CECL Data Points: What You Need to Get Started

June 27, 2017
2:30 – 3:45

Presented by:

Chad Kellar
Partner, FI Advisory Services
Crowe Horwath
Indianapolis, Indiana
P: 317.208.2431
E: chad.kellar@crowehorwath.com

Changes to Methodologies Under CECL

- Have to change methodology (by either modifying existing methodology or making a wholesale change in methodology) to implement the CECL model
  - **Data dictates models**
  - Models/methodologies will dictate how Q-factors and Forecasting is implemented
    - Top of model adjustments
    - Component level adjustments
    - Primary risk factors – may be product, structure, etc. dependent
- Lifetime estimate
  - Develop estimates that are clearly more forward-looking than they were in the past
  - Not required to forecast economic cycle impacts throughout the loan life
    - Reversion to history is required – the history may be the hardest part to capture on longer-term assets!
- Models do not need to be "unnecessarily complex"
  - Re-evaluate the current primary drivers of loss
  - Likely more than one driver of expected losses exists for each portfolio
- How to communicate changes and forecast expectations:
  - Past due, Non-accrual, TDRs

Making the CECL Transition

Crowe Horwath

Crowe's CECL Framework

Risk Identification

Understanding portfolio characteristics and key drivers of portfolio performance, including lending attributes, loan structures, prepayment risks, and changes in the macroeconomic environment. This component will enable the bank to appropriately segment and model the portfolios based on common drivers of risk.

Governance and Oversight

Understanding risk management practices surrounding the development, execution, and maintenance of the CECL model. This includes established roles and responsibilities of the board and senior management, as well as policies and procedures in place to articulate the expectations of the CECL model and ongoing execution of the model.

Data Inventory

Understanding the availability and limitations of data required to develop and maintain an effective CECL model. This includes the reliability and accuracy of data elements in addition to the historical time horizon of data availability.

Enabling Technology

Understanding the existing systems, including the capabilities and limitations of those systems that may support the execution of the CECL model. This includes source systems, data warehouses, modeling systems, financial statement spreading software, and vendor technology specially designed for CECL.

Resource Capabilities

Understanding the capabilities and limitations of the human resources identified to develop and execute on the CECL model.

FS-16003-197 JW

Risk Identification

- Five categories of data to analyze
- Attributes and Characteristics:
  - Create a current data cut of the portfolio with relevant product codes, term, structure, etc.
    - Basic financial types
    - Collateral
    - Credit score / rating
    - Loan purpose
    - Size
    - Geography
    - Age
    - Effective interest rate
    - Borrower's industry
    - Vintage (economic condition and underwriting standards at the time of origination)

Risk Identification

- Structures:
  - Amortization schedule
  - Stated maturity
  - Repayment
  - Could pose a challenge in a commercial portfolio due to customized features on credits
- Prepayment speeds:
  - Key – prepayments used in ALCO models might not be sufficient
    - Usually based on industrywide factors, not necessarily calibrated to unique portfolios
  - Will need to meet standard's new pooling characteristics (similar risk characteristics)

Risk Identification

- Macroeconomics:
  - Lookback vs. forward-looking projections
  - Map portfolio performance to key economic variables
  - What are the primary macroeconomic factors affecting losses historically?
  - Are there certain time periods (like the financial crisis) that may be studied?
  - Are there specific dates or data anomalies in the institutions loss history that may be irrelevant or isolated events to be normalized?

- Other policies and practices:
  - Changes to credit policies
  - Credit review systems
  - Loan servicing practices
  - What are the key policy issues and tracked exceptions?

Data Inventory

- Results of risk identification:
  - Based on the preliminary risk assessment and analysis of the portfolio, what data is collected today and what are the goals for long-term data capture?
  - How can current systems and processes be utilized?
  - What is the desired end-state and what are the priorities to get there?

- Assess current state of data inventory capabilities and consider ancillary sources of loan data:
  - Is there a data warehouse provided via the Core or report-writer software interface?
  - How frequently are credit quality indicators updated and how are these archived (if at all)?
    - Delinquency statistics and counters
    - FICO
    - Risk rating
    - Property values
    - Collateral codes

Data Inventory

- Assess current state of data inventory capabilities and consider ancillary sources of loan data (continued):
  - What information may be available to build historic life of loan datasets?
    - Does treasury management or lines of business maintain archives accounting and risk management aren't aware of?
    - How will those data points be validated and auditable?
  - Are there previous mergers and/or portfolio acquisitions to consider?
  - Is prepayment data important for consideration and is this tracked at a disaggregated basis?
  - Is original balance, date of origination, and charge-off/recovery information available for loss rate methods and vintage analysis?
  - Is draw activity on lines of credit or other non-cancellable commitments available?

Data Inventory

- Assess current state of data inventory capabilities and consider ancillary sources of loan data (continued):
  - What forecast data is available?
  - Is there data utilized for stress testing purposes that may be leveraged?
  - Is there data that is periodically updated and overwritten?
  - Is there origination data that is rarely refreshed?

- Key Point - Data availability may drive the models used upon implementation, but data can be captured over time to enhance or improve the model. Have an end goal in mind throughout the process.

