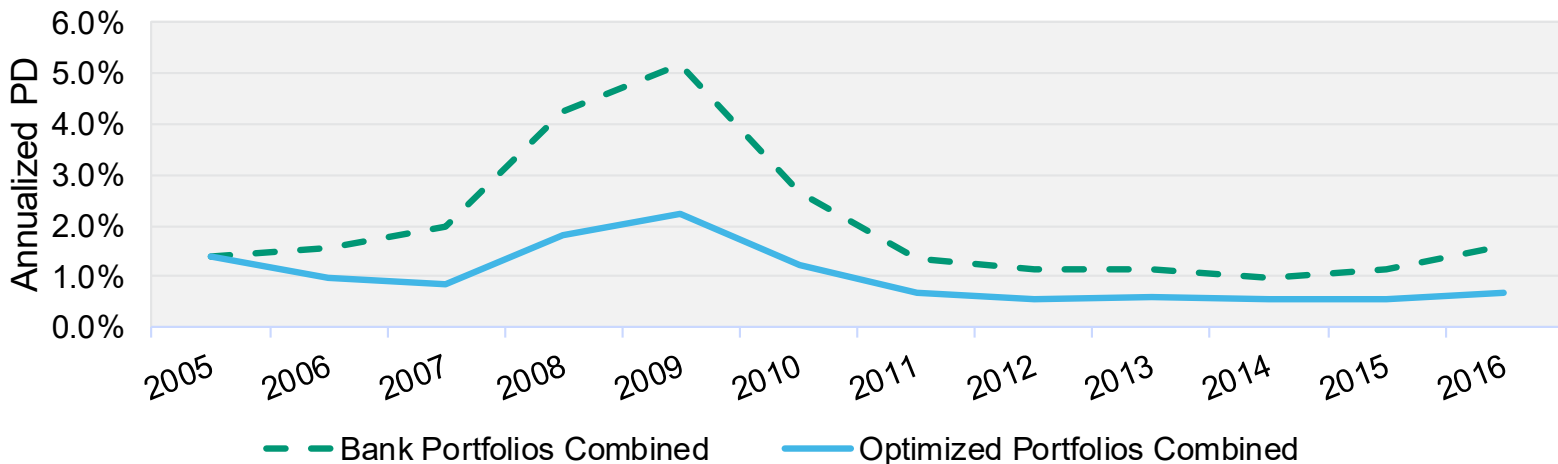
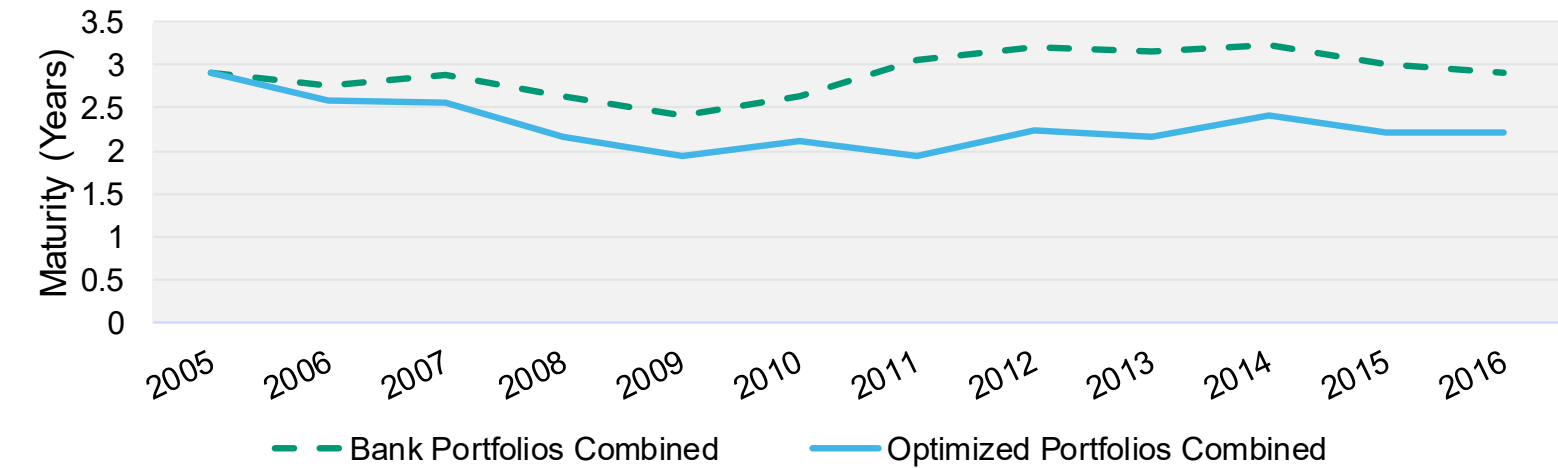