Data Inventory

- Consider common data issues observed:
  - Amortization structures are often not easily displayed in data cuts.
  - Data purges occur upon loan charge-off in some systems, especially those without shadow ledgers.
  - Transition details on defaults and risk ratings are often not archived in the system.
  - Community banks do not regularly update consumer credit scores and/or data fields are over-written.
  - Collateral information is often in separate systems and appraisal dates may be missing or non-existent.
  - Product specific characteristics and manual overrides – example 5/1 ARM products manually maintained.

- Assess quality of the data inventoried to date:
  - Scrub portfolio for anomalies and data quality issues for example:
    - Missing fields
    - Unusual rates, balances, and terms at the cohort level
    - Undefined collateral and loan type codes

Data Inventory

- Potential critical data elements
- Structural elements and identifiers:
  - Account or loan number
  - Loan type or purpose
  - Borrower/guarantor identities
  - Current balance
  - Commitment amount at origination
  - Origination balance
  - Origination date
  - Renewal date (if origination date not reset)
  - Maturity date
  - Interest rate and type (fixed, variable including frequency)
  - Payment type (P&I, balloon, I/O, etc.)
  - Lien position and additional debt secured by property
  - Prepayment activity or support for "life of loan" assumptions

Data Inventory

- Common risk identifiers:
  - Risk rating
  - Date of risk rating change(s)
  - NAICS or SIC code
  - Location of borrower (city/state/zip)
  - Location of collateral
  - Property type or other collateral type
  - Appraised values and dates for collateral
  - Collateral coverage (LTV) at origination
  - Current LTV
  - DSCR/Debt to income ratios
  - Net operating income ratio on commercial
  - Capitalization rate on income producing real estate
  - Occupancy rates
  - Delinquency counts
  - Current days delinquent

Data Inventory

- Common methodology data elements:
  - Charge-off and recovery amounts by date and instrument
  - Periodic segment balances (if using a loss rate method)
  - Default and cure date (must define these triggers)
  - Default reason
  - Amount outstanding at default

- Macroeconomic data:
  - Baseline domestic macroeconomic variables provided for CCAR and DFAST purposes
    - http://www.occ.gov/tools-forms/forms/bank-operations/stress-test-reporting.html
  - Augmented by local indices
    - FDIC and FRED data
      - https://www.fdic.gov/bank/analytical/stateprofile/
      - https://fred.stlouisfed.org/

CECL Risk Identification: Commercial Loans (Example Data)

CRE – Owner Occupied (“OO”): Structure

1.3bn
Total Current Balance

1,104
Active Loan Count

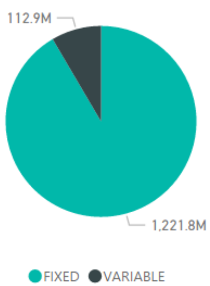
5.10 %
WA Current Rate

3.01
WA Risk

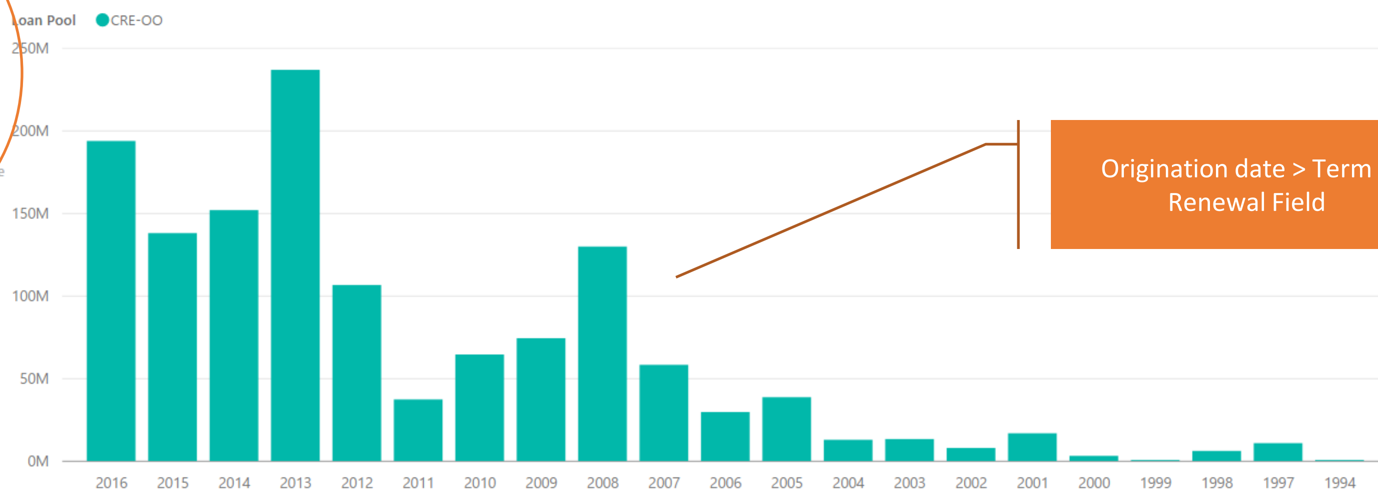
4.56
WA Term

$1,208,975
Avg. Current Balance

Fixed/Variable

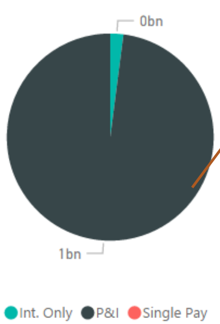


Vintage



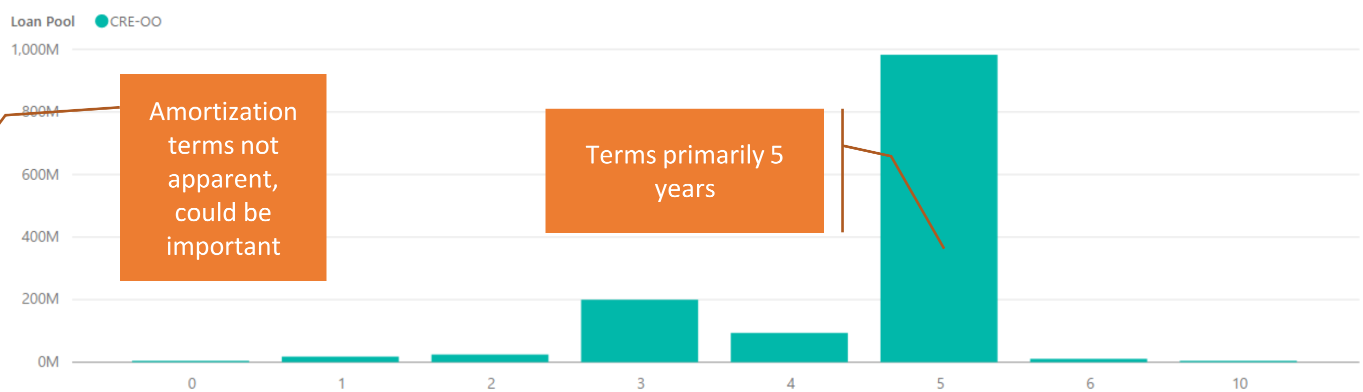
Origination date > Term = Renewal Field

Payment Type



Amortization terms not apparent, could be important

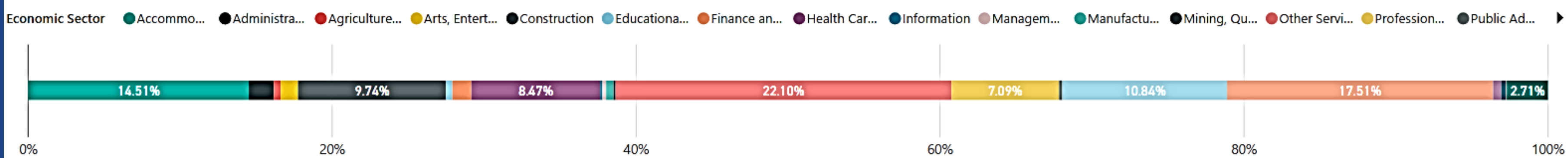
Term (Years)