Variable	Average		Volatility	
	Benchmark	Optimized	Benchmark	Optimized
Change in Loss Allowance	0.04%	-0.05%	0.60%	0.20%

The CRM strategy reduces volatility of changes in loss allowance by 67%, which is associated with a 5.4% increase in equity value.

# The Implication of CECL

Loans with shorter maturity and lower PD are preferred under CECL



# Portfolio Default Loss Volatility by Bank

The CRM strategy lowers volatility in default loss

Bank	Default Loss Volatility		Implied Increase in Equity Value
	Benchmark	Optimized	
Bank 1	0.53%	0.20% (63%↓)	7.6%
Bank 2	0.36%	0.13% (64%↓)	7.7%
Bank 3	0.42%	0.41% (2.4%↓)	0.3%
Bank 4	0.77%	0.47% (39%↓)	4.7%
Bank 5	0.34%	0.20% (41%↓)	4.9%
Bank 6	0.26%	0.15% (42%↓)	5.0%
Bank 7	0.38%	0.17% (55%↓)	6.6%

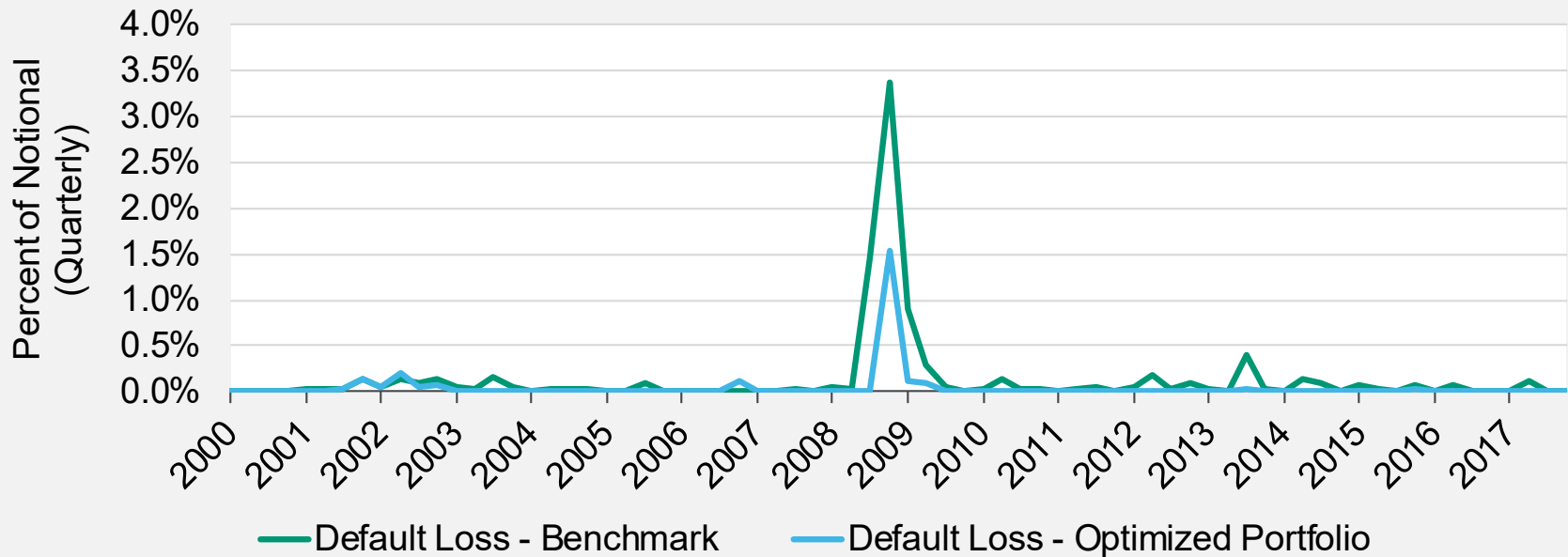
# Portfolio Loss Allowance Volatility by Bank