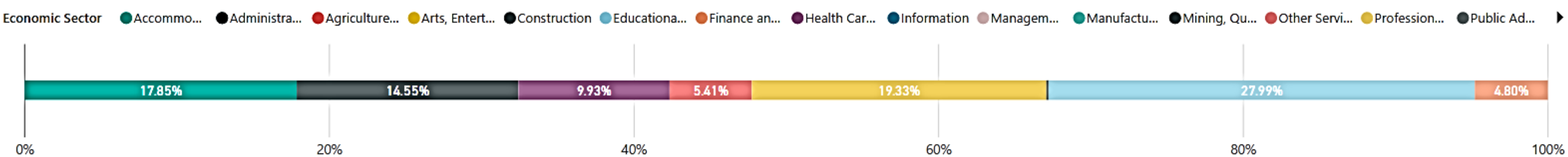
Terms primarily 5 years

CRE – OO: Economic Sector and Collateral

Origination Balance



Net Charge Offs

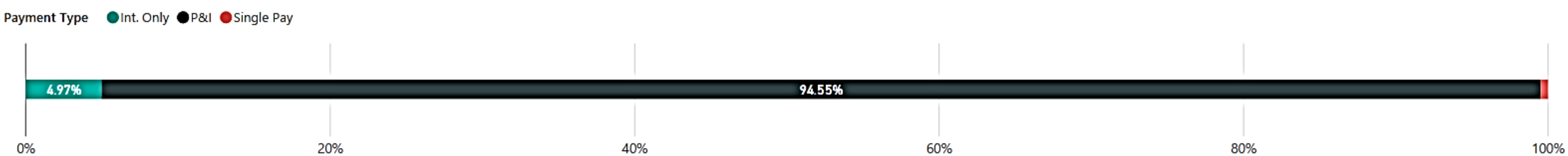


Economic Sector	Origination Balance	%GT Origination Balance	Net Charge Off $	%GT Net Charge Off $	Net CO vs. Orig.	Active Current Balance	Active Loan Count
Other Services (except Public Administration)	574,608,346	22.10%	2,388,809	5.41%	-16.69 %	357,688,102	248
Accommodation and Food Services	377,457,794	14.51%	7,889,529	17.85%	3.34 %	201,758,847	116
Retail Trade	455,248,260	17.51%	2,120,758	4.80%	-12.71 %	165,275,016	144
Real Estate and Rental and Leasing	281,954,231	10.84%	12,367,859	27.99%	17.15 %	122,262,807	100
Health Care and Social Assistance	220,296,917	8.47%	4,386,248	9.93%	1.45 %	118,478,232	96
Construction	253,404,975	9.74%	6,431,782	14.55%	4.81 %	108,524,496	108
Professional, Scientific, and Technical Services	184,320,563	7.09%	8,544,047	19.33%	12.25 %	79,396,260	104
Wholesale Trade	70,495,746	2.71%	0	0.00%	-2.71 %	58,934,064	28
Administrative and Support and Waste Management and Remediation Services	42,979,014	1.65%	0	0.00%	-1.65 %	33,178,269	36
Finance and Insurance	32,537,084	1.25%	0	0.00%	-1.25 %	21,677,908	20
Arts, Entertainment, and Recreation	29,443,465	1.13%	0	0.00%	-1.13 %	13,308,074	16
Transportation and Warehousing	14,076,025	0.54%	0	0.00%	-0.54 %	13,142,410	[illegible]
Educational Services	10,727,843	0.41%	0	0.00%	-0.41 %	11,912,059	[illegible]
Manufacturing	12,764,374	0.49%	0	0.00%	-0.49 %	9,674,464	[illegible]
Undefined	7,796,818	0.30%	0	0.00%	-0.30 %	6,365,220	[illegible]
Agriculture, Forestry, Fishing and Hunting	11,759,050	0.45%	0	0.00%	-0.45 %	5,152,583	[illegible]
Management of Companies and Enterprises	6,179,297	0.24%	0	0.00%	-0.24 %	4,294,581	[illegible]
Mining, Quarrying, and Oil and Gas Extraction	3,511,613	0.14%	0	0.00%	-0.14 %	1,974,931	4
Utilities	1,463,722	0.06%	0	0.00%	-0.06 %	1,151,702	8
Public Administration	5,406,193	0.21%	62,102	0.14%	-0.07 %	557,842	4
Information	4,111,305	0.16%	0	0.00%	-0.16 %	0	
Total	**2,600,542,634**	**100.00%**	**44,191,135**	**100.00%**	**0.00 %**	**1,334,707,867**	**1,104**

Higher losses relative to originations

CRE – OO: Structure

Origination Balance



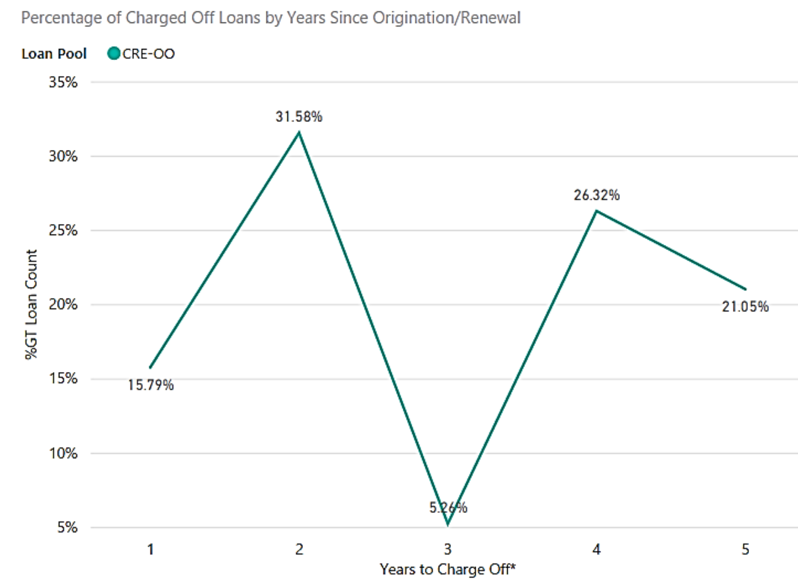
Net Charge Offs

Payment Type	Origination Balance	%GT Origination Balance	Net Charge Off $	%GT Net Charge Off $	Net CO vs. Orig.	Active Current Balance	Active Loan Count
P&I	2,458,860,196	94.55%	32,299,348	73.09%	-21.46 %	1,303,219,256	1,052
Int. Only	129,306,893	4.97%	11,891,787	26.91%	21.94 %	27,260,563	48
Single Pay	12,375,546	0.48%	0	0.00%	-0.48 %	4,228,048	4
Total	**2,600,542,634**	**100.00%**	**44,191,135**	**100.00%**	**0.00 %**	**1,334,707,867**	**1,104**

Higher losses relative to originations

CRE – OO: Risk Identification Example

- Risk characteristics identified:
  - Risk rating overwritten in data warehouse
  - Payment structure – interest only loans represent a small portion of the loans (~5%), but account for over 27% of the losses in the pool example
  - LTV exceptions – loans originated with an LTV exception have experienced higher losses than loans originated without an exception, relative to the originated balances.
  - Loan policy exceptions could be used to further segment the loan portfolio, or policy exception tracking could be used as a qualitative adjustment factor.



Loss History:

- 5 years of loss history would match the loan terms and the timing of defaults outlined above.

CECL Risk Identification: Retail Loans (Example Data)

Mort. 1-4 (1st): Structure

1.2bn
Total Current Balance

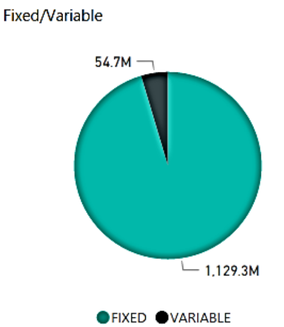
3,090
Active Loan Count

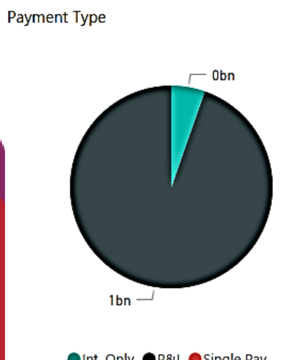
5.23 %
WA Current Rate

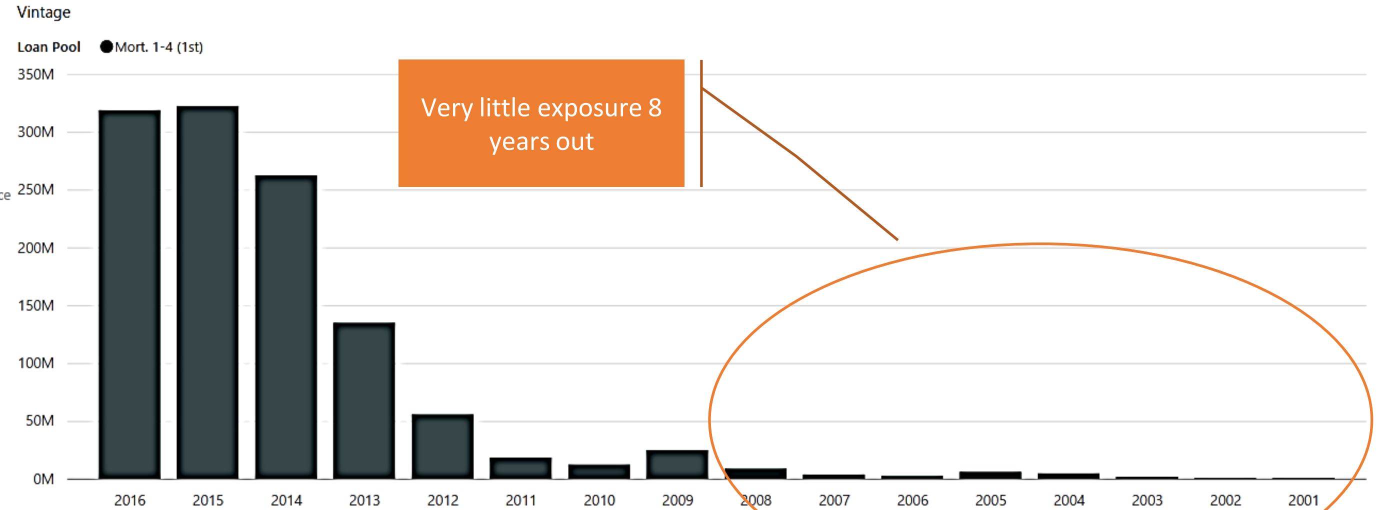
3.00
WA Risk

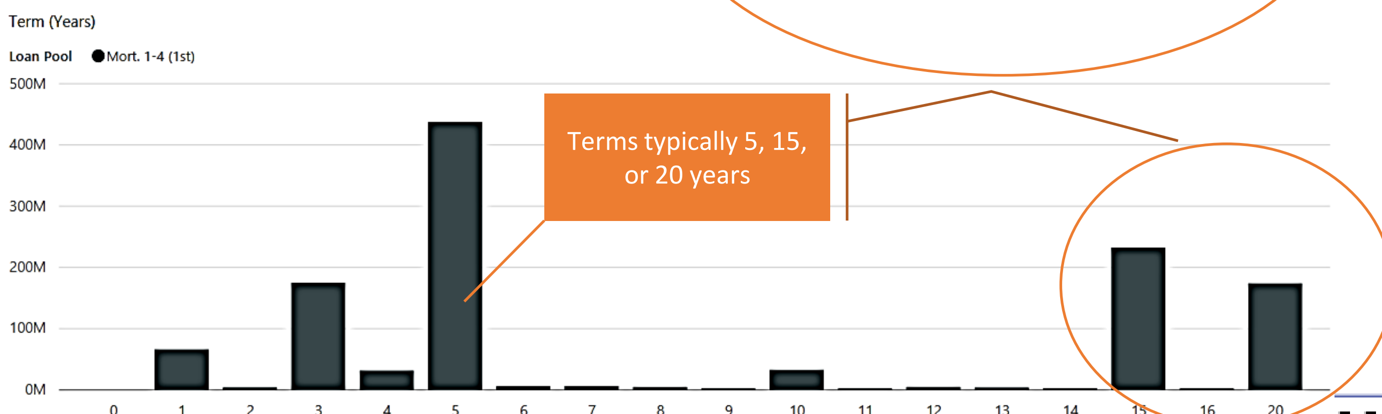
8.90
WA Term

$383,160
Avg. Current Balance



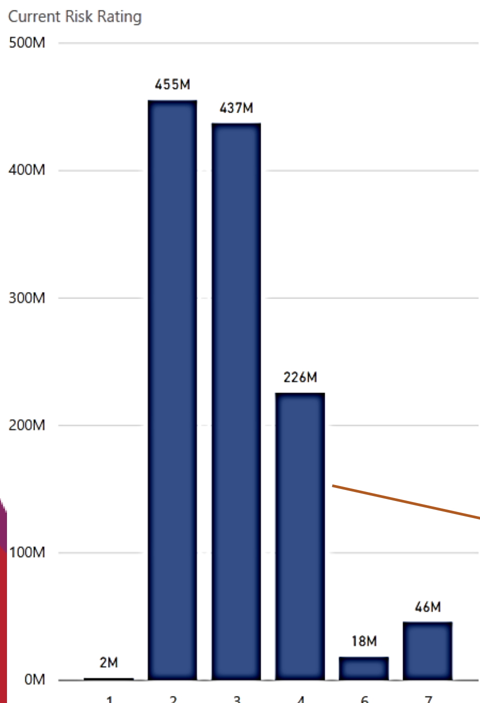




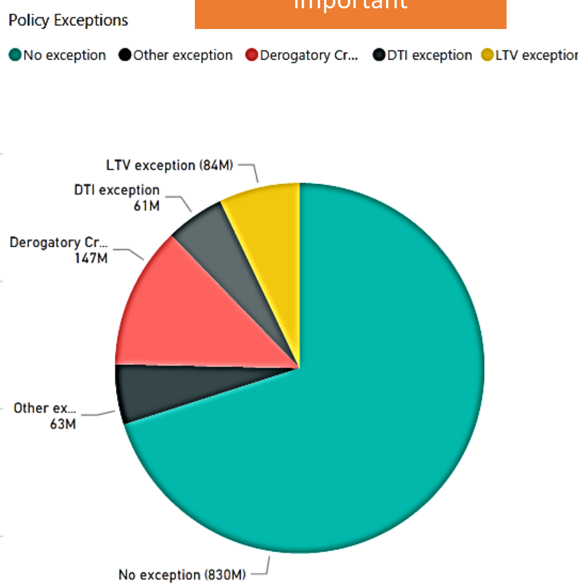


Mort. 1-4 (1st): Credit Characteristics

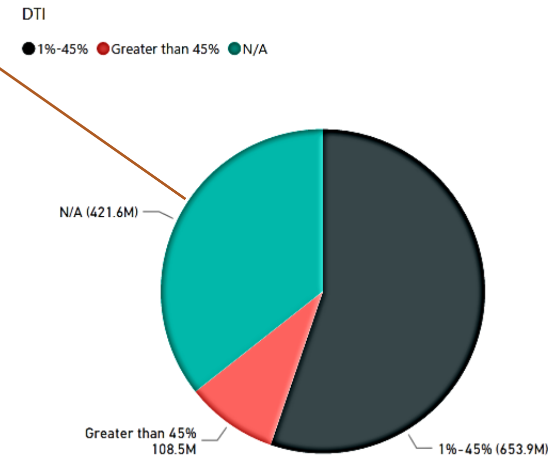
1.2bn Total Current Balance	5.23 % WA Current Rate
3,090 Active Loan Count	3.00 WA Risk
	8.90 WA Term
	$383,160 Avg. Current Balance

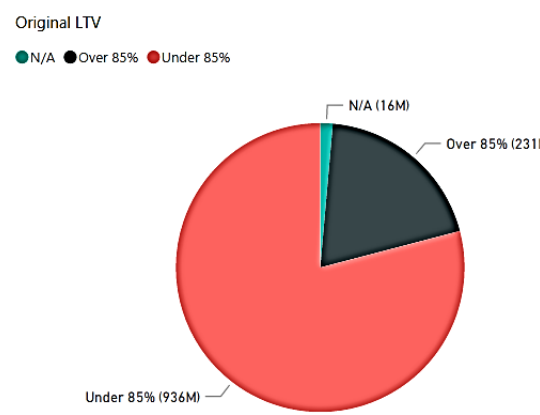


Not archived, continually overwritten, but generally deemed irrelevant