The CRM strategy results in less loss allowance

Bank	Change in Loss Allowance Volatility		Implied Increase in Equity Value
	Benchmark	Optimized	
Bank 1	0.48%	0.14% (71% ↓)	5.7%
Bank 2	0.93%	0.27% (71% ↓)	5.7%
Bank 3	1.08%	0.37% (66% ↓)	5.3%
Bank 4	0.62%	0.25% (60% ↓)	4.8%
Bank 5	0.69%	0.32% (54% ↓)	4.3%
Bank 6	0.73%	0.25% (66% ↓)	5.3%
Bank 7	0.47%	0.17% (64% ↓)	5.1%

# Realized Default Loss of European Portfolio

The CRM strategy reduces risk during the crisis period



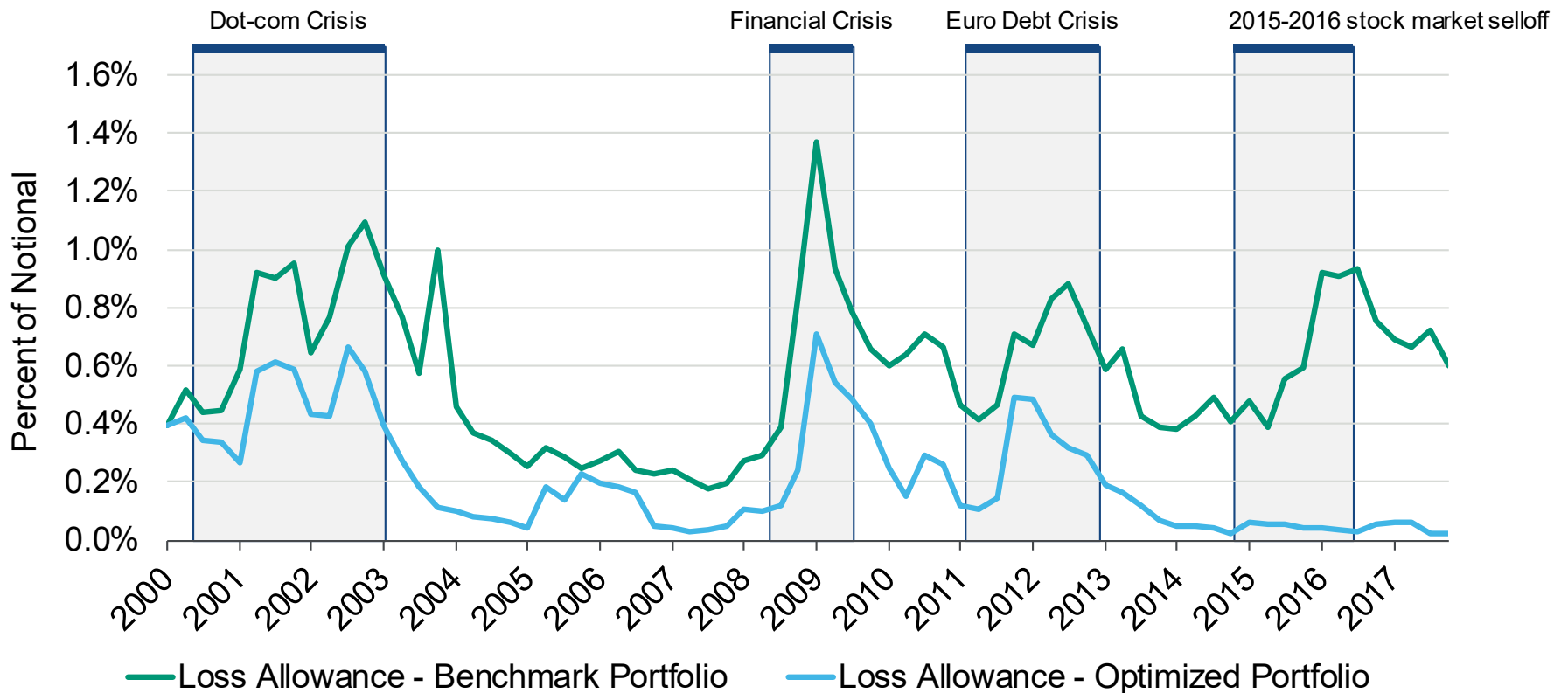
Variable	Average		Volatility	
	Benchmark	Optimized	Benchmark	Optimized
Default Loss	0.13%	0.03%	<b>0.44%</b>	<b>0.18%</b>

The CRM strategy reduces default loss volatility by 59%, which is associated with a 7.1% increase in equity value.