Debt-to-income not captured, yet deemed important

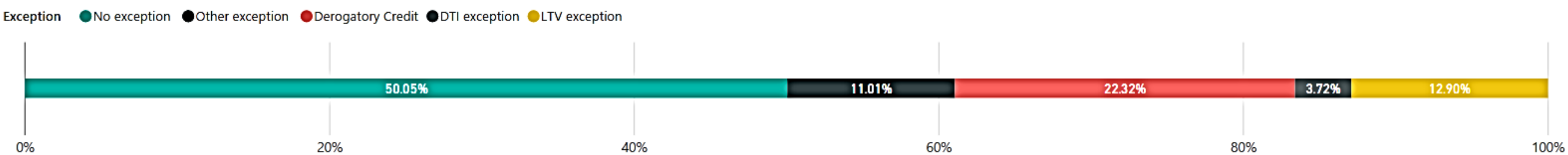




Mort. 1-4 (1st): Credit Characteristics

Origination Balance

Net Charge Offs



Exception	Origination Balance	%GT Origination Balance	Net Charge Off $	%GT Net Charge Off $	Net CO vs. Orig.	Active Current Balance	Active Loan Count
No exception	1,797,032,452	70.05%	26,976,160	50.05%	-20.00 %	829,570,103	2,252
Derogatory Credit	285,608,340	11.13%	12,029,324	22.32%	11.18 %	146,674,769	386
LTV exception	210,984,794	8.22%	6,954,793	12.90%	4.68 %	83,847,701	168
Other exception	142,667,532	5.56%	5,936,502	11.01%	5.45 %	62,530,439	162
DTI exception	129,117,393	5.03%	2,003,697	3.72%	-1.32 %	61,342,208	122
Total	**2,565,410,511**	**100.00%**	**53,900,477**	**100.00%**	**0.00 %**	**1,183,965,220**	**3,090**

Higher losses relative to originations

Crowe Horwath.

#FMS Forum

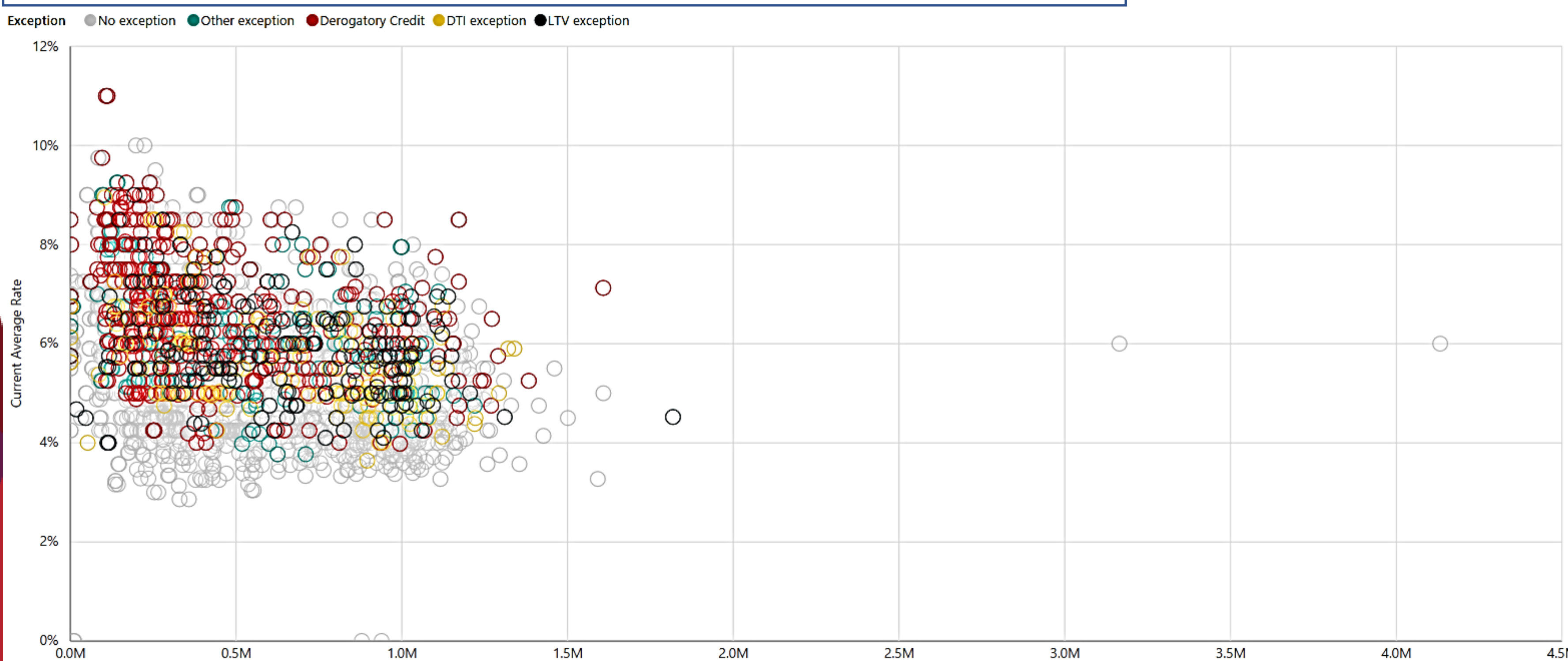
THE FMS FORUM 2017

Mort. 1-4 (1st): Credit Characteristics

Is 90bps premium on pricing acceptable for derogatory credit given loss history?