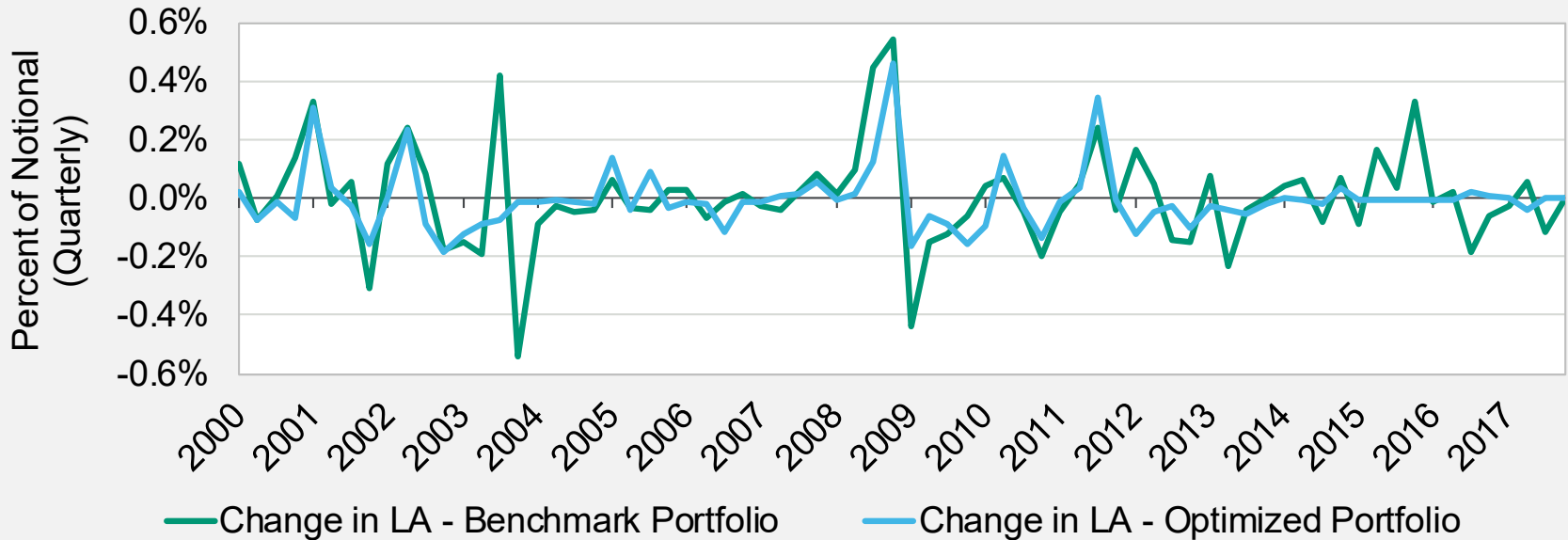
# Realized Loss Allowance Under IFRS 9

The CRM strategy results in less IFRS 9 loss allowance



# Change in IFRS 9 Loss Allowance

The CRM strategy lowers CECL loss allowance volatility

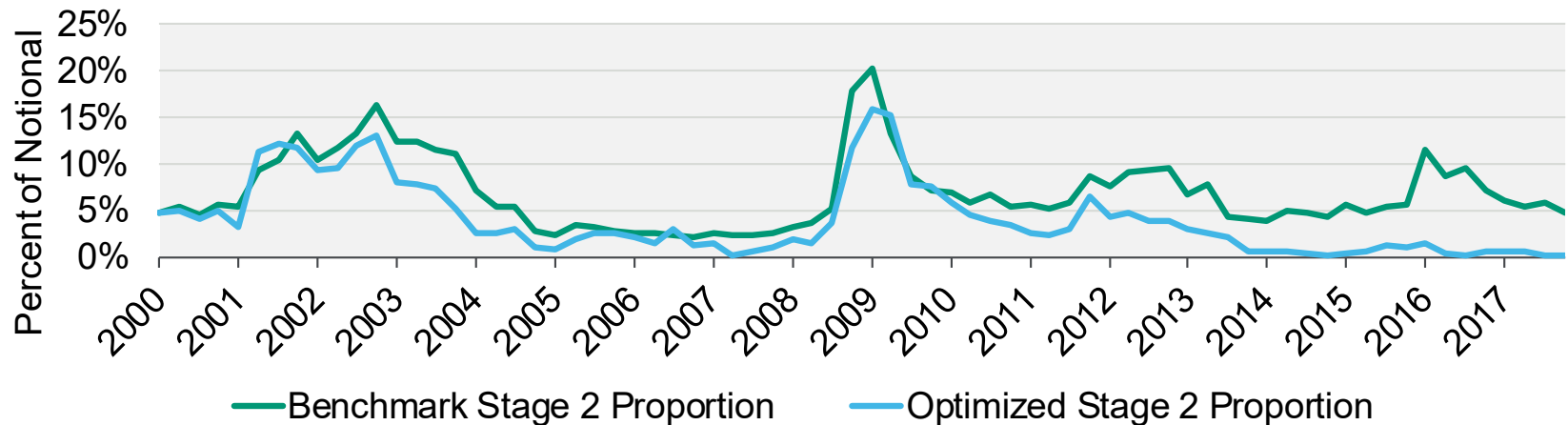
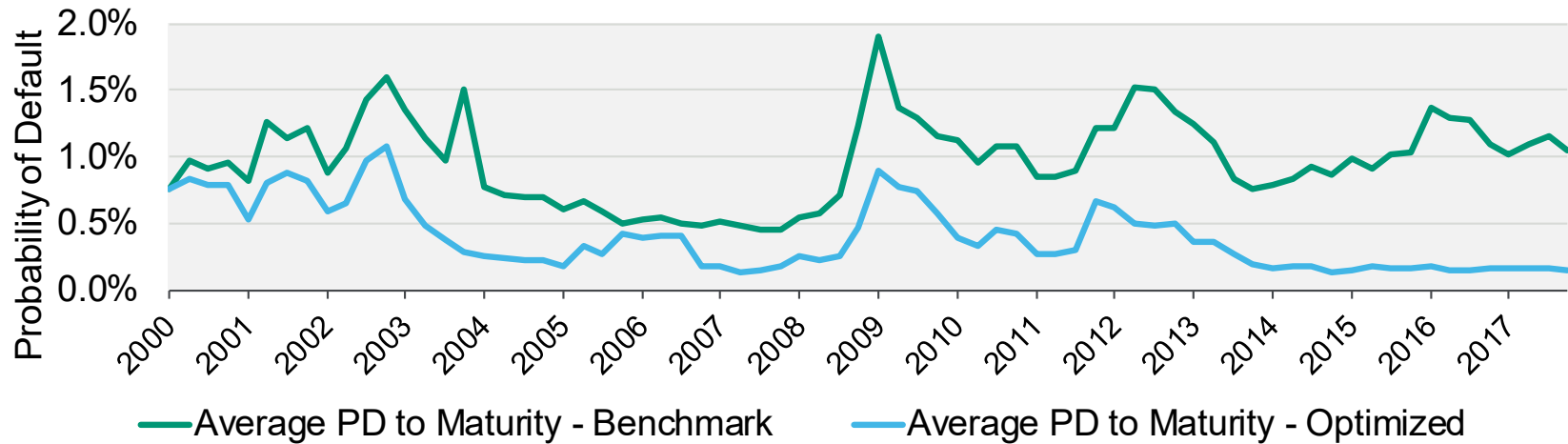


Variable	Average		Volatility	
	Benchmark	Optimized	Benchmark	Optimized
Change in Loss Allowance	0.00%	-0.01%	<b>0.17%</b>	<b>0.11%</b>

The CRM strategy reduces changes in loss allowance volatility by 35%, which is associated with a 2.8% increase in equity value.

# Realized Portfolio Characteristics

## PD to Maturity and Proportion of Stage 2



# Credit Earnings Volatility, CECL, IFRS 9 and Share Price Performance

1

**Accounting rules can have a material impact on valuation.** Opacity and cost can have a detrimental impact on valuation.

2

**Earnings volatility is negatively associated with valuation.** For financial institutions both charge off and allowance play a role.

3

**Credit portfolio management.** Techniques can materially reduce portfolio volatility and positively impact valuation.



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