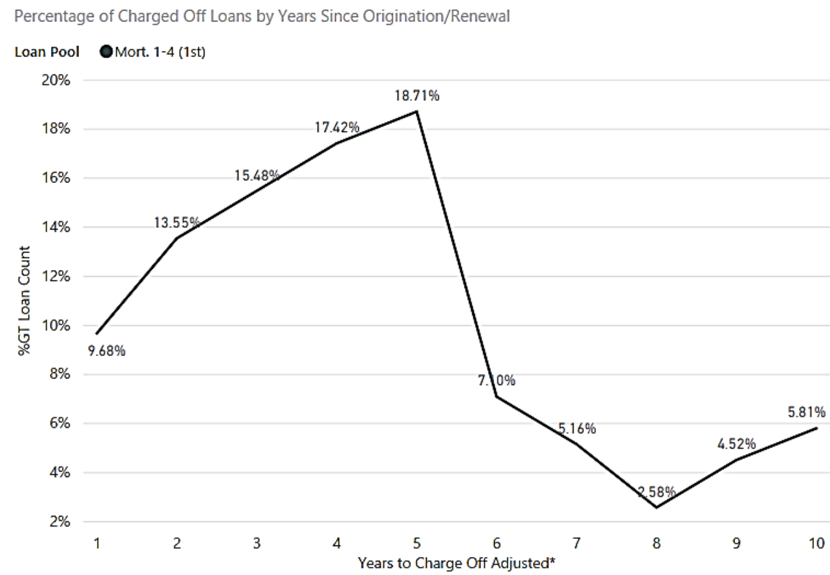
All Loans	Loans with No Exception	Derogatory Credit Policy Exceptions	LTV Policy Exceptions	DTI Policy Exceptions	Other Policy Exceptions
5.56 % WA Rate (Origination)	5.39 % WA Rate (Origination)	6.30 % WA Rate (Origination)	5.80 % WA Rate (Origination)	5.45 % WA Rate (Origination)	5.94 % WA Rate (Origination)
968,445 Avg. Origination Balance	943,324 Avg. Origination Balance	884,236 Avg. Origination Balance	1,241,087 Avg. Origination Balance	1,206,705 Avg. Origination Balance	990,747 Avg. Origination Balance
2,649 Loan Count	1,905 Loan Count	323 Loan Count	170 Loan Count	107 Loan Count	144 Loan Count

Origination Balance and Rate by Loan (Including Closed and Charged Off Loans)



Mort. 1-4 (1st): Risk Identification Summary

- Risk characteristics identified:
  - FICO, DTI, and LTV – These attributes are considered important at origination, however, not consistently archived or not archived at all.
    - No FICO or LTV updates occur past origination.
  - Origination exceptions - loans originated with a policy exception at origination have experienced higher losses than loans originated without an exception, relative to the originated balances.
    - Loan policy exceptions could be used to further segment the loan portfolio, or policy exception tracking could be used as a qualitative adjustment factor.
  - Collateral type – loans with a residence other than “Primary” as the collateral account for higher losses relative to originated balances.
  - Payment structure – interest only and single pay loans represent a small portion of the loans (~10% in example), but in total account for approximately 34% in this example of the losses in the pool



Loss History:

- While terms for 1-4 family 1st lien mortgage loans are generally 15 or 20 years, 80+% of c/o’s have occurred in the first 6 years after origination or renewal, as shown above. The Bank would need to either estimate losses past 6 years, or establish a qualitative factor for the estimated remaining loss by studying historical patterns.

- Disclosure Data Points

Crowe Horwath.

Disclosures

- Carries forward many existing disclosures
- A description and discussion of factors that influenced management's estimate, including reasonable and supportable forecasts about the future.
  - The factors that influenced management's current expected credit losses, the changes in those factors, and the reasons for those changes
  - The method applied to revert to historical credit loss experience
  - We are finding institutions need many more data points to 'paint the picture' of:
    - Historic credit performance and how that fits,
    - Monitor and assess changes over longer periods of time, and
    - How forecasts play out compared to actual results.
  - Public companies, expect more robust MD&A
  - All companies, expect more for board/committee reporting.
- Vintage disclosures
  - A disaggregation of the credit-quality indicators, for all classes of financing receivables and major security type and net investment in leases, that are disclosed under current GAAP, by year of the asset's origination (that is, vintage year):
  - Excludes reinsurance receivables and funded or unfunded amounts of line-of-credit arrangements, such as credit cards)
  - Practical expedients
    - Non-SEC filer PBEs can elect a practical expedient in transition
      - Disclose only three years in the year of adoption and four years in the year after adoption.
      - Full five-year disclosure requirement in years thereafter.
    - For all other entities the vintage disclosures will be optional; therefore, those entities may elect not to make those disclosures.

Example Disclosure of Credit Quality Indicators

ASC 326-20-55-79 Example 15 also includes Commercial

	Term Loans Amortized Cost Basis by Origination Year						Revolving Loans Amortized Cost Basis	
As of December 31, 20X5	20X5	20X4	20X3	20X2	20X1	Prior		Total
Residential mortgage:								
Risk rating:								
1–2 internal grade	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3–4 internal grade	-	-	-	-	-	-	-	-
5 internal grade	-	-	-	-	-	-	-	-
6 internal grade	-	-	-	-	-	-	-	-
7 internal grade	-	-	-	-	-	-	-	-
Total residential mortgage loans	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Residential mortgage loans:								
Current-period gross writeoffs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Current-period recoveries	-	-	-	-	-	-	-	-
Current-period net writeoffs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Consumer:								
Risk rating:								
1–2 internal grade	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3–4 internal grade	-	-	-	-	-	-	-	-
5 internal grade	-	-	-	-	-	-	-	-
6 internal grade	-	-	-	-	-	-	-	-
7 internal grade	-	-	-	-	-	-	-	-
Total consumer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Consumer loans:								
Current-period gross writeoffs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Current-period recoveries	-	-	-	-	-	-	-	-
Current-period net writeoffs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Questions???

Crowe Horwath